

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT3661967

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
ROBERT DREW MAJOR	03/11/2013
DARREN MAJOR	03/11/2013
RECEIVING PARTY DATA	
Name:	ECHOSTAR TECHNOLOGIES L.L.C.
Street Address:	100 Inverness Terrace East
City:	Englewood
State/Country:	COLORADO
Postal Code:	80112
PROPERTY NUMBERS Total: 1	
Property Type	Number
Application Number:	14792485
CORRESPONDENCE DATA	
Fax Number:	(480)385-5061
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
Phone:	(480) 385-5060
Email:	docketing@ifllaw.com
Correspondent Name:	INGRASSIA FISHER & LORENZ, P.C.
Address Line 1:	7010 EAST COCHISE ROAD
Address Line 4:	SCOTTSDALE, ARIZONA 85253-1406
ATTORNEY DOCKET NUMBER:	066.0195C1 (P2011-06-06)
NAME OF SUBMITTER:	JAMES R. WALTERS
SIGNATURE:	/James R. Walters/
DATE SIGNED:	12/16/2015
Total Attachments: 18	
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SUBMISSION TYPE:	NEW ASSIGNMENT										
NATURE OF CONVEYANCE:	ASSIGNMENT										
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<table border="1"> <thead> <tr> <th>Name</th> <th>Execution Date</th> </tr> </thead> <tbody> <tr> <td>Robert Drew Major</td> <td>03/11/2013</td> </tr> <tr> <td>Darren Major</td> <td>03/11/2013</td> </tr> </tbody> </table>		Name	Execution Date	Robert Drew Major	03/11/2013	Darren Major	03/11/2013				
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Robert Drew Major	03/11/2013										
Darren Major	03/11/2013										
RECEIVING PARTY DATA											
<table border="1"> <tr> <td>Name:</td> <td>DISH DIGITAL L.L.C.</td> </tr> <tr> <td>Street Address:</td> <td>9601 S. Meridian Blvd.</td> </tr> <tr> <td>City:</td> <td>Englewood</td> </tr> <tr> <td>State/Country:</td> <td>COLORADO</td> </tr> <tr> <td>Postal Code:</td> <td>80112</td> </tr> </table>		Name:	DISH DIGITAL L.L.C.	Street Address:	9601 S. Meridian Blvd.	City:	Englewood	State/Country:	COLORADO	Postal Code:	80112
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<table border="1"> <thead> <tr> <th>Property Type</th> <th>Number</th> </tr> </thead> <tbody> <tr> <td>Application Number:</td> <td>13707008</td> </tr> </tbody> </table>		Property Type	Number	Application Number:	13707008						
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Application Number:	13707008										
CORRESPONDENCE DATA											
<p>Fax Number: 4803855061</p> <p><i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i></p> <p>Phone: (480) 385-5060</p> <p>Email: docketing@ifilaw.com</p> <p>Correspondent Name: Ingrassia Fisher & Lorenz, P.C.</p> <p>Address Line 1: 7010 East Cochise</p> <p>Address Line 4: Scottsdale, ARIZONA 85253-1406</p>											
ATTORNEY DOCKET NUMBER:	066.0195 (P2011-06-06)										
NAME OF SUBMITTER:	Mark M. Takahashi										
Signature:	/MARK M. TAKAHASHI/										
Date:	04/04/2013										
<p>Total Attachments: 3</p> <p>source=20130404_Assignment_P2011-06-06#page1.tif</p> <p>source=20130404_Assignment_P2011-06-06#page2.tif</p> <p>source=20130404_Assignment_P2011-06-06#page3.tif</p>											

