



The Battle for the North American (US/Canada) Couch Potato: OTT, TV, Online

April 2018

This document contains valuable confidential information of
The Convergence Research Group Limited,
which is licensed for internal review only.

© 2018, The Convergence Research Group Limited.
All rights reserved.

CLIENT CONFIDENTIAL

www.convergenceonline.com

Contents

COMMENTARY..... 10

SECTION ONE: ACCELERATING US TV SUBSCRIBER DECLINE, CORD CUTTER/NEVER RISE, OTT PROLIFERATION, BROADBAND EXCEEDS TV PENETRATION... TV ACCESS, ADVERTISING, PROGRAMMING REVENUES LARGE & STILL GROWING BUT CRACKS STARTING TO SHOW..... 14

- Estimated US Households, TV Subscribers, OTT Subscriber Households, Cord Cutter / Never Households, Residential Internet Subscribers, 2016-202017
- Estimated US Broadcast & Cable Network TV Advertising Revenue, Online Broadcast / Cable Network TV Advertising Revenue, Online % of Total, 2016-202018
- Estimated Programming Sales by Cable Networks, Pay / PPV / VOD, Retransmission / Other to US Cable, Satellite, Telco TV Access Providers, 2016-201918
- Estimated Programming Expenditures by US Cable and Satellite / Telco TV Access Providers, 2016-2019.....19
- Estimated Programming Expenditures by AT&T / DirecTV, Charter, Comcast, Dish, 2016-201919
- Cord Cutter / Nevers: Accelerating20
 - US Cord Cutter / Never Household Model, 2008-202020
 - Estimated US TV Subscribers by Cable, Satellite, and Telco TV, 2016-202022
 - Estimated US TV Subscribers by Comcast, Charter, Cox, Altice, DirecTV, Dish, AT&T, Verizon, Frontier, CenturyLink Prism, 2016-202022
 - Estimated US TV Access Revenue by Cable, Satellite, Telco, and ARPU, 2016-202023
 - Estimated TV Access Revenue by Comcast, Charter, Cox, Altice, DirecTV, Dish, 2016-202023
 - Estimated US Residential Internet Subscribers by High Speed Cable, Telco, Other Broadband, as Percentage of US Residences, Total Revenue and ARPU, 2016-202024
 - Estimated US Residential High Speed Subscribers by Comcast, Charter, Cox, Altice, AT&T, Verizon, CenturyLink, Frontier, 2016-202024
 - Estimated Residential Internet Access Revenue by AT&T, Verizon, CenturyLink, Frontier, Comcast, Charter, Cox, Altice 2016-202025
- Bandwidth Caps / Overage Fees: TV / Internet Access Players' Potential Advantage26

**SECTION TWO: SIXTY OTT PROVIDERS AND COUNTING...
DISNEY, HBO, HULU'S GLOVES ARE OFF, AMAZON AND NETFLIX
STEP UP...WILL APPLE, DAZN, FACEBOOK OR GOOGLE BE NEXT?**
..... 28

Estimated US OTT Subscribers by Netflix, Amazon Prime, Hulu, CBS All Access, DirecTV Now, HBO Now / Cinemax, Layer3 TV, Philo, PS Vue, Showtime, Sling TV, Starz, YouTube, and ESPN+-Fox Soccer-FuboTV-Ice-MLB.TV-Motor Trend-MyOutdoorTV-NBA League Pass-NBC Sports Gold-NFL Game Pass-NHL.TV-PGA-WWE, and Acorn-Boomerang-BritBox-Cinedigm-Crunchyroll-CuriosityStream-Destination-DWTV-History-Hotstar-Noggin-Pongalo-Sundance-True Crime-Walter, and Brown Sugar-Fandor-Filmatique-FilmStruck-Hallmark-Lifetime-Pantaya-MUBI-Scream-Shudder-Tribeca-Urban Movie, 2016-202030

Estimated US OTT Access Revenue by Netflix, Amazon Prime, Hulu, CBS All Access, DirecTV Now, HBO Now / Cinemax, Layer3 TV, Philo, PS Vue, Showtime, Sling TV, Starz, YouTube, and ESPN+-Fox Soccer-FuboTV-Ice-MLB.TV-Motor Trend-MyOutdoorTV-NBA League Pass-NBC Sports Gold-NFL Game Pass-NHL.TV-PGA-WWE, and Acorn-Boomerang-BritBox-Cinedigm-Crunchyroll-CuriosityStream-Destination-DWTV-History-Hotstar-Noggin-Pongalo-Sundance-True Crime-Walter, and Brown Sugar-Fandor-Filmatique-FilmStruck-Hallmark-Lifetime-Pantaya-MUBI-Scream-Shudder-Tribeca-Urban Movie, 2016-202031

