

State of the Network 2017 Cradlepoint Business Intelligence Report

The Cradlepoint logo features a stylized white arrow pointing to the right, positioned above the word "cradlepoint" in a lowercase, white, sans-serif font.

cradlepoint

**The Next-Generation Enterprise WAN:
Connecting People, Places & Things**

Overview of Report

Today, businesses and organizations of all sizes are being challenged to extend their networks to more people, places, and things than ever before – or ever imaginable. The rise of cloud, SaaS, mobile devices, and Internet of Things technologies are forcing more network traffic over the public Internet and creating a greater dependency on 4G LTE access and the future capabilities of 5G. As a result, IT organizations are extending and revamping their legacy WANs to address the demand for more bandwidth, mobility, agility, and security – all while reducing operational costs. This shift is being felt in IT across virtually every industry, including: retail, transportation, education, financial services, healthcare, and the public sector.

What's becoming increasingly clear is that legacy WANs, which are predominately based on wired, hardware-defined, and resource-intensive infrastructures, can't keep pace with the rapidly changing needs of today's lean and agile connected enterprise.

So where exactly are we on this transformational journey from legacy WANs – which have changed little over the last twenty years – to the promised land of cloud-enabled, software-defined, and LTE-pervasive WANs that are equally adept at connecting people, places, and things? To shed some light on that question, Cradlepoint executed a survey-based study on LTE adoption that includes perspectives on software-defined WAN (SD-WAN). The data in this report provides a benchmark for IT teams to understand whether they're ahead of the curve, right on track, or falling behind in implementation of a new enterprise WAN architecture.

TYPES OF PARTICIPANTS



Retail



Financial Services



Public Sector



Healthcare



Education



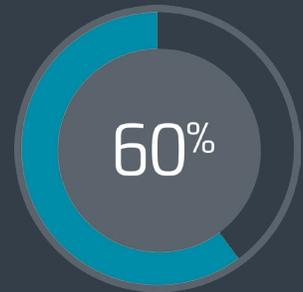
Transportation

Methodology

Cradlepoint conducted an online survey of over a hundred enterprise IT decision-makers in North America. Respondents were required to be in a role of influencing WAN connectivity solutions for their organization, and have a job title focused on networking. Additionally, their organization was required to have 100 or more employees and more than 25 locations/sites that require Internet connectivity. The respondents represented a wide variety of industries.

