



LUMEN<sup>®</sup>

**The new rules  
of networking**

In partnership with

**ciena**

# Who is this for?

We developed this guide with a specific audience in mind: IT Leaders at Fortune 1000 companies.

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

## 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 directly from some of networking's most renowned experts

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



# Why we created this resource

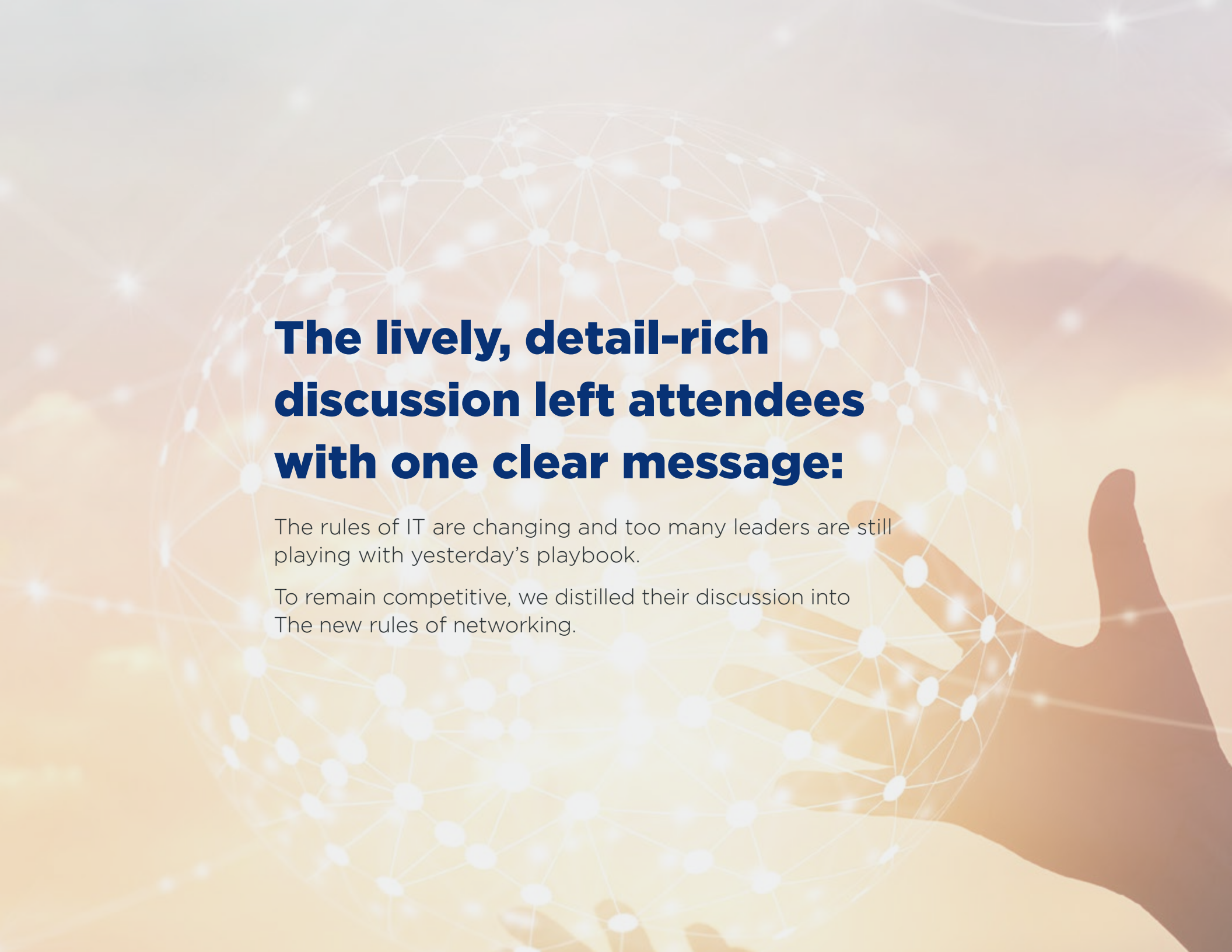
Enterprise networks are becoming smarter, faster, and increasingly indispensable to a company's bottom line. But knowing what the latest developments mean for you and what you should be doing today to prepare isn't always easy.

That's why Omdia Research assembled top experts from two industry leaders, Lumen and Ciena, for a one-hour seminar entitled Leveraging Adaptive Networks to Ensure Digital Success.

What resulted was an insightful, highly relevant and profound conversation about what is happening in telecom today.

## Here's why:

- The six panelists collectively offer a unique vantage point of the rapid technological technology innovations in networking. They literally coined the term, "Adaptive Networks."
- These candid and insightful leaders work every day with today's most innovative companies to implement cutting-edge technology.
- They have analyzed and accurately predicted today's big-bandwidth world, so they are knowledgeable and equipped for a candid, thoughtful discussion of what's next to help CIOs understand the changing technological landscape and how it will impact your company today and in the future.