Estimated US OTT ARPU by Netflix, Amazon Prime, Hulu, CBS All Access, DirecTV Now, HBO Now / Cinemax, Layer3 TV, Philo, PS Vue, Showtime, Sling TV, Starz, YouTube, and ESPN+-Fox Soccer-FuboTV-Ice-MLB.TV-Motor Trend- MyOutdoorTV-NBA League Pass-NBC Sports Gold-NFL Game Pass-NHL.TV-PGA-WWE, and Acorn-Boomerang-BritBox-Cinedigm-Crunchyroll-CuriosityStream-Destination-DWTV-History-Hotstar-Noggin-Pongalo-Sundance-True Crime-Walter, and Brown Sugar-Fandor-Filmatique-FilmStruck-Hallmark-Lifetime-Pantaya-MUBI-Scream-Shudder-Tribeca-Urban Movie, 2016-202032

Estimated US OTT Access Revenue and Market Share by Independents, Programmers, TV Access Providers, 2016-202033

Estimated US OTT Subscriber Households, TV Subscribers, Household Penetration, ARPU Comparisons, 2016-202033

Estimated OTT Programming Expenditures by Amazon Prime Video, Hulu, Netflix, 2016-201834

Estimated Programming Expenditures by Netflix, TV Access Providers, and Per Subscriber Spend Netflix Versus TV Access Providers, 2016-201834

Estimated Netflix and TV Access Provider Content Costs as a Percentage of Revenue, 2016-201834

Estimated Average Hourly Cost of Viewing by US Cable/Satellite/Telco TV Access Provider, Apple iTunes, Amazon Prime, Hulu, Netflix.....35

Netflix’s Global Strategy: Programming & Marketing Spend, Originals, Library Losses, Disney Pivot, Price Rises, Low Operating Income Margin, US Subscriber Additions Still Strong, International Streaming Revenue to Surpass Domestic	36
Netflix Financial Model, 2012-2018.....	36
Estimated Netflix Content Obligations, 2015-2017.....	37
Estimated Netflix Subscribers by US (by Streaming, Streaming-Only, DVD, DVD-Only), Canada Streaming, International Streaming, 2016-2020.....	37
Amazon Prime Video: So Much Leverage But Will Amazon Truly Differentiate?	46
OTT Speculation: Apple, DAZN, Discovery-Scripps, Epix, Facebook, Fox, Google, T-Mobile, Time Warner, Viacom, Verizon	53
Broadcast/Cable Network OTT Programmers: Hulu and CBS All Access Step Up Their Offers...Enter Philo	61
OTT Channel Bundle: AT&T’s DirecTV Now, Dish’s Sling TV, Google’s YouTube TV, Sony PlayStation Vue, T-Mobile’s Layer3 TV	68
Pay-TV’s Direct to Consumer OTT Play: HBO Now, Cinemax, Showtime, Starz	75
Sports OTT: Disney’s ESPN+, Fox Soccer Match Pass, FuboTV, Ice Network, MLB.TV, Motor Trend OnDemand, MyOutdoorTV, NBA League Pass, NBC Sports Gold, NFL Game Pass, NHL.TV, PGA Tour Live, WWE Network...Enter Liberty Media’s Formula One, Turner’s Bleacher Report Live, and CBS	78
Niche TV OTT: A&E’s History Vault, AMC’s Acorn TV & Sundance Now, BBC/ITV’s BritBox, Channel 4’s Walter Presents, CuriosityStream, Cinedigm’s CONtv, Docurama & Dove, Comcast/NBCU’s DreamWorksTV, Discovery’s Destination Unknown & True Crime Files, Lionsgate’s Laugh Out Loud Network, Otter Media’s Crunchyroll, Pongalo, Time Warner’s Boomerang, 21 st Century Fox’s Hotstar, Viacom’s Noggin.....	85
Niche Movie OTT: A&E’s Lifetime Movie Club, AMC’s Shudder & Urban Movie Channel, Bounce TV’s Brown Sugar, Crown Media’s Hallmark Movie Now, Fandor, Filmatique, Lionsgate’s Tribeca Shortlist & Pantaya, MUBI, Screambox, Time Warner’s FilmStruck.....	89
Amazon, AMC, AT&T/DirecTV, Comcast/NBCU, Discovery, Disney, IAC, Lionsgate, NBCU, RTL, Scripps, Time Warner, 21 st Century Fox, Verizon, Vivendi’s Online/OTT Acquisitions/Investments	92
OTT From Movie/TV Rental & Sales Market Perspective	93
Estimated US Movie/TV Rental by OTT, Redbox Kiosk, Cable/Satellite/Telco VOD, Online Transactional, Store, Netflix Mail, and US Movie/TV DVD/Blu-ray/Download Sales (including by Download), and US Box Office, 2016-2020	93
Estimated OTT, Redbox Kiosk, Cable/Satellite/Telco VOD, Online Transactional, Store, Netflix Mail Market Share of US Movie/TV Rental Revenue, and Estimated Download Market Share of US Movie/TV DVD/Blu-ray/Download Sales Revenue (including by Download), 2016-2020	94

