E-BOOK

IMPROVE NETWORK PERFORMANCE

With high-capacity bandwidth

Achieve seamless access to mission-critical applications and rapid data restoration

Learn how reliable, high-capacity, low-latency connectivity can deliver better performance and ensure business continuity for multi-site organizations.

Inside this e-book

Unleash your network's potential with high-capacity Fiber Internet Access and Ethernet Services.

With today's rapid innovation, organizations need to enhance the performance of cloud platforms, improve connections between applications and network users, accommodate more remote employees and strengthen business continuity. To ensure your network can meet the challenges of modern technology, it must adapt quickly, which requires connectivity solutions that can scale to meet the growing need for high-capacity bandwidth.

Spectrum Enterprise continues to invest in our network and expand our reach to offer high-capacity capabilities that help organizations address these challenges. We deliver dedicated internet access and Ethernet up to 100 Gbps to power high-volume applications.

As part of Charter Communications, a Fortune 100 company, we have invested $35 billion over the last five years in our technologies, fiber network and ability to support the changing demands of today's organizations. Our collaborative approach to network modernization brings additional resources and expertise for IT teams to make the most of limited time and budgets.

In this e-book, we explore ways the high-capacity bandwidth of our dedicated Fiber Internet Access (FIA) and our Ethernet Services deliver on the promise of a modern network. This creates a better experience for employees, customers and other users that depend on more applications on your network and in the cloud.

Enhance the performance of cloud platforms

Access to public and private cloud platforms is more essential for large organizations than ever before, and the pandemic has expedited that trend. An estimated 90 percent of enterprises expect cloud usage to exceed prior plans due to COVID-19.[1] This has increased demand for internet and Ethernet capacity. Organizations relying heavily on real-time streaming video conferences, for example, need to resolve connectivity issues related to network performance — such as latency — to ensure smooth business operations. IT managers must also contend with more internet-bound traffic connecting to cloud applications, as well as private connections to cloud service providers that compete for resources on a network.

High-capacity connections to private data centers and major interconnection hubs in the public cloud can boost the performance of a multi-cloud environment and create cost efficiencies by consolidating multiple fiber connections. Ethernet provides a superior, private connectivity solution to strengthen security while connecting headquarters to the data centers that host cloud services or manage traffic at enterprise scale.

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Use case: Next-generation experiences

Today's smart stadiums entice fans with media-rich, interactive experiences that have placed new demands on networks and leave little tolerance for lag time. Sports franchises must build networks capable of streaming game coverage through complex multi-cloud environments and managing WiFi for fans viewing replays and highlights on site. Data-heavy traffic to and from thousands of mobile devices can strain overall network capacity and risk frustrating disruptions for people viewing the game.

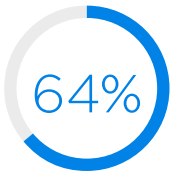
Live video is just one of many data streams that stadiums are expected to deliver with very low latency. Internet of Things (IoT) sensors collect information for security, concession payments and other applications that keep the stadium running smoothly. On the field, sensors in helmets can monitor the impact of collisions and tackles.[2] At the same time, fans access advanced analytics processed in the cloud, like where a quarterback throws the ball most often and which lanes running backs are frequenting.[3] Mobile apps and virtual reality devices can even enable fans to watch from every conceivable angle for an immersive, in-person game experience.[4] IT managers must create networks that can upload all of this data to the cloud in real time while keeping fans in the stadium connected to the same media enjoyed by viewers at home.

Solution: Aggregating internet traffic with high-capacity connectivity services helps venues support large events and maintain high network performance when users consume bandwidth-intensive media on WiFi connections. Options for bandwidth up to 100 Gbps also give IT teams flexible, scalable solutions for network designs that can deliver experiences to legions of fans off-site through high-performance connections to cloud services providers.

Improve performance between users and applications

High-capacity circuits also provide the bandwidth required to reliably transport large workloads of critical traffic between key locations or applications running in a data center. Sufficient bandwidth becomes increasingly important as more users connect to networks and more applications connect to the cloud, which can impact performance.

Access to the right amount of bandwidth, based on location and need, keeps businesses and teams running smoothly. As organizations expand their reliance on virtually delivered services and connect more remote employees, ensuring adequate bandwidth is a critical enabler of seamless and reliable experiences.



of healthcare providers are pursuing digital transformation to revolutionize patient experiences.[9]

Use case: Digitized healthcare

Readily downloadable high-definition medical imaging, virtual healthcare initiatives and the digitization of electronic health records (EHRs) have helped usher in a new era of bandwidth-intensive, data-driven healthcare. Current estimates suggest that a single patient generates close to 80 megabytes in imaging and EHR data each year.[6] With the average physician seeing 20 patients per day, that can easily add up to more than 400 gigabytes annually that healthcare organizations must store on their networks for a single provider and make available instantly during consultations.[7] As artificial intelligence (AI) algorithms progress, that data also could be used to vastly improve the quality of patient care. It's no surprise then that 64 percent of healthcare providers are pursuing digital transformation to revolutionize patient experiences.[8]

Solution: Healthcare administrators can use high-capacity Ethernet to download large volumes of high-definition patient imaging and EHR information from data centers, EHR service providers and remote locations to improve the patient-provider experience.