OP \$40.00 13707008

**ASSIGNMENT AND AGREEMENT IN AN APPLICATION FOR
LETTERS PATENT OF THE UNITED STATES OF AMERICA**

WHEREAS, **Robert Drew Major**, 863 West 600 South, Orem, UT 84058, and **Darren Major**, 1195 North 850 East, Pleasant Grove, UT 84062, (hereinafter, singularly and collectively "Assignor") has solely and/or have jointly (as appropriate) invented and/or discovered certain new and useful invention, process, machine, manufacture, or composition of matter, or any new and useful improvement in an invention as described in an application for Letters Patent entitled "**FILE STRUCTURE TECHNIQUES FOR STORING MULTIPLE BITRATE CONTENT**" filed in and/or with the United States Patent and Trademark Office on December 6, 2012, and which has been assigned Application Serial Number 13,706,008 and which is further identified by the EchoStar Docket No. set forth above (hereinafter, the "Invention"); and

WHEREAS, **DISH Digital L.L.C.**, a limited liability company organized and existing under the laws of the State of Colorado, United States of America, and having a principal place of business of 9601 S. Meridian Blvd., Englewood, CO 80112 (hereinafter, the "Assignee") desires to acquire all rights, title and interest in and to the Invention, including, but not limited to, all rights, title and interest in and to past, present and future damages, injunctive relief and to any and all other additional rights, title, interest, relief and/or remedies granted by any legislative, judicial, quasi-judicial, administrative or other body, or otherwise; and

WHEREAS, Assignor, to the extent they own any right, title and interest in and to the Invention are desirous of assigning any and all such rights, title and/or interest to Assignee.

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Assignor hereby sells, assigns, transfers and sets over unto Assignee and its legal representatives, successor and assigns, the entire right, title and interest, including any all rights in and/or to past, present and future damages, injunctive relief and/or any other remedy and relief granted by a legislative, judicial, quasi-judicial or administrative body, in and to said Invention, said application, for any and all non-provisional, national, international, foreign, and regional applications corresponding and/or claiming priority thereto, any divisions, continuations, continuation-in-parts, reissues, reexaminations, renewals, and extensions thereof, and the Letters Patent, both foreign and domestic, that may or shall issue thereon, and does request the Commissioner of Patents to issue said Letters Patent to the Assignee, consistent with the terms of this agreement.

Assignor hereby authorizes Assignee to insert in this instrument the filing date and Application Serial Number in the above fields if not already present at the time of execution of this instrument.

Assignor hereby declares that he/she is the sole inventor (if only one inventor is named herein) or an original, first and joint inventor (if plural inventors are named herein) of the Invention. UPON SAID CONSIDERATION, Assignor hereby covenants and agrees with Assignee that they will not execute any writing or do any act whatsoever conflicting with these presents, and agrees that, when requested, he/she will, without charge to Assignee but at its expense, execute such additional assignments, declarations and other writings and do such additional acts as said Assignee

may deem necessary or desirable to perfect the Assignee's enjoyment of this grant, and render all necessary assistance in making application for and obtaining original, continuation, continuation-in-part, divisional, renewal, reissued or extended Letters Patent of the United States, or of any and all foreign countries, on said invention, and in enforcing any rights or chooses in action accruing as a result of such applications or patents, by giving testimony in any proceedings or transactions involving such applications or patents, and by executing preliminary statements and other affidavits, it being understood that the foregoing covenant and agreement shall bind, and inure to the benefit of, the assigns and legal representatives of both parties.

Assignor agrees that he/she will communicate to Assignee or its representatives any facts known to Assignor respecting said inventions within a reasonable time of discovering or coming into possession of the same.

Assignor authorizes and empowers Assignee, its successors, assigns or nominees, to make application for patent or other form of protection for said inventions in its or their own name, or in Assignor's name, in any and all countries to invoke and claim for any application for patent or other form of protection for said inventions filed by it or them, the benefit of the right of priority provided by the International Convention for the Protection of Industrial Property, as amended, or by any convention which may henceforth be substituted for it, and to invoke and claim such right of priority without further written or oral authorization from me.

Assignor hereby consent that a copy of this Assignment shall be deemed a full legal and formal equivalent of any assignment, consent to file or like document which may be required in any country for any purpose and more particularly in proof of the right of Assignee or its successors, assigns or nominees to apply for patent or other proper protection for said inventions, and to claim the aforesaid benefits of the right of priority provided by the International Convention for the Protection of Industrial Property, as amended, or by any convention which may henceforth be substituted for it.