OTT Dominates Movie/TV Rentals...Kiosk and Cable/Satellite/ Telco TV VOD Revenue in Secular Decline, Online Transactional Modest Market Share, Store & Mail Fragments of Their Past...Movie/TV Download Sales Rise as Overall Sales Fall	95
---	----

**SECTION THREE: US TV AND ONLINE ADVERTISING, FREE &
AUTHENTICATED ONLINE BROADCAST, CABLE, PAY TV 97**

Estimated US Broadcast & Cable Network TV Advertising Revenue, Online Broadcast/Cable Network TV Advertising Revenue, Online % of Total, 2016-2020	98
Estimated US Online Advertising Market Revenue by Google, Facebook, Broadcast/Cable Network TV, Other, 2016-2020	99
Estimated US Online Advertising Market Share by Google, Facebook, Broadcast/Cable Network TV, Other, 2016-2020	99
Broadcast, Cable, Pay TV Online	100
Online Revenue and Viewing Methodology	100
Estimated Percentage of US Average Weekly Viewers That Watch Free Online Full Episodes by Broadcast Network, Cable Network, and Broadcast/Cable Network Viewership, 2016-2019	101
Estimated US Online TV Advertising Revenue by CBS, Disney/ABC, NBCUniversal, Scripps Networks, Time Warner, 21 st Century Fox, Viacom, 2016-2018	102
Estimated US DVR Subscribers by Cable, Satellite, Telco, and as Percentage of Total TV Subscribers, 2016-2020	103
Estimated DVR Subscribers and Penetration by Comcast, Cox, DirecTV, Dish, 2017 and 2018	103
Broadcast Network TV Online: Free Viewing Growth Flat, Some Authentication	104
Estimated Percentage of US Average Weekly Viewers That Watch Free Online Broadcast Full Episodes by ABC, CBS, Fox, NBC, 2016-2019	104
Cable Network TV Online: Limited Free Viewing & Offering Growth, Highly Authenticated.....	106
Estimated Percentage of US Average Weekly Viewers That Watch Free Cable Network Online Full Episodes by AETN, Disney, NBCUniversal, Scripps Networks, Time Warner, Viacom, 2016-2019	106
AETN, AMC, Discovery, Disney, NBCUniversal, Scripps Networks, Time Warner, 21 st Century Fox, Viacom Cable Network Authentication Deals by Altice, AT&T/DirecTV, Charter, Comcast, Cox, Dish, Verizon	108
Pay-TV Online: No Free, Highly Authenticated.....	109
Epix, HBO/Cinemax, Showtime, Starz Pay Authentication Deals by Altice, AT&T/DirecTV, Charter, Comcast, Cox, Dish, Verizon.....	109

SECTION FOUR: CANADIAN TV SUBSCRIBERS, ACCESS & ADVERTISING REVENUE DECLINE AS OTT & BROADBAND SUBSCRIBERS & REVENUE AND ONLINE ADVERTISING GROW...CANADIAN PROGRAMMERS & TV ACCESS PROVIDERS WILL ONLY SEE MORE COLLATERAL DAMAGE FROM GLOBAL OTT WAR 110

Estimated Canadian Households, TV Subscribers, OTT Subscriber Households, Cord Cutter/Never Households, Residential Internet Subscribers, 2016-2020115