Legacy WAN: An Artifact of the Past

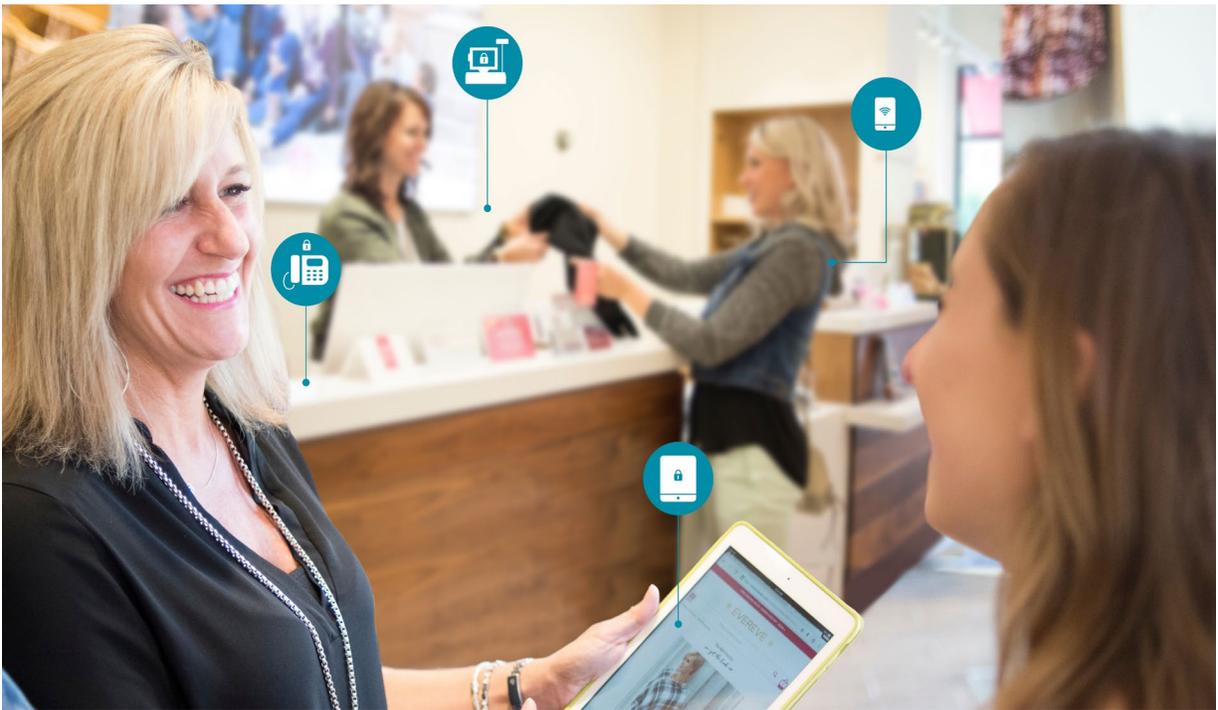
Picture this: on a Monday morning, a marketing director riding the train to work uses his commute to answer email from clients and uses an instant messenger app to check in with colleagues. After he gets off the train and leaves the station, he passes a police officer in her car. She's filing a few reports on her laptop and offloading video footage before she clocks off and heads home. On her way home, she drives by a construction site, where the site manager is using a tablet to view the location of each of the company's trucks heading to the site with more materials. Next door at a hospital, a dozen physicians use video conferencing to consult with their patients. Outside, a nurse steps onto a bus that's been converted to a mobile medical clinic.



**THE STUDY FOUND
THAT 60% OF IT
PROS SURVEYED
INDICATED THEY
WERE ALREADY
DEPLOYING LTE
AS A WAN
CONNECTIVITY
SOLUTION.**

As the bus pulls away, the nurse uses a laptop to review the chart of the first patient of the day. Scenarios like these play out worldwide every day, but it is becoming increasingly untenable for enterprises to provide secure access from anywhere and any place, from any device, with legacy WAN solutions due to the following challenges:

- + **Cost:** For organizations with distributed offices and mobile workforces and companies that work in particularly remote or rugged locations, provisioning wired connectivity can be expensive if not impossible; getting enough bandwidth to keep business moving during peak usage periods can be downright cost-prohibitive.
- + **Complexity:** Legacy solutions require expensive subject-matter experts to provision, maintain, troubleshoot, and deploy these aging networks. New applications are then often delayed months waiting for corresponding network challenges, or worse, not approved for fear of changing a complex network infrastructure.
- + **Visibility & Security:** As more traffic moves off the private network and over the Internet, maintaining both application and user performance and security becomes challenging as IT teams can't protect against what they can see or control.
- + **Flexibility:** In an increasingly digital and competitive world, enterprises often need the ability to grow, seize new opportunities, or shift directions quickly. Legacy WANs are complex, require long provisioning cycles and their lack of policy integration requires lengthy security reviews, especially when deploying security-sensitive applications like Point-of-Sale and Guest WiFi.



