

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT	
NATURE OF CONVEYANCE:	ASSIGNMENT	
CONVEYING PARTY DATA		
Name		Execution Date
TWC PATENT TRUST LLT		09/30/2019
RECEIVING PARTY DATA		
Name:	DTN, LLC	
Street Address:	9110 WEST DODGE ROAD	
City:	OMAHA	
State/Country:	NEBRASKA	
Postal Code:	68114	
PROPERTY NUMBERS Total: 105		
Property Type	Number	
Application Number:	13959218	
Application Number:	14217582	
Application Number:	14469875	
Application Number:	16115952	
Application Number:	14029023	
Application Number:	12435072	
Application Number:	14288513	
Application Number:	14804917	
Application Number:	14539223	
Application Number:	13135613	
Application Number:	12253487	
Application Number:	14250226	
Application Number:	15585287	
Application Number:	15842944	
Application Number:	08403481	
Application Number:	10959596	
Application Number:	09085700	
Patent Number:	6498987	
Patent Number:	6823263	
Patent Number:	7058510	

PATENT

Property Type	Number
Patent Number:	7383130
Patent Number:	7212922
Patent Number:	8457612
Patent Number:	6654689
Patent Number:	7139664
Patent Number:	7467043
Patent Number:	7738771
Patent Number:	7181346
Patent Number:	9378515
Patent Number:	9680943
Patent Number:	9881323
Patent Number:	7486201
Patent Number:	8782041
Patent Number:	7546206
Patent Number:	7720630
Patent Number:	8521426
Patent Number:	6381538
Patent Number:	6650972
Patent Number:	6917860
Patent Number:	7463955
Patent Number:	7471995
Patent Number:	8135500
Patent Number:	8131407
Patent Number:	7612688
Patent Number:	10026222
Patent Number:	7461137
Patent Number:	7185044
Patent Number:	8872846
Patent Number:	7231300
Patent Number:	7082382
Patent Number:	7200491
Patent Number:	7954140
Patent Number:	7542852
Patent Number:	7184891
Patent Number:	7379817
Patent Number:	6952648
Patent Number:	7792664
Patent Number:	7844427

Property Type	Number
Patent Number:	8160995
Patent Number:	8204846
Patent Number:	8224768
Patent Number:	8594936
Patent Number:	10088598
Patent Number:	6847324
Patent Number:	6850184
Patent Number:	7941274
Patent Number:	6496780
Patent Number:	7460021
Patent Number:	7558674
Patent Number:	7561970
Patent Number:	7983843
Patent Number:	7788036
Patent Number:	7792642
Patent Number:	7751978
Patent Number:	8538696
Patent Number:	7043368
Patent Number:	6856323
Patent Number:	7869953
Patent Number:	7705769
Patent Number:	8600678
Patent Number:	8223063
Patent Number:	6339747
Patent Number:	7421344
Patent Number:	6961061
Patent Number:	7250952
Patent Number:	9160938
Patent Number:	6335765
Patent Number:	6829536
Patent Number:	7800582
Patent Number:	8462108
Patent Number:	8669936
Patent Number:	7421422
Patent Number:	7529835
Patent Number:	9680955
Patent Number:	8665375
Patent Number:	9846771

Property Type	Number
Patent Number:	7685598
Patent Number:	8533723
Patent Number:	8250569
Patent Number:	7739682
Patent Number:	7752448
Patent Number:	8302211
Application Number:	10270847
Application Number:	12425991
PCT Number:	US0332683

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SIGNATURE: /Sean P. Connolly/

DATE SIGNED: 10/03/2019

Total Attachments: 12

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PATENT ASSIGNMENT AND RESERVATION

