

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

EPAS ID: PAT3751605

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	SECURITY INTEREST
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
VERITAS US IP HOLDINGS LLC	01/29/2016
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	BANK OF AMERICA, N.A., AS COLLATERAL AGENT
<b>Street Address:</b>	900 WEST TRADE STREET
<b>City:</b>	CHARLOTTE
<b>State/Country:</b>	NORTH CAROLINA
<b>Postal Code:</b>	28255-0001
<b>PROPERTY NUMBERS Total: 1834</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	14870390
Application Number:	14870920
Application Number:	14870956
Application Number:	14871037
Application Number:	14873131
Application Number:	14873139
Application Number:	14874173
Application Number:	14874669
Application Number:	14878821
Application Number:	14882955
Application Number:	14883031
Application Number:	14931886
Application Number:	14935836
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Application Number:	14938879
Application Number:	14939574
Application Number:	14941527
Application Number:	14945309
Application Number:	14945310
Application Number:	14946407

PATENT

Property Type	Number
Application Number:	14949934
Application Number:	14952831
Application Number:	14953802
Application Number:	14954440
Application Number:	62234779
Application Number:	62234786
Application Number:	14483133
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Application Number:	11091301
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Application Number:	11190793
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Application Number:	11473813
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Application Number:	12131673
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Application Number:	12211767
Application Number:	12241898
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Application Number:	12246244
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Application Number:	12407237
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Application Number:	13327397
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Application Number:	13743156
Application Number:	13743904
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Application Number:	13761496
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Application Number:	13763910
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Application Number:	13838218
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Application Number:	13870410
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Application Number:	13892449
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Application Number:	13917761
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Application Number:	13919038
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Application Number:	14022225
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Application Number:	14025796
Application Number:	14026980
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Application Number:	14039751
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Application Number:	14040922
Application Number:	14041608
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Application Number:	14191362
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Application Number:	14198760
Application Number:	14199158
Application Number:	14199240
Application Number:	14199339
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Application Number:	14283776
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Application Number:	14300618
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Application Number:	14318988
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Application Number:	14562038
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Application Number:	14107627
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Patent Number:	9195528
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Patent Number:	9178754
Patent Number:	9164687
Patent Number:	9213578
Patent Number:	9213618
Patent Number:	9183094
Patent Number:	9218256
Patent Number:	9183127
Patent Number:	9183200
Patent Number:	9177177
Patent Number:	9183205
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Property Type	Number
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Patent Number:	D745875
Patent Number:	D744518
Patent Number:	5491808
Patent Number:	5367658
Patent Number:	5675769
Patent Number:	5907672
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Patent Number:	5812753
Patent Number:	5778395
Patent Number:	5815648
Patent Number:	5778430
Patent Number:	5781722
Patent Number:	5852724
Patent Number:	5832515
Patent Number:	5996054
Patent Number:	6487644
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Patent Number:	6178487
Patent Number:	6012057
Patent Number:	6023712
Patent Number:	6108759
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Patent Number:	6088778
Patent Number:	6185575
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Patent Number:	6205558
Patent Number:	6145012
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Patent Number:	6330653
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Patent Number:	6305010
Patent Number:	6453383
Patent Number:	6185666
Patent Number:	6530077
Patent Number:	6631480
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Property Type	Number
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Patent Number:	6895400
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Patent Number:	6848106
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Patent Number:	7027412
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Property Type	Number
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Property Type	Number
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Patent Number:	7360110

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Property Type	Number
Patent Number:	8850132
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Patent Number:	7337288
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Patent Number:	7523277
Patent Number:	7694088
Patent Number:	7461230
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Patent Number:	8099627
Patent Number:	7529744
Patent Number:	7672979

Property Type	Number
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Patent Number:	7743028
Patent Number:	7398365
Patent Number:	7480822
Patent Number:	7664849
Patent Number:	8326990
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Patent Number:	7685385
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Patent Number:	8639660
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Patent Number:	7318138
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Patent Number:	7636736
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Patent Number:	7673130
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Patent Number:	7725882
Patent Number:	7823153

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Patent Number:	7096332
Patent Number:	7930684
Patent Number:	7805717
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Patent Number:	7506151
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Patent Number:	7831686
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Patent Number:	7571306
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Patent Number:	7930583
Patent Number:	7680843
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Patent Number:	7634497
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Patent Number:	7383407
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Patent Number:	8150810
Patent Number:	7689859
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Patent Number:	8510389
Patent Number:	7822933
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Patent Number:	7743226
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Patent Number:	7716667
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Patent Number:	8352692
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Patent Number:	8279869
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Patent Number:	7941621

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Patent Number:	7673169
Patent Number:	7831981
Patent Number:	7895424
Patent Number:	7734887
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Patent Number:	8726299
Patent Number:	8578339
Patent Number:	8019727

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Patent Number:	8082406
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Patent Number:	7925856
Patent Number:	8095488
Patent Number:	8103747
Patent Number:	7912866
Patent Number:	7831861
Patent Number:	8943281
Patent Number:	7885938
Patent Number:	7917592
Patent Number:	8112664
Patent Number:	8438347
Patent Number:	8185684
Patent Number:	8635429
Patent Number:	8433863
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Patent Number:	8037145
Patent Number:	9064132
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Patent Number:	8041679

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Patent Number:	8578373
Patent Number:	8326804
Patent Number:	8244681
Patent Number:	8365241
Patent Number:	7979649
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Patent Number:	8499129
Patent Number:	8302162
Patent Number:	8577845
Patent Number:	8234246
Patent Number:	8024432
Patent Number:	8332690
Patent Number:	8108446
Patent Number:	7822827
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Patent Number:	8572055
Patent Number:	8229896
Patent Number:	8433864
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Patent Number:	8046329
Patent Number:	8516121
Patent Number:	8291403
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Patent Number:	8041907
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Patent Number:	7886183
Patent Number:	8615495
Patent Number:	8239348
Patent Number:	8495316

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Patent Number:	7941709
Patent Number:	7827439
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Patent Number:	8327028
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Patent Number:	8214878
Patent Number:	8521757
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Patent Number:	7814149
Patent Number:	8200637
Patent Number:	8756656
Patent Number:	8195612
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Patent Number:	8060474
Patent Number:	8244676
Patent Number:	8424007
Patent Number:	8332570
Patent Number:	8380951
Patent Number:	8732417
Patent Number:	8484737
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Patent Number:	8707299
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Patent Number:	8315992
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Patent Number:	8621165
Patent Number:	8244998
Patent Number:	8140804
Patent Number:	8161180
Patent Number:	8315985
Patent Number:	7921086

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Patent Number:	7941697
Patent Number:	8639808
Patent Number:	8489721
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Patent Number:	8127166
Patent Number:	8180734
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Patent Number:	7831735
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Patent Number:	8832044
Patent Number:	8504785
Patent Number:	8209290
Patent Number:	8224789
Patent Number:	7996708
Patent Number:	8903777
Patent Number:	8099391
Patent Number:	7996717
Patent Number:	8386438
Patent Number:	8255366
Patent Number:	8930539
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Patent Number:	8572758
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Patent Number:	8032637
Patent Number:	8612702
Patent Number:	8280853
Patent Number:	8229898
Patent Number:	8117168
Patent Number:	8140480



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Patent Number:	8375183
Patent Number:	9160610
Patent Number:	8065489
Patent Number:	8176338
Patent Number:	8479304
Patent Number:	8650162
Patent Number:	8065561
Patent Number:	8239402
Patent Number:	8812874
Patent Number:	8539179
Patent Number:	8166261
Patent Number:	8060715
Patent Number:	8407186
Patent Number:	8219528
Patent Number:	8019849
Patent Number:	8996826
Patent Number:	8918606
Patent Number:	8156301
Patent Number:	8200926
Patent Number:	8225317
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Patent Number:	8255365
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Patent Number:	8271443
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Patent Number:	8296599
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Patent Number:	8095572
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Patent Number:	8555009
Patent Number:	8572401
Patent Number:	8244914
Patent Number:	8275743
Patent Number:	8195688

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Patent Number:	8412824
Patent Number:	8972355
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Patent Number:	8352429
Patent Number:	8095828
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Patent Number:	8392479
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Patent Number:	8635318
Patent Number:	8370312
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Patent Number:	8001347
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Patent Number:	8874628
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Patent Number:	8707082
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Patent Number:	8635422
Patent Number:	8417907
Patent Number:	8046553

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Patent Number:	8762337
Patent Number:	9110919
Patent Number:	8732217
Patent Number:	8818961
Patent Number:	8458186
Patent Number:	8793222
Patent Number:	8311964
Patent Number:	8370306
Patent Number:	8458515
Patent Number:	8578119
Patent Number:	8825685
Patent Number:	8341370
Patent Number:	8380678
Patent Number:	8281093
Patent Number:	9165012
Patent Number:	8572337
Patent Number:	8484510
Patent Number:	8700726
Patent Number:	8060773
Patent Number:	8898663
Patent Number:	8132043
Patent Number:	8578124
Patent Number:	8839138
Patent Number:	9135268
Patent Number:	8464254
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Patent Number:	8452931
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Patent Number:	8401185
Patent Number:	8745002
Patent Number:	8132044
Patent Number:	8650157
Patent Number:	8762338

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Patent Number:	8352799
Patent Number:	8572338
Patent Number:	8225009
Patent Number:	8224778
Patent Number:	8688642
Patent Number:	8438360
Patent Number:	8627413
Patent Number:	9021556
Patent Number:	8281071
Patent Number:	8260752
Patent Number:	8316197
Patent Number:	8473463
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Patent Number:	8407301
Patent Number:	8266474
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Patent Number:	8108447
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Patent Number:	8825602
Patent Number:	8392437
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Patent Number:	8700670
Patent Number:	8230189
Patent Number:	8639658
Patent Number:	8402216

Property Type	Number
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Property Type	Number
Patent Number:	8595454
Patent Number:	8495392
Patent Number:	8392376
Patent Number:	8386717
Patent Number:	9037547
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Patent Number:	9128948
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Patent Number:	8775751
Patent Number:	8495323
Patent Number:	8438277

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Patent Number:	8966188
Patent Number:	8595271
Patent Number:	9015417
Patent Number:	8799222
Patent Number:	8910172
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Property Type	Number
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Patent Number:	8812442
Patent Number:	8307176
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Property Type	Number
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Patent Number:	8990164
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Patent Number:	9104339
Patent Number:	8966318
Patent Number:	8768901
Patent Number:	8433689
Patent Number:	8443159
Patent Number:	9058327
Patent Number:	8489552
Patent Number:	8429364
Patent Number:	8464092

Property Type	Number
Patent Number:	8984097
Patent Number:	9122711
Patent Number:	8984325
Patent Number:	8498966
Patent Number:	8924375
Patent Number:	8464097
Patent Number:	8910160
Patent Number:	8918673
Patent Number:	8935563
Patent Number:	9135191
Patent Number:	8886605
Patent Number:	8805849
Patent Number:	8769226
Patent Number:	9031908
Patent Number:	9037821
Patent Number:	8868870
Patent Number:	8935695
Patent Number:	8738585
Patent Number:	8712971
Patent Number:	8417671
Patent Number:	8595456
Patent Number:	8775377
Patent Number:	8938420
Patent Number:	8615494
Patent Number:	8850146
Patent Number:	8990608
Patent Number:	8990817
Patent Number:	9047108
Patent Number:	8819370
Patent Number:	8874508
Patent Number:	8914345
Patent Number:	9047302
Patent Number:	9053100
Patent Number:	8954780
Patent Number:	9020896
Patent Number:	8874954
Patent Number:	9143435
Patent Number:	8949653

Property Type	Number
Patent Number:	9146790
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Patent Number:	9052935
Patent Number:	8924358
Patent Number:	8930762
Patent Number:	8788536
Patent Number:	8838542
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Patent Number:	8954398
Patent Number:	9152638
Patent Number:	9146868
Patent Number:	9009706
Patent Number:	8832492
Patent Number:	9002798
Patent Number:	8898115
Patent Number:	8782013
Patent Number:	9128940
Patent Number:	8769334
Patent Number:	9021204
Patent Number:	9124534
Patent Number:	8805888
Patent Number:	9152703
Patent Number:	8782011
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Patent Number:	9075771
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Patent Number:	9135257
Patent Number:	8918536
Patent Number:	9158631
Patent Number:	8959060

Property Type	Number
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Patent Number:	5481701
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Patent Number:	D735730
Patent Number:	D732068
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PCT Number:	US2015028669
PCT Number:	US2014017655
PCT Number:	US2005031007
PCT Number:	US2010060566
PCT Number:	US2009057815
PCT Number:	US2011049734
PCT Number:	US2012023320
PCT Number:	US2013067806
PCT Number:	US2014028614
PCT Number:	US2015057429
PCT Number:	US2015059744

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**Address Line 4:** NEW YORK, NEW YORK 10017



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**PATENT SECURITY AGREEMENT**

This **PATENT SECURITY AGREEMENT** (as amended, amended and restated, supplemented or otherwise modified from time to time, the “Patent Security Agreement”) dated January 29, 2016, is between VERITAS US IP HOLDINGS LLC (the “Grantor”) and Bank of America, N.A., as collateral agent (the “Collateral Agent”) for the Secured Parties (as defined in the Credit Agreement referred to below).

Reference is made to (i) the Credit Agreement dated as of January 29, 2016 (as it may hereafter be amended, amended and restated, supplemented, replaced, refinanced or otherwise modified from time to time) among VERITAS BERMUDA LTD., a Bermuda exempted company (the “Bermuda Borrower”), VERITAS US INC., a corporation organized under the laws of Delaware (the “U.S. Borrower” and, together with the Bermuda Borrower, the “Borrowers”), VERITAS BERMUDA INTERMEDIATE HOLDINGS LTD., a Bermuda exempted company (“Holdings”), BANK OF AMERICA, N.A., as Administrative Agent, Collateral Agent, Swing Line Lender and L/C Issuer, and the other parties party thereto and (ii) the Security Agreement dated January 29, 2016 (as amended, amended and restated, supplemented or otherwise modified from time to time, the “Security Agreement”), between the Grantor, among others, and the Collateral Agent. Capitalized terms defined in the Credit Agreement or the Security Agreement and not otherwise defined herein are used herein as defined in the Credit Agreement or the Security Agreement (and in the event of a conflict, the applicable definition shall be the one given to such term in the Security Agreement).

WHEREAS, as a condition precedent to the making of the Loans by the Lenders from time to time and the issuance of Letters of Credit by the L/C Issuers from time to time, the entry into Secured Hedge Agreements by the Hedge Banks from time to time, the entry into Secured Bank Guarantees by the Guarantee Banks and the entry into Secured Cash Management Agreements by the Cash Management Banks from time to time, the Grantor has executed and delivered the Security Agreement.

WHEREAS, under the terms of the Security Agreement, the Grantor has granted to the Collateral Agent, for the benefit of the Secured Parties, a security interest in, among other property, certain intellectual property of the Grantor, and has agreed thereunder to execute this Patent Security Agreement for recording with the United States Patent and Trademark Office.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Grantor agrees as follows:

Section 1. Grant of Security. The Grantor hereby collaterally assigns and pledges to the Collateral Agent (and its successors and permitted assigns), for the benefit of the Secured Parties, and the Grantor hereby grants to the Collateral Agent (and its successors and permitted assigns), for the benefit of the Secured Parties, a security interest in all of the Grantor’s right, title and interest in and to the following, whether now owned or hereafter acquired by the undersigned (the “Collateral”):

- (i) all patents and patent applications including but not limited to those set forth in Schedule A hereto and all inventions claimed or disclosed therein and all improvements thereto (the “Patents”);
- (ii) all registrations and applications for registration for any of the foregoing, including, without limitation, those registrations and applications for registration set forth in Schedule A hereto, together with all reissues, divisions, continuations, continuations-in-part, extensions, renewals and reexaminations of any of the foregoing,

- (iii) all rights in the foregoing corresponding thereto throughout the world;
- (iv) all agreements granting to the Grantor, or pursuant to which the Grantor grants to any other Person rights in any of the foregoing (“IP Agreements”);
- (v) any and all claims for damages for past, present and future infringement, dilution, misappropriation, violation, misuse or breach with respect to any of the foregoing, with the right, but not the obligation, to sue for and collect, or otherwise recover, such damages; and
- (vi) any and all proceeds of, collateral for, income, royalties and other payments now or hereafter due and payable with respect to, and Supporting Obligations relating to, any and all of the foregoing or arising from any of the foregoing;

provided that notwithstanding anything to the contrary contained in the foregoing clauses (i) through (vi), the security interest created hereby shall not extend to, and the term “Collateral” shall not include, any Excluded Property.

Section 2. Security for Obligations. The grant of a security interest in, the Collateral by the Grantor under this Patent Security Agreement secures the payment of all Secured Obligations of the Grantor now or hereafter existing under or in respect of the Secured Documents (as such Secured Documents may be amended, amended and restated, supplemented, replaced, refinanced or otherwise modified from time to time (including any increases of the principal amount outstanding thereunder)), whether direct or indirect, absolute or contingent, and whether for principal, reimbursement obligations, interest, premiums, penalties, fees, indemnifications, contract causes of action, costs, expenses or otherwise. Without limiting the generality of the foregoing, this Patent Security Agreement secures, as to the Grantor, the payment of all amounts that constitute part of the Secured Obligations that would be owed by the Grantor to any Secured Party under the Secured Documents but for the fact that they are unenforceable or not allowable due to the existence of a bankruptcy, or reorganization or similar proceeding involving a Loan Party.

Section 3. Recordation. The Grantor authorizes and requests that the Commissioner of Patents record this Patent Security Agreement.

Section 4. Execution in Counterparts. This Patent Security Agreement may be executed in any number of counterparts, each of which when so executed shall be deemed to be an original and all of which taken together shall constitute one and the same agreement.

Section 5. Grants, Rights and Remedies. This Patent Security Agreement has been entered into in conjunction with the provisions of the Security Agreement. The Grantor does hereby acknowledge and confirm that the grant of the security interest hereunder to, and the rights and remedies of, the Collateral Agent with respect to the Collateral are more fully set forth in the Security Agreement, the terms and provisions of which are incorporated herein by reference as if fully set forth herein. In the event of any conflict between the terms of this Patent Security Agreement and the terms of the Security Agreement, the terms of the Security Agreement shall govern.

Section 6. Governing Law; Jurisdiction; Etc. (a) THIS PATENT SECURITY AGREEMENT AND ANY CLAIMS, CONTROVERSY, DISPUTE OR CAUSE OF ACTION (WHETHER IN CONTRACT OR TORT OR OTHERWISE) BASED UPON, ARISING OUT OF OR RELATING TO THIS PATENT SECURITY AGREEMENT AND THE TRANSACTIONS CONTEMPLATED HEREBY SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE LAW OF THE STATE OF NEW YORK.

(b) EACH PARTY HERETO IRREVOCABLY AND UNCONDITIONALLY SUBMITS, FOR ITSELF AND ITS PROPERTY, TO THE EXCLUSIVE JURISDICTION OF THE COURTS OF THE STATE OF NEW YORK SITTING IN NEW YORK CITY IN THE BOROUGH OF MANHATTAN AND OF THE UNITED STATES DISTRICT COURT FOR THE SOUTHERN DISTRICT OF NEW YORK SITTING IN THE BOROUGH OF MANHATTAN, AND ANY APPELLATE COURT FROM ANY THEREOF, IN ANY ACTION OR PROCEEDING ARISING OUT OF OR RELATING TO THIS PATENT SECURITY AGREEMENT, OR FOR RECOGNITION OR ENFORCEMENT OF ANY JUDGMENT, AND EACH OF THE PARTIES HERETO IRREVOCABLY AND UNCONDITIONALLY AGREES THAT ALL CLAIMS IN RESPECT OF ANY SUCH ACTION OR PROCEEDING MAY BE HEARD AND DETERMINED IN SUCH NEW YORK STATE COURT OR, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, IN SUCH FEDERAL COURT. EACH OF THE PARTIES HERETO AGREES THAT A FINAL JUDGMENT IN ANY SUCH ACTION OR PROCEEDING SHALL BE CONCLUSIVE AND MAY BE ENFORCED IN OTHER JURISDICTIONS BY SUIT ON THE JUDGMENT OR IN ANY OTHER MANNER PROVIDED BY LAW. NOTHING IN THIS PATENT SECURITY AGREEMENT SHALL AFFECT ANY RIGHT THAT THE ADMINISTRATIVE AGENT, THE COLLATERAL AGENT, ANY LENDER OR ANY L/C ISSUER MAY OTHERWISE HAVE TO BRING ANY ACTION OR PROCEEDING RELATING TO THIS PATENT SECURITY AGREEMENT OR THE RECOGNITION OR ENFORCEMENT OF ANY JUDGMENT AGAINST ANY LOAN PARTY OR ITS PROPERTIES IN THE COURTS OF ANY JURISDICTION.

(c) EACH PARTY HERETO IRREVOCABLY AND UNCONDITIONALLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY OBJECTION THAT IT MAY NOW OR HEREAFTER HAVE TO THE LAYING OF VENUE OF ANY ACTION OR PROCEEDING ARISING OUT OF OR RELATING TO THIS PATENT SECURITY AGREEMENT IN ANY COURT REFERRED TO IN PARAGRAPH (b) OF THIS SECTION. EACH OF THE PARTIES HERETO HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, THE DEFENSE OF AN INCONVENIENT FORUM TO THE MAINTENANCE OF SUCH ACTION OR PROCEEDING IN ANY SUCH COURT.

(d) EACH PARTY HERETO IRREVOCABLY CONSENTS TO SERVICE OF PROCESS IN THE MANNER PROVIDED FOR NOTICES IN SECTION 10.02 OF THE CREDIT AGREEMENT. NOTHING IN THIS PATENT SECURITY AGREEMENT WILL AFFECT THE RIGHT OF ANY PARTY HERETO TO SERVE PROCESS IN ANY OTHER MANNER PERMITTED BY APPLICABLE LAW.

(e) EACH PARTY TO THIS PATENT SECURITY AGREEMENT HEREBY EXPRESSLY WAIVES ANY RIGHT TO TRIAL BY JURY OF ANY CLAIM, DEMAND, ACTION OR CAUSE OF ACTION ARISING UNDER THIS PATENT SECURITY AGREEMENT OR IN ANY WAY CONNECTED WITH OR RELATED OR INCIDENTAL TO THE DEALINGS OF THE PARTIES HERETO OR ANY OF THEM WITH RESPECT TO THIS PATENT SECURITY AGREEMENT, OR THE TRANSACTIONS RELATED THERETO, IN EACH CASE WHETHER NOW EXISTING OR HEREAFTER ARISING, AND WHETHER FOUNDED IN CONTRACT OR TORT OR OTHERWISE; AND EACH PARTY HEREBY AGREES AND CONSENTS THAT ANY SUCH CLAIM, DEMAND, ACTION OR CAUSE OF ACTION SHALL BE DECIDED BY COURT TRIAL WITHOUT A JURY, AND THAT ANY PARTY TO THIS PATENT SECURITY AGREEMENT MAY FILE AN ORIGINAL COUNTERPART OR A COPY OF THIS SECTION 6(e) WITH ANY COURT AS WRITTEN EVIDENCE OF THE CONSENT OF THE SIGNATORIES HERETO TO THE WAIVER OF THEIR RIGHT TO TRIAL BY JURY.

IN WITNESS WHEREOF, the Grantor and the Collateral Agent have caused this Patent Security Agreement to be duly executed and delivered by its officer thereunto duly authorized as of the date first written above.

**VERITAS US IP HOLDINGS LLC, as Grantor**

By: 

Name: William T. Coleman, III

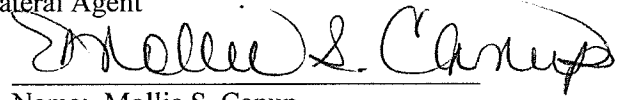
Title: President and Chief Executive Officer

[Signature Page to Patent Security Agreement]

**BANK OF AMERICA, N.A.**

as Collateral Agent

By:

A handwritten signature in cursive script, reading "Mollie S. Canup", written over a horizontal line.

Name: Mollie S. Canup

Title: Vice President

SCHEDULE A TO THE  
INTELLECTUAL PROPERTY  
SECURITY AGREEMENT

UNITED STATES PATENTS AND EXCLUSIVE LICENSES THEREOF

U.S. Pending Patent Applications

Title	App. No.	App. Date	Owner	Status
INPUT/OUTPUT FENCING OPTIMIZATION	14/870,390	30 Sep 2015	Veritas US IP Holdings LLC	Application
PREVENTING DATA CORRUPTION DUE TO PRE-EXISTING SPLIT BRAIN	14/870,920	30 Sep 2015	Veritas US IP Holdings LLC	Application
PARTITION ARBITRATION OPTIMIZATION	14/870,956	30 Sep 2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Virtual Machine Boot Disk Restoration	14/871,037	30 Sep 2015	Veritas US IP Holdings LLC	Application
I/O scheduling and load balancing across the multiple nodes of a clustered environment.	14/873,131	01 Oct 2015	Veritas US IP Holdings LLC	Application
I/O scheduling and load balancing across the multiple nodes of a clustered environment.	14/873,139	01 Oct 2015	Veritas US IP Holdings LLC	Application
Single Sign-On Method for Appliance Secure Shell	14/874,173	02 Oct 2015	Veritas US IP Holdings LLC	Application
Lazy Bare Metal Restore	14/874,669	05 Oct 2015	Veritas US IP Holdings LLC	Application
Modification Of Temporary File System For Booting On Target Hardware	14/878,821	08 Oct 2015	Veritas US IP Holdings LLC	Application



Title	App. No.	App. Date	Owner	Status
Auto detection of DR configuration for Virtual Machines and Applications	14/882,955	14 Oct 2015	Veritas US IP Holdings LLC	Application
Reducing the cost of managing and performing application disaster recovery rehearsals with vendor agnostic storage & replication stacks	14/883,031	14 Oct 2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Accelerating Access to Data	14/931,886	04 Nov 2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Coordinating Data Caching on Virtual Storage Appliances	14/935,836	09 Nov 2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Generating Full Backups of Applications	14/936,705	10 Nov 2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Improving the Efficiency of Point-in-Time Representations of Databases	14/938,879	12 Nov 2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Shipping I/O Operations to Prevent Replication Failure	14/939,574	12 Nov 2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Identifying Potential Risky Data Users Within Organizations	14/941,527	13 Nov 2015	Veritas US IP Holdings LLC	Application
Two level QoS scheduling for latency and queue depth control	14/945,309	18 Nov 2015	Veritas US IP Holdings LLC	Application
Policy and Heuristic based conversion of "Write friendly" of virtual disk format into "read friendly" format.	14/945,310	18 Nov 2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Protecting Sensitive Data Against Data Loss	14/946,407	19 Nov 2015	Veritas US IP Holdings LLC	Application

Title	App. No.	App. Date	Owner	Status
Systems and Methods for Performing Efficient Duplications in Hybrid Duplication Environments	14/949,934	24 Nov 2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Taking Snapshots in a Deduplicated Virtual File System	14/952,831	25 Nov 2015	Veritas US IP Holdings LLC	Application
Approximate Backup System	14/953,802	30 Nov 2015	Veritas US IP Holdings LLC	Application
A method to achieve single click live rehearsal of multi tier applications and virtual machines in a cloud environment using an isolated network	14/954,440	30 Nov 2015	Veritas US IP Holdings LLC	Application
Auto detection of DR configuration for Virtual Machines and Applications	62/234,779	30 Sep 2015	Veritas US IP Holdings LLC	Application
Reducing the cost of managing and performing application disaster recovery rehearsals with vendor agnostic storage & replication stacks	62/234,786	30 Sep 2015	Veritas US IP Holdings LLC	Application
Systems And Methods For Aggregating Information-Asset Metadata From Multiple Disparate Data-Management Systems	14/483,133	10 Sep 2014	Veritas US IP Holdings LLC	Published
Server-Side Storage Area Network Management Interface	10/243,800	9/13/2002	Veritas US IP Holdings LLC	Application
File System History Log	10/331,051	12/27/2002	Veritas US IP Holdings LLC	Application
Backup Application for Performing Document-level Backup of a Document Management Database	10/699,424	10/31/2003	Veritas US IP Holdings LLC	Application
Performance of Operations on Selected Data in a	10/742,128	19 Dec 2003	Veritas US IP	Published

<b>Title</b>	<b>App. No.</b>	<b>App. Date</b>	<b>Owner</b>	<b>Status</b>
Storage Area			Holdings LLC	
Method and Apparatus for Application Performance Tuning	10/868,101	6/15/2004	Veritas US IP Holdings LLC	Application
Separate Logging of File System Data and Metadata	10/999,882	11/30/2004	Veritas US IP Holdings LLC	Application
Class-enabled System for Localized Management of Virtualized Disk Volume Through Quotas	11/003,997	12/3/2004	Veritas US IP Holdings LLC	Application
Workflow Process with Temporary Storage Resource Reservation	11/018,957	12/21/2004	Veritas US IP Holdings LLC	Application
Intelligent Backup Conversion	11/026,851	12/30/2004	Veritas US IP Holdings LLC	Application
Method and System for Replicating Data Using a Storage Network Switching Device	11/028,441	12/31/2004	Veritas US IP Holdings LLC	Application
Version Management	11/058,587	2/15/2005	Veritas US IP Holdings LLC	Application
Universal Placeholders	11/058,603	2/15/2005	Veritas US IP Holdings LLC	Application
Provide an Ownership/Authorization View of Backed up Data Using the SRM (Security Reference Monitor) in a Windows Platform	11/063,356	2/23/2005	Veritas US IP Holdings LLC	Application
System and Method for Maintaining a File Change Log Within a Distributed File System	11/064,152	2/23/2005	Veritas US IP Holdings LLC	Application
Catalog-driven Backups	11/091,301	3/28/2005	Veritas US IP	Application

<b>Title</b>	<b>App. No.</b>	<b>App. Date</b>	<b>Owner</b>	<b>Status</b>
			Holdings LLC	
Method and Apparatus for Replicating a Computer	11/107,511	4/15/2005	Veritas US IP Holdings LLC	Application
Index of File Properties for File System Searching	11/190,793	7/27/2005	Veritas US IP Holdings LLC	Application
Method and Apparatus for Detecting System Failure and Initiating a Failover Procedure	11/239,900	9/30/2005	Veritas US IP Holdings LLC	Application
Method and Apparatus for Backing Up a Distributed Computing Environment	11/323,761	12/30/2005	Veritas US IP Holdings LLC	Application
Catalog Driven Restore	11/395,916	3/31/2006	Veritas US IP Holdings LLC	Application
Computer System Employing an Adaptive Archival Process	11/473,813	6/23/2006	Veritas US IP Holdings LLC	Application
Method and Apparatus for Extending Functionality of an Operating System	11/477,502	6/29/2006	Veritas US IP Holdings LLC	Application
Method and Apparatus for Single Instance Indexing of Backups	11/704,755	2/9/2007	Veritas US IP Holdings LLC	Application
Techniques for Performing Intelligent Content Indexing	11/771,507	29 Jun 2007	Veritas US IP Holdings LLC	Published
Systems and Methods for Representing File System Backups	11/863,726	9/28/2007	Veritas US IP Holdings LLC	Application
Method and Apparatus for Prefetching Data	11/864,716	9/28/2007	Veritas US IP Holdings LLC	Application

Title	App. No.	App. Date	Owner	Status
Efficient Backup of a File System Volume to an Online Server	11/962,697	21 Dec 2007	Veritas US IP Holdings LLC	Published
Reduced Traffic Online Restore	11/967,841	12/31/2007	Veritas US IP Holdings LLC	Application
Method of optimizing the space and improving the write performance of volumes with multiple virtual copies	12/054,506	3/25/2008	Veritas US IP Holdings LLC	Application
Techniques for backing up replicated data	12/059,475	3/31/2008	Veritas US IP Holdings LLC	Application
File System/Disk Organization	12/059,959	3/31/2008	Veritas US IP Holdings LLC	Application
Technique for Estimating Report Generation Time at Launch in Client-server Applications	12/131,673	6/2/2008	Veritas US IP Holdings LLC	Application
Systems And Methods For Tagging E-Mails By Discussions	12/181,992	7/29/2008	Veritas US IP Holdings LLC	Allowed
Method and apparatus for managing physical machines that support operations of a virtual machine	12/211,767	9/16/2008	Veritas US IP Holdings LLC	Application
Method and Apparatus for Monitoring a Storage System in a Computer Network	12/241,898	9/30/2008	Veritas US IP Holdings LLC	Application
Giving the Customer the Ability to Restore List and the Items Within that List Back to a Live SharePoint Database from a Monolithic Backup	12/242,079	9/30/2008	Veritas US IP Holdings LLC	Application
Method and Apparatus for Monitoring an Automatically Reserving Computer Resources for Operating an	12/246,244	10/6/2008	Veritas US IP Holdings LLC	Application

Title	App. No.	App. Date	Owner	Status
Application Within a Computer Environment				
Block level hash based single instance store	12/272,422	11/17/2008	Veritas US IP Holdings LLC	Application
Programmatically Receiving and Storing Transaction Information in Support of a Database Recovery Engine	12/342,276	12/23/2008	Veritas US IP Holdings LLC	Application
Method and Apparatus for Using Data Chunks to Optimize File Data Restoration	12/343,443	12/23/2008	Veritas US IP Holdings LLC	Application
Data Encryption for a Segment-Based Single Instance File Storage System	12/346,112	12/30/2008	Veritas US IP Holdings LLC	Application
Techniques for data restoration	12/362,303	1/29/2009	Veritas US IP Holdings LLC	Application
Using Location Tracking of Cluster Nodes to Provide High Availability and Scalability	12/407,237	3/19/2009	Veritas US IP Holdings LLC	Application
Techniques for providing incremental backups	12/466,138	5/14/2009	Veritas US IP Holdings LLC	Application
Automatic Rule Setting for Single Instance Storage of Data	12/491,008	6/24/2009	Veritas US IP Holdings LLC	Application
Scalable Enterprise Data Archiving System	12/492,644	6/26/2009	Veritas US IP Holdings LLC	Application
System and Method for Enforcing Data Lifecycle Policy Across Multiple Domains	12/494,014	6/29/2009	Veritas US IP Holdings LLC	Application
Techniques for Optimizing Disk Access	12/495,141	6/30/2009	Veritas US IP Holdings LLC	Application

<b>Title</b>	<b>App. No.</b>	<b>App. Date</b>	<b>Owner</b>	<b>Status</b>
Method and Apparatus for Virtualizing File System Placeholders at a Computer	12/539,571	8/11/2009	Veritas US IP Holdings LLC	Application
System and Method for Restoring Data on a Data Storage System	12/544,034	8/19/2009	Veritas US IP Holdings LLC	Application
Systems and Methods for Selective Defragmentation	12/550,259	8/28/2009	Veritas US IP Holdings LLC	Application
Request Batching and Asynchronous Request Execution	12/554,574	04 Sep 2009	Veritas US IP Holdings LLC	Published
Systems and Methods for Automatically Updating a Driver Database Associated with a Recovery Service	12/573,006	10/2/2009	Veritas US IP Holdings LLC	Application
Systems and Methods for Managing Storage Space in a Thin Provisioned Array	12/575,686	10/8/2009	Veritas US IP Holdings LLC	Application
Techniques for managing shortcut storage	12/578,050	10/13/2009	Veritas US IP Holdings LLC	Application
De-duplication Storage System with Multiple Indices for Efficient File Storage	12/580,697	16 Oct 2009	Veritas US IP Holdings LLC	Published
Systems and Methods for Populating and Maintaining a Local Cache With Archived Data Items	12/606,391	10/27/2009	Veritas US IP Holdings LLC	Application
Systems and Methods for Efficiently Backing Up Data in Thin-Provisioned Environments	12/609,213	10/30/2009	Veritas US IP Holdings LLC	Application
Synthetic Full Backup Generation	12/624,526	24 Nov 2009	Veritas US IP Holdings LLC	Published
Techniques for Updating Archived Data	12/633,106	12/8/2009	Veritas US IP	Application

<b>Title</b>	<b>App. No.</b>	<b>App. Date</b>	<b>Owner</b>	<b>Status</b>
			Holdings LLC	
Scalable De-Duplication For Storage Systems	12/638,907	12/15/2009	Veritas US IP Holdings LLC	Application
Storage replication systems and methods	12/638,912	15 Dec 2009	Veritas US IP Holdings LLC	Published
Techniques for backup management	12/651,644	1/4/2010	Veritas US IP Holdings LLC	Application
Systems and Methods for Simulating File System Instances	12/687,312	1/14/2010	Veritas US IP Holdings LLC	Application
System and Method For Managing Backup Operations of Virtual Machines	12/692,572	1/22/2010	Veritas US IP Holdings LLC	Application
Systems and Methods for Accessing Multiple Data-Protection Applications from a Single Interface	12/701,413	2/5/2010	Veritas US IP Holdings LLC	Application
Systems and Methods for Accounting for Underlying Storage when Accessing Files in Parallel	12/711,488	2/24/2010	Veritas US IP Holdings LLC	Application
Systems and Methods for Enabling Replication Targets to Reclaim Unused Storage Space on Thin-Provisioned Storage Systems	12/712,186	24 Feb 2010	Veritas US IP Holdings LLC	Published
System and Method For Managing Backup Operations of Virtual Machines	12/713,626	2/26/2010	Veritas US IP Holdings LLC	Application
Method and System for Incremental Backup of Data Volumes	12/753,310	4/2/2010	Veritas US IP Holdings LLC	Application
Dismounting a storage volume	12/770,577	4/29/2010	Veritas US IP	Application



<b>Title</b>	<b>App. No.</b>	<b>App. Date</b>	<b>Owner</b>	<b>Status</b>
			Holdings LLC	
Systems and Methods for Providing Command-Related Documentation	12/779,945	5/13/2010	Veritas US IP Holdings LLC	Application
Continuous replication in a distributed computer system environment	12/781,292	5/17/2010	Veritas US IP Holdings LLC	Application
Systems and Methods for Configuring a Multi-Operation Procedure Via a User Interface	12/825,926	6/29/2010	Veritas US IP Holdings LLC	Application
A Virtual Machine Aware Replication Method And System	12/837,445	7/15/2010	Veritas US IP Holdings LLC	Application
Data Replication Techniques Using Incremental Checkpoints	12/853,234	8/9/2010	Veritas US IP Holdings LLC	Application
Techniques for File System Recovery	12/888,178	9/22/2010	Veritas US IP Holdings LLC	Application
System and Method for Efficient Data Removal in a Deduplicated Storage System	12/899,339	10/6/2010	Veritas US IP Holdings LLC	Application
Replay of Writes in Replication Log	12/911,023	10/25/2010	Veritas US IP Holdings LLC	Application
Systems and Methods for Duplicating Backup Images	12/911,306	10/25/2010	Veritas US IP Holdings LLC	Allowed
Method to optimize SFW online SmartMove to achieve fast mirror creation to a data volume hosting pre-allocated virtual machine disk image files (VHD or VMDK images).	12/913,676	10/27/2010	Veritas US IP Holdings LLC	Application