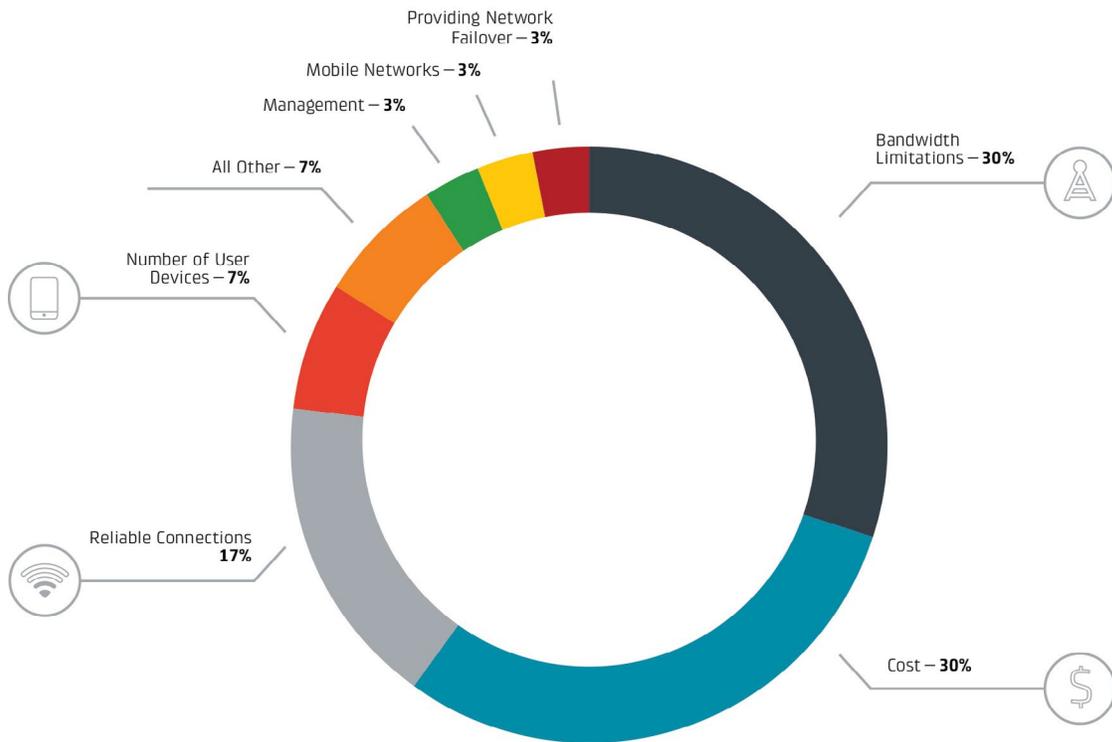
The go-to tool for Internet connectivity has been IPSec Virtual Private Networks (VPNs). However, legacy VPNs have proven to be clunky, complex, and frustrating for users. They also hamper productivity because they require repeated logins, are not always available on all of the users' devices, and often 'drop' connections when the user is transitioning between WiFi and cellular connectivity or tower-to-tower communication. The most frustrating aspect for network administrators is to manage these aged technologies day-to-day, as they typically require meticulous, ongoing monitoring.

These challenges, among others, are fueling the shift to incorporating 4G LTE, software-defined technologies, and cloud-managed wired and wireless WAN with virtualization and integration of common network services, like security and DNS.

In the survey, IT pros were asked to identify the top WAN-related challenges they face.

TOP-CITED WAN CONNECTIVITY CHALLENGES:

- + Bandwidth Limitations 30%
- + Cost 30%
- + Reliable Connections 17%
- + Number of user devices 7%
- + Management 3%
- + Mobile networks 3%
- + Providing network failover 3%
- + All Other 7%



Nearly half of IT pros currently using, or considering using, LTE indicate an increase in remote workers and locations led them to LTE as a WAN solution.

33% of IT pros cite the need to get new locations/sites up quickly as another top driver for LTE connectivity.

Other leading drivers in the move toward LTE cited by IT pros include:

- + 27% cite unreliable/slow wired connectivity options.
- + 25% cite growth in network traffic.

Connecting More People, Places & Things

Many organizations are not ready or willing to completely abandon MPLS, traditional VPN, and other legacy network elements even though the network landscape is rapidly changing. Often, the IT teams still resisting phasing in LTE solutions see MPLS and VPN as more familiar – and therefore feel like the traditional approach is safer. Others may resist a transition from MPLS because they want a single throat to choke.

Forward-thinking enterprises leverage LTE to complement, augment, extend, and even replace traditional networks.



Regardless, these enterprises are getting left behind with legacy technologies, and when they finally face the need to adopt LTE and emerging infrastructure, they'll be asking questions that their competitors ironed out long ago – and thus fall behind the curve.

