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CenturyLink to Acquire Level 3

Aims for #2 Spot in the U.S. Communication Services Market

Stratecast Analysis by

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Introduction[1]

On October 31, 2016, CenturyLink announced its decision to acquire Level 3 Communications. The deal, assuming it clears regulatory approval by the FCC and SEC, will be valued at $34 billion in cash and stock. CenturyLink expects annualized savings of approximately $975 million from synergies derived from the acquisition. The companies expect the transaction to close in Q3 of 2017.

CenturyLink is a leading incumbent local exchange carrier (ILEC) that has offerings in wholesale, business and consumer services markets. The company offers voice, video, data and IT services to global enterprises. Level 3, a competitive local exchange carrier (CLEC), has voice, data, video and managed network services offerings in the wholesale and business services markets. Both CenturyLink and Level 3 have been on an acquisition spree in the past decade to expand their breadth of footprint and depth of offerings, domestically and internationally. Notable acquisitions include Qwest (2010) and Savvis (2011) for CenturyLink; and Global Crossing (2011) and tw telecom (2014) for Level 3.[2]

Through a series of acquisitions, including Savvis, Tier 3, and AppFog, combined with its own data center and network footprint, CenturyLink has also established itself as a leading cloud service provider.

Level 3 has a wholesale background, but has acquired several business-focused companies in the last decade, to emerge as a leading communication service provider in the business segment. Level 3 does not have a consumer services focus, and has limited presence in the cloud services space (offering Infrastructure as a Service only in the Latin America region). Level 3 does, however, have extensive offerings for consumer-servicing businesses, the public sector, and mobile wireless providers, as will be described later in the report. The combined company expects to increase on-net buildings by nearly 75%, to approximately 75,000, including 10,000 buildings in EMEA and Latin America.

With CenturyLink's acquisition of Level 3, the company's U.S. competitive positioning (based on market shares) in the high-growth, enterprise segment will leap to second place, behind AT&T. In this paper, we provide Frost & Sullivan's analysis on the implications of this merger to the companies and the market.

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[1] In preparing this report, Stratecast used information shared by CenturyLink on the analyst call following the acquisition announcement, and publicly available investor presentations on the companies' websites.

Please note that the insights and opinions expressed in this assessment are those of Stratecast, and have been developed through the Stratecast research and analysis process. These expressed insights and opinions do not necessarily reflect the views of the company executives interviewed.

[2] For a detailed analysis of these acquisitions, see the following Frost & Sullivan reports:

- *BCS 8-4: Level 3 to Acquire tw telecom; Bets Big on Metro Fiber Assets to Capture Enterprise Market*
- *BCS 4-7: CenturyLink Acquiring Qwest: What to Expect*

What Does The Acquisition Mean To CenturyLink?

Level 3 brings to CenturyLink a rich set of assets across business and wholesale markets. Level 3 operates one of the largest IP backbones in the world, including 33,000 route miles of undersea fiber-optic systems. CenturyLink operates a Tier 1 global network that spans 500,000 miles of fiber connectivity (280,000 of those being international); with 100 Gbps capacity across a 20.9 Tbps network backbone featuring full IPv6 support. Figure 1 shows the comparison of CenturyLink and Level 3 across various metrics.

Figure 1: Comparison of CenturyLink and Level 3

	CenturyLink	Level 3	Combined
Operating Revenue (full year 2015)	$17.9 Billion	~$8.2 Billion	~ $26.1 Billion
Countries Served	North America, Europe & Asia	North America, EMEA, APAC & Latin America	Global Market Presence
Employees (2015)	43,000	12,500	
Wholesale versus Enterprise Revenue Split (as of Dec 2015)	Not reported	32% vs. 68%	30% vs 70%
On-Net Buildings	58,000	43,200	101,200
Markets Served	99 countries	Total – 500 Markets • ~119 North America • 36 EMEA • 14 Latin America	
Fiber Route Miles	**Domestic Fiber Route Miles (Q3 2016)** 260,000 **International Route Transport Miles (Q3 2016)** 350,000	**Intercity Fiber Route Miles (Dec 2015)** Total ~110,000 • ~70,000 North America • ~26,000 EMEA • ~10,000 Latin America **Metropolitan Fiber Route Miles (Dec 2015)** ~67,000 • ~58,000 North America • ~3,200 EMEA • ~6,200 Latin America	

Source: Stratecast

Business Services Market

CenturyLink's acquisition of Level 3 primarily affects its strategic business services unit. CenturyLink's strategic business unit includes services such as multiprotocol label switching (MPLS) virtual private network (VPN), Carrier Ethernet, Wavelength services, and managed hosting. The strategic services business unit customers include small, medium and enterprise business, wholesale and governmental customers.