Maximize productivity for remote employees

Remote work became mainstream for many businesses in 2020, with the finance and insurance industries leading the way.[10] Even as normal business activities resume, by some estimates more than 20 percent of the entire workforce may continue to work remotely three to five days a week.[11] That means three to four times as many people working from home than before the pandemic.

While employing a distributed workforce can create efficiencies and expand access to a larger talent pool, it can pose unique challenges for IT. Inbound virtual private network (VPN) connections can lead to latency problems as more users attempt to access the internet and internal resources through the corporate network. Increased bandwidth capacity can accommodate growing demands for remote access while maintaining consistent performance for distributed workforces.

Use case: Remote employees in finance

Remote work is driving the need for increased bandwidth in financial services. Banks, investment management companies and their remote employees depend on reliable, high-capacity, low-latency access to capital markets, cloud-based productivity tools, third-party billing systems and cloud file storage to deliver products and services. When a substantial share of the workforce relies on secure VPNs, corporate networks can struggle to allocate enough bandwidth to give remote users high-performing connections to internal networks, cloud applications and the internet.

Solution: Financial institutions can use scalable options for high-capacity Ethernet Services and Fiber Internet Access to manage the inbound traffic from a growing share of remote employees connecting to their networks.

Support business continuity

With more mission-critical applications and processes in the cloud, access to backup data during a network disruption has become even more essential. A recent study found that nearly two-fifths of IT leaders in the U.S. reported losing more than $1 million in the past 12 months due to network outages.[12] In fact, network resilience has become the top priority for 73 percent of IT departments.[13] Organizations need to recalibrate their networks to ensure reliable connectivity with the capacity to rapidly restore their operations in the event of an outage.

Every moment that employees are without data takes a toll on operational efficiency and cost. High-capacity circuits can be used to reinforce network resiliency by enabling rapid offsite backups and restoration of data. IT teams can also quickly transport large traffic loads between locations and data centers after a power outage, connectivity disruption or natural disaster.

Fast restoration of essential business applications from backups stored in data centers is crucial, and it's dependent on having access to the right connectivity solutions. Spectrum Enterprise can deliver the bandwidth required to support business continuity across a network to quickly restore operations. As a collaborative partner with a diverse portfolio of connectivity and networking capabilities, we can also integrate our Wireless Internet Backup solution, fault-tolerant managed network services and dual entrance facility designs into a network architecture that achieves your unique goals for a resilient network.

Use case: Disaster recovery in healthcare

Cloud-based EHRs. IoT medical equipment. Systems that connect practitioners to data from remote patient monitoring. Each of these applications depends on network continuity. Healthcare organizations must plan for restoring connectivity in an emergency. Yet having access to backup data isn't enough. Bandwidth capacity is essential to quickly restore data across the network following a disruption. This is especially important in medical settings where patient safety is on the line and every second counts. According to a study by the Ponemon Institute, the cost of hospital downtime averages $7,900 per minute.[14] Plus, there is the potential for hefty fines for HIPAA noncompliance.

Solution: At speeds up to 100 Gbps, Fiber Internet Access and Ethernet Services deliver healthcare providers the large-scale bandwidth needed to quickly and securely access offsite data backups and rapidly restore information to devices across the network.

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Determine your bandwidth needs

The fast pace of change and growth can strain networks, impacting users' connection speeds and security. As your organization evolves, so does your need for high-performing, low-latency connectivity. Now it's easier than ever to adopt solutions with the right bandwidth to support your networking challenges.

Fiber Internet Access (FIA): Ensure a dedicated, high-performance internet connection with a partner you can trust. Experience the consistent performance you need to keep critical cloud applications up and running and your business operating. FIA provides nationwide, dedicated internet connectivity with symmetrical upload and download speeds that can scale up to 100 Gbps, delivered securely over our private fiber network.

Ethernet Services: Meet ever-growing data needs by connecting locations with a fast, secure, reliable, private wide area network (WAN) solution backed by performance guarantees and delivered over a dedicated fiber infrastructure. Scalable bandwidth up to 100 Gbps is available. An online portal empowers IT staff with network visibility, providing near real-time status updates and reporting capabilities. It also includes our high-touch, end-to-end service delivered with superior network design.

Why companies choose Spectrum Enterprise

- Deep end-to-end experience.
- 1,400+ IT certifications.
- 20+ years of managed services expertise.
- Nationwide network reach.
- 3rd largest Ethernet provider in the U.S.[15]
- 246K+ fiber-lit buildings.
- 50 buildings added daily.
- 230K+ fiber-route miles.
- Unmatched service and support.
- 24/7/365 proactive monitoring from experienced technicians.
- Local support specialists, all within the U.S.
- Unparalleled SLAs.
- MEF award-winning solutions.

Discover the advantage of high-capacity bandwidth

Reduce costs and complexity by consolidating internet connections and traffic.

Maintain performance as more employees access network resources and the internet through VPNs.