Enterprises adopting a multi-WAN strategy incorporating virtualization, cloud, and LTE are already connecting more people, places, and things securely – and with less complexity and cost than ever before.

LTE Helps IT Overcome WAN Challenges: Battle-Tested, Enterprise Ready

LTE networks have been battle-tested by consumer smartphones and tablets in a highly competitive, multi-carrier environment. This competition drove network operators to continuously reduce costs and improve performance. As a result, LTE is fast, robust, and already pervasive.

Forward-thinking enterprises leverage LTE to complement, augment, extend, and even replace traditional networks.

- + **Complement:** Enterprises use LTE as failover connectivity to stay online when the wired network goes down. Because LTE is not subject to the same outage causes as wired connectivity, IT teams can rest assured that it'll be there when wired connectivity is interrupted.
- + **Augment:** Organizations that have fluctuating bandwidth needs use LTE to provide the extra bandwidth needed to enhance productivity and ensure that mission-critical applications keep running smoothly. Drop-in overlay or underlay networks aid in network resiliency, agility, and flexibility.
- + **Extend:** LTE can go where wired connectivity cannot. On the road, in remote locations, or in places where no wired infrastructure has been laid yet, LTE extends the network to go where it's needed, when it's needed.
- + **Replace:** Enterprises have found that the total cost of ownership for implementing LTE-able network solutions are lower than maintaining traditional legacy networks – and more agile for today's changing topology.

Enterprises are confidently utilizing LTE networks to protect sensitive and confidential information such as financial data, customer or patient records, and credit card transactions. Thanks to these and other benefits, LTE usage is expected to increase more than any other connectivity solution.

Benefits of LTE, according to survey respondents:

INCREASED FLEXIBILITY & AGILITY 50%



“With ‘Branch-in-a-Box,’ the equipment was all there, but the thing that wasn’t meeting our timeframe was the connectivity. Any other large carriers are going to need six to eight weeks on average to get a private line connection to a facility. With Cradlepoint, we were able to provide connectivity overnight.”

— Josh Hebert, VP of IT & facilities, First Choice Loan Services



EVEREVE

“Now with new store deployments, we have total confidence that our store team can open the store without us being there.”

— Anthony Hoang, CIO, Evereve

INCREASED REDUNDANCY & RELIABILITY 39%



“If our primary Internet connection fails, then the network automatically switches over to 4G LTE backup. The store managers typically don’t even notice that they’ve flipped over to 4G. In fact, in some cases the Cradlepoint connection is faster than the existing primary connection.”

— Vince Severns, VP of information technology, Raising Cane’s

INCREASED EFFICIENCY 27%



“Instead of being forced to get on the boat to make a change, we can make the adjustment right from our desk. With ECM, I save so much time and energy.”

— Jerry Burchard, IT systems administrator, Statue Cruises

COST SAVINGS 21%

The Pandora logo features the brand name in a bold, serif font with a small crown icon above the letter 'O'.

“We would have lost a minimum of \$10,000 in month-to-month sales having to wait out the ISP’s strike. Furthermore, there were certain fixed overhead costs that continue regardless of whether the store is open or not, making delays even more costly.”

— Ashley Walther, store manager, PANDORA



In many cases, we can achieve significant cost savings with cellular broadband solutions through Cradlepoint. Data pools also make it really easy to add devices to our plans.”

– Nathan Matarazzo, systems analyst, PCSI

INCREASED SECURITY 21%



“ With new technologies comes increased risk of important information being stolen. We couldn’t afford to put public information at risk, and Cradlepoint proved we didn’t have to. Our network security is as strong as ever, yet we didn’t need to add lots of space-eating security equipment.”

– Capt. Danny Barron, Troy Police



“ Officers turn their computer on, Cradlepoint automatically connects using the authentication that we set up, and they can get right into our police network and access the resources and programs they need.”