Canadian Broadcast and Specialty/Pay Network TV Advertising Revenue, Online Broadcast/Specialty/Pay Advertising Revenue, Online % of Total, 2016-2020.....116

Estimated Programming Expenditure by Private Broadcasters, Percentage Non-Canadian, Specialty/Pay Networks Programming Expenditure, 2016-2018.....117

Estimated Canadian Cable, Satellite, Telco Programming Expenditures to Specialty Network and Pay/ PPV/VOD, 2016-2018117

Canadian Cord Cutter/Nevers: Set to Accelerate118

Canadian Cord Cutter/Never Household Model, 2010-2020118

Estimated Canadian TV Subscribers by Cable, Satellite, Telco, 2016-2020120

Estimated Canadian TV Subscribers by Bell (by Telco & Satellite), Cogeco, EastLink, MTS (just 2016), Rogers, SaskTel, Shaw (by Cable & Satellite), Telus, Videotron, 2016-2020.....120

Estimated Canadian TV Access Revenue by Cable, Satellite, Telco, and ARPU, 2016-2020121

Estimated TV Access Revenue by Bell Telco, Bell Satellite, Telus, Rogers, Shaw Cable, Shaw Direct, Videotron, Cogeco, EastLink, 2016-2020121

Estimated Canadian Residential Internet Subscribers by High Speed Cable, Telco, Other Broadband, as a Percentage of Canadian Residences, and Total Revenue and ARPU, 2016-2020.....122

Estimated Canadian Residential High Speed Subscribers by Rogers, Shaw, Videotron, Cogeco, Bell, MTS (just 2016), Telus, SaskTel, 2016-2020123

Estimated Residential Internet Access Revenue by Rogers, Shaw, Videotron, Cogeco, Bell, MTS (just 2016), SaskTel, Telus, 2016-2020 .123

Bandwidth Caps/Overage Fees: No Longer As Restrictive124

SECTION FIVE: TWENTY-FIVE OTT PROVIDERS IN CANADA AND COUNTING...CANADIAN REGULATIONS A FAUX PAS? NETFLIX JOINED BY AMAZON, AMC, CBS, DAZN, NBC, TURNER...ARE APPLE, DISCOVERY-SCRIPPS, DISNEY, FACEBOOK, OR GOOGLE NEXT? 126

The Canadian Regulatory Environment: Limits On Vertically Integrated Players’ Competitive Advantage130

Estimated Canadian OTT Subscribers, Access Revenue, ARPU by Netflix, CraveTV, Club illico, CBC, and BeIN Sports Connect Canada-DAZN-MyOutdoorTV-NBA League Pass-NBC Sports Gold-Sportsnet Now, and Adult Swim-BritBox-Crunchyroll-Fandor-Filmatique-History Vault-HortusTV-Hotstar-MUBI-OUTtvGO-Shudder-Sundance Now, 2016-2020.....	136
Estimated Canadian OTT Subscriber Households, TV Subscribers, Household Penetration, ARPU Comparisons, 2016-2020.....	137
Estimated Average Hourly Cost of Viewing by Canadian Cable/Satellite/Telco TV Access Provider, Apple iTunes, Netflix, CraveTV	138
Netflix in Canada: Library Grows, Penetration To Surpass the US in 2018, Forecasting Over \$1 Billion in Canadian Revenue in 2019.....	139
Netflix Financial Model, 2012-2018.....	139
Estimated Netflix Content Obligations, 2015-2017	140
Estimated Netflix Subscribers by US (by Streaming, Streaming-Only, DVD, DVD-Only), Canada Streaming, International Streaming, 2016-2020	140
Estimated Programming Expenditures by Netflix, TV Access Providers and Per Subscriber Netflix Versus TV Access Providers, 2016-2018 ..	141
Amazon Prime Video Canada: Library Lacking.....	149
Canadian OTT Speculation: Apple, CBS All Access & Showtime, Discovery-Scripps, Disney, Facebook, Google	154
Bell Media's CraveTV: Growth Due to Programing Slate and Packaging with Pay-TV Offer	163
Videotron's Club illico: Strong Library, Little Competition	165
CBC's CBC TV, CBC News Channel Live Stream & ICI Tou.TV: With the Launch of CBC TV is CBC Just Getting Started?	166
Canadian Sports OTT: BeIN Sports Connect Canada, DAZN, Kroenke's MyOutdoorTV, NBA League Pass, NBC Sports Gold, Rogers' Sportsnet Now	167
Canadian Niche OTT: AMC's Shudder and Sundance Now, BBC/ITV's BritBox, Corus' History Vault, Fandor, Filmatique, HortusTV, MUBI, Otter Media's Crunchyroll, OUTtvGO, Turner's Adult Swim, 21 st Century Fox's Hotstar.....	173
OTT From Movie/TV Rental & Sales Market Perspective.....	176
Estimated Canadian Movie/TV Rental by OTT, Cable/Satellite/Telco VOD, Online Transactional, Store, and Canadian Movie/TV DVD/Blu-ray/Download Sales (including by Download-Only), and Box Office, 2016-2020	176
Estimated OTT, Cable/Satellite/Telco VOD, Online Transactional, Store, Market Share of Canadian Movie/TV Rental Revenue, and Estimated Download Market Share of Canadian Movie/TV DVD/Blu-ray/Download Sales Revenue (including by Download-Only), 2016-2020.....	177