The background features a warm, golden-orange gradient. In the center, a hand is shown holding a large, glowing globe. The globe is composed of a network of white nodes connected by thin white lines, creating a complex web-like structure. The hand is rendered in a dark brown silhouette, with the fingers gently cradling the globe. The overall aesthetic is modern and tech-oriented, with a focus on connectivity and global impact.

## **The lively, detail-rich discussion left attendees with one clear message:**

The rules of IT are changing and too many leaders are still playing with yesterday's playbook.

To remain competitive, we distilled their discussion into The new rules of networking.

# Meet the experts

What does it take to design consistent, high-performance, low-latency networks? How do you achieve real-time control? How can you better leverage your network to enable application performance?

**These are the questions CIOs are asking.** This team of highly knowledgeable industry experts answered these questions.



Andrew Dugan

EVP, Chief Technology Officer, Lumen

With more than 20 networking patents, Andrew Dugan has 30 years of experience building networking telecommunications, switching platforms, and services platforms.



Jason Phipps

Senior Vice President, Global Customer Engagement, Ciena

Jason Phipps has spent 20 years focused on network evolution, scale, automation, and monetization in various sectors, including network service providers, cable and MSOs, content and media, and government.



Miriana Martinova

SVP, Core Network Solutions

Miriana Martinova leads Lumen's Enterprise Core Network Solutions (CNS) organization. She drives the vision, strategy, planning, design, implementation and go-to-market activities for Lumen's Layer 1 (fiber-based infrastructure services and colocation), Layer 2 (ethernet), and Layer 3 (IP and IPVPN) enterprise networking solutions.



Stephen B. Alexander

Senior Vice President and Chief Technology Officer, Ciena

Launching his career at MIT's Lincoln Laboratory, Stephen B. Alexander has been with Ciena since 1994. The recipient of the prestigious IEEE Communications Society Industrial Innovation Award, among other honors. Today he sits on many telecommunications advisory boards.



Brodie Gage

Product Line Management and Solutions Leader, Ciena

Brodie Gage holds a patent on ethernet switching technology. He oversees Ciena's business development for significant enterprises like AT&T, Verizon, Bell, Telus, and NTT.

# The new rules of enterprise networking

Once upon a time, IT decision makers could solve network challenges by ordering more bandwidth or adding more servers. Not so true today. Networks are more complex; they're smart, self-healing and adaptable, faster than ever before and increasingly indispensable to a company's bottom line. But understanding the latest technology developments and translating that data into actionable IT strategies isn't always easy.

That's why Omdia Research assembled top experts from two industry leaders, Lumen and Ciena, for an insightful, highly relevant and profound conversation about what is happening in networking today.

Our experts agree on three fundamental trends that are shaping innovative organizations. These new rules will help guide you as you plan IT budgets, develop growth strategies and leverage technology to find new paths to profitability in increasingly competitive environments.

Continue reading to better understand how smart, dynamic networks can set you and your organization up for success.

For more information, connect with us at [lumen.com](https://lumen.com)

1

**Capacity is growing exponentially.** 10 Gbps once seemed like a breakneck speed. Not any longer. New innovations like AI and IoT 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.

2

**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.

3

**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.

# How an adaptive network becomes the MVP.

Dynamic scalability, 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.

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

Keep in mind three important rules of networking that can help you navigate the changing enterprise technology environment.

# 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 data back and forth. Your users are accessing your clouds with bandwidth-heavy applications and distributed workforces are accessing more data through your network every day.

So you're working with 1 Gbps, 10 Gbps or even 100 Gbps connectivity and doing fine ... right now. But are you ready for the future? Because Big Data is only getting bigger. In fact, data consumption will grow by 25% to 122 ZB by 2025.<sup>1</sup>

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

It will become an unwieldy network that's difficult to manage, and, eventually, the network will hit a data ceiling. When it does, your business's growth will hit a ceiling..

Consider this: Google recently shared that transferring 1 TB of data to the cloud using a 1 Gbps connection would take approximately 18 minutes and that decreases to 11 seconds when transferring at 100 Gbps. If you increase the data set size to 100 TB, that same 100 Gbps connection can transfer the data to the cloud in 3 hours. Reduce your bandwidth to 1 Gbps and that same data transfer would take 12 days.

That's a long time to keep someone waiting for a report.

Source: [Google Data Transfer Calculator](#)

<sup>1</sup>The Sustainable Cloud, A Real Business Imperative. Technology & Business Insight. October 2021



**Data set size**

100 TB



**Bandwidth**

100 Gbps



**Transfer time**

3 hours



### Think of what a few milliseconds can mean:

- The ability to receive, analyze, and act on data for traders
- The ability to communicate in real time with colleagues that use collaborative
- 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're about to experience real problems.**

## 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.

**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 corralling terrabits of credit card transactions. Who is to blame if sales reps don't use your customer SaaS application because it's too slow?

Think of the e-commerce team. **Slow-loading sites increase cart abandonment by 75%**<sup>2</sup>. Are they to blame if cart abandonment occurs because of a slow-loading site during a busy sale?

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

If your network is hit with an unexpected wave of traffic during your Black Friday deal, the last thing you want is a sluggish network to spoil the holiday fun.