<b>Title</b>	<b>App. No.</b>	<b>App. Date</b>	<b>Owner</b>	<b>Status</b>
Systems and Methods for Enabling Deduplication of Attachment Files Within a Database	12/914,732	10/28/2010	Veritas US IP Holdings LLC	Application
Inode Systems and Methods	12/914,892	10/28/2010	Veritas US IP Holdings LLC	Application
Data Loss Prevention	12/916,193	10/29/2010	Veritas US IP Holdings LLC	Application
Systems and Methods for Cloud-Based Data Protection Storage	12/939,734	11/4/2010	Veritas US IP Holdings LLC	Application
Fast Flock of File systems	12/942,753	11/9/2010	Veritas US IP Holdings LLC	Application
Block-Level Deduplication	12/957,371	11/30/2010	Veritas US IP Holdings LLC	Application
Restore Efficient Tape Based Deduplication for D2DD2T Backups	12/965,123	12/10/2010	Veritas US IP Holdings LLC	Application
Method for enabling selective software-based replication of file system data residing in critical storage tiers	12/965,256	10 Dec 2010	Veritas US IP Holdings LLC	Published
Systems and Methods for Protecting Deduplicated Data	12/981,144	12/29/2010	Veritas US IP Holdings LLC	Application
Precalculation of Signatures for Use in Client-Side Deduplication	12/983,240	12/31/2010	Veritas US IP Holdings LLC	Application
Methods And Systems To Efficiently Find Similar And Near-Duplicate Emails And Files	13/028,841	24 Mar 2011	Veritas US IP Holdings LLC	Published

Title	App. No.	App. Date	Owner	Status
Business model of a 'Backup Data Bank'.	13/046,300	3/11/2011	Veritas US IP Holdings LLC	Application
Inverted Index for Text Searching Within Deduplication Backup System	13/048,388	3/15/2011	Veritas US IP Holdings LLC	Application
Exclusive IP Zone Support Systems and Method	13/082,230	4/7/2011	Veritas US IP Holdings LLC	Application
Data replication between multiple online databases	13/086,225	4/13/2011	Veritas US IP Holdings LLC	Application
A Method to Prevent Concurrency Violation of a Shared Resource of a Clustered Client-Server Environment in Network Partition Scenario	13/087,892	4/15/2011	Veritas US IP Holdings LLC	Application
Reference Volume for Initial Synchronization of a Replicated Volume Group	13/092,394	4/22/2011	Veritas US IP Holdings LLC	Application
Method and System for Managing Duplicate Item Display	13/097,428	4/29/2011	Veritas US IP Holdings LLC	Application
Techniques For Deduplicated Data Access Statistics Management	13/101,668	5/5/2011	Veritas US IP Holdings LLC	Application
Efficient Time Updation Algorithm for Partitioned Directory	13/104,150	5/10/2011	Veritas US IP Holdings LLC	Application
Granular Database Record Restore Using Metadata	13/104,833	5/10/2011	Veritas US IP Holdings LLC	Application
Methods And Systems For Automatic Evaluation Of Electronic Discovery Review And Productions	13/110,806	18 May 2011	Veritas US IP Holdings LLC	Published

Title	App. No.	App. Date	Owner	Status
Application-consistent backups and recovery on the secondary site, for asynchronous replication which provides only crash-consistent image on the secondary site.	13/176,004	7/5/2011	Veritas US IP Holdings LLC	Application
Method and System for Storing Data in Compliance with a Compression Handling Instruction	13/187,168	20 Jul 2011	Veritas US IP Holdings LLC	Published
Method and System for a Fast Full System Style System Check Using Multithreaded Read Ahead	13/187,239	20 Jul 2011	Veritas US IP Holdings LLC	Published
Systems and Methods for Performing Lookups on Distributed Deduplicated Data Systems	13/233,900	9/15/2011	Veritas US IP Holdings LLC	Application
Systems and Methods for Efficiently Backing Up Data	13/243,421	9/23/2011	Veritas US IP Holdings LLC	Application
Fast Restores of Microsoft SQL Databases From Series of Incrementals Backup	13/247,231	28 Sep 2011	Veritas US IP Holdings LLC	Published
Segment labeling to Preserve Data Locality within Deduplication System	13/250,156	9/30/2011	Veritas US IP Holdings LLC	Application
Cloud-based instant volume restore with data source switchover feature	13/279,634	10/24/2011	Veritas US IP Holdings LLC	Allowed
Systems and Methods for Restoring Application Data	13/285,091	10/31/2011	Veritas US IP Holdings LLC	Application
Application Protection and Business Continuity in a Single Offering for SME Market (A Low Cost Solution)	13/289,974	11/4/2011	Veritas US IP Holdings LLC	Application
System and Method to Facilitate the Use of Processed Data From a Storage System to Perform Tasks	13/299,681	11/18/2011	Veritas US IP Holdings LLC	Application

Title	App. No.	App. Date	Owner	Status
AUTOMATICALLY CONFIGURING AND MAINTAINING CLUSTER LEVEL HIGH AVAILABILITY OF A VIRTUAL MACHINE RUNNING AN APPLICATION ACCORDING TO AN APPLICATION LEVEL SPECIFIED SERVICE LEVEL AGREEMENT	13/308,421	11/30/2011	Veritas US IP Holdings LLC	Application
Systems and Methods for Navigating Backup Configurations	13/314,538	12/8/2011	Veritas US IP Holdings LLC	Application
Systems and methods for providing backup storage interfaces	13/314,557	12/8/2011	Veritas US IP Holdings LLC	Application
Systems and Methods for Restoring Application Data	13/314,771	08 Dec 2011	Veritas US IP Holdings LLC	Published
ARCHIVE SYSTEMS AND METHODS	13/316,370	09 Dec 2011	Veritas US IP Holdings LLC	Published
Method and system to automatically resume linear review of search results	13/324,903	12/13/2011	Veritas US IP Holdings LLC	Application
Scalable method to find a place for a virtual machine,based on its resource and availability requirements, from a large pool of clusters of physical machines.	13/327,218	12/15/2011	Veritas US IP Holdings LLC	Application
Backup Application Catalog Analyzer	13/327,397	12/15/2011	Veritas US IP Holdings LLC	Application
Method to use Windows 2008 R2 FCI pre-classified information on files for determining the retention period and for eDiscovery and search	13/329,740	12/19/2011	Veritas US IP Holdings LLC	Application
Techniques for Monitoring a Server	13/330,208	12/19/2011	Veritas US IP	Application

Title	App. No.	App. Date	Owner	Status
			Holdings LLC	
Automated Policy Management In A Virtual Machine Environment	13/341,381	30 Dec 2011	Veritas US IP Holdings LLC	Published
Resource limits for virtual machine backups	13/341,383	30 Dec 2011	Veritas US IP Holdings LLC	Published
Method and Apparatus for Managing Configurations	13/344,761	1/6/2012	Veritas US IP Holdings LLC	Application
Method for communication between virtual machines to provide high availability and dynamic relocation in private cloud.	13/346,704	1/9/2012	Veritas US IP Holdings LLC	Application
Method and Apparatus For Managing Image Data on Sequential Storage Device	13/351,669	1/17/2012	Veritas US IP Holdings LLC	Application
User Interface for Transparent Concept Search	13/351,992	1/17/2012	Veritas US IP Holdings LLC	Application
Method and system for using high availability attributes to define data protection plans	13/360,493	1/27/2012	Veritas US IP Holdings LLC	Application
Efficient Deduplication of Virtual Machine Images	13/364,246	01 Feb 2012	Veritas US IP Holdings LLC	Published
Intelligent Failover or Shutdown of an Application Using Input/Output Shipping in Response to Loss of Connectivity to Data Storage in a Cluster	13/368,244	07 Feb 2012	Veritas US IP Holdings LLC	Published
Systems and Methods for Indexing Backup File Metadata	13/368,692	2/8/2012	Veritas US IP Holdings LLC	Application

<b>Title</b>	<b>App. No.</b>	<b>App. Date</b>	<b>Owner</b>	<b>Status</b>
System for generating Virtual Machine Volume Compositions on disparate platforms	13/372,026	2/13/2012	Veritas US IP Holdings LLC	Application
Techniques for Managing Non-snappable Volumes	13/397,547	2/15/2012	Veritas US IP Holdings LLC	Application
Method and system for managing and responding to legal hold notices	13/403,860	2/23/2012	Veritas US IP Holdings LLC	Application
Systems and methods for archiving email messages	13/406,045	2/27/2012	Veritas US IP Holdings LLC	Application
Systems And Methods For Tagging E-Mails By Discussions	13/406,398	27 Feb 2012	Veritas US IP Holdings LLC	Published
Securing virtual machines with optimized offline Anti-Virus scan	13/429,891	3/26/2012	Veritas US IP Holdings LLC	Application
SQL Database Recovery Workflow - UI Design	13/433,709	3/29/2012	Veritas US IP Holdings LLC	Application
Disk Group Prioritization	13/446,073	4/13/2012	Veritas US IP Holdings LLC	Application
Dynamic Storage Tiering (DST) in File System using auxiliary filesets	13/447,028	13 Apr 2012	Veritas US IP Holdings LLC	Published
Constrained backup image defragmentation optimization within deduplication system	13/459,987	4/30/2012	Veritas US IP Holdings LLC	Application
Techniques for Virtual Archiving	13/460,665	4/30/2012	Veritas US IP Holdings LLC	Application
Method and System to Visually Represent the Status of	13/473,223	5/16/2012	Veritas US IP	Application

Title	App. No.	App. Date	Owner	Status
a Data Center			Holdings LLC	
A system for estimating and scheduling backup image duplication within a user established time window.	13/480,681	5/25/2012	Veritas US IP Holdings LLC	Allowed
A system for estimating and scheduling backup image duplication within a user established time window.	13/480,697	25 May 2012	Veritas US IP Holdings LLC	Published
Method and System to Enhance E-Discovery by Custodian Ranking	13/484,619	5/31/2012	Veritas US IP Holdings LLC	Application
Block-Based Sparse Backup Images of File System Volumes	13/487,368	6/4/2012	Veritas US IP Holdings LLC	Application
Systems and Methods For Applying Storage Lifecycle Policies to Backups	13/493,474	6/11/2012	Veritas US IP Holdings LLC	Application
Use replication topology to configure and control replication.	13/539,618	7/2/2012	Veritas US IP Holdings LLC	Application
Directory partitioning with concurrent directory access	13/539,676	7/2/2012	Veritas US IP Holdings LLC	Application
Backing up files created using transactional file-system in a block-based smart-sector incremental backup.	13/539,913	7/2/2012	Veritas US IP Holdings LLC	Application
Systems and methods for managing data protection of storage units	13/543,717	7/6/2012	Veritas US IP Holdings LLC	Application
Systems and methods for preventing unintended data loss during data restoration	13/543,744	7/6/2012	Veritas US IP Holdings LLC	Application
Systems and Methods for Dynamically Provisioning Storage for Replication	13/543,756	7/6/2012	Veritas US IP Holdings LLC	Application



Title	App. No.	App. Date	Owner	Status
Carve out a virtual disk from file-level backups avoiding all the data movement	13/555,466	7/23/2012	Veritas US IP Holdings LLC	Application
Method and Apparatus for Automatically Archiving Data Items from Backup Storage	13/567,614	8/6/2012	Veritas US IP Holdings LLC	Application
Techniques For Recovering A Virtual Machine	13/604,344	9/5/2012	Veritas US IP Holdings LLC	Application
Mechanism to optimally determine clusterwide connectivity for volume manager objects.	13/606,752	9/7/2012	Veritas US IP Holdings LLC	Application
Systems And Methods For Caching Data On Virtualization Servers	13/607,434	9/7/2012	Veritas US IP Holdings LLC	Application
Method and Apparatus for Performing Granular Restoration of Data Objects from Machine Images Stored on Sequential Backup Media	13/630,953	9/28/2012	Veritas US IP Holdings LLC	Application
Method for doing Exchange full database backup in an incremental way.	13/632,740	10/1/2012	Veritas US IP Holdings LLC	Application
Automated Error Recovery for Workflows	13/645,980	10/5/2012	Veritas US IP Holdings LLC	Application
Locality Aware, Two-Level Fingerprint Caching	13/646,852	10/8/2012	Veritas US IP Holdings LLC	Application
Systems And Methods For File-level Replication	13/646,858	10/8/2012	Veritas US IP Holdings LLC	Application
TECHNIQUES FOR MANAGING A DISASTER RECOVERY FAILURE POLICY	13/654,114	10/17/2012	Veritas US IP Holdings LLC	Application

Title	App. No.	App. Date	Owner	Status
Systems And Methods For Securely Storing Backup Data While Facilitating Fast Failovers	13/656,536	10/19/2012	Veritas US IP Holdings LLC	Application
Instantaneous & optimal VM restore to local storage from backup images located in a different backup store (possibly over the network).	13/661,258	10/26/2012	Veritas US IP Holdings LLC	Application
Storing Backup Data Using Snapshots	13/663,122	10/29/2012	Veritas US IP Holdings LLC	Application
METHOD TO RESTORE VIRTUAL ENVIRONMENT BY TRIGGERING SNAPSHOTS OF VIRTUAL MACHINES IMAGES BASED ON STATE OF APPLICATIONS/TIERS RUNNING	13/665,672	10/31/2012	Veritas US IP Holdings LLC	Application
Systems And Methods For Performing Copy-On-Write Operations	13/672,626	11/8/2012	Veritas US IP Holdings LLC	Application
Exact look & feel for SharePoint archived content	13/673,909	11/9/2012	Veritas US IP Holdings LLC	Application
Social deduplication using trust networks	13/710,750	12/11/2012	Veritas US IP Holdings LLC	Application
De-duplication Featuring Variable-Size Duplicate Data Detection and Fixed-Size Segment Sharing	13/716,123	12/15/2012	Veritas US IP Holdings LLC	Application
Performing I/O Quiesce and Drain Operations in Multi-Node Distributed Systems	13/718,740	12/18/2012	Veritas US IP Holdings LLC	Application
Framework for fine-grained I/O redirection for accurate re-execution	13/718,805	12/18/2012	Veritas US IP Holdings LLC	Application
Application aware quality of storage service in DMP	13/720,566	19 Dec 2012	Veritas US IP	Published

<b>Title</b>	<b>App. No.</b>	<b>App. Date</b>	<b>Owner</b>	<b>Status</b>
Systems And Methods For Enabling Write-Back Caching And Replication At Different Abstraction Layers	13/720,871	12/19/2012	Veritas US IP Holdings LLC	Application
Techniques For Managing Deduplication of Data	13/736,510	1/8/2013	Veritas US IP Holdings LLC	Application
Pre-boot environment-less instant restore of System volume	13/736,664	08 Jan 2013	Veritas US IP Holdings LLC	Published
Instantaneous restore of system volume while booting from the backup image located on the network location.	13/736,716	08 Jan 2013	Veritas US IP Holdings LLC	Published
Method and apparatus to cluster data to reveal hierarchical nature of relationship between data points	13/742,218	1/15/2013	Veritas US IP Holdings LLC	Application
<b>TECHNIQUES FOR MANAGING COMPUTING RESOURCES</b>	13/743,156	1/16/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Enabling Write-Back-Cache Aware Snapshot Creation	13/743,904	1/17/2013	Veritas US IP Holdings LLC	Application
Resolving Reparse Point Conflicts When Performing File Operations	13/751,782	1/28/2013	Veritas US IP Holdings LLC	Application
Selecting of Files for Archival of Deduplication	13/761,496	2/7/2013	Veritas US IP Holdings LLC	Application
Techniques For Deuplicating Deduplicated Data	13/762,183	2/7/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Backing Up Virtual Machine Data	13/763,163	2/8/2013	Veritas US IP Holdings LLC	Application

Title	App. No.	App. Date	Owner	Status
Method and Apparatus for Restoring De-Duplicated Data	13/763,910	2/11/2013	Veritas US IP Holdings LLC	Application
eDiscovery of object in SharePoint 15 backup data sets using SharePoint tags.	13/773,962	2/22/2013	Veritas US IP Holdings LLC	Application
Backup Storage System with Content Driven Data Protection Method	13/774,072	2/22/2013	Veritas US IP Holdings LLC	Application
Deduplication Storage System with Efficient Reference Updating and Space Reclamation	13/774,083	22 Feb 2013	Veritas US IP Holdings LLC	Published
Techniques For Automated Policy Analysis	13/800,356	3/13/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Accelerating Backup Operations	13/835,035	3/15/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Performing Incremental Database Backups	13/835,472	3/15/2013	Veritas US IP Holdings LLC	Application
Providing Local Cache Coherency in a Shared Storage Environment	13/838,125	15 Mar 2013	Veritas US IP Holdings LLC	Published
TECHNIQUES FOR MANAGING REFERENCES TO CONTAINERS	13/838,218	3/15/2013	Veritas US IP Holdings LLC	Application
Systems and Methods for Training Data Generation in Predictive Coding	13/843,501	3/15/2013	Veritas US IP Holdings LLC	Application
Local Cache Pre-Warning	13/857,496	4/5/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Enabling Virtual	13/863,886	4/16/2013	Veritas US IP	Application

<b>Title</b>	<b>App. No.</b>	<b>App. Date</b>	<b>Owner</b>	<b>Status</b>
Environments To Mount Non-Native Storage Disks			Holdings LLC	
Segregated restore into a target deduplicated storage system.	13/870,410	4/25/2013	Veritas US IP Holdings LLC	Application
Optimized metadata Ingest using temporally-expanded bloom filter with lazy verification.	13/871,832	4/26/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Enabling Efficient Access To Incremental Backups	13/873,211	4/29/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Manipulating Map-Reduce Data Efficiently	13/874,696	5/1/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Parallel Content-Defined Data Chunking	13/889,118	5/7/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Increasing Restore Speeds Of Backups Stored In Deduplicated Storage Systems	13/889,191	07 May 2013	Veritas US IP Holdings LLC	Published
Restoring a Database to Managed Storage from a Proxy Backup Image	13/892,449	5/13/2013	Veritas US IP Holdings LLC	Application
Methods and Systems for Tracking Enterprise Information Flow	13/895,914	5/16/2013	Veritas US IP Holdings LLC	Application
Automatically Adding Bytecode to a Software Application to Determine Network Communication Information	13/904,815	5/29/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Predictively Preparing Restore Packages	13/910,645	6/5/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Managing References In	13/915,072	6/11/2013	Veritas US IP	Application

Title	App. No.	App. Date	Owner	Status
Deduplicating Data Systems			Holdings LLC	
Systems And Methods For Creating Optimized Synthetic Backup Images	13/915,682	6/12/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Preserving Deduplication Efforts After Backup-Job Failures	13/917,761	6/14/2013	Veritas US IP Holdings LLC	Application
System and method for operational continuity of backup operations to a deduplicated storage if fingerprints are not available	13/918,922	6/15/2013	Veritas US IP Holdings LLC	Application
System and Method to enable de-duplication engine to sustain operational continuity using journaling in fatal conditions	13/918,923	6/15/2013	Veritas US IP Holdings LLC	Application
Preferential Retention of High-Value Fingerprints in a Deduplication System	13/919,038	6/17/2013	Veritas US IP Holdings LLC	Application
Method for providing an indication of the exact search hit within a larger universe of contextual information.	13/920,584	6/18/2013	Veritas US IP Holdings LLC	Application
Systems and Methods for Navigating a File Structure Using Dynamic Breadcrumbs	13/923,121	6/20/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Enabling Migratory Virtual Machines To Expedite Access To Resources	13/928,340	6/26/2013	Veritas US IP Holdings LLC	Application
System and Method for allowing deduplication between disparate deduplication engines using dissimilar fingerprints	13/929,097	6/27/2013	Veritas US IP Holdings LLC	Application
System and method for managing deduplication between applications using dissimilar fingerprint	13/930,719	6/28/2013	Veritas US IP Holdings LLC	Application

Title	App. No.	App. Date	Owner	Status
types.				
DETECTING SITE CHANGE FOR MIGRATED VIRTUAL MACHINES	13/930,752	6/28/2013	Veritas US IP Holdings LLC	Application
Method and Apparatus for Performing Targeted Backup	13/931,992	6/30/2013	Veritas US IP Holdings LLC	Application
Handling Data Segments in Deduplication	13/935,405	7/3/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Instantly Restoring Virtual Machines In High Input/Output Load Environments	13/944,507	17 Jul 2013	Veritas US IP Holdings LLC	Published
Systems And Methods For Attributing Input/Output Statistics In Storage Area Networks To Region-Mapped Entities	13/947,780	7/22/2013	Veritas US IP Holdings LLC	Application
Navigating a Large Tree Structure Using Summary Snippets	13/953,416	7/29/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Managing Virtual Machine Backups	13/954,602	7/30/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Prefetching Subsequent Data Segments	13/961,685	8/7/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Restoring Distributed Applications Within Virtual Data Centers	13/972,426	8/21/2013	Veritas US IP Holdings LLC	Allowed
Systems And Methods For Facilitating Features Of System Recovery Environments During Restore Operations	14,016/025	8/30/2013	Veritas US IP Holdings LLC	Application

Title	App. No.	App. Date	Owner	Status
A Comprehensive Data Loss/Corruption Detection and Containing Mechanism in Dedupe	14/015,931	8/30/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Reclaiming Storage Space In Deduplicating Data Systems	14/019,971	9/6/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Protecting Virtual Machine Data	14/022,225	10 Sep 2013	Veritas US IP Holdings LLC	Published
Systems And Methods For Prioritizing Restoration Speed With Deduplicated Backups	14/022,916	9/10/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Automatically Identifying Changes In Deliverable Files	14/025,796	9/12/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Leveraging Data-Deduplication Capabilities Of File Systems	14/026,980	9/13/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Facilitating Fault-Tolerant Backup Jobs	14/032,615	9/20/2013	Veritas US IP Holdings LLC	Application
Detection of File System Mounts of Storage Devices	14/039,751	9/27/2013	Veritas US IP Holdings LLC	Application
Techniques for Improving Performance of a Backup System	14/040,152	9/27/2013	Veritas US IP Holdings LLC	Application
Method to reduce Microsoft SQL Server Database VSS snapshot backup size for log files.	14/040,922	9/30/2013	Veritas US IP Holdings LLC	Application
Selection of Resources for Power Efficient File Operations	14/041,608	9/30/2013	Veritas US IP Holdings LLC	Application
Techniques for Spare Storage Pool Management	14/042,127	9/30/2013	Veritas US IP	Application



<b>Title</b>	<b>App. No.</b>	<b>App. Date</b>	<b>Owner</b>	<b>Status</b>
			Holdings LLC	
Method and System for Rapid Failback of a Computer System in a Disaster Recovery Environment	14/048,517	10/8/2013	Veritas US IP Holdings LLC	Application
Algorithm to schedule *I/O* and *High Impact SCSI commands * without impacting any application I/O latency	14/068,987	10/31/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Provisioning Computing Systems With Applications	14/073,158	11/6/2013	Veritas US IP Holdings LLC	Application
Data Locality Control For Dedupe System	14/094527	12/2/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Preventing Failures Of Nodes In Clusters	14/103,160	12/11/2013	Veritas US IP Holdings LLC	Application
An Efficient Method for Relocating Shared Memory	14/107,427	12/16/2013	Veritas US IP Holdings LLC	Application
TECHNOLOGIES FOR APPLYING SOCIAL-NETWORK ANALYSIS TO FILE-ACCESS AUDIT LOGS	14/108,154	12/16/2013	Veritas US IP Holdings LLC	Application
Auto Adaptive Deduplication to Cloud Based Storage	14/133,212	12/18/2013	Veritas US IP Holdings LLC	Application
SYSTEM AND METHOD FOR DOWNLOADING A FILE	14/133,432	12/18/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Decreasing Raid Rebuilding Time	14/134,334	12/19/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Deduplicating Archive	14/134,502	12/19/2013	Veritas US IP	Application

<b>Title</b>	<b>App. No.</b>	<b>App. Date</b>	<b>Owner</b>	<b>Status</b>
Objects			Holdings LLC	
TECHNOLOGIES FOR INFORMATION-DRIVEN FILE-SYSTEM NAVIGATION UTILIZING CONTEXT MAPS AND AGGREGATIONS	14/135,441	12/19/2013	Veritas US IP Holdings LLC	Application
Systems and Methods for Storing Data in Multiple Stages	14/138,125	12/23/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Discovering Application-Layer Topologies Of Networks	14/138,138	12/23/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Managing Computing Objects Within Enterprise Software Applications	14/138,140	12/23/2013	Veritas US IP Holdings LLC	Application
SYSTEMS AND METHODS FOR IMPROVING SNAPSHOT PERFORMANCE	14/143,194	12/30/2013	Veritas US IP Holdings LLC	Application
Detecting Deviation of Data Center Connectivity By Conditional Sub-Graph Matching	14/143,669	12/30/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Adding Active Volumes To Existing Replication Configurations	14/145,282	12/31/2013	Veritas US IP Holdings LLC	Application
Systems And Methods For Generating Catalogs For Snapshots	14/172,137	04 Feb 2014	Veritas US IP Holdings LLC	Published
Systems And Methods For Maintaining Remote Backups Of Reverse-Incremental Backup Datasets	14/177,195	2/10/2014	Veritas US IP Holdings LLC	Application
Systems And Methods For Mitigating Write-Back Caching Failures	14/177,206	2/10/2014	Veritas US IP Holdings LLC	Application
Systems And Methods For Selectively Masking Data On	14/177,822	2/11/2014	Veritas US IP	Application

Title	App. No.	App. Date	Owner	Status
Virtual Storage Devices			Holdings LLC	
Systems And Methods For Synthesizing Virtual Hard Drives	14/191,362	2/26/2014	Veritas US IP Holdings LLC	Application
Cache Insertion Based on Threshold Access Frequency	14/193,549	2/28/2014	Veritas US IP Holdings LLC	Application
Caching Temporary Data in Solid State Storage Devices	14/198,760	3/6/2014	Veritas US IP Holdings LLC	Application
Systems And Methods For Searching Shared Encrypted Files On Third-Party Storage Systems	14/199,158	3/6/2014	Veritas US IP Holdings LLC	Application
Systems And Methods For Maintaining Encrypted Search Indexes On Third-Party Storage Systems	14/199,240	3/6/2014	Veritas US IP Holdings LLC	Application
Systems And Methods For Securing Data At Third-Party Storage Services	14/199,339	3/6/2014	Veritas US IP Holdings LLC	Application
Storage Device Sharing Among Virtual Machines	14/227,081	3/27/2014	Veritas US IP Holdings LLC	Application
Creating and Publishing Service Level Representations of Applications from Operational Representations	14/227,089	3/27/2014	Veritas US IP Holdings LLC	Application
Systems And Methods For Expanding Search Results	14/229,119	3/28/2014	Veritas US IP Holdings LLC	Application
Systems And Methods For Expanding Search Results	14/229,398	3/28/2014	Veritas US IP Holdings LLC	Application
Systems And Methods For Restoring Web Parts In Content Management Systems	14/231,419	3/31/2014	Veritas US IP Holdings LLC	Application

Title	App. No.	App. Date	Owner	Status
Mixed type of reflection factor for virtual machine image file	14/231,727	3/31/2014	Veritas US IP Holdings LLC	Application
Using a Network Bubble across Multiple Hosts on a Disaster Recovery Site for Fire Drill Testing of a Multi-tiered Application	14/242871	4/2/2014	Veritas US IP Holdings LLC	Application
Direct Connections to a Plurality of Storage Object Replicas in a Computer Network	14/245,510	4/4/2014	Veritas US IP Holdings LLC	Application
Port Identifier Management for Path Failover in Cluster Environments	14/252,059	4/14/2014	Veritas US IP Holdings LLC	Application
Systems And Methods For Backing Up Heterogeneous Virtual Environments	14/261,808	4/25/2014	Veritas US IP Holdings LLC	Application
Systems And Methods For Identifying Access Rate Boundaries Of Workloads	14/269,192	5/4/2014	Veritas US IP Holdings LLC	Application
Backup from Network Attached Storage to Sequential Access Media in Network Data Management Protocol Environments	14/270,508	5/6/2014	Veritas US IP Holdings LLC	Application
Systems And Methods For Modifying Track Logs During Restore Processes	14/283,742	5/21/2014	Veritas US IP Holdings LLC	Application
Systems And Methods For Retrieving Data	14/283,776	5/21/2014	Veritas US IP Holdings LLC	Application
OpenFlame architecture - DATA MANAGEMENT TIER COUPLING PRIMARY STORAGE AND SECONDARY STORAGE	14/284,070	5/21/2014	Veritas US IP Holdings LLC	Application
Distributed Replication in Cluster Environments	14/292,898	5/31/2014	Veritas US IP	Application

<b>Title</b>	<b>App. No.</b>	<b>App. Date</b>	<b>Owner</b>	<b>Status</b>
			Holdings LLC	
Managing Performance Within an Enterprise Object Store File System	14/300,618	10 Jun 2014	Veritas US IP Holdings LLC	Published
Bootting Virtual Machine Instances in a Distributed Data Processing Architecture	14/303,904	6/13/2014	Veritas US IP Holdings LLC	Application
Managing a Backup Procedure	14/308,364	6/18/2014	Veritas US IP Holdings LLC	Application
Autonomous Deduplication Partitions for Efficient Recovery of a Large Dedupe System	14/316,632	6/26/2014	Veritas US IP Holdings LLC	Application
Autonomous Container Group Management for Scale Out Dedupe System	14/316,636	6/26/2014	Veritas US IP Holdings LLC	Application
Data Recovery in Distributed Storage Environments	14/317,645	6/27/2014	Veritas US IP Holdings LLC	Application
Block Level Incremental Backup for QCOW2 Virtual Disks	14/318,988	6/30/2014	Veritas US IP Holdings LLC	Application
Systems and methods for doing agentless backup in scale-out fashion	14/319,977	6/30/2014	Veritas US IP Holdings LLC	Application
Systems and Methods for Injecting Drivers Into Computing Systems During Restore Operations	14/338,348	7/23/2014	Veritas US IP Holdings LLC	Allowed
Systems and Methods for Backing Up Virtual Machines Deployed In Virtual Storage Area Networks	14/445,028	7/28/2014	Veritas US IP Holdings LLC	Application
Systems and Methods for Providing Data Backup Services in a Virtual Environment	14/445,032	7/28/2014	Veritas US IP Holdings LLC	Application

Title	App. No.	App. Date	Owner	Status
Systems and Methods for Maintaining Aggregate Tables in Databases	14/447,619	7/31/2014	Veritas US IP Holdings LLC	Application
Systems and Methods for Storing Updated Storage Stack Summaries	14/460,802	8/15/2014	Veritas US IP Holdings LLC	Application
Backup Service and Appliance With Single-Instance Storage of Encrypted Data	14/462,076	8/18/2014	Veritas US IP Holdings LLC	Application
Deduplication Rehydration	14/466,210	8/22/2014	Veritas US IP Holdings LLC	Application
Selective file system caching based upon a configurable cache map	14/473,761	8/29/2014	Veritas US IP Holdings LLC	Application
TECHNIQUES FOR DETERMINING OWNERSHIP OF FILES AND/OR EMAIL MESSAGES	14/479,924	9/8/2014	Veritas US IP Holdings LLC	Application
Deduplication Grouping	14/480,507	9/8/2014	Veritas US IP Holdings LLC	Application
Systems and Methods for Navigating Through a Hierarchy of Nodes Stored in a Database	14/480,558	9/8/2014	Veritas US IP Holdings LLC	Application
Systems and Methods for Organizing Multi-Faceted Sets of Data	14/480,560	9/8/2014	Veritas US IP Holdings LLC	Application
Systems And Methods For Aggregating Information-Asset Metadata From Multiple Disparate Data-Management Systems	14/483,133	9/10/2014	Veritas US IP Holdings LLC	Application
Systems and Methods for Utilizing Information-Asset Metadata Aggregated From Multiple Disparate Data-Management Systems	14/483,136	9/10/2014	Veritas US IP Holdings LLC	Application

Title	App. No.	App. Date	Owner	Status
Method to maintain persistent cache consistency in an optimal fashion.	14/502,527	9/30/2014	Veritas US IP Holdings LLC	Application
Automated Network Isolation for Providing Non-Disruptive Disaster Recovery Testing of Multi-Tier Applications Spanning Physical and Virtual Hosts	14/503,392	9/30/2014	Veritas US IP Holdings LLC	Application
Systems and Methods for Displaying Search Results	14/506,300	10/3/2014	Veritas US IP Holdings LLC	Application
Taking a Consistent Cut during Replication for Storage across Multiple Nodes without Blocking Input/Output	14/512,668	10/13/2014	Veritas US IP Holdings LLC	Application
Systems and Methods for Troubleshooting Computing Tasks Using Log Files	14/519,107	10/20/2014	Veritas US IP Holdings LLC	Application
Processes and Methods for Client-Side Fingerprint Caching to Improve Deduplication System Backup Performance	14/524,397	10/27/2014	Veritas US IP Holdings LLC	Application
System and Method for Optimizing Transportation Over Networks	14/524,656	10/27/2014	Veritas US IP Holdings LLC	Application
Systems and Methods for Tokenizing User-Annotated Names	14/525,864	10/28/2014	Veritas US IP Holdings LLC	Application
Modifiable Volume Snapshots  (Note: This IDF is a resubmission of IDF 140073 with additional information which should explain the concerns raised by PFC earlier.)	14/526,745	10/29/2014	Veritas US IP Holdings LLC	Application
Business Continuity Optimization	14/530,286	10/31/2014	Veritas US IP Holdings LLC	Application

Title	App. No.	App. Date	Owner	Status
Virtualization of File Input/Output Operations	14/538,439	11 Nov 2014	Veritas US IP Holdings LLC	Published
Systems and Methods for Automatically Translating Data Records	14/540,171	11/13/2014	Veritas US IP Holdings LLC	Application
Systems and Methods for Aggregating Information-Asset Classifications	14/542,165	11/14/2014	Veritas US IP Holdings LLC	Application
Systems and Methods for Automated Aggregation of Information-Source Metadata	14/561,244	12/5/2014	Veritas US IP Holdings LLC	Application
Systems and Methods for Displaying Search Results	14/562,038	12/5/2014	Veritas US IP Holdings LLC	Application
Detection and handling of virtual machine live migration instantaneously in a clustered environment while ensuring high availability (HA).	14/563,315	12/8/2014	Veritas US IP Holdings LLC	Application
Systems and Methods for Enabling Multiple-Perspective Administration of Computing Systems	14/572,817	12/17/2014	Veritas US IP Holdings LLC	Application
Systems and Methods for Collecting Data	14/575,280	12/18/2014	Veritas US IP Holdings LLC	Application
Catalog self-healing based on partitioned catalog databases	14/577,429	12/19/2014	Veritas US IP Holdings LLC	Application
Systems and Methods for Facilitating Analytics on Data Sets Stored in Remote Monolithic Files	14/580,079	12/22/2014	Veritas US IP Holdings LLC	Application
Systems and Methods for Providing Increased Scalability in Deduplication Storage Systems	14/580,246	12/23/2014	Veritas US IP Holdings LLC	Application



Title	App. No.	App. Date	Owner	Status
Systems and Methods for Facilitation Analytics on Remotely Stored Data Sets	14/583,546	12/26/2014	Veritas US IP Holdings LLC	Application
Method To Allow Multi-Read Access For Exclusive Access Of Virtual Disks By Using A Virtualized Copy Of The Disk	14/584,265	12/29/2014	Veritas US IP Holdings LLC	Application
Systems and Methods for Dynamic Load Balancing on Disks	14/584,549	12/29/2014	Veritas US IP Holdings LLC	Application
Fingerprint Change During Data Operations	14/588,008	12/31/2014	Veritas US IP Holdings LLC	Application
Disaster Recovery and Backup Using Virtual Machines	14/588,192	12/31/2014	Veritas US IP Holdings LLC	Application
Method and System For Restoring Encrypted Files From a Virtual Machine Image	14/588,528	1/2/2015	Veritas US IP Holdings LLC	Application
Method and Apparatus for Optimizing Resource Utilization Within a Cluster and Facilitating High Availability for an Application	14/588,623	1/2/2015	Veritas US IP Holdings LLC	Application
Linking Dynamic Computer Data Protection To An External State	14/590,825	1/6/2015	Veritas US IP Holdings LLC	Application
Optimized Index Usage for Data Restore	14/593,391	1/9/2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Archiving Related Items	14/600,028	1/20/2015	Veritas US IP Holdings LLC	Application
User interface for finding similar documents	14/607,979	1/28/2015	Veritas US IP Holdings LLC	Application

Title	App. No.	App. Date	Owner	Status
Storage Optimization of Pre-Allocated Units of Storage copy backups	14/609,711	1/30/2015	Veritas US IP Holdings LLC	Application
Low cost, heterogeneous method of transforming replicated data for consumption in the cloud	14/611,233	1/31/2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Adaptively Selecting File-Recall Modes	14/612,831	2/3/2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Expanding Relevant Search Results in Electronic Discovery	14/613,393	2/4/2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Culling Search Results in Electronic Discovery	14/613,395	2/4/2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Restoring Data Files Owned by Different Entities	14/625,032	2/18/2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Providing Access to Data Sets Owned by Different Entities	14/664,300	3/20/2015	Veritas US IP Holdings LLC	Application
Systems and Methods for End-To-End Quality of Service Control in Distributed Systems	14/671,092	3/27/2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Improving Quality of Service Within Hybrid Storage Systems	14/673,898	3/31/2015	Veritas US IP Holdings LLC	Application
Locality control in Accelerator backup	14/674,015	3/31/2015	Veritas US IP Holdings LLC	Application
System and method for encryption of Cloud VM data-at-rest	14/674,205	3/31/2015	Veritas US IP Holdings LLC	Application
Version Mapped Incremental Backups	14/683,632	4/10/2015	Veritas US IP	Application

<b>Title</b>	<b>App. No.</b>	<b>App. Date</b>	<b>Owner</b>	<b>Status</b>
			Holdings LLC	
Backup Time Deduplication Of Common Virtual Disks From Virtual Machine Backup Images	14/714,520	5/18/2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Categorizing Electronic Messages for Compliance Reviews	14/737,521	6/12/2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Reconfiguring Data Flow Across Network Channels	14/739,685	6/15/2015	Veritas US IP Holdings LLC	Application
System and method for creating snapshots in OpenFlame environment	14/740,089	6/15/2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Improving Rehydration Performance in Data Deduplication Systems	14/745,501	6/22/2015	Veritas US IP Holdings LLC	Application
System and Method for Centralized Configuration and Authentication	14/747,440	6/23/2015	Veritas US IP Holdings LLC	Application
System and Method for Authentication in a Computing System	14/754,361	29 Jun 2015	Veritas US IP Holdings LLC	Application
Incremental Backup System	14/754,603	29 Jun 2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Efficiently Extracting Contents of Container Files	14/754,734	30 Jun 2015	Veritas US IP Holdings LLC	Application
Method to prevent data corruption and allow timely interruption of Microsoft Lync export when archiving instant messages for compliance and discovery	14/754,985	30 Jun 2015	Veritas US IP Holdings LLC	Application
Highly Parallel Scalable Distributed Email Threading	14/803,766	20 Jul 2015	Veritas US IP	Application