OTT Dominates Movie/TV Rentals, Cable/Satellite/ Telco TV VOD Growth
 Constrained, Online Transactional Modest Market Share, Store Shell of its
 Past... Movie/TV Download Sales Rise as Overall Sales Fall178

**SECTION SIX: CANADIAN TV AND ONLINE ADVERTISING, FREE
 & AUTHENTICATED ONLINE BROADCAST, SPECIALTY, PAY TV
 179**

Estimated Canadian Online Advertising Market Revenue 2016-2020,
 and by Google, Facebook, Yellow Media, Broadcast/Specialty/Pay,
 Other, 2016-2018179

Estimated Canadian Online Advertising Market Share by Google,
 Facebook, Yellow Media, Broadcast/Specialty/Pay, Other, 2016-2018
179

Estimated 2017 Average Monthly Unique Users of Leading Canadian
 Websites180

Canadian Broadcast and Specialty/Pay Network TV Advertising
 Revenue, Online Broadcast/Specialty/Pay Advertising Revenue,
 Online % of Total, 2016-2020.....181

Estimated Canadian, Non-Canadian, and Total Programming
 Expenditure by Private Broadcasters, & Total Programming
 Expenditure by Specialty/Pay Networks, 2016-2018182

Estimated Canadian Cable, Satellite, Telco Programming Expenditures
 to Specialty Network and Pay/ PPV/VOD, 2016-2018182

Canadian Advertising: Traditional Broadcast Weak, Specialty/Pay Moderate
 Growth, Online TV Advertising Small But Growing, Online Advertising More
 Than Double TV Advertising183

Broadcast, Specialty, Pay TV Online184

Online Revenue and Viewing Methodology184

Estimated Percentage of Average Canadian Weekly Viewers That
 Watch Free Online Full Episodes by Broadcast Network, Specialty
 Network, and Broadcast/Specialty Network Viewership, 2016-2019 185

Estimated Canadian PVR Subscribers by Cable, Satellite, Telco, and as
 Percentage of Total TV Subs, 2016-2020.....186

Estimated PVR Subscribers and Penetration by Bell Satellite TV, Bell
 Telco TV, Rogers, Shaw Cable, Telus, Videotron, 2017 and 2018186

Broadcast Network Online TV: Much Free, Limited Viewing Growth, Smaller
 Advertising Loads, Authentication187

Estimated Percentage of Average Canadian Weekly Viewers That
 Watch Free Online Broadcast Full Episodes by CBC, City, CTV, Global,
 TVA, 2016-2019187

CBC, City, CTV, Global, TVA, V Authenticated Access by Bell, Cogeco,
 EastLink, Rogers, SaskTel, Shaw, Telus, Videotron188

Specialty Network Online TV: Limited Free Shows & Viewing Growth, Ad
 Loads, Authentication.....189

Estimated Percentage of Average Canadian Weekly Viewers That
 Watch Free Online Specialty Full Episodes at Bell Media and Corus
 Websites, 2016-2019.....189

