

# *THE BUSINESS SERVICES OPPORTUNITY*

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*Broadband service providers are migrating to emerging networks with unprecedented capabilities that will help them build profitable new relationships with their business customers*

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## Introduction

Broadband service providers, both telco- and cable-based, are striving to offer their business customers emerging high-bandwidth, low-latency services that will help them differentiate themselves in the marketplace today. To maximize the opportunities that lay ahead, service providers will need to evolve their networks to embrace service agility, flexibility and scalability.

## The Sky Is the Limit

To migrate their networks to this emerging future, and do so as cost effectively and quickly as possible, broadband service providers are taking important steps to move away from legacy based network architectures and processes, which have historically slowed the introduction of new services and applications. New agile and flexible software-driven networks rely on open source and cloud-based technologies to enable highly profitable business applications which can be deployed in an on-demand fashion.

Broadband service providers are meeting business customer demands which can include ever-increasing needs for cloud-based hosted applications, virtual server and desktop environments, software-defined wide area networks (SD-WAN) and unified communications (UC), just to name a few. Recent market forecasts show that operators investing in both Cloud and UC definitely are on the right track.

According to two market research firm Gartner reports,<sup>1</sup> the worldwide public cloud services market is strengthening across all industries. The market is expected to reach \$204 billion by year-end 2016, up from \$175 billion in 2015.

Specifically, the research notes that cloud business process services as a service (BPaaS) will grow from \$39 billion in 2015 to \$42.6 billion in 2016. Infrastructure as a service (IaaS) will continue to be the fastest growing cloud service segment with 38.4 percent growth to reach \$22.4 billion, while revenues from cloud application services as a service (SaaS) are forecast to grow 20.3 percent to reach \$37.7 billion.<sup>2</sup>

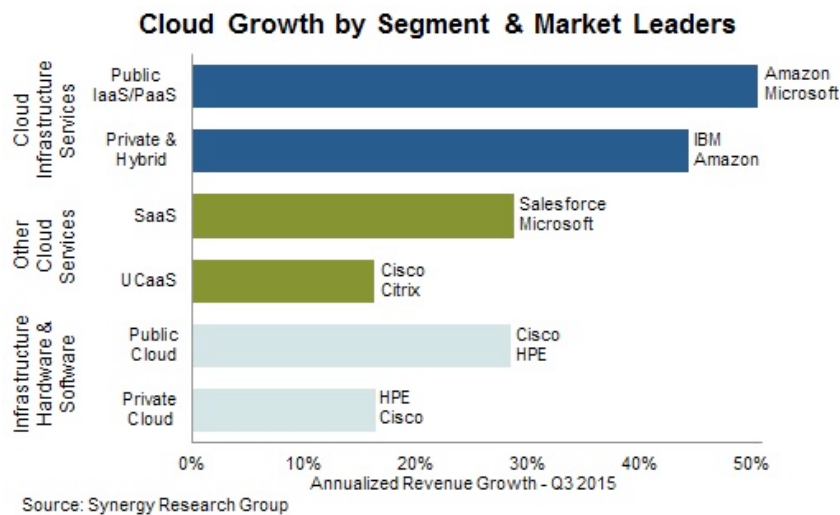


Figure 1 - Cloud Services Growth

<sup>1</sup> Gartner, "Forecast: Public Cloud Services, Worldwide, 2013-2019, 4Q15 Update" and "Forecast Analysis: Public Cloud Services, Worldwide, 4Q15 Update,"

<https://www.gartner.com/login/loginInitAction.do?method=initialize&TARGET=http%3A%2F%2Fwww.gartner.com%2Fdocument%2F3180349%3Fref%3DsolvAll%26refval%3D161389607%26qid%3D37bc1756347f7f98015dd9e2da164685>

<sup>2</sup> Gartner, "Gartner Says Worldwide Public Cloud Services Market Is Forecast to Reach \$204 Billion in 2016", <http://www.gartner.com/newsroom/id/3188817>

"This strong growth continues to reflect a shift away from legacy IT services to cloud-based services due to an increased trend of organizations pursuing a digital-based strategy," said Sid Nag, director at Gartner.<sup>3</sup>

Similarly, data from the Synergy Research Group highlights the ongoing shift to cloud delivery of enterprise services. According to their research, cloud service providers generated \$20 billion in revenues from cloud infrastructure services (IaaS, PaaS, private & hybrid services) and a further \$27 billion from SaaS in 2015.<sup>4</sup>

Service providers that can provide customers with robust, reliable and flexible cloud-based services and apps enable their business customers to focus on their core business and save valuable time, money and resources. For example, businesses can accelerate their response times, both internally and externally, by utilizing hosted applications that reside in the cloud instead of on proprietary servers and data centers that they would have to operate and maintain. While they are globally accessible, hosted apps look and feel like local apps to each member of a company's workforce. They also are easy to launch and update, and because they are designed to be accessed via any device, they are more robust and reliable than legacy systems.