<b>Title</b>	<b>App. No.</b>	<b>App. Date</b>	<b>Owner</b>	<b>Status</b>
Algorithm			Holdings LLC	
Systems and Methods for Enhancing Electronic Discovery Searches	14/819,422	05 Aug 2015	Veritas US IP Holdings LLC	Application
Cloud Data Protection System	14/824,729	12 Aug 2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Scalable Network Buffer Management	14/833,590	24 Aug 2015	Veritas US IP Holdings LLC	Application
A method to create flash first full backup of the restored VM.	14/838,622	28 Aug 2015	Veritas US IP Holdings LLC	Application
System and Method to Accelerate Data Access to Application Development and Testing workloads	14/838,669	28 Aug 2015	Veritas US IP Holdings LLC	Application
Method and System for Configuration Management of Hierarchically-Organized Unstructured Data Using Associative Templates	14/839,010	28 Aug 2015	Veritas US IP Holdings LLC	Application
Adaptive throttling based on QoS feedback in case of storage overload	14/840,627	31 Aug 2015	Veritas US IP Holdings LLC	Application
System, method and mechanism to efficiently coordinate cache sharing between cluster nodes operating on the same regions of a file or the file system blocks shared among multiple files.	14/840,701	31 Aug 2015	Veritas US IP Holdings LLC	Application
Method to make application data instantly available in a running virtual machine	14/850,072	10 Sep 2015	Veritas US IP Holdings LLC	Application
Method and Apparatus for File Backup	14/856,454	16 Sep 2015	Veritas US IP Holdings LLC	Application

Title	App. No.	App. Date	Owner	Status
Systems and Methods for Provisioning Frequently Used Image Segments from Caches	14/856,586	17 Sep 2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Selectively Archiving Electronic Messages	14/859,383	21 Sep 2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Automated Delivery and Identification of Virtual Drives	14/859,389	21 Sep 2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Email Journaling	14/862,183	23 Sep 2015	Veritas US IP Holdings LLC	Application
Techniques For Space Reservation In A Storage Environment	14/871,642	30 Sep 2015	Veritas US IP Holdings LLC	Application
QoS for internal ios using internal flow mechanism	14/952,506	25 Nov 2015	Veritas US IP Holdings LLC	Application
Public APIs to integrate with compliance systems to meet customer's expectation from backup/restore	14046570	10/4/2013	Veritas US IP Holdings LLC	Application
Method and apparatus for cache eviction in a file system environment	14107627	12/16/2013	Veritas US IP Holdings LLC	Application
Graphical User Interface For A Display Screen	29/489,862	5/2/2014	Veritas US IP Holdings LLC	Application
Graphical User Interface For A Display Screen	29/489,863	5/2/2014	Veritas US IP Holdings LLC	Application
Variable alignment de-duplication from fixed alignment file segment sharing	61/737,775	12/15/2012	Veritas US IP Holdings LLC	Application
Management of and Data Recovery for Virtual Data	62/104,046	1/15/2015	Veritas US IP	Application

<b>Title</b>	<b>App. No.</b>	<b>App. Date</b>	<b>Owner</b>	<b>Status</b>
Processing Systems			Holdings LLC	
Virtualization of File Input/Output Operations	14/538,439	11/11/2014	Veritas US IP Holdings LLC	Published
Managing Performance Within an Enterprise Object Store File System	14/300,618	6/10/2014	Veritas US IP Holdings LLC	Published
Method and System of Performing Incremental SQL Server Database Backups	14/159,235	1/20/2014	Veritas US IP Holdings LLC	Published
Systems And Methods For Generating Catalogs For Snapshots	14/172,137	2/4/2014	Veritas US IP Holdings LLC	Published
Systems And Methods For Protecting Virtual Machine Data	14/022,225	9/10/2013	Veritas US IP Holdings LLC	Published
Systems And Methods For Instantly Restoring Virtual Machines In High Input/Output Load Environments	13/944,507	7/17/2013	Veritas US IP Holdings LLC	Published
Systems And Methods For Increasing Restore Speeds Of Backups Stored In Deduplicated Storage Systems	13/889,191	5/7/2013	Veritas US IP Holdings LLC	Published
Providing Local Cache Coherency in a Shared Storage Environment	13/838,125	3/15/2013	Veritas US IP Holdings LLC	Published
Deduplication Storage System with Efficient Reference Updating and Space Reclamation	13/774,083	2/22/2013	Veritas US IP Holdings LLC	Published
Instantaneous restore of system volume while booting from the backup image located on the network location.	13/736,716	1/8/2013	Veritas US IP Holdings LLC	Published
Application aware quality of storage service in DMP	13/720,566	12/19/2012	Veritas US IP Holdings LLC	Published

Title	App. No.	App. Date	Owner	Status
Pre-boot environment-less instant restore of System volume	13/736,664	1/8/2013	Veritas US IP Holdings LLC	Published
A system for estimating and scheduling backup image duplication within a user established time window.	13/480,697	5/25/2012	Veritas US IP Holdings LLC	Published
Circular buffer based method for allocating blocks on SSD	13/528,676	6/20/2012	Veritas US IP Holdings LLC	Published
A system for estimating and scheduling backup image duplication within a user established time window.	13/480,585	5/25/2012	Veritas US IP Holdings LLC	Published
Systems And Methods For Tagging E-Mails By Discussions	13/406,398	2/27/2012	Veritas US IP Holdings LLC	Published
Dynamic Storage Tiering (DST) in File System using auxiliary filesets	13/447,028	4/13/2012	Veritas US IP Holdings LLC	Published
Resource limits for virtual machine backups	13/341,383	12/30/2011	Veritas US IP Holdings LLC	Published
Method and apparatus to proactively detect conditions that will lead to I/O errors on file systems due to storage pool exhaustion.	13/420,588	3/14/2012	Veritas US IP Holdings LLC	Published
Automated Policy Management In A Virtual Machine Environment	13/341,381	12/30/2011	Veritas US IP Holdings LLC	Published
Systems and Methods for Restoring Application Data	13/314,771	12/8/2011	Veritas US IP Holdings LLC	Published
System and method of dynamic storage tiering in virtual environment	13/327,366	12/15/2011	Veritas US IP Holdings LLC	Published

<b>Title</b>	<b>App. No.</b>	<b>App. Date</b>	<b>Owner</b>	<b>Status</b>
Cluster Systems And Methods	13/294,995	11/11/2011	Veritas US IP Holdings LLC	Published
Methods And Systems To Efficiently Find Similar And Near-Duplicate Emails And Files	13/028,841	3/24/2011	Veritas US IP Holdings LLC	Published
Methods And Systems For Automatic Evaluation Of Electronic Discovery Review And Productions	13/110,806	5/18/2011	Veritas US IP Holdings LLC	Published
Fast Restores of Microsoft SQL Databases From Series of Incrementals Backup	13/247,231	9/28/2011	Veritas US IP Holdings LLC	Published
ARCHIVE SYSTEMS AND METHODS	13/316,370	12/9/2011	Veritas US IP Holdings LLC	Published
Intelligent Failover or Shutdown of an Application Using Input/Output Shipping in Response to Loss of Connectivity to Data Storage in a Cluster	13/368,244	2/7/2012	Veritas US IP Holdings LLC	Published
Efficient Deduplication of Virtual Machine Images	13/364,246	2/1/2012	Veritas US IP Holdings LLC	Published
Method and System for a Fast Full System Style System Check Using Multithreaded Read Ahead	13/187,239	7/20/2011	Veritas US IP Holdings LLC	Published
Method and System for Storing Data in Compliance with a Compression Handling Instruction	13/187,168	7/20/2011	Veritas US IP Holdings LLC	Published
Method for enabling selective software-based replication of file system data residing in critical storage tiers	12/965,256	12/10/2010	Veritas US IP Holdings LLC	Published
Performance of Operations on Selected Data in a Storage Area	10/742,128	12/19/2003	Veritas US IP Holdings LLC	Published



Title	App. No.	App. Date	Owner	Status
Systems and Methods for Enabling Replication Targets to Reclaim Unused Storage Space on Thin-Provisioned Storage Systems	12/7712,186	2/24/2010	Veritas US IP Holdings LLC	Published
Storage replication systems and methods	12/638,912	12/15/2009	Veritas US IP Holdings LLC	Published
Synthetic Full Backup Generation	12/624,526	11/24/2009	Veritas US IP Holdings LLC	Published
De-duplication Storage System with Multiple Indices for Efficient File Storage	12/580,697	10/16/2009	Veritas US IP Holdings LLC	Published
Request Batching and Asynchronous Request Execution	12/554,574	9/4/2009	Veritas US IP Holdings LLC	Published
Efficient Backup of a File System Volume to an Online Server	11/962,697	12/21/2007	Veritas US IP Holdings LLC	Published
Techniques for Performing Intelligent Content Indexing	11/771,507	6/29/2007	Veritas US IP Holdings LLC	Published
Systems And Methods For Identifying Access Rate Boundaries Of Workloads	14/269,192	04 May 2014	Veritas US IP Holdings LLC	Published
Storage replication systems and methods	12/638,912	15 Dec 2009	Veritas US IP Holdings LLC	Published
Systems and Methods for Enabling Replication Targets to Reclaim Unused Storage Space on Thin-Provisioned Storage Systems	12/7712,186	24 Feb 2010	Veritas US IP Holdings LLC	Published
Performance of Operations on Selected Data in a Storage Area	10/742,128	19 Dec 2003	Veritas US IP Holdings LLC	Published

## U.S. Issued Patents

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Using Disassociated Images for Computer and Storage Resource Management	11/863,939	28 Sep 2007	9,182,969	10 Nov 2015	Veritas US IP Holdings LLC	Granted
Granular Application Data Lifecycle Sourcing from a Single Backup	12/347,577	31 Dec 2008	9,176,825	03 Nov 2015	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Facilitating Application Recovery Using Configuration Information	12/415,489	31 Mar 2009	9,171,024	27 Oct 2015	Veritas US IP Holdings LLC	Granted
Managing copy-on-writes to snapshots	12/697,074	29 Jan 2010	9,176,853	03 Nov 2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Managing Failover Clusters	12/711,445	24 Feb 2010	9,195,528	24 Nov 2015	Veritas US IP Holdings LLC	Granted
Determining whether to relocate data to a different tier in a multi-tier storage system	12/779,773	13 May 2010	9,213,731	15 Dec 2015	Veritas US IP Holdings LLC	Granted
Method And System For Anomaly Detection And Presentation	12/856,157	13 Aug 2010	9,178,754	03 Nov 2015	Veritas US IP Holdings LLC	Granted
Deduplicating Messages for Improving Message Sampling Quality	13/006,909	14 Jan 2011	9,164,687	20 Oct 2015	Veritas US IP Holdings LLC	Granted
Cluster Systems And Methods	13/294,995	11 Nov 2011	9,213,578	15 Dec 2015	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Method and apparatus to proactively detect conditions that will lead to I/O errors on file systems due to storage pool exhaustion.	13/420,588	14 Mar 2012	9,213,618	15 Dec 2015	Veritas US IP Holdings LLC	Granted
A system for estimating and scheduling backup image duplication within a user established time window.	13/480,585	25 May 2012	9,183,094	10 Nov 2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Shipping I/O Operations to Prevent Replication Failure	13/485,902	31 May 2012	9,218,256	22 Dec 2015	Veritas US IP Holdings LLC	Granted
Circular buffer based method for allocating blocks on SSD	13/528,676	20 Jun 2012	9,183,127	10 Nov 2015	Veritas US IP Holdings LLC	Granted
Scale Up Deduplication Engine via Efficient Partitioning	13/564,984	02 Aug 2012	9,183,200	10 Nov 2015	Veritas US IP Holdings LLC	Granted
Systems And Methods For Securing Storage Space	13/645,372	04 Oct 2012	9,177,177	03 Nov 2015	Veritas US IP Holdings LLC	Granted
User Based Backup	13/645,678	05 Oct 2012	9,183,205	10 Nov 2015	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Template-Based Processing of Electronic Documents	14/010,240	26 Aug 2013	9,208,450	08 Dec 2015	Veritas US IP Holdings LLC	Granted
I/O scheduling and load balancing across the multiple nodes of a	14/145,875	31 Dec 2013	9,170,928	27 Oct 2015	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
clustered environment.						
efficient I/O error analysis and proactive I/O failover to alternate I/O paths for InfiniBand channel	14/145,883	31 Dec 2013	9,172,600	27 Oct 2015	Veritas US IP Holdings LLC	Granted
Graphical User Interface For A Display Device	29/439,706	13 Dec 2012	D745875	22 Dec 2015	Veritas US IP Holdings LLC	Granted
Graphical User Interface For A Display Device	29/439,709	13 Dec 2012	D744518	01 Dec 2015	Veritas US IP Holdings LLC	Granted
Method for Tracking Memory Allocation in Network File Server	07/954,129	9/30/1992	5,491,808	2/13/1996	Veritas US IP Holdings LLC	Granted
Interrupt Management Method	07/957,981	10/7/1992	5,367,658	11/22/1994	Veritas US IP Holdings LLC	Granted
Method for Manipulating Disk Partitions	08/393,805	2/23/1995	5,675,769	10/7/1997	Veritas US IP Holdings LLC	Granted
System for Backing Up Computer Disk Volumes with Error Remapping of Flawed Memory Addresses	08/539,315	10/4/1995	5,907,672	5/25/1999	Veritas US IP Holdings LLC	Granted
Hierarchical Queues Within a Storage Array (RAID) Controller	08/545,430	11/14/1995	5,687,390	11/11/1997	Veritas US IP Holdings LLC	Granted
Method for Initializing or Reconstructing Data Consistency Within an Array of Storage Elements	08/545,430	10/13/1995	5,812,753	9/22/1998	Veritas US IP Holdings LLC	Granted

<b>App Title</b>	<b>App No.</b>	<b>Filed Date</b>	<b>Patent No.</b>	<b>Grant Date</b>	<b>Owner</b>	<b>Status</b>
System for Backing Up Files From Disk Volumes on Multiple Nodes of a Computer Network	08/546,727	10/23/1995	5,778,395	7/7/1998	Veritas US IP Holdings LLC	Granted
Apparatus and Method for Changing the Cache Mode Dynamically in a Storage Array System	08/557,613	11/14/1995	5,815,648	9/29/1998	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Computer Disk Cache Management	08/634,886	19 Apr 1996	5,778,430	07 Jul 1998	Veritas US IP Holdings LLC	Granted
Method for Diagnosis and Repair of Compressed Volumes of Utilizing A Bitmap	08/643,310	5/10/1996	5,781,722	7/14/1998	Veritas US IP Holdings LLC	Granted
System and Method for "N" Primary Servers to Fail Over to "1" Secondary Server	08/664,437	6/18/1996	5,852,724	12/22/1998	Veritas US IP Holdings LLC	Granted
Log Device Layered Transparently Within a Filesystem Paradigm	08/711,889	9/12/1996	5,832,515	11/3/1998	Veritas US IP Holdings LLC	Granted
Efficient Virtualized Mapping Space for Log Device Data Storage System	08/711,890	9/12/1996	5,996,054	11/30/1999	Veritas US IP Holdings LLC	Granted
System and Method for Multiplexed Data Back-up to a Storage Tape and Restore Operations Using Client Identification Tags	08/755,004	11/22/1996	6,487,644	11/26/2002	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Optimizing Access to Multiplexed Data Streams on a Computer System with Limited Memory	08/772,434	12/23/1996	5,960,452	9/28/1999	Veritas US IP Holdings LLC	Granted
Manipulating Disk Partitions Between Disks	08/900,086	7/24/1997	6,178,487	1/23/2001	Veritas US IP Holdings LLC	Granted
High Speed Data Searching for Information in a Computer System	08/902,664	7/30/1997	6,012,057	1/4/2000	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Brokering Memory Resources	08/904,969	7/30/1997	6,023,712	2/8/2000	Veritas US IP Holdings LLC	Granted
Manipulation of Partitions Holding Advanced File Systems	08/932,530	9/17/1997	6,108,759	8/22/2000	Veritas US IP Holdings LLC	Granted
Computer Method and Apparatus for Unfreezing an Apparently Frozen Application Program Being Executed under Control of an Operating System	08/937,629	9/26/1997	5,911,060	6/8/1999	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Recovering Data From Damaged or Corrupted File Storage Media	08/939,085	9/26/1997	6,173,291	1/9/2001	Veritas US IP Holdings LLC	Granted
Method for Manipulating Disk Partitions	09/002,970	1/5/1998	6,088,778	7/11/2000	Veritas US IP Holdings LLC	Granted
In-Place Disk Partition Canonization and Storage Optimization	09/115,196	7/15/1998	6,185,575	2/6/2001	Veritas US IP Holdings LLC	Granted
Method, Computer, and Article of	09/132,95	8/12/1998	6,275,930	8/14/2001	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Manufacturing for Fault Tolerant Booting	6				Holdings LLC	
Recovery of File Systems After Modification Failure	09/167,879	10/7/1998	6,205,558	3/20/2001	Veritas US IP Holdings LLC	Granted
Apparatus and Method for Efficiently Updating Files in Computer Networks	09/173,481	10/14/1998	6,145,012	11/7/2000	Veritas US IP Holdings LLC	Granted
Automated Sequence of Machine-Performed Attempts to Unfreeze an Apparently Frozen Application Program	09/275,171	3/24/1999	6,151,569	11/21/2000	Veritas US IP Holdings LLC	Granted
Manipulation of Virtual and Live Computer Storage Device Partitions	09/302,748	4/30/1999	6,330,653	12/11/2001	Veritas US IP Holdings LLC	Granted
Work Monitor with File Synchronization	09/327,766	6/7/1999	7,363,330	4/22/2008	Veritas US IP Holdings LLC	Granted
Test, Protection, and Repair Through Binary Code Augmentation	09/358,673	7/22/1999	6,305,010	10/16/2001	Veritas US IP Holdings LLC	Granted
Manipulation of Computer Volume Segments	09/374,556	8/13/1999	6,453,383	9/17/2002	Veritas US IP Holdings LLC	Granted
Merging Computer Partitions	09/394,486	9/11/1999	6,185,666	2/6/2001	Veritas US IP Holdings LLC	Granted
Device and Method for Releasing an In-Memory Executable Image	09/396,593	9/15/1999	6,530,077	3/4/2003	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
From Its Dependence on a Backing Store						
Methods and Systems for Protecting Data from Potential Corruption by a Crashed Computer Program	09/438,020	11/10/1999	6,631,480	10/7/2003	Veritas US IP Holdings LLC	Granted
File System Conversion	09/612,581	7/7/2000	6,377,958	4/23/2002	Veritas US IP Holdings LLC	Granted
IP Virtualization	09/680,559	10/5/2000	7,210,147	4/24/2007	Veritas US IP Holdings LLC	Granted
Dynamic Symbolic Link Resolution	09/680,560	10/5/2000	6,895,400	5/17/2005	Veritas US IP Holdings LLC	Granted
Virtual Resource ID Mapping	09/680,563	10/5/2000	7,103,625	9/5/2006	Veritas US IP Holdings LLC	Granted
Snapshot Restore of Application Chains and Applications	09/680,847	10/5/2000	6,848,106	1/25/2005	Veritas US IP Holdings LLC	Granted
Snapshot Image for the Application State of Unshareable and Shareable Data	09/684,373	10/5/2000	6,917,963	7/12/2005	Veritas US IP Holdings LLC	Granted
Optimized Disk Storage Defragmentation With Swapping Capabilities	09/856,331	7/10/2000	7,051,055	5/23/2006	Veritas US IP Holdings LLC	Granted
Web-based administration of remote computing environments via signals sent via the internet	09/860,620	5/18/2001	8,631,103	1/14/2014	Veritas US IP Holdings LLC	Granted



App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
System for Dynamic Provisioning of Secure, Scalable, and Extensible Networked Computing Environments	09/860,665	5/18/2001	7,027,412	4/11/2006	Veritas US IP Holdings LLC	Granted
System and Services for Handling Computing Environments as Documents	09/872,346	6/1/2001	7,043,724	5/9/2006	Veritas US IP Holdings LLC	Granted
Application Model for Dynamic Computing Environments in Software Sales Cycle	09/888,969	6/25/2001	7,093,113	8/15/2006	Veritas US IP Holdings LLC	Granted
System and Method for Preventing Sector Slipping in a Storage Area Network	09/924,228	8/7/2001	6,721,851	4/13/2004	Veritas US IP Holdings LLC	Granted
Mapping Driver for Use in Data Backup Systems	09/952,780	9/13/2001	7,099,900	8/29/2006	Veritas US IP Holdings LLC	Granted
Methods and Systems to Access Storage Objects	09/997,350	11/29/2001	7,165,057	1/16/2007	Veritas US IP Holdings LLC	Granted
Methods, Functional Data, and Systems to Represent a Storage Environment	09/997,602	11/29/2001	7,293,030	11/6/2007	Veritas US IP Holdings LLC	Granted
Methods, Systems, and Apparatus to Interface with Storage Objects	09/997,612	11/29/2001	7,117,505	10/3/2006	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Computer Restoration Systems and Methods	09/998,246	11/30/2001	6,931,558	8/16/2005	Veritas US IP Holdings LLC	Granted
Cross-Spectrum Application Model for Dynamic Computing Environments in Software Lifecycle	10/044,290	1/11/2002	7,213,231	5/1/2007	Veritas US IP Holdings LLC	Granted
Control Facility for Processing In-Band Control Messages During Data Replication	10/077,330	2/15/2002	6,779,093	8/17/2004	Veritas US IP Holdings LLC	Granted
System and Method for Validated Indirect Data Backup Using Operating System I/O Operations	10/086,597	2/28/2002	7,043,507	5/9/2006	Veritas US IP Holdings LLC	Granted
System and Method for Characterizing Logical Storage Devices	10/086,656	2/28/2002	6,954,762	10/11/2005	Veritas US IP Holdings LLC	Granted
Systems, Methods and Apparatus for Creating Stable Disk Images	10/087,230	2/28/2002	6,850,945	2/1/2005	Veritas US IP Holdings LLC	Granted
System and Method for Controlling the Creation of Stable Disk Images	10/087,901	2/28/2002	6,968,433	11/22/2005	Veritas US IP Holdings LLC	Granted
Model for Cost Optimization and QOS Tuning in Hosted Computing Environments	10/093,826	3/7/2002	6,868,449	3/15/2005	Veritas US IP Holdings LLC	Granted
System and Method for Resolving Data Inconsistencies with a Data	10/098,285	3/15/2002	6,910,178	6/21/2005	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Majority						
Framework for Managing Clustering and Replication	10/100,386	3/18/2002	7,392,421	6/24/2008	Veritas US IP Holdings LLC	Granted
System and Method for Preventing Data Corruption in Computer System Clusters	10/105,771	3/25/2002	7,631,066	12/8/2009	Veritas US IP Holdings LLC	Granted
Method And Apparatus To Support Multi-Node Direct Access To File System Data	10/106,165	3/26/2002	6,834,281	12/21/2004	Veritas US IP Holdings LLC	Granted
Failing Over a Virtual Machine	10/108,882	3/28/2002	7,213,246	5/1/2007	Veritas US IP Holdings LLC	Granted
Disaster Recovery and Backup Using Virtual Machines	10/109,186	4/1/2002	7,093,086	8/15/2006	Veritas US IP Holdings LLC	Granted
System for Active Reports with Drill Down Capability Using Memory Mapping of HTML Files with Embedded Data	10/133,338	4/29/2002	7,127,444	10/24/2006	Veritas US IP Holdings LLC	Granted
Filter Driver for Identifying Disk Files by Analysis of Content	10/133,370	4/29/2002	7,024,403	4/4/2006	Veritas US IP Holdings LLC	Granted
Storage Management System	10/140,614	5/7/2002	6,757,778	6/29/2004	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Creating a Virtual Data Copy	10/143,059	5/10/2002	6,785,789	8/31/2004	Veritas US IP Holdings LLC	Granted
Business Continuation Policy for Server Consolidation	10/159,36	31 May 2002	7,529,822	05 May 2009	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Environment	6				Holdings LLC	
Automatic Operating System Handle Creation in Response to Access Control Changes	10/160,735	5/31/2002	7,219,189	5/15/2007	Veritas US IP Holdings LLC	Granted
Mapping Discovered Devices to SAN-Manageable Objects Using Configurable Rules	10/166,400	6/10/2002	7,328,260	2/5/2008	Veritas US IP Holdings LLC	Granted
Storage Area Network (SAN) Management System for Discovering SAN Components Using a SAN Management Server	10/173,401	6/17/2002	7,194,538	3/20/2007	Veritas US IP Holdings LLC	Granted
Backup and Retrieval of Data Storage Using Catalog Data	10/173,960	6/18/2002	7,028,153	4/11/2006	Veritas US IP Holdings LLC	Granted
Storage Resource Integration Layer Interfaces	10/175,029	6/18/2002	7,779,428	8/17/2010	Veritas US IP Holdings LLC	Granted
Extensible Architecture for the Centralized Discovery and Management of Heterogeneous SAN Components	10/180,150	6/26/2002	7,685,261	3/23/2010	Veritas US IP Holdings LLC	Granted
Common Data Model for Heterogeneous SAN Components	10/180,803	6/26/2002	8,180,872	5/15/2012	Veritas US IP Holdings LLC	Granted
Transactional SAN Management	10/180,826	6/26/2002	7,403,987	7/22/2008	Veritas US IP Holdings LLC	Granted
Pageable Filter Driver for Prospective Implementation of	10/186,419	7/2/2002	RE39,201	7/18/2006	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Disk Space Quotas						
Storage Services and Systems	10/194,524	7/11/2002	7,043,614	5/9/2006	Veritas US IP Holdings LLC	Granted
Method and Apparatus to Support Multi-Node Direct Write Access to a File Managed by a Single Node File System	10/195,679	7/15/2002	7,702,634	4/20/2010	Veritas US IP Holdings LLC	Granted
Symmetrical Data Change Tracking	10/207,432	7/29/2002	7,096,330	8/22/2006	Veritas US IP Holdings LLC	Granted
Maintaining Persistent Data Change Maps for Fast Data Synchronization and Restoration	10/207,451	7/29/2002	7,620,666	11/17/2009	Veritas US IP Holdings LLC	Granted
Storage Management Software Bridges	10/208,559	7/30/2002	6,883,081	4/19/2005	Veritas US IP Holdings LLC	Granted
Dynamic Discovery of Attributes of Storage Devices and Device Driver Configuration	10/208,763	7/30/2002	7,711,677	5/4/2010	Veritas US IP Holdings LLC	Granted
System and Method for Providing Safe Data Movement Using Third Party Copy Techniques	10/212,427	8/5/2002	6,772,308	8/3/2004	Veritas US IP Holdings LLC	Granted
System and Method Using Locks for Providing Safe Movement of Data Using Third Party Copy Techniques	10/212,428	8/5/2002	6,772,309	8/3/2004	Veritas US IP Holdings LLC	Granted
System and Method for Decoding	10/222,10	8/16/2002	7,562,156	7/14/2009	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Communications Between Nodes of a Cluster Server	4				Holdings LLC	
Computer System Implementing A Multi-Threaded Stride Prediction Read Ahead Algorithm	10/223,945	8/20/2002	6,789,171	9/7/2004	Veritas US IP Holdings LLC	Granted
Inter-process Messaging Using Multiple Client-Server Pairs	10/223,976	8/20/2002	7,734,681	6/8/2010	Veritas US IP Holdings LLC	Granted
System and Method For Providing Safe Data Movement Using Third Party Copy Techniques	10/224,044	8/20/2002	6,772,290	8/3/2004	Veritas US IP Holdings LLC	Granted
System and Method for Network-free File Replication in a Storage Area Network	10/224,940	8/20/2002	7,120,654	10/10/2006	Veritas US IP Holdings LLC	Granted
SAN Configuration Utility	10/229,539	8/28/2002	7,886,031	2/8/2011	Veritas US IP Holdings LLC	Granted
System and Method for Grouping Files	10/231,903	8/30/2002	7,533,137	5/12/2009	Veritas US IP Holdings LLC	Granted
Methods and Systems for Storage Architectures	10/232,132	8/30/2002	6,826,661	11/30/2004	Veritas US IP Holdings LLC	Granted
Parallel Data Change Tracking For Maintaining Mirrored Data Consistency	10/233,741	9/3/2002	7,103,796	9/5/2006	Veritas US IP Holdings LLC	Granted
Mechanism to Re-export NFS Client Mount Points from Nodes in a Cluster	10/235,022	9/4/2002	7,103,638	9/5/2006	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Use of Off-Motherboard Resources in a Computer System	10/241,749	9/10/2002	7,058,797	6/6/2006	Veritas US IP Holdings LLC	Granted
System for Managing Boot-Up of Target Computers	10/241,808	9/10/2002	7,069,428	6/27/2006	Veritas US IP Holdings LLC	Granted
System for Automated Boot from Disk Image	10/241,809	9/10/2002	6,986,033	1/10/2006	Veritas US IP Holdings LLC	Granted
One-pass Node-based Message Processing	10/244,725	9/16/2002	7,127,479	10/24/2006	Veritas US IP Holdings LLC	Granted
Management of Frozen Images	10/246,356	9/18/2002	7,069,401	6/27/2006	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Restoring a Corrupted Data Volume	10/254,753	9/25/2002	6,912,631	6/28/2005	Veritas US IP Holdings LLC	Granted
System and Method for an Access Layer Application Programming Interface for Managing Heterogeneous Components of a Storage Area Network	10/256,419	9/27/2002	7,401,338	7/15/2008	Veritas US IP Holdings LLC	Granted
Block Locking in a Multi-node Environment	10/260,805	9/30/2002	7,739,245	6/15/2010	Veritas US IP Holdings LLC	Granted
System and Method for Backing up Data from a Plurality of Client Computer Systems Using a Server Computer Including a Plurality of Processes	10/263,442	10/2/2002	6,742,092	5/25/2004	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Incremental Backup of a Data Volume	10/264,934	10/4/2002	6,938,135	8/30/2005	Veritas US IP Holdings LLC	Granted
System and Method for Archiving Data	10/266,449	10/8/2002	8,402,001	3/19/2013	Veritas US IP Holdings LLC	Granted
Snapshot Reconstruction from an Existing Snapshot and One or More Modification Logs	10/271,452	10/16/2002	6,981,114	12/27/2005	Veritas US IP Holdings LLC	Granted
SAN Simulator	10/271,492	10/16/2002	7,774,444	8/10/2010	Veritas US IP Holdings LLC	Granted
Cluster Failover for Storage Management Services	10/273,213	10/17/2002	7,058,846	6/6/2006	Veritas US IP Holdings LLC	Granted
System and Method for Creating a Snapshot of a Database	10/288,712	11/5/2002	7,389,313	6/17/2008	Veritas US IP Holdings LLC	Granted
Conflict Resolution in a Peer to Peer Network	10/302,291	11/22/2002	7,565,419	7/21/2009	Veritas US IP Holdings LLC	Granted
Distributed Storage Management Services	10/304,438	11/26/2002	7,577,729	8/18/2009	Veritas US IP Holdings LLC	Granted
Creating and Configuring Virtual Fabrics in Storage Area Networks	10/306,211	27 Nov 2002	8,060,630	15 Nov 2011	Veritas US IP Holdings LLC	Granted
Mechanism to Provide Direct Multi-Node File System Access to Files on a Single-Node Storage Stack	10/306,562	11/27/2002	7,191,225	3/13/2007	Veritas US IP Holdings LLC	Granted
System and Method for Storage	10/307,83	12/2/2002	7,506,040	3/17/2009	Veritas US IP	Granted



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Area Network Management	0				Holdings LLC	
System and Method for Distributed File System I/O Recovery	10/321,120	12/17/2002	7,664,991	2/16/2010	Veritas US IP Holdings LLC	Granted
System and Method for Reading Mirrored Data	10/321,930	12/17/2002	7,386,694	6/10/2008	Veritas US IP Holdings LLC	Granted
System and Method for Providing Access to Replicated Data	10/322,121	12/17/2002	7,370,025	5/6/2008	Veritas US IP Holdings LLC	Granted
Systems and Method Providing Input/Output Fencing in Shared Storage Environments	10/322,935	12/18/2002	7,254,736	8/7/2007	Veritas US IP Holdings LLC	Granted
Storage Path Optimization for SANs	10/323,395	12/18/2002	7,275,103	9/25/2007	Veritas US IP Holdings LLC	Granted
Managing Routing Information for a Computer Network	10/324,496	12/20/2002	8,370,523	2/5/2013	Veritas US IP Holdings LLC	Granted
Peer-to-Peer Network with Recovery Capability	10/324,517	12/20/2002	8,275,864	9/25/2012	Veritas US IP Holdings LLC	Granted
System and Method for Maintaining and Accessing Information Regarding Virtual Storage Devices	10/324,786	12/20/2002	6,883,083	4/19/2005	Veritas US IP Holdings LLC	Granted
System and Method for Providing Highly-Available Volume Mount Points	10/324,810	12/20/2002	6,865,597	3/8/2005	Veritas US IP Holdings LLC	Granted

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Volume Restoration Using an Accumulator Map	10/324,811	12/20/2002	6,910,111	6/21/2005	Veritas US IP Holdings LLC	Granted
Method of Optimizing the Space and Improving the Write Performance of Volumes with Multiple Virtual Copies	10/324,812	12/20/2002	6,996,687	2/7/2006	Veritas US IP Holdings LLC	Granted
Preservation Of Intent Of A Volume Creator With A Logical Volume	10/324,858	12/20/2002	7,143,259	11/28/2006	Veritas US IP Holdings LLC	Granted
Adaptive Implementation of Requested Capabilities for a Logical Volume	10/325,418	12/20/2002	7,162,575	1/9/2007	Veritas US IP Holdings LLC	Granted
Instant Refresh of a Data Volume Copy	10/326,427	12/19/2002	6,880,053	4/12/2005	Veritas US IP Holdings LLC	Granted
Tracking In-Progress Writes Through the Use of Multi-Column Bitmaps	10/326,432	12/19/2002	6,907,507	6/14/2005	Veritas US IP Holdings LLC	Granted
Replication Using a Special Off-Host Network Device	10/326,445	12/19/2002	7,188,125	3/6/2007	Veritas US IP Holdings LLC	Granted
Role-based Message Addressing for a Computer Network	10/326,683	12/20/2002	7,406,535	7/29/2008	Veritas US IP Holdings LLC	Granted
Development Of A Detailed Logical Volume Configuration From High-Level User Requirements	10/327,380	12/20/2002	7,159,093	1/2/2007	Veritas US IP Holdings LLC	Granted

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Reverse Pathname Lookup by Inode Identifier	10/327,461	12/20/2002	7,752,226	7/6/2010	Veritas US IP Holdings LLC	Granted
Service-Level Monitoring for Storage Applications	10/327,462	20 Dec 2002	7,685,269	23 Mar 2010	Veritas US IP Holdings LLC	Granted
Intermediate Descriptions of Intent for Storage Allocation	10/327,535	12/20/2002	7,143,260	11/28/2006	Veritas US IP Holdings LLC	Granted
Method for Creating a Virtual Data Copy of a Volume Being Restored	10/327,536	12/20/2002	6,978,354	12/20/2005	Veritas US IP Holdings LLC	Granted
Method and System for Implementing a Global Name Space Service	10/327,544	12/20/2002	7,689,715	3/30/2010	Veritas US IP Holdings LLC	Granted
Method and System for Creating a Peer-to-Peer Overlay Network	10/327,545	12/20/2002	7,401,132	7/15/2008	Veritas US IP Holdings LLC	Granted
Language For Expressing Storage Allocation Requirements	10/327,558	12/20/2002	7,383,410	6/3/2008	Veritas US IP Holdings LLC	Granted
Storage Configurator For Determining An Optimal Storage Configuration For An Application	10/327,561	12/20/2002	7,043,619	5/9/2006	Veritas US IP Holdings LLC	Granted
System And Method For Performing Virtual Device I/O Operations	10/330,378	12/27/2002	6,839,740	1/4/2005	Veritas US IP Holdings LLC	Granted
File Change Log	10/334,101	12/30/2002	7,890,469	2/15/2011	Veritas US IP Holdings LLC	Granted
Server Cluster Using Informed	10/354,31	1/30/2003	7,181,574	2/20/2007	Veritas US IP	Granted