For good and valuable consideration, the receipt of which is hereby acknowledged, and subject to the reservations stated in the Patent Assignment Agreement between the parties executed as of September 30, 2019, ("PAA"), TWC Patent Trust LLT, a Connecticut statutory trust having a place of business at Burlington VT (hereinafter "Assignor"), hereby grants and assigns to DTN, LLC, a Delaware limited liability company doing business as "DTN," with offices at Omaha NE (hereinafter "Assignee"), all of Assignor's right, title and interest in and to the United States Letters Patents and United States patent applications identified in Exhibit A, attached hereto, and any continuation, divisional, continuation-in-part, or foreign applications claiming priority therefrom (hereinafter, collectively, "Assigned Patents"), to have and to hold the same, unto Assignee as set forth in the PAA, including all damages for infringement of any of the Assigned Patent accruing on and after the Agreement Effective Date as defined in the PAA and the sole right to sue therefore under such Assigned Patents, for the full term or terms of all such Assigned Patents, subject to all rights granted under the Assigned Patents to Assignor and to other parties as specified in the PAA.

Assignor hereby reserves and retains, for the benefit of itself and the third parties specified in the PAA, the rights and licenses set forth in the PAA.

IN WITNESS WHEREOF, Assignor has caused this Patent Assignment and Reservation to be duly signed on its behalf.

Signature: _____

Date: _____

Name: Mark Chadurjian
as Trustee, and not individually
Title: Trustee
TWC Patent Trust LLT

State of Vermont }
 } S.S.
County of Chittenden }

Before me this 30th day of September 2019, personally appeared Mark Chadurjian, to me known to be the person who is described in and who signed the foregoing Patent Assignment and Reservation and acknowledged to me that he signed the same of his own free will for the purpose therein expressed.

Notary Public

JENNA BOINEY
Notary Public, State of Vermont
My Commission Expires Jan. 31, 2021

Confidential

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**EXHIBIT A
ASSIGNED PROPERTIES**

Patent Number	Title	App. Number	File Date	Issue Date
US6498987	System and method for providing personalized weather reports and the like	09/547,195	4/12/2000	12/24/2002
US6823263	System and method for providing personalized weather reports and the like	09/686,029	10/11/2000	11/23/2004
US7058510	System and method for providing personalized weather reports and the like	10/995,048	11/22/2004	6/6/2006
US7383130	Weather-based activity advisor	11/013,849	12/16/2004	6/3/2008
US7212922	Method of determining a climate-based activity index and best-time-to recommendation	11/013,830	12/16/2004	5/1/2007
US8457612	Providing location-based multimedia messages to a mobile device	12/759,895	4/14/2010	6/4/2013
US6654689	System and method for providing personalized storm warnings	09/707,104	11/6/2000	11/25/2003
US7139664	System and method for providing personalized storm warnings	11/091,724	3/28/2005	11/21/2006
US7467043	Method for determining current synthetic ultraviolet index for a specified location	11/432,649	5/10/2006	12/16/2008
US7738771	Digital video recorder alerting	11/269,964	11/8/2005	6/15/2010
US7181346	System and method for assessing the people and property impact of weather	11/095,345	3/31/2005	2/20/2007
US9378515	Proximity and time based content downloader	12/351,180	1/9/2009	6/28/2016
US9680943	Proximity and time based content downloader	15/074,194	3/18/2016	6/13/2017
US9881323	Providing Hard-To-Block Advertisements For Display on a Webpage	11/821,171	6/22/2007	1/30/2018

Patent Number	Title	App. Number	File Date	Issue Date
PENDING	Hyper-local weather media content creation and ad targeting system	13/959,218		
PENDING	Hyper-local temporally relevant weather triggered dynamic messaging	14/217,582		
US7486201	Combined personalized traffic and weather report and alert system and method	11/328,730	1/10/2006	2/3/2009
US8782041	Text search for weather data	12/535,123	8/4/2009	7/15/2014
US7546206	System and method for suggesting transportation routes	11/445,759	6/2/2006	6/9/2009
US7720630	Personalized transportation information system	11/445,647	6/2/2006	5/18/2010
US8521426	System and method for weather mapping to road segments	12/365,561	2/4/2009	8/27/2013
US6381538	Vehicle specific hazard estimation, presentation, and route planning based on meteorological and other environmental data	09/583,042	5/26/2000	4/30/2002
US6650972	Estimation, transmission, receipt, and presentation of vehicle specific environmental conditions and hazards information	10/083,840	2/27/2002	11/18/2003
US6917860	Transmission, receipt, and presentation of vehicle specific environmental conditions and hazards information	10/408,024	4/4/2003	7/12/2005
US7463955	Transmission, receipt, combination, sorting, and presentation of vehicle specific environmental conditions and hazards information	11/122,909	5/5/2005	12/9/2008

