



The Battle for the North American (US/Canada) Couch Potato: Bundling, Television Internet, Telephone, Wireless

April 2019

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

© 2019, The Convergence Research Group Limited.
All rights reserved.

CLIENT CONFIDENTIAL

www.convergenceonline.com

Contents

-1
- COMMENTARY.....9**
- SECTION ONE: US TV MARKET BATTLE..... 12**
- Estimated US Total TV Subscribers by Cable, Satellite, Telco, 2017-202112
- US Cable Versus Satellite Versus Telco Subscribers: Estimated TV Market Share, 2017-202112
- Estimated US Cable, Satellite, Telco TV Net Subscriber Additions and Growth, 2017-202113
- Estimated US TV Subscribers by Comcast, Charter, Cox, Altice, DirecTV, Dish, AT&T, Verizon, Frontier, 2017-202113
- Estimated TV Subscribers by Mediacom, Wow, Cable One, Atlantic Broadband, 2017-201914
- Estimated US TV Access Revenue by Cable, Satellite, Telco, and ARPU, 2017-202114
- Estimated TV Access Revenue by Comcast, Charter, Cox, Altice, DirecTV, Dish, 2017-202115
- Estimated TV ARPU by Comcast, Charter, Cox, Altice, DirecTV, Dish, 2017-2021.....15
- Cord Cutter/Never Households: Accelerating.....16
- US Cord Cutter/Never Household Model, 2008-202116
- Comparing DirecTV & Dish: Subscriber Trajectories, TV Package Prices, Rate Increases.....18
- Cable TV: Subscriber Loss Uptick Moderated by Strong Broadband Additions20
- Comcast, Charter, Cox, Altice: Subscriber Trajectories, Rate Increases, TV Package Prices, Bundles21
- AT&T, Verizon, Frontier’s TV & Broadband Network Strategies, Offers, Pricing23
- Estimated Total US Telco TV Subscribers Broken Out by AT&T, Verizon, Frontier, Other, 2017-202123
- Estimated US Telco TV Subscribers by Cincinnati, TDS, Consolidated, 2017-2019.....23
- AT&T: U-verse Network & Subscriber Metrics, DSL Cannibalization, DirecTV, Review of TV, Internet, Telephone Prices and Packages.....24
- Frontier: Network & Subscriber Metrics, Review of TV, Internet, Telephone Prices and Packages, Dish26
- Verizon: Fios Network & Subscriber Metrics, DSL Cannibalization, Review of TV, Internet, Telephone Prices and Packages28
- Authentication, VOD, DVR and HD30
- Cable, Satellite, Telco TV Access Providers Authenticated Offerings.....30
- Cable/Satellite/Telco VOD: Growth Constrained.....31

Estimated US Cable/Satellite/Telco TV VOD Revenue, 2017-2021	31
Satellite, Cable, Telco DVR: Penetration Continues to Rise as Subscribers Decline...Pricing by Provider	32
Estimated US DVR Subscribers by Cable, Satellite, Telco, and as Percentage of Total TV Subscribers, 2017-2021	32
Estimated US DVR Penetration by Cable, Satellite, Telco, 2017-2021 ..	32
Estimated DVR Subscribers and Penetration by Comcast, Cox, DirecTV, Dish, 2018 and 2019	32
Satellite, Cable, Telco HD: Penetration Continues to Rise as Subscribers Decline...Pricing & Channel Count by Provider	34
Estimated US HD Subscribers by Cable, Satellite, Telco, and as Percentage of Total TV Subscribers, 2017-2021	34
Estimated US HD TV Penetration by Cable, Satellite, Telco, 2017-2021	34
Estimated HD Subscribers and Penetration by Comcast, Cox, DirecTV, Dish, 2018 and 2019	34