AETN’s A&E, AMC Networks’ AMC, Bell Media’s Bravo, Canal Vie, Discovery, MTV, Space, TSN, Vrak, Corus’ ABC Spark, Cartoon, Disney Channel, DIY, Food, HGTV, History, Lifetime, Nickelodeon, OWN, Showcase, Slice, Teletoon, Treehouse, W, YTV, Rogers’ FX, Sportsnet, TVA Group’s Addik, Casa, Yoopa Authenticated Access by Bell, Cogeco, EastLink, Rogers, SaskTel, Shaw, Telus, Videotron	191
Pay-TV Online: Highly Authenticated	192
Bell Media’s HBO, The Movie Network, Super Ecran, and Allarco’s Super Channel Authenticated Access by Bell, Cogeco, EastLink, Rogers, SaskTel, Shaw, Telus, Videotron.....	192
SECTION SEVEN: PROFILES	193
US PROFILES.....	194
A&E Networks.....	195
Amazon Prime	196
AMC Networks.....	203
AT&T/DirecTV Now	205
CBS.....	207
Comcast/NBCUniversal	210
Dish/Sling TV	212
Google/YouTube.....	214
Hulu.....	216
Lionsgate/Starz	220
Netflix.....	222
Scripps Networks Interactive	231
Sony	232
Time Warner.....	234
21 st Century Fox	237
Viacom	239
Walt Disney	240
CANADIAN PROFILES.....	244
Amazon Prime Canada.....	245
Bell/Bell Media	250
CBC.....	254
Corus Entertainment.....	256
DAZN Canada	258
Netflix Canada	261
Quebecor.....	268
Rogers.....	270

Commentary

Now in its 12th year of publication, **The Battle for the North American (US/Canada) Couch Potato: OTT, TV, Online** (271 pages) contains detailed analysis by **Company & Market**. In addition to Convergence analysis, sources include company interviews, annual/quarterly reports & presentations, CRTC, Statistics Canada, US Census.

US Commentary (Canadian Commentary follows), please see Table of Contents for what is included in this Report:

The gloves are off. The TV-Movie Industry is being reconstructed from the inside and by the outside, as programmers now directly compete against their traditional TV access and independent OTT buyers that rival in terms of content spend. Amazon, Apple, DAZN, Facebook, Google and Netflix all have the money muscle to finance their own productions or outbid on programming including major sporting franchises. We expect especially for the US market going forward fewer content deals between programmers and independent OTT providers: 2017 saw Disney choose not to renew with Netflix and embrace OTT, HBO not renew with Amazon in the US, Hulu (which is spending more on content on a per US subscriber basis than Amazon or Netflix) continue to bolster its offerings & more directly compete against TV access providers, and A+E, AMC, Discovery, Scripps back & supply Philo.

The traditional TV ecosystem does not show decline 'yet' except for TV subscribers. TV access players continue to raise prices (ARPU is growing but we forecast TV access revenue decline going forward), and programmers have kept up increases in programming fees & advertising rates but this architecture can not last in the long-run: TV access providers OTT offers (and skinny TV offers) add subscribers but at far lower ARPU, while large independent OTT providers, which also sell at low price points and often without advertising, have heavily boosted their own production for a number of reasons, including reducing their reliance on programmers. Programmers have read the writing on the wall and have already gone, or are in process of going direct to consumer, again at competitive price points.

We estimate US OTT access revenue (based on 55 OTT providers led by Netflix) grew 41% to \$11.9 billion in 2017, forecast \$16.6 billion for 2018, and \$27.6 billion for 2020. We estimate Independents, Programmers, TV Access Providers represented 64%, 29%, 7% of US OTT access revenue respectively in 2017 and forecast 54%, 34%, 12% for 2020.

We estimate 2017 US Cable, Satellite, Telco TV access (not including OTT) revenue grew 1% to \$107.6 billion (\$94.30/mo. ARPU), and forecast \$107.4 billion (97.90/mo. ARPU) for 2018.

We forecast US OTT subscriber households will far surpass TV subscribers in 2020, however US TV subscriber ARPU will be 4 times US OTT subscriber household ARPU down from 6 times in 2017.

We estimate 2017 saw a decline of 3.66 million US TV subscribers, 2016 a decline of 2.2 million, and we forecast a decline of 3.72 million TV subs for 2018; hence the US TV sub base is declining in the 4% / annum range.

As illustrated in our US Cord Cutter / Never Household Model, 2010 saw the start of the rise in cord cutter / never households. As of YE2017 we estimate 32.13 million US households (26.1% of HHs) did not have a traditional TV subscription with a Cable, Satellite, or Telco TV access provider, up from 27.56 million (22.6% of HHs) YE2016, and we forecast 36.76 million (29.6% of HHs) YE2018. 2016 saw 3.16 million, 2017 4.57 million, and we forecast 4.63 million 2018 cord cutter / never household additions.