Patent Number	Title	App. Number	File Date	Issue Date
US7471995	Transmission, receipt, combination, sorting, and presentation of vehicle specific environmental conditions and hazards information	11/475,670	6/27/2006	12/30/2008
US8135500	Wake vortex detection and reporting system	12/313,070	11/17/2008	3/13/2012
US8131407	Transmission, receipt, combination, sorting, reporting, and presentation of vehicle specific environmental conditions and hazards information utilizing a ground station	12/315,391	12/3/2008	3/6/2012
US7612688	Inflight weather service	11/372,820	3/10/2006	11/3/2009
US10026222	Three dimensional traffic virtual camera visualization	15/095,575	4/11/2016	7/17/2018
US7461137	Weather information delivery systems and methods providing planning functionality and navigational tools	11/606,565	11/29/2006	12/2/2008
US7185044	Weather information delivery systems and methods providing planning functionality and navigational tools	09/766,295	1/19/2001	2/27/2007
US8872846	Interactive virtual weather map	12/315,815	12/4/2008	10/28/2014
PENDING	Automated global weather notification system	14/469,875	8/27/2014	N/A

Patent Number	Title	App. Number	File Date	Issue Date
US7231300	Producing high-resolution, real-time synthetic meteorological conditions from radar data	11/021,801	12/22/2004	6/12/2007
US7082382	System for producing high-resolution, real-time synthetic meteorological conditions for a specified location	11/04,2681	1/25/2005	7/25/2006
US7200491	System for producing high-resolution, real-time synthetic meteorological conditions for a specified location	11/372,717	3/10/2006	4/3/2007
US7954140	Methods for persisting, organizing, and replacing perishable browser information using a browser plug-in	11/023,799	12/28/2004	5/31/2011
US7542852	Derivation and production of high-resolution, very short-term weather forecasts	11/695,353	4/2/2007	6/2/2009
US7184891	System and method for forecasting pollen in accordance with weather conditions	10/868,106	6/15/2004	2/27/2007
US7379817	Formulation of daily weather observation	11/285,333	11/22/2005	5/27/2008
US6952648	Power disruption index	10/743,251	12/22/2003	10/4/2005
US7792664	Weather model predictor	11/495,300	7/28/2006	9/7/2010
US7844427	Weather model predictor	12/220,750	7/28/2008	11/30/2010
US8160995	Tropical cyclone prediction system and method	12/148,390	4/18/2008	4/17/2012
US8204846	Tropical cyclone prediction system and method	12/148,402	4/18/2008	6/19/2012
US8224768	Tropical cyclone prediction system and method	12/148,376	4/18/2008	7/17/2012
US8594936	Providing current estimates of precipitation accumulations	12/347,457	12/31/2008	11/26/2013
US10088598	Index indicative of weather impact on outdoor running	14/548,649	11/20/2014	10/2/2018
PENDING	Index indicative of weather impact on outdoor running	16/115,952	8/29/2018	N/A

Patent Number	Title	App. Number	File Date	Issue Date
US6847324	Automated method to remove false echoes due to solar interference	10/674,164	9/29/2003	1/25/2005
US6850184	Forecasted radar mosaics	10/430,168	5/5/2003	2/1/2005
US7941274	Advanced verification information for improved operational results	11/499,204	8/3/2006	5/10/2011