Assignor covenants with Assignee, its successors, assigns, legal representatives, and nominees, that to the best of Assignor's knowledge the right, title and interest herein conveyed are free and clear of any encumbrance, and that Assignor has the full right to convey the same as herein expressed.

This Agreement and Assignment supersedes all other assignments, agreements and addendums related to the above-identified application.

After this Assignment has been recorded, please return it to:

Attn: Max S. Gratton
Legal Department
EchoStar Technologies L.L.C.
100 Inverness Terrace East
Englewood, CO 80112

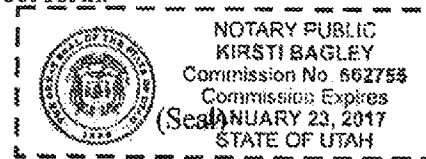
JOINT

Inventor (1): Robert Drew Major
(Name)

Robert Drew Major
(Signature in Full)

On this 11 day of MARCH, 2013, before me a notary public in and for the county of UTAH in the State of UTAH, appeared **ROBERT DREW MAJOR**, who is personally known to me to be the same person whose name is subscribed to the foregoing instrument, and acknowledged that he signed, seals and delivered the same instrument as a free and voluntary act for the use and purposes therein set forth.

Kirsti Bagley
My Commission Expires: JAN 23, 2017
Notary Public

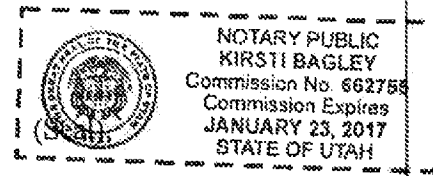
**JOINT**

Inventor (2): Darren Major
(Name)

Darren Major
(Signature in Full)

On this 11 day of MARCH, 2013, before me a notary public in and for the county of UTAH in the State of UTAH, appeared **DARREN MAJOR**, who is personally known to me to be the same person whose name is subscribed to the foregoing instrument, and acknowledged that he signed, seals and delivered the same instrument as a free and voluntary act for the use and purposes therein set forth.

Kirsti Bagley
My Commission Expires: JAN 23, 2017
Notary Public



PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
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EPAS ID: PAT2967050

SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	
CONVEYING PARTY DATA		
Name		Execution Date
DISH DIGITAL L.L.C.		08/01/2014
RECEIVING PARTY DATA		
Name:	ECHOSTAR TECHNOLOGIES L.L.C.	
Street Address:	100 INVERNESS TERRACE EAST	
City:	ENGLEWOOD	
State/Country:	COLORADO	
Postal Code:	80112	
PROPERTY NUMBERS Total: 54		
Property Type	Number	
Patent Number:	7818444	
Patent Number:	8402156	
Patent Number:	8612624	
Patent Number:	8683066	
Patent Number:	8190760	
Patent Number:	8321401	
Patent Number:	8332905	
Patent Number:	8418207	
Patent Number:	8776151	
Patent Number:	8683543	
Application Number:	11116783	
Application Number:	14106051	
Application Number:	11737669	
Application Number:	14222245	
Application Number:	13481528	
Application Number:	13843379	
Application Number:	12210146	
Application Number:	13619214	
Application Number:	13757571	
Application Number:	12370568	
Application Number:	12508449	

PATENT

REEL: 037309 FRAME: 0731

Property Type	Number
Application Number:	14222412
Application Number:	13857786
Application Number:	12554730
Application Number:	12643700
Application Number:	13027220
Application Number:	13706983
Application Number:	13706993
Application Number:	13707022
Application Number:	13707031
Application Number:	13707044
Application Number:	13707008
Application Number:	14144235
Application Number:	13837058
Application Number:	14145025
Application Number:	61747839
Application Number:	14145115
Application Number:	14145375
Application Number:	62019319
Application Number:	13596911
Application Number:	61653312
Application Number:	13732065
Application Number:	13843411
Application Number:	61747960
Application Number:	13840503
Application Number:	61791044
Application Number:	13837108
Application Number:	13836688
Application Number:	61800847
Application Number:	14216235
Application Number:	13843494
Application Number:	29441124
Application Number:	62018892
Application Number:	62018839