<sup>2</sup> Baymard Institute, 48 Cart Abandonment Rate Statistics, 2023

# Rule #3: You're only as good as your application performance.

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.

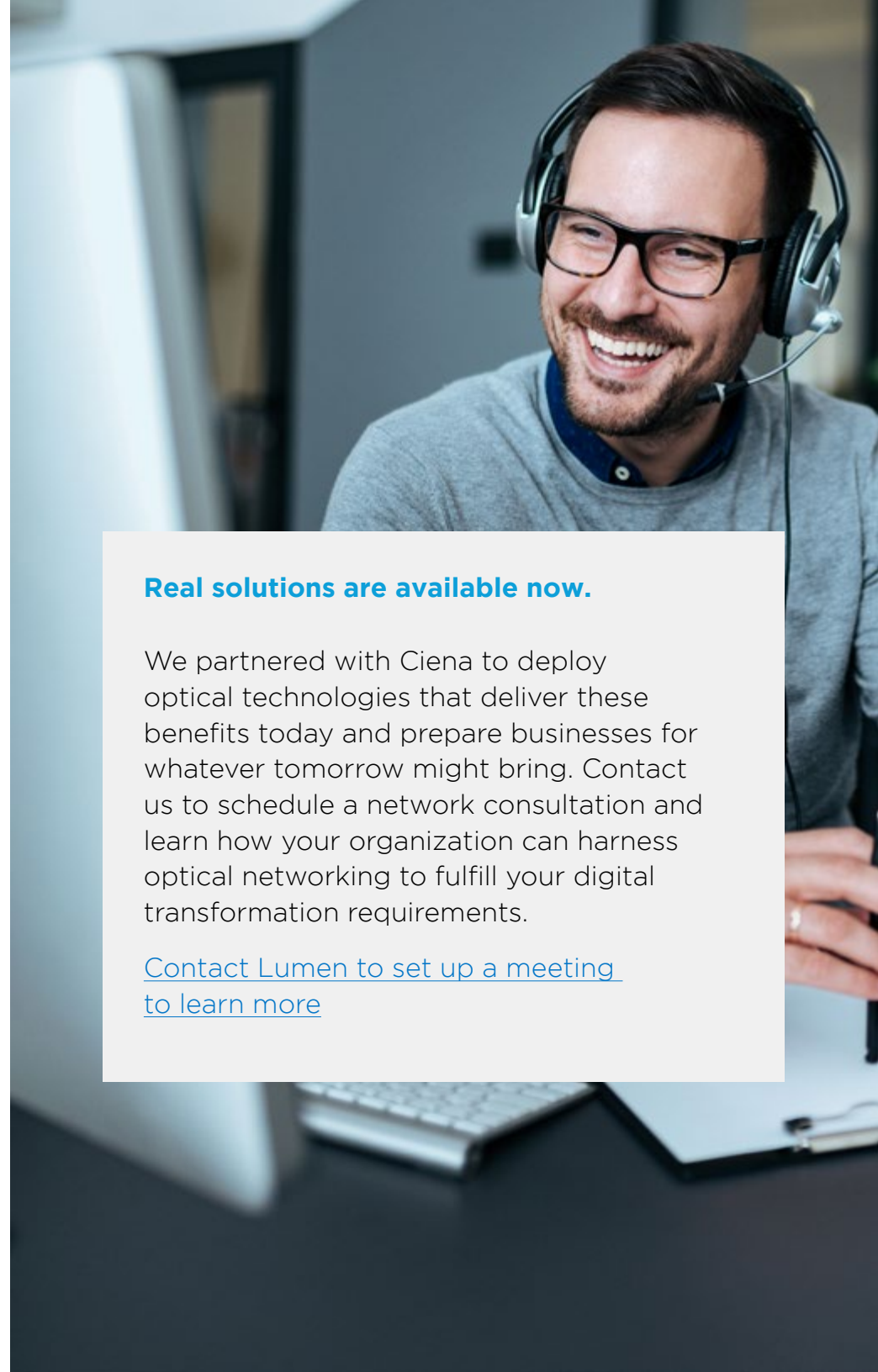
But that also means the network needs to keep up with your advancements. Growth requires a significant amount of capacity to support top application speeds, and low-latency networking is critical to improve overall responsiveness.

You need an adaptive network to provide you with elasticity. An adaptive network can:

- Manage application workloads across multiple 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 results in slow performance that frustrates your customers.



## Real solutions are available now.

We partnered with Ciena to deploy optical technologies that deliver these benefits today and prepare businesses for whatever tomorrow might bring. Contact us to schedule a network consultation and learn how your organization can harness optical networking to fulfill your digital transformation requirements.

[Contact Lumen to set up a meeting to learn more](#)

## About Lumen

Lumen is guided by our belief that humanity is at its best when technology advances how we live and work. With ~400,000 route fiber miles and serving customers in more than 60 countries, we deliver the fastest, most secure platform for applications and data to help businesses, governments and communities deliver unique experiences.

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