# The new rules of networking

How an adaptive network becomes the MVP.

In partnership with

ciena

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# Table of Contents



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# Who is this for?

We developed this guide with a specific audience in mind: **IT Leaders at Fortune 1000 companies and those embracing the AI revolution.**

They are the ones most likely to appreciate why a new approach to networking is so vital right now and the ones responsible for laying the groundwork to make it happen in their organization.

So if you're someone who wants to …

- **Know the big trends in networking** that are already shaping how companies succeed
- **Learn what moves innovative leaders** are making right now to prepare
- **Hear advice on what it means for your organization**

… then keep reading. **We are talking to you.**

Enterprise networks are becoming smarter, faster and increasingly indispensable to a company's bottom line. But knowing what the latest developments mean for you and what you should be doing today to prepare isn't always easy.

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# The rules of IT are changing ...

and too many leaders are still playing with yesterday's playbook.
To remain competitive, here are the new rules of telecom.

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# The new rules of enterprise networking

## An overview of the current playing field

Our experts agreed on three fundamental trends that should be shaping not just how IT departments think, but how organizations as a whole operate.

In the old days, IT decision makers could solve these by ordering more bandwidth, patching on more servers and then calling it a day.

**But that won't work anymore.**

These new rules will help guide you as you plan IT budgets, develop growth strategies and find new paths to profitability in competitive environments.

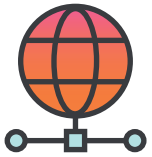
Only 44% of IT leaders currently view their network as a key enabler of digital innovation, with 33% acknowledging its pivotal role in business evolution. Nearly a quarter still perceive networks merely as utilities for connectivity.[1]

### Capacity is growing exponentially

10Gbps once seemed like a breakneck speed. Not any longer. Artificial Intelligence (AI), Machine Learning (ML), IOT and big data analytics and the resulting zettabytes of data require ultra high speed and ultra low loss networks. Where 10 Gbps used to be standard, today's enterprises are increasingly turning to 100 Gbps and 400 Gbps connectivity.

### Performance demands are also increasing

Latency of sub-5 milliseconds is becoming the new standard for a satisfactory user experience. Bottom line: Slow networks will lose users.



### Enterprises are moving workloads and applications to the cloud and edge

Multiple, interconnected clouds hosting multiple applications that need to be dynamically orchestrated and managed, placing even greater demands on high-speed, low-lancency networks.

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# Rule #1: You're living in a zettabyte world

## How long can you wait for your data?

You have multiple clouds that talk to each other, transferring ever more data back and forth. AI is putting new pressures on your infrastructure with bandwidth-heavy applications and distributed workforces are accessing more data through your network every day.

So you're working with 1G, 10G, or even 100G connectivity and doing fine … at least, you are today. But are you ready for tomorrow? Because Big Data is only getting bigger. **In fact, data consumption will grow by 23% to 181 ZB in 2025.**[2]

If you keep building onto your network to meet its increased demand, adding more expensive equipment (and adding the staff to install or maintain it), you will inevitably diminish performance. It would be like building a house with no blueprint.

It will become an unwieldy network that no one can manage, and the network will eventually hit a data ceiling. When it does, your business's growth hits a ceiling as well.