– Robert Green, Director of Technology, Ewing Police Department

SIMPLIFIED MANAGEMENT 18%



“ When we first implemented Enterprise Cloud Manager, I divided our 330 stores into three groups. With just a couple of clicks, I can use Enterprise Cloud Manager to upgrade all 330 devices in less than 10 minutes. That saves us a lot of labor, and got our stores protected very quickly.

– Kevin Weaver, director of infrastructure, David's Bridal

Anticipated future increase in the use of various WAN connectivity:



VSAT



SD-WAN



T1 / T3



Carrier Ethernet



MPLS



Broadband



LTE

Real Challenges, Real Solutions: Practical Use Cases

The following data indicates what percent of respondents said they use, or are considering using, LTE connectivity for specific applications. Here are real-world use cases for leading network applications:

Cloud-Managed
4G Failover
High-Performance WiFi
Security



BRANCH NETWORK CONNECTIONS 76%

Success Story: Fuzzy's Tacos

For Fuzzy's Taco Shop, a rapidly growing food and beverage chain, the list of modern-day networking needs starts with uninterrupted connectivity – especially for Point-of-Sale (POS). In case of emergency, the company knew it needed a solution with multi-WAN capabilities. Fuzzy's Taco Shop deployed a multi-WAN solution, including LTE, for their primary and backup networks – without ever changing the architecture of the LAN setup. This all-in-one approach lets the company enjoy 99.99% uptime, simplify PCI Compliance processes, and streamlined management.

NO WIRED CONNECTIONS AVAILABLE 70%

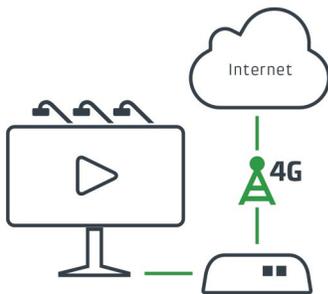
Success Story: City of San Antonio



The City of San Antonio needed to upgrade its complex traffic management system, which included a dozen radio towers throughout the City, and required wired access points at 300 intersections to serve as reference nodes for wireless APs at the other intersections. The unreliable setup meant that City staff could only engage with 60 percent of intersections, critically hampering traffic operations. The City turned to wireless LTE routers, which they installed in 700 traffic cabinets; the rest of the City's intersections have wireless access points connected to the same network. The Traffic Management Center can now communicate with nearly 100% of intersections, allowing them to spend less time troubleshooting and more time focused on proactive improvements.

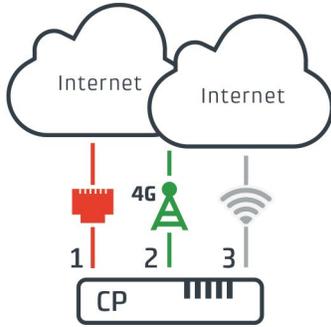
DIGITAL SIGNAGE 63%

Success Story: YESCO



YESCO, one of the world's largest digital signage manufacturers, pioneered the creation of connected digital signs, which require constant connectivity for heat monitoring, air conditioning, security and surveillance systems, and the ability to remotely change the display content. YESCO wanted to offer its customers a connected digital signage solution with “plug and play” networking capability. Using LTE connectivity and a wireless router, they're able to remotely manage the signs and their supporting functions. They can troubleshoot and manage the network remotely, allowing the company and their customers to limit troubleshooting truck rolls and increase productivity.

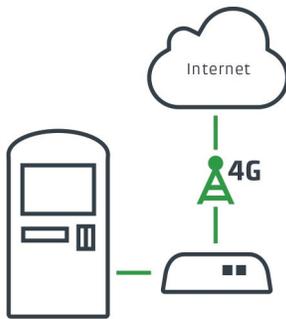
FAILOVER NETWORK CONNECTIONS 71%



Success Story: David's Bridal

David's Bridal needed a future-proof failover solution for its 300 plus stores located across the US, Canada, UK, and Puerto Rico. In addition, the IT team needed a way to move beyond the one-at-a-time method they had been using to manage network devices, and move toward centralized network management. After conferring with cellular carriers and testing competing devices, David's Bridal implemented LTE failover company-wide. The company still enjoys high performance, reliable failover connectivity, but no longer relies on wired line failover – which can be costly and time consuming to provision. Plus, they can manage the entire deployment from a remote central location.