SECTION TWO: US INTERNET ACCESS MARKET BATTLE36

Estimated US Residential Internet Subscribers by Cable, Telco, Other Broadband, and as Percentage of US Residences, 2017-2021	36
US Residential Cable Versus Telco Versus Other Broadband Subscribers: Estimated Market Share, 2017-2021	37
US Residential Cable Versus Telco Internet Subscribers: Estimated Market Share, 2017-2021	37
Estimated US Cable, Telco, Other Net Internet Subscriber Additions and Growth, 2017-2021	38
Estimated Share of US Internet Subscriber Additions by Cable, Telco, Other 2017-2021	38
Estimated Residential Internet Subscribers by Comcast, Charter, Cox, Altice, AT&T, Verizon, CenturyLink, Frontier, 2017-2021	39
Estimated Residential Internet Subscribers by Mediacom, Wow, Cable One, Atlantic Broadband, 2017-2019	40
Estimated Residential Internet Subscribers by Windstream, Consolidated, TDS, Cincinnati 2017-2019	40
Estimated AT&T, CenturyLink, Frontier, Verizon, Comcast, Charter, Cox, Non-Residential Internet Subscribers, 2017-2019	41
Estimated US Residential Internet Access Revenue by Total Internet, Cable, Telco, Other Broadband, and ARPU, 2017-2021	42
Estimated Residential Internet Access Revenue by AT&T, CenturyLink, Frontier, Verizon, Charter, Comcast, Cox, Altice, 2017-2021	42
Estimated Residential Internet Access ARPU by AT&T, CenturyLink, Frontier, Verizon, Charter, Comcast, Cox, Altice, 2017-2021	43
AT&T, CenturyLink, Frontier, Verizon: Prices, Speeds, Caps/Overage, Bundle Offers, Network & Subscriber Trajectories	45
Altice, Charter, Comcast, Cox: Prices, Speeds, Caps/Overage, Bundle Offers, Network & Subscriber Trajectories	49

SECTION THREE: US WIRELINE TELEPHONE BATTLE.....53

Estimated US Wireline Cable Telephone, Residential Cable Telephone, Residential Telco, Total Residential Telephone Subscribers, Cable Residential Telephone Market Share, 2017-202153

Estimated Wireline Telephone Subscribers by Comcast, Charter, Cox, Altice, 2017-202153

Estimated US Wireline Residential Telephone Lines and Line Loss by AT&T, Verizon, CenturyLink, Frontier, Total Telco (includes Other), 2017-2021.....54

Estimated Residential Wireline Telephone Lines by Windstream, Consolidated, TDS, Cincinnati, 2017-2019.....55

Estimated Wireline Telephone Subscribers by Mediacom, Wow, Cable One, Atlantic Broadband, 2017-201955

Estimated US Wireless-Only Household Penetration, 2017-202156

Telco Residential Telephone Line Loss, Cable Telephone Additions Decline But Market Share Gains Continue, Wireless-Only Household Penetration Growth57

AT&T, CenturyLink, Frontier, Verizon’s Residential Telephone Offers & Pricing, Subscriber Trajectories.....58

Altice, Charter, Comcast, Cox, Residential Telephone Offers & Pricing, Subscriber Trajectories60

SECTION FOUR: US WIRELESS TELEPHONE BATTLE..... 61

Estimated US Wireless Subscribers, Net Additions, Subscriber Growth, Population, Penetration of Population, 2017-201961

Estimated Wireless Subscribers by AT&T, Sprint, T-Mobile, Verizon, 2017-2019.....62

Estimated Wireless Subscriber Market Share by AT&T, Sprint, T-Mobile, Verizon, 2017-201962

Estimated Wireless Service Revenue by AT&T, Sprint, T-Mobile, Verizon, 2017-201963

Estimated Wireless Service ARPU by AT&T, Sprint, T-Mobile, Verizon, and Total Weighted Average ARPU, 2017-201963

Estimated Wireless Operating Margins by AT&T, Sprint, T-Mobile, Verizon, 2017-201963

Estimated Churn by AT&T, Sprint, T-Mobile, Verizon, 2017 and 201864

Estimated Smartphone Penetration of Retail Postpaid Subscribers by AT&T, Sprint and Verizon, 2017-2020.....64