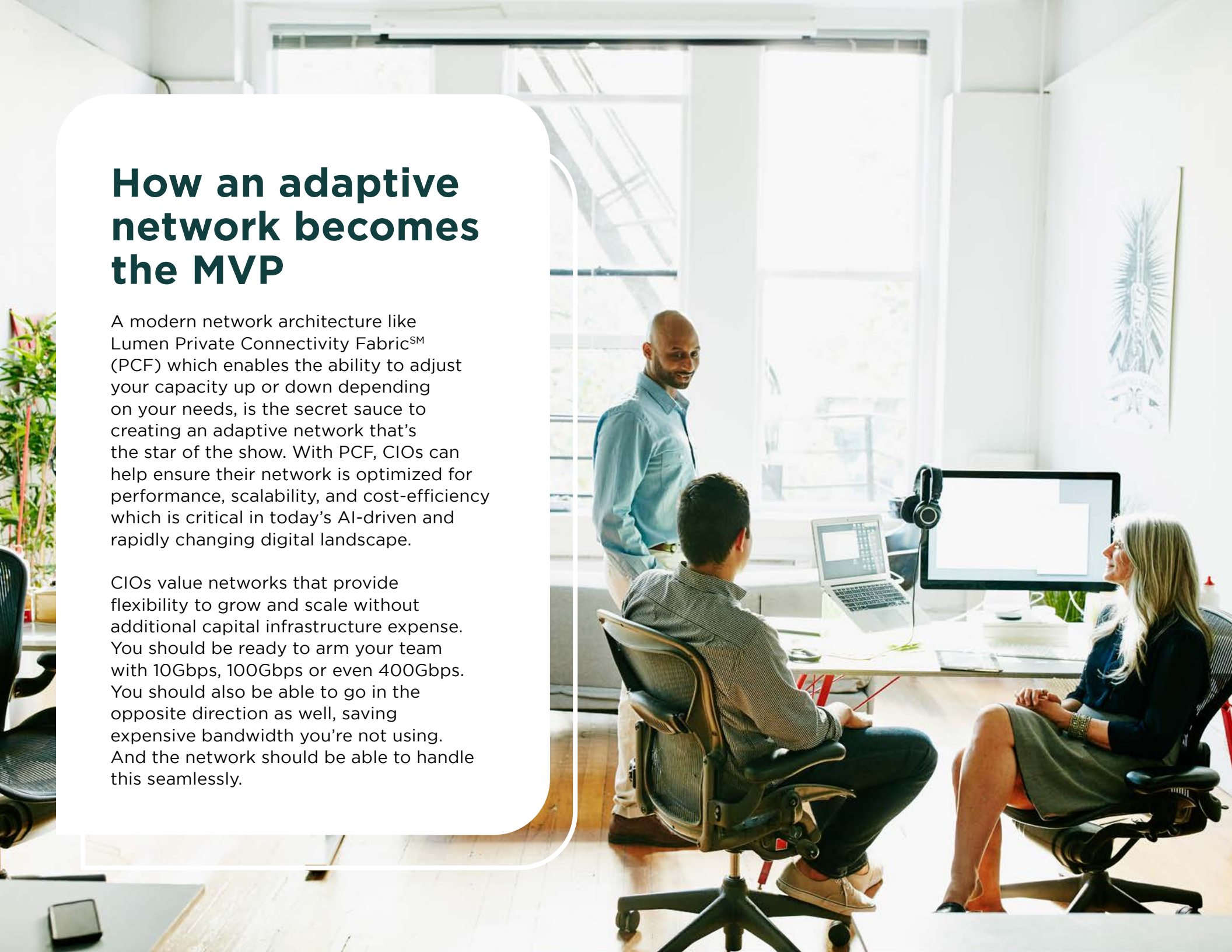
**Consider this:** Transferring 1 TB of data to the cloud using a 1 Gbps connection would take approximately 2 hours and 13 minutes, and that decreases to 80 seconds when transferring at 100 Gbps. If you increase the data set size to 100TB, that same 100 Gbps connection can transfer the data to the cloud in 2 hours and 13 minutes. Reduce your bandwidth to 1 Gbps and that same data transfer would take 9 days and 4 hours.

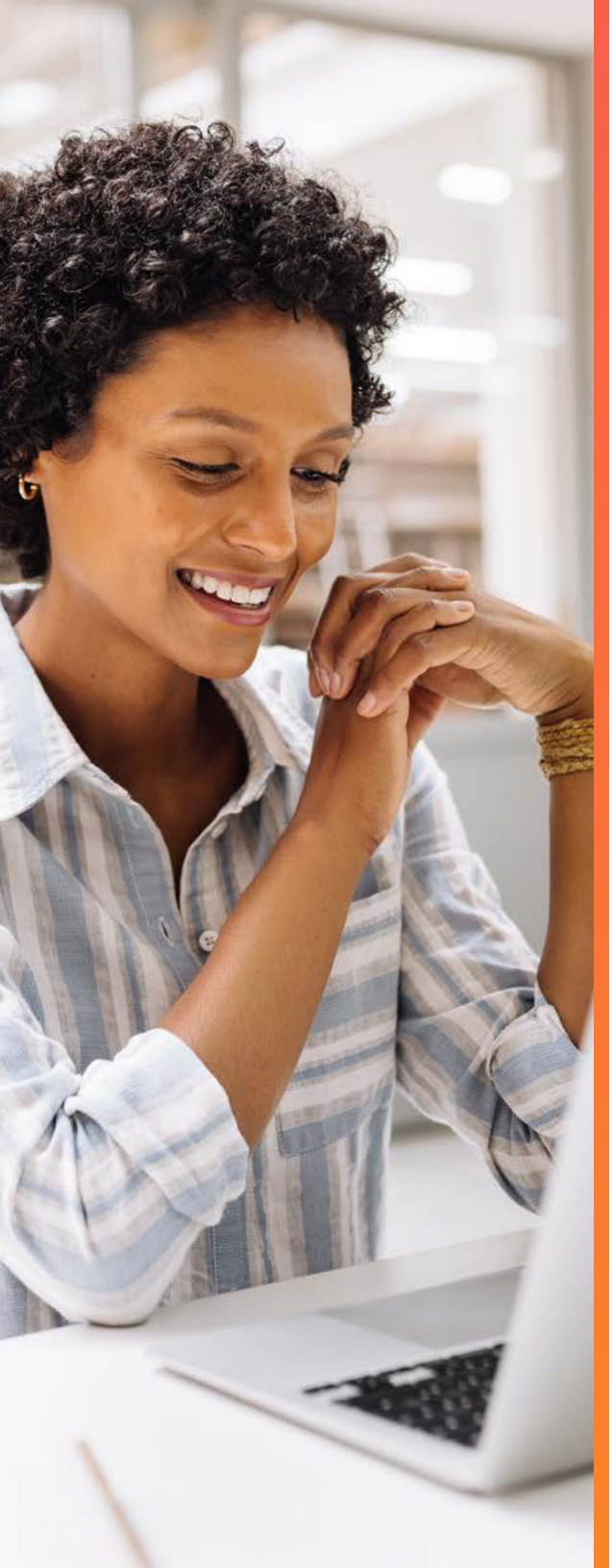
**That's a long time to wait for mission critical data!**