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Prefetching	4				Holdings LLC	
Conservative Garbage Collectors that can be Used with General Memory Allocators	10/362,250	2/20/2003	7,051,056	5/23/2006	Veritas US IP Holdings LLC	Granted
Cookie-based Directory Name Lookup Cache for a Cluster File System	10/369,968	2/19/2003	7,103,616	9/5/2006	Veritas US IP Holdings LLC	Granted
Generalized Architecture for Automatic Storage Configuration for Diverse Server Applications	10/388,193	3/13/2003	7,017,023	3/21/2006	Veritas US IP Holdings LLC	Granted
Method and System of Providing Access to a Virtual Storage Device	10/395,415	3/24/2003	7,747,660	6/29/2010	Veritas US IP Holdings LLC	Granted
Method and System of Providing a Write-Accessible Storage Checkpoint	10/395,443	3/24/2003	7,216,254	5/8/2007	Veritas US IP Holdings LLC	Granted
Locking and Memory Allocation in File System Cache	10/395,594	3/24/2003	7,010,655	3/7/2006	Veritas US IP Holdings LLC	Granted
Publishing a Network Address in a Computer Network	10/403,564	3/31/2003	7,404,006	7/22/2008	Veritas US IP Holdings LLC	Granted
Using Disassociated Images for Computer and Storage Resource Management	10/406,139	4/2/2003	7,565,495	7/21/2009	Veritas US IP Holdings LLC	Granted
Self-Healing, Policy-Based, Distributed Storage Provisioning	10/411,004	10 Apr 2003	8,838,793	16 Sep 2014	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Topology for Showing Data Protection Activity	10/413,164	4/14/2003	7,631,068	12/8/2009	Veritas US IP Holdings LLC	Granted
File Usage History Log for Improved Placement of Files in Differential Rate Memory According to Frequency of Utilizations and Volatility of Allocation Space	10/418,476	4/18/2003	7,124,272	10/17/2006	Veritas US IP Holdings LLC	Granted
Masterless Locks in a Multi-Node Environment	10/423,146	4/25/2003	7,340,743	3/4/2008	Veritas US IP Holdings LLC	Granted
SNAPSHOT-Based Replication Infrastructure For Efficient Logging With Minimal Performance Effect	10/423,291	4/25/2003	7,668,876	2/23/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Generating a Graphical Display Report	10/423,406	4/25/2003	7,266,781	9/4/2007	Veritas US IP Holdings LLC	Granted
System and method for performing file lookups based on tags	10/428,543	5/2/2003	7,228,299	6/5/2007	Veritas US IP Holdings LLC	Granted
Method and System of Providing a Virtual Transport Session	10/430,754	5/6/2003	8,631,133	1/14/2014	Veritas US IP Holdings LLC	Granted
Method and System of Providing Periodic Replication	10/436,354	5/12/2003	7,191,299	3/13/2007	Veritas US IP Holdings LLC	Granted
Computer Imaging Recovery Without a Working Partition or a	10/449,72	6/1/2003	7,216,251	5/8/2007	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Secondary Medium	8				Holdings LLC	
Multi-Volume File Support	10/449,739	5/30/2003	7,814,128	10/12/2010	Veritas US IP Holdings LLC	Granted
SAN fabric discovery	10/449,797	5/30/2003	7,885,256	2/8/2011	Veritas US IP Holdings LLC	Granted
Storage Area Network (SAN) Device Logical Relationships Manager	10/453,107	6/3/2003	6,839,746	1/4/2005	Veritas US IP Holdings LLC	Granted
Efficiently Performing Deletion of a Range of Keys in A B+ Tree.	10/453,961	6/4/2003	7,370,055	5/6/2008	Veritas US IP Holdings LLC	Granted
System and Method for Partitioning a File System for Enhanced Availability and Scalability	10/460,148	6/12/2003	7,653,699	1/26/2010	Veritas US IP Holdings LLC	Granted
System and Method for Performing Sparse Backups	10/460,587	6/12/2003	7,716,184	5/11/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Balancing a Load Among a Plurality of Servers in a Computer System	10/461,192	6/13/2003	7,181,524	2/20/2007	Veritas US IP Holdings LLC	Granted
A Method for Computing Data Signatures	10/464,687	6/18/2003	7,373,520	5/13/2008	Veritas US IP Holdings LLC	Granted
Method And Apparatus For Tape Library Emulation	10/606,604	6/26/2003	7,698,532	4/13/2010	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Business Continuation Policy for Server Consolidation Environment	10/609,363	6/27/2003	7,478,149	1/13/2009	Veritas US IP Holdings LLC	Granted
Automated Recovery from Data Corruption of Data Volumes in RAID-5 Volumes	10/609,487	7/1/2003	7,069,381	6/27/2006	Veritas US IP Holdings LLC	Granted
Goal-Oriented Storage Management for a Distributed Data Storage Network	10/609,921	6/30/2003	8,886,705	11/11/2014	Veritas US IP Holdings LLC	Granted
External Device Support for Device Abstraction Layer	10/610,069	6/30/2003	7,222,349	5/22/2007	Veritas US IP Holdings LLC	Granted
Method and System of Providing Replica Files Within a Fileset	10/610,119	6/30/2003	7,996,361	8/9/2011	Veritas US IP Holdings LLC	Granted
Synchronization Of Selected Data From Snapshots Stored On Different Storage Volumes	10/610,120	6/30/2003	7,523,276	4/21/2009	Veritas US IP Holdings LLC	Granted
Volume-Based Incremental Backup and Recovery of Files	10/610,134	6/30/2003	7,284,104	10/16/2007	Veritas US IP Holdings LLC	Granted
System And Method For Storage Device Active Path Coordination Among Hosts	10/610,137	6/30/2003	7,272,674	9/18/2007	Veritas US IP Holdings LLC	Granted
Method and System for Incremental Backup of Data Volumes	10/610,138	6/30/2003	7,694,086	4/6/2010	Veritas US IP Holdings LLC	Granted
Fast Failover With Multiple	10/610,13	6/30/2003	8689043	4/1/2014	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Secondary Nodes	9				Holdings LLC	
Optimistic Reads In A Multi-Node Environment	10/610,193	6/30/2003	7,155,577	12/26/2006	Veritas US IP Holdings LLC	Granted
System and Method for Performing Virtual Device I/O Operations	10/610,204	6/30/2003	7,028,078	4/11/2006	Veritas US IP Holdings LLC	Granted
Multi-Host Environment with Coordinated Distributed Logging for Writes to a Raid Storage Volume	10/610,392	6/30/2003	7,096,316	8/22/2006	Veritas US IP Holdings LLC	Granted
Coordinated Distributed Logging in a Multi-Host Environment	10/610,393	6/30/2003	7,330,858	2/12/2008	Veritas US IP Holdings LLC	Granted
Coordinated Distributed Log-Based Snapshots in a Multihost Environment	10/610,405	6/30/2003	7,328,226	2/5/2008	Veritas US IP Holdings LLC	Granted
Flexible Hierarchy of Relationships and Operations in Data Volumes	10/610,603	7/1/2003	7,103,737	9/5/2006	Veritas US IP Holdings LLC	Granted
Use of Read Data Tracking and Caching to Recover from Data Corruption	10/610,604	7/1/2003	7,028,156	4/11/2006	Veritas US IP Holdings LLC	Granted
Transforming Unrelated Data Volumes into Related Data Volumes	10/610,961	7/1/2003	7,664,793	2/16/2010	Veritas US IP Holdings LLC	Granted
Automated Recovery from Data	10/610,96	7/1/2003	7,146,461	12/5/2006	Veritas US IP	Granted



App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Corruption of Data Volumes in Parity RAID Storage Systems	6				Holdings LLC	
Application-assisted Recovery from Data Corruption in Parity RAID Storage Using Successive Re-reads	10/614,306	7/3/2003	7,028,139	4/11/2006	Veritas US IP Holdings LLC	Granted
System and Method for Maintaining a BackupStorage System for a Computer System	10/614,347	7/8/2003	7,844,577	11/30/2010	Veritas US IP Holdings LLC	Granted
Migrating Virtual Machines Among Computer Systems to Balance Load Caused by Virtual Machines	10/616,437	7/9/2003	7,203,944	4/10/2007	Veritas US IP Holdings LLC	Granted
Data restore mechanism	10/623,384	7/18/2003	7,024,527	4/4/2006	Veritas US IP Holdings LLC	Granted
Refresh Mechanism for Databases	10/623,406	7/18/2003	7,987,157	7/26/2011	Veritas US IP Holdings LLC	Granted
Cluster Communication in Heartbeat Messages	10/624,048	7/21/2003	7,330,444	2/12/2008	Veritas US IP Holdings LLC	Granted
Technique to Monitor Application Behavior and Tune Replication Performance	10/624,396	7/22/2003	7,334,062	2/19/2008	Veritas US IP Holdings LLC	Granted
Method and System for an Overlay Filesystem	10/625,219	7/22/2003	7,197,516	3/27/2007	Veritas US IP Holdings LLC	Granted
Network File System Record Lock	10/627,25	7/25/2003	7,356,531	4/8/2008	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Recovery in a Highly Available Environment	8				Holdings LLC	
System and Method for Resolving Cluster Partitions in Out-of-Band Storage Virtualization Environments	10/627,385	7/25/2003	7,739,541	6/15/2010	Veritas US IP Holdings LLC	Granted
Graphical User Interface for Creating a Customized Storage Layout for an Application	10/641,128	8/14/2003	7,293,237	11/6/2007	Veritas US IP Holdings LLC	Granted
Method and System for Improved Storage System Performance Using Cloning of Cached Data	10/642,862	8/18/2003	7,426,611	9/16/2008	Veritas US IP Holdings LLC	Granted
Method and System for Performing Periodic Replication using a Log	10/652,380	8/29/2003	7,406,487	7/29/2008	Veritas US IP Holdings LLC	Granted
Balancing Most Frequently Used File System Clusters Across A Plurality Of Disks	10/653,751	9/3/2003	7,185,163	2/27/2007	Veritas US IP Holdings LLC	Granted
Method and System for Performing Periodic Replication using a Log and a Change Map	10/655,264	9/4/2003	7,191,284	3/13/2007	Veritas US IP Holdings LLC	Granted
Method and System for Completing a Backup Job that was Interrupted During a Backup Process	10/657,675	9/8/2003	7,085,962	8/1/2006	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Data Storage Analysis Mechanism	10/659,891	9/11/2003	6,912,482	6/28/2005	Veritas US IP Holdings LLC	Granted
Checkpoint Service	10/663,632	16 Sep 2003	7,743,381	22 Jun 2010	Veritas US IP Holdings LLC	Granted
Systems and Methods for Time Dependent Data Storage and Recovery	10/668,833	9/23/2003	7,577,806	8/18/2009	Veritas US IP Holdings LLC	Granted
Providing high availability for applications using a single node cluster by rapidly provisioning a new equally capable system to fail the application to	10/669,931	9/24/2003	7,543,174	6/2/2009	Veritas US IP Holdings LLC	Granted
Computer System and Method for Performing Low Impact Backup Operations	10/675,093	9/30/2003	7,139,846	11/21/2006	Veritas US IP Holdings LLC	Granted
System And Method For Maintaining Temporal Data In Data Storage	10/675,188	9/30/2003	7,158,991	1/2/2007	Veritas US IP Holdings LLC	Granted
Propagating Results of a Volume-Changing Operation to Replicated Nodes	10/675,505	9/30/2003	7,831,550	11/9/2010	Veritas US IP Holdings LLC	Granted
Using advanced data archival systems to facilitate security incident identification and prioritization	10/677,630	10/1/2003	7,356,843	4/8/2008	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
System and Method for Recording the Order of a Change Caused by Restoring a Primary Volume During Ongoing Replication of the Primary Volume	10/687,104	10/16/2003	7,194,487	3/20/2007	Veritas US IP Holdings LLC	Granted
Controlling file operations	10/691,443	10/22/2003	7,272,713	9/18/2007	Veritas US IP Holdings LLC	Granted
Distribution of Data Volume Virtualization	10/696,622	10/29/2003	7,398,350	7/8/2008	Veritas US IP Holdings LLC	Granted
Single Instance Backup of E-mail Message Attachments	10/698,092	10/31/2003	7,251,680	7/31/2007	Veritas US IP Holdings LLC	Granted
Incremental Method for Backup of E-mail Messages	10/699,418	10/31/2003	7,165,082	1/16/2007	Veritas US IP Holdings LLC	Granted
Synchronous Replication for System and Data Security	10/699,475	10/31/2003	7,149,858	12/12/2006	Veritas US IP Holdings LLC	Granted
Systems and Methods for Policy-based Application Management	10/703,683	11/7/2003	7,328,259	2/5/2008	Veritas US IP Holdings LLC	Granted
Efficient Search for Storage Objects in a Network	10/704,271	11/7/2003	7,680,950	3/16/2010	Veritas US IP Holdings LLC	Granted
Direct Connections to a Plurality of Storage Object Replicas in a Computer Network	10/704,299	11/7/2003	8,060,619	11/15/2011	Veritas US IP Holdings LLC	Granted
Efficient Linking Storage Object Replicas in a Computer Network	10/704,320	11/7/2003	7,555,527	6/30/2009	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Provisioning and Snapshotting Using Copy on Read/Write and Transient Virtual Machine Technology	10/7706,74 2	11/12/2003	7,246,200	7/17/2007	Veritas US IP Holdings LLC	Granted
System and Method for Identifying Block-Level Write Operations to be Transferred to a Secondary Site During Replication	10/7716,09 2	11/18/2003	7,054,960	5/30/2006	Veritas US IP Holdings LLC	Granted
System and Method for Dynamically Loadable Storage Device I/O Policy Modules	10/7717,03 7	11/19/2003	7,127,545	10/24/2006	Veritas US IP Holdings LLC	Granted
Remote Data Access for Local Operations	10/7722,70 1	11/25/2003	8,001,085	8/16/2011	Veritas US IP Holdings LLC	Granted
Method and System of Providing Periodic Replication	10/7723,49 3	11/26/2003	7,308,545	12/11/2007	Veritas US IP Holdings LLC	Granted
System and Method for Detecting File Content Similarity Within a File System	10/7723,69 8	11/26/2003	7,188,118	3/6/2007	Veritas US IP Holdings LLC	Granted
System and Method for Detecting and Storing File Identity Change Information Within a File System	10/7723,70 4	11/26/2003	7,328,217	2/5/2008	Veritas US IP Holdings LLC	Granted
System and Method for Detecting and Storing File Content Access Information Within a File System	10/7723,72 9	11/26/2003	7,272,606	9/18/2007	Veritas US IP Holdings LLC	Granted
Identification for Reservation of Replacement Storage Devices for a	10/7724,24	11/28/2003	7,487,308	2/3/2009	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Logical Volume to Satisfy its Intent	5				Holdings LLC	
System and Method for Allowing Multiple Sub-clusters to Survive a Cluster Partition	10/7727,42 5	12/4/2003	7,464,378	12/9/2008	Veritas US IP Holdings LLC	Granted
Fast Failover With Multiple Secondary Nodes	10/7728,02 7	12/4/2003	7,617,369	11/10/2009	Veritas US IP Holdings LLC	Granted
Methods and Systems for Redirecting Data	10/7730,22 2	12/8/2003	7,734,907	6/8/2010	Veritas US IP Holdings LLC	Granted
System and Method for Providing Programming Language-independent Access to File System Content	10/7732,72 7	12/10/2003	7,415,480	8/19/2008	Veritas US IP Holdings LLC	Granted
File System and Methods for Performing File Create and Open Operations with Efficient Storage Allocation	10/7735,08 8	12/12/2003	7,188,128	3/6/2007	Veritas US IP Holdings LLC	Granted
Server-free Archival of Backup Data	10/7736,27 2	12/15/2003	7,496,723	2/24/2009	Veritas US IP Holdings LLC	Granted
Method and System of Generating a Point-in-Time Image of at Least a Portion of a Database	10/7737,28 1	12/16/2003	7,831,564	11/9/2010	Veritas US IP Holdings LLC	Granted
System and Method for Determining Whether Performing a Particular Process on a File Will	10/7738,26 6	12/17/2003	7,664,763	2/16/2010	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
be Useful						
Overlay network with efficient routing and recovery	10/7738,43 1	12/17/2003	7,570,600	8/4/2009	Veritas US IP Holdings LLC	Granted
Clustering a Standalone Exchange Server and Any-to-Any Exchange Failover	10/7739,60 6	12/18/2003	8,316,110	11/20/2012	Veritas US IP Holdings LLC	Granted
System and Method for Dynamic Storage Device Expansion Support in a Storage Virtualization Environment	10/7740,30 2	12/18/2003	7,921,262	4/5/2011	Veritas US IP Holdings LLC	Granted
System and Method for Cooperative Application Quiescence in a Computing Environment	10/7741,35 3	12/19/2003	7,421,714	9/2/2008	Veritas US IP Holdings LLC	Granted
System and Method for Administering a Device via Instant Messaging	10/7741,45 6	12/19/2003	7,895,314	2/22/2011	Veritas US IP Holdings LLC	Granted
System and Method for Application Discovery in a Computing Environment	10/7741,84 2	12/19/2003	7,418,478	8/26/2008	Veritas US IP Holdings LLC	Granted
Using Data Copies for Redundancy	10/7741,85 8	12/19/2003	7,290,101	10/30/2007	Veritas US IP Holdings LLC	Granted
Method of Detection of Data Corruption in Mirrored Storage	10/7742,12 9	12/19/2003	7,177,993	2/13/2007	Veritas US IP Holdings LLC	Granted
Cooperative Data Replication	10/7742,13	12/19/2003	7,305,529	12/4/2007	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
	0				Holdings LLC	
System and Method for Selecting Third Party Copy Devices	10/742,221	12/19/2003	7,469,274	12/23/2008	Veritas US IP Holdings LLC	Granted
Object-driven Visualization Mechanism for Zoning Information on a Storage Area Network	10/743,370	12/22/2003	7,533,169	5/12/2009	Veritas US IP Holdings LLC	Granted
Partial File Migration Mechanism	10/745,174	12/23/2003	7,165,059	1/16/2007	Veritas US IP Holdings LLC	Granted
Coordinated Dirty Block Tracking	10/747,782	12/29/2003	7,039,661	5/2/2006	Veritas US IP Holdings LLC	Granted
Conflict Resolution for a Distributed File Sharing System	10/749,260	12/31/2003	7,822,711	10/26/2010	Veritas US IP Holdings LLC	Granted
System pre-allocating data object replicas for a distributed file sharing system	10/749,267	12/31/2003	7,433,928	10/7/2008	Veritas US IP Holdings LLC	Granted
Restore Mechanism for a Multi-class File System	10/749,279	12/31/2003	8,127,095	2/28/2012	Veritas US IP Holdings LLC	Granted
Performing Operations Without Requiring Split Mirrors in a Multi-class File System	10/749,299	12/31/2003	7,293,133	11/6/2007	Veritas US IP Holdings LLC	Granted
Efficient Distributed Transaction Protocol for a Distributed File Sharing System	10/749,300	12/31/2003	7,478,400	1/13/2009	Veritas US IP Holdings LLC	Granted



App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Backup Mechanism for a Multi-class File System	10/7749,33 4	12/31/2003	7,103,740	9/5/2006	Veritas US IP Holdings LLC	Granted
Coherency of Replicas for a Distributed File Sharing System	10/7749,36 5	12/31/2003	7,500,020	3/3/2009	Veritas US IP Holdings LLC	Granted
Method of Data Caching in Mirrored Storage	10/7749,86 2	12/31/2003	7,702,863	4/20/2010	Veritas US IP Holdings LLC	Granted
Dynamic Storage Mechanism	10/750,40 1	12/31/2003	8,825,591	9/2/2014	Veritas US IP Holdings LLC	Granted
Adaptive Caching for a Distributed File Sharing System	10/750,42 6	12/31/2003	7,734,820	6/8/2010	Veritas US IP Holdings LLC	Granted
Coordinated Storage Management Operations in Replication Environment	10/750,59 6	12/31/2003	7,139,887	11/21/2006	Veritas US IP Holdings LLC	Granted
Multi-class Storage Mechanism	10/750,59 7	12/31/2003	7,225,211	5/29/2007	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Localized Protected Imaging of a File System	10/762,86 6	1/22/2004	8,818,950	8/26/2014	Veritas US IP Holdings LLC	Granted
Simultaneous Allocation of Storage for Multiple Logical Volumes	10/767,39 9	1/29/2004	7,636,830	12/22/2009	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Creating a Virtual Data Copy	10/769,31 7	1/30/2004	7,310,714	12/18/2007	Veritas US IP Holdings LLC	Granted
Coherently Sharing any Form of Instant Snapshot Separately from	10/770,35	2/2/2004	7,657,717	2/2/2010	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Base Volumes	8				Holdings LLC	
Pageable Filter Driver for Prospective Implementation of Disk Space Quotas	10/7771,53 9	2/5/2004	RE41,072	1/5/2010	Veritas US IP Holdings LLC	Granted
Restore of Backup to Computer System with Filesystem/Volume Attribute Modification	10/7774,03 3	2/6/2004	7,313,719	12/25/2007	Veritas US IP Holdings LLC	Granted
Graphical User Interface for Mapping Computer Resources	10/7774,03 9	2/6/2004	7,322,010	1/22/2008	Veritas US IP Holdings LLC	Granted
System State Rollback After Modification Failure	10/7775,47 1	2/9/2004	7,467,378	12/16/2008	Veritas US IP Holdings LLC	Granted
In-Place Preservation of File System Objects During a Disk Clone Operation	10/7776,44 5	2/10/2004	7,337,198	2/26/2008	Veritas US IP Holdings LLC	Granted
Method and System for Obtaining Data Stored in a Data Store	10/7778,43 6	2/13/2004	7,584,337	9/1/2009	Veritas US IP Holdings LLC	Granted
Storage Management Device	10/7778,56 1	2/13/2004	7,272,666	9/18/2007	Veritas US IP Holdings LLC	Granted
Virtual Data Store Creation and Use	10/7780,00 4	2/17/2004	7,991,748	8/2/2011	Veritas US IP Holdings LLC	Granted
Efficient Computer File Backup System and Method	10/7780,68 3	2/19/2004	7,254,596	8/7/2007	Veritas US IP Holdings LLC	Granted
System and Method for Disabling Auto-Trespassing Response to an	10/7787,65 3	2/26/2004	8,443,119	5/14/2013	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Automatic Failover						
Device Driver Processing for Automated System Restores	10/7788,12 0	2/26/2004	7,293,272	11/6/2007	Veritas US IP Holdings LLC	Granted
Restore of Data to a Computer System Having Different Hardware	10/7788,14 3	2/26/2004	7,334,157	2/19/2008	Veritas US IP Holdings LLC	Granted
Technique for Recovering Mirror Consistency in Cooperative Virtual Storage	10/7788,58 9	2/27/2004	7,904,678	3/8/2011	Veritas US IP Holdings LLC	Granted
Method and system of replicating data using recovery data change log	10/7788,69 7	2/27/2004	7,457,830	11/25/2008	Veritas US IP Holdings LLC	Granted
Method and System for Virtualization Switch Failover	10/7788,69 8	2/27/2004	7,565,568	7/21/2009	Veritas US IP Holdings LLC	Granted
Registry Restore to Original Hardware	10/7789,90 1	2/27/2004	7,489,782	2/10/2009	Veritas US IP Holdings LLC	Granted
Internal Monitoring of Applications in a Distributed Management Framework	10/7789,90 2	2/27/2004	7,739,689	6/15/2010	Veritas US IP Holdings LLC	Granted
Using A Single Allocator To Coordinate Volume Transformations Across Virtualization Layers	10/7790,65 6	3/1/2004	7,836,271	11/16/2010	Veritas US IP Holdings LLC	Granted
Efficient Operations Using Assistance from Secondary Site	10/7790,65 7	3/1/2004	7,610,319	10/27/2009	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Central Administration and Maintenance of Workstations Using Virtual Machines, Network Filesystems, and Replication	10/791,472	3/2/2004	7,810,092	10/5/2010	Veritas US IP Holdings LLC	Granted
System and Method for Efficient File Content Searching Within a File System	10/793,070	3/4/2004	7,636,710	12/22/2009	Veritas US IP Holdings LLC	Granted
Method for Identifying the Time at which Data was Written to a Data Store	10/799,428	3/12/2004	7,725,667	5/25/2010	Veritas US IP Holdings LLC	Granted
System and Method for Preventing Sector Slipping in a Storage Area Network	10/800,239	3/12/2004	6,920,538	7/19/2005	Veritas US IP Holdings LLC	Granted
Expiration of Access Tokens for Quiescing a Distributed System	10/809,207	3/25/2004	7,720,864	5/18/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Performing Backup Storage of Checkpoint Data Within a Server Cluster	10/812,139	3/29/2004	7,478,275	1/13/2009	Veritas US IP Holdings LLC	Granted
Identification of Storage to Acquire to Maintain the Intent of Logical Volumes	10/812,322	3/29/2004	7,467,257	12/16/2008	Veritas US IP Holdings LLC	Granted
Information Technology Process Workflow for Data Centers	10/815,126	3/31/2004	7,900,206	3/1/2011	Veritas US IP Holdings LLC	Granted
Storage Management System	10/821,55	4/9/2004	7,266,637	9/4/2007	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
	9				Holdings LLC	
Computer System Operable to Automatically Reorganize Files to Avoid Fragmentation	10/822,475	4/12/2004	8,019,799	9/13/2011	Veritas US IP Holdings LLC	Granted
Two-tier Backup Mechanism	10/824,091	4/14/2004	7,197,520	3/27/2007	Veritas US IP Holdings LLC	Granted
Policy-based Automation Using Multiple Inference Techniques	10/825,700	4/16/2004	7,233,935	6/19/2007	Veritas US IP Holdings LLC	Granted
System and Method for Multiplexed Data Back-up to a Storage Tape and Restore Operations Using Client Identification Tags	10/831,791	4/26/2004	7,127,535	10/24/2006	Veritas US IP Holdings LLC	Granted
Method and apparatus for providing redundant paths to a storage volume	10/832,150	4/26/2004	8,984,175	3/17/2015	Veritas US IP Holdings LLC	Granted
Externally Managed File Versions	10/833,869	4/28/2004	7,533,133	5/12/2009	Veritas US IP Holdings LLC	Granted
Synthesized Backup Set Catalog	10/834,446	4/29/2004	7,266,655	9/4/2007	Veritas US IP Holdings LLC	Granted
Method and System for Virtual Storage Element Placement Within a Storage Area Network	10/834,602	4/26/2004	7,437,506	10/14/2008	Veritas US IP Holdings LLC	Granted
System and Method for Performing Snapshots in a Storage	10/838,043	5/3/2004	7,389,394	6/17/2008	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Environment Employing Distributed Block Virtualization						
System and Method for Recoverable Mirroring in a Storage Environment Employing Asymmetric Distributed Block Virtualization	10/838,162	5/3/2004	7,340,640	3/4/2008	Veritas US IP Holdings LLC	Granted
Volume Server and Volume Owner Communication Protocol in a Distributed Storage Management System	10/838,164	5/3/2004	7,523,139	4/21/2009	Veritas US IP Holdings LLC	Granted
Mirrored Storage at the File System Level	10/840,552	5/6/2004	7,693,880	4/6/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Immunizing Applications on a Host Server from Failover Processing Within a Switch	10/844,732	5/13/2004	7,418,633	8/26/2008	Veritas US IP Holdings LLC	Granted
Detecting and Repairing Inconsistencies in Storage Mirrors	10/847,977	5/18/2004	7,809,898	10/5/2010	Veritas US IP Holdings LLC	Granted
Probabilistic Data Locating in Sparse Data Images	10/852,836	5/25/2004	7,882,066	2/1/2011	Veritas US IP Holdings LLC	Granted
Recoverable Single Phase Logging	10/854,394	5/26/2004	8,805,886	8/12/2014	Veritas US IP Holdings LLC	Granted
Global Monitoring and Statistics Collection for a Plurality of	10/855,603	5/27/2004	7,698,414	4/13/2010	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Computing Nodes						
System and Method Using Locks for Providing Save Movement of Data Using Third Party Copy Techniques	10/856,045	5/28/2004	7,831,788	11/9/2010	Veritas US IP Holdings LLC	Granted
System and Method for Providing a Programming Language Independent Interface for Querying File System Content	10/862,504	6/7/2004	8,306,991	11/6/2012	Veritas US IP Holdings LLC	Granted
System and Method for Generating Extensible File System Metadata	10/862,505	6/7/2004	8,484,257	7/9/2013	Veritas US IP Holdings LLC	Granted
System and Method for File System Content Processing	10/862,506	6/7/2004	7,657,530	2/2/2010	Veritas US IP Holdings LLC	Granted
System and Method for Querying File System Content	10/862,521	6/7/2004	7,831,552	11/9/2010	Veritas US IP Holdings LLC	Granted
Automatic Detection of Backup Recovery Sets	10/864,664	6/9/2004	7,624,133	11/24/2009	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Selectively Storing Blocks of Data on a Server	10/867,611	6/14/2004	8,176,015	5/8/2012	Veritas US IP Holdings LLC	Granted
System and Method for Directing Query Traffic	10/869,722	6/16/2004	7,987,181	7/26/2011	Veritas US IP Holdings LLC	Granted
System and Method for Determining File System Data	10/869,723	6/16/2004	7,653,647	1/26/2010	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Integrity						
Method and Apparatus for Logging Write Requests to a Storage Volume in a Network Data Switch	10/871,827	6/18/2004	8,694,538	4/8/2014	Veritas US IP Holdings LLC	Granted
Undoable Volume Using Write Logging	10/873,844	6/22/2004	7,383,465	6/3/2008	Veritas US IP Holdings LLC	Granted
Criticality Classification System and Methods	10/876,193	6/23/2004	7,395,244	7/1/2008	Veritas US IP Holdings LLC	Granted
System and Method for Applying a File System Security Model to a Query System	10/878,826	6/28/2004	7,562,216	7/14/2009	Veritas US IP Holdings LLC	Granted
System and Method for Point-in-Time Recovery of Application Resource Sets	10/878,955	6/28/2004	7,640,454	12/29/2009	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Providing In-Memory Checkpoint Services Within a Distributed Transaction	10/880,383	6/29/2004	8,095,826	1/10/2012	Veritas US IP Holdings LLC	Granted
Classification of Recovery Targets to Enable Automated Protection Setup	10/881,033	6/30/2004	7,325,161	1/29/2008	Veritas US IP Holdings LLC	Granted
Control Facility for Processing In-Band Control Messages During Data Replication	10/881,072	6/30/2004	7,373,468	5/13/2008	Veritas US IP Holdings LLC	Granted



App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Using Asset Dependencies to Identify the Recovery Set and Optionally Automate and/or Optimize the Recovery	10/881,218	6/30/2004	7,386,752	6/10/2008	Veritas US IP Holdings LLC	Granted
Conveying Causal Relationships Between at least three Dimensions of Recovery Management	10/881,220	6/30/2004	7,360,123	4/15/2008	Veritas US IP Holdings LLC	Granted
System and Method for Providing Safe Data Movement Using Third Party Copy Techniques	10/881,313	6/30/2004	6,883,076	4/19/2005	Veritas US IP Holdings LLC	Granted
Using Roll-Forward and Roll-Backward Logs to Restore a Data Volume	10/881,320	6/30/2004	7,620,785	11/17/2009	Veritas US IP Holdings LLC	Granted
Estimation of Recovery Time, Validation of Recoverability, and Decision Support Using Recovery Metrics, Targets, and Objectives	10/881,545	6/30/2004	8,261,122	9/4/2012	Veritas US IP Holdings LLC	Granted
Parameterization of Dimensions of Protection Systems and Uses Thereof	10/881,615	6/30/2004	7,360,110	4/15/2008	Veritas US IP Holdings LLC	Granted
Consistent Backups of Data Using a Roll-Back Log	10/881,723	6/30/2004	7,739,464	6/15/2010	Veritas US IP Holdings LLC	Granted
Roll-Back Log To Provide Data Consistency	10/881,724	6/30/2004	7,831,782	11/9/2010	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Automatic Device Classification Service on Storage Area Network	10/881,837	6/30/2004	7,664,839	2/16/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Prioritizing Provisioning Data in a Provisioning Server	10/881,881	6/30/2004	7,640,328	12/29/2009	Veritas US IP Holdings LLC	Granted
Updating a Change Track Map Based on a Mirror Recovery Map	10/882,112	6/30/2004	7,707,372	4/27/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Maintaining Information that Indicates Valid Regions of a Working Volume and Using that Information to Delay Volume Initialization	10/882,612	7/1/2004	7,409,512	8/5/2008	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Synchronizing Redundant Data with a Volume	10/882,631	7/1/2004	7,313,724	12/25/2007	Veritas US IP Holdings LLC	Granted
Computer System Implementing a Multi-threaded Stride Prediction Read Ahead Algorithm	10/883,370	7/1/2004	6,915,404	7/5/2005	Veritas US IP Holdings LLC	Granted
Dynamic Symbolic Link Resolution	10/887,514	7/8/2004	7,340,444	3/4/2008	Veritas US IP Holdings LLC	Granted
System and Method for Customized I/O Fencing for Preventing Data Corruption in Computer System Clusters	10/893,621	7/16/2004	7,590,737	9/15/2009	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Storage Layout and Data Replication	10/898,794	7/26/2004	7,275,142	9/25/2007	Veritas US IP Holdings LLC	Granted
System and Method for Managing I/O Errors in a Storage Environment Employing Asymmetric Distributed Block Virtualization	10/899,195	7/26/2004	7,293,191	11/6/2007	Veritas US IP Holdings LLC	Granted
System and Method for Managing I/O Access Policies in a Storage Environment Employing Asymmetric Distributed Block Virtualization	10/899,201	7/26/2004	7,328,287	2/5/2008	Veritas US IP Holdings LLC	Granted
System and Method For Providing Safe Data Movement Using Third Party Copy Techniques	10/902,980	7/20/2004	6,912,636	6/28/2005	Veritas US IP Holdings LLC	Granted
Optimized Library Device Management	10/903,100	7/30/2004	7,672,753	3/2/2010	Veritas US IP Holdings LLC	Granted
System and Method for Implementing Volume Sets in a Storage System	10/903,103	7/30/2004	7,424,592	9/9/2008	Veritas US IP Holdings LLC	Granted
Method and System for Persistent, Recoverable User-Level Locks	10/903,291	7/30/2004	7,698,708	4/13/2010	Veritas US IP Holdings LLC	Granted
Method and System of Generating a Proxy for a Database	10/909,028	7/30/2004	7,631,020	12/8/2009	Veritas US IP Holdings LLC	Granted
Method and System for Automated Management of	10/909,63	8/2/2004	8,260,893	9/4/2012	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Information Technology	5				Holdings LLC	
Virtual Resource ID-Mapping	10/912,828	8/6/2004	7,415,709	8/19/2008	Veritas US IP Holdings LLC	Granted
System And Method For Enforcing Device Grouping Rules For Storage Virtualization	10/915,136	8/10/2004	7,818,515	10/19/2010	Veritas US IP Holdings LLC	Granted
System and Method for Communicating File System Events Using a Publish-Subscribe Model	10/919,855	8/17/2004	7,437,375	10/14/2008	Veritas US IP Holdings LLC	Granted
Fixing Prematurely Freed Objects	10/920,597	8/17/2004	7,299,384	11/20/2007	Veritas US IP Holdings LLC	Granted
Systems, Methods and Apparatus for Creating Stable Disk Images	10/920,769	8/18/2004	7,043,508	5/9/2006	Veritas US IP Holdings LLC	Granted
Methods and Apparatus for Optimally Selecting a Storage Buffer for the Storage of Data	10/924,559	8/24/2004	7,631,120	12/8/2009	Veritas US IP Holdings LLC	Granted
Recovering from Storage Transaction Failures Using Checkpoints	10/924,560	8/24/2004	7,409,587	8/5/2008	Veritas US IP Holdings LLC	Granted
Processing Storage-Related I/O Requests Using Binary Tree Data Structures	10/924,582	8/24/2004	7,730,222	6/1/2010	Veritas US IP Holdings LLC	Granted
Systems and methods for synchronizing the internal clocks	10/924,640	8/24/2004	7,239,581	7/3/2007	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
of a plurality of processor modules						
Data Storage System	10/924,646	8/24/2004	7,725,760	5/25/2010	Veritas US IP Holdings LLC	Granted
Methods and Devices for Restoring a Portion of a Data Store	10/924,652	8/24/2004	7,577,807	8/18/2009	Veritas US IP Holdings LLC	Granted
Generation and use of a Time Map for Accessing a Prior Image of a Storage Device	10/924,655	8/24/2004	7,296,008	11/13/2007	Veritas US IP Holdings LLC	Granted
Systems, Apparatus, and Methods for Processing I/O Requests	10/924,656	8/24/2004	7,827,362	11/2/2010	Veritas US IP Holdings LLC	Granted
Methods and Apparatus for Recording Write Requests Directed to a Data Store	10/924,668	8/24/2004	7,904,428	3/8/2011	Veritas US IP Holdings LLC	Granted
Systems and Methods for Providing a Modification History for a Location Within a Data Store	10/924,669	8/24/2004	7,287,133	10/23/2007	Veritas US IP Holdings LLC	Granted
System and Method for Chunk-based Indexing of File System Content	10/926,432	8/25/2004	7,487,138	2/3/2009	Veritas US IP Holdings LLC	Granted
System and Method for Resolving San Fabric Partitions	10/929,215	8/30/2004	7,606,986	10/20/2009	Veritas US IP Holdings LLC	Granted
System And Method For Performing Virtual Device I/O Operations	10/929,533	8/30/2004	7,054,913	5/30/2006	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
System and Method for Providing Highly-Available Volume Mount Points	10/930,542	8/31/2004	7,383,383	6/3/2008	Veritas US IP Holdings LLC	Granted
Method and System for Implementing Shared Quotas	10/930,576	8/31/2004	7,716,275	5/11/2010	Veritas US IP Holdings LLC	Granted
Delta Catalogs in a File System	10/931,636	9/1/2004	8,495,023	7/23/2013	Veritas US IP Holdings LLC	Granted
Linking Dynamic Computer Data Protection To An External State	10/934,615	9/2/2004	8,959,058	2/17/2015	Veritas US IP Holdings LLC	Granted
System and Method for Distributed Discovery and Management of Frozen Images in a Storage Environment	10/938,037	9/10/2004	7,366,742	4/29/2008	Veritas US IP Holdings LLC	Granted
In-place Splitting and Merging of Files	10/943,284	9/17/2004	7,908,302	3/15/2011	Veritas US IP Holdings LLC	Granted
Model and Method of an N-tier Quality-Of-Service (QOS)	10/944,511	9/17/2004	7,546,308	6/9/2009	Veritas US IP Holdings LLC	Granted
Method for Performing Incremental Backup of Database Files	10/945,128	9/20/2004	8,041,675	10/18/2011	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Detecting an Application Process Failure	10/945,509	9/20/2004	7,925,932	4/12/2011	Veritas US IP Holdings LLC	Granted
Application Quality Of Service Envelope	10/948,811	9/22/2004	8,417,814	4/9/2013	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
System and Method for Hierarchical Storage Mapping	10/951,052	9/27/2004	7,328,325	2/5/2008	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Providing a Display Interface Utilizing a Plurality of Display States	10/951,184	9/27/2004	8,689,129	4/1/2014	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Data Moving in Multi-Device File Systems	10/951,971	9/28/2004	8,315,973	11/20/2012	Veritas US IP Holdings LLC	Granted
System and Method for Monitoring an Application or Service Group Within a Cluster as a Resource of Another Cluster	10/954,593	9/30/2004	8,185,776	5/22/2012	Veritas US IP Holdings LLC	Granted
Method to Detect and Suggest Corrective Actions when Performance and Availability Rules are Violated in an Environment Deploying Virtualization at Multiple Levels	10/954,733	9/30/2004	7,689,767	3/30/2010	Veritas US IP Holdings LLC	Granted
System and Method for Resynchronizing Mirrored Volumes	10/955,017	9/30/2004	7,680,839	3/16/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Automatically Restoring a Failed Disk Drive	10/957,369	10/1/2004	7,849,353	12/7/2010	Veritas US IP Holdings LLC	Granted
Application Failure Diagnosis	10/958,74	10/5/2004	7,827,154	11/2/2010	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
	6				Holdings LLC	
Page Cache Management For A Shared File	10/961,454	10/8/2004	7,831,642	11/9/2010	Veritas US IP Holdings LLC	Granted
Method and System for Mirror Storage Element Resynchronization in a Storage Virtualization Device	10/964,526	10/13/2004	7,386,664	6/10/2008	Veritas US IP Holdings LLC	Granted
System and Method for Loosely Coupled Temporal Storage Management	10/966,791	10/15/2004	7,257,689	8/14/2007	Veritas US IP Holdings LLC	Granted
Log-Structured Temporal Shadow Store	10/966,968	10/15/2004	7,257,690	8/14/2007	Veritas US IP Holdings LLC	Granted
System and Method for Providing Availability Using Volume Server Sets in a Storage Environment Employing Distributed Block Virtualization	10/967,902	10/21/2004	8,046,446	10/25/2011	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Improving a Computer Boot Sequence	10/968,298	10/19/2004	7,610,478	10/27/2009	Veritas US IP Holdings LLC	Granted
Methods and Systems to Backup Data	10/970,541	10/21/2004	7,272,619	9/18/2007	Veritas US IP Holdings LLC	Granted
System and Method for Write Forwarding in a Storage Environment Employing	10/970,584	10/21/2004	7,389,393	6/17/2008	Veritas US IP Holdings LLC	Granted