CORRESPONDENCE DATA

Fax Number: (303)728-5048

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: (303) 706-4506

Email: max.gratton@echostar.com

Correspondent Name:	MAX S GRATTON
Address Line 1:	100 INVERNESS TERRACE EAST
Address Line 2:	LEGAL DEPARTMENT
Address Line 4:	ENGLEWOOD, COLORADO 80112
NAME OF SUBMITTER:	MAX S GRATTON (REG. NO. 56,541)
SIGNATURE:	/Max S Gratton/
DATE SIGNED:	08/04/2014
Total Attachments: 11 source=Patent Assignment - Execution Draft#page1.tif source=Patent Assignment - Execution Draft#page2.tif source=Patent Assignment - Execution Draft#page3.tif source=Patent Assignment - Execution Draft#page4.tif source=Patent Assignment - Execution Draft#page5.tif source=Patent Assignment - Execution Draft#page6.tif source=Patent Assignment - Execution Draft#page7.tif source=Patent Assignment - Execution Draft#page8.tif source=Patent Assignment - Execution Draft#page9.tif source=Patent Assignment - Execution Draft#page10.tif source=Patent Assignment - Execution Draft#page11.tif	

PATENT ASSIGNMENT

WHEREAS, DISH Digital L.L.C., a limited liability company organized under the laws of the state of Colorado and having a place of business at 9601 S. Meridian Blvd., Englewood, Colorado ("ASSIGNOR"), owns rights in, to and under the patent applications set forth in the attached Exhibit B (the "Properties"); and

WHEREAS, EchoStar Technologies L.L.C., a limited liability company organized under the laws of the State of Texas, United States of America and having a place of business at 100 Inverness Terrace East, Englewood, Colorado 80112 ("ASSIGNEE"), is desirous of acquiring ASSIGNOR'S entire right, title and interest in, to and under the Properties.

WHEREAS, Assignor, to the extent they own any right, title and interest in and to the Properties is desirous of assigning any and all such rights, title and/or interest to Assignee.

NOW, THEREFORE, for USD \$1.00 and other good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the Assignor has sold, assigned, transferred and set over, and by these presents does hereby sell, assign, transfer and set over, unto the ASSIGNEE, its successors, legal representatives and assigns, the entire right, title and interest in, to and under the Properties and any and all letters patent or patents in the United States of America and all foreign countries which may be granted therefore and thereon (including any divisions, continuations, continuations-in-part, reissues, reexaminations or extensions of letters patents and other related applications arising from, corresponding to and/or claiming priority to any of the Properties) and the registration thereof, and all rights under the International Convention for the Protection of Industrial Property, the same to be held and enjoyed by the ASSIGNEE for its own use and enjoyment and for the use and enjoyment of its successors, legal representatives and assigns, to the full end of the term or terms for which letters patent may be granted, as fully and entirely as the same would have been held and enjoyed by the ASSIGNOR had this assignment not been made, and further including all income, royalties, damages and payments for past or future infringements and misappropriations thereof, all rights to sue for past, present and future infringements or misappropriations thereof, and all rights corresponding to any of the above throughout the world and for the full term or terms of assigned Properties;

AND for the same consideration, ASSIGNOR hereby covenants and agrees to and with ASSIGNEE, its successors, legal representatives and assigns, that ASSIGNOR will encourage its employees named as inventors on one or more of the assigned Properties, to make, execute and deliver any and all other instruments in writing as may be necessary to assign the Properties to ASSIGNEE, including, but not limited to, any and all further application papers, affidavits, assignments and other documents, and that ASSIGNOR will communicate to ASSIGNEE, its successors, legal representatives and assigns, all facts known to ASSIGNOR relating to the Properties, and that ASSIGNOR will testify in all legal proceedings and generally do all things which may be necessary or desirable to more

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effectually secure to and vest in ASSIGNEE, its successors, legal representatives and assigns, the entire right, title and interest in and to the Properties;

AND THE ASSIGNOR HEREBY authorizes and requests the Commissioner of the United States Patent and Trademark Office, and any official of any country or countries foreign to the United States, whose duty is to issue patents or other evidence or forms of industrial property protection on applications as aforesaid, to issue the same to the ASSIGNEE, its successors, legal representatives and assigns, in accordance with the terms of this instrument.