Estimated US Wireless-Only Household Penetration, 2017-202165

AT&T, Verizon, T-Mobile, Sprint: Offers & Pricing ...Enter Cable66

AT&T, Verizon, T-Mobile, Sprint Financial, Subscriber, Spectrum Status69

SECTION FIVE: CANADIAN TV MARKET BATTLE 73

Estimated Canadian Total TV Subscribers by Cable, Satellite, Telco, 2017-2021.....73

Canadian Cable Versus Satellite Versus Telco Subscribers: Estimated TV Market Share, 2017-2021	73
Estimated Canadian Cable, Satellite, and Telco TV Net Subscriber Additions and Growth, 2017-2021	74
Estimated Canadian TV Subscribers by Bell (by Telco & Satellite), Cogeco, EastLink, Rogers, SaskTel, Shaw (by Cable & Satellite), Telus, Videotron, 2017-2021.....	74
Estimated Canadian TV Access Revenue by Cable, Satellite, Telco, and ARPU, 2017-2021	75
Estimated TV Access Revenue by Bell Telco, Bell Satellite, Telus, Rogers, Shaw Cable, Shaw Direct, Videotron, Cogeco, EastLink, 2017-2021	75
Estimated TV ARPU by Bell Telco, Bell Satellite, Telus, Rogers, Shaw Cable, Shaw Direct, Videotron, Cogeco, EastLink, 2017-2021	76
Canadian Cord Cutter/Nevers: Set to Accelerate	77
Canadian Cord Cutter/Never Household Model, 2010-2021	77
The Canadian Regulatory Environment: Limits On Vertically Integrated Players' Competitive Advantage	79
Bell Satellite TV & Shaw Direct: Subscriber Declines, High ARPU, Offers, Rate Increases.....	85
Canadian Cable TV: Annual Cable TV Subscriber Losses Will Continue Even as Telco TV Additions Mature.....	87
Rogers, Shaw, Videotron, Cogeco, EastLink: Subscriber Trajectories, Rate Increases, Offers.....	88
Canadian Telco TV: Bell, SaskTel, Telus	91
Estimated Total Canadian Telco TV Subscribers Broken Out by Bell, SaskTel, Telus, Other, 2017-2021	91
Bell Fibe: TV & Internet Gains, FTTP Expansion, Ontario, Quebec, Atlantic, MB Offers, Rate Increases.....	92
SaskTel TV: Moderate Gains, FTTP Expansion, Offers.....	95
Telus TV: TV & Internet Subscriber Gains, Moderate Residential NAS Losses, FTTP Expansion, Offers.....	96
Canadian Authentication, VOD, PVR and HD	98
Cable, Satellite, Telco TV Access Providers Authenticated Offerings.....	98
Canadian Cable/Satellite/Telco TV VOD: Growth Constrained	100
Estimated Canadian Cable/Satellite/Telco TV VOD Revenue, 2017-2021	100
Canadian PVR: Penetration Rising, Subscribers to Decline...Pricing by Provider	101
Estimated Canadian PVR Subscribers by Cable, Satellite, Telco, and as Percentage of Total TV Subs, 2017-2021.....	101
Estimated Canadian PVR Penetration by Cable, Satellite, Telco, 2017-2021	101
Estimated PVR Subscribers and Penetration by Bell Satellite TV, Bell Telco TV, Rogers, Shaw Cable, Shaw Direct, Telus, Videotron, 2018 and 2019	101

Canadian HD: Penetration Rising, Subscribers to Decline...Pricing & Channel Count by Provider	104
Estimated Canadian HD TV Subscribers by Cable, Satellite, Telco, and as Percentage of Total TV Subscribers, 2017-2021	104
Estimated Canadian HD TV Penetration by Cable, Satellite, Telco, 2017-2021.....	104
Estimated HD TV Subscribers and Penetration by Bell Satellite TV, Bell Telco TV, Rogers, Shaw Cable, Shaw Direct, Telus, 2018 & 2019.....	104