### The Vertical Opportunity

In addition to quickly growing acceptance of cloud-based hosted apps and virtual desktops in general, entrepreneurs are busy creating industry specific SaaS for major verticals. Their initial focus is on companies involved in life sciences, legal, government, healthcare, financial services, and insurance.<sup>5</sup>

According to market research firm IDC, in 2015, verticals with the largest cloud infrastructure spend included manufacturing at \$8.6 billion, followed by banking and professional services at \$6.8 billion and \$6.6 billion, respectively.<sup>6</sup>

IDC reports the following verticals will experience five-year (2014 – 2019) compound annual growth rates (CAGR) of greater than 20% for cloud-based services spend:<sup>7</sup>

- Media
- Education
- Transportation
- State/local government
- Retail

### Key components businesses value when shifting to cloud:

- High-performance, secure, reliable solutions that guarantee safe transfer of data to and from the cloud.
- Enterprise-wide support for employees who are working at home or from remote locations.
- Business continuity ensured by multiple back-up options designed to optimize business connectivity uptime.

3 Gartner, "Gartner Says Worldwide Public Cloud Services Market Is Forecast to Reach \$204 Billion in 2016", <http://www.gartner.com/newsroom/id/3188817>

4 Synergy Research Group, "2015 Review Shows \$110 billion Cloud Market Growing at 28% Annually," <https://www.srgresearch.com/articles/2015-review-shows-110-billion-cloud-market-growing-28-annually>

5 Inc., "Why Companies Are Shifting To The Industry Specific Cloud", <http://www.inc.com/john-hall/why-companies-are-shifting-to-the-industry-specific-cloud.html>

6 IDC, "Worldwide Public Cloud Services Spending Forecast to Double by 2019", <https://www.idc.com/getdoc.jsp?containerId=prUS40960516>

7 Ibid

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## Shouldering the Shift

As their customers flock to hosted apps, virtual desktops and unified communications (UC) apps and services, broadband service providers are making changes, too. They are migrating as quickly as they can from their inflexible, over provisioned legacy networks to agile, flexible future networks. It is no small undertaking, but just like moving from the analog era to the digital era, the shift is paramount.

In-demand cloud-based services require low-latency, symmetrical ultra-high-speed broadband networks, that can respond to customers' changing needs and requirements, preferably in real-time.

### Ultra-Broadband Connectivity

Delivering symmetrical multi-gigabit Ethernet services is one foundation to enabling the services and applications that today's business customers demand. Enterprise

applications increasingly require robust symmetrical broadband connectivity. Desktop virtualization, SD-WAN, and SaaS applications like Office 365 create the need for bandwidth diversity and reliability.

Upgrading broadband networks for symmetrical gigabit capabilities ensures service providers can competently deliver the enterprise applications required to remain competitive. More importantly, ultra-broadband network connectivity allows service providers to maximize growing revenue and profitability opportunities presented by serving the SMB and enterprise business segments.

The landscape is indeed changing, and competitive gigabit offers targeting the business sector are on the rise. Google Fiber just introduced a gigabit offering targeting the SMB sector with a disruptive \$70 price point.<sup>8</sup> Initially targeting their Charlotte, Kansas City, Provo, Austin, and Nashville markets, Google Fiber will eventually roll this out to their growing Google Fiber footprint.

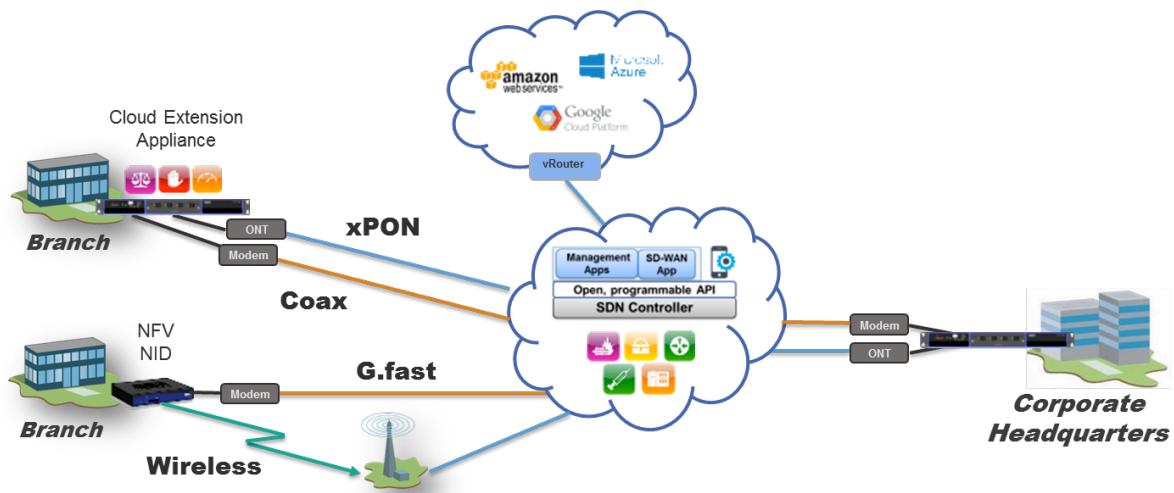


Figure 2 - ADTRAN Software Defined WAN Architecture

<sup>8</sup> GigCommunities.net, Google Fiber Early Access Pricing Reduced, Targets Business Customers, <http://gigcommunities.net/google-fiber-early-access-pricing-reduced-targets-business-customers/>