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IN WITNESS WHEREOF, the undersigned have executed this Patent Assignment
as of the 1st day of August 2014.

DISH DIGITAL L.L.C.

By: Robert E. Olson

Name: Robert E. Olson

Title: Executive Vice President and Chief Financial Officer

State of Colorado	
County of Douglas	
The foregoing instrument was acknowledged before me this August 1, 2014, by Robert E. Olson, Executive Vice President and Chief Financial Officer of DISH Digital L.L.C., a Colorado limited liability corporation, on behalf of the corporation.	
<u>Tracy Strickland</u> (Notary's official signature)	<div style="border: 1px solid black; padding: 5px; text-align: center;">TRACY STRICKLAND NOTARY PUBLIC STATE OF COLORADO</div>
9-22-14 (Commission Expiration)	MY COMMISSION EXPIRES 9-22-14 (Notary Seal)

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ECHOSTAR TECHNOLOGIES L.L.C.

By: 

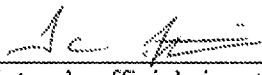
Name: Dean A. Manson

Title: Executive Vice President, General Counsel and Secretary

State of Colorado

County of Arapahoe

The foregoing instrument was acknowledged before me this August 1, 2014, by Dean A. Manson, Executive Vice President, General Counsel and Secretary of EchoStar Technologies L.L.C., a Texas limited liability corporation, on behalf of the corporation.


(Notary's official signature)

TARA FITZSIMMONS
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID: 20134077861
MY COMMISSION EXPIRES: DECEMBER 13, 2017

December 13, 2017
(Commission Expiration)

(Notary Seal)

Exhibit B

ASSIGNED PATENTS AND PATENT APPLICATIONS

U.S. Patents

Patent No.	Country	Title
7,818,444	US	Apparatus, System, and Method for Multi-Bitrate Content Streaming
8,402,156	US	Apparatus, System, and Method for Multi-Bitrate Content Streaming
8,612,624	US	Apparatus, System, and Method for Multi-Bitrate Content Streaming
8,683,066	US	Apparatus, System, and Method for Multi-Bitrate Content Streaming
8,190,760	US	System and Method of Managing Multiple Video Players
8,321,401	US	User Interface with Available Multimedia Content from Multiple Multimedia Websites
8,370,514	US	System and method of minimizing network bandwidth retrieved from an external network
8,332,905	US	Virtual set-top box that emulates processing of IPTV video content
8,418,207	US	Dynamic Video Source Selection
8,776,151	US	Method for Simplifying Adaptive Rate RS-DVR Video Storage
8,683,543	US	Virtual set-top box that executes service provider middleware

U.S. Patent Applications

Filing Date	Application No.	Country	Title
Apr 28, 2005	11116783	US	Apparatus, system, and method for adaptive-rate shifting of streaming content
Dec 13, 2013	14106051	US	Apparatus, System, and Method for Multi-Bitrate Content Streaming
Apr 19, 2007	11737669	US	APPARATUS, SYSTEM AND METHOD FOR RESILIENT CONTENT ACQUISITION
Mar 21, 2014	14222245	US	Apparatus, System, and Method for Multi-Bitrate Content Streaming

