



# **North American FTTH And Advanced Broadband**

## **Review And Forecast To 2021**

**April, 2017**

## **NORTH AMERICAN FTTH AND ADVANCED BROADBAND REVIEW AND FORECAST TO 2021**

### **TABLE OF CONTENTS**

---

<b>I. INTRODUCTION</b>	<b>5</b>
<b>II. METHODOLOGY AND BACKGROUND</b>	
A. Deployment Forecast Background And Accuracy	6
B. Forecast Methodology	6
<b>III. CURRENT NORTH AMERICAN FTTH DEPLOYMENT STATUS</b>	
A. Overview Of North American FTTH Growth	7
B. North American Gigabit Internet Impact And Progress	9
C. FTTH Progress Versus Previous Wireline Builds	11
D. The Increasing Importance Of Small Players In U.S. FTTH Builds	11
E. The Deployment History And Plans Of The 10 Largest U.S. FTTH Providers	12
F. Recap Of All Current And Potential U.S. FTTH Provider Types	17
<b>IV. CHARACTERISTICS OF FIBER INTERNET</b>	
A. Fiber – Fastest (both bandwidth and latency), Symmetrical, and Most Reliable	19
B. Will Another Technology Supersede Fiber?	20
C. Synergy Of Fiber With Wireless Broadband, Intelligent Transportation, And the Intelligent Internet Of Things	21
<b>V. CHARACTERISTICS OF FTTH NORTH AMERICAN FTTH SYSTEMS</b>	
A. U.S. FTTH DEPLOYMENT BY STATE	22
B. U.S. DEPLOYMENT BY LIVING DENSITY GEO SEGMENT	23
C. U.S. FTTH Provider Types	24
D. Underground Versus Aerial Fiber Installations	24
E. Services Offered And Taken Over FTTH	25
F. Methods Of Connecting Within Homes	26
G. Methods Of Streaming Video Within Homes	26
<b>VI. DRIVERS OF FTTH DEPLOYMENT</b>	
A. Background Need	27
B. Interest in Community Advancement and Economic Development	27
C. Competition	28
D. Government Incentives	28
E. New Housing	29
F. Lower Costs	31
G. Increasing Take-Rates	32
H. Copper Migration	33

---

**TABLE OF CONTENTS (CONT.)**


---

**VII. CURRENT POSSIBLE NORTH AMERICAN FTTH INHIBITORS**

A. Review of DSL, Wireless, and Cable Acceleration Strategies	35
B. Fiber Optic/ Key Product Shortages	39
C. Government Interactions and Regulations	40

**VIII. SERVICE PROVIDER DESIRES FROM SUPPLIERS**

A. What Service Providers Want From Suppliers	41
---	----

**IX. FTTH CONSUMER IMPORTANCE AND IMPACT**

A. Graphic Review Of Broadband Consumer Impact	42
--	----

**X. REVIEW OF 2017-2021 FTTH FORECAST**

A. Review Of U.S. Forecast	58
B. Review Of Canadian Forecast	60
C. Review Of Mexican Forecast	61
D. Review Of Caribbean Forecast	61
E. U.S. Capex Investment Forecast	62
F. FTTH Architecture Forecast	63
G. Overall Recap of Total North American Forecasts	64

**XI. DETAILED HISTORY AND FORECAST BY SEGMENTS STATUS**

A. Homes-Marketed Cumulative Forecast	65
B. Homes-Marketed Annual Forecast	66
C. Homes-Connected Cumulative Forecast	67
D. Homes-Connected Annual Forecast	68
E. North American FTTH Investment Forecast	69
F. North American Architecture Forecast	70

**XII. APPENDIX**

Complete Index of Graphs	71
--------------------------	----

## INDEX OF GRAPHS

---

### **III. Current North American FTTH Deployment Status**

- III.A.Fig.1 - North American FTTH Deployment
- III.A.Fig.2 - U.S. FTTH Deployment
- III.A.Fig.3 - Annual Change In U.S. FTTH Homes-Marketed
- III.A.Fig.4 - North American FTTH Activity By Country
- III.B.Fig.1 - Gigabit Providers By Type
- III.B.Fig.2 - U.S. Gigabit Subscribers
- III.B.Fig.3 - Gig Subscribership Price Elasticity
- III.B.Fig.4 - Gigabit Currently Offered By Provider Type
- III.C.Fig.1 - U.S. Homes Passed Versus Households
- III.D.Fig.1 - Annual Homes-Marketed By Provider Size
- III.E.Fig.1 - Estimated Homes-Marketed By Year
- III.F.Fig.1 - Review Of Broadband Status By Provider Type