App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Distributed Virtualization						
System and Method for Performing Replication Based on Change Tracking Information	10/975,742	10/28/2004	8,375,181	2/12/2013	Veritas US IP Holdings LLC	Granted
Method to Detect and Suggest Corrective Actions When Performance and Availability Rules are Violated in an Environment Deploying Virtualization at Multiple Levels	10/977,968	10/29/2004	7,783,831	8/24/2010	Veritas US IP Holdings LLC	Granted
System and Method for Performing Online Backup and Restore of Volume Configuration Information	10/979,898	11/2/2004	7,310,704	12/18/2007	Veritas US IP Holdings LLC	Granted
System and Method for Distributing Volume Status Information in a Storage System	10/983,876	11/8/2004	8,359,429	1/22/2013	Veritas US IP Holdings LLC	Granted
Space-Optimized Backup Repository Grooming	10/992,273	11/18/2004	7,415,585	8/19/2008	Veritas US IP Holdings LLC	Granted
Space-Optimized Backup Set Conversion	10/992,274	11/18/2004	7,941,619	5/10/2011	Veritas US IP Holdings LLC	Granted
System and Method for Optimizing Storage Operations by Operating Only on Mapped Blocks	10/992,370	11/18/2004	7,293,154	11/6/2007	Veritas US IP Holdings LLC	Granted
Performance-Adjusted Data Allocation in a Multi-Device File	10/997,59	11/24/2004	7,631,023	12/8/2009	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
System	4				Holdings LLC	
Opportunistic Performance Allocations in Data Storage Systems	10/997,724	11/24/2004	8,954,393	2/10/2015	Veritas US IP Holdings LLC	Granted
Immutable Data Containers in Tiered Storage Hierarchies	10/999,883	11/30/2004	8,055,622	11/8/2011	Veritas US IP Holdings LLC	Granted
System and Method for Injecting Drivers and Setup Information Into Pre-Created Images for Image-Based Provisioning	11/003,284	12/3/2004	7,330,967	2/12/2008	Veritas US IP Holdings LLC	Granted
System and Method for Storage Area Network Switch Port Failure Recovery	11/004,525	12/3/2004	7,398,421	7/8/2008	Veritas US IP Holdings LLC	Granted
Flexibly Combining Mirroring, Concatenation and Striping in Virtual Storage Devices	11/005,993	12/7/2004	7,434,091	10/7/2008	Veritas US IP Holdings LLC	Granted
Method and System for Providing a Shared Data Resource Coordinator Within a Storage Virtualizing Data Processing System	11/007,605	12/8/2004	8,850,132	9/30/2014	Veritas US IP Holdings LLC	Granted
System and Method for Handling a Storage Resource Error Condition Based on Priority Information	11/008,701	12/9/2004	7,409,586	8/5/2008	Veritas US IP Holdings LLC	Granted
Restoring System State from Volume Shadow Copy Service by	11/009,103	12/10/2004	7,478,117	1/13/2009	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Mounting Disks	8				Holdings LLC	
Data Protection Mechanism	11/017,300	12/20/2004	7,320,008	1/15/2008	Veritas US IP Holdings LLC	Granted
System and Method for Volume Replication in a Storage Environment Employing Distributed Block Virtualization	11/017,356	12/20/2004	7,657,578	2/2/2010	Veritas US IP Holdings LLC	Granted
Integration of Cluster Information with Root Cause Analysis Tool	11/017,895	12/21/2004	7,721,152	5/18/2010	Veritas US IP Holdings LLC	Granted
Storage Area Network (SAN) Device Logical Relationships Manager	11/017,985	12/21/2004	7,107,328	9/12/2006	Veritas US IP Holdings LLC	Granted
Protecting Data for Distributed Applications Using Cooperative Backup Agents	11/018,636	12/21/2004	7,437,388	10/14/2008	Veritas US IP Holdings LLC	Granted
System and Method for Providing Data Protection by Using Sparse Files to Represent Images of Data Stored in Block Devices	11/020,862	12/22/2004	7,831,639	11/9/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Providing a Temporal Storage Appliance with Block Virtualization in Storage Networks	11/020,863	12/22/2004	7,409,495	8/5/2008	Veritas US IP Holdings LLC	Granted
Reducing the Probability of Undetected Collisions in Hash-	11/021,511	12/23/2004	7,634,657	12/15/2009	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Based Data Block Processing	8				Holdings LLC	
System and Method to Automate Replication in a Clustered Environment	11/023,729	12/28/2004	7,320,088	1/15/2008	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Splitting and Merging File Systems	11/023,734	12/28/2004	7,805,469	9/28/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Dynamically Backing Up Database Files	11/026,656	12/31/2004	8,429,359	4/23/2013	Veritas US IP Holdings LLC	Granted
Proactive Utilization of Fabric Events in the Network Virtualization Environment	11/027,535	12/30/2004	7,711,978	5/4/2010	Veritas US IP Holdings LLC	Granted
System and Method for Managing Redundant Storage Consistency at a File System Level	11/027,624	12/31/2004	7,617,259	11/10/2009	Veritas US IP Holdings LLC	Granted
System and Method for Redundant Storage Consistency Recovery	11/027,650	12/31/2004	7,415,488	8/19/2008	Veritas US IP Holdings LLC	Granted
Logical Application Data Restore from a Database Backup	11/028,443	12/31/2004	7,558,928	7/7/2009	Veritas US IP Holdings LLC	Granted
System and Method for Updating a Copy-on-Write Snapshot Based on a Dirty Region Log	11/029,053	1/4/2005	7,395,378	7/1/2008	Veritas US IP Holdings LLC	Granted
Dynamic Directories	11/031,819	1/7/2004	7,725,507	5/25/2010	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Graphical Analysis of States in a Computing System	11/040,439	1/21/2005	8,285,835	10/9/2012	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Using Statistical Process Control Within a Storage Management System	11/045,610	1/27/2005	7,664,797	2/16/2010	Veritas US IP Holdings LLC	Granted
Repair of Inconsistencies Between Data and Metadata Stored on a Temporal Volume Using Transaction Log Replay	11/047,006	1/31/2005	7,689,599	3/30/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Efficiently Creating Backup Files	11/047,139	1/31/2005	7,725,438	5/25/2010	Veritas US IP Holdings LLC	Granted
System and Method for Providing Safe Data Movement Using Third Party Copy Techniques	11/047,172	1/31/2005	7,363,447	4/11/2008	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Efficiently Creating Backup Files with Less Redundancy	11/048,458	1/31/2005	8,201,021	6/12/2012	Veritas US IP Holdings LLC	Granted
System and Method for Connection Failover Using Redirection	11/052,644	2/7/2005	7,668,962	2/23/2010	Veritas US IP Holdings LLC	Granted
Compression of Temporal Dimension in a Temporal Storage Device	11/053,070	2/8/2005	7,506,202	3/17/2009	Veritas US IP Holdings LLC	Granted
Optimized Storage	11/058,614	2/15/2005	7,913,053	3/22/2011	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
System and Method for Data Transfer Using a Recoverable Data Pipe	11/059,091	2/16/2005	7,293,145	11/6/2007	Veritas US IP Holdings LLC	Granted
Disaster Recovery Rehearsal Using Copy On Write	11/060,129	2/17/2005	8,359,491	1/22/2013	Veritas US IP Holdings LLC	Granted
System and Method of Applying Incremental Changes Prior to Initialization of a Point-in-Time Copy	11/063,133	2/22/2005	7,809,691	10/5/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Utilizing a File Change Log	11/064,557	2/24/2005	7,660,790	2/9/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Performing Transparent In-Memory Checkpointing	11/068,016	2/28/2005	8,127,174	2/28/2012	Veritas US IP Holdings LLC	Granted
System and Method for Maintaining and Accessing Information Regarding Virtual Storage Devices	11/068,175	2/28/2005	7,840,723	11/23/2010	Veritas US IP Holdings LLC	Granted
Tracking In-Progress Writes Through the Use of Multi-Column Bitmaps	11/068,545	2/28/2005	7,089,385	8/8/2006	Veritas US IP Holdings LLC	Granted
Instant Refresh of a Data Volume Copy	11/068,546	2/28/2005	7,337,288	2/26/2008	Veritas US IP Holdings LLC	Granted
Model for Cost Optimization and QOS Tuning in Hosted Computing	11/080,133	3/15/2005	7,113,991	9/26/2006	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Environments						
Concurrent Data Broadcast of Selected Common Groups of Data Blocks	11/081,338	3/16/2005	7,676,688	3/9/2010	Veritas US IP Holdings LLC	Granted
Mechanisms for Recovering Data from a Backup by Comparing Transformed Data to Identify Altered Memory Books	11/082,162	3/16/2005	7,401,255	7/15/2008	Veritas US IP Holdings LLC	Granted
Position Independent Incremental Backup	11/087,143	3/23/2005	7,464,234	12/9/2008	Veritas US IP Holdings LLC	Granted
Transient Point-in-Time Images for Continuous Data Protection	11/094,007	3/30/2005	7,523,277	4/21/2009	Veritas US IP Holdings LLC	Granted
System and Method for Efficient Creation of Aggregate Backup Images	11/095,320	3/31/2005	7,694,088	4/6/2010	Veritas US IP Holdings LLC	Granted
Maintaining Spatial Locality of Write Operations	11/095,906	3/31/2005	7,461,230	12/2/2008	Veritas US IP Holdings LLC	Granted
Data Storage Analysis Mechanism	11/099,258	4/5/2005	7,539,835	5/26/2009	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Creating an Embedded Tag for a Computer System	11/115,430	4/27/2005	8,224,876	7/17/2012	Veritas US IP Holdings LLC	Granted
System and Method for Asynchronous Reads of Old Data Blocks Updated through a Write-	11/117,268	4/28/2005	7,636,814	12/22/2009	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
back Cache						
Hash-Based Data Block Processing with Intermittently-Connected Systems	11/119,449	4/29/2005	7,600,125	10/6/2009	Veritas US IP Holdings LLC	Granted
Host-based Backup for Virtual Machines	11/119,600	5/2/2005	7,669,020	2/23/2010	Veritas US IP Holdings LLC	Granted
System and Method for Using Consistent Virtual Addresses to Communicate in Cooperative Multi-layer Virtualization Environments	11/121,229	5/3/2005	7,478,221	1/13/2009	Veritas US IP Holdings LLC	Granted
System and Method for Performing Secondary Site Synchronization Based on a Single Change Map	11/134,108	5/20/2005	8,010,758	8/30/2011	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Restoring a Corrupted Data Volume	11/134,932	5/23/2005	7,293,146	11/6/2007	Veritas US IP Holdings LLC	Granted
File System Encapsulation	11/135,111	5/23/2005	7,386,559	6/10/2008	Veritas US IP Holdings LLC	Granted
System and Method to Prevent Data Corruption Due to Split Brain in Shared Data Clusters	11/139,100	5/27/2005	7,739,677	6/15/2010	Veritas US IP Holdings LLC	Granted
System and Method for Multi-staged In-memory Checkpoint Replication with Relaxed	11/139,101	5/27/2005	7,389,300	6/17/2008	Veritas US IP Holdings LLC	Granted



App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Consistency						
System and Method for Metering of Application Services in Utility Computing Environments	11/139,229	5/27/2005	7,702,779	4/20/2010	Veritas US IP Holdings LLC	Granted
System and Method Providing Application Redeployment Mappings Using Filtered Resource Usage Data	11/139,230	5/27/2005	7,693,983	4/6/2010	Veritas US IP Holdings LLC	Granted
System and Method for Policy-Based Data Lifecycle Management	11/144,116	5/31/2005	7,680,830	3/16/2010	Veritas US IP Holdings LLC	Granted
Volume Restoration Using an Accumulator Map	11/146,650	6/7/2005	7,308,546	12/11/2007	Veritas US IP Holdings LLC	Granted
Filter Driver for Identifying Disk Files by Analysis of Content	11/148,690	6/9/2005	8,346,805	1/1/2013	Veritas US IP Holdings LLC	Granted
System and Method for Characterizing Logical Storage Devices	11/148,697	6/9/2005	7,797,355	9/14/2010	Veritas US IP Holdings LLC	Granted
Incremental Backup of a Data Volume	11/151,065	6/13/2005	7,627,727	12/1/2009	Veritas US IP Holdings LLC	Granted
System and Method for Pre-Provisioning Storage in a Networked Environment	11/151,333	6/13/2005	7,584,340	9/1/2009	Veritas US IP Holdings LLC	Granted
System and Method for Communication using Emulated LUN Blocks in Storage	11/156,635	6/20/2005	7,689,803	3/30/2010	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Virtualization Environments						
Method and Apparatus for Improving the Utilization of Snapshots of Server Data Storage Volumes	11/156,781	6/20/2005	8,615,482	12/24/2013	Veritas US IP Holdings LLC	Granted
Host-based Virtualization Optimizations in Storage Environments Employing Off-host Storage Virtualization	11/156,820	6/20/2005	7,669,032	2/23/2010	Veritas US IP Holdings LLC	Granted
Coordination of Quality of Service in a Multi-layer Virtualized Storage Environment	11/156,845	6/20/2005	7,636,801	12/22/2009	Veritas US IP Holdings LLC	Granted
Coordination of Caching and I/O Management in a Multi-layer Virtualized Storage Environment	11/156,846	6/20/2005	7,386,662	6/10/2008	Veritas US IP Holdings LLC	Granted
User Interfaces for Collaborative Multi-locale Context-aware Systems Management Problem Analysis	11/156,848	6/20/2005	7,941,484	5/10/2011	Veritas US IP Holdings LLC	Granted
System and Method For Resolving Data Inconsistencies With a Data Majority	11/157,268	6/21/2005	7,509,567	3/24/2009	Veritas US IP Holdings LLC	Granted
Intra-Data License for Using Data	11/158,807	6/22/2005	7,673,346	3/2/2010	Veritas US IP Holdings LLC	Granted
Systems and Methods for	11/166,69	6/23/2005	7,363,316	4/22/2008	Veritas US IP	Granted

<b>App Title</b>	<b>App No.</b>	<b>Filed Date</b>	<b>Patent No.</b>	<b>Grant Date</b>	<b>Owner</b>	<b>Status</b>
Organizing Mapping Data	0				Holdings LLC	
System and Method for Performing Consistent Resynchronization Between Synchronized Copies	11/167,954	6/28/2005	7,979,396	7/12/2011	Veritas US IP Holdings LLC	Granted
Persistent Images of Distributed Shared Memory Segments and In-Memory Checkpoints	11/167,962	6/28/2005	8,099,627	1/17/2012	Veritas US IP Holdings LLC	Granted
Search Interface for Server and Storage Management	11/171,952	6/30/2005	7,529,744	5/5/2009	Veritas US IP Holdings LLC	Granted
Backup And Restore Techniques Using Inconsistent State Indicators	11/177,813	7/8/2005	7,672,979	3/2/2010	Veritas US IP Holdings LLC	Granted
Secure Restoration Of Data Selected Based On User-Specified Search Criteria	11/178,957	7/11/2005	7,761,456	7/20/2010	Veritas US IP Holdings LLC	Granted
Incremental Backup of Partial Volumes	11/180,401	7/13/2005	7,743,028	6/22/2010	Veritas US IP Holdings LLC	Granted
Restoring Data with Reduced Suspension-of-Access Periods	11/180,402	7/13/2005	7,398,365	7/8/2008	Veritas US IP Holdings LLC	Granted
Recovery and Operation of Captured Running States from Multiple Computing Systems on a Single Computing System	11/180,412	7/13/2005	7,480,822	1/20/2009	Veritas US IP Holdings LLC	Granted
Method and Apparatus for	11/180,88	7/13/2005	7,664,849	2/16/2010	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Controlling Finite Impulse Responses Using Alert Definitions in Policy-Based Automation	6				Holdings LLC	
Automated Optimal Workload Balancing During Failover in Share-Nothing Database Systems	11/182,907	7/15/2005	8,326,990	12/4/2012	Veritas US IP Holdings LLC	Granted
Efficient Backup And Restore Using Metadata Mapping	11/182,992	7/15/2005	7,552,358	6/23/2009	Veritas US IP Holdings LLC	Granted
System and Method for Preventing Sector Slipping in a Storage Area Network	11/184,587	7/19/2005	7,281,081	10/9/2007	Veritas US IP Holdings LLC	Granted
Securing Kernel Metadata Communication in Environments Employing Distributed Software Services	11/190,608	7/27/2005	7,702,906	4/20/2010	Veritas US IP Holdings LLC	Granted
Computer Systems Management Using Mind Map Techniques	11/190,609	7/27/2005	8,364,623	1/29/2013	Veritas US IP Holdings LLC	Granted
Encapsulation Of Storage Object Extensibility Records For Backup And Restore	11/190,610	7/27/2005	7,822,726	10/26/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Sharing Resource Locks Amongst Applications	11/191,500	7/28/2005	8,566,298	10/22/2013	Veritas US IP Holdings LLC	Granted
System and Method for Satisfying I/O Requests Before A Replica Has	11/193,844	7/29/2005	7,685,385	3/23/2010	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Been Fully Synchronized						
Encapsulating Information in a Storage Format Suitable for Backup and Restore	11/197,266	8/4/2005	8,032,491	10/4/2011	Veritas US IP Holdings LLC	Granted
Using Recent Activity Information to Select Backup Versions of Storage Objects for Restoration	11/197,694	8/4/2005	7,657,582	2/2/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Creating a Database Replica	11/200,712	8/10/2005	8,639,660	1/28/2014	Veritas US IP Holdings LLC	Granted
Disk Storage Defragmentation	11/202,870	9/15/2005	7,506,013	3/17/2009	Veritas US IP Holdings LLC	Granted
Restoration of Backed Up Data by Restoring Incremental Backup(s) in Reverse Chronological Order	11/206,896	8/18/2005	7,802,134	9/21/2010	Veritas US IP Holdings LLC	Granted
System and Method for Performing Extent Level Backups that Support Single File Restores	11/208,371	8/19/2005	7,634,627	12/15/2009	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Using Storage Properties in a File System	11/214,313	8/29/2005	7,689,533	3/30/2010	Veritas US IP Holdings LLC	Granted
Preventing Undesired Trespass in Storage Arrays	11/215,467	8/30/2005	7,318,138	1/8/2008	Veritas US IP Holdings LLC	Granted
Systems and Methods for Optimizing Restoration of Stored Data	11/215,930	8/30/2005	7,421,617	9/2/2008	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Systems and Methods for Event Driven Recovery Management	11/215,958	8/30/2005	7,664,983	2/16/2010	Veritas US IP Holdings LLC	Granted
System and Method for Updating a Search Engine Index Based on Which Files are Identified in a File Change Log	11/216,221	8/31/2005	8,131,691	3/6/2012	Veritas US IP Holdings LLC	Granted
Protocol for Communicating Data Block Copies in an Error Recovery Environment	11/216,439	8/30/2005	7,360,113	4/15/2008	Veritas US IP Holdings LLC	Granted
Conversion Between Full-data and Space-saving Snapshots	11/216,810	8/31/2005	7,516,286	4/7/2009	Veritas US IP Holdings LLC	Granted
Efficient Off-host Backup of a File Set Clone	11/218,129	9/1/2005	7,549,037	6/16/2009	Veritas US IP Holdings LLC	Granted
Promotion or Demotion of Backup Data in a Storage Hierarchy Based on Significance and Redundancy of the Backup Data	11/220,134	9/6/2005	7,392,356	6/24/2008	Veritas US IP Holdings LLC	Granted
Cascaded Replication System with Remote Site Resynchronization After Intermediate Site Failure	11/221,114	9/6/2005	8,799,211	8/5/2014	Veritas US IP Holdings LLC	Granted
System and Method for Replication using Consistency Interval Markers in Distributed Storage Environment	11/230,976	9/20/2005	8,401,997	3/19/2013	Veritas US IP Holdings LLC	Granted
System and Method for Block Conflict Resolution within	11/231,184	9/20/2005	7,467,265	12/16/2008	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Consistency Interval Marker Based Replication	5				Holdings LLC	
Method and Apparatus for Creating and Using a Policy-based Access/Change Log	11/232,253	9/21/2005	7,636,736	12/22/2009	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Creating and Using Persistent Images of Distributed Shared Memory Segments and In-Memory Checkpoints	11/239,766	9/30/2005	7,779,295	8/17/2010	Veritas US IP Holdings LLC	Granted
Backup Search Agents for Use with Desktop Search Tools	11/239,824	9/30/2005	7,890,527	2/15/2011	Veritas US IP Holdings LLC	Granted
Use of Off-Motherboard Resources in a Computer System	11/239,922	9/30/2005	7,673,130	3/2/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Controlling Access to a Storage Area Network	11/240,188	9/30/2005	8,732,354	5/20/2014	Veritas US IP Holdings LLC	Granted
System and Method for Profiling Processes in a Computing System	11/240,232	9/30/2005	7,725,882	5/25/2010	Veritas US IP Holdings LLC	Granted
System And Method For Detecting And Logging In-Line Synchronization Primitives In Application Program Code	11/240,966	9/30/2005	7,823,153	10/26/2010	Veritas US IP Holdings LLC	Granted
System and Method for Distributed Storage Verification	11/241,256	9/30/2005	7,657,796	2/2/2010	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Use of read data tracking and caching to recover from data corruption	11/242,216	10/3/2005	7,096,332	8/22/2006	Veritas US IP Holdings LLC	Granted
System and Method for Logging and Replaying Asynchronous Events	11/248,881	10/12/2005	7,930,684	4/19/2011	Veritas US IP Holdings LLC	Granted
Pre-Computed Dynamic Instrumentation	11/252,343	10/17/2005	7,805,717	9/28/2010	Veritas US IP Holdings LLC	Granted
Storage Configurator for Determining an Optimal Storage Configuration for an Application	11/253,501	10/19/2005	8,347,058	1/1/2013	Veritas US IP Holdings LLC	Granted
System and Method for Customized Disaster Recovery Reports	11/260,840	10/27/2005	7,770,057	8/3/2010	Veritas US IP Holdings LLC	Granted
Automatic Clusterwide Fail-back	11/261,269	10/28/2005	7,937,617	5/3/2011	Veritas US IP Holdings LLC	Granted
Optimized Content Search of Files	11/262,567	10/31/2005	8,935,281	1/13/2015	Veritas US IP Holdings LLC	Granted
Version Mapped Incremental Backups	11/262,568	10/31/2005	9,009,114	4/14/2015	Veritas US IP Holdings LLC	Granted
Method for Creating a Virtual Data Copy of a Volume Being Restored	11/264,072	11/1/2005	7,093,090	8/15/2006	Veritas US IP Holdings LLC	Granted
Method of Optimizing the Space and Improving the Write Performance of Volumes with	11/264,083	11/1/2005	7,350,042	3/25/2008	Veritas US IP Holdings LLC	Granted



App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Multiple Virtual Copies						
System and Method for Maintaining Write Order Fidelity in a Distributed Environment	11/268,116	11/7/2005	7,565,498	7/21/2009	Veritas US IP Holdings LLC	Granted
Selective Self-Healing of Memory Errors Using Allocation Location Information	11/268,360	11/7/2005	7,434,105	10/7/2008	Veritas US IP Holdings LLC	Granted
Automated Concurrency Configuration of Multi-Threaded Programs	11/271,706	11/10/2005	7,757,214	7/13/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Providing Intelligent Interpretation of Calendaring Information to Schedule Computer Data Operations	11/274,541	11/15/2005	8,209,500	6/26/2012	Veritas US IP Holdings LLC	Granted
Dynamic Tagging of Network Data Based on Service Level Objectives	11/286,617	11/23/2005	7,940,756	5/10/2011	Veritas US IP Holdings LLC	Granted
Fault Tolerant Multi-Stage Data Replication with Relaxed Coherency Guarantees	11/286,619	11/23/2005	7,653,668	1/26/2010	Veritas US IP Holdings LLC	Granted
Content-Based File Versioning	11/288,587	11/29/2005	7,647,362	1/12/2010	Veritas US IP Holdings LLC	Granted
Policy Enforcement in Continuous Data Protection Backup Systems	11/289,148	11/29/2005	7,774,313	8/10/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for	11/291,02	11/30/2005	8,346,732	1/1/2013	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Providing High Availability of a Database	5				Holdings LLC	
System for Automated Boot from Disk Image	11/292,596	12/2/2005	7,222,229	5/22/2007	Veritas US IP Holdings LLC	Granted
Dynamically Configuring the Environment of a Recovery OS from an Installed OS	11/298,731	12/9/2005	7,480,793	1/20/2009	Veritas US IP Holdings LLC	Granted
System and Method for Efficient Generation of Application Snapshots	11/321,459	12/29/2005	7,627,728	12/1/2009	Veritas US IP Holdings LLC	Granted
System and Method for Detecting In-line Synchronization Primitives in Binary Applications	11/321,460	12/29/2005	8,117,600	2/14/2012	Veritas US IP Holdings LLC	Granted
Locking and Memory Allocation in File System Cache	11/326,835	1/6/2006	7,124,266	10/17/2006	Veritas US IP Holdings LLC	Granted
System and Method for Conveying Backup and Restore Data Via E-mail	11/333,012	1/17/2006	8,060,473	11/15/2011	Veritas US IP Holdings LLC	Granted
System for Dynamic Provisioning of Secure, Scalable, and Extensible Networked Computing Environments	11/334,012	1/18/2006	7,792,125	9/7/2010	Veritas US IP Holdings LLC	Granted
Configuration and Dynamic Detection of Connection-Based Backup Policies	11/334,828	1/19/2006	8,285,850	10/9/2012	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Efficient Data Transfer Between Computers in a Virtual NUMA System Using RDMA	11/340,102	1/26/2006	7,756,943	7/13/2010	Veritas US IP Holdings LLC	Granted
Virtual Machine Spanning Multiple Computers	11/340,227	1/26/2006	7,596,654	9/29/2009	Veritas US IP Holdings LLC	Granted
System and Method for Switching to a New Coordinator Resource	11/341,301	1/27/2006	7,953,890	5/31/2011	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Accessing a Virtualized Storage Volume Using a Pre-loaded Volume Map	11/342,470	1/30/2006	7,752,392	7/6/2010	Veritas US IP Holdings LLC	Granted
System and Method for Assigning Symbolic Names to Data Streams	11/344,513	1/31/2006	7,953,879	5/31/2011	Veritas US IP Holdings LLC	Granted
System and Method for Performing Virtual Device I/O Operations	11/346,038	2/2/2006	7,203,801	4/10/2007	Veritas US IP Holdings LLC	Granted
Policy-based Data Protection	11/346,108	2/2/2006	7,509,468	3/24/2009	Veritas US IP Holdings LLC	Granted
Merging Cluster Nodes During a Restore	11/352,195	2/9/2006	7,496,783	2/24/2009	Veritas US IP Holdings LLC	Granted
System for Managing Boot-Up of Target Computers	11/353,412	2/14/2006	7,506,151	3/17/2009	Veritas US IP Holdings LLC	Granted
System and Method for Controlling Off-Host Policies	11/353,786	2/14/2006	7,472,141	12/30/2008	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Block-Level and Hash-Based Single-Instance Storage	11/355,684	2/16/2006	7,454,592	11/18/2008	Veritas US IP Holdings LLC	Granted
Adaptive Instrumentation Through Dynamic Recompilation	11/362,956	2/27/2006	8,176,480	5/8/2012	Veritas US IP Holdings LLC	Granted
Efficient Backups Using Dynamically Shared Storage Pools in Peer-to-Peer Networks	11/363,780	2/28/2006	7,529,785	5/5/2009	Veritas US IP Holdings LLC	Granted
Bulk Network Transmissions Using Multiple Connections Primed to Optimize Transfer Parameters	11/364,034	2/28/2006	7,765,307	7/27/2010	Veritas US IP Holdings LLC	Granted
Application-assisted recovery from data corruption in parity RAID storage using successive re-reads.	11/364,230	2/28/2006	7,234,024	6/19/2007	Veritas US IP Holdings LLC	Granted
System and Method for Maintaining a Plurality of Summary Levels in a Single Table	11/384,694	3/20/2006	8,285,752	10/9/2012	Veritas US IP Holdings LLC	Granted
Backup of Virtual Machines from the Base Machine	11/386,570	3/21/2006	7,370,164	5/6/2008	Veritas US IP Holdings LLC	Granted
Method and Apparatus for File-Level Restore from Raw Partition Backups	11/392,202	3/29/2006	7,937,545	5/3/2011	Veritas US IP Holdings LLC	Granted
Version Mapped Incremental Backups With Version Creation	11/392,382	29 Mar 2006	9,158,781	13 Oct 2015	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Condition						
Parallel Dataset Processing for Synthetic Full Backups	11/395,040	3/31/2006	9075819	7/7/2015	Veritas US IP Holdings LLC	Granted
System And Method For Rapidly Ending Communication Protocol Connections In Response To Node Failure	11/395,915	3/31/2006	7,831,686	11/9/2010	Veritas US IP Holdings LLC	Granted
System and Method for Maintaining Communication Protocol Connections During Failover	11/397,059	4/4/2006	7,797,565	9/14/2010	Veritas US IP Holdings LLC	Granted
Parallel Backup	11/403,379	4/13/2006	7,685,459	3/23/2010	Veritas US IP Holdings LLC	Granted
Boundaries	11/403,561	4/13/2006	7,478,113	1/13/2009	Veritas US IP Holdings LLC	Granted
Network Routing of Data Based on Content Thereof	11/404,105	4/13/2006	7,689,764	3/30/2010	Veritas US IP Holdings LLC	Granted
Secure Automatable Clean Boot System	11/409,414	4/20/2006	7,877,809	1/25/2011	Veritas US IP Holdings LLC	Granted
Application Model for Dynamic Computing Environments in Software Sales Cycle	11/409,888	4/24/2006	7,571,306	8/4/2009	Veritas US IP Holdings LLC	Granted
System and Method for Identifying Block-Level Write Operations to be Transferred to a	11/409,890	4/24/2006	7,634,594	12/15/2009	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Secondary Site During Replication						
Method and System for Rapid Failback of a Computer System in a Disaster Recovery Environment	11/413,889	4/28/2006	8,028,192	9/27/2011	Veritas US IP Holdings LLC	Granted
Coordinated Dirty Block Tracking	11/415,689	5/2/2006	7,606,841	10/20/2009	Veritas US IP Holdings LLC	Granted
Method for Preserving Relationships/Dependencies Between Data in a File-system	11/415,772	5/2/2006	7,716,189	5/11/2010	Veritas US IP Holdings LLC	Granted
System and Method for Rating Reliability of Storage Devices	11/418,358	5/4/2006	7,580,956	8/25/2009	Veritas US IP Holdings LLC	Granted
Systems, Methods and Apparatus for Creating Stable Disk Images	11/430,780	5/8/2006	7,606,800	10/20/2009	Veritas US IP Holdings LLC	Granted
Automated Recovery from Data Corruption of Data Volumes in RAID Storage	11/438,656	5/22/2006	7,409,499	8/5/2008	Veritas US IP Holdings LLC	Granted
Time Indexed File System	11/439,302	5/23/2006	8,060,481	11/15/2011	Veritas US IP Holdings LLC	Granted
System And Method For Performing Virtual Device I/O Operations	11/442,859	5/30/2006	7,404,037	7/22/2008	Veritas US IP Holdings LLC	Granted
Cluster Failover for Storage Management Services (Cluster VAIL)	11/443,629	5/31/2006	7,555,673	6/30/2009	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Disaster Recovery and Backup Using Virtual Machines	11/451,001	6/12/2006	7,533,229	5/12/2009	Veritas US IP Holdings LLC	Granted
System and Method for Restoring Data on a Data Storage System	11/455,124	6/16/2006	7,617,414	11/10/2009	Veritas US IP Holdings LLC	Granted
Methods And Systems Of Electronic Message Derivation	11/457,241	7/13/2006	7,657,603	2/2/2010	Veritas US IP Holdings LLC	Granted
Methods And Systems Of Electronic Message Threading And Ranking	11/457,317	7/13/2006	7,593,995	9/22/2009	Veritas US IP Holdings LLC	Granted
Method and System for Completing a Backup Job that was Interrupted During a Backup Process	11/478,158	6/29/2006	7,631,220	12/8/2009	Veritas US IP Holdings LLC	Granted
Apparatus and Method for Accelerating Database Recovery	11/478,811	6/30/2006	7,865,471	1/4/2010	Veritas US IP Holdings LLC	Granted
System And Method For Securely Storing Cryptographic Keys With Encrypted Data	11/478,812	6/30/2006	8,037,319	10/11/2011	Veritas US IP Holdings LLC	Granted
Symmetrical Data Change Tracking	11/478,813	6/30/2006	7,552,296	6/23/2009	Veritas US IP Holdings LLC	Granted
System and Method for Securing Access to Hash-Based Storage Systems	11/478,902	6/30/2006	8,826,023	9/2/2014	Veritas US IP Holdings LLC	Granted
Method, System, and Computer Readable Medium for	11/482,925	7/7/2006	7,979,651	7/12/2011	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Asynchronously Processing Write Operations for a Data Storage Volume Having a Copy-On-Write Snapshot						
Automatic Software Updates for Computer Systems in an Enterprise Environment	11/502,681	8/11/2006	8,074,213	12/6/2011	Veritas US IP Holdings LLC	Granted
System and Method for Storage Management Configuration Data	11/503,238	8/11/2006	8,255,675	8/28/2012	Veritas US IP Holdings LLC	Granted
Mobile Device Application For Managing Media And Media Devices	11/513,810	8/31/2006	7,784,690	8/31/2010	Veritas US IP Holdings LLC	Granted
Flexible Hierarchy of Relationships and Operations in Data Volumes	11/514,464	9/1/2006	7,386,693	6/10/2008	Veritas US IP Holdings LLC	Granted
System and Method for Domain Failure Analysis of a Storage Area Network	11/521,039	9/14/2006	7,930,583	4/19/2011	Veritas US IP Holdings LLC	Granted
Method and System to Offload Archiving Process to a Secondary System	11/527,027	9/26/2006	7,680,843	3/16/2010	Veritas US IP Holdings LLC	Granted
Automated Restoration of Links When Restoring Individual Directory Service Objects	11/527,146	9/26/2006	8,332,442	12/11/2012	Veritas US IP Holdings LLC	Granted
Model for Cost Optimization and QOS Tuning in Hosted Computing	11/527,433	9/26/2006	7,308,500	12/11/2007	Veritas US IP	Granted



App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Environments	6				Holdings LLC	
Adaptive Liveness Management for Robust and Efficient Peer-to-Peer Storage	11/535,939	9/27/2006	7,886,034	2/8/2011	Veritas US IP Holdings LLC	Granted
Switching Roles Between a Production Storage Device and a Snapshot Device	11/535,943	9/27/2006	7,636,823	12/22/2009	Veritas US IP Holdings LLC	Granted
High Availability Cluster with Notification of Resource State Changes	11/540,079	9/29/2006	7,913,105	3/22/2011	Veritas US IP Holdings LLC	Granted
Method, System, and Computer Readable Medium for Maintaining the Order of Write-Commands Issued to a Data Storage	11/540,822	9/28/2006	7,647,449	1/12/2010	Veritas US IP Holdings LLC	Granted
Using Roll-Forward and Roll-Backward Logs to Restore a Data Volume	11/541,006	9/29/2006	8,010,759	8/30/2011	Veritas US IP Holdings LLC	Granted
Flexibly Provisioning and Accessing Storage Resources Using Virtual Worldwide Names	11/541,007	9/29/2006	7,831,681	11/9/2010	Veritas US IP Holdings LLC	Granted
User Interface for Viewing Logical Representation of a Database Backed Up by a Database Recovery Manager	11/541,041	9/29/2006	7,634,511	12/15/2009	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Displaying Logical Information on	11/541,28	9/28/2006	8,689,106	4/1/2014	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Storage and Network Devices	3				Holdings LLC	
Supporting a Weak Ordering Memory Model for a Virtual Physical Address Space that Spans Multiple Nodes	11/542,993	10/4/2006	7,702,743	4/20/2010	Veritas US IP Holdings LLC	Granted
Technique for timeline compression in a data store	11/549,386	10/13/2006	7,536,583	5/19/2009	Veritas US IP Holdings LLC	Granted
Technique for Remapping Data in a Storage Management System	11/549,401	10/13/2006	7,610,320	10/27/2009	Veritas US IP Holdings LLC	Granted
Technique for Improving Scalability and Portability of a Storage Management System	11/549,416	10/13/2006	7,634,497	12/15/2009	Veritas US IP Holdings LLC	Granted
Time Store Daemon Application Programming Interface and Portability	11/549,428	10/13/2006	7,849,273	12/7/2010	Veritas US IP Holdings LLC	Granted
Method for Restoring Documents from a Database File	11/551,018	10/19/2006	7,672,934	3/2/2010	Veritas US IP Holdings LLC	Granted
System and Method for Dynamically Loadable Storage Device I/O Policy Modules	11/584,309	10/20/2006	7,694,063	4/6/2010	Veritas US IP Holdings LLC	Granted
Coordinated Storage Management Operations in Replication Environment	11/589,334	10/30/2006	7,421,554	9/2/2008	Veritas US IP Holdings LLC	Granted
Method of Detection of Data Corruption in Mirrored Storage	11/590,324	10/31/2006	7,546,429	6/9/2009	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Synchronous Replication for System and Data Security	11/590,542	10/31/2006	7,383,407	6/3/2008	Veritas US IP Holdings LLC	Granted
Fibre Accelerated Pipe Data Transport	11/595,754	11/9/2006	7,925,758	4/12/2011	Veritas US IP Holdings LLC	Granted
Computer System and Method for Performing Low Impact Backup Operations	11/602,074	11/20/2006	7,702,824	4/20/2010	Veritas US IP Holdings LLC	Granted
Method to Delete Partial Virtual Tape Volumes	11/611,681	12/15/2006	7,620,765	11/17/2009	Veritas US IP Holdings LLC	Granted
Leveraging Client Redundancy on Restore	11/613,781	12/20/2006	7,827,145	11/2/2010	Veritas US IP Holdings LLC	Granted
Snapshot-Aware Secure Delete	11/615,692	12/22/2006	7,831,560	11/9/2010	Veritas US IP Holdings LLC	Granted
Optimistic Reads In A Multi-Node Environment	11/641,632	12/19/2006	7,308,541	12/11/2007	Veritas US IP Holdings LLC	Granted
Backup Service and Appliance With Single-Instance Storage of Encrypted Data	11/641,931	12/19/2006	8,041,641	10/18/2011	Veritas US IP Holdings LLC	Granted
Controlling Cached Write Operations to Storage Arrays	11/642,005	12/18/2006	7,930,481	4/19/2011	Veritas US IP Holdings LLC	Granted
Method and System for Representation of Communication Data Repositories for Electronic Discovery	11/643,171	12/21/2006	7,831,544	11/9/2010	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Method and Apparatus for File Sharing Between Continuous and Scheduled Backups	11/643,255	12/21/2006	8,150,810	4/3/2012	Veritas US IP Holdings LLC	Granted
Backup System and Method	11/643,503	12/20/2006	7,689,859	3/30/2010	Veritas US IP Holdings LLC	Granted
System and Method for Mounting a File System on Multiple Host Computers	11/644,765	12/22/2006	8,082,230	12/20/2011	Veritas US IP Holdings LLC	Granted
Automated Dereferencing of Electronic Communications for Archival	11/647,052	12/28/2006	8,341,177	12/25/2012	Veritas US IP Holdings LLC	Granted
Virtualization of File Input/Output Operations	11/647,796	12/29/2006	8,918,427	12/23/2014	Veritas US IP Holdings LLC	Granted
Automated Ranking of Electronic Communications	11/648,509	12/29/2006	8,510,389	8/13/2013	Veritas US IP Holdings LLC	Granted
Enabling Off-host Data Migration Using Volume Translation Mappings, Snappoint Maps and Linked Volume Technologies	11/649,571	1/4/2007	7,822,933	10/26/2010	Veritas US IP Holdings LLC	Granted
Handling Un-Partitioning of a Computer Network	11/651,707	1/10/2007	7,899,934	3/1/2011	Veritas US IP Holdings LLC	Granted
Incremental Method for Backup of E-mail Messages	11/653,139	1/12/2007	7,743,226	6/22/2010	Veritas US IP Holdings LLC	Granted
Granular Restore of Data Objects from a Directory Service	11/654,680	1/12/2007	7,797,281	9/14/2010	Veritas US IP Holdings LLC	Granted