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Filing Date	Application No.	Country	Title
May 25, 2012	13481528	US	System and Method of Managing Multiple Video Players
Mar 15, 2013	13843379	US	SYSTEM AND METHOD OF MANAGING MULTIPLE VIDEO PLAYERS EXECUTING ON MULTIPLE DEVICES
Sep 12, 2008	12210146	US	Predictively Selecting Video Quality Profiles for Streaming Video
Sep 14, 2012	13619214	US	User Interface with Available Multimedia Content from Multiple Multimedia Websites
Feb 1, 2013	13757571	US	System and method of minimizing network bandwidth retrieved from an external network
Feb 12, 2009	12370568	US	Advertisement Management for Live Internet Multimedia Content
Jul 23, 2009	12508449	US	Messaging Service for Providing Updates for Multimedia Content of a Live Event Delivered Over the Internet
Mar 21, 2014	14222412	US	Virtual Set-top Box
Apr 5, 2013	13857786	US	Dynamic Video Source Selection
Sep 4, 2009	12554730	US	Controlling Access to Copies of Media Content by a Client Device
Dec 21, 2009	12643700	US	Audio Splitting with Codec-Enforced Frame Sizes
Feb 14, 2011	13027220	US	SYSTEMS AND METHODS TO PROVIDE TRICK PLAY DURING STREAMING PLAYBACK
Dec 6, 2012	13706983	US	REMOTE STORAGE DIGITAL VIDEO RECORDER FOR MULTIPLE BITRATE DIGITAL MEDIA CONTENT, AND RELATED OPERATING METHODS AND FEATURES
Dec 6, 2012	13706993	US	Method for Disk Failure Resiliency for Adaptive Rate RS-DVR
Dec 6, 2012	13/707,022	US	Method for Multichannel Start Over Using RS-DVR Using Late Binding at Time of Playback of Subscribers to Individual Video Copies

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Filing Date	Application No.	Country	Title
Dec 6, 2012	13/707,031	US	Method for Simplifying Adaptive Rate RS-DVR Video Storage
Dec 6, 2012	13/707,044	US	Hybrid Shared Single Copy Combined with Per Subscriber Copy RS-DVR Video Sharing System
		US	Automatic synchronizing multiple computers
Dec 6, 2012	13/707,008	US	Method for Using Single File Video Storage of Multiple Bit Rates with Fault Tolerance and Performance Enhancements for Adaptive Rate RS-DVR
Dec 30, 2013	14/144,235	US	ADAPTIVE MULTICAST DELIVERY OF MEDIA STREAMS
Mar 15, 2013	13/837,058	US	EFFICIENT ASSIGNMENT OF PROGRAM COPIES IN A NETWORK DIGITAL VIDEO RECORDER
Dec 31, 2013	14/145,025	US	METHODS AND APPARATUS FOR PROVIDING SOCIAL VIEWING OF MEDIA CONTENT
Dec 31, 2012	61/747,839	US	PROACTIVE MULTI-PATH ROUTING
Dec 31, 2013	14/145,115	US	METHODS AND APPARATUS FOR PROACTIVE MULTI-PATH ROUTING
Dec 31, 2013	14/145,375	US	METHODS AND APPARATUS FOR ESTIMATING PACKET LOSS
June 30, 2014	62/019,319	US	Adaptive Data Segment Delivery Arbitration for Bandwidth Optimization
Aug 28, 2012	13/596,911	US	ADAPTIVE BIT RATE TRANSCODE AND CACHING FOR OFF AIR TELEVISION PROGRAMMING DELIVERY
May 30, 2012	61/653,312	US	MODULAR ANTENNA SYSTEM
Dec 31, 2012	13/732,065	US	MODULAR ANTENNA SYSTEM
Mar 15, 2013	13/843,411	US	PLAYBACK STALL AVOIDANCE IN ADAPTIVE MEDIA STREAMING

