



Broadband Overview

Broadcom & Morgan Stanley Broadband Teach-In

April 12, 2021



Safe Harbor Statement

This presentation contains forward-looking statements, including statements as to our priorities and goals, business strategy, performance and market opportunities, and products and technology development, that are based on our current expectations and beliefs of the management of Broadcom, as well as assumptions made by, and information currently available to, such management, current market trends and market conditions, and involve risks and uncertainties, many of which are outside the Company's and management's control, and which may cause actual results to differ materially from those statements. Many of the foregoing risks and uncertainties are, and will be, exacerbated by the COVID-19 pandemic and any worsening of the global business and economic environment as a result.

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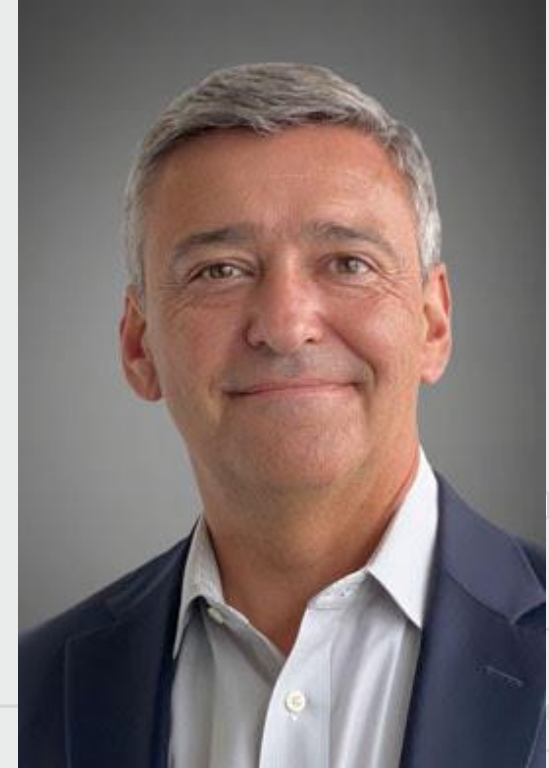
Broadcom Speakers



Hock E. Tan
President & CEO



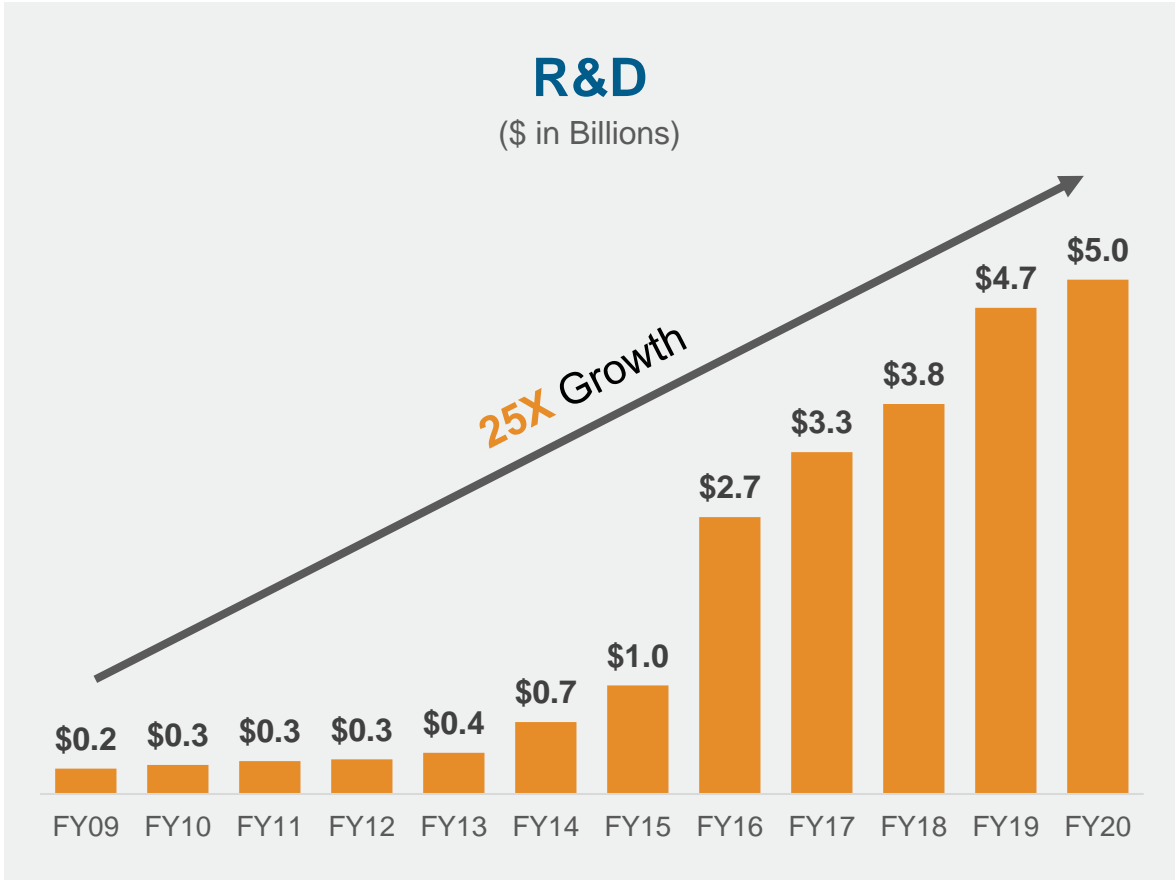
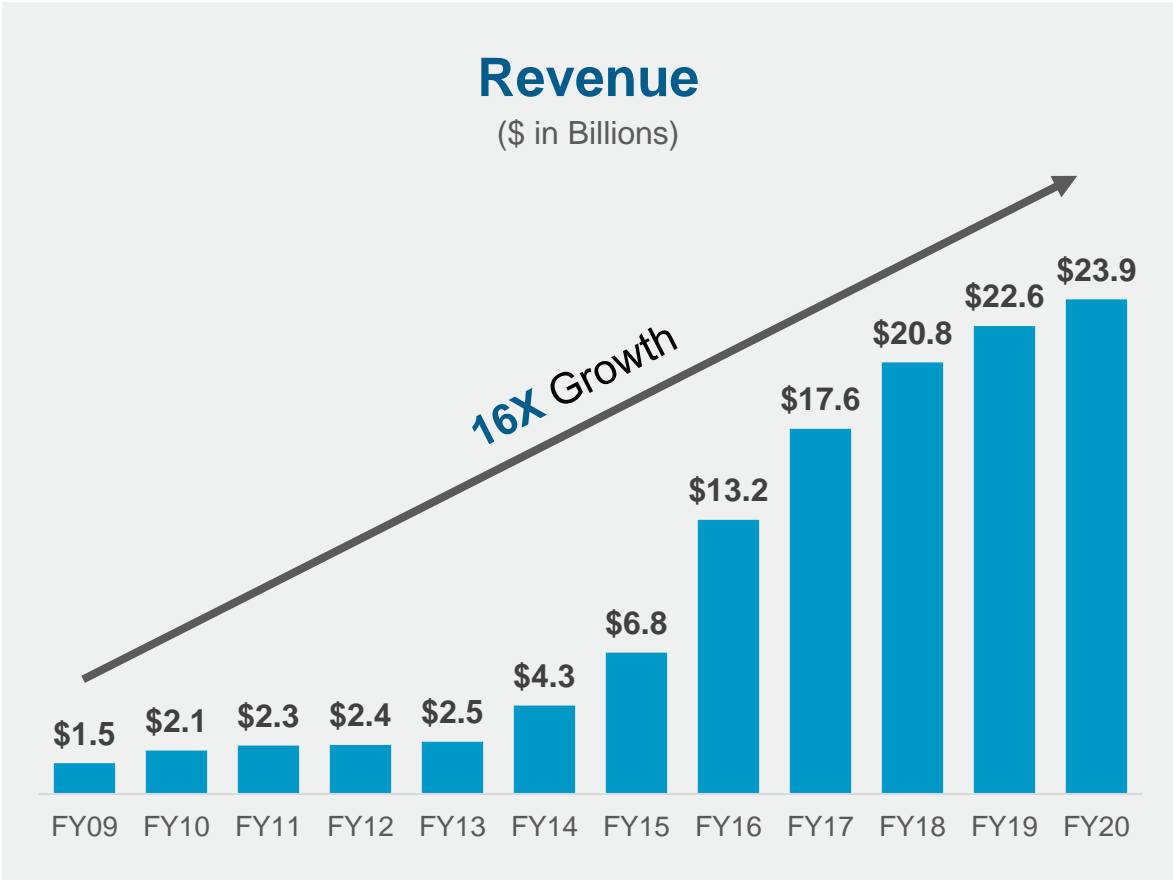
Rich Nelson
SVP & GM, Set-Top Box
and Cable Modem Products



Greg Fischer
SVP & GM, Broadband
Carrier Access Products

How Broadcom Became a Global Technology Leader

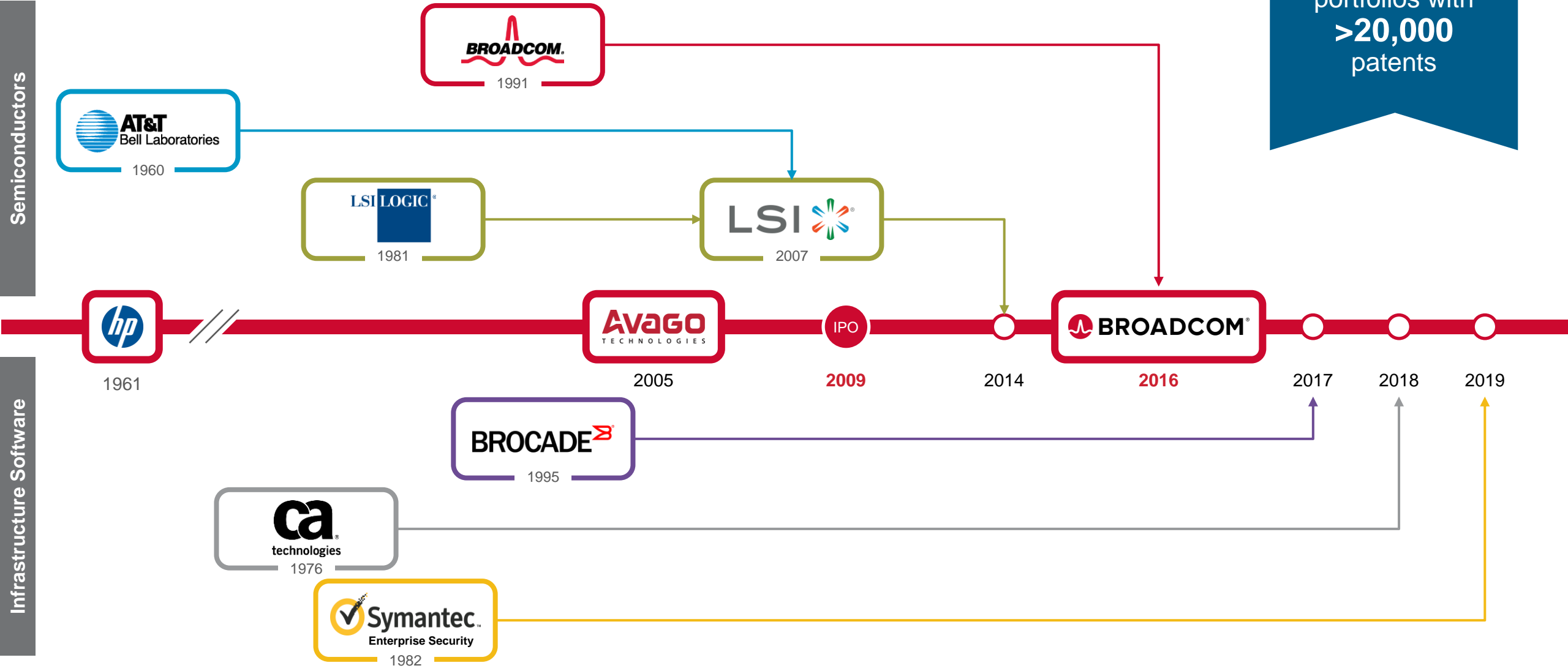
Category-Leading Franchises: 8 in 2009 → 25 Today