<b>App Title</b>	<b>App No.</b>	<b>Filed Date</b>	<b>Patent No.</b>	<b>Grant Date</b>	<b>Owner</b>	<b>Status</b>
Methods And Systems Of Electronic Message Threading And Ranking	11/657,398	1/23/2007	8,032,598	10/4/2011	Veritas US IP Holdings LLC	Granted
Migrating Virtual Machines Among Computer Systems to Balance Load Caused by Virtual Machines	11/674,559	2/13/2007	7,716,667	5/11/2010	Veritas US IP Holdings LLC	Granted
Technique for Performing Disaster Rehearsal for a Storage Area Network Utilizing a Replication Appliance	11/686,031	3/14/2007	7,765,433	7/27/2010	Veritas US IP Holdings LLC	Granted
Automatic Detection of Hardware and Device Drivers During Restore Operations	11/690,592	3/23/2007	8,132,186	3/6/2012	Veritas US IP Holdings LLC	Granted
Creation of a Device Database and Synthesis of Device Driver Information During Dissimilar System Restore	11/690,603	3/23/2007	7,886,185	2/8/2011	Veritas US IP Holdings LLC	Granted
Using a Monitoring Process to Update System Configuration Settings During Restore Operations	11/690,653	3/23/2007	7,769,990	8/3/2010	Veritas US IP Holdings LLC	Granted
Hardware-independent Detection of SAN Logical Volumes	11/692,658	3/28/2007	7,975,136	7/5/2011	Veritas US IP Holdings LLC	Granted
A Low-Overhead Means of Performing Data Backup	11/693,370	3/29/2007	7,761,425	7/20/2010	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Selectable use of Single Instance Store Backup Methodology in Combination with Other Methods	11/693,378	3/29/2007	7,941,459	5/10/2011	Veritas US IP Holdings LLC	Granted
Replication and Restoration of Single-Instance Storage Pools	11/693,382	3/29/2007	7,769,971	8/3/2010	Veritas US IP Holdings LLC	Granted
Utilizing Peer-to-Peer Services with Single Instance Storage Techniques	11/694,517	3/30/2007	8,352,692	1/8/2013	Veritas US IP Holdings LLC	Granted
System and Method for Automatically Redistributing Metadata Across Managers	11/694,631	3/30/2007	7,827,147	11/2/2010	Veritas US IP Holdings LLC	Granted
Implementing Read/Write, Multi-versioned File System on Top of Backup Data	11/694,637	3/30/2007	8,489,830	7/16/2013	Veritas US IP Holdings LLC	Granted
Techniques For Allocating/Reducing Storage Required For One Or More Virtual Machine	11/694,727	3/30/2007	8,060,703	11/15/2011	Veritas US IP Holdings LLC	Granted
Techniques for Host to Host Transfer of Sequential Media and Use of Persistent Reservation to Protect Media During Host to Host Transfer	11/694,838	3/30/2007	8,060,642	11/15/2011	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Preventing Concurrency Violation Among Resources	11/702,450	2/5/2007	8,533,331	9/10/2013	Veritas US IP Holdings LLC	Granted

<b>App Title</b>	<b>App No.</b>	<b>Filed Date</b>	<b>Patent No.</b>	<b>Grant Date</b>	<b>Owner</b>	<b>Status</b>
Method and Apparatus for Evaluating a Backup Policy in a Computer Network	11/704,010	2/8/2007	8,959,056	2/17/2015	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Transactional Fault Tolerance in a Client-Server System	11/707,441	2/16/2007	7,610,510	10/27/2009	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Flexible Access to Storage Facilities	11/707,688	2/16/2007	7,711,979	5/4/2010	Veritas US IP Holdings LLC	Granted
System and Method for Detecting File Content Similarity Within a File System	11/712,271	2/28/2007	7,693,859	4/6/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for a Virtual Storage Device	11/713,317	3/2/2007	8,510,505	8/13/2013	Veritas US IP Holdings LLC	Granted
File System and Methods for Performing File Create and Open Operations with Efficient Storage Allocation	11/714,298	2/28/2007	7,797,357	9/14/2010	Veritas US IP Holdings LLC	Granted
Method And Apparatus For Allocating Resources Among Backup Tasks In A Data Backup System	11/728,617	3/27/2007	8,301,772	10/30/2012	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Capturing Data From a Backup Image	11/728,756	3/27/2007	8,260,748	9/4/2012	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Storage Paths	11/729,178	3/28/2007	7,668,981	2/23/2010	Veritas US IP Holdings LLC	Granted
Storage System	11/731,112	3/30/2007	7,827,146	11/2/2010	Veritas US IP Holdings LLC	Granted
Password Protection for File Backups	11/731,113	3/31/2007	7,941,405	5/10/2011	Veritas US IP Holdings LLC	Granted
Faster Recovery Mechanism of Validated Continuous Data Protection (CDP) Time Image	11/731,177	3/30/2007	7,631,159	12/8/2009	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Archiving Calls Terminating at a Computer	11/731,321	3/30/2007	8,130,913	3/6/2012	Veritas US IP Holdings LLC	Granted
Reliable Communication Channel Over Existing TCP Connection	11/731,350	3/30/2007	8,279,869	10/2/2012	Veritas US IP Holdings LLC	Granted
Method of Inserting a Validated Time-image on the Primary CDP Subsystem in a Continuous Data Protection and Replication (CDP/R) Subsystem	11/731,351	3/30/2007	7,925,630	4/12/2011	Veritas US IP Holdings LLC	Granted
System and Method for Sharing of Non-distributed Random-Access Storage	11/731,439	3/31/2007	7,941,621	5/10/2011	Veritas US IP Holdings LLC	Granted
Port Identifier Management for Path Failover in Cluster Environments	11/731,854	3/30/2007	7,778,157	8/17/2010	Veritas US IP Holdings LLC	Granted



App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Techniques for implementing an adaptive data access error handling policy	11/746,420	5/9/2007	7,673,169	3/2/2010	Veritas US IP Holdings LLC	Granted
External Device Support for Device Abstraction Layer	11/751,092	5/21/2007	7,831,981	11/9/2010	Veritas US IP Holdings LLC	Granted
System for Automated Boot from Disk Image	11/752,131	5/22/2007	7,895,424	2/22/2011	Veritas US IP Holdings LLC	Granted
Relocation Tracking During Write Operation	11/755,396	5/30/2007	7,734,887	6/8/2010	Veritas US IP Holdings LLC	Granted
Verification of Metadata Integrity for Inode-Based Backups	11/760,501	6/8/2007	8,600,953	12/3/2013	Veritas US IP Holdings LLC	Granted
Backup and Restore Operations Using Distributed Control Information	11/761,653	6/12/2007	7,831,562	11/9/2010	Veritas US IP Holdings LLC	Granted
Consistency Interval Marker Assisted In-Band Commands in Distributed Systems	11/762,605	6/13/2007	8,150,805	4/3/2012	Veritas US IP Holdings LLC	Granted
On Demand Consistency Checkpoints for Temporal Volumes within Consistency Interval Marker based Replication	11/762,608	6/13/2007	7,885,923	2/8/2011	Veritas US IP Holdings LLC	Granted
Defragmentation in a Virtual Environment	11/769,111	6/27/2007	7,725,506	5/25/2010	Veritas US IP Holdings LLC	Granted
Network Protocol with Damage Loss Resilient Congestion Control	11/771,204	6/29/2007	7,821,937	10/26/2010	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Algorithm						
Techniques for Non-Disruptive Transitioning of CDP/R Services	11/771,608	6/29/2007	8,825,870	9/2/2014	Veritas US IP Holdings LLC	Granted
Resource Management for Scalable File System Recovery	11/772,036	6/29/2007	7,676,704	3/9/2010	Veritas US IP Holdings LLC	Granted
Storage Layout and Data Replication	11/778,330	7/16/2007	7,519,785	4/14/2009	Veritas US IP Holdings LLC	Granted
System and Method for Performing Virtual Device I/O Operations	11/786,091	4/10/2007	7,734,878	6/8/2010	Veritas US IP Holdings LLC	Granted
Application Aware Storage Appliance Tape Archiving	11/799,506	4/30/2007	7,827,150	11/2/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Recreating Placeholders	11/807,003	5/25/2007	8,046,331	10/25/2011	Veritas US IP Holdings LLC	Granted
Data Transfers From Mobile Devices with Cell-Site Staging	11/809,422	5/31/2007	8,121,982	2/21/2012	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Determining Disk Array Enclosure Serial Number Using SAN Topology Information in Storage Area Network	11/810,800	6/6/2007	8,996,802	3/31/2015	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Detecting Process Failure	11/811,305	6/7/2007	7,733,774	6/8/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for	11/818,60	6/14/2007	8,060,775	11/15/2011	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Providing Dynamic Multi-Pathing (DMP) for an Asymmetric Logical Unit Access (ALUA) Based Storage System	9				Holdings LLC	
Method and Apparatus for Mapping Virtual Drives	11/824,478	6/29/2007	8,738,871	5/27/2014	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Detecting an Intermittent Path to a Storage System	11/827,044	7/9/2007	8,711,684	4/29/2014	Veritas US IP Holdings LLC	Granted
Efficient Computer File Backup System and Method	11/834,344	8/6/2007	7,752,171	7/6/2010	Veritas US IP Holdings LLC	Granted
Systems and Method Providing Input/Output Fencing in Shared Storage Environments	11/834,352	8/6/2007	7,721,136	5/18/2010	Veritas US IP Holdings LLC	Granted
Epoch Pipelining for the Transaction Model of Software Fault Tolerance	11/835,757	8/8/2007	8,375,188	2/12/2013	Veritas US IP Holdings LLC	Granted
Techniques for Improving Dirty Page Logging	11/835,777	8/8/2007	7,962,703	6/14/2011	Veritas US IP Holdings LLC	Granted
Techniques for Creating Checkpoints	11/835,795	8/8/2007	7,962,710	6/14/2011	Veritas US IP Holdings LLC	Granted
Methods And Systems For E-Mail Topic Classification	11/838,738	8/14/2007	7,899,871	3/1/2011	Veritas US IP Holdings LLC	Granted
Methods, Systems, And User Interface For E-Mail Search And	11/838,747	8/14/2007	7,743,051	6/22/2010	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Retrieval						
Graphical User Interface for Creating a Customized Storage Layout for an Application	11/842,373	8/21/2007	7,631,262	12/8/2009	Veritas US IP Holdings LLC	Granted
Methods, Systems, And User Interface For E-Mail Analysis And Review	11/852,444	9/10/2007	8,392,409	3/5/2013	Veritas US IP Holdings LLC	Granted
System and Method for Performing a File System Operation on a Specified Storage Tier	11/853,121	9/11/2007	8,200,719	6/12/2012	Veritas US IP Holdings LLC	Granted
Device Driver Processing for Automated System Restores	11/859,982	9/24/2007	7,941,814	5/10/2011	Veritas US IP Holdings LLC	Granted
Restoring Data with Reduced Suspension-of-Access Periods	11/860,669	9/25/2007	7,702,868	4/20/2010	Veritas US IP Holdings LLC	Granted
Image-Oriented, Plugin-Based API To Storage Server Appliances	11/861,842	9/26/2007	8,726,299	5/13/2014	Veritas US IP Holdings LLC	Granted
Automatically Adding Bytecode to a Software Application to Determine Database Access Information	11/861,852	9/26/2007	8,578,339	11/5/2013	Veritas US IP Holdings LLC	Granted
Pull Model for File Replication at Multiple Data Centers	11/861,899	9/26/2007	8,019,727	9/13/2011	Veritas US IP Holdings LLC	Granted
Automatically Adding Bytecode to a Software Application to	11/862,359	9/27/2007	8,458,670	6/4/2013	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Determine Network Communication Information						
Backup Catalog Recovery from Replicated Data	11/862,901	9/27/2007	8,438,136	5/7/2013	Veritas US IP Holdings LLC	Granted
Techniques for Reducing Data Storage Needs Using CDP/R	11/862,932	9/27/2007	8,082,406	12/20/2011	Veritas US IP Holdings LLC	Granted
Automatically Modifying a Native Code Module Accessed from Virtual Machine Bytecode to Determine Execution Information	11/863,828	9/28/2007	8,887,141	11/11/2014	Veritas US IP Holdings LLC	Granted
Techniques for File System Recovery	11/864,028	9/28/2007	7,853,571	12/14/2010	Veritas US IP Holdings LLC	Granted
Using Data Copies for Redundancy	11/864,029	9/28/2007	7,549,032	6/16/2009	Veritas US IP Holdings LLC	Granted
System and Methods for Providing a Modification History for a Location Within a Data Store	11/864,144	9/28/2007	8,521,973	8/27/2013	Veritas US IP Holdings LLC	Granted
Methods and Systems for Restoring File Systems	11/864,196	9/28/2007	7,865,472	1/4/2011	Veritas US IP Holdings LLC	Granted
Redirection of an Ongoing Backup	11/864,389	9/28/2007	7,890,714	2/15/2011	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Monitoring Message Activity	11/864,443	9/28/2007	8,291,055	10/16/2012	Veritas US IP Holdings LLC	Granted
Parameterization of Dimensions of Protection Systems and Uses	11/864,46	9/28/2007	8,307,238	11/6/2012	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Thereof	6				Holdings LLC	
In-place Preservation of File Systems Objects During a Disk Clone Operation	11/864,536	9/28/2007	7,480,682	1/20/2009	Veritas US IP Holdings LLC	Granted
Controlling Access to an NFS Share	11/864,621	9/28/2007	8,874,907	10/28/2014	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Providing Computer Failover to a Virtualized Environment	11/864,840	9/28/2007	8,015,432	9/6/2011	Veritas US IP Holdings LLC	Granted
Method and Apparatus Of Scheduling Data Movers	11/864,853	9/28/2007	8,387,054	2/26/2013	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Restoring Backup Data to a Computer	11/864,875	9/28/2007	7,797,285	9/14/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Supporting Compound Disposition for Data Images	11/864,945	9/29/2007	8,495,315	7/23/2013	Veritas US IP Holdings LLC	Granted
Methods and Systems for Application Cluster Virtual Nodes	11/864,956	9/29/2007	9,075,809	7/7/2015	Veritas US IP Holdings LLC	Granted
Promotion or Demotion of Backup Data in a Storage Hierarchy Based on Significance and Redundancy of the Backup Data	11/864,978	9/29/2007	7,469,326	12/23/2008	Veritas US IP Holdings LLC	Granted
Flexibly Combining Mirroring, Concatenation and Striping in	11/865,033	9/30/2007	7,562,251	7/14/2009	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Virtual Storage Devices						
System and Method for Managing I/O Access Policies in a Storage Environment Employing Asymmetric Distributed Block Virtualization	11/865,034	9/30/2007	7,627,699	12/1/2009	Veritas US IP Holdings LLC	Granted
Coordinated Distributed Logging in a Multi-Host Environment	11/865,038	9/30/2007	7,769,713	8/3/2010	Veritas US IP Holdings LLC	Granted
System and Method of Migrating One or More Virtual Machines	11/865,063	9/30/2007	8,191,063	5/29/2012	Veritas US IP Holdings LLC	Granted
Backup Agent for Dynamically Decomposing a Database Backup Request to Constituent Files to Facilitate Backup Restartability	11/930,452	10/31/2007	7,882,073	2/1/2011	Veritas US IP Holdings LLC	Granted
Techniques for Virtual Archiving	11/931,750	10/31/2007	8,170,994	5/1/2012	Veritas US IP Holdings LLC	Granted
Techniques for Global Single Instance Indexing for Backup Data	11/931,880	10/31/2007	8,346,731	1/1/2013	Veritas US IP Holdings LLC	Granted
Methods and Systems for Performing Data Protection Operations	11/932,216	31 Oct 2007	9,152,817	06 Oct 2015	Veritas US IP Holdings LLC	Granted
System and Method for Performing Online Backup and Restore of Volume Configuration Information	11/957,863	12/17/2007	7,831,769	11/9/2010	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Techniques for recovery of application level objects	11/960,309	12/19/2007	8,266,112	9/11/2012	Veritas US IP Holdings LLC	Granted
Concurrently Backing Up Data from Multiple Backup Servers in a Backup Storage Tier	11/962,736	12/21/2007	8,600,940	12/3/2013	Veritas US IP Holdings LLC	Granted
Automatically Adjusting a Number of Backup Data Sources Concurrently Backed Up to a Storage Device on a Server Computer	11/964,099	12/26/2007	8,112,397	2/7/2012	Veritas US IP Holdings LLC	Granted
Balanced Consistent Hashing for Distributed Resource Management	11/964,264	12/26/2007	8,244,846	8/14/2012	Veritas US IP Holdings LLC	Granted
Preventing Undesired Trespass in Storage Arrays	11/967,333	12/31/2007	7,730,274	6/1/2010	Veritas US IP Holdings LLC	Granted
System and method for optimizing content indexing from segment-based single instance storage	11/967,630	12/31/2007	8,214,376	7/3/2012	Veritas US IP Holdings LLC	Granted
A Method To Restore Application Specific Content From Volume Images	11/967,667	12/31/2007	8,639,897	1/28/2014	Veritas US IP Holdings LLC	Granted
Backup Application Coordination with Storage Array Power Saving Features	11/968,001	12/31/2007	8,543,784	9/24/2013	Veritas US IP Holdings LLC	Granted
Model for Cost Optimization and QOS Tuning in Hosted Computing	12/001,46	12/11/2007	7,783,760	8/24/2010	Veritas US IP	Granted



App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Environments	6				Holdings LLC	
Volume Restoration Using an Accumulator Map	12/001,486	12/11/2007	7,743,227	6/22/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Restoring a Table in a Database	12/002,593	12/18/2007	8,874,519	10/28/2014	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Accessing a Tape Drive from a Plurality of Nodes	12/005,134	12/21/2007	8,612,701	12/17/2013	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Utilizing a Semiconductor Memory of a Node as a Cache	12/005,147	12/21/2007	8,051,246	11/1/2011	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Restoring Log Files Using Virtual Placeholders	12/006,050	12/28/2007	7925856	4/12/2011	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Managing Configurations	12/006,156	12/31/2007	8,095,488	1/10/2012	Veritas US IP Holdings LLC	Granted
Automatically Configuring a Network Device During a Dissimilar System Restore	12/019,365	1/24/2008	8,103,747	1/24/2012	Veritas US IP Holdings LLC	Granted
System and Method for Detecting and Storing File Identity Change Information Within a File System	12/025,695	2/4/2008	7,912,866	3/22/2011	Veritas US IP Holdings LLC	Granted
Techniques For Efficient Restoration of Granular Application Data	12/027,574	2/7/2008	7,831,861	11/9/2010	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Method and Apparatus for Optimizing a Backup Chain Using Synthetic Backups	12/033,365	2/19/2008	8,943,281	1/27/2015	Veritas US IP Holdings LLC	Granted
Techniques for granular recovery of data from local and remote storage	12/038,367	2/27/2008	7,885,938	2/8/2011	Veritas US IP Holdings LLC	Granted
Method for Grouping Exchange 2007 Journal Messages	12/050,333	3/18/2008	7,917,592	3/29/2011	Veritas US IP Holdings LLC	Granted
Using Volume Snapshots to Prevent File Corruption in Failed Restore Operations	12/055,436	3/26/2008	8,112,664	2/7/2012	Veritas US IP Holdings LLC	Granted
Proactive Synchronization of SO Snapshots on Replication Target	12/056,871	3/27/2008	8,438,347	5/7/2013	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Resolving Volume Identifiers Associated with a Virtual Machine	12/056,992	3/27/2008	8,185,684	5/22/2012	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Mapping Virtual Drives	12/057,002	3/27/2008	8,635,429	1/21/2014	Veritas US IP Holdings LLC	Granted
Hybrid Method for Incremental Backup of Structured and Unstructured Files	12/057,178	3/27/2008	8,433,863	4/30/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Transparently Restoring Data Using File Streaming	12/058,036	3/28/2008	8,060,479	11/15/2011	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Techniques for Optimizing Configuration Partitioning	12/058,180	3/28/2008	7,930,489	4/19/2011	Veritas US IP Holdings LLC	Granted
Techniques for virtualizing data	12/058,181	3/28/2008	7,987,335	7/26/2011	Veritas US IP Holdings LLC	Granted
Secure Encryption Algorithm for Data Deduplication on Untrusted Storage	12/058,833	3/31/2008	8,199,911	6/12/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Storing Health Information With Computing-System Backups	12/058,943	3/31/2008	8,006,116	8/23/2011	Veritas US IP Holdings LLC	Granted
System and Method for Setting an Activation State for a Device Used in a Backup Operation	12/059,099	3/31/2008	8,769,223	7/1/2014	Veritas US IP Holdings LLC	Granted
System and Method for Detecting Email Content Similarity Using Bloom Filtering Techniques	12/059,176	3/31/2008	8,037,145	10/11/2011	Veritas US IP Holdings LLC	Granted
Method for Writing Hardware Encrypted Backups on a Per Set Basis	12/059,629	3/31/2008	9,064,132	6/23/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Identifying the Presence of Sensitive Data in Backups	12/059,822	3/31/2008	8,219,766	7/10/2012	Veritas US IP Holdings LLC	Granted
Security incident identification	12/069,87	2/12/2008	8,060,935	11/15/2011	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
and prioritization	2				Holdings LLC	
Method to Allow File Level Restore from Full or Block Incremental Volume Image Files on Sequential Devices	12/070,178	2/15/2008	8,386,733	2/26/2013	Veritas US IP Holdings LLC	Granted
Method And System For Producing And Organizing Electronically Stored Information	12/104,297	4/16/2008	8,171,393	5/1/2012	Veritas US IP Holdings LLC	Granted
System and Method for Providing Access to Replicated Data	12/110,500	4/28/2008	8,103,625	1/24/2012	Veritas US IP Holdings LLC	Granted
Using Asset Dependencies to Identify the Recovery Set and Optionally Automate and/or Optimize the Recovery	12/113,734	5/1/2008	8,015,430	9/6/2011	Veritas US IP Holdings LLC	Granted
Techniques for restoring file system resources	12/124,820	5/28/2008	7,890,793	2/15/2011	Veritas US IP Holdings LLC	Granted
Method For Grouping Exchange 2007 Journal Messages	12/126,163	5/23/2008	7,836,139	11/16/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Using a Dynamic Policy to Manage a File Purging Process	12/131,470	6/2/2008	8,272,026	9/18/2012	Veritas US IP Holdings LLC	Granted
Techniques for Virtual Machine Backup Scheduling	12/131,502	6/2/2008	8,959,509	2/17/2015	Veritas US IP Holdings LLC	Granted
Techniques for providing multiple levels of security for a backup	12/131,533	6/2/2008	8,560,785	10/15/2013	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
medium						
Method and Apparatus for Cloning a Configuration of a Computer in a Data Center	12/131,706	6/2/2008	8,037,289	10/11/2011	Veritas US IP Holdings LLC	Granted
Memory Order Debugger	12/132,039	6/3/2008	8,930,683	1/6/2015	Veritas US IP Holdings LLC	Granted
Synthetic Differential Backups Creation for a Database Using Binary Log Conversion	12/133,286	6/4/2008	8,041,679	10/18/2011	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Achieving High Availability for an Application in a Computer Cluster	12/134,723	6/6/2008	8,230,256	7/24/2012	Veritas US IP Holdings LLC	Granted
Techniques for Improving Performance of a Shared Storage by Identifying Transferrable Memory Structure and Reducing the Need for Performing Storage Input/Output Calls	12/134,783	6/6/2008	8,578,373	11/5/2013	Veritas US IP Holdings LLC	Granted
Controlling Resource Allocation for Backup Operations	12/134,853	6/6/2008	8,326,804	12/4/2012	Veritas US IP Holdings LLC	Granted
Creating Synthetic Backup Images on a Remote Computer System	12/135,310	6/9/2008	8,244,681	8/14/2012	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Archiving Web Content Based on a Policy	12/135,703	6/9/2008	8,365,241	1/29/2013	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Method and Apparatus for Implementing a Storage Lifecycle Policy of a Snapshot Image	12/135,717	6/9/2008	7,979,649	7/12/2011	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Implementing a Storage Lifecycle Based on a Hierarchy of Storage Destinations	12/135,779	6/9/2008	7,987,325	7/26/2011	Veritas US IP Holdings LLC	Granted
System And Method For Reading Mirrored Data	12/135,814	6/9/2008	8,499,129	7/30/2013	Veritas US IP Holdings LLC	Granted
Backup and Archival of Hosted Online Content	12/137,148	6/11/2008	8,302,162	10/30/2012	Veritas US IP Holdings LLC	Granted
Remote, Granular Restore from Full Virtual Machine Backup	12/138,897	6/13/2008	8,577,845	11/5/2013	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Providing Event Based Data Replication	12/147,756	6/27/2008	8,234,246	7/31/2012	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Partitioning a Computer Cluster Through Coordination Point Devices	12/147,764	6/27/2008	8,024,432	9/20/2011	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Managing Failures in a Datacenter	12/147,767	6/27/2008	8,332,690	12/11/2012	Veritas US IP Holdings LLC	Granted
Methods and Systems for Managing Deduplicated Data Using Unilateral Referencing	12/147,849	6/27/2008	8,108,446	1/31/2012	Veritas US IP Holdings LLC	Granted

<b>App Title</b>	<b>App No.</b>	<b>Filed Date</b>	<b>Patent No.</b>	<b>Grant Date</b>	<b>Owner</b>	<b>Status</b>
Continuous Data Protection and Remote Block-Level Storage for a Data Volume	12/164,194	6/30/2008	7,822,827	10/26/2010	Veritas US IP Holdings LLC	Granted
System and Method for Resuming Backup of a Volume After a Backup Operation Prematurely Terminates	12/164,201	6/30/2008	8,082,408	12/20/2011	Veritas US IP Holdings LLC	Granted
Method and System for Efficiently Handling Small Files in a Single Instance Storage Data Store	12/164,284	6/30/2008	8,572,055	10/29/2013	Veritas US IP Holdings LLC	Granted
A Method and Apparatus for Identifying Data Blocks Required for Restoration	12/164,313	6/30/2008	8,229,896	7/24/2012	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Providing Point-In-Time Consistent Backup Images	12/164,317	6/30/2008	8,433,864	4/30/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Tracking Changes to a Volume	12/164,458	6/30/2008	8,065,272	11/22/2011	Veritas US IP Holdings LLC	Granted
Incremental Backup of Database for Non-Archive Logged Servers	12/164,753	6/30/2008	8,046,329	10/25/2011	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Optimizing Computer Network Usage to Prevent Congestion	12/164,787	6/30/2008	8,516,121	8/20/2013	Veritas US IP Holdings LLC	Granted
Install-Unit Upgrade Using Dynamic Configuration Data	12/164,789	6/30/2008	8,291,403	10/16/2012	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Manipulation and Merging						
Improving the Scalability of Data Deduplication Through the Use of a Locality Table	12/164,965	6/30/2008	8,468,320	6/18/2013	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Processing a Transform Function, a Reference File and Parameter Information that Represent a Data File	12/165,061	6/30/2008	8,984,025	3/17/2015	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Mapping Virtual Machine Incremental Images	12/165,070	6/30/2008	8,676,809	3/18/2014	Veritas US IP Holdings LLC	Granted
Method, Apparatus and System to Automate Detection of Anomalies for Storage and Replication within a High Availability Disaster Recovery Environment	12/165,345	6/30/2008	8,135,981	3/13/2012	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Providing a Host-Independent Name to Identify a Meta-Device that Represents a Logical Unit Number	12/165,351	6/30/2008	8,271,725	9/18/2012	Veritas US IP Holdings LLC	Granted
Method, Apparatus and System for Improving Failover Within a High Availability Disaster Recovery Environment	12/165,400	6/30/2008	8,370,679	2/5/2013	Veritas US IP Holdings LLC	Granted



App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Method and System for Efficient Space Management for Single-Instance-Storage Volumes	12/165,469	6/30/2008	8,041,907	10/18/2011	Veritas US IP Holdings LLC	Granted
Method and System for Improving Performance with Single-Instance-Storage Volumes by Leveraging Data Locality	12/165,496	6/30/2008	8,204,868	6/19/2012	Veritas US IP Holdings LLC	Granted
Techniques for providing multiplexed data for backup	12/181,614	7/29/2008	8,615,492	12/24/2013	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Providing a Temporal Storage Applcance With Block Virtualization in Storage Networks	12/181,615	7/29/2008	7,769,949	8/3/2010	Veritas US IP Holdings LLC	Granted
System and Method for Handling a Storage Resource Error Condition Based on a Priority Information	12/183,324	7/31/2008	7,725,768	5/25/2010	Veritas US IP Holdings LLC	Granted
Providing Fault Tolerant Storage System to a Cluster	12/187,859	8/7/2008	7,886,183	2/8/2011	Veritas US IP Holdings LLC	Granted
Techniques for providing a differential backup from a storage image	12/191,029	8/13/2008	8,615,495	12/24/2013	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Method and Apparatus for Automatically Archiving Data Items from Backup Storage	12/191,785	8/14/2008	8,239,348	8/7/2012	Veritas US IP Holdings LLC	Granted
Efficient Management of Archival Images of Virtual Machines Having Incremental Snapshots	12/197,672	8/29/2008	8,495,316	7/23/2013	Veritas US IP Holdings LLC	Granted
Deriving Encryption Key Selection from A Data Management Retention Period	12/198,849	8/26/2008	8,503,680	8/6/2013	Veritas US IP Holdings LLC	Granted
Coordinated Storage Management Operations in Replication Environment	12/201,921	8/29/2008	8,001,346	8/16/2011	Veritas US IP Holdings LLC	Granted
Fast Connectivity Recovery for a Partitioned Namespace	12/204,486	9/4/2008	7,941,709	5/10/2011	Veritas US IP Holdings LLC	Granted
System and Method of Redundantly Storing and Retrieving Data with Cooperating Storing Devices	12/208,882	9/11/2008	7,827,439	11/2/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Managing Image Data on a Sequential Storage Device	12/210,240	9/15/2008	8,170,991	5/1/2012	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Processing Electronically Stored Information for Electronic Discovery	12/210,241	9/15/2008	8,090,705	1/3/2012	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Method and apparatus for providing a message trail of conversationally related messages	12/233,861	9/19/2008	8,380,687	2/19/2013	Veritas US IP Holdings LLC	Granted
Method and apparatus for providing time synchronization in a data protection system	12/235,295	9/22/2008	8327028	12/4/2012	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Processing Transactional File System Operations to Enable Point in Time Consistent File Data Recreation	12/235,304	9/22/2008	8,762,347	6/24/2014	Veritas US IP Holdings LLC	Granted
A System and Method of Hierarchical Space Management for Storage Systems	12/236,194	9/23/2008	8,495,111	7/23/2013	Veritas US IP Holdings LLC	Granted
System and Method for Efficiently Restoring a Plurality of Deleted Files to a File System Volume	12/237,719	9/25/2008	8,572,045	10/29/2013	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Managing Access to Backup Data on an Archival Storage System Through Media Servers	12/237,800	9/25/2008	8,433,861	4/30/2013	Veritas US IP Holdings LLC	Granted
Policy control of virtual environments	12/238,356	9/25/2008	8,214,878	7/3/2012	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Template-Based Processing of Electronic Documents	12/239,175	9/26/2008	8,521,757	8/27/2013	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Protecting Against Chosen Plaintext Attacks In Untrusted Storage Environments That Support Data Deduplication	12/240,405	9/29/2008	8,281,143	10/2/2012	Veritas US IP Holdings LLC	Granted
Client Side Data Deduplication	12/240,441	9/29/2008	7,814,149	10/12/2010	Veritas US IP Holdings LLC	Granted
Block-Based Sparse Backup Images of File System Volumes	12/241,151	9/30/2008	8,200,637	6/12/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Creating and Synchronizing Security Metadata Within Synchronized-Data Networks	12/241,308	9/30/2008	8,756,656	6/17/2014	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Providing a Catalog to Optimize Stream-Based Data Restoration	12/241,387	9/30/2008	8,195,612	6/5/2012	Veritas US IP Holdings LLC	Granted
Restoring Selected Objects from a Monolithic Database Backup	12/242,014	9/30/2008	8,065,278	11/22/2011	Veritas US IP Holdings LLC	Granted
Backing Up and Restoring Security Information for Selected Database Objects	12/242,136	9/30/2008	8,060,474	11/15/2011	Veritas US IP Holdings LLC	Granted
Heat Charts for Reporting on Drive Utilization and Throughput	12/242,151	9/30/2008	8,244,676	8/14/2012	Veritas US IP Holdings LLC	Granted
Methods and Systems for Prioritizing Tasks from Virtual Machines	12/242,685	9/30/2008	8,424,007	4/16/2013	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Methods and Systems for Defragmenting Virtual Machine Prefetch Data on Physical Storage	12/242,734	9/30/2008	8,332,570	12/11/2012	Veritas US IP Holdings LLC	Granted
Dynamically Updating Backup Configuration Information for a Storage Cluster	12/243,248	10/1/2008	8,380,951	2/19/2013	Veritas US IP Holdings LLC	Granted
Techniques for creating snapshots of a target system	12/252,071	10/15/2008	8,732,417	5/20/2014	Veritas US IP Holdings LLC	Granted
Techniques for Processing Backup Data for Identifying and Handling Content	12/268,122	11/10/2008	8,484,737	7/9/2013	Veritas US IP Holdings LLC	Granted
System State Rollback After Modification Failure	12/268,959	11/11/2008	8,104,032	1/24/2012	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Preserving Virtual Desktops for E-Discovery Through an Agent-Less Solution	12/271,403	11/14/2008	8,707,299	4/22/2014	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Performing Granular Restoration of Data Objects from Machine Images Stored on Sequential Backup Media	12/277,264	11/24/2008	8,315,983	11/20/2012	Veritas US IP Holdings LLC	Granted
Affinity Based Allocation for Storage Implementations Employing Deduplicated Data Stores	12/324,428	11/26/2008	8,315,992	11/20/2012	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Intelligent Recovery Point Copying System and Method	12/328,117	12/4/2008	8,060,475	11/15/2011	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Providing a Volume Image Backup of Selected Objects	12/330,430	12/8/2008	8,621,165	12/31/2013	Veritas US IP Holdings LLC	Granted
Optimized Backup for a Clustered Storage System	12/332,522	12/11/2008	8,244,998	8/14/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Determining Whether to Perform a Computing Operation that is Optimized for a Specific Storage-Device-Technology Type	12/337,132	12/17/2008	8,140,804	3/20/2012	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Routing a Data Stream Through a Plurality of Data Movers Independent of a Network Interface Type	12/338,116	12/18/2008	8,161,180	4/17/2012	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Optimizing a De-Duplication Rate for Backup Streams	12/338,563	12/18/2008	8,315,985	11/20/2012	Veritas US IP Holdings LLC	Granted
Deterministic Space Management in Deduplication Applications	12/343,334	12/23/2008	7,921,086	4/5/2011	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Providing Single Instance Restoration of Data Files	12/343,440	12/23/2008	8,055,614	11/8/2011	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Techniques for Recovering Data from Cold Images	12/345,008	12/29/2008	8,140,906	3/20/2012	Veritas US IP Holdings LLC	Granted
Method And Apparatus For Proactively Monitoring Application Health Data To Achieve Workload Management And High Availability	12/345,202	12/29/2008	8,117,487	2/14/2012	Veritas US IP Holdings LLC	Granted
Method and System for Restoring Encrypted Files from a Virtual Machine Image	12/346,133	12/30/2008	8,930,423	1/6/2015	Veritas US IP Holdings LLC	Granted
Techniques for reducing broadcast messages	12/346,183	12/30/2008	8,615,556	12/24/2013	Veritas US IP Holdings LLC	Granted
Failure handling using overlay objects on a file system using object based storage devices	12/346,374	12/30/2008	7,941,697	5/10/2011	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Monitoring Storage Unit Ownership to Continuously Balance Input/Output Loads Across Storage Processors	12/346,390	12/30/2008	8,639,808	1/28/2014	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Providing High Availability to Service Groups Within a Datacenter	12/346,401	12/30/2008	8,489,721	7/16/2013	Veritas US IP Holdings LLC	Granted
Techniques for synchronizing and/or consolidating storage	12/347,096	12/31/2008	9,058,118	6/16/2015	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
areas						
High Performance Install Update	12/362,234	1/29/2009	8,453,141	5/28/2013	Veritas US IP Holdings LLC	Granted
Method and Apparatus to Recover from Interrupted Data Streams in a Deduplication System	12/363,207	1/30/2009	8,074,043	12/6/2011	Veritas US IP Holdings LLC	Granted
Techniques for continuous data protection	12/370,229	2/12/2009	7,996,718	8/9/2011	Veritas US IP Holdings LLC	Granted
Power Management within a Data Protection System	12/388,693	2/19/2009	8,127,166	2/28/2012	Veritas US IP Holdings LLC	Granted
Prioritization of Backup Tasks in a Global De-duplication Backup System	12/391,617	2/24/2009	8,180,734	5/15/2012	Veritas US IP Holdings LLC	Granted
Techniques for Backing up Distributed Data	12/391,747	2/24/2009	8,140,791	3/20/2012	Veritas US IP Holdings LLC	Granted
Coherency of Replicas for a Distributed File Sharing System	12/396,280	3/2/2009	7,831,735	11/9/2010	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Achieving High Availability for Applications and Optimizing Power Consumption Within a Datacenter	12/396,999	04 Mar 2009	8,065,560	22 Nov 2011	Veritas US IP Holdings LLC	Granted
Techniques for managing data compression in a data protection	12/397,656	3/4/2009	8,832,044	9/9/2014	Veritas US IP Holdings LLC	Granted



App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
system						
Techniques for controlling data backup operations	12/401,535	3/10/2009	8,504,785	8/6/2013	Veritas US IP Holdings LLC	Granted
Generic Granular Restore of Application Data From a Volume Image Backup	12/401,642	3/11/2009	8,209,290	6/26/2012	Veritas US IP Holdings LLC	Granted
Methods and Systems for Safely Restoring Files in a Computing System	12/402,947	3/12/2009	8,224,789	7/17/2012	Veritas US IP Holdings LLC	Granted
Techniques for file system resource restoration	12/404,780	3/16/2009	7,996,708	8/9/2011	Veritas US IP Holdings LLC	Granted
Application backup using unified backup methodologies	12/405,747	3/17/2009	8,903,777	12/2/2014	Veritas US IP Holdings LLC	Granted
Incremental and Differential Backups of Virtual Machine Files	12/405,777	3/17/2009	8,099,391	1/17/2012	Veritas US IP Holdings LLC	Granted
Compression of Temporal Dimension in a Temporal Storage Device	12/405,790	3/17/2009	7,996,717	8/9/2011	Veritas US IP Holdings LLC	Granted
Method for Restoring Data from a Monolithic Backup	12/407,630	3/19/2009	8,386,438	2/26/2013	Veritas US IP Holdings LLC	Granted
Segment-Based Method for Efficient File Restoration	12/410,713	3/25/2009	8,255,366	8/28/2012	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Optimizing Resource Utilization	12/411,864	3/26/2009	8,930,539	1/6/2015	Veritas US IP Holdings LLC	Granted