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Filing Date	Application No.	Country	Title
Dec 31, 2012	61/747,960	US	OPTIMIZATION TECHNIQUE FOR SCHEDULING STREAMLET PROCESSING
Mar 15, 2013	13/840,503	US	SCHEDULING SEGMENT DATA DELIVERY IN AN ADAPTIVE MEDIA STREAM TO AVOID STALLING
Mar 15, 2013	61/791,044	US	ASYMMETRIC CONTENT DELIVERY OF MEDIA CONTENT
Mar 15, 2013	13/837,108	US	PLACESHIFTING OF ADAPTIVE MEDIA STREAMS
Mar 15, 2013	13/836,688	US	PRE-DISTRIBUTION IDENTIFICATION OF BROADCAST TELEVISION CONTENT USING AUDIO FINGERPRINTS
Mar 15, 2013	61/800,847	US	TELEVISION CONTENT MANAGMENT WITH INTEGRATED THIRD PARTY INTERFACE
Mar 17, 2014	14/216,235	US	TELEVISION CONTENT MANAGMENT WITH INTEGRATED THIRD PARTY INTERFACE
Mar 15, 2013	13/843,494	US	CHUNKING OF MULTIPLE TRACK AUDIO FOR ADAPTIVE BIT RATE STREAMING
Dec 31, 2012	29/441,124	US	Indoor Antenna
June 30, 2014	62/018,892	US	Improved Wi-Fi Routing
June 30, 2014	62/018,839	US	Systems and Processes for Efficiently Storing and Retrieving Video Content

Foreign Patents

Patents

Patent No.	Country	Title
2011213730	AU	Apparatus, system, and method for adaptive-rate shifting of streaming content
5320740	JP	Apparatus, system, and method for

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		adaptive-rate shifting of streaming content
10-1082642	KR	Apparatus, system, and method for adaptive-rate shifting of streaming content
2463329	GB	Virtual Set-top Box
306950	MX	Dynamic Video Source Selection

Foreign Patent Applications

Filing Date	Application No.	Country	Title
May 2, 2005	PCTUS2005015091	WO	Apparatus, system, and method for adaptive-rate shifting of streaming content
May 2, 2005	2005241481	AU	Apparatus, system, and method for adaptive-rate shifting of streaming content
May 2, 2005	2564861	CA	Apparatus, system, and method for adaptive-rate shifting of streaming content
May 2, 2005	200580022210X	CN	Apparatus, system, and method for adaptive-rate shifting of streaming content
May 2, 2005	057440158	EP	Apparatus, system, and method for adaptive-rate shifting of streaming content
May 2, 2005	121545594	EP	Method for Presenting Rate-Adaptive Streams
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Filing Date	Application No.	Country	Title
Dec 21, 2010	PCTUS2010061658	WO	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2010	2010339666	AU	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2010	1120120148729	BR	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2012	2784779	CA	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2010	2010800614889	CN	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2012	108427394	EP	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2010	220482	IL	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2010	5366/CHENP/2012	IN	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2010	2012544958	JP	Audio Splitting with Codec-Enforced Frame Sizes
Jul 13, 2012	1020127018246	KR	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2010	MXa2012007243	MX	Audio Splitting with Codec-Enforced Frame Sizes
Dec 21, 2010	2012045621	SG	Audio Splitting with Codec-Enforced Frame Sizes
Feb 14, 2011	PCTUS2011024807	WO	SYSTEMS AND METHODS TO PROVIDE TRICK PLAY DURING STREAMING PLAYBACK
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Filing Date	Application No.	Country	Title
Dec 4, 2012	PCTUS2012067796	WO	REMOTE STORAGE DIGITAL VIDEO RECORDER FOR MULTIPLE BITRATE DIGITAL MEDIA CONTENT, AND RELATED OPERATING METHODS AND FEATURES
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Dec 30, 2013	PCTUS2013078358	WO	ADAPTIVE MULTICAST DELIVERY OF MEDIA STREAMS
Feb 25, 2013	PCTUS1327612	WO	ADAPTIVE BIT RATE TRANSCODE AND CACHING FOR OFF AIR TELEVISION PROGRAMMING DELIVERY
Mar 13, 2014	PCTUS201426391	WO	PLAYBACK STALL AVOIDANCE IN ADAPTIVE MEDIA STREAMING
Dec 31, 2013	PCTUS2013078518	WO	SCHEDULING SEGMENT DATA DELIVERY IN AN ADAPTIVE MEDIA STREAM TO AVOID STALLING
Mar 13, 2014	PCTUS2014026399	WO	PLACESHIFTING OF ADAPTIVE MEDIA STREAMS
Mar 13, 2014	PCTUS2014026102	WO	CHUNKING OF MULTIPLE TRACK AUDIO FOR ADAPTIVE BIT RATE STREAMING