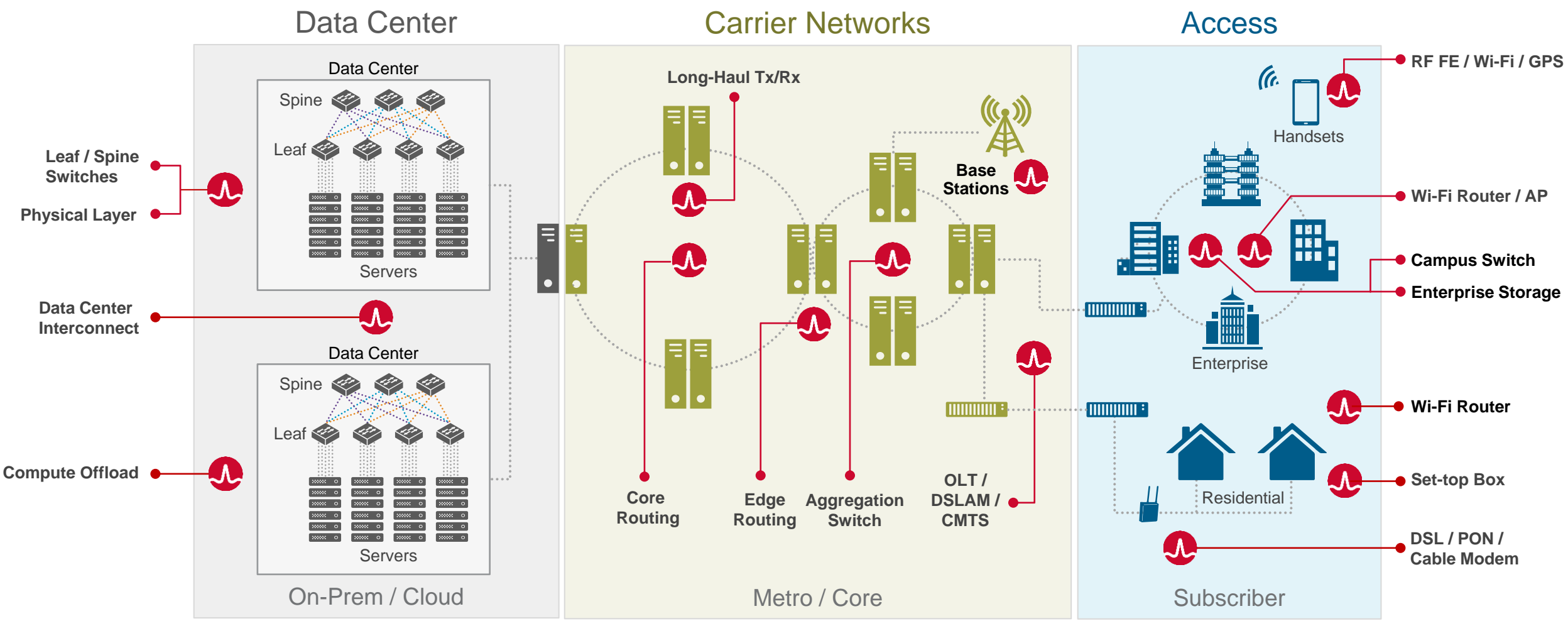
84X Growth in Operating Profit from 2009 → 2020

Heritage of Innovation

One of the industry's broadest IP portfolios with **>20,000** patents



Connecting Everything[®] Across the Ecosystem

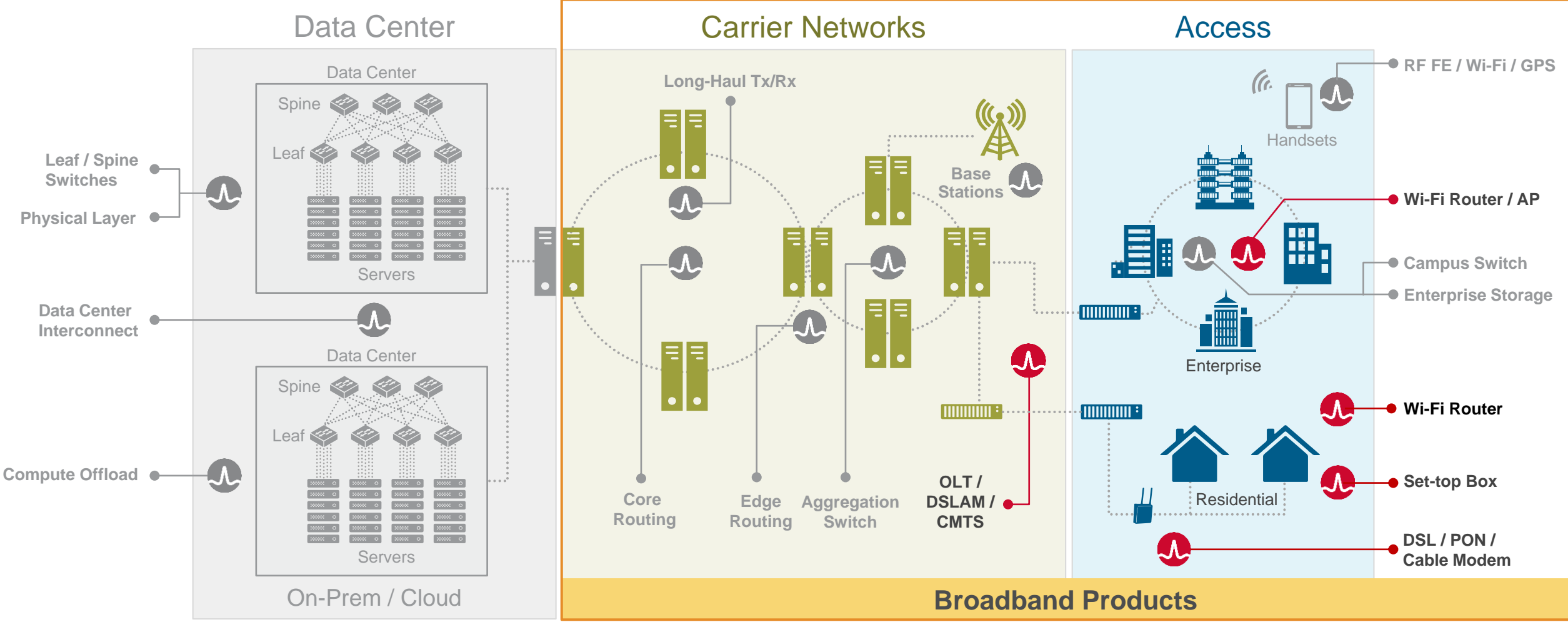


99.9% of All Internet Traffic Crosses at Least One Broadcom Chip

Source: Broadcom Internal Estimate



Connecting Everything® Across the Ecosystem – Broadband

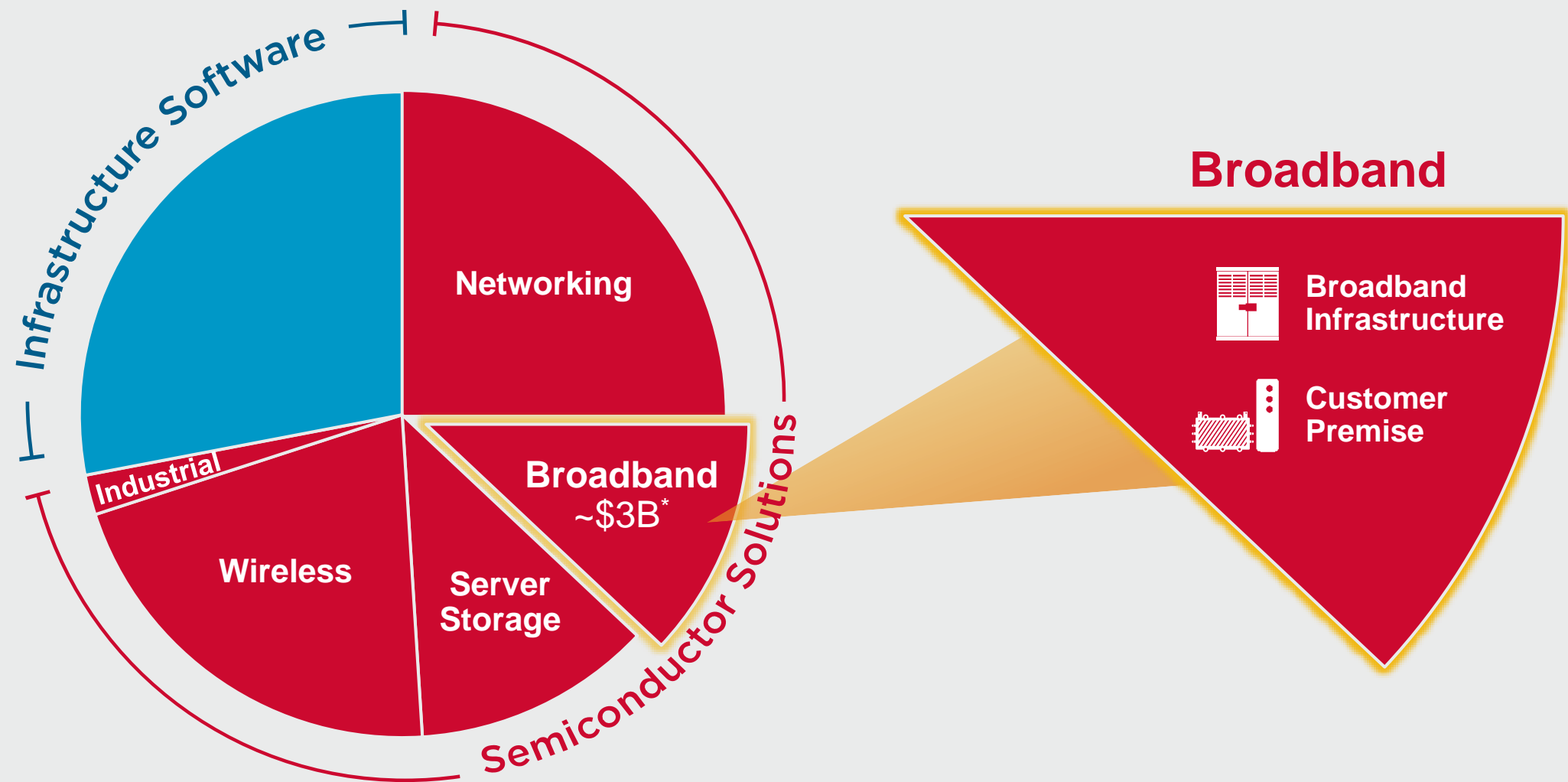


99.9% of All Internet Traffic Crosses at Least One Broadcom Chip

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Category-Leading Franchises in Diverse End Markets