Patent Number	Title	App. Number	File Date	Issue Date
US6496780	Systems and methods for conveying weather reports	09/659,911	9/12/2000	12/17/2002
US7460021	Interactive wallpaper weather map	11/280,740	11/16/2005	12/2/2008
US7558674	Weather severity and characterization system	11/789,148	4/24/2007	7/7/2009
US7561970	Weather severity and characterization system	11/975,566	10/19/2007	7/14/2009
US7983843	Weather severity and characterization system	12/459,734	7/7/2009	7/19/2011
US7788036	Weather severity and characterization system	11/975,747	10/19/2007	8/31/2010
US7792642	Weather severity and characterization system	11/975,565	10/19/2007	9/7/2010
US7751978	Weather severity and characterization system	11/975,564	10/19/2007	7/6/2010
US8538696	Providing weather data for a location using weather data stored for a finite number of locations	11/860695	9/25/2007	9/17/2013
US7043368	Method and system for creating visualizations of future weather conditions	10/408,483	4/7/2003	5/9/2006
US6856323	Layered image rendering	09/829,189	4/9/2001	2/15/2005
US7869953	System and method for presenting lightning strike information	11/506,149	8/17/2006	1/11/2011
US7705769	System and method for presenting wind speed information	12/363,141	1/30/2009	4/27/2010
US8600678	System and method for presenting lightning strike information	12/961,090	12/6/2010	12/3/2013
US8223063	System and method for presenting wind speed information in a planar representation	12/767,467	4/26/2010	7/17/2012
US6339747	Weather tracking and display system and method	09/543,046	4/5/2000	1/15/2002

Patent Number	Title	App. Number	File Date	Issue Date
US7421344	System and method for presenting personalized weather information and the like	11/523,751	9/19/2006	9/2/2008
US6961061	Forecast weather video presentation system and method	10/126,446	4/19/2002	11/1/2005
US7250952	Forecast weather video presentation system and method	11/217,811	9/1/2005	7/31/2007
US9160938	System and method for generating three dimensional presentations	13/085,104	4/12/2011	10/13/2015
US6335765	Virtual presentation system and method	09/435,552	11/8/1999	1/1/2002
US6829536	System and method for processing weather information	09/952,409	9/12/2001	12/7/2004
US7800582	Scene launcher system and method for weather report presentations and the like	11/110,356	4/20/2005	9/21/2010
US8462108	Scene launcher system and method using geographically defined launch areas	12/393,232	2/26/2009	6/11/2013
US8669936	System and method for presenting a dynamically ordered presentation	12/872,518	8/31/2010	3/11/2014
US7421422	Method for graphical interaction with geographic databases for interactive broadcast presentation	10/406,695	4/3/2003	9/2/2008
US7529835	Website changes to scalability, capacity, server impact, bandwidth and end-user presentation based on a triggered event	10/742,962	12/22/2003	5/5/2009
US9680955	Persistent local caching of image data on a computing device	14/205,518	3/12/2014	6/13/2017
PENDING	On-demand weather forecast system and method	14/029,023		
US8665375	Apparatus and method for tracking the location of a	12/488,958	6/22/2009	3/4/2014

Patent Number	Title	App. Number	File Date	Issue Date
	pointing element in a cropped video field			
PENDING	System and method for updating live weather presentations	12/435,072	5/4/2009	N/A
PENDING	Comparative phrase engine for weather and climatology	14/288,513	5/28/2014	N/A
PENDING	Generating weather forecasts with human over-the-loop oversight	14/804,917	7/21/2015	N/A
US9846771	Low Latency, High Payload, High Volume API Gateway	14/661,338	3/18/2015	9/24/2015
US7685598	Desktop application framework	10/745,206	12/23/2003	3/23/2010
US8533723	Computing device application framework	12/708,016	2/18/2010	9/10/2013
US8250569	Systems and methods for selectively blocking application installation	12/772,293	5/3/2010	8/21/2012
US7739682	Systems and methods for selectively blocking application installation	11/088,473	3/24/2005	6/15/2010
US7752448	Domain-based application functionality	10/779,946	2/17/2004	7/6/2010
US8302211	Domain-based application functionality	12/772,298	5/3/2010	10/30/2012
PENDING	Storage utility network	14/539,223	11/12/2014	N/A

