

News Release

FOR IMMEDIATE RELEASE September 24, 2019

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Verizon and Calix deliver 34 Gbps over fiber using bonded ONT technology

Demonstration is a major milestone on the path towards providing higher bandwidth speeds and lower latency to customers over Verizon's Intelligent Edge Network using AXOS

WALTHAM, MA – Small and mid-size business customers who want greater bandwidth and lower latency will soon have yet another reason to choose Verizon. In the Verizon Innovation Center in Waltham, Massachusetts, Verizon and Calix, a global provider of cloud and software platforms, systems and services used in next generation access networks, achieved 34 Gbps speeds over fiber optic cable through use of a bonded NG-PON2 (Next-Generation Passive Optical Network 2) ONT (Optical Network Terminal) prototype on Verizon's simplified, increasingly automated fiber network.

In 2018 Verizon announced it began testing NG-PON2 technology. NG-PON2 is the newest standard for Passive Optical Networks (fiber networks that don't require active amplification due to signal loss). NG-PON2 technology will provide faster speeds, lower latency, simplification of operations and increased automation in the fiber network. To achieve those benefits, NG-PON2 technology must be deployed throughout the entire fiber network. Last year, Verizon and Calix successfully trialed NG-PON2 on the OLT (Optical Line Terminal) and in this latest demonstration used Calix AXOS® systems to deliver multiple Gbps for each of four wavelengths and bond them together at the ONT (Optical Network Terminal.)

To reach 34 Gbps, Verizon and Calix extended intelligence and improved wire speed to the ONT by bonding all four available wavelength channels using software, achieving service data rates in excess of individual wavelength channel capacity. Bonding the wavelengths together in this way allowed Verizon to deliver speeds far in excess of what each individual wavelength could deliver, and when commercialized will provide an unprecedented level of connection for business customers.

"We know how important connectivity is to small and mid-size businesses," said T.J. Fox, Senior Vice President and President of Verizon Business Markets. "These advances will deliver the promise of the cloud for our customers and bring them technology at parity to what previously was only in reach for large enterprises."

"The AXOS Intelligent Access Edge simplifies the network, dramatically increases service velocity, and creates the foundation to unify both business and residential services into a single access transport," said Michel Langlois, chief development officer for Calix. "The latest test results demonstrate how this approach enables CSPs to extend the benefits of AXOS all the way to the subscriber edge. With new services becoming increasingly bandwidth-intensive, our work with Verizon has demonstrated that AXOS systems leveraging NG-PON2 will provide the future-proof connectivity needed to meet these demands."

**Editor's Note: Kevin Smith, Vice President of Technology Development and Planning for Verizon, will deliver the first customer keynote of ConneXions 2019 on Monday, October 28. Now in his twenty-fourth year at Verizon, Kevin Smith leads a team that develops the Intelligent Edge Network and roadmap with partners and suppliers to evolve and modernize Verizon's wireline infrastructure. Registration is now open for Calix ConneXions 2019, the industry's premier Innovation and Learning Conference, taking place October 26-29, 2019 at the Wynn in Las Vegas.

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Verizon Communications Inc. (NYSE, Nasdaq: VZ), headquartered in New York City, generated revenues of \$130.9 billion in 2018. The company operates America's most reliable wireless network and the nation's premier all-fiber network, and delivers integrated solutions to businesses worldwide. With brands like Yahoo, TechCrunch and HuffPost, the company's media group helps consumers stay informed and entertained, communicate and transact, while creating new ways for advertisers and partners to connect. Verizon's corporate responsibility prioritizes the environmental, social and governance issues most relevant to its business and impact to society.

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About Calix

Calix, Inc. (NYSE: CALX) – Innovative communications service providers rely on Calix platforms to help them master and monetize the complex infrastructure between their subscribers and the cloud. Calix is the leading global provider of the cloud and software platforms, systems, and services required to deliver the unified access network and smart premises of tomorrow. Our platforms and services help our customers build next generation networks by embracing a DevOps operating model, optimize the subscriber experience by leveraging big data analytics and turn the complexity of the smart home and business into new revenue streams.

This press release may contain forward-looking statements that are based upon management's current expectations and are inherently uncertain. Forward-looking statements are based upon information available to us as of the date of this release, and we assume no obligation to revise or update any such forward-looking statement to reflect any event or circumstance after the date of this release, except as required by law. Actual results and the timing of events could differ materially from current expectations based on risks and uncertainties affecting Calix's business. The reader is cautioned not to rely on the forward-looking statements contained in this press release. Additional information on potential factors that could affect Calix's results and other risks and uncertainties are detailed in its quarterly reports on Form 10-Q and Annual Report on Form 10-K filed with the SEC and available at www.sec.gov.