* In FY20



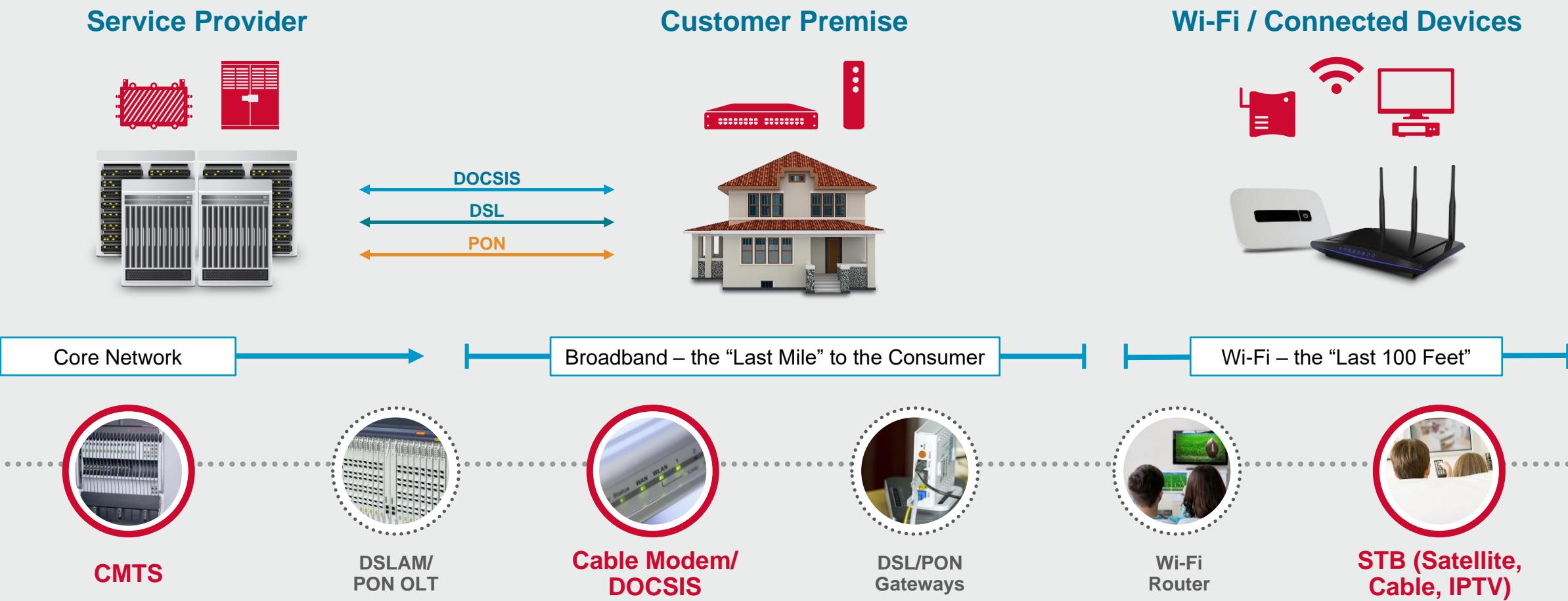
Set-Top Box (STB)

Rich Nelson

Senior Vice President and General Manager,
Set-top Box/Cable Modem Products

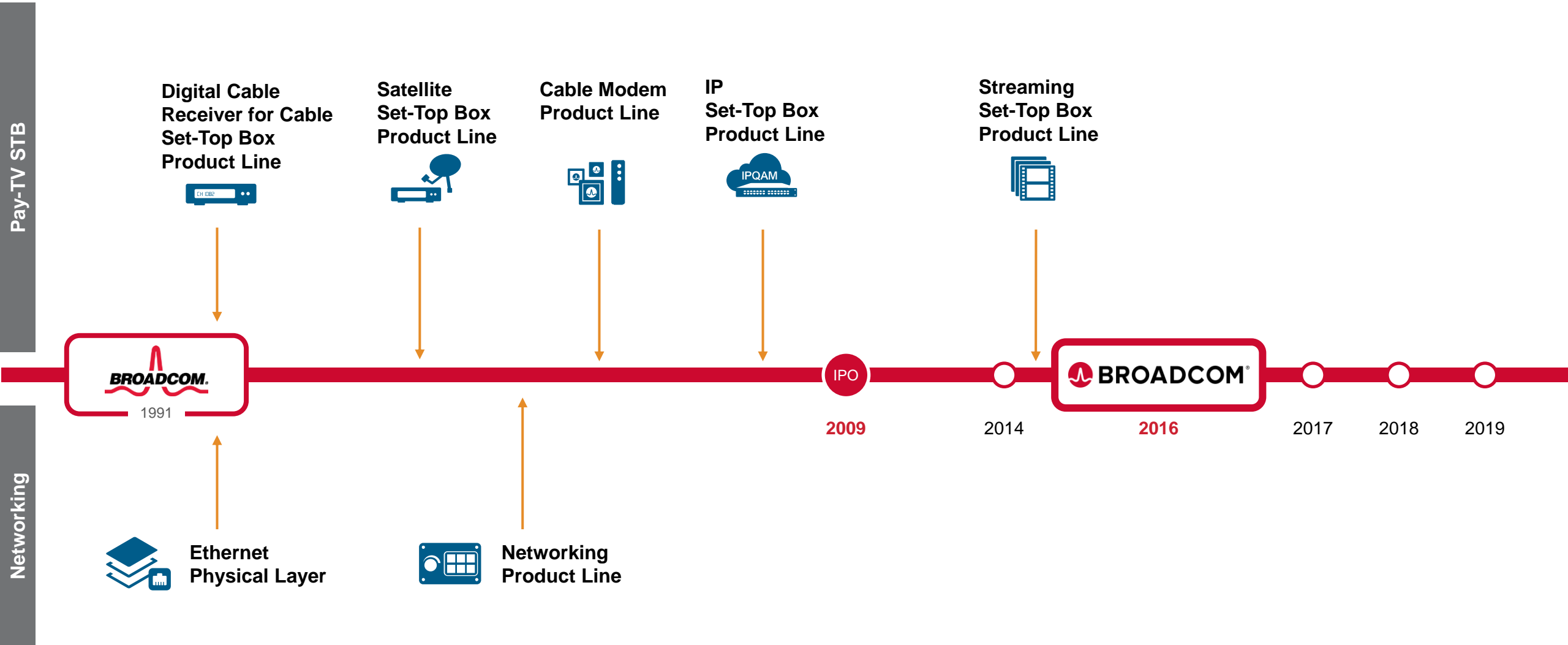


Set-top Box/Cable Modem (STB)

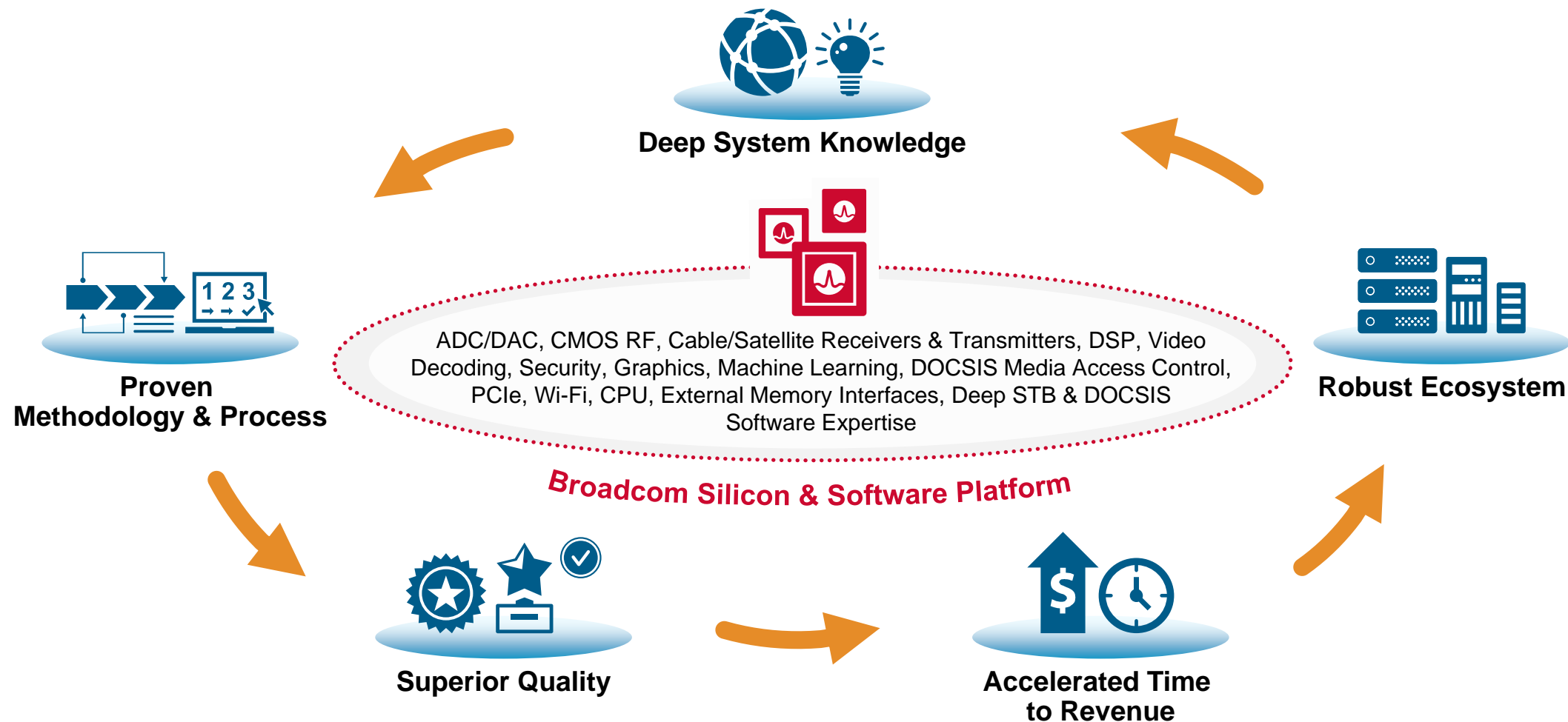


Comprehensive Portfolio of Solutions Addressing “Last Mile” Challenges for Global Service Providers