Patent Number	Title	App. Number	File Date	Issue Date
CA2766143	Apparatus and method for tracking the location of a pointing element in a cropped video field	2766143	6/22/2010	10/26/2017
CA2432487	System and Method for Providing Personalized Storm Warnings			
PENDING	Automated global weather notification system	EP15836368.9	8/25/2015	N/A
PENDING	Automated global weather notification system	CN 201580043289.8	8/25/2015	N/A
2001255353	System and Method for Providing Personalized Weather Reports and the Like	AU2001255353	4/12/2001	12/16/2004
PENDING	Comparative phrase engine for weather and climatology	EP 14803431	28-May-14	N/A
PENDING	Generating weather forecasts with human over-the-loop oversight	EP15823936	7/22/2015	N/A
PENDING	Generating weather forecasts with human over-the-loop oversight	CN 201580043741	7/22/2015	N/A
PENDING	Generating weather forecasts with human over-the-loop oversight	HK 17111594.8	7/22/2015	N/A
EP3120501	Low Latency, High Payload, High Volume API Gateway	157648544	3/18,2015	12/5/2018
GE3120501	Low Latency, High Payload, High Volume API Gateway	157648544	3/18,2015	12/5/2018
PENDING	Low Latency, High Payload, High Volume API Gateway	CN 2015800125565	3/18,2015	N/A

Patent Number	Title	App. Number	File Date	Issue Date
PENDING	Low Latency, High Payload, High Volume API Gateway	HK 17100740.4	3/18,2015	N/A
PENDING	Storage utility network	EP148622301	11/12/2014	N/A
PENDING	Storage utility network	DE112014005183	11/12/2014	N/A
PENDING	Storage utility network	GB 201609714	11/12/2014	N/A
PENDING	Storage utility network	CA2930542	11/12/2014	N/A
CN106104414 B	Storage utility network	CN 201480064163.4A	11/12/2014	5/21/2019
PENDING	Storage utility network	HK 17100739.7	1/20/2017	N/A
PENDING	Storage utility network	HK 16111722.4	11/12/2014	N/A
PENDING	Storage utility network	SG11201603684V	11/12/2014	N/A
EP1977406	Combined Personalized Traffic and Weather Report Alert System and Method			
EP1977406	Combined Personalized Traffic and Weather Report Alert System and Method	FR		
EP1977406	Combined Personalized Traffic and Weather Report Alert System and Method	DE602007025699.2		
EP1977406	Combined Personalized Traffic and Weather Report Alert System and Method	IT		
EP1977406	Combined Personalized Traffic and Weather Report Alert System and Method	ES2395841T3		
EP1977406	Combined Personalized Traffic and Weather Report Alert System and Method	UK		

Status	Title	App. Number
Abandoned / Expired	Targeted Information Content Delivery Using Combination of Environmental and Demographic Information	AU 2003279972 CA 2507686 EP 03773278 PCT/US03/32683 US 10/270,847 US 12/425,991
Abandoned / Expired	System and Method for Providing Personalized Weather Reports and the Like	EP1928504.8 MX PA02010045 CA2405406
Abandoned / Expired	Real-Time Transportation Alerts Based on the Expected Impact of a Weather Event on a Vehicle Transportation Plan	13/135,613
Abandoned / Expired	Weather information Delivery System and Method Providing Planning Functionality and Navigational Tools	12/253,487
Abandoned / Expired	Personal Weather Preference Profile	14/250,226
Abandoned / Expired	PERSISTENT LOCAL CACHING OF IMAGE DATA ON A COMPUTING DEVICE	15/585,287
Abandoned / Expired	LOW LATENCY, HIGH PAYLOAD, HIGH VOLUME API GATEWAY	15/842,944
Abandoned / Expired	Multimedia outdoor information system	08/403,481 US5654886
Abandoned / Expired	Method and apparatus for locating a pointing element within a digital image	10/959,596 US7170490
Abandoned / Expired	Thermal anemometer aircraft airspeed gust component transducer	09/085700 US6134958