### **IV. Characteristics of Fiber Internet**

- IV.C.Fig.1 - Synergy of Home/ Mobile Broadband
- IV.C.Fig.2 - Smart Path To Smart Cities

### **V. Characteristics of North American FTTH Systems**

- V.A.Fig.1 - 2016 U.S. Homes-Marketed By State/Percent of Households
- V.A.Fig.2 - 2016 FTTH Market Penetration By State
- V.B.Fig.1 - Availability And Take-Rate by Density
- V.B.Fig.2 - Total U.S. Households By Geo Segment
- V.C.Fig.1 - U.S. Cumulative Homes-Marketed By Provider Type
- V.E.Fig.1 - Services Offered Via FTTH or Bundled With FTTH
- V.E.Fig.2 - Services Taken With FTTH By Consumers
- V.F.Fig.1 - Ways Internet Is Connected In Home
- V.G.Fig.1 - Devices Used To Stream Video Content

### **VI. Drivers Of FTTH Deployment**

- VI.A.Fig.1 - Online Activity Is Now Foundational To Living Spaces
- VI.B.Fig.1 - FTTH Is Important To Living In A Community
- VI.D.Fig.1 - Offers Of CAF-II Round Two Support
- VI.E.Fig.1 - U.S. Housing Starts
- VI.E.Fig.2 - U.S. Single Family Lot Creation
- VI.F.Fig.1 - Transport Costs Per Mbps
- VI.G.Fig.1 - U.S. FTTH Take-Rates
- VI.I.Fig.1 - U.S. Wireline and Wireless Capex

### **VII. Current Possible North American FTTH Inhibitors**

- VII.A.Fig.1 - There Is No Wireless Miracle
- VII.A.Fig.2 - FTTH: Tested Download Speeds
- VII.A.Fig.3 - FTTH: Tested Upload Speeds
- VII.C.Fig.1 - Factors Inhibiting FTTH Growth

**VIII. Service Provider Desires From Suppliers**

VIII.A.Fig.1 - Service Provider Top Of Mind Challenges

**IX. FTTH Consumer Importance & Impact (Slide Deck/ 48Charts)**

**X. Review of 2017-2021 Forecast**

X.A.Fig.1 - U.S. Annual Change Homes-Marketed

X.A.Fig.2 - U. S. Annual Change Homes-Connected

X.A.Fig.3 - U.S. Cumulative Homes-Marketed

X.A.Fig.4 - U.S. Cumulative Homes-Connected

X.B.Fig.1 - Canadian Annual Change Homes-Marketed/ Connected

X.B.Fig.2 - Canadian Cumulative Homes-Marketed/ Connected

X.C.Fig.1 - Mexican Cumulative Homes-Marketed/ Connected

X.D.Fig.1 - Caribbean Cumulative Homes-Marketed/ Connected

X.D.Fig.2 - Caribbean Landlines By Country

X.E.Fig.1 - Annual Change U.S. FTTH Investment

X.E.Fig.2 - Cumulative Change U.S. FTTH Investment

X.F.Fig.1 - Architecture Forecast

X.G.Fig.1 - North American Annual Change

X.G.Fig.2 - North American Cumulative Change

**XI. Detailed History And Forecast By Segments Status**

XI.A.Fig.1 - Homes-Marketed Cumulative Forecast

XI.B.Fig.1 - Homes-Marketed Annual Forecast

XI.C.Fig.1 - Homes-Connected Cumulative Forecast

XI.D.Fig.1 - Homes-Connected Annual Forecast

XI.E.Fig.1 - North American FTTH Investment Forecast

XI.F.Fig.1 - North American Architecture Forecast