Broadcom's Heritage of Innovation

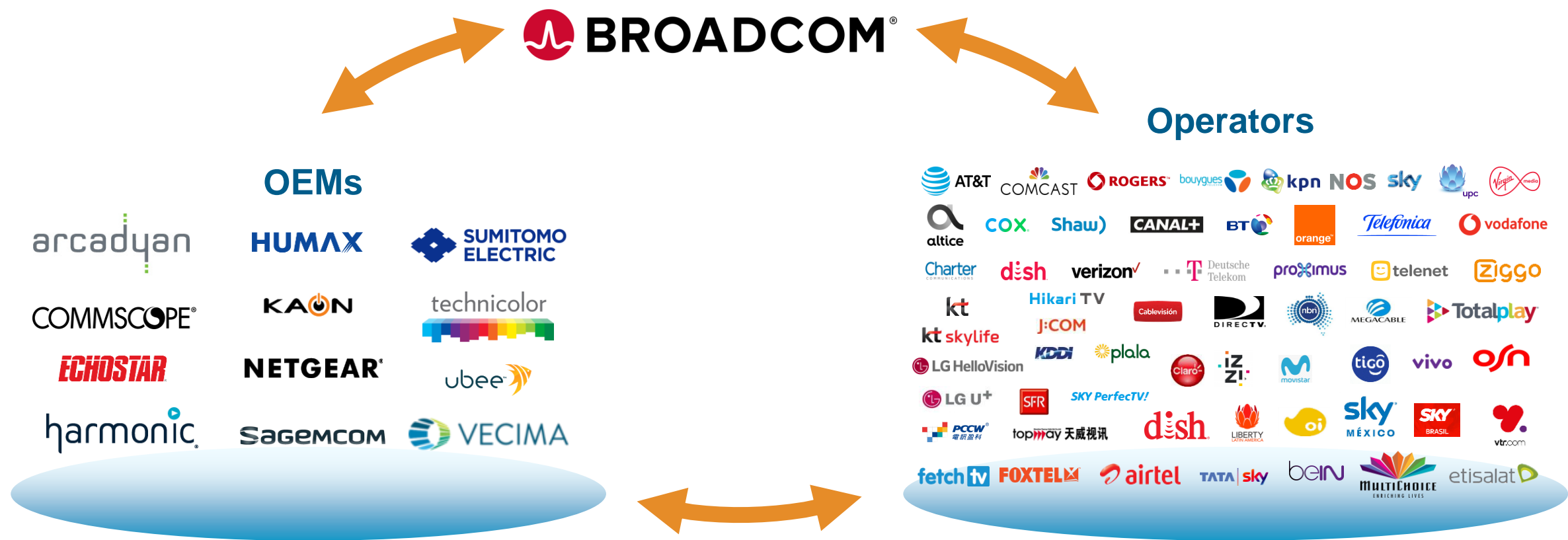


Key Competitive Advantages



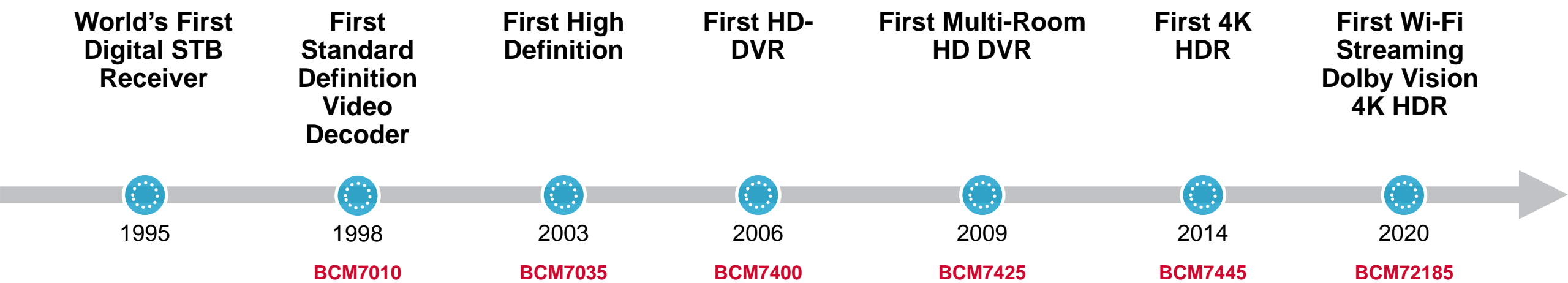
Targeted Expertise and Scale along with Deep Partnerships Drives Innovation

Deep Partnerships with Leading OEMs and Operators



1B+ STB and 500M Cable Modem SoCs Shipped Over 25+ Years

Broadcom Powering the Evolution of Television



Continued Innovation Drives New Product Cycles and Business Growth

AI / Machine Learning in the Home is the Future for STB



Video

- Facial recognition based user profile
- Video calling
- Increase resolution output to 4K
- Local video sharpening and noise reduction
- Picture in Picture with zoom-in/ zoom-out



Voice

- Voice-based search
- Improved performance versus voice remote
- Voice-based user profile
- Text to speech, speech to text

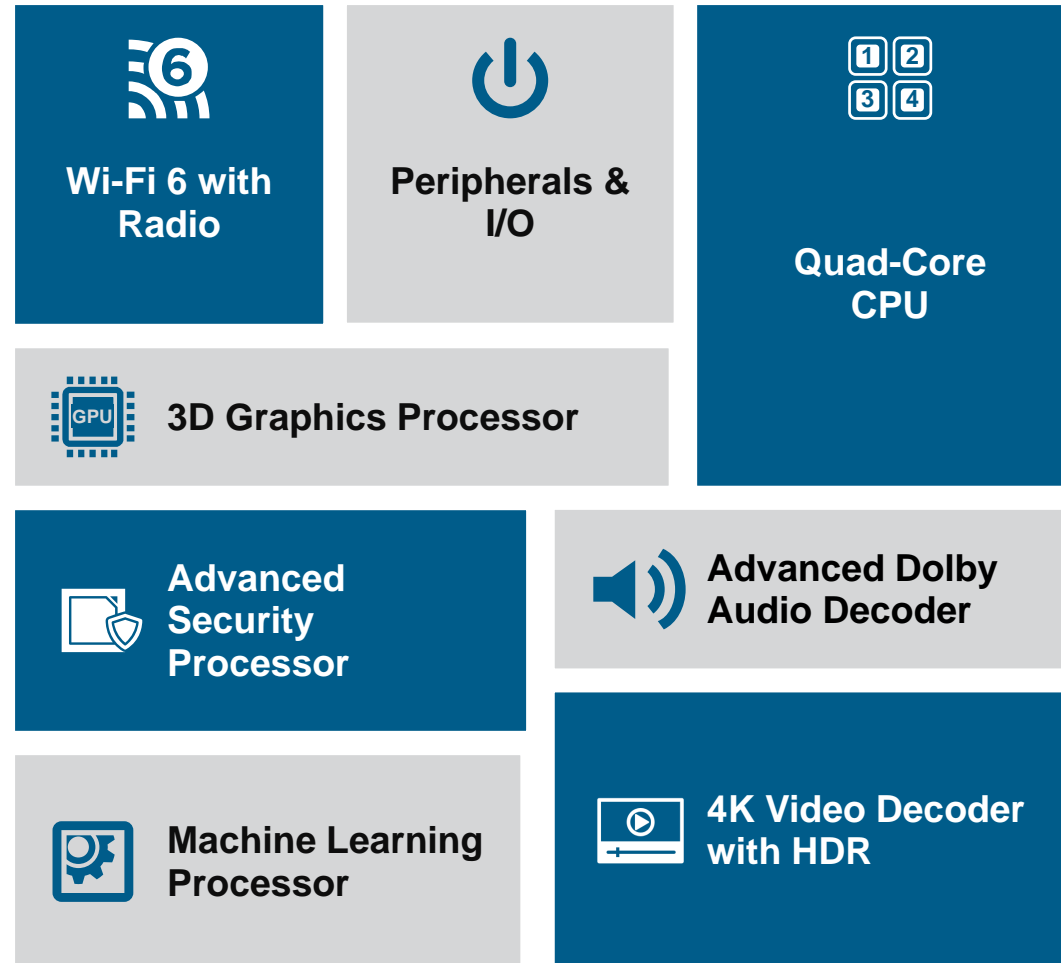


Apps

- Better user experience
- Security: Keeping personal information local and off the cloud
- Personalized content and recommendations
- Targeted ad insertion
- Live language translation

Well Positioned to Lead Customer Rollout of Machine Learning Technology

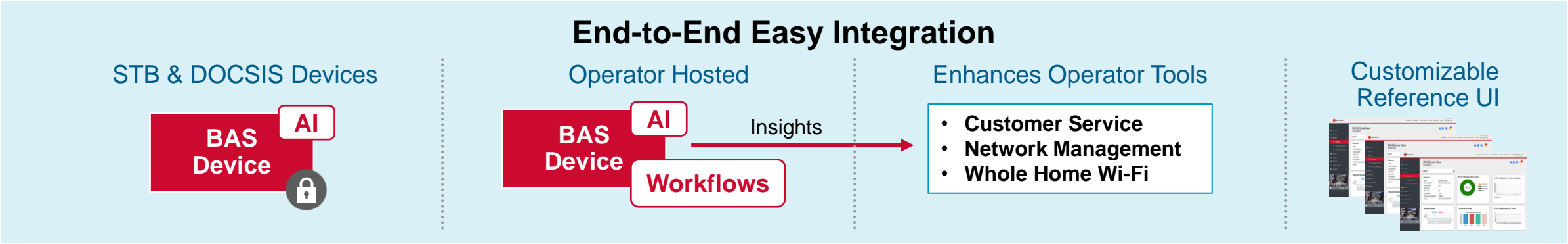
World's Only Complete Streaming Ultra HD System-on-a-Chip