2017 saw US residential broadband subscribers surpass US TV subscribers growing to 96.95 million. We estimate 2.33 million US residential broadband subs were added in 2017 (2.66 million in 2016) and revenue grew 7% to \$56.8 million; we forecast 2.57 million additions and 6% growth to \$60.5 billion for 2018.

We estimate Broadcast & Cable Network Online TV advertising represented 5.2% of 2017 US TV advertising revenue, we forecast 5.6% for 2018.

We estimate OTT will represent 90% of US movie / TV rental revenue in 2020, while download movie / TV sales will represent almost half of US DVD / Blu-ray / download movie / TV sales.

Canadian Commentary, please see Table of Contents for what is included in this Report:

Although there are less than half the OTT plays in Canada as there are in the US, Canada is far from immune from the global OTT war being waged by large American programmers and independent OTT providers. Going forward if Amazon, DAZN, and Netflix (not to mention the possibility of Apple, Facebook or Google entering the Canadian market) are willing to spend heavily on programming, there may be room for them to outbid Bell Media, Corus or Rogers in obtaining programming despite not having a traditional TV platform. Even if Amazon, DAZN, or Netflix are not successful, this dynamic can only benefit US (and other) programmers in terms of upping prices on deals with Canadian players.

Further, with CBS All Access entering the Canadian market (and Disney OTT perhaps entering in the near future), CBS functions as both supplier and competitor to Canadian programmers/TV access providers, the question also becomes how much CBS content will Canadian programmers/TV access providers, Amazon, or Netflix be able to obtain? CBS All Access being in Canada gives CBS more leverage in negotiating with Canadian programmers, as well as Amazon & Netflix- especially when it comes to original content.

On the one hand US programmers do not want Canadian programmers/TV access providers to sink too quickly given the revenue that comes from programming sales to them, on the other there is a direct to consumer opportunity as well as an opportunity to sell to Amazon, Netflix, etc.

In the end it comes down to maximizing revenue/margin. HBO, Showtime & Starz chose not to go direct instead making deals with Bell Media.

We estimate Canadian OTT access revenue (based on 24 OTT providers led by Netflix, we have not assigned revenue to Amazon Prime which did not increase price with the recent addition of video in Canada) grew 29% to \$872 million in 2017, and forecast \$1.11 billion for 2018, and \$1.58 billion for 2020. We forecast in 2020 there will be more OTT subscriber households than TV subscribers in Canada.

We estimate 2017 Canadian Cable, Telco Satellite TV access (not including OTT) revenue declined 2% to \$8.74 billion & forecast a 1% decline to \$8.64 billion for 2018.

We estimate 2017 saw a decline of 216,000 Canadian TV subscribers, 2016 a decline of 225,000 TV subscribers, and we forecast a decline of 267,000 for 2018. Canada's TV subscriber base declined by 1.9% / annum 2016-2017, we forecast 2.6% / annum on average 2018-2020. Telco TV additions have started to mature (Cable & Satellite have not added subscribers since 2010), we forecast 2018-2020 will see fewer Telco TV additions accelerating Canadian TV subscriber declines and cord cutter / never household additions.

As illustrated in our Canadian Cord Cutter / Never Household Model, 2012 saw the start of the rise in cord cutter / never households. As of YE2017 we estimate 4.14 million Canadian households (28.1% of HHs) did not have a traditional TV subscription with a Cable, Satellite, or Telco TV access provider, up from 3.78 million (25.9% of HHs) YE2016, and forecast 4.55 million (30.5% of HHs) YE2018. 2016 saw 366,000, 2017 357,000 and we forecast 406,000 2018 cord cutter / never household additions.

2017 Canadian residential broadband subscriber additions were we estimate 422,000 (the largest annual additions since 2009) & revenue grew 8% to \$8.06 billion; we forecast 370,000 and \$8.7 billion for 2018- exceeding 2018 Canadian TV access revenue. Canadian residential broadband subscribers surpassed Canadian TV subs in 2015.

We estimate Broadcast, Specialty & Pay Network Online TV advertising represented 5.6% of 2017 Canadian TV advertising revenue, and forecast 6.3% for 2018.

We estimate OTT will represent 83% of Canadian movie / TV rental revenue in 2020, while download movie / TV sales will represent almost half of Canadian DVD / Blu-ray / download movie / TV sales.