There are also a growing number of fixed wireless operators targeting the SMB sector with ultra-broadband service tiers. Indeed, marketplace dynamics are shifting and ultra-broadband and gigabit connectivity tiers for the business customer segment are now requisite. Verizon just announced testing of NG-PON2 FTTP service, which lays the groundwork for them to offer 10 Gbps broadband service to business customers in 2017.<sup>9</sup>

### **Software Driven Programmable Networks**

Unlike legacy networks, which are comprised of hardware and software that is dedicated to specific functionality and oversubscribed just in case demand grows beyond engineering forecasts, emerging network infrastructure and its components are software-driven and programmable. Both capabilities work in tandem to enable operators to meet their customers' changing demands in minutes, hours or days, rather than the weeks, months or years legacy networks historically took.

For example, emerging networks take the focus off of hardware and place it on software by employing

software-defined network (SDN) and network functions virtualization (NFV) technologies. Both enable network hardware to serve more than the one specific purpose for which a system or its components were created. Together, SDN and NFV and programmable hardware also unleash unprecedented scale by setting all networking resources free to be used or optimized wherever they are needed most. In emerging networks, the functionality of network resources is driven by demand instead of predetermined roles or "guess-timated" forecasts.

Emerging networks' agility, speed, scale, and flexibility enable new levels of collaboration between, customers, service providers, and developers, creating a promising future. Together they can design, develop and deploy apps, services and virtual controls that legacy networks are incapable of supporting. For example, just as the smartphone introduces apps and services that made land line phones look inert, emerging networks are now supporting apps, services and features that most businesses will be unable to imagine living without for years to come.

### **About NFV**

NFV is the result of collaboration by thirteen of the world's largest service providers to change the way network solutions are conceptualized and deployed. Virtualization of network functions increases agility, reduces time to market for new solutions, lowers overall network cost and complexity and reduces or eliminates vendor lock-in by employing industry-standard servers and whitebox solutions.

### **About SDN**

SDN adds flexibility and programmability to networks, further reducing the focus and dependence on hardware. SDN's enable service providers to create and provision services in a competitive fashion and save time and money on their operational network expenditures.

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<sup>9</sup> *Telecompetitor, Verizon NG-PON2 Testing Sets Up Move to Next Generation 10 Gbps FTTP*, <http://www.telecompetitor.com/verizon-ng-pon2-testing-sets-up-move-to-next-generation-10-gbps-ftp/>

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## Building Solutions, Not Problems

Businesses have always wanted simple solutions to their complex needs. Historically, service providers have had to initiate complex solutions involving byzantine hardware-software combinations that were expensive and confusing. One promise of software driven, gigabit enabled networks is their flexibility and agility, which enables custom solutions for business customer requirements.

Smart service providers migrating to programmable networks can tailor services to meet their customers needs in record time, adjust those services to meet specific requirements on demand, or create brand new services as new trends and needs dictate. Broadband service providers can now collaborate more closely with their business customers and meet their varying requirements, improving their revenue and profitability prospects as a result. Networks can now conform to customer requirements, reversing the legacy of the opposite, which historically all too often meant customers had to conform to a service provider's network environment.

This new approach enables both service providers and their customers to grow and prosper together. Business customers can now rely on their service providers to manage their IT and business application infrastructure, freeing them up to better focus on their own end customers. They can now use technology as an asset to better achieve their mission, without the hassle and burden of having to devote significant resources to manage it. In this regard, service providers now become trusted technology partners, not just vendors offering complicated and costly services.

## Seize the Moment

The potential of the emerging software-driven programmable broadband access network is already upon us and it's limitless in its opportunity. However, success is by no means guaranteed. Indeed, service providers will need to seize the moment. Enterprise and business services are a lucrative market segment, attracting wide ranging competitors. The capabilities of advanced networks includes inviting non-traditional competitors to pursue these opportunities. Competitors now include companies like Microsoft, Google, Amazon, and many more, who leverage the power of IP enabled networks to offer many of the applications discussed in this paper.

Whether service providers are defending their own market, or expanding into others, the need to leverage the capabilities of software-driven programmable broadband access networks is now critical. There is too much opportunity at stake. The good news is these capabilities exist and are available today. Enterprise and business customers are looking for technology partners to help them leverage their own business opportunities. Service providers now have the tools to seize that opportunity.





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TL19.1270



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