Highly Integrated SoCs with Complex Technologies and Robust Software

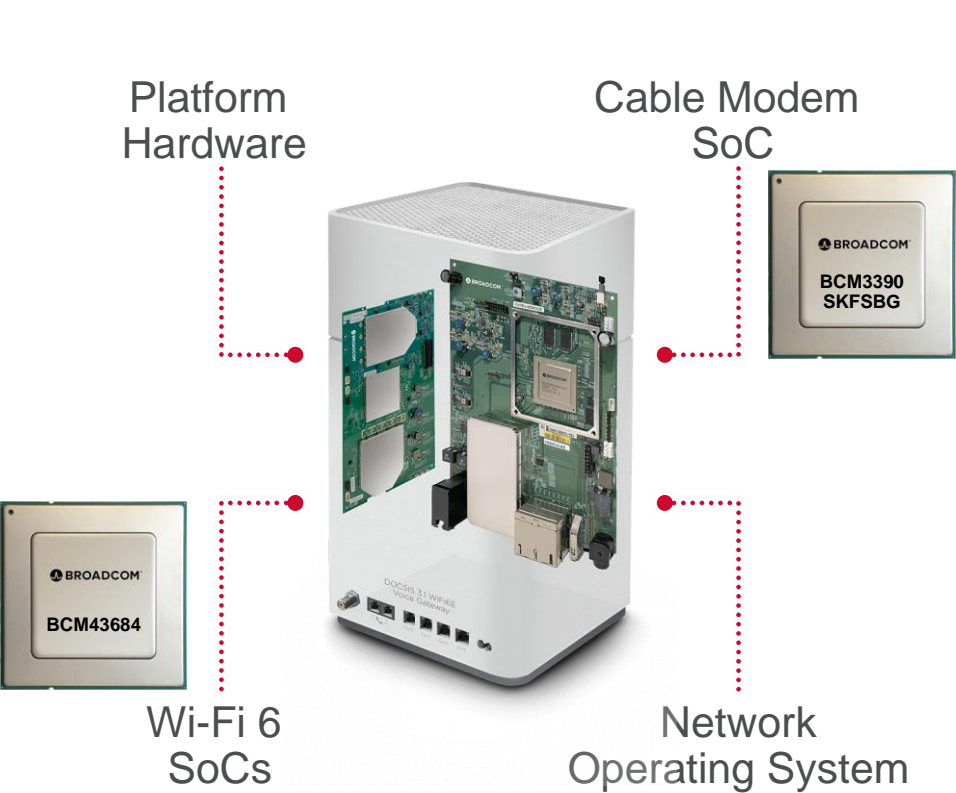
Broadcom Analytics System (BAS)

End-to-End Solution to Diagnose, Manage and Secure STBs and Cable Modems



AI Powered to Identify WHAT / WHEN / WHY Something Happened and HOW to Fix It

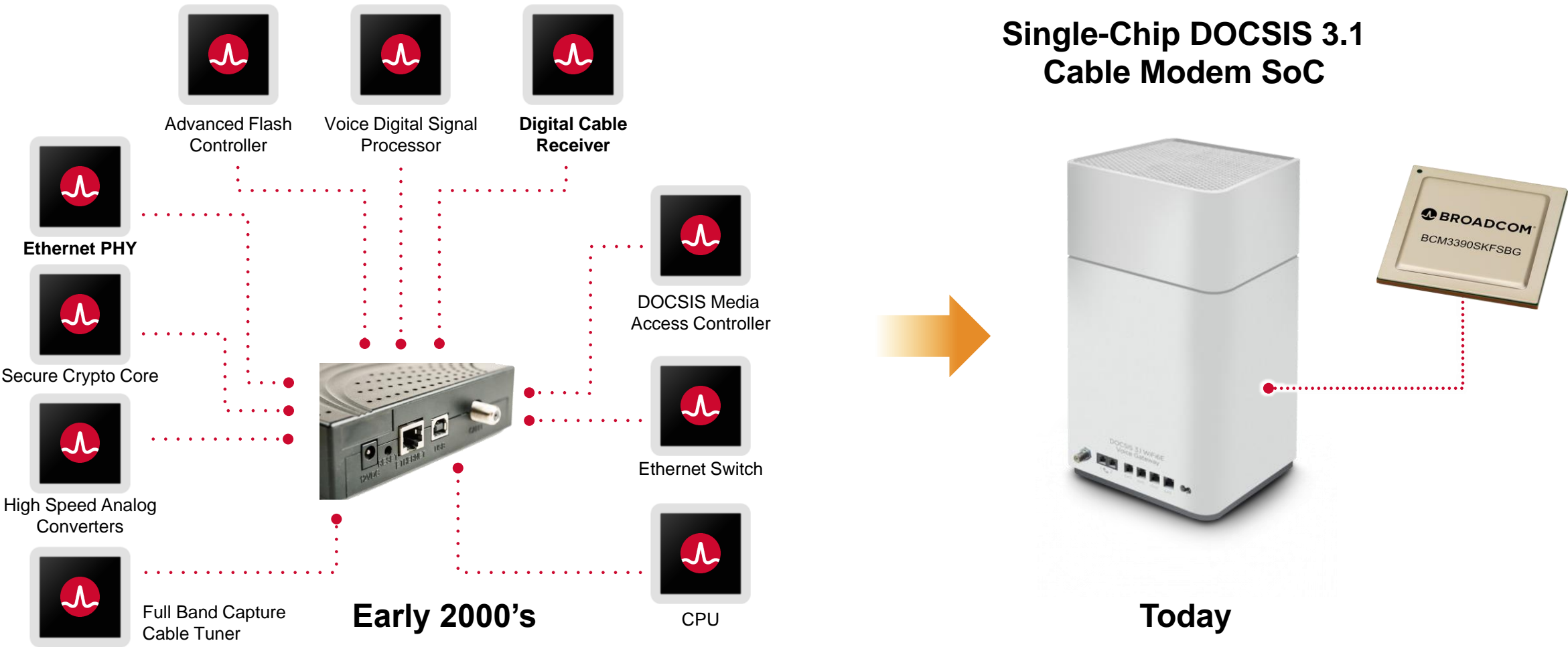
Broadcom's History of Cable Broadband Innovation



1998	First Integrated DOCSIS MAC-PHY	2009	First DOCSIS & EuroDOCSIS Modem Certification
2000	First Single-Chip DOCSIS Cable Modem	2011	First DOCSIS Full-Band Capture Modem
2001	First All CMOS DOCSIS Cable Tuner	2013	First DOCSIS Downstream Full-Band Diagnostics
2001	First Single-Chip DOCSIS Voice Cable Modem	2015	First DOCSIS 3.1 SoC
2005	First DSP-less DOCSIS Voice Cable Modem	2017	First DOCSIS 3.1 Upstream Diagnostic Analyzer
2005	First DOCSIS Cable Modem with Integrated Tuner	2019	First DOCSIS 3.1 OFDM-A Deployments
2007	First DOCSIS Channel Bonding Modem	2020	First DOCSIS 3.1 Analytics Server

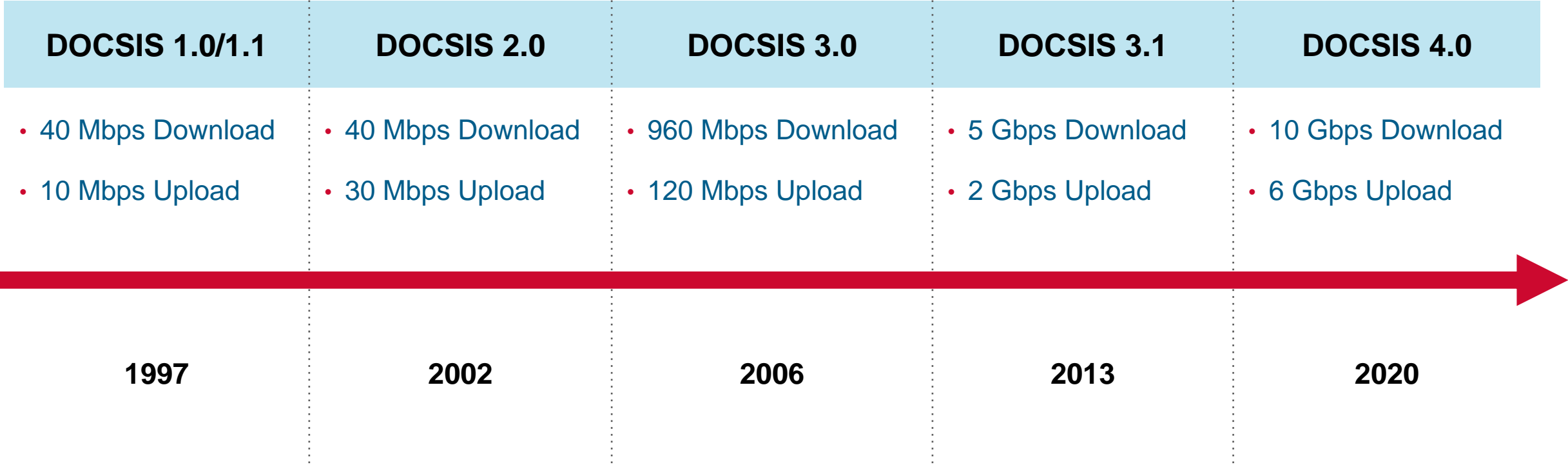
Broadband Competition Sustains Continued Upgrade Cycles and Business Demand

Integration Drives Improved Performance, Cost and Power



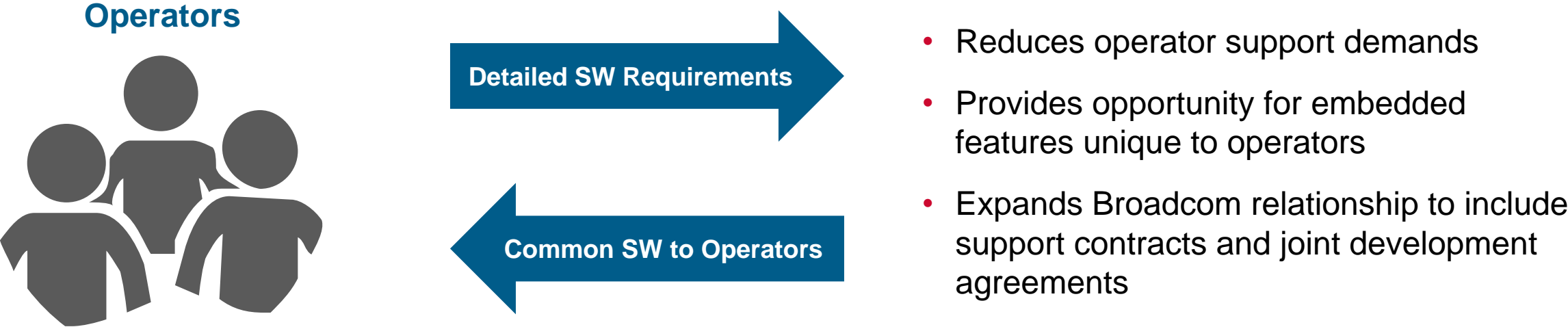
Industry-Leading Performance Enables Long-Term Customer Partnerships