# How an adaptive network becomes the MVP

A modern network architecture like Lumen Private Connectivity Fabric℠ (PCF) which enables the ability to adjust your capacity up or down depending on your needs, is the secret sauce to creating an adaptive network that's the star of the show. With PCF, CIOs can help ensure their network is optimized for performance, scalability, and cost-efficiency which is critical in today's AI-driven and rapidly changing digital landscape.

CIOs value networks that provide flexibility to grow and scale without additional capital infrastructure expense. You should be ready to arm your team with 10Gbps, 100Gbps or even 400Gbps. You should also be able to go in the opposite direction as well, saving expensive bandwidth you're not using. And the network should be able to handle this seamlessly.





# Rule #2: You have a new (CXO) performance review

If you still think network uptime is the most important definition of success, we've got news for you. Keeping your network up and running is just the bare minimum.

Your network performance will now be how you measure how well you do your job. **In other words, low latency is your new goal.** If your cloud-based collaboration app has a lag problem, your business has a user problem — and probably a customer problem — and therefore you have a problem.

A slow, laggy network has a ripple effect on your other enterprise teams. Think of a sales team who depends on cloud-based applications to manage opportunities or the finance team who is using AI to correlate terabytes of credit card transactions. Who is to blame if sales reps don't use Salesforce because it's too slow?

Think of the e-commerce team. **Slow-loading sites increase cart abandonment by 75%.**[3] Are they to blame if cart abandonment occurs because of a slow-loading site during a busy time for sales?

You need a real-time network that can adapt to current traffic conditions by delivering more bandwidth on the fly.

Think of what a few milliseconds can mean for:

- The ability to receive, analyze and act on data for trading algoritms.
- The ability to communicate in real time with colleagues that use collaborative software.
- The ability of robotic apps to understand and respond to real-world conditions.

These all require low mean-time to the cloud. **Your latency should be less than 10 milliseconds and, really, closer to five.** If not, you could see real problems.

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# Rule #3: You're only as good as your applications

You've been moving your applications to the cloud. The benefits were immediate. Managing applications got easier and performance improved. Better yet: your customers loved your product.