SECTION SIX: CANADIAN INTERNET ACCESS BATTLE 107

Estimated Canadian Residential Internet Subscribers by Cable, Telco, Other Broadband, and as Percentage of Canadian Residences, 2017-2021	107
Canadian Residential Cable Versus Telco Versus Other Broadband Subscribers: Estimated Market Share, 2017-2021	108
Canadian Residential Cable Versus Telco Internet Subscribers: Estimated Market Share, 2017-2021	108
Estimated Canadian Residential Cable, Telco, Other, and Total Internet Subscriber Additions and Growth, 2017-2021.....	109
Estimated Share of Canadian Residential Internet Subscriber Additions by Cable, Telco, Other, 2017-2021	109
Estimated Residential Internet Subscribers by Rogers, Shaw, Videotron, Cogeco, Bell, Telus, SaskTel, 2017-2021.....	110
Estimated Non-Residential Internet Subscribers by Bell, SaskTel, Telus, Cogeco, Rogers, Shaw, Videotron, 2017-2019	110
Estimated Canadian Residential Internet Access Revenue by Total Internet, Cable, Telco, Other Broadband, and ARPU, 2017-2021	111
Estimated Residential Internet Access Revenue by Rogers, Shaw, Videotron, Cogeco, Bell, SaskTel, Telus, 2017-2021.....	111
Canadian Cable Versus Telco Broadband: Telco Annual Residential Broadband Additions Exceeding Cable...Residential Broadband Revenue Tops TV Revenue	112
Bell (Ontario, Quebec, Atlantic, MB), Telus, SaskTel: Prices, Speeds, Caps/Overage, Bundle Offers, Network & Subscriber Trajectory	114
Rogers (Ontario, Atlantic), Shaw, Videotron, Cogeco, EastLink: Prices, Speeds, Caps/Overage, Bundle Offers, Network & Subscriber Trajectory	118

SECTION SEVEN: CANADIAN WIRELINE TELEPHONE BATTLE .. 123

Estimated Wireline Canadian Cable Telephone, Residential Cable Telephone, Residential Telco, Total Residential Telephone Subscribers, Cable Residential Telephone Market Share, 2017-2021	123
Estimated Canadian Residential Wireline Telephone Line Loss by Cable, Telco, Total, 2017-2021	123
Estimated Wireline Telephone Subscribers by Cogeco, Rogers, Shaw, Videotron, Other Cable, and Percentage Loss/Gain, 2017-2021	124
Estimated Wireline Canadian Residential Telephone Lines and Line Loss by Bell, SaskTel, Telus, Other Telco, and Percentage Loss, 2017-2021	124