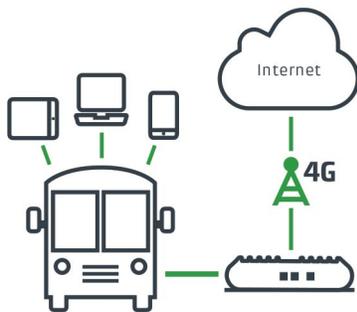
M2M / IoT 59%



Success Story: Ewing, New Jersey Police

Ewing, New Jersey is a growing community of more than 36,000 residents. The City's police patrol vehicles are equipped with a number of connected devices, including computer-aided dispatch, laptops, an automatic vehicle location (AVL) system, digital cameras, and fingerprinting. The department's old network solution was plagued with frequent connectivity interruptions, which usually caused all the vehicle's connected technologies to be dropped off the VPN. The department adopted wireless LTE routers and a cloud-managed overlay network, providing a mobile LAN that keeps officers connected to critical online applications and files anywhere, just as if they were at headquarters.

IN-VEHICLE CONNECTIVITY 72%



Success Story: Coachella Valley Unified School District

Most families in the Coachella Valley Unified School District live below the poverty line, making Internet service a luxury that many go without. The school district decided create an always-on learning environment by putting LTE routers with WiFi on the buses to keep students connected during their commutes. The district then parks those buses in the most rural and disadvantaged areas to provide Internet access to students' homes; the connectivity covers the district's entire 1,250 square miles. As a result of the "WiFi on Wheels" initiative, students are becoming more engaged with their schoolwork, and the school district has already seen a 10 percent jump in graduation rates.

PARALLEL NETWORKING 56%

Success Story: ChargeltSpot

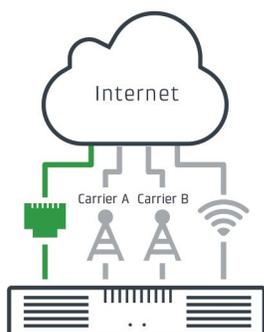


ChargeltSpot provides multi-faceted value for retail stores and venues with its free phone charging stations. It's a popular amenity that is only feasible with always-on connectivity – and is more palatable to retailers and other venues if ChargeltSpot can stay off their corporate networks. With retailers not wanting ChargeltSpot to tie into their store networks, the company knew it needed 4G LTE for connectivity, noting the mobility, flexibility, and speed it provides.

The Cradlepoint COR Series provides secure, reliable VPN functionality, keeping data safe as it travels to and from these widely dispersed kiosks. The stores and venues that host the kiosks enjoy the ability to keep their networks physically separate from ChargeltSpot's own network.

AUGMENTING MPLS 55%

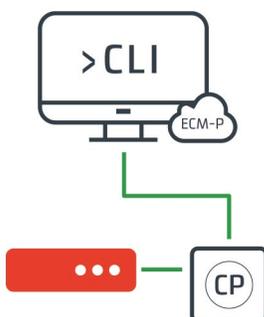
Success Story: Evereve



Evereve, a swiftly growing retail enterprise, needed a solution to augment their existing MPLS network, which was experiencing downtime two to three times per month. Each downtime episode required the whole IT team to drop their work and troubleshoot the network failure, while managers at the store waited helplessly for their mission-critical operations to be restored. After implementing LTE connectivity to augment the MPLS network, Evereve's network disruptions are no longer felt at the store level. During MPLS outages, 4G LTE failover immediately goes into effect as the IT team receives an alert. While they call the ISP to solve the wired-line problem, store operations continue to run smoothly over cellular WAN.

OUT-OF-BAND MANAGEMENT 52%

Success Story: LA Unified School District



The Los Angeles Unified School District is the second largest school district in the nation and home to more than 794,832 students and staff in over 1302 schools and centers.