<b>App Title</b>	<b>App No.</b>	<b>Filed Date</b>	<b>Patent No.</b>	<b>Grant Date</b>	<b>Owner</b>	<b>Status</b>
Within a Cluster and Facilitating High Availability for an Application						
Preventing Data Loss From Restore Overwrites	12/412,895	3/27/2009	8,151,139	4/3/2012	Veritas US IP Holdings LLC	Granted
Adaptive Compression Using a Sampling Based Heuristic	12/413,137	3/27/2009	8,806,062	8/12/2014	Veritas US IP Holdings LLC	Granted
DLP-enforcing Loss Scanning, Sequestering, and Content Indexing	12/413,801	3/30/2009	8,572,758	10/29/2013	Veritas US IP Holdings LLC	Granted
Application and File System Data Virtualization From Image Backup	12/414,009	3/30/2009	8,510,271	8/13/2013	Veritas US IP Holdings LLC	Granted
Balanced Consistent Hashing For Distributed Resource Management	12/414,097	3/30/2009	8,032,637	10/4/2011	Veritas US IP Holdings LLC	Granted
Systems and Methods for Performing Optimized Backups of Multiple Volumes	12/414,782	3/31/2009	8,612,702	12/17/2013	Veritas US IP Holdings LLC	Granted
Dynamic Storage Mechanism	12/415,125	3/31/2009	8,280,853	10/2/2012	Veritas US IP Holdings LLC	Granted
Methods and Systems for Utilizing Redundant Data	12/415,249	3/31/2009	8,229,898	7/24/2012	Veritas US IP Holdings LLC	Granted
Methods and Systems for Creating and Managing Backups Using Virtual Disks	12/415,278	3/31/2009	8,117,168	2/14/2012	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Off-host Cataloging of Backup Information	12/415,384	3/31/2009	8,140,480	3/20/2012	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Archiving De-duplicated Data Maintained by an Intelligent Backup Appliance	12/415,464	3/31/2009	8,375,183	2/12/2013	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Coordinating Service Execution Within a Shared File System Environment to Optimize Cluster Performance	12/415,472	31 Mar 2009	9,160,610	13 Oct 2015	Veritas US IP Holdings LLC	Granted
Method and apparatus for managing concurrent access among computers to a bitmap stored on disk storage	12/415,484	3/31/2009	8,065,489	11/22/2011	Veritas US IP Holdings LLC	Granted
Hash-Based Data Block Processing with Intermittently-Connected Systems	12/415,497	3/31/2009	8,176,338	5/8/2012	Veritas US IP Holdings LLC	Granted
Selectively Protecting Against Chosen Plaintext Attacks in Untrusted Storage Environments that Support Data Deduplication	12/415,577	3/31/2009	8,479,304	7/2/2013	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Integrating Data Duplication with Block Level Incremental Data Backup	12/415,621	3/31/2009	8,650,162	2/11/2014	Veritas US IP Holdings LLC	Granted

<b>App Title</b>	<b>App No.</b>	<b>Filed Date</b>	<b>Patent No.</b>	<b>Grant Date</b>	<b>Owner</b>	<b>Status</b>
Method and Apparatus for Automating Device Recovery Using Device Configuration Information	12/415,642	3/31/2009	8,065,561	11/22/2011	Veritas US IP Holdings LLC	Granted
Standard File System Access to Data That is Initially Stored and Accessed via a Proprietary Interface	12/415,697	3/31/2009	8,239,402	8/7/2012	Veritas US IP Holdings LLC	Granted
Content Deduplication in Enterprise Rights Management	12/415,699	3/31/2009	8,812,874	8/19/2014	Veritas US IP Holdings LLC	Granted
Methods and Systems for Creating Full Backups	12/415,798	3/31/2009	8,539,179	9/17/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Seeding a Fingerprint Cache for Data Deduplication	12/415,847	3/31/2009	8,166,261	4/24/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Controlling Initialization of a Fingerprint Cache for Data Deduplication	12/415,861	3/31/2009	8,060,715	11/15/2011	Veritas US IP Holdings LLC	Granted
Systems and Methods for Data-Selection-Specific Data Deduplication	12/415,876	3/31/2009	8,407,186	3/26/2013	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Simultaneous Comparison of Multiple Backup Sets Maintained in a Computer System	12/415,900	3/31/2009	8,219,528	7/10/2012	Veritas US IP Holdings LLC	Granted

<b>App Title</b>	<b>App No.</b>	<b>Filed Date</b>	<b>Patent No.</b>	<b>Grant Date</b>	<b>Owner</b>	<b>Status</b>
Server-Side Storage Area Network Management Interface	12/419,097	4/6/2009	8,019,849	9/13/2011	Veritas US IP Holdings LLC	Granted
Techniques for System Recovery Using Change Tracking	12/431,497	4/28/2009	8,996,826	3/31/2015	Veritas US IP Holdings LLC	Granted
Techniques for providing incremental backups	12/434,319	5/1/2009	8,918,606	12/23/2014	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Synchronizing a Physical Machine with a Virtual Machine While the Virtual Machine is Operational	12/465,614	5/13/2009	8,156,301	4/10/2012	Veritas US IP Holdings LLC	Granted
Methods and Systems for Creating Full Backups	12/473,398	5/28/2009	8,200,926	6/12/2012	Veritas US IP Holdings LLC	Granted
Methods and Systems for Inserting and Invoking Virtual Appliance Agents	12/477,810	6/3/2009	8,225,317	7/17/2012	Veritas US IP Holdings LLC	Granted
Model and Method of an N-tier Quality-Of-Service (QOS)	12/480,547	6/8/2009	8,290,995	10/16/2012	Veritas US IP Holdings LLC	Granted
Source Classification For Performing Deduplication In A Backup Operation	12/480,587	6/8/2009	8,255,365	8/28/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Migrating an Object from a Deduplication Store to an External Domain	12/487,955	6/19/2009	8,615,498	12/24/2013	Veritas US IP Holdings LLC	Granted

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Systems and Methods for Measuring Compliance with a Recovery Point Objective for an Application	12/493,462	29 Jun 2009	9,110,918	18 Aug 2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Implementing a Storage Interface Specific to an Archiving Platform	12/493,722	6/29/2009	8,972,677	3/3/2015	Veritas US IP Holdings LLC	Granted
Backup System Including a Privately Accessible Primary Backup Server and a Publicly Accessible Alternate Backup Server	12/494,001	6/29/2009	8,271,443	9/18/2012	Veritas US IP Holdings LLC	Granted
Data Protection Requirements Specification and Migration	12/495,090	6/30/2009	8,925,034	12/30/2014	Veritas US IP Holdings LLC	Granted
System and Method for Efficiently Locating and Processing Data on a Deduplication Storage System	12/495,274	6/30/2009	8,171,063	5/1/2012	Veritas US IP Holdings LLC	Granted
System and Method for Implementing Data Deduplication-Aware Copying of Data	12/495,784	6/30/2009	8,290,911	10/16/2012	Veritas US IP Holdings LLC	Granted
System and Method for Implementing Clustered Network File System Lock Management	12/495,791	6/30/2009	8,296,599	10/23/2012	Veritas US IP Holdings LLC	Granted
Techniques for integrating backup modules with virtualized storage	12/498,079	7/6/2009	8,230,187	7/24/2012	Veritas US IP Holdings LLC	Granted

<b>App Title</b>	<b>App No.</b>	<b>Filed Date</b>	<b>Patent No.</b>	<b>Grant Date</b>	<b>Owner</b>	<b>Status</b>
Identifying Database Containers that Reference Specified Data Items	12/502,709	7/14/2009	8,095,572	1/10/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Restoring Images	12/503,176	7/15/2009	8,712,968	4/29/2014	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Enabling and Managing Application Input/Output Activity While Restoring a Data Store	12/533,764	7/31/2009	8,555,009	10/8/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Securing Data of Volume Mirrors	12/533,783	7/31/2009	8,572,401	10/29/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Restoring Email Databases	12/533,887	7/31/2009	8,244,914	8/14/2012	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Securing Data Volumes to a Remote Computer Using Journal Volumes	12/538,566	8/10/2009	8,275,743	9/25/2012	Veritas US IP Holdings LLC	Granted
Deconstruction and Transformation of Complex Objects for De-duplicated Storage	12/545,245	8/21/2009	8,195,688	6/5/2012	Veritas US IP Holdings LLC	Granted
Proxy Backup of Virtual Disk Image Files on NAS Devices	12/545,450	8/21/2009	8,438,349	5/7/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Reliably Identifying Controls Invoked During Quality-Assurance	12/546,007	8/24/2009	8,448,134	5/21/2013	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Reviews of User Interfaces						
Systems and Methods for Dynamically Managing the Migration of a Single Instance of Data Between Storage Devices	12/548,711	8/27/2009	8,412,824	4/2/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Archiving Related Items	12/550,709	8/31/2009	8,972,355	3/3/2015	Veritas US IP Holdings LLC	Granted
Computer Data Backup Operation with Time-Based Checkpoint Intervals	12/550,717	8/31/2009	8,285,869	10/9/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Using Single-Instance-Storage Information to Reclaim Storage Space Occupied by Archived Data Elements	12/550,763	8/31/2009	8,244,679	8/14/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Managing Portions of Files in Multi-Tier Storage Systems	12/551,221	8/31/2009	8,352,429	1/8/2013	Veritas US IP Holdings LLC	Granted
Using a Data Storage System for Cluster I/O Failure Determination	12/551,260	8/31/2009	8,095,828	1/10/2012	Veritas US IP Holdings LLC	Granted
Systems and methods for deduplicating data based on performance of a deduplication system	12/551,341	8/31/2009	8,572,163	10/29/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Relocating Deduplicated Data	12/552,08	9/1/2009	8,280,854	10/2/2012	Veritas US IP	Granted



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Within a Multi-Device Storage System	9				Holdings LLC	
Systems and Methods for Creating a Rights Management System (RMS) with Superior Layers and Subordinate Layers	12/552,404	9/2/2009	8,977,849	3/10/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Creating Reference-Based Synthetic Backups	12/553,723	9/3/2009	8,904,125	12/2/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Remediating a Defective Uninstaller During an Upgrade Procedure of a Product	12/557,646	9/11/2009	8,997,077	3/31/2015	Veritas US IP Holdings LLC	Granted
System and Method for Customized I/O Fencing for Preventing Data Corruption in Computer System Clusters	12/558,697	9/14/2009	8,370,494	2/5/2013	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Optimizing Storage Space Allocations for Computer Data	12/559,397	9/14/2009	8,392,479	3/5/2013	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Providing Highly Available Storage Groups	12/559,410	9/14/2009	8,447,826	5/21/2013	Veritas US IP Holdings LLC	Granted
Intelligent Device and Media Server Selection for Optimized Backup Image Duplication	12/559,560	9/15/2009	8,095,684	1/10/2012	Veritas US IP Holdings LLC	Granted

<b>App Title</b>	<b>App No.</b>	<b>Filed Date</b>	<b>Patent No.</b>	<b>Grant Date</b>	<b>Owner</b>	<b>Status</b>
Systems and Methods for Monitoring Physical Paths Within a Computer Network	12/559,645	9/15/2009	8,108,551	1/31/2012	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Continuous Data Protection	12/560,084	9/15/2009	8,346,787	1/1/2013	Veritas US IP Holdings LLC	Granted
Message Broadcast Protocol which Handles Configuration Changes in a Cluster of Virtual Servers	12/560,209	9/15/2009	8,635,318	1/21/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Using Cloud-Based Storage to Optimize Data-Storage Operations	12/560,374	9/15/2009	8,370,312	2/5/2013	Veritas US IP Holdings LLC	Granted
Just In Time Trust Establishment and Propagation	12/560,384	9/15/2009	8,904,169	12/2/2014	Veritas US IP Holdings LLC	Granted
Coherently Sharing Any Form of Instant Snapshots Separately from Base Volumes	12/570,681	9/30/2009	8,001,347	8/16/2011	Veritas US IP Holdings LLC	Granted
Systems and Methods for Restoring Deduplicated Data	12/572,532	10/2/2009	8,204,862	6/19/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Projecting Hierarchical Storage Management Functions	12/579,526	10/15/2009	8,874,628	10/28/2014	Veritas US IP Holdings LLC	Granted
De-Duplication Storage System with Improved Reference Update Efficiency	12/580,785	10/16/2009	8,914,324	12/16/2014	Veritas US IP Holdings LLC	Granted

<b>App Title</b>	<b>App No.</b>	<b>Filed Date</b>	<b>Patent No.</b>	<b>Grant Date</b>	<b>Owner</b>	<b>Status</b>
Efficient Logging for Asynchronously Replicating Volume Groups	12/603,673	10/22/2009	8,285,956	10/9/2012	Veritas US IP Holdings LLC	Granted
Topology for Showing Data Protection Activity	12/605,512	10/26/2009	8,478,864	7/2/2013	Veritas US IP Holdings LLC	Granted
Self-Adjusting Change Tracking for Fast Resynchronization	12/605,544	10/26/2009	8,135,928	3/13/2012	Veritas US IP Holdings LLC	Granted
Techniques for portable device data archiving	12/606,574	10/27/2009	8,370,532	2/5/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Recovering Primary Sites after Failovers to Remote Secondary Sites	12/608,127	10/29/2009	8,677,088	3/18/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Effectively Removing Access to Individual Files on Magnetic Tape Media	12/608,144	10/29/2009	8,364,955	1/29/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Handling Path Failures to Active-Passive Storage Arrays	12/608,178	10/29/2009	8,074,101	12/6/2011	Veritas US IP Holdings LLC	Granted
Method and System for Enhanced Granularity in Fencing Operations	12/608,681	10/29/2009	8,707,082	4/22/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Reclaiming Storage Space on Striped Volumes	12/608,740	10/29/2009	8,549,223	10/1/2013	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Systems and Methods for Reclaiming Storage Space from Deleted Volumes on Thin-Provisioned Disks	12/608,766	10/29/2009	8,635,422	1/21/2014	Veritas US IP Holdings LLC	Granted
Synchronizing snapshot volumes across hosts	12/608,892	10/29/2009	8,417,907	4/9/2013	Veritas US IP Holdings LLC	Granted
Faster Recovery Mechanism of Validated Continuous Data Protection (CDP) Time Image	12/609,886	10/30/2009	8,046,553	10/25/2011	Veritas US IP Holdings LLC	Granted
Managing remote procedure calls when a server is unavailable	12/610,049	30 Oct 2009	9,141,449	22 Sep 2015	Veritas US IP Holdings LLC	Granted
Storage Replication Systems and Methods	12/610,107	10/30/2009	8,762,337	6/24/2014	Veritas US IP Holdings LLC	Granted
Method for quickly identifying data residing on a volume in a multivolume file system	12/610,153	30 Oct 2009	9,110,919	18 Aug 2015	Veritas US IP Holdings LLC	Granted
Using a Per File Activity Ratio to Optimally Relocate Data Between Volumes	12/610,175	10/30/2009	8,732,217	5/20/2014	Veritas US IP Holdings LLC	Granted
User Restoration of Workflow Objects and Elements from an Archived Database	12/610,246	10/30/2009	8,818,961	8/26/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Processing and Managing Object-Related Data for use by a Plurality	12/613,748	11/6/2009	8,458,186	6/4/2013	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
of Applications						
Systems and Methods for Indexing Backup Content	12/614,012	11/6/2009	8,793,222	7/29/2014	Veritas US IP Holdings LLC	Granted
Progressive Sampling for Deduplication Indexing	12/617,426	11/12/2009	8,311,964	11/13/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Recovering from Continuous-Data-Protection Blackouts	12/618,288	11/13/2009	8,370,306	2/5/2013	Veritas US IP Holdings LLC	Granted
Raid5 Recovery in a High Availability Object Based File System	12/619,314	11/16/2009	8,458,515	6/4/2013	Veritas US IP Holdings LLC	Granted
File system quota and reservation	12/619,343	11/16/2009	8,578,119	11/5/2013	Veritas US IP Holdings LLC	Granted
Selective file system caching based upon a configurable cache map	12/619,417	16 Nov 2009	8,825,685	02 Sep 2014	Veritas US IP Holdings LLC	Granted
Restricting access to object based storage	12/619,495	11/16/2009	8,341,370	12/25/2012	Veritas US IP Holdings LLC	Granted
Tracking Files Which Have Been Processed by a Backup or a Restore Operation	12/624,564	11/24/2009	8,380,678	2/19/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Creating Consolidated Backups of Snapshot Hierarchies	12/627,498	11/30/2009	8,281,093	10/2/2012	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
A periodic file system checkpoint manager	12/633,69 3	08 Dec 2009	9,165,012	20 Oct 2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Performing Live Backups	12/637,20 5	12/14/2009	8,572,337	10/29/2013	Veritas US IP Holdings LLC	Granted
Enhanced cluster failover management	12/638,66 3	12/15/2009	8,484,510	7/9/2013	Veritas US IP Holdings LLC	Granted
Storage replication systems and methods	12/638,86 8	12/15/2009	8,700,726	4/15/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Managing Sub-Clusters within a Multi-Cluster Computing System Subsequent to a Network-Partition Event	12/639,23 4	12/16/2009	8,060,773	11/15/2011	Veritas US IP Holdings LLC	Granted
Storage visibility in virtual environments	12/639,65 5	12/16/2009	8,898,663	11/25/2014	Veritas US IP Holdings LLC	Granted
Multistage System Recovery Framework	12/641,15 1	12/17/2009	8,132,043	3/6/2012	Veritas US IP Holdings LLC	Granted
Storage Systems and Methods With Pre-Reserve Allocation	12/641,99 9	12/18/2009	8,578,124	11/5/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Transitioning Between User Interface Environments	12/643,18 1	12/21/2009	8,839,138	9/16/2014	Veritas US IP Holdings LLC	Granted
Locating the Latest Version of Replicated Data Files	12/650,14 7	30 Dec 2009	9,135,268	15 Sep 2015	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Tracking Storage Operations of Virtual Machines	12/650,721	12/31/2009	8,464,254	6/11/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Removing Unreferenced Data Segments from Deduplicated Data Systems	12/652,300	1/5/2010	8,224,874	7/17/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Removing Unreferenced Data Segments from Deduplicated Data Systems	12/652,333	1/5/2010	8,224,875	7/17/2012	Veritas US IP Holdings LLC	Granted
Method to Spoof Data Formats from Image Backups	12/687,438	1/14/2010	8,566,297	10/22/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Simultaneously Providing Multiple Data Protection Functions	12/688,102	1/15/2010	8,452,931	5/28/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Managing Connections to Process Data	12/692,467	1/22/2010	8,856,189	10/7/2014	Veritas US IP Holdings LLC	Granted
Techniques for Backup Error Management	12/696,891	1/29/2010	8,117,492	2/14/2012	Veritas US IP Holdings LLC	Granted
Endpoint Virtualization Aware Backup	12/697,018	1/29/2010	8,290,912	10/16/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Securely Deduplicating Data Owned by	12/697,705	2/1/2010	8,401,185	3/19/2013	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Multiple Entities						
Mounting applications on a partially replicated snapshot volume	12/700,664	2/4/2010	8,745,002	6/3/2014	Veritas US IP Holdings LLC	Granted
Concurrent and Incremental Repair of a Failed Component in an Object Based Storage System for High Availability	12/701,216	2/5/2010	8,132,044	3/6/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Deduplicating Data Transferred via Physical Storage Media	12/703,468	2/10/2010	8,650,157	2/11/2014	Veritas US IP Holdings LLC	Granted
Analyzing Backup Objects Maintained by a De-Duplication Storage System	12/705,306	2/12/2010	8,762,338	6/24/2014	Veritas US IP Holdings LLC	Granted
Storage systems and methods	12/705,448	2/12/2010	8,397,039	3/12/2013	Veritas US IP Holdings LLC	Granted
Data corruption prevention during application restart and recovery	12/705,559	2/12/2010	8,352,799	1/8/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Creating Space-Saving Snapshots	12/709,995	2/22/2010	8,572,338	10/29/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Selectively Discovering Storage Devices Connected to Host Computing Devices	12/713,164	2/25/2010	8,225,009	7/17/2012	Veritas US IP Holdings LLC	Granted



App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Systems and Methods for Backing Up Emails	12/713,167	2/25/2010	8,224,778	7/17/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Managing Application Availability	12/713,590	2/26/2010	8,688,642	4/1/2014	Veritas US IP Holdings LLC	Granted
Distributed storage through a volume device architecture	12/713,621	2/26/2010	8,438,360	5/7/2013	Veritas US IP Holdings LLC	Granted
System and method for authorization and management of connections and attachments of resources	12/713,640	2/26/2010	8,627,413	1/7/2014	Veritas US IP Holdings LLC	Granted
System and Method for Virtual Device Communication Filtering	12/713,754	2/26/2010	9,021,556	4/28/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Managing Cluster Node Connectivity Information	12/714,434	2/26/2010	8,281,071	10/2/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Change Tracking with Multiple Backup Jobs	12/714,687	3/1/2010	8,260,752	9/4/2012	Veritas US IP Holdings LLC	Granted
Techniques for storage lifecycle policy management	12/714,756	3/1/2010	8,316,197	11/20/2012	Veritas US IP Holdings LLC	Granted
A Method of Avoiding Duplicate Backups in a Computing System	12/715,560	3/2/2010	8,473,463	6/25/2013	Veritas US IP Holdings LLC	Granted
Copy on write storage conservation systems and	12/716,201	3/2/2010	9,015,430	4/21/2015	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
methods						
Multiple File System and/or Multi-Host Single Instance Store Techniques	12/7716,28 2	3/3/2010	8,751,547	6/10/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Achieving File-Level Data-Protection Operations Using Block-Level Technologies	12/7716,66 9	3/3/2010	8,600,935	12/3/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Creating Incremental Images of Cluster Volumes	12/7717,07 1	3/3/2010	8,407,301	3/26/2013	Veritas US IP Holdings LLC	Granted
Fast Cluster Failure Detection	12/7717,90 9	3/4/2010	8,266,474	9/11/2012	Veritas US IP Holdings LLC	Granted
Improved Performance of Scanning Containers for Archiving	12/7720,37 8	3/9/2010	8,266,109	9/11/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Garbage Collection in Deduplicated Data Systems	12/7722,19 2	3/11/2010	8,108,447	1/31/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Restoring Web Parts in Content Management Systems	12/7722,84 9	3/12/2010	8,726,147	5/13/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Redundant Data Storage	12/7723,33 5	3/12/2010	8,225,040	7/17/2012	Veritas US IP Holdings LLC	Granted
System and method to define, visualize and manage a composite	12/7723,53	3/12/2010	8,539,087	9/17/2013	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
service group in a high-availability disaster recovery environment	0				Holdings LLC	
Optimized Image Archiving	12/723,769	3/15/2010	8,346,727	1/1/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Using Data Archiving to Expedite Server Migration	12/724,151	3/15/2010	8,442,949	5/14/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Providing Data Protection in Object-Based Storage Environments	12/724,198	3/15/2010	8,825,602	9/2/2014	Veritas US IP Holdings LLC	Granted
A method and system for providing deduplication information to applications	12/724,222	3/15/2010	8,392,437	3/5/2013	Veritas US IP Holdings LLC	Granted
A method and system to scan data from a system that supports deduplication	12/724,235	3/15/2010	8,832,042	9/9/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Adaptively Selecting File-Recall Modes	12/752,427	4/1/2010	8,983,910	3/17/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Dynamically Selecting a Logical Location for an Index	12/752,884	4/1/2010	8,938,479	1/20/2015	Veritas US IP Holdings LLC	Granted
Virtual Tape Library with the Ability to Perform Multiple, Simultaneous Reads of a Single	12/752,970	4/1/2010	8,769,182	7/1/2014	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Virtual Tape						
Single-Copy Implicit Sharing Among Clones	12/7753,26 2	4/2/2010	8,423,733	4/16/2013	Veritas US IP Holdings LLC	Granted
System and Method for Restore of Backup Data	12/7757,44 7	4/9/2010	8,364,640	1/29/2013	Veritas US IP Holdings LLC	Granted
Updating a list of quorum disks	12/7758,20 1	4/12/2010	8,443,231	5/14/2013	Veritas US IP Holdings LLC	Granted
Insert optimization for B+ tree data structure scalability	12/7758,48 3	4/12/2010	8,700,670	4/15/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Off-Host Backups of Striped Volumes	12/7763,69 8	4/20/2010	8,230,189	7/24/2012	Veritas US IP Holdings LLC	Granted
Cache Management for File Systems Supporting Shared Blocks	12/7764,86 6	4/21/2010	8,639,658	1/28/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Off-Host Backups	12/7764,93 3	4/21/2010	8,402,216	3/19/2013	Veritas US IP Holdings LLC	Granted
Mailbox Archiving Using Adaptive Patterns	12/7765,52 4	4/22/2010	8,380,675	2/19/2013	Veritas US IP Holdings LLC	Granted
Self-Referential Deduplication	12/7766,17 7	4/23/2010	9,075,532	7/7/2015	Veritas US IP Holdings LLC	Granted
Discovering Cluster Resources to Efficiently Perform Cluster Backups and Restores	12/7773,17 2	5/4/2010	8,219,769	7/10/2012	Veritas US IP Holdings LLC	Granted
Schedule Based Data Lifecycle	12/7773,35	5/4/2010	8,812,436	8/19/2014	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Management	0				Holdings LLC	
Change Tracking of Individual Virtual Disk Files	12/775,245	5/6/2010	8,326,803	12/4/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Efficiently Synchronizing Configuration Data Within Distributed Computing Systems	12/778,796	5/12/2010	8,224,935	7/17/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Synthetic Backups	12/779,574	5/13/2010	8,495,022	7/23/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Managing Applications	12/780,056	5/14/2010	8,402,306	3/19/2013	Veritas US IP Holdings LLC	Granted
System and method for efficient resource management	12/781,207	5/17/2010	8,600,999	12/3/2013	Veritas US IP Holdings LLC	Granted
Optimized Prepopulation of a Client Side Cache in a Deduplication Environment	12/782,648	5/18/2010	8,214,428	7/3/2012	Veritas US IP Holdings LLC	Granted
System and Method for High Performance Deduplication Indexing	12/790,461	5/28/2010	8,370,315	2/5/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Creating Snapshots	12/792,439	6/2/2010	8,281,096	10/2/2012	Veritas US IP Holdings LLC	Granted
Optimized backup window and media utilization for object based backups using archival short-cuts	12/796,829	6/9/2010	8,694,468	4/8/2014	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Automatically Reclaiming Memory Space	12/816,075	6/15/2010	8,438,362	5/7/2013	Veritas US IP Holdings LLC	Granted
Cluster configuration systems and methods	12/827,911	30 Jun 2010	9,146,822	29 Sep 2015	Veritas US IP Holdings LLC	Granted
Technique for Implementing Seamless Shortcuts in Sharepoint	12/827945	6/30/2010	8,489,676	7/16/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Performing Backups	12/830,279	7/2/2010	8,868,726	10/21/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Resolving Split-Brain Scenarios in Computer Clusters	12/830,285	7/2/2010	8,108,715	1/31/2012	Veritas US IP Holdings LLC	Granted
Permission Tracking Systems and Methods	12/833,387	7/9/2010	8,959,115	2/17/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Handling Client-Server Communications	12/836,818	7/15/2010	8,280,955	10/2/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Improving Redundant Storage Fault Tolerance	12/840,772	7/21/2010	8,386,841	2/26/2013	Veritas US IP Holdings LLC	Granted
System And Method For Partitioning Backup Data Streams In A Deduplication Based Storage System	12/846,132	7/29/2010	8,983,952	3/17/2015	Veritas US IP Holdings LLC	Granted
Providing Application High Availability In Highly-Available	12/847,030	7/30/2010	8,424,000	4/16/2013	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Virtual Machine Environments						
Providing Application-Aware High Availability Of Virtual Machines	12/847,506	7/30/2010	8,413,144	4/2/2013	Veritas US IP Holdings LLC	Granted
Generating Data Set Views For Backup Restoration	12/856,557	8/13/2010	8,756,197	6/17/2014	Veritas US IP Holdings LLC	Granted
Decision-Making System And Method For Improving Operating System Level 2 Cache Performance	12/856,956	8/16/2010	8,458,402	6/4/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Efficient Sequential Logging on Caching-Enabled Storage Devices	12/856,985	8/16/2010	8,380,962	2/19/2013	Veritas US IP Holdings LLC	Granted
Port Identifier Management for Path Failover in Cluster Environments	12/856,994	8/16/2010	8,699,322	4/15/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Hotspot Mitigation in Object-Based File Systems	12/857,018	8/16/2010	8,965,855	2/24/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Adaptively Preferring Mirrors for Read Operations	12/857,048	8/16/2010	8,688,643	4/1/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Managing Virtual Storage Disk Data	12/857,079	8/16/2010	8,407,438	3/26/2013	Veritas US IP Holdings LLC	Granted
Method And System For	12/857,444	8/16/2010	8,429,209	4/23/2013	Veritas US IP	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Efficiently Reading A Partitioned Directory Incident To A Serialized Process	1				Holdings LLC	
Method and System for Partitioning Directories	12/857,453	8/16/2010	8,930,528	1/6/2015	Veritas US IP Holdings LLC	Granted
Method And System For Link Count Update And Synchronization In A Partitioned Directory	12/857,460	8/16/2010	8,725,866	5/13/2014	Veritas US IP Holdings LLC	Granted
Extent Reference Count Update System And Method	12/858,393	8/17/2010	8,195,619	6/5/2012	Veritas US IP Holdings LLC	Granted
System and Method for Event Driven Backup Data Storage	12/859,640	8/19/2010	8,291,170	10/16/2012	Veritas US IP Holdings LLC	Granted
Systems And Methods For Managing Data In Cloud Storage Using Deduplication Techniques	12/868,869	8/26/2010	8,650,159	2/11/2014	Veritas US IP Holdings LLC	Granted
Solid State Drive Caching Using Memory Structures to Determine a Storage Space Replacement Candidate	12/870,971	8/30/2010	8,510,499	8/13/2013	Veritas US IP Holdings LLC	Granted
System And Method For Caching Mapping Information For Off-Host Backups	12/872,056	8/31/2010	8,595,454	11/26/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Securely Deduplicating Data Owned by	12/874,640	9/2/2010	8,495,392	7/23/2013	Veritas US IP Holdings LLC	Granted



App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Multiple Entities						
System and Method for Scalable Reference Management in a Deduplication Based Storage System	12/875,815	9/3/2010	8,392,376	3/5/2013	Veritas US IP Holdings LLC	Granted
Method and Apparatus to Free Up Cache Memory Space With A Pseudo Least Recently Used Scheme	12/877,209	9/8/2010	8,386,717	2/26/2013	Veritas US IP Holdings LLC	Granted
Backup Time Deduplication Of Common Virtual Disks From Virtual Machine Backup Images	12/882,373	9/15/2010	9,037,547	5/19/2015	Veritas US IP Holdings LLC	Granted
Physical To Virtual Disks Creation (P2v) Method, By Harvesting Data From Critical Sectors of the Physical Disks	12/882,375	9/15/2010	8,694,745	4/8/2014	Veritas US IP Holdings LLC	Granted
Integration Of Deduplicating Backup Server With Cloud Storage	12/882,532	15 Sep 2010	9,128,948	08 Sep 2015	Veritas US IP Holdings LLC	Granted
Efficient method for relocating shared memory	12/882,611	9/15/2010	8,612,488	12/17/2013	Veritas US IP Holdings LLC	Granted
Efficient restore of granular data from tape backups	12/884,901	9/17/2010	8,156,375	4/10/2012	Veritas US IP Holdings LLC	Granted
System and Method for Backing Up A Computer System	12/884,952	9/17/2010	8,572,046	10/29/2013	Veritas US IP Holdings LLC	Granted
Fault Handling Systems and	12/885,411	9/17/2010	8,533,539	9/10/2013	Veritas US IP	Granted

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Methods	8				Holdings LLC	
Storage Systems and Methods	12/885,438	18 Sep 2010	9,110,912	18 Aug 2015	Veritas US IP Holdings LLC	Granted
Selective Virtual Machine Image Replication Systems And Methods	12/887,360	9/21/2010	8,484,160	7/9/2013	Veritas US IP Holdings LLC	Granted
System and Method for Generating a Point-in-Time Copy of a Subset of a Collectively-Managed Set of Data Items	12/893,108	29 Sep 2010	9,111,015	18 Aug 2015	Veritas US IP Holdings LLC	Granted
Method and System of Restoring Items to a Database While Maintaining Referential Integrity	12/893,721	9/29/2010	8,606,752	12/10/2013	Veritas US IP Holdings LLC	Granted
Method and System of Performing a Granular Restore of a Database from a Differential Backup	12/893,729	9/29/2010	8,666,944	3/4/2014	Veritas US IP Holdings LLC	Granted
Techniques for Providing Instant Disaster Recovery	12/897,245	10/4/2010	8,386,845	2/26/2013	Veritas US IP Holdings LLC	Granted
Identifying Unreferenced File System Components	12/907,632	10/19/2010	8,180,811	5/15/2012	Veritas US IP Holdings LLC	Granted
Online file system consistency check	12/907,821	10/19/2010	8,577,855	11/5/2013	Veritas US IP Holdings LLC	Granted
Integrated Archival and Backup	12/910,160	10/22/2010	8,266,110	9/11/2012	Veritas US IP Holdings LLC	Granted
Systems and Methods for Backing	12/914,99	10/28/2010	8,321,388	11/27/2012	Veritas US IP	Granted

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Up Multimedia Data	3				Holdings LLC	
Site-level sub-cluster dependencies	12/915,196	10/29/2010	8,621,260	12/31/2013	Veritas US IP Holdings LLC	Granted
Method and System of Performing Block Level Duplications of Cataloged Backup Data	12/915,760	10/29/2010	8,612,700	12/17/2013	Veritas US IP Holdings LLC	Granted
Techniques for adaptive data transfer	12/944,550	11/11/2010	8,533,374	9/10/2013	Veritas US IP Holdings LLC	Granted
Host Discovery and Handling of ALUA Preferences and State Transitions	12/945,467	11/12/2010	8,930,620	1/6/2015	Veritas US IP Holdings LLC	Granted
Techniques for Global Data Deduplication	12/946,500	11/15/2010	8,577,850	11/5/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Replicating Data in Cluster Environments	12/947,017	11/16/2010	8,478,718	7/2/2013	Veritas US IP Holdings LLC	Granted
Method and System of Producing a Full Backup Image Using an Incremental Backup Method	12/950,659	11/19/2010	8,825,972	9/2/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Enhancing Virtual Machine Backup Image Data	12/950,972	19 Nov 2010	9,128,742	08 Sep 2015	Veritas US IP Holdings LLC	Granted
Techniques for Image Duplication Optimization	12/954,954	11/29/2010	8,941,863	1/27/2015	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Systems and Methods for Performing Input/Output Path Failovers	12/956,434	11/30/2010	8,954,808	2/10/2015	Veritas US IP Holdings LLC	Granted
On-premise Data Deduplication for Cloud Environments	12/956,664	30 Nov 2010	9,122,641	01 Sep 2015	Veritas US IP Holdings LLC	Granted
Method and System of Multi-Level and Multi-Mode Cloud-Based Deduplication	12/956,720	11/30/2010	8,396,841	3/12/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Providing High Availability to Instance-Bound Databases	12/957,581	12/1/2010	8,595,192	11/26/2013	Veritas US IP Holdings LLC	Granted
Techniques for Network Bandwidth Management	12/958,970	12/2/2010	8,521,883	8/27/2013	Veritas US IP Holdings LLC	Granted
Aggressive Reclamation of Tier 1 Storage Space in Presence of Copy-on-Write Snapshots	12/962,049	12/7/2010	8,775,751	7/8/2014	Veritas US IP Holdings LLC	Granted
Method and System of Providing Exclusive and Secure Access to Virtual storage Objects in a Virtual Machine Cluster	12/962,234	12/7/2010	8,495,323	7/23/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Preventing Data Inconsistency Within Computer Clusters	12/962,855	12/8/2010	8,438,277	5/7/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Facilitating File Archiving	12/964,497	12/9/2010	9,020,992	4/28/2015	Veritas US IP Holdings LLC	Granted

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Method and System of Deduplication-based Fingerprint Index Caching	12/965,161	12/10/2010	8,392,384	3/5/2013	Veritas US IP Holdings LLC	Granted
Method and technique to make Registry Configuration Highly Available	12/965,712	12/10/2010	8,880,744	11/4/2014	Veritas US IP Holdings LLC	Granted
RAM Utilization in a Virtual Environment	12/968,417	12/15/2010	8,966,188	2/24/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for performing File System Checks	12/969,103	12/15/2010	8,595,271	11/26/2013	Veritas US IP Holdings LLC	Granted
Deduplication-aware page cache	12/969,360	12/15/2010	9,015,417	4/21/2015	Veritas US IP Holdings LLC	Granted
A method for creating Point-In-Time images on replication secondaries for deployments using third party products for replicating the data.	12/971,498	12/17/2010	8,799,222	8/5/2014	Veritas US IP Holdings LLC	Granted
Technique for single step migration and recovery of multi-tier application spanning multiple DR-ready clusters	12/981,313	29 Dec 2010	8,910,172	09 Dec 2014	Veritas US IP Holdings LLC	Granted
Selection of one of several available incremental modification detection techniques for use in incremental backups	12/983,236	12/31/2010	8,655,841	2/18/2014	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Method and System of Performing Incremental SQL Server Database Backups	12/986,666	1/7/2011	8,635,187	1/21/2014	Veritas US IP Holdings LLC	Granted
Methods and Systems for Defragmenting Virtual Machine Prefetch Data on Physical Storage	13,671,788	11/8/2012	8,775,716	7/8/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Providing Increased Scalability in Deduplication Storage Systems	13/007,301	1/14/2011	8,954,401	2/10/2015	Veritas US IP Holdings LLC	Granted
System and Method for NetBackup Data Decryption in a High Latency Low Bandwidth Environment	13/011,588	1/21/2011	8,713,300	4/29/2014	Veritas US IP Holdings LLC	Granted
Systems and methods for Facilitating Long-Distance Live Migrations of Virtual Machines	13/011,841	1/21/2011	8,407,182	3/26/2013	Veritas US IP Holdings LLC	Granted
File Cache Optimization Using Element Prioritization	13/017,972	1/31/2011	8,510,510	8/13/2013	Veritas US IP Holdings LLC	Granted
File Cache Optimization Using Element De-prioritization	13/018,081	1/31/2011	8,433,694	4/30/2013	Veritas US IP Holdings LLC	Granted
Storage Reclamation Systems and Methods	13/018,256	1/31/2011	8,813,071	8/19/2014	Veritas US IP Holdings LLC	Granted
Processes and Methods for Client-Side Fingerprint Caching to Improve Deduplication System	13/026,188	2/11/2011	8,874,520	10/28/2014	Veritas US IP Holdings LLC	Granted