Carrier Ethernet

Both CenturyLink and Level 3 have a significant presence in the Carrier Ethernet services market. Level 3 acquired a strong portfolio of metro fiber assets through its 2014 tw telecom acquisition; which, combined with Level 3's own long haul assets, positioned the company as a strong competitor in the Business Ethernet services market.

Figure 2:
Business Carrier Ethernet Services – U.S. Revenue Market Shares for Top Providers, 2015

Provider	Metro Ethernet	Long Haul Ethernet	Total Ethernet
Total Market Size (U.S. $ Millions)	**$2,981**	**$1,743**	**$4,725**
AT&T	23.5%	21.7%	22.9%
Verizon	17.1%	23.9%	19.6%
CenturyLink	12.4%	6.0%	10.1%
Level 3	12.2%	19.3%	14.8%
Time Warner Cable Business Class	5.4%	N/A	4.3%
Windstream Communications	N/A	4.6%	4.3%
Combined CenturyLink + Level 3	**24.6%**	**25.3%**	**24.9%**

Source: Frost & Sullivan report: BCS 9-3, Business Carrier Ethernet Services Market Update, 2015

As shown in Figure 2, CenturyLink's and Level 3's Ethernet services are highly complementary. CenturyLink and Level 3 are neck-and-neck in terms of their metro Ethernet market shares, with Level 3 having a higher market share in the long haul segment. This acquisition, when completed, will push CenturyLink to the #1 ranking in the business Ethernet market, with a consolidated market share of approximately 25 percent. Additionally, Level 3 also brings its advanced networking capabilities—more importantly, the dynamic capacity offering—that will enable CenturyLink to offer on-demand, usage-based Ethernet services to its business customers.

Similarly, in the wholesale Ethernet services market, Level 3's market-leading position in the long haul market will push CenturyLink to the #1 ranking in the long haul space, and the #2 ranking in the total wholesale market. Below, Figure 3 shows the market shares for leading providers in the U.S. Wholesale Carrier Ethernet market.

Figure 3:
Wholesale Carrier Ethernet Services – U.S. Revenue Market Shares for Top Providers, 2015

Provider	Metro Ethernet	Long Haul Ethernet	Total Ethernet
Total Market Size (U.S. $ Millions)	**$3005**	**$934**	**$4,725**
Verizon	34.1%	9.6%	28.3%
AT&T	27.1%	15.4%	24.3%
CenturyLink	16.9%	8.1%	14.7%
Level 3	4.2%	38.6%	12.4%
XO	3.1%	6.6%	3.9%
Windstream Communications	N/A	9.2%	3.1%
Combined CenturyLink + Level 3	**21.1%**	**46.7%**	**27.1%**

Source: Frost & Sullivan report: BCS 9-2, Wholesale Carrier Ethernet Services Market Update, 2015

MPLS VPN

Level 3's market share in the MPLS market is not significant. CenturyLink's market share increases marginally with this acquisition, with the company retaining its #3 ranking in terms of market shares.

Wavelength Services

Wavelength services, especially Ethernet over Waves, continue to witness higher single-digit growth rates in the market. Level 3's rich history in big fat pipes, particularly the investment in its 100G DWDM platform, helps CenturyLink move to the #1 market share position in the wavelength services market.