Broadcom Innovations Keep Cable Broadband Ahead



Consumer Demand for Increased Bandwidth Drives Technology Evolution

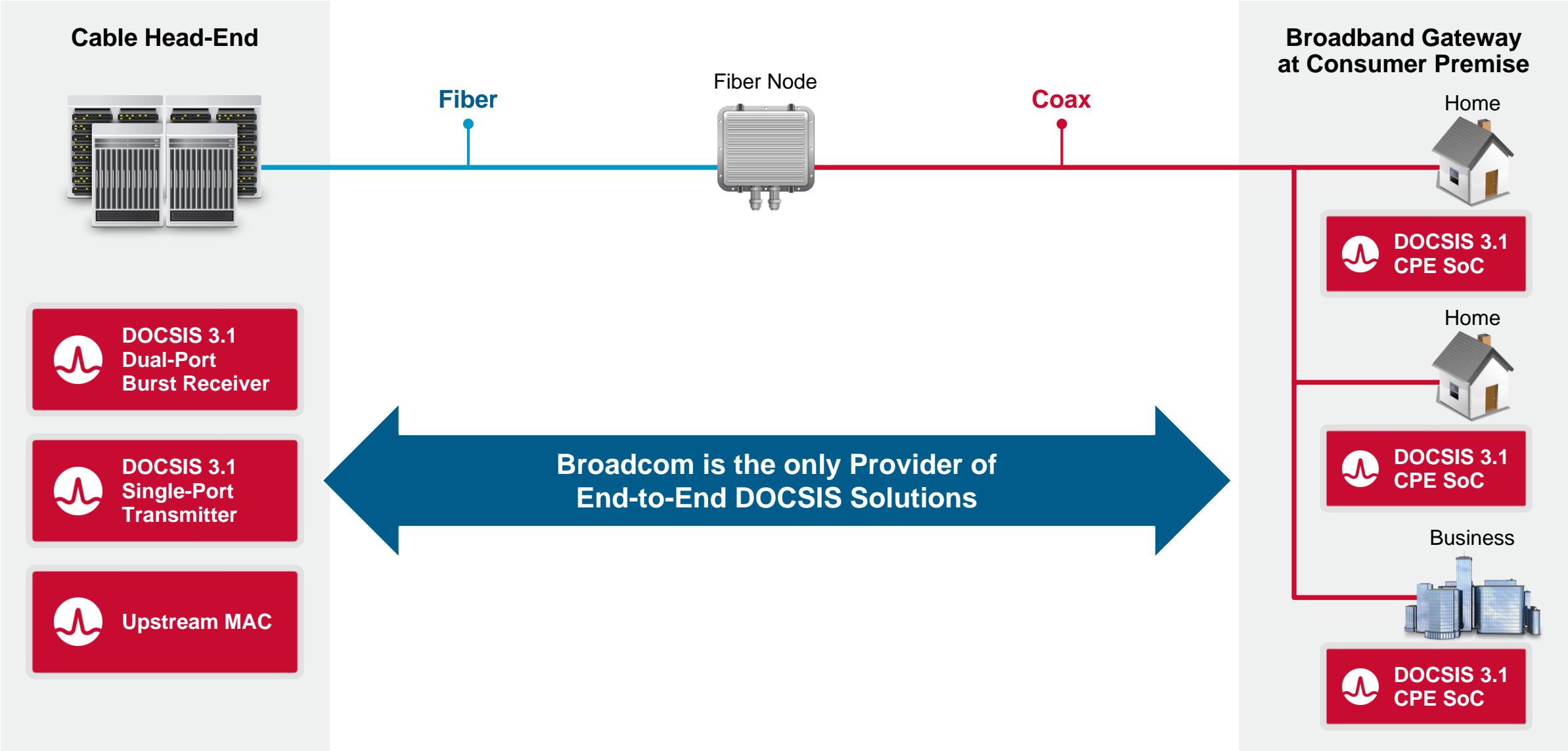
Common Software Accelerates TTM and Strengthens Operator Relationships




Broadcom OpenBFC™ Lattice APIs Common to All Broadcom Cable Modem Silicon




End-to-End Cable Broadband Access Solutions from Broadcom




Broadcom Works with Major Cable Operators on DOCSIS 4.0 Development




Improved Network Reliability




10 Gbs Speeds



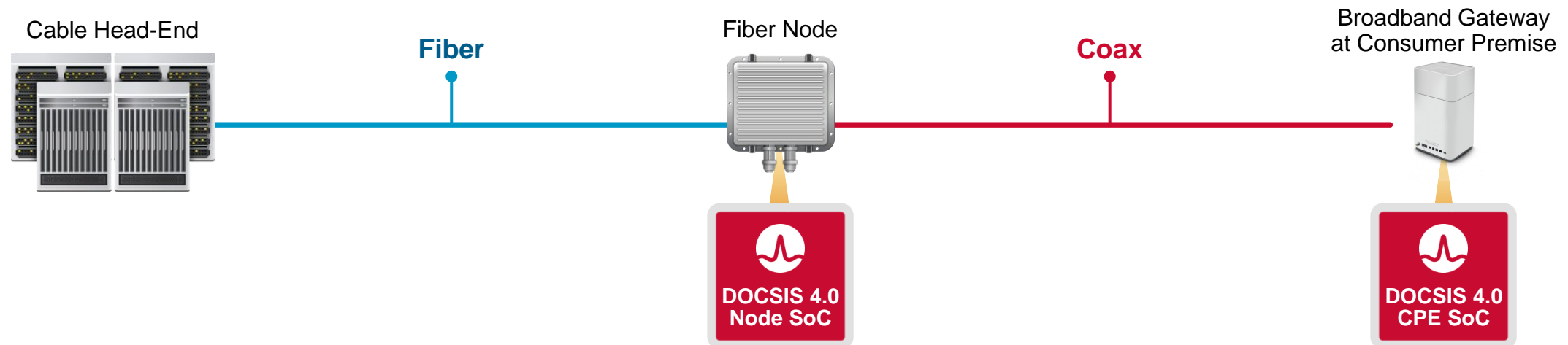
Improved Network Security



Reduced Latency



The Next Great Leap for Broadband



Next Product Evolution Supporting Upgrade Cycles and Customer Demand



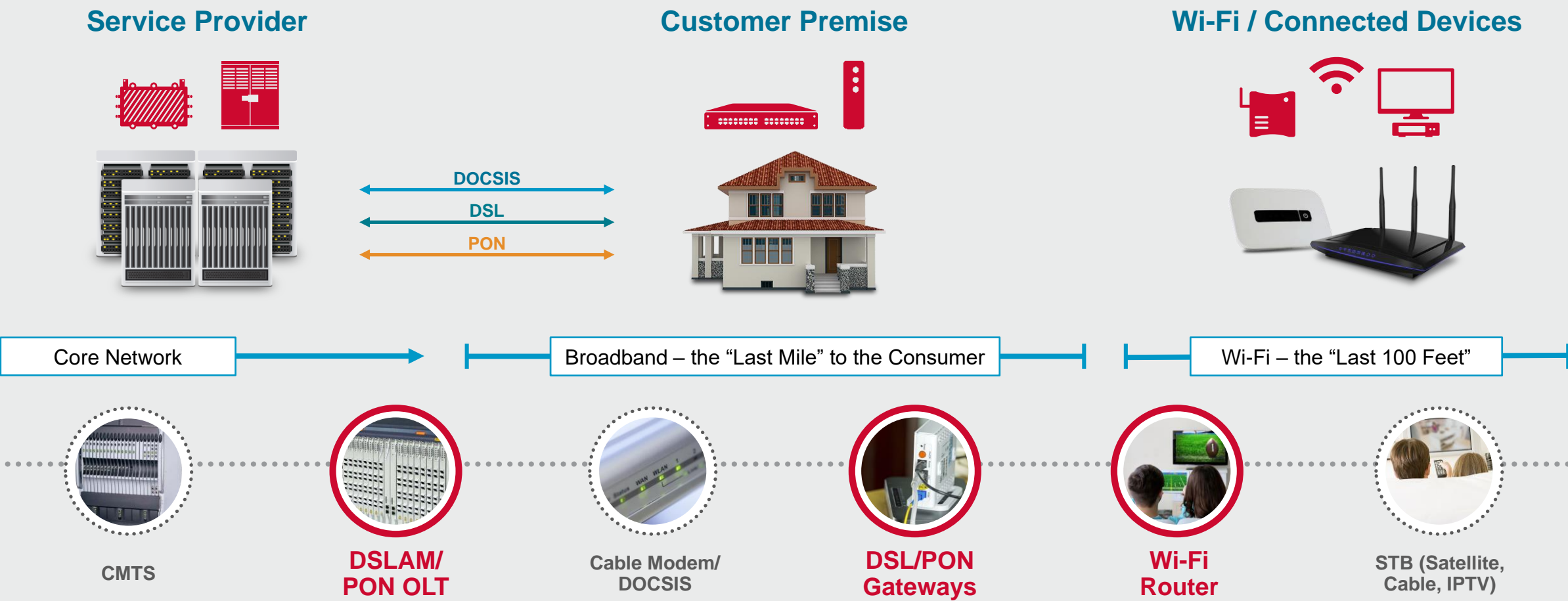
Broadband Carrier Access (BCA)

Greg Fischer

Senior Vice President and General Manager,
Broadband Carrier Access Products



Broadband Carrier Access (BCA)



Comprehensive Portfolio of Solutions Addressing “Last Mile” Challenges for Global Service Providers

Increased Need for Speed Globally



Consumer trends:

- Video conferencing & streaming
- Online gaming
- Remote work, schooling
- M2M and IoT



Product cycles driven by:

- Demand for faster speed
- Robust quality of service
- More Wi-Fi connected devices



Semiconductor growth driven by:

- Increased signal processing
 - Increasing levels of integration
- More Broadcom chip content per device

COVID-19 Pandemic Accelerating Underlying Trends; Behaviors Changing for Long Term

Broadband Carrier Access by the Numbers

Large & Attractive Market



Greater than **\$3 billion** SAM



More than **1 billion** fixed line broadband subscribers globally



4-5 year market cycles from beginning of new standards to mass volume

Broadcom Leadership



20-year history of execution across **5 generations** of technology



80%+ of Wi-Fi 6 infrastructure relies on Broadcom

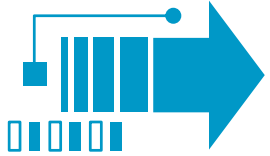


100+ operators worldwide

Diverse Footprint with 100+ Operators Worldwide



Broadcom's Differentiation



Time to market

- Long history of being first to market
- Capture the first generation of new technology deployments



Sophistication

- Consistent innovation drives a high-performing & feature-rich product portfolio