With a district so large, connecting students and staff is no small feat. As LAUSD grows, the need for a constant, reliable network also grows. With Cradlepoint solutions, the school can quickly add network devices for bandwidth and agility, along with solutions for network failover and Out-of-Band Management in case of a fiber line outage. From an operational standpoint, the district requires solutions to enable operational efficiencies.

Internet + Enterprise = Interprise

Cloud, mobility, and the Internet of Things are the Nexus of forces disrupting and transforming enterprise network architecture. The “Interprise” network is the enterprise architecture of today. It leverages the Internet and virtual technologies to extend the traditional enterprise network.

For the past 25 years, corporate network administration and IT have more or less operated within the same basic structure. Companies had their central locations, regional networks, branch networks, and remote workers – all of which were connected via a private network back to a private data center that was owned and operated by the company. That data center held all of the applications that ran the business, including payroll, ERP systems, accounting, CRM, and even POS.

Security and management functions such as firewall policies, ACLs, VPN configuration, and more were conducted on hardware at each branch location or back at headquarters. This system has been called the “enterprise network,” and it has been around for as long as many of us can remember.

Today, the Internet is becoming the new corporate network – the Internet enterprise, or the “Interprise.” This new paradigm is gaining traction because of three major technology shifts: cloud, workforce mobility, and the Internet of Things (IoT). Public cloud computing, SaaS applications, mobile devices and applications, and IoT are making the public Internet the new WAN paradigm. Software-defined WAN (SD-WAN) has emerged as the new network architecture for the cloud era, creating a bridge between today’s MPLS and VPN networks – and a future dominated by Virtual Cloud Networks (VCN) that overlay the Internet.

- + IT pros believe the top SD-WAN benefits include increased network agility (31%), increased scalability (21%), and reduced costs (20%).
- + The top activities that IT pros are looking to support are on-premises apps, desktop virtualization, and VoIP/UC.
- + Nearly 3 in 5 IT pros cite security as the most important feature they would look for in an SD-WAN solution. Additionally, 2 in 5 indicate that multi-WAN resiliency and privacy would be important features needed to consider an SD-WAN solution.
 - + Security 57%
 - + Multi-WAN Resiliency 39%
 - + Privacy/VPN 39%
 - + Intelligent WAN selection 32%
 - + Least-cost path selection 24%
 - + Micro-segmentation 21%
 - + All Other 14%

Driving Business Forward with LTE, SD-WAN & Cloud

Companies and organizations of all kinds are moving forward with LTE and capitalizing on emerging opportunities created by this foundational shift in the way networks function. Our study reveals that LTE has a strong foothold as an enterprise-grade WAN solution and is being utilized more than ever before as a network strategy.

Further, implementing SD-WAN, cloud, and LTE strategies in traditional network infrastructure creates efficiencies and paves the way for a wide range of applications.

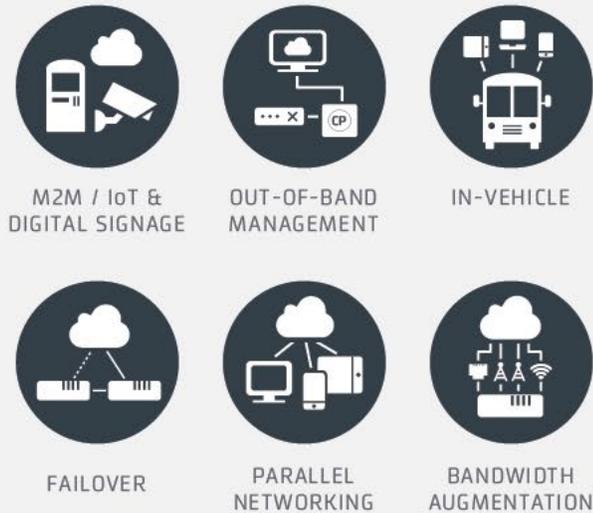
Perhaps most importantly, the study indicated that enterprises that haven’t started to incorporate LTE networks are behind the curve. Conversely, the companies that have moved forward with these technologies are seeing the benefits compound over time.