Figure 4: Wholesale & Retail Wavelength Services – U.S. Revenue Market Shares for Top Providers, 2015

Provider	Wholesale Waves	Retail Waves	Total Waves
Total Market Size (U.S. $ Millions)	**$1089**	**$1494**	**$2,683**
AT&T	7.6%	27.6%	19.5%
CenturyLink	6.4%	14.5%	11.2%
Level 3	26.5%	25.6%	26.0%
Verizon	5.6%	11.4%	9.0%
Windstream	8.3%	N/A	N/A
XO	7.8%	N/A	4.6%
Zayo	19.1%	7.0%	11.6%
Combined CenturyLink + Level 3	**32.9%**	**40.1%**	**37.2%**

Source: Frost & Sullivan report: BCS 10-3, Wavelength Services Market Update, 2016

Enterprise Voice

CenturyLink offers a full range of enterprise-class voice services, including SIP trunking and a cloud-based, hosted IP telephony offering. To date, however, the provider has not been able to make significant inroads into either market, garnering less than 1% of North American market share in either category. Conversely, Level 3 is among the top 5 contenders in the SIP trunking market, grabbing over 10% market share, and outpacing many of the traditional telecom competitors in terms of year over year growth. The provider's Voice Complete service aligns very well with Level 3's target customers, and is a strategic value-added service to the data network services. The acquisition will immediately move CenturyLink into the top tier of IP-based voice services providers.[3]

Cloud Computing Services

CenturyLink has been successful in the cloud computing services market. The company continues to pursue a comprehensive hybrid cloud strategy, bolstered by strategic acquisitions in recent years of infrastructure service providers (Savvis, Tier One) and providers of up-the-stack platform, analytics, and management functionality (AppFog, DataGardens, Cognilytics, Orchestrate, ElasticBox). CenturyLink expects that enterprises will use its cloud services as a complement to their existing infrastructure, such as colocation and managed services, and business processes. The company's cloud centers are well established in North America, Europe, Asia, and Australia.

On Nov 4, 2016, CenturyLink announced its decision to divest its colocation data centers to a consortium of private equity firms. The funds from the sale—-$2.15 billion—will be used to fund the Level 3 acquisition. CenturyLink will continue to hold a 10% stake in the consortium, and lease back assets to continue serving its colocation customers, without the burden of operating these data centers.

Level 3 has chosen not to pursue cloud services—with one regional exception. In most of its global service areas, Level 3 focuses on enabling enterprise cloud strategies by offering direct connections to cloud leaders such as AWS, Google, and Azure, through its Cloud Connect service. However, in Latin America, Level 3 offers cloud infrastructure and managed services acquired with Global Crossing in 2011. In September 2016, Level 3 launched an updated cloud computing platform, called Dynamic Enterprise Computing, for the Latin American enterprise market. Among its 350 carrier-neutral data centers, Level 3 maintains about 20 cloud-enabled centers (14 in Latin America).

The acquisition of Level 3 complements CenturyLink's cloud strategy, as it can now tap into the Latin American presence that Level 3 has built. However, it likely will scrap the newly introduced Level 3 Dynamic Enterprise Computing platform in favor of the global CenturyLink Cloud Platform, to maintain a uniform cloud offering globally. CenturyLink can also now offer a much richer and deeper footprint of networks to meet the demand for high-performance, private networking for cloud connectivity.

Wireless Segment

CenturyLink resells Verizon wireless services to its residential customers. Level 3 does not have a wireless play. However, the dark fiber assets that Level 3 brings to CenturyLink could enable the

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[3] See Frost & Sullivan reports *Analysis of the North American VoIP Access and SIP Trunking Services Market*, and *North American Hosted IP Telephony and UCaaS Market*.

company to have a stronger mobile backhaul play. Mobile network operators (MNOs) use commercial wireline network services (traditional private lines and, increasingly, Ethernet) for cell site backhaul or fiber to the tower (FTTT) connectivity. Network service providers (NSPs) provide these services as a wholesale offering, and charge the MNO customer a monthly recurring charge for the circuits. As mobile operators deploy heterogeneous networks (HetNet), the recurring cost of connecting multiple antennas (macrocell, small cell and distributed antenna systems) can quickly add up to a large operational expenditure (OPEX). **While the demand for bandwidth on mobile networks continues to grow exponentially, it is not yielding more revenues. MNOs are forced to manage their infrastructure costs better, as their demand growth curve is much steeper than their revenue growth curve. Dark fiber can help MNOs' costs grow much less linearly when demand grows.**[4]

Small cell backhaul is highly sensitive to network latency, and requires large capacities of bandwidth to enable tighter cell coordination and lower interference. Dark fiber can guarantee dedicated bandwidth, and address stringent latency requirements, making it a popular choice for small cell backhaul. While selling dark fiber to the MNO segment does not pose any direct threat to NSPs' competitive positioning, it does threaten their lit services revenue. Refusing to sell dark fiber could encourage competitors to build in their network footprint, which the competitor could further leverage to offer lit services in the region.