Count on rapid restoration of data from private data centers and the public cloud after a disruption.

Expand your capabilities with a national partner investing in a dense private fiber network.

Conclusion

Spectrum Enterprise continues to invest in our technology and nationwide fiber network to enable capabilities like high-capacity connectivity so your organization is prepared to meet the networking challenges that come with today's increased data transmission and that of tomorrow. As your trusted partner, we will collaborate with your team to deliver the right bandwidth solution for each of your locations to ensure reliable performance, low latency and high uptime across your entire network.

Partnering with Spectrum Enterprise enables your organization to innovate and continue your network modernization journey. We offer high-capacity Fiber Internet Access and Ethernet Services up to 100 Gbps, with the flexibility to adopt different speeds across locations with varying needs. These services make it easy to support seamless access to cloud platforms, improve performance between applications and network users, maximize productivity for remote users and ensure business continuity.

Our diverse portfolio of connectivity solutions makes it easier, quicker and more cost-effective to access bandwidth capacity few other providers can match. Our Internet and Networking Services are backed by an industry-leading service-level agreement (SLA) that offers 99.99 percent service availability with a four-hour mean time to restore (MTTR) — not just to respond — for reliable connectivity into the client suite. You can count on high performance and low latency for your users, allowing you to rest easy knowing your solutions include 24/7/365 U.S.-based support and local technicians.

Work with a network service provider that has the knowledge, experience and technology to meet the changing needs of your organization. Learn more at enterprise.spectrum.com/HighCapacity.

1. Tanner Luxner, "Cloud Computing Trends: 2021 State of the Cloud Report," Flexera, March 15, 2021, https://www.flexera.com/blog/industry-trends/trend-of-cloud-computing-2020/.
2. Spencer Chin, "Football Helmet Sensors Monitor Impact of Collisions, Tackles," Fierce Electronics, Aug. 21, 2019, https://www.fierceelectronics.com/sensors/football-helmet-sensors-monitor-impact-collisions-tackles.
3. Andrew Cohen, "NFL Fans Can Follow Live Player-Tracking Data in Three Games on Saturday," SportTechie, Dec. 20, 2019, https://www.sporttechie.com/nfl-live-player-tracking-data-next-gen-stats.
4. Vivienne Kyne, "How VR is Changing the Sports Fan Experience," SportLoMo, July 9, 2019, https://www.sportlomo.com/how-vr-is-changing-the-sports-fan-experience/.
5. Tanner Luxner, "Cloud Computing Trends: 2021 State of the Cloud Report," Flexera, March 15, 2021, https://www.flexera.com/blog/cloud/cloud-computing-trends-2021-state-of-the-cloud-report/.
6. "Health Data Volumes Skyrocket, Legacy Data Archives On the Rise," Harmony Healthcare IT, Aug. 4, 2020, https://www.harmonyhit.com/health-data-volumes-skyrocket-legacy-data-archives-rise-hie/.
7. David Ollier Weber, "How Many Patients Can a Primary Care Physician Treat?" American Association for Physician Leadership, Feb. 11, 2019, https://www.physicianleaders.org/news/how-many-patients-can-primary-care-physician-treat.
8. Tim Waters and Rod Cruz, "Digital Hospitals and Healthcare: What the Future Holds," Equinix Interconnections, Dec. 18, 2020, https://blog.equinix.com/blog/2020/12/18/digital-hospitals-and-healthcare-what-the-future-holds/.
9. Ibid.
10. Susan Lund, Anu Madgavkar, James Manyika and Sven Smit, "What's Next for Remote Work: An Analysis of 2,000 Tasks, 800 Jobs and Nine Countries," McKinsey & Company, Nov. 23, 2020, https://www.mckinsey.com/featured-insights/future-of-work/whats-next-for-remote-work-an-analysis-of-2000-tasks-800-jobs-and-nine-countries.
11. Ibid.
12. James Bergren, "Network Outages Cost More than $1M Annually for Nearly Two-Fifths of US Businesses, Opengear Study Finds," Opengear, May 26, 2020, https://opengear.com/press-releases/network-outages-cost-more-than-1m-annually-for-nearly-two-fifths-of-us-businesses-opengear-study-finds/.
13. Ibid.
14. Christine Duval, "The Cost of an EHR Downtime," Summit Healthcare, June 4, 2020, https://www.summit-healthcare.com/the-cost-of-an-ehr-downtime/.
15. "2020 US Carrier Ethernet Leaderboard," Vertical Systems Group, Feb. 24, 2021, https://www.verticalsystems.com/2021/02/24/ye2020-us-ethernet-leaderboard/.

About Spectrum Enterprise

Spectrum Enterprise, a part of Charter Communications, Inc., is a national provider of scalable, fiber technology solutions serving America's largest businesses and communications service providers. The broad Spectrum Enterprise portfolio includes networking and managed services solutions: Internet access, Ethernet access and networks, Voice and TV solutions. Spectrum Enterprise's industry-leading team of experts works closely with clients to achieve greater business success by providing solutions designed to meet their evolving needs. More information about Spectrum Enterprise can be found at enterprise.spectrum.com,

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