Estimated Canadian Wireless-Only Household Penetration, 2017-2021	125
Canadian Residential Wireline Telephone: Cable & Telco Line Loss, Cable Market Share Gain, Wireless Substitution Progresses... More Than Half of Canadian Homes Wireless-Only in 2020	126
Rogers (Ontario, Atlantic), Shaw, Videotron, Cogeco, EastLink: Offers/Prices, Subscriber Trajectories.....	127
Bell (Ontario, Quebec, Atlantic, MB), Telus, SaskTel: Offers/Prices, Subscriber Trajectories	131
SECTION EIGHT: CANADIAN WIRELESS TELEPHONE BATTLE... 135	
Estimated Canadian Wireless Subscribers, Net Additions, Subscriber Growth, Population, Penetration of Population, 2017-2021.....	135
Estimated Wireless Subscribers and Market Share by Bell, Rogers, SaskTel, Telus, EastLink, Shaw, Videotron, and by Incumbents, New Entrants, Total, 2017-2021	136
Estimated Net Subscriber Additions by Bell, Rogers, SaskTel, Telus, EastLink, Shaw, Videotron, 2017-2021	136
Estimated Bell, Rogers, Telus, Shaw Subscribers by Postpaid and Prepaid, 2017-2021.....	137
Estimated Service Revenue and Share of Total Service Revenue by Bell, Rogers, SaskTel, Telus, EastLink, Shaw, Videotron, 2017-2021.....	138
Estimated Equipment Revenue by Bell, Rogers, Telus, EastLink, Shaw, Videotron, 2017-2021.....	138
Estimated ARPU by EastLink, Shaw, Videotron, Total Weighted Average by New Entrants, Incumbents, and Incumbents/New Entrants, and Growth Rates, 2017-2021	139
Estimated ARPU by Bell, Rogers, Telus, SaskTel, and Total Weighted Average, 2017-2021.....	139
Estimated EBITDA and EBITDA Margin as % of Service Revenue, by Bell, Rogers, Telus, Shaw, Videotron, 2017-2021	140
Estimated Churn (Blended), by Bell, Rogers, Telus, 2017-2021	140
Estimated Canadian Wireless Subscriber Smartphone Penetration, 2017-2021, and Estimated Smartphone Penetration by Bell, Rogers, Telus, 2017-2019.....	140
Estimated Canadian Wireless-Only Household Penetration, 2017-2021	141
Wireless Pricing by Player & Region: Bell, Rogers, Telus, MTS, SaskTel, Lucky, Virgin, Fido, Chatr, Koodo, Public, EastLink, Shaw, Videotron	142
New Entrant & Incumbent Dynamics: Auctions, Freedom's Potential, Bell's Lucky Goes National, Videotron's Fizz, CRTC Review	151
Auction Results: 2019 600 MHz, 2015 2500 MHz, 2015 AWS-3, 2014 700 MHz	154
600 MHz 2019 Auction License Winners, # of Licenses Won, Price, Population Covered	154
2500 MHz 2015 Auction License Winners, # of Licenses Won, Price, Population Covered, and 2018 Residual Winners.....	155

AWS-3 2015 Auction License Winners, # of Licenses Won, Price, Population Covered	156
Results of 2015 AWS-3 Auction by Bidder, Service Area & Block	157
700 MHz 2014 Auction License Winners, # of Licenses Won, Price, Population Covered	158
Results of 700 MHz 2014 Auction by Bidder, Service Area & Block ..	158
SECTION NINE: PROFILES	159
US PROFILES.....	160
Altice USA	161
AT&T Inc./DirecTV	163
CenturyLink Inc.....	167
Charter Communications Inc.....	168
Comcast Corp.....	170
Cox Communications	172
Dish Communications Corp.	174
Frontier Communications Corp.	175
Sprint Corp.	177
T-Mobile US Inc.	178
Verizon Communications Inc.....	180
CANADIAN PROFILES.....	183
BCE Inc./Bell Canada/Bell Aliant/Bell MTS	184
Cogeco.....	191
EastLink	193
Rogers Communications Inc.....	195
Saskatchewan Telecommunications	199
Shaw Communications Inc./Shaw Direct/Freedom Mobile.....	201
Telus Corp.	206
Videotron/Quebecor Inc.....	210

Commentary

Now in its 17th year of publication, **The Battle for the North American (US/Canada) Couch Potato: Bundling, TV, Internet, Telephone, Wireless** (212 pages) contains analysis of product offers (including prices), strategy, and subscriber/financial performance metrics (including forecasts) **by Company & Market**. In addition to Convergence analysis, sources include company interviews, annual/quarterly reports & presentations, CRTC, Innovation & Statistics Canada, US Census.

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

We estimate 2018 US Cable, Satellite, Telco TV access (not including OTT) revenue declined 3% to \$103.4 billion and forecast \$X billion (hence ARPU should grow X%) for 2019 & \$X billion for 2021. We forecast Cable, Satellite, Telco will have X%, X%, X% of US TV subscribers YE2019. We estimate X% DVR and X% HD penetration YE2019.

We estimate 2018 saw a decline of 4.013 million US TV subscribers, 2017 a decline of 3.661 million, and we forecast a decline of X million TV subs for 2019 and X million for 2021; hence the US TV subscriber base will decline X% in 2019, up from X% in 2018, we forecast X% on average for 2020-2021.