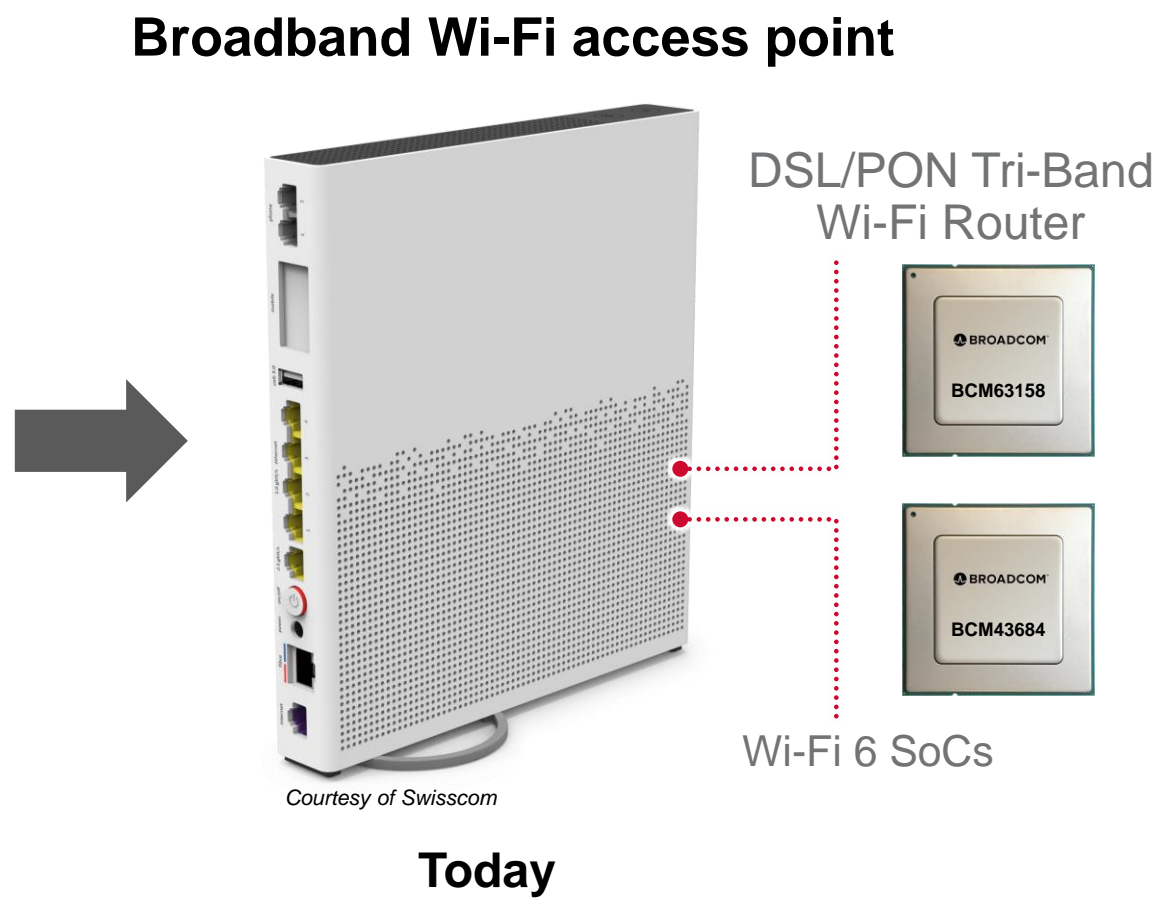
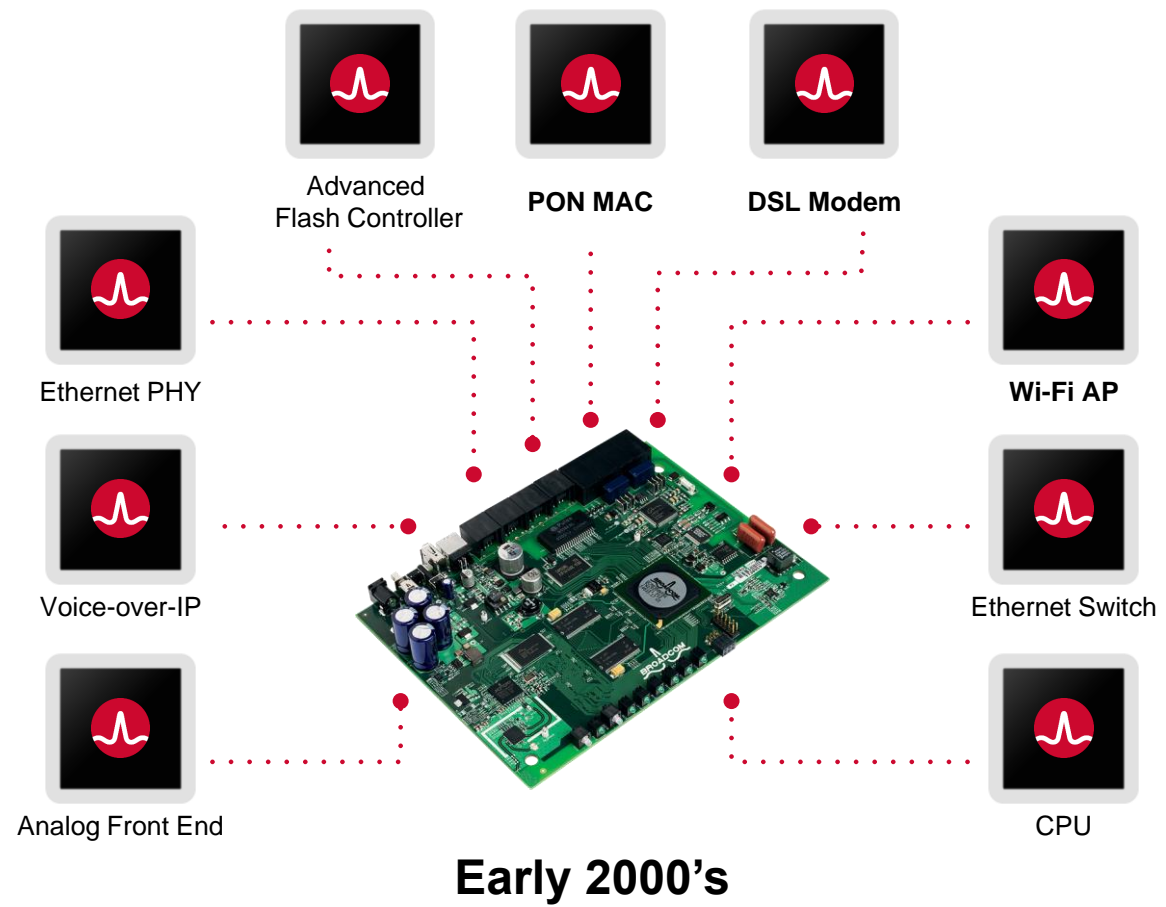


Ability to integrate

- Leadership in integration of systems and software
- Meet customer needs at different price points

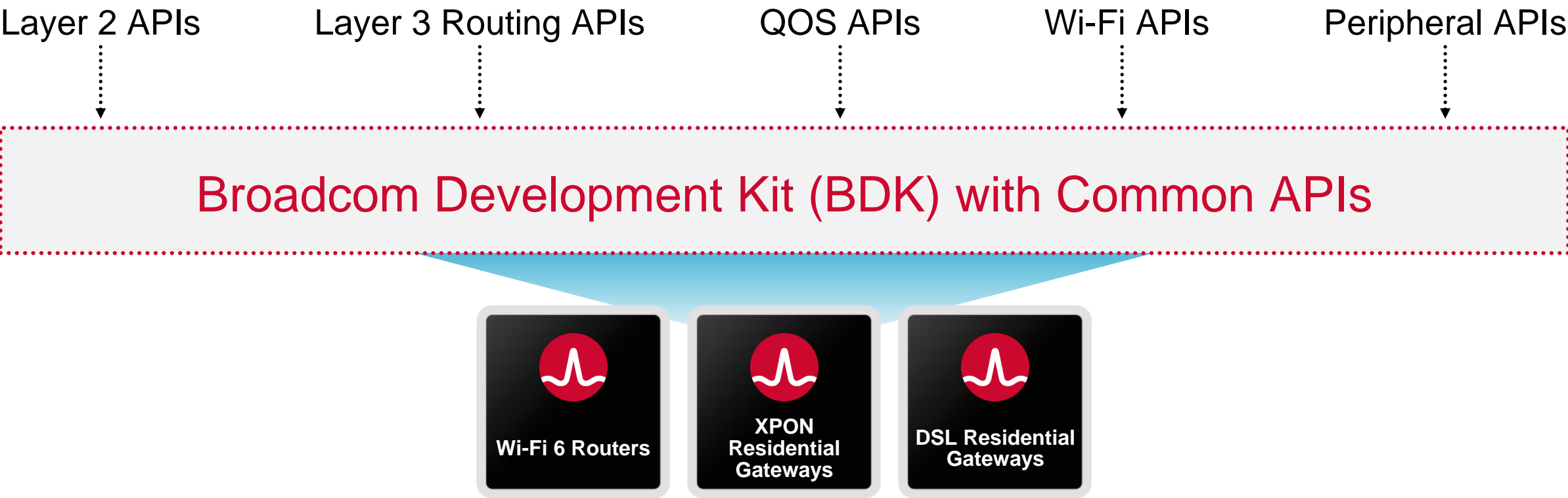
Continually Building Upon our Heritage of Technology

Silicon Portfolio Built for Integration Leadership



Consistent Team and World-class Execution

Best-in-Class and First-to-Market

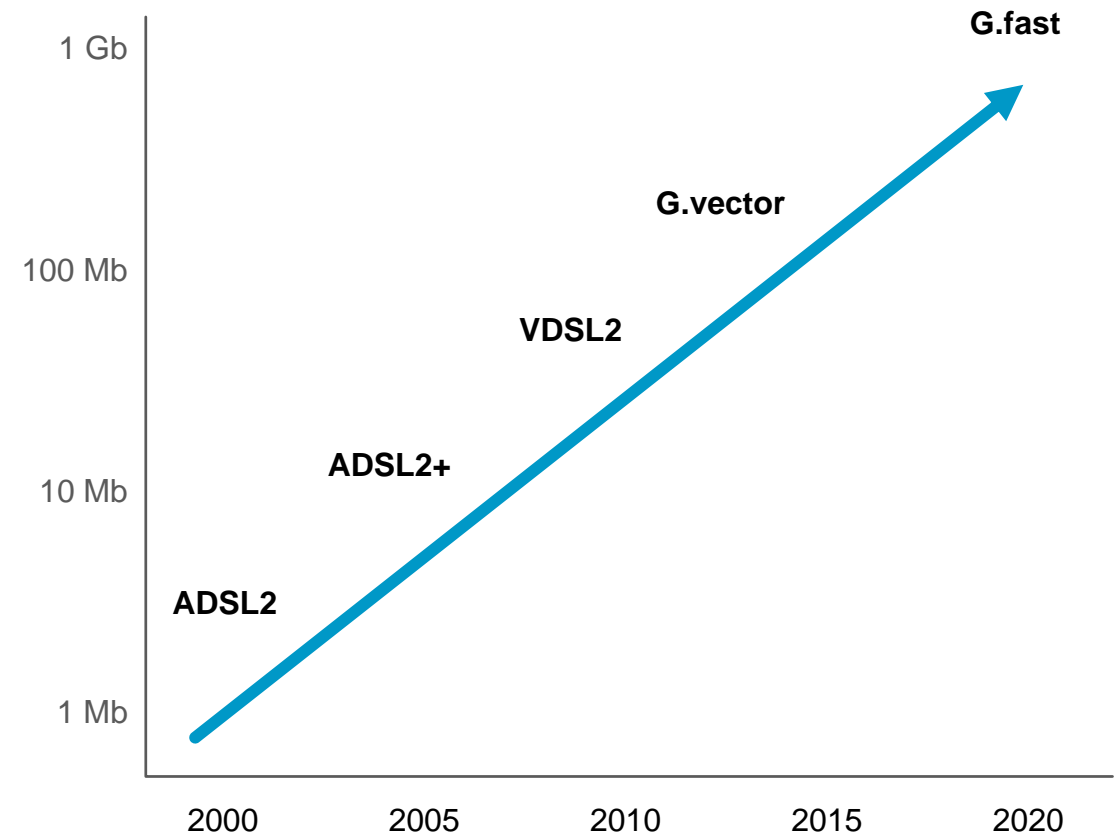


Single SDK Accelerates Development and Time to Market Across Broadband and Wi-Fi Routers

