THE
Bandwidth
Report

INSIGHTS & TRENDS DRIVING
THE BANDWIDTH BOOM

zayo®

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Executive Summary

This report examines network bandwidth purchasing trends in the Intelligence Era, focusing on key drivers, industry behaviors, and shifting priorities from 2020 to 2024 across 1,800+ Zayo North America customers using Dark Fiber, Wavelengths, and Network Connectivity solutions. Insights also include a survey of 16 decision-makers from large enterprises (1,500+ employees) on their bandwidth needs and purchasing motivations.

Key Findings:

Wavelength and Dark Fiber Purchases are Surging

- Wavelength capacity purchased grew 2.8x from 2020 to 2024.
- Metro dark fiber purchases rose 268%, and long-haul dark fiber purchases climbed 52.6% year-over-year (YoY) from 2023 to 2024.

The Shift to Higher-Capacity Bandwidth is Accelerating

- In 2024, 400G wavelengths accounted for the largest total terabits (Tb) purchased, outpacing 10G and 100G solutions.

Big Buyers are Getting Bigger – And Consuming the Lion's Share of High-Capacity Infrastructure

- Between 2020-2024, hyperscalers and carriers made 91.2% of all metro dark fiber purchases and 66.8% of all wavelength deals exceeding 1Tb of capacity.

AI is the Primary Bandwidth Driver

- AI use cases are spurring a record number of large-scale wavelength and fiber purchases, predominantly by hyperscalers, software and tech companies.

Emerging Data Center Markets are Exploding

- Demand for long-haul routes and metro wavelength connectivity skyrocketed in Memphis and Salt Lake City, increasing by 4,300% and 348.28% year-over-year, respectively from 2023 to 2024. These cities offer affordable and available space and power, catalyzing investment.

Purchase Considerations are Evolving with AI Adoption

- Enterprises prioritize scalability, hybrid cloud optimization, and security for sensitive workloads, while balancing cost and performance.

The Bandwidth Boom: How We Got Here

(And Why It's About to Get Even Wilder)

To understand the bandwidth explosion we're seeing today, we have to rewind. Not all the way to Alexander Graham Bell, the development of ARPANET, or the dotcom boom – though those moments mark interesting points in the bandwidth story. No, the real bandwidth acceleration started about two decades ago...

2007: The Cloud Era

The launch of the iPhone and the rise of Amazon Web Services (AWS) rewired the world.

The iPhone put the Internet – and the expectation of instant access – in everyone's pocket. It unleashed a tidal wave of edge devices, each generating and consuming more data than we'd ever seen before. It transformed phones into powerful pocket-sized computers, putting an unforeseen strain on network bandwidth. National carriers scrambled to adapt their infrastructures to support a population now connected from virtually anywhere.

Meanwhile, AWS quietly flipped the switch on network architecture as we know it. Suddenly, businesses could ditch the racks and wires of traditional, expensive data centers to scale and operate their business from anywhere. The Cloud Era had arrived. And with it, the hyperscale model that would reshape the entire Internet economy.

But the transformation didn't stop there.

2020: The Distributed Era

As cloud adoption grew, so did complexity.

The Distributed Era emerged – defined by hybrid multi-cloud environments, decentralized workforces, and applications that needed to perform across locations – and was further accelerated by the pandemic. At the same time, customer demand for hyper-personalized, omnichannel experiences pushed companies to integrate real-time data, predictive analytics, and automation just to stay competitive.

Together, mobile, cloud, and distributed computing reconfigured the world, sparking an insatiable demand for bandwidth. Everything became connected. Everything needed to sync, stream, upload, and update – instantly. That was the beginning of the modern bandwidth economy.

2024: The Intelligence Era

In today's "Intelligence Era," AI has moved beyond science fiction and into our daily lives.

AI isn't just another layer on top of mobile and cloud – it's creating a need for more of everything from the network – more bandwidth, more security, more agility. AI workloads don't just require speed. They demand massive data flows, real-time responsiveness, and low-latency connectivity across cloud, edge, and enterprise environments.

Networks are being pushed to their limits once again, now at a larger scale – a scale we couldn't have imagined when Steve Jobs introduced "an iPod, a phone, and an Internet communicator" in a single device. Only this time, the stakes are higher, the demand is bigger, and the margin for error is zero.

So, just how much bandwidth will AI demand? Are today's networks up to the task?