As illustrated in our US Cord Cutter/Never Household Model, 2010 saw the start of the rise in cord cutter/never households. As of YE2018 we estimate X million US households (30% of HHs) did not have a traditional TV subscription with a Cable, Satellite, or Telco TV access provider, up from X million (26.2% of HHs) YE2017, and we forecast X million (X% of HHs) YE2019, and X million (X% of HHs) YE2021. 2017 saw 4.57 million, 2018 4.92 million, and we forecast X million 2019 and X million 2021 cord cutter/never household additions.

We estimate 2.85 million US residential broadband subscribers were added in 2018 and revenue grew 7% to \$61.6 billion; we forecast X million additions and \$X billion for 2019, and X million residential subscriber additions in both 2020 & 2021. Residential broadband subs first surpassed TV subs in 2017.

Cable continues to add the lion's share of residential broadband subs (Telco has lost residential broadband subs every year since 2015). CenturyLink & Frontier were responsible for the majority of 2018 Telco broadband losses; we forecast they will contribute the majority of losses in 2019 as well.

2018 Telco US residential wireline telephone line loss was we estimate X%; we forecast X% losses / annum through 2021. We estimate wireless-only households at X% YE2018 and forecast X% YE2019 and X% YE2021. We project Cable will represent X% of US residential wireline telephone subs YE2020.

2018 saw the four largest carriers add 20 million US wireless subscribers and we forecast X million for 2019. 2018 saw further declines in weighted US wireless service ARPU and a small decline in wireless service revenue; we forecast a similar ARPU decline and flat service revenue growth for 2019.

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

We estimate 2018 Canadian Cable, Telco Satellite TV access (not including OTT) revenue declined 2% to \$8.58 billion & forecast \$X billion (hence ARPU should grow X%) for 2019 and \$X billion for 2021. We forecast Cable, Telco, Satellite will have X%, X%, X% of Canadian TV subs YE2019. We estimate X% DVR and X% HD penetration YE2019.

We estimate 2018 saw a decline of 204,000 Canadian TV subscribers, 2017 a decline of 210,000 TV subscribers, and we forecast a decline of X for 2019 and X for 2021. Canada's TV subscriber base has been declining by 2% / annum since 2015, we forecast X% / annum for 2020-2021. We forecast the TV subscriber decline acceleration will come from less Telco additions (Cable & Satellite have not added TV subs since 2010).

As illustrated in our Canadian Cord Cutter/ Never Household Model, 2012 saw the start of the rise in cord cutter/ never households. As of YE2018 we estimate X million Canadian households (30% of HHs) did not have a traditional TV subscription with a Cable, Satellite, or Telco TV access provider, up from X million (27.9% of HHs) YE2017, and forecast X million (X% of HHs) YE2019 and X million (X% of HHs) YE2021. 2017 saw 351,000, 2018 346,000 and we forecast X 2019 and X 2021 cord cutter/ never household additions.

2018 Canadian residential broadband subscriber additions we estimate were 387,000 and revenue grew 8% to \$8.68 billion (higher than Canadian TV access revenue), we forecast X additions and \$X billion for 2019; we forecast just over X/ annum additions 2020-2021. Canadian residential broadband subs first surpassed Canadian TV subs in 2015. Although Cable continues to lead on residential broadband market share, Telcos well exceeded Cable on additions in 2018 and we forecast Telco will continue to exceed Cable on additions through 2021.

Canadian residential wireline telephone lines declined we estimate X% in 2018 and forecast X% on average for 2020-2021. We forecast Cable will represent X% of residential wireline telephone subs YE2019.

We estimate 1.49 million Canadian wireless subscribers were added in 2018 (the largest annual wireless subscriber additions since 2011) and wireless service revenue grew 5% to \$21.2 billion, we forecast X million sub additions & wireless service revenue of \$X billion in 2019, and X million additions and \$X billion in 2020, as well as ARPU (weighted) growth of X% on average 2020-2021. We forecast YE2019 wireless subscriber smartphone penetration at X%. We forecast wireless-only households at X% YE2021, up from X% YE2018.