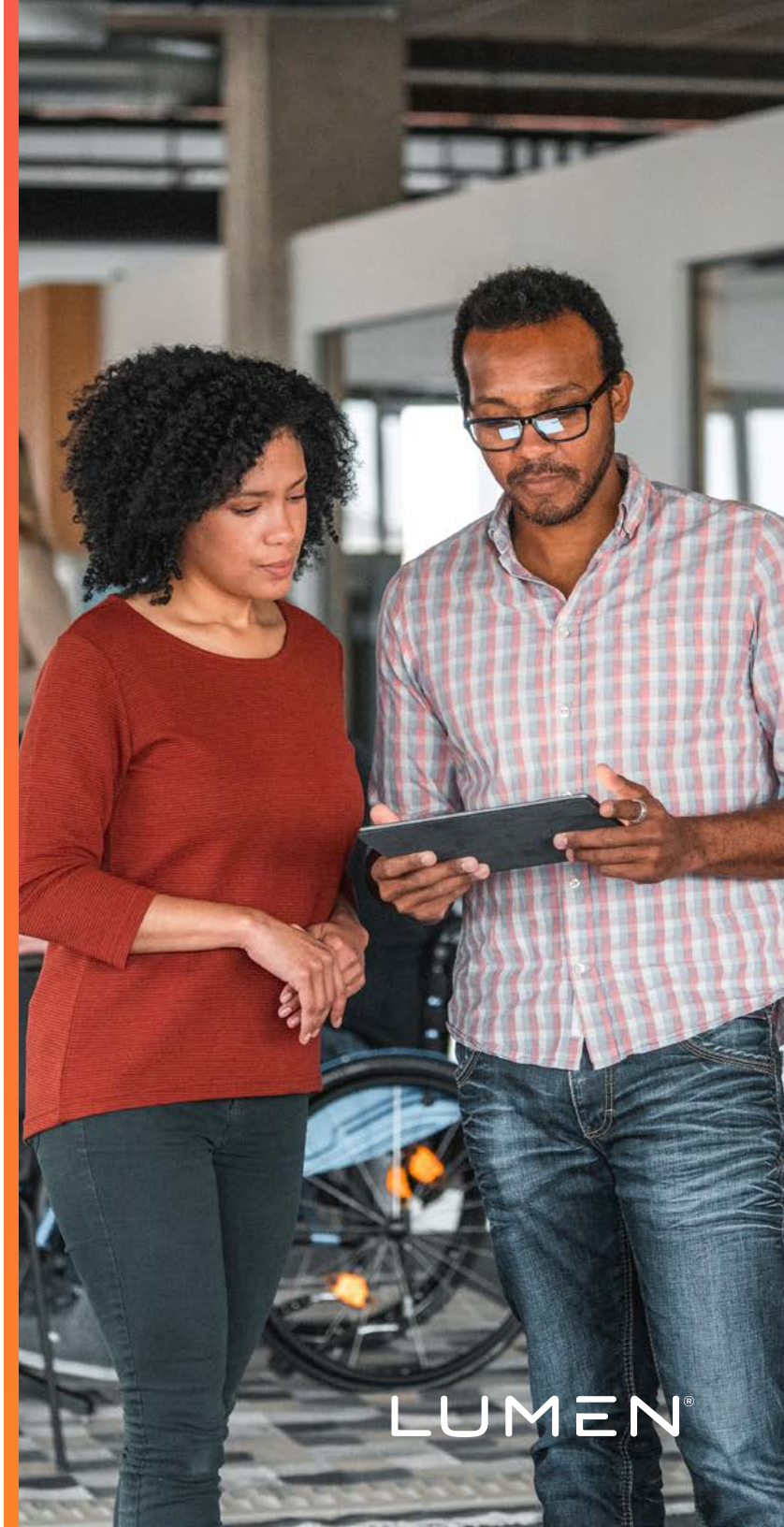
But that also means the network needs to keep up with your advancements. Growth requires a significant amount of capacity to support top application speeds, and low-latency networking is critical to help improve overall responsiveness.

## You need an adaptive network to provide you with elasticity. Lumen – Private Connectivity Fabric can:

- Manage AI and application flows across diverse cloud environments.
- Adjust to changes in traffic patterns and demands on the fly.
- Track your capacity everywhere, including between clouds.

**To capitalize on opportunities, businesses must be able to pivot in real time – and the network needs to keep up.**

Those needs are difficult to forecast and respond to in real time. You could overbuild your capacity and lose money. Or worse, high-volume times results in slow performance that frustrates your customers.



# How Ciena uses adaptive networks to avoid disaster

Ciena is a prime example of how an enterprise can leverage an adaptive network to maximize uptime.

Because its network provides a degree of agility through software-enabled routing, the enterprise can shift and change workloads, respond to traffic pattern changes in real time or even move traffic around a potential problem.

For instance, during several natural disasters, Ciena's network team was able to steer workloads away from facilities in the affected areas to different clouds or data centers.

**The adaptive network became a hero.**

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# About Lumen

Lumen connects the world. We are dedicated to furthering human progress through technology by connecting people, data and applications — quickly, securely and effortlessly. From metro connectivity to long-haul data transport to our edge cloud, security and managed service capabilities, we meet our customers' needs today and as they build for tomorrow.

[1] Hewlett Packard Enterprise, As digitalization demands increase, IT leaders miss vital connection between the enterprise network and employee experiences, May 11, 2023.

[2] Exploding Topics, Amount of Data Created Daily, https://explodingtopics.com/blog/data-generated-per-day

[3] Shopping Cart Abandonment Statistics, https://truelist.co/blog/shopping-cart-abandonment-stats/

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