Network Modernization Initiatives

The next big trend brewing in the communication services industry is software-defined networking (SDN) and network function virtualization (NFV). Service providers are embracing these technologies to bring agility and operational efficiency to their core networks, and provide on-demand, virtualized network services to enterprise customers. CenturyLink has been actively replacing hardware with software over its recently launched Programmable Services Backbone (PSB). Ciena's Blue Planet NFV orchestrator is underneath CenturyLink's PSB platform; and the company is working to transform its existing core network into an SDN and NFV-based environment. In Oct 2015, CenturyLink announced it would virtualize 40% of its global IP core network locations by end of 2015, with plans to have full global virtualization coverage in its IP core network and data centers by 2018.

Level 3 currently uses SDN (using Cisco's Tail-f software for SDN controller) in its Ethernet network, which lays the foundation for its adaptive network control capabilities. The SDN system controls over 75,000 network elements, which enables enterprises to procure on-demand bandwidth, with usage optimized according to application needs. The Level 3 acquisition provides CenturyLink access to an SDN-enabled Ethernet network footprint.

In terms of SD-WAN, CenturyLink launched an offering in June 2016, using Versa Networks SD-WAN solution.[5] Stratecast believes the Level 3 acquisition adds to CenturyLink's access network

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[4] For a detailed analysis of the dark fiber market, see Stratecast | Frost & Sullivan reports:

- SPIE 16-10: *Dark Fiber for Mobile Backhaul: Lighting the Path to Mobile Network Operator Growth*
- BCS 10-1: *Dark Fiber is Shining Bright: What is Driving its Resurgence?*

[5] For a detail analysis of the SD-WAN market, see Frost & Sullivan report *BCS 10-2: Software-Defined WAN: Simplifying Enterprise Hybrid WAN Deployments*.

footprint, thus providing its enterprise customers a wide range of access choices and broad coverage for their SD-WAN deployments.

What Does This Mean To The Market?

As noted, this acquisition primarily affects CenturyLink's Carrier Ethernet, Wavelength services and cloud services portfolio. Hence, customers of these services will see the greatest impact in the market.

- CenturyLink will be able to provide an expanded footprint to its Carrier Ethernet customers using Level 3's fiber-connected buildings. The combined company—with deep on-net metro and long haul footprint, end-to-end service level agreements (SLAs), and MEF 2.0 certified services—will be the leading provider of Ethernet services in both the wholesale and business segments.
- Wholesale and business customers of the two companies' wavelength services will now have access to a strong metro and long haul wavelength services footprint.
- For global enterprise customers, CenturyLink cloud may surpass all competitors in offering the industry's first end-to-end cloud service; with consistent, application-level SLAs that cover both network connectivity and cloud hosting. However, the integration and service rationalization process may take some time. Particularly in the Latin American market where Level 3 has its own cloud IaaS offering, customers could expect some service impact as CenturyLink works on replacing Level 3's cloud platform with its own.
- Existing and potential enterprise customers of CenturyLink's cloud connectivity will gain access to advanced and intelligent networking capabilities from Level 3.

Stratecast
The Last Word

The communication services industry continues to consolidate. The industry witnessed several merger and acquisition announcements in 2016—including AT&T's acquisition of Time Warner, Verizon's acquisition of XO, and Windstream's acquisition of EarthLink.

CenturyLink's acquisition of Level 3 follows the ongoing trend as service providers look to compete effectively across wholesale, business, residential, and wireless segments. Level 3's assets and capabilities strengthen CenturyLink's business services segment. As a result, CenturyLink will increase its competitive ranking in the business segment, and target a larger base of global enterprise customers with its combined network reach. The acquisitions will also further CenturyLink's cloud networking strategy.

Considering the expertise that both companies bring to the table, in terms of integrating large complex networks, and experience in melding customer and back-office support systems, Stratecast believes the integration will go smoothly. However, the lack of presence in retail wireless for either company will affect its competitive positioning compared to AT&T and Verizon, in serving businesses that prefer a consolidated wired and wireless services provider—particularly those for whom wireless communications are core to their business (e.g., transportation, logistics, field services, and others).

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