Key Statistical Findings

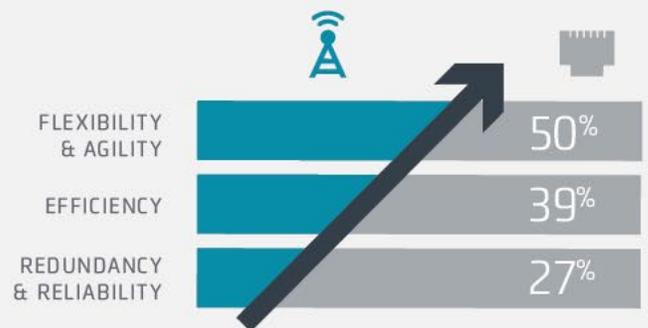
Over half of IT pros surveyed indicated they are already deploying LTE as a WAN connectivity solution and will increase those deployments.



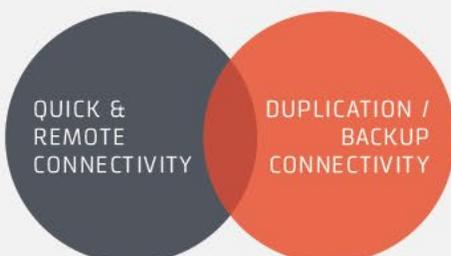
While **76% of IT pros** are using, or planning to use, LTE for primary connectivity – many are also considering LTE for:



IT pros agree that increased flexibility/agility gives **LTE an advantage over traditional wired connectivity solutions**. They identify the following benefits of LTE over wired solutions:



IT pros cite the ability to **provide quick and remote connectivity** and **duplication/backup connectivity** as common benefits of utilizing LTE.



SDN technology is expected to extend the benefits of LTE across the WAN, with benefits of:



About Cradlepoint

Cradlepoint is the global leader in cloud-based network solutions for connecting people, places, and things over wired and wireless broadband. Cradlepoint NetCloud is a software and services platform that extends the company's 4G LTE-enabled multi-function routers and ruggedized M2M/IoT gateways with cloud-based management and software-defined network services.

With Cradlepoint, customers can leverage the speed and economics of wired and wireless Internet broadband for branch, failover, mobile, and IoT networks while maintaining end-to-end visibility, security, and control.

Over 15,000 enterprise and government organizations around the world – including 75 percent of the world's top retailers, 50 percent of the Fortune 100, and 25 of the largest U.S. cities – rely on Cradlepoint to keep critical sites, workforces, vehicles, and devices always connected and protected. Major service providers use Cradlepoint network solutions as the foundation for innovative managed service offerings.

Founded in 2006, Cradlepoint is a privately held company headquartered in Boise, Idaho, with development centers in Silicon Valley and Kelowna, Canada, and offices in the UK, Australia, and Japan. Learn more at cradlepoint.com or follow us on Twitter @cradlepoint.

CLOUD-MANAGED SOLUTIONS



- + **Expertise in 4G LTE:** Cradlepoint leads the wireless WAN market with 4G LTE solutions that support the most critical connectivity requirements in every market.
- + **Software-Defined Networks:** Deploy overlay networks that securely connect mobile users, devices, VMs, and servers no matter the location.
- + **Cloud-Managed Networking Platforms:** Cradlepoint routers are a hybrid of cloud-delivered services and on-premises hardware purpose-built for wired and wireless LTE networks.
- + **Best-in-Breed Security Alliance Partners:** Cradlepoint delivers enhanced security applications through partnerships with Trend Micro and Zscaler.
- + **Dual 4G LTE Modem Strategy:** Advanced Edge Routing solutions offers multi-carrier support for a “Cut-the-Wire” solution.
- + **Robust Wireless Carrier Relationships:** Worldwide carrier relationships enable Cradlepoint to support all major LTE carriers with products rigorously tested on carrier networks for performance certification.

LEARN MORE AT CRADLEPOINT.COM.