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Backup Performance						
Methods And Systems For Automatically Generating Semantic/Concept Searches	13/028,826	3/24/2011	8,719,257	5/6/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Classifying Files as Candidates for Deduplication	13/043,441	3/8/2011	8,849,768	9/30/2014	Veritas US IP Holdings LLC	Granted
Automatic Clusterwide Fail-back	13/076,974	3/31/2011	8,443,232	5/14/2013	Veritas US IP Holdings LLC	Granted
Dynamic Bandwidth Discovery and Allocation to Improve Performance for Backing Up Data	13/078,422	4/1/2011	8,495,178	7/23/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Restoring Images	13/081,655	4/7/2011	8,565,545	10/22/2013	Veritas US IP Holdings LLC	Granted
Tiering Aware Data Defragmentation	13/081,685	4/7/2011	8,560,801	10/15/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Caching Data Blocks Associated with Frequently Accessed Files	13/081,706	4/7/2011	8,868,839	10/21/2014	Veritas US IP Holdings LLC	Granted
Cooperative Tiering	13/081,719	4/7/2011	8,924,359	12/30/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Prioritizing Review of Items	13/081,722	4/7/2011	8,355,922	1/15/2013	Veritas US IP Holdings LLC	Granted

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Selecting an Alternative Path for an Input/Output Request	13/082,280	4/7/2011	8,902,736	12/2/2014	Veritas US IP Holdings LLC	Granted
A Method for Online Storage Migration of Replicated LUNs	13/082,642	4/8/2011	8,700,570	4/15/2014	Veritas US IP Holdings LLC	Granted
Policy for Storing Data Objects in a Multi-tier Storage System	13/082,986	4/8/2011	8,578,096	11/5/2013	Veritas US IP Holdings LLC	Granted
Method and System for Performing a Clean File Lock Recovery During a Network Filesystem Server Migration or Failover	13/083,013	4/8/2011	8,655,851	2/18/2014	Veritas US IP Holdings LLC	Granted
Partitioning a Directory While Accessing the Directory	13/083,065	4/8/2011	8,818,970	8/26/2014	Veritas US IP Holdings LLC	Granted
Storage Management Systems and Methods	13/083,351	4/8/2011	8,880,793	11/4/2014	Veritas US IP Holdings LLC	Granted
Data Storage Resource Management Systems and Methods	13/083,381	4/8/2011	8,806,159	8/12/2014	Veritas US IP Holdings LLC	Granted
Method and System for Restarting File Lock Services at an Adoptive Node during a network filesystem server migration or failover	13/083,465	4/8/2011	8,533,171	9/10/2013	Veritas US IP Holdings LLC	Granted
Method of Inserting a Validated Time-Image on the Primary CDP Subsystem in a Continuous Data Protection and Replication	13/083,655	4/11/2011	8,762,342	6/24/2014	Veritas US IP Holdings LLC	Granted



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(CDP/R) Subsystem						
Lookup Optimization During Online File System Migration	13/085,671	4/13/2011	8,943,019	1/27/2015	Veritas US IP Holdings LLC	Granted
Change Tracking for Shared Disks	13/091,239	4/21/2011	8,473,462	6/25/2013	Veritas US IP Holdings LLC	Granted
Method and System for Reclaiming Storage on a Shared Storage Device or Independent of the Mount State of a File System	13/092,832	4/22/2011	8,954,435	2/10/2015	Veritas US IP Holdings LLC	Granted
Optimized Index Usage for Data Restore	13/097,321	4/29/2011	8,935,215	1/13/2015	Veritas US IP Holdings LLC	Granted
Method and System for Passing Information to Disk Arrays for Efficient Storage Management	13/097,415	4/29/2011	8,775,732	7/8/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Changing Fencing Modes in Clusters	13/097,605	29 Apr 2011	9,098,392	04 Aug 2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Migrating Virtual Machines	13/097,635	4/29/2011	8,527,990	9/3/2013	Veritas US IP Holdings LLC	Granted
Data Storage Reclamation Systems and Methods	13/098,294	4/29/2011	8,751,768	6/10/2014	Veritas US IP Holdings LLC	Granted
System and method to eliminate need to take a base backup of endpoints to cloud.	13/098,966	5/2/2011	8,799,223	8/5/2014	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Method and System for Migrating a Selected Set of a Virtual Machines Between Volumes	13/099,247	5/2/2011	8,555,278	10/8/2013	Veritas US IP Holdings LLC	Granted
Lockahead for Simultaneous Readers and Writers in a Clustered File System	13/099,843	5/3/2011	8,930,333	1/6/2015	Veritas US IP Holdings LLC	Granted
Application Wide Name Space for Enterprise Object Store File System	13/101,953	5/5/2011	8,751,456	6/10/2014	Veritas US IP Holdings LLC	Granted
Managing Performance Within an Enterprise Object Store File System	13/101,956	5/5/2011	8,751,449	6/10/2014	Veritas US IP Holdings LLC	Granted
Global Indexing Within An Enterprise Object Store File System	13/101,964	5/5/2011	8,775,486	7/8/2014	Veritas US IP Holdings LLC	Granted
Improve Deduplication System Space Recycling through Inode Manipulation	13/106,097	5/12/2011	8,904,137	12/2/2014	Veritas US IP Holdings LLC	Granted
Techniques for optimizing data migration	13/106,919	5/13/2011	8,515,919	8/20/2013	Veritas US IP Holdings LLC	Granted
Method and apparatus for enforcing enterprise data sharing policies on SaaS collaboration platforms	13/175,977	7/5/2011	8,930,462	1/6/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for	13/179,80	7/11/2011	8,650,166	2/11/2014	Veritas US IP	Granted

<b>App Title</b>	<b>App No.</b>	<b>Filed Date</b>	<b>Patent No.</b>	<b>Grant Date</b>	<b>Owner</b>	<b>Status</b>
Classifying Files	9				Holdings LLC	
Method, System, and Computer Readable Medium for Asynchronously Processing Write Operations for a Data Storage Volume Having a Copy-On-Write Snapshot	13/180,190	7/11/2011	8,438,353	5/7/2013	Veritas US IP Holdings LLC	Granted
Method and System for Implementing High Availability Storage on Thinly Provisioned Arrays	13/187,289	7/20/2011	8,924,442	12/30/2014	Veritas US IP Holdings LLC	Granted
Cloud Data Protection System	13/189,441	22 Jul 2011	9,118,685	25 Aug 2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Migrating Files to Tiered Storage Systems	13/193,087	7/28/2011	8,984,027	3/17/2015	Veritas US IP Holdings LLC	Granted
System and Method to Repair File System Metadata	13/209,791	8/15/2011	9,043,280 B1	5/26/2015	Veritas US IP Holdings LLC	Granted
System and method for enabling electronic discovery searches on backup data in a computer system	13/223,630	01 Sep 2011	9,135,266	15 Sep 2015	Veritas US IP Holdings LLC	Granted
Adaptive tap for full virtual machine protection	13/224,013	9/1/2011	8,583,852	11/12/2013	Veritas US IP Holdings LLC	Granted
Systems and methods for detecting cloud-based data leaks	13/227,873	9/8/2011	8,874,528	10/28/2014	Veritas US IP Holdings LLC	Granted

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Systems and Methods for Managing Workflows	13/233,255	9/15/2011	8,732,568	5/20/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Efficient Data Storage for Content Management Systems	13/233,289	9/15/2011	9,053,109	6/9/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Preserving Individual Backed-Up Files in Accordance with Legal-Hold Policies	13/233,409	9/15/2011	8,972,354	3/3/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Recovering Virtual Machines After Disaster Scenarios	13/233,534	9/15/2011	9,003,139	4/7/2015	Veritas US IP Holdings LLC	Granted
Systems and methods for reducing file-system fragmentation when restoring block-level backups utilizing an identification module, an optimization module, and a restore module	13/233,562	15 Sep 2011	9,122,692	01 Sep 2015	Veritas US IP Holdings LLC	Granted
Content Independent Fixed-length Deduplication	13/235,277	9/16/2011	8,924,366	12/30/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for fault recovery in multi-tier applications	13/238,505	9/21/2011	8,862,927	10/14/2014	Veritas US IP Holdings LLC	Granted
Method and System for Rapid Failback of a Computer System in a Disaster Recovery Environment	13/245,080	9/26/2011	8,560,886	10/15/2013	Veritas US IP Holdings LLC	Granted

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Method and Apparatus for Utilizing Securable Objects in a Computer Network	13/246,058	9/27/2011	8,666,945	3/4/2014	Veritas US IP Holdings LLC	Granted
Conversion Of Physical Computers To Virtualized Environments Method And System	13/247,816	9/28/2011	8,429,125	4/23/2013	Veritas US IP Holdings LLC	Granted
Placement of Virtual Machine Based on Page Commonality	13/249,435	30 Sep 2011	9,116,803	25 Aug 2015	Veritas US IP Holdings LLC	Granted
System and method for filesystem deduplication using variable length sharing	13/250,735	9/30/2011	8,521,704	8/27/2013	Veritas US IP Holdings LLC	Granted
Fast I/O failure detection and cluster wide failover	13/250,823	9/30/2011	8,683,258	3/25/2014	Veritas US IP Holdings LLC	Granted
Symantec Hosted Migration Service (SHMS)	13/250,953	9/30/2011	9,075,811	7/7/2015	Veritas US IP Holdings LLC	Granted
Translating input/output calls in a mixed virtualization environment	13/252,285	10/4/2011	8,631,423	1/14/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Distributed data Deduplication	13/269,620	10/9/2011	8,898,120	11/25/2014	Veritas US IP Holdings LLC	Granted
System And Method For Securely Storing Cryptographic Keys With Encrypted Data	13/270,037	10/10/2011	8,566,617	10/22/2013	Veritas US IP Holdings LLC	Granted
Backup Service and Appliance With Single-Instance Storage of	13/274,418	10/17/2011	8,812,442	8/19/2014	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Encrypted Data						
Method and System for Efficient Space Management for Single-Instance-Storage Volumes	13/274,834	12/10/2011	8,307,176	11/6/2012	Veritas US IP Holdings LLC	Granted
Automatically Performing Operations on Applications Based on Dependencies on Other Applications	13/279,864	10/24/2011	9,058,205	6/16/2015	Veritas US IP Holdings LLC	Granted
Systems and methods for providing computer clusters policies for implementation in computer cluster environments	13/281,469	10/26/2011	8,776,044	7/8/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for archiving and displaying lengthy documents based on content priority levels	13/282,728	10/27/2011	8,782,519	7/15/2014	Veritas US IP Holdings LLC	Granted
Systems and methods for deduplicating archived data	13/285,076	10/31/2011	8,595,243	11/26/2013	Veritas US IP Holdings LLC	Granted
Systems and methods for migrating archived files	13/285,085	10/31/2011	8,495,026	7/23/2013	Veritas US IP Holdings LLC	Granted
Maintain Arbitrarily Good Restore Throughput by Making Pseudo-full Backup at Container Level	13/285,331	10/31/2011	8,874,522	10/28/2014	Veritas US IP Holdings LLC	Granted
Running Commands on Files Using Filename Extensions to	13/286,183	10/31/2011	8,417,667	4/9/2013	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Overload Operations						
Systems and Methods for Enhancing Electronic Discovery Searches	13/286,803	01 Nov 2011	9,122,637	01 Sep 2015	Veritas US IP Holdings LLC	Granted
Method And Apparatus For Providing Single Instance Restoration of Data Files	13/290,200	11/7/2011	8,498,962	7/30/2013	Veritas US IP Holdings LLC	Granted
Systems and methods for creating selective snapshots	13/291,692	11/8/2011	8,972,351	3/3/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Copying database files	13/291,753	11/8/2011	8,924,353	12/30/2014	Veritas US IP Holdings LLC	Granted
Direct connections to a plurality of storage object replicas in a computer network	13/295,688	11/14/2011	8,694,649	4/8/2014	Veritas US IP Holdings LLC	Granted
System And Method For Conveying Backup And Restore Data Via Email	13/295,712	11/14/2011	8,751,453	6/10/2014	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Achieving High Availability For Applications and Optimizing Power Consumption within a Datacenter	13/299,706	18 Nov 2011	8,479,038	02 Jul 2013	Veritas US IP Holdings LLC	Granted
SYSTEMS AND METHODS FOR RECLAIMING STORAGE SPACE FROM VIRTUAL MACHINE DISK	13/302,813	11/22/2011	8,881,144	11/4/2014	Veritas US IP Holdings LLC	Granted

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IMAGES						
Format-preserving deduplication of data	13/313,969	12/7/2011	8,683,156	3/25/2014	Veritas US IP Holdings LLC	Granted
Systems and methods for validating ownership of deduplicated data	13/314,496	12/8/2011	8,769,627	7/1/2014	Veritas US IP Holdings LLC	Granted
Systems and methods for providing backup interfaces	13/314,517	12/8/2011	8,600,947	12/3/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Managing System Resources Allocated for Backup Validation	13/314,744	12/8/2011	9,032,414	5/12/2015	Veritas US IP Holdings LLC	Granted
Systems and methods for proactively facilitating restoration of potential data failures	13/316,014	12/9/2011	8,707,107	4/22/2014	Veritas US IP Holdings LLC	Granted
Efficient reverse name lookup in a file system	13/326,683	12/15/2011	8,972,466	3/3/2015	Veritas US IP Holdings LLC	Granted
Techniques for Monitoring Guest Domains Configured with Alternate I/O Domains	13/333,689	21 Dec 2011	9,143,410	22 Sep 2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Protecting Virtual Machines during Physical-To-Virtual Conversions	13/334,434	22 Dec 2011	8,762,992	24 Jun 2014	Veritas US IP Holdings LLC	Granted
Efficiently configuring multiple backup data policies with	13/335,010	12/22/2011	8,762,341	6/24/2014	Veritas US IP Holdings LLC	Granted



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information specifying data to backup						
User interface for finding similar documents	13/335,809	12/22/2011	9,075,498	7/7/2015	Veritas US IP Holdings LLC	Granted
Escalating data backup protection in response to a failure in a cluster of nodes	13/337,384	12/27/2011	8,713,376	4/29/2014	Veritas US IP Holdings LLC	Granted
Scalable method to find a place for a virtual machine based on its resource and availability requirements, from a large pool of clusters of physical machines.	13/341,455	12/30/2011	9,081,617	7/14/2015	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Processing Electronically Stored Information For Electronic Discovery	13/341,533	12/30/2011	8,626,737	1/7/2014	Veritas US IP Holdings LLC	Granted
SYSTEMS AND METHODS FOR RESTORING MULTI-TIER APPLICATIONS	13/341,858	12/30/2011	8,650,160	2/11/2014	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Providing In-Memory Checkpoint Services Within a Distributed Transaction	13/346,391	1/9/2012	8,504,873	8/6/2013	Veritas US IP Holdings LLC	Granted
Automated Optimal Workload Balancing During Failover in Share-Nothing Database Systems	13/352,919	1/18/2012	8,832,273	9/9/2014	Veritas US IP Holdings LLC	Granted

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Data Transfers From Mobile Devices With Cell-Site Staging	13/353,011	1/18/2012	8,620,867	12/31/2013	Veritas US IP Holdings LLC	Granted
Systems and methods for displaying backup-status information for computing resources	13/356,114	1/23/2012	8,806,281	8/12/2014	Veritas US IP Holdings LLC	Granted
Volume and Partial Volume Merge to Sync to Non-homogeneous Drive Layouts	13/357,048	1/24/2012	9,075,810	7/7/2015	Veritas US IP Holdings LLC	Granted
Systems and methods for simultaneously configuring multiple independent backups	13/358,245	1/25/2012	8,712,967	4/29/2014	Veritas US IP Holdings LLC	Granted
Method and system for cluster wide adaptive I/O scheduling by a multipathing driver	13/363,075	1/31/2012	9,015,519	4/21/2015	Veritas US IP Holdings LLC	Granted
Method and system for multi-layer differential load balancing in tightly coupled clusters	13/363,288	31 Jan 2012	9,158,714	13 Oct 2015	Veritas US IP Holdings LLC	Granted
Intelligent arbitration servers for network partition arbitration	13/363,529	2/1/2012	8,650,281	2/11/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Efficiently Determining the Health of Nodes Within Computer Clusters	13/363,928	01 Feb 2012	9,148,479	29 Sep 2015	Veritas US IP Holdings LLC	Granted

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Systems and methods for performing incremental backups	13/363,982	2/1/2012	8,990,164	3/24/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Fetching Troubleshooting Data	13/364,277	2/1/2012	8,806,277	8/12/2014	Veritas US IP Holdings LLC	Granted
Synchronizing Allocated Blocks of Virtual Disk Files Across Primary and Secondary Volumes By Excluding Unused Blocks	13/364,290	2/1/2012	8,990,815	3/24/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Archiving Files in Distributed Replication Environments	13/369,094	2/8/2012	8,983,899	3/17/2015	Veritas US IP Holdings LLC	Granted
Method to divide a file system tree hierarchy into sub-trees so that they can then be efficiently backed-up and restored to/from data container of fixed capacity.	13/396,809	2/15/2012	8,738,581	5/27/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Facilitating Access to Shared Resources Within Computer Clusters	13/397,255	2/15/2012	9,077,579	7/7/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Performing First Failure Data Captures	13/400,306	2/20/2012	8,984,336	3/17/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Performing Fast Failovers	13/404,998	2/24/2012	8,938,639	1/20/2015	Veritas US IP Holdings LLC	Granted

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Power Management within a Data Protection System	13/405,479	2/27/2012	8,943,337	1/27/2015	Veritas US IP Holdings LLC	Granted
Distributed Cluster Reconfiguration	13/407,626	2/28/2012	8,805,978	8/12/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Maintaining group membership records	13/407,748	2/28/2012	8,429,197	4/23/2013	Veritas US IP Holdings LLC	Granted
Using Multiple Clients for Data Backup	13/408,600	2/29/2012	8,849,763	9/30/2014	Veritas US IP Holdings LLC	Granted
Implementing Scalable, Distributed Synchronous Replication Based on Interval ID	13/408,892	2/29/2012	8,930,309	1/6/2015	Veritas US IP Holdings LLC	Granted
Method to Discover Multiple Paths to Disk Devices Cluster Wide	13/410,044	3/1/2012	9,015,371	4/21/2015	Veritas US IP Holdings LLC	Granted
I/O Fencing for Virtual Machines that share the same physical host bus adapter and connection to SAN storage.	13/420,283	3/14/2012	9,081,507	7/14/2015	Veritas US IP Holdings LLC	Granted
Method and System for Implementing Fast Incremental Backups	13/420,358	3/14/2012	8,595,189	11/26/2013	Veritas US IP Holdings LLC	Granted
Selection of Most Effective Machine Learning Kernel from a Training Set of Documents	13/421,226	3/15/2012	8,965,814	2/24/2015	Veritas US IP Holdings LLC	Granted
Cluster Wide Consistent Detection	13/425,12	3/20/2012	8,892,936	11/18/2014	Veritas US IP	Granted

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of Interconnect Failures	7				Holdings LLC	
Method and Apparatus for File Sharing Between Continuous and Scheduled Backups	13/434,118	3/29/2012	8,782,006	7/15/2014	Veritas US IP Holdings LLC	Granted
A method for co existence of Live Partition Mobility and VCS failover	13/439,684	4/4/2012	8,880,934	11/4/2014	Veritas US IP Holdings LLC	Granted
Method and apparatus for synchronizing a physical machine while the virtual machine is operational	13/442,070	4/9/2012	8,484,431	7/9/2013	Veritas US IP Holdings LLC	Granted
Selecting preferred master in cluster with asymmetric storage connectivity	13/442,789	4/9/2012	9,077,580	7/7/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Variable-Length Chunking for Deduplication	13/455,408	25 Apr 2012	9,128,951	08 Sep 2015	Veritas US IP Holdings LLC	Granted
Support track aligned partitions inside Virtual machines.	13/457,808	27 Apr 2012	9,104,339	11 Aug 2015	Veritas US IP Holdings LLC	Granted
Method to Validate Availability of Applications within a Backup Image	13/458,155	4/27/2012	8,966,318	2/24/2015	Veritas US IP Holdings LLC	Granted
Method and apparatus for selectively storing blocks of data on a server	13/461,183	5/1/2012	8,768,901	7/1/2014	Veritas US IP Holdings LLC	Granted

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Systems and Methods for Restoring Deduplicated Data	13/462,367	5/2/2012	8,433,689	4/30/2013	Veritas US IP Holdings LLC	Granted
Methods and Systems for Creating Full Backups	13/462,781	5/2/2012	8,443,159	5/14/2013	Veritas US IP Holdings LLC	Granted
Enhancing the Training of Predictive Coding Systems Through User Selected Text	13/474,602	5/17/2012	9,058,327	6/16/2015	Veritas US IP Holdings LLC	Granted
Generic Granular Restore of Application Data From a Volume Image Backup	13/474,841	5/18/2012	8,489,552	7/16/2013	Veritas US IP Holdings LLC	Granted
Systems and Methods for Identifying the presence of sensitive data in backups	13/475,933	5/18/2012	8,429,364	4/23/2013	Veritas US IP Holdings LLC	Granted
System And Method For Monitoring An Application Or Service Group Within A Cluster As A Resource Of Another Cluster	13/476,156	5/21/2012	8,464,092	6/11/2013	Veritas US IP Holdings LLC	Granted
Efficient File Replication Which Preserves the Underlying Extent Structure	13/478,309	5/23/2012	8,984,097	3/17/2015	Veritas US IP Holdings LLC	Granted
Simplified System Backup Protection and Recovery	13/479,936	24 May 2012	9,122,711	01 Sep 2015	Veritas US IP Holdings LLC	Granted
Systems and methods for disaster recovery of multi-tier applications	13/483,380	5/30/2012	8,984,325	3/17/2015	Veritas US IP Holdings LLC	Granted
Systems and methods for	13/484,25	5/30/2012	8,498,966	7/30/2013	Veritas US IP	Granted

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adaptively performing backup operations	5				Holdings LLC	
Item attention tracking system	13/484,896	5/31/2012	8,924,375	12/30/2014	Veritas US IP Holdings LLC	Granted
Method and apparatus for efficiently creating backup files with less redundancy	13/485,976	6/1/2012	8,464,097	6/11/2013	Veritas US IP Holdings LLC	Granted
Detection and handling of virtual machine live migration instantaneously in a clustered environment while ensuring high availability (HA).	13/493,819	6/11/2012	8,910,160	12/9/2014	Veritas US IP Holdings LLC	Granted
Systems and methods for proactively evaluating failover nodes prior to the occurrence of failover events	13/523,745	6/14/2012	8,918,673	12/23/2014	Veritas US IP Holdings LLC	Granted
Systems and methods for facilitating substantially continuous availability of multi-tier applications within computer clusters	13/524,367	6/15/2012	8,935,563	1/13/2015	Veritas US IP Holdings LLC	Granted
Techniques for Storage Network Bandwidth Management	13/525,012	15 Jun 2012	9,135,191	15 Sep 2015	Veritas US IP Holdings LLC	Granted
Method and System for Improving Performance with Single-Instance-Storage Volumes by	13/526,168	6/18/2012	8,886,605	11/11/2014	Veritas US IP Holdings LLC	Granted

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Leveraging Data Locality						
Method for Moving Data From Its Primary Source to an Analytics System Using Backup Infrastructure	13/528,184	6/20/2012	8,805,849	8/12/2014	Veritas US IP Holdings LLC	Granted
Discovering cluster resources to efficiently perform cluster backups and restores	13/544,473	7/9/2012	8,769,226	7/1/2014	Veritas US IP Holdings LLC	Granted
Method and apparatus for simultaneous comparison of multiple backup sets maintained in a computer system	13/544,602	7/9/2012	9,031,908	5/12/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Replicating Snapshots Across Backup Domains	13/544,933	7/9/2012	9,037,821	5/19/2015	Veritas US IP Holdings LLC	Granted
Systems and methods for managing off-host storage migration	13/546,996	7/11/2012	8,868,870	10/21/2014	Veritas US IP Holdings LLC	Granted
Systems And Methods For Managing Multipathing Configurations For Virtual Machines	13/548,195	7/12/2012	8,935,695	1/13/2015	Veritas US IP Holdings LLC	Granted
Restore Software with Aggregated View of Site Collections	13/549,054	7/13/2012	8,738,585	5/27/2014	Veritas US IP Holdings LLC	Granted
Restore Software with Aggregated	13/549,07	7/13/2012	8,712,971	4/29/2014	Veritas US IP	Granted



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View of Content Databases	2				Holdings LLC	
Backup System Including a Primary Backup Server Accessible via a VPN and an Alternate Backup Server Accessible via the Internet	13/553,339	7/19/2012	8,417,671	4/9/2013	Veritas US IP Holdings LLC	Granted
Techniques for integrating backup modules with virtualized storage	13/555,867	7/23/2012	8,595,456	11/26/2013	Veritas US IP Holdings LLC	Granted
Efficient data backup with change tracking	13/557,558	7/25/2012	8,775,377	7/8/2014	Veritas US IP Holdings LLC	Granted
Systems and Methods for Natural Batching of Operations on a Replication Log	13/558,977	7/26/2012	8,938,420	1/20/2015	Veritas US IP Holdings LLC	Granted
Segment-based method for efficient file restoration	13/560,210	7/27/2012	8,615,494	12/24/2013	Veritas US IP Holdings LLC	Granted
Backup of a Virtual Machine Configured to Perform I/O Operations Bypassing a Hypervisor	13/560,284	7/27/2012	8,850,146	9/30/2014	Veritas US IP Holdings LLC	Granted
Failover of Applications Between Isolated User Space Instances on a Single Instance of an Operating System	13/603,177	9/4/2012	8,990,608	3/24/2015	Veritas US IP Holdings LLC	Granted
Predicting outcomes of operations of multi-tier applications	13/605,277	9/6/2012	8,990,817	3/24/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods For	13/607,46	9/7/2012	9,047,108	6/2/2015	Veritas US IP	Granted

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Migrating Replicated Virtual Machine Disks	3				Holdings LLC	
Techniques for storage lifecycle policy management	13/631,603	9/28/2012	8,819,370	8/26/2014	Veritas US IP Holdings LLC	Granted
Systems And Methods For Enabling Database Disaster Recovery Using Replicated Volumes	13/633,858	10/2/2012	8,874,508	10/28/2014	Veritas US IP Holdings LLC	Granted
Systems And Methods For Host Communication In A Clustered File System	13/647,063	10/8/2012	8,914,345	12/16/2014	Veritas US IP Holdings LLC	Granted
Systems And Methods For Deduplicating File Data In Tiered File Systems	13/647,567	10/9/2012	9,047,302	6/2/2015	Veritas US IP Holdings LLC	Granted
Systems And Methods For Compressing Database Objects	13/650,005	10/11/2012	9,053,100	6/9/2015	Veritas US IP Holdings LLC	Granted
Systems And Methods For Transferring Input/Output Operations Within Computer Clusters	13/650,029	10/11/2012	8,954,780	2/10/2015	Veritas US IP Holdings LLC	Granted
Systems And Methods For Simplifying Data Restoration Using Resource Types	13/650,054	10/11/2012	9,020,896	4/28/2015	Veritas US IP Holdings LLC	Granted
Compatibility of High Availability Clusters Supporting Application Failover with Shared Storage in a	13/655,848	10/19/2012	8,874,954	10/28/2014	Veritas US IP Holdings LLC	Granted

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Virtualization Environment without Sacrificing on Virtualization Features						
Management of Paths of Switches of Distributed Computing Systems	13/656,273	19 Oct 2012	9,143,435	22 Sep 2015	Veritas US IP Holdings LLC	Granted
Evaluating High-Availability Configuration	13/660,072	10/25/2012	8,949,653	2/3/2015	Veritas US IP Holdings LLC	Granted
Performing fencing operations in multi-node distributed storage systems	13/667,693	02 Nov 2012	9,146,790	29 Sep 2015	Veritas US IP Holdings LLC	Granted
Method and System for Efficient Space Management for Single-Instance-Storage Volumes	13/668,726	11/5/2012	8,650,371	2/11/2014	Veritas US IP Holdings LLC	Granted
Backup application EDISCOVERY index validator and generator	13/673,899	09 Nov 2012	9,158,825	13 Oct 2015	Veritas US IP Holdings LLC	Granted
Supporting Live Migration of Virtual Machine Components with SCSI-3 Persistent Reservations Fencing Enabled	13/685,503	11/26/2012	8,977,888	3/10/2015	Veritas US IP Holdings LLC	Granted
Systems And Methods For Managing Affinity Rules In Virtual-Machine Environments	13/686,330	11/27/2012	9,052,935	6/9/2015	Veritas US IP Holdings LLC	Granted
Change Tracking of Individual Virtual Disk Files	13/691,069	11/30/2012	8,924,358	12/30/2014	Veritas US IP Holdings LLC	Granted
Optimal tracking of clusterwide	13/718,73	12/18/2012	8,930,762	1/6/2015	Veritas US IP	Granted

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connectivity for shared storage LUNs for graceful error handling.	4				Holdings LLC	
Automated Dereferencing of Electronic Communications for Archival	13/7719,57 2	12/19/2012	8,788,536	7/22/2014	Veritas US IP Holdings LLC	Granted
Optimized Image Archiving	13/7720,36 4	12/19/2012	8,838,542	9/16/2014	Veritas US IP Holdings LLC	Granted
Write-back caching using non-shared SSD in cluster environment.	13/7723,74 8	12/21/2012	8,904,117	12/2/2014	Veritas US IP Holdings LLC	Granted
Method and System for Information Retrieval Effectiveness Estimation in E-Discovery	13/7729,74 3	28 Dec 2012	9,122,679	01 Sep 2015	Veritas US IP Holdings LLC	Granted
Systems And Methods For Managing Deduplication Reference Data	13/7734,90 1	1/4/2013	8,954,398	2/10/2015	Veritas US IP Holdings LLC	Granted
Method and Apparatus for File Backup	13/7738,91 6	10 Jan 2013	9,152,638	06 Oct 2015	Veritas US IP Holdings LLC	Granted
Systems And Methods For Eliminating Inconsistencies Between Backing Stores And Caches	13/7743,80 0	17 Jan 2013	9,146,868	29 Sep 2015	Veritas US IP Holdings LLC	Granted
Systems And Methods For Sending Information To Guest Systems	13/7748,55 6	1/23/2013	9,009,706	4/14/2015	Veritas US IP Holdings LLC	Granted

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Within Virtual Machines						
Systems And Methods For Managing Applications	13/7751,005	1/25/2013	8,832,492	9/9/2014	Veritas US IP Holdings LLC	Granted
Systems And Methods For Remediating Corrupt Backup Images Of Host Devices	13/7764,239	2/11/2013	9,002,798	4/7/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Using Data Archiving to Expedite Server Migration	13/7765,346	2/12/2013	8,898,115	11/25/2014	Veritas US IP Holdings LLC	Granted
System and Method for Archiving Data	13/7772,564	2/21/2013	8,782,013	7/15/2014	Veritas US IP Holdings LLC	Granted
Method and apparatus for performing file-level restoration from a block-based backup file stored on a sequential storage device	13/7775,940	25 Feb 2013	9,128,940	08 Sep 2015	Veritas US IP Holdings LLC	Granted
Techniques for Providing Instant Disaster Recovery	13/7776,327	2/25/2013	8,769,334	7/1/2014	Veritas US IP Holdings LLC	Granted
TECHNIQUES FOR MANAGING DATA STORAGE	13/7779,453	2/27/2013	9,021,204	4/28/2015	Veritas US IP Holdings LLC	Granted
Systems And Methods For Managing Sub-Clusters Within Dependent Clustered Computing Systems Subsequent To Partition Events	13/7779,588	27 Feb 2013	9,124,534	01 Sep 2015	Veritas US IP Holdings LLC	Granted

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Systems And Methods For Maintaining Group Membership Records	13/779,723	2/27/2013	8,805,888	8/12/2014	Veritas US IP Holdings LLC	Granted
Systems And Methods For Clustering Data Samples	13/780,765	28 Feb 2013	9,152,703	06 Oct 2015	Veritas US IP Holdings LLC	Granted
System and Method for Scalable Reference Management in a Deduplication Based Storage System	13/784,096	3/4/2013	8,782,011	7/15/2014	Veritas US IP Holdings LLC	Granted
Systems And Methods For Disaster Recovery From Binary Large Objects	13/786,865	06 Mar 2013	9,110,965	18 Aug 2015	Veritas US IP Holdings LLC	Granted
Techniques for Managing Disaster Recovery Sites	13/839,813	3/15/2013	9,075,771	7/7/2015	Veritas US IP Holdings LLC	Granted
Systems And Methods For Distributing Replication Tasks Within Computing Clusters	13/856,829	4/4/2013	9,075,856	7/7/2015	Veritas US IP Holdings LLC	Granted
A Method And System For Efficiently Reading A Partitioned Directory Incident To A Serialized Process	13/868,928	4/23/2013	8,892,613	11/18/2014	Veritas US IP Holdings LLC	Granted
Method and apparatus for reliable I/O performance anomaly detection in datacenter	13/871,740	4/26/2013	9,069,819	6/30/2015	Veritas US IP Holdings LLC	Granted
Systems And Methods For Implementing Non-Native File	13/905,111	29 May 2013	9,122,690	01 Sep 2015	Veritas US IP	Granted

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Attributes On File Systems	4				Holdings LLC	
Systems And Methods For Providing Caching For Applications With Solid-State Storage Devices	13/911,540	6/6/2013	9,037,792	5/19/2015	Veritas US IP Holdings LLC	Granted
Methods and Systems for Creating Full Backups	13/930,235	6/28/2013	9,063,893	6/23/2015	Veritas US IP Holdings LLC	Granted
Technique for Implementing Seamless Shortcuts in Sharepoint	13/941,826	15 Jul 2013	9,135,257	15 Sep 2015	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Optimizing Computer Network Usage to Prevent Congestion	13/969,806	8/19/2013	8,918,536	12/23/2014	Veritas US IP Holdings LLC	Granted
Systems And Methods For Providing Backup Interfaces	14/065,389	28 Oct 2013	9,158,631	13 Oct 2015	Veritas US IP Holdings LLC	Granted
Global Indexing Within An Enterprise Object Store File System	14/068,199	10/31/2013	8,959,060	2/17/2015	Veritas US IP Holdings LLC	Granted
Efficient data backup with change tracking	14/254,104	16 Apr 2014	9,122,635	01 Sep 2015	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Mapping Virtual Drives	14/285,029	5/22/2014	8,930,654	1/6/2015	Veritas US IP Holdings LLC	Granted
Systems and Methods for Injecting Drivers Into Computing Systems During Restore Operations	14/338,348	23 Jul 2014	9,146,748	29 Sep 2015	Veritas US IP Holdings LLC	Granted

App Title	App No.	Filed Date	Patent No.	Grant Date	Owner	Status
Systems and Methods for Classifying Files as Candidates for Deduplication	14/460,078	14 Aug 2014	9,146,935	29 Sep 2015	Veritas US IP Holdings LLC	Granted
Graphical User Interface For A Display Device	29/439,767	12/14/2012	D732,550	6/23/2015	Veritas US IP Holdings LLC	Granted
Method and Apparatus for Performing Direct Read of Compressed Data File	840,869	2/25/1992	5,481,701	1/2/1996	Veritas US IP Holdings LLC	Granted
Display device with a graphical user interface	D/439,708	13 Dec 2012	D735,729	04 Aug 2015	Veritas US IP Holdings LLC	Granted
Display device with graphical user interface	D/439,713	13 Dec 2012	D735,730	04 Aug 2015	Veritas US IP Holdings LLC	Granted
Display Device with Graphical User Interface	D/439,714	12/13/2012	D,732,068	6/16/2015	Veritas US IP Holdings LLC	Granted

Patent Cooperation Treaty ("PCT") Applications based on priority from a US patent application

Title	App. No.	Filing Date	Owner	Status
Electronic Healthcare Initiative Provisional	PCT/US10/59333	12/7/2010	Veritas US IP Holdings LLC	Application



<b>Title</b>	<b>App. No.</b>	<b>Filing Date</b>	<b>Owner</b>	<b>Status</b>
Locality Aware, Two-Level Fingerprint Caching	PCT/US13/63495	10/4/2013	Veritas US IP Holdings LLC	Application
Method and apparatus to cluster data to reveal hierarchical nature of relationship between data points	PCT/US2014/010981	1/10/2014	Veritas US IP Holdings LLC	Application
Systems And Methods For Increasing Restore Speeds Of Backups Stored In Deduplicated Storage Systems	PCT/US14/036532	5/2/2014	Veritas US IP Holdings LLC	Application
Systems And Methods For Instantly Restoring Virtual Machines In High Input/Output Load Environments	PCT/US14/46772	7/15/2014	Veritas US IP Holdings LLC	Application
Systems And Methods For Protecting Virtual Machine Data	PCT/US2014/054628	9/8/2014	Veritas US IP Holdings LLC	Application
Techniques for Improving Performance of a Backup System	PCT/US2014/054195	9/5/2014	Veritas US IP Holdings LLC	Application
SYSTEMS AND METHODS FOR IMPROVING SNAPSHOT PERFORMANCE	PCT/US14/69324	12/9/2014	Veritas US IP Holdings LLC	Application
Systems And Methods For Aggregating Disparate Information Assets Sourced By Multiple Collectors And Data Management Solutions	PCT/US2015/028669	4/30/2015	Veritas US IP Holdings LLC	Application
Deduplication Storage System with Efficient Reference Updating and Space Reclamation	PCT/US2014/017655	21 Feb 2014	Veritas US IP Holdings LLC	Published
Systems and Methods for Organizing Mapping Data	PCT/US05/31007	30 Aug 2004	Veritas US IP Holdings LLC	Published

<b>Title</b>	<b>App. No.</b>	<b>Filing Date</b>	<b>Owner</b>	<b>Status</b>
Method & system to define, visualize & manage multi-tier business service in H/A/DR env	PCT/US2010/060566	15 Dec 2010	Veritas US IP Holdings LLC	Published
Restoring Selected Objects from a Monolithic Database Backup	PCT/US09/57815	22 Sep 2009	Veritas US IP Holdings LLC	Published
Physical To Virtual Disks Creation (P2v) Method, By Harvesting Data From Critical Sectors	PCT/US11/49734	30 Aug 2011	Veritas US IP Holdings LLC	Published
Processes and Methods for Client- Side Fingerprint Caching to Improve Deduplication System Backup Performance	PCT/US12/23320	31 Jan 2012	Veritas US IP Holdings LLC	Published
Providing Optimized Quality of Service to Prioritized Virtual Machines and Applications Based on Quality of Shared Resources	PCT/US13/67806	31 Oct 2013	Veritas US IP Holdings LLC	Published
Providing Local Cache Coherency in a Shared Storage Environment	PCT/US2014/028614	14 Mar 2014	Veritas US IP Holdings LLC	Published
System and Method for Optimizing Transportation Over Networks	PCT/US2015/057429	27 Oct 2015	Veritas US IP Holdings LLC	Application
Systems and Methods for Aggregating Information-Asset Classifications	PCT/US15/59744	09 Nov 2015	Veritas US IP Holdings LLC	Application