Digital Subscriber Line (DSL) Products

Five generations since 2000

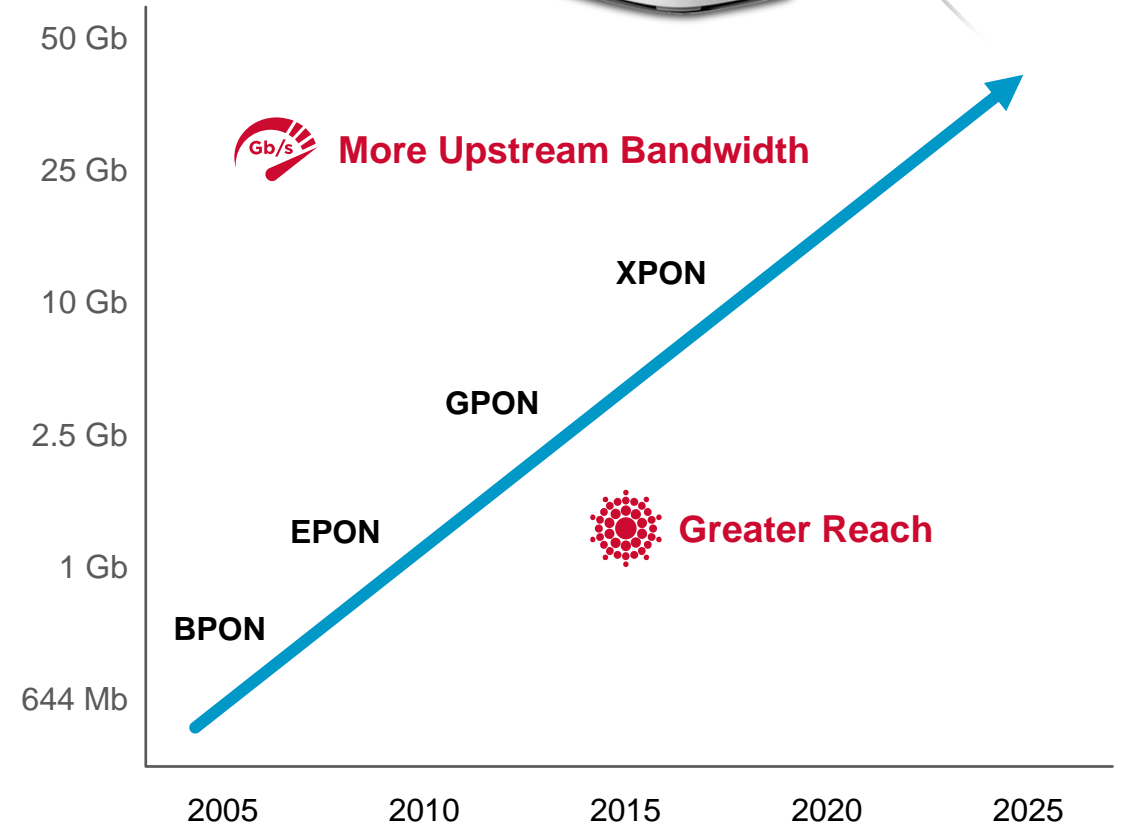
- **> 1 Billion** Broadcom DSL connections installed worldwide
- **Analog, DSP, and protocol software stack** investments create wide competitive moat
- **Sole provider** of DSL infrastructure semiconductor products globally since 2015
- **70+%** share of high performance VDSL CPE SoC products globally since 2010
- DSL SOC price/performance scaling with transition to **Wi-Fi 6**



Evolution of Fiber (PON) Products

Moving from copper to faster, more reliable fiber

- **World's largest supplier of silicon** for broadband residential fiber
- Only supplier of **merchant silicon** for optical broadband infrastructure
- R&D leverage and software commonality with DSL CPE and Wi-Fi routers
- Integrating advances in Wi-Fi with the fiber transition provides content rich platform play
- Unique network processor IP provides **advanced performance at consumer scale**



Faster Broadband Drives Faster and More Reliable Wi-Fi



Simultaneous need for internet, gaming, video, voice, internet-of-things with reliability and speed



More spectrum, more antennas, more radios per home or campus = more silicon content

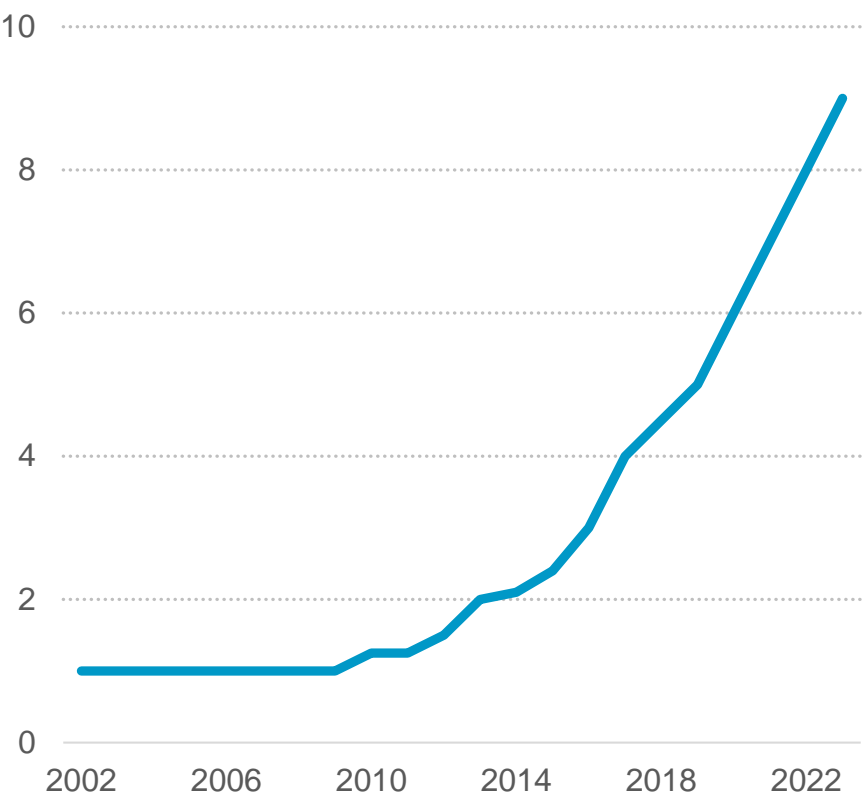


More sophisticated “four dimensional” scheduling of traffic to support increasing number of clients



Ultimately bringing gigabit speeds to and through homes and campuses

AP Radios in Residential Home



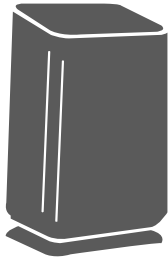
Multi-Gigabit Low Latency Wi-Fi Compliments Broadcom Leadership in Broadband

Source: Broadcom internal estimate

Driving Growth – Broadcom Wi-Fi Platforms

Wi-Fi is the preferred method to connect to broadband

Service Provider Wi-Fi



Enterprise Wi-Fi



Retail Wi-Fi



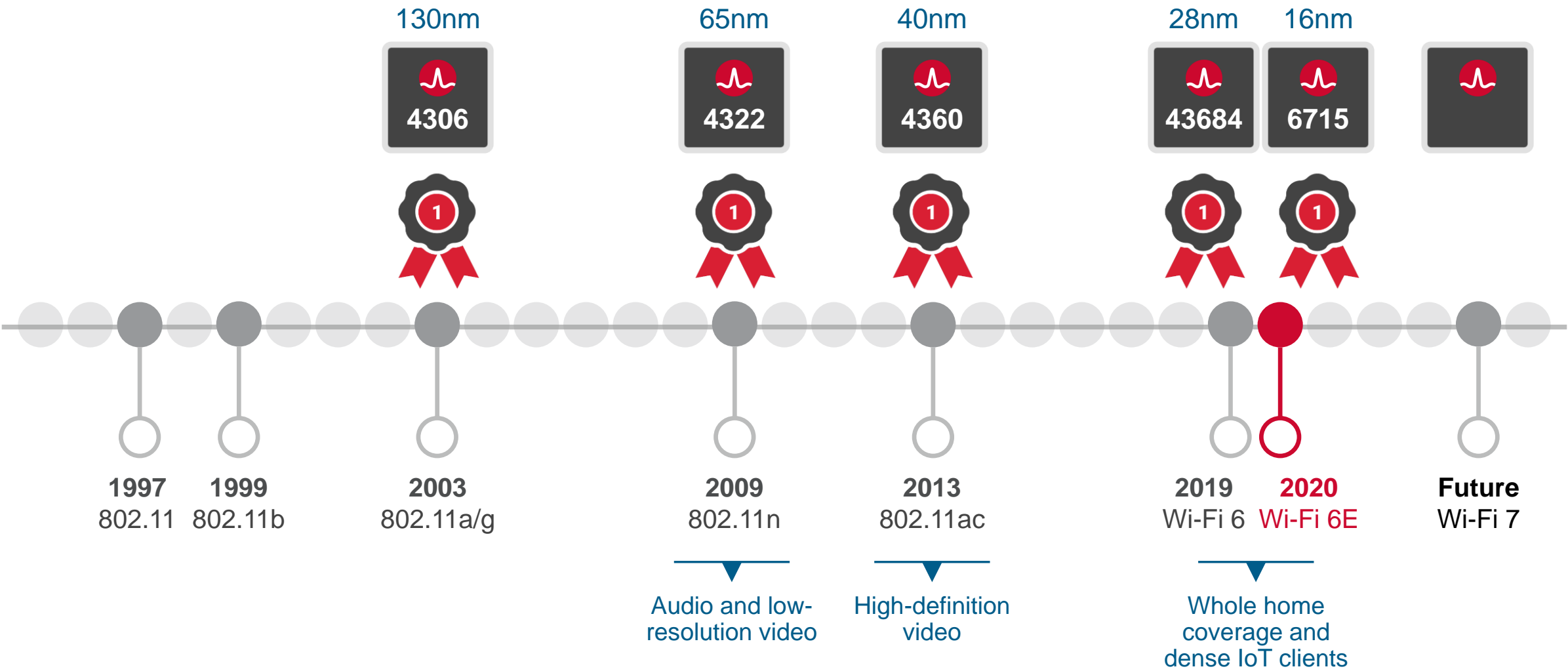
Wi-Fi 6 Market Leadership

- **> \$1.3 Billion** sold since introduction
- **Industry's broadest portfolio** – eight devices launched since 2018, three new products in 2021
- **80%+** of infrastructure relies on Broadcom
- **> 450 Million** client devices are Broadcom based

Continued innovation → First to market

- **Wi-Fi 6E** – 6 GHz is the first new Wi-Fi band in more than a decade

A Reputation for Sophistication and Product Leadership





Q&A





BROADCOM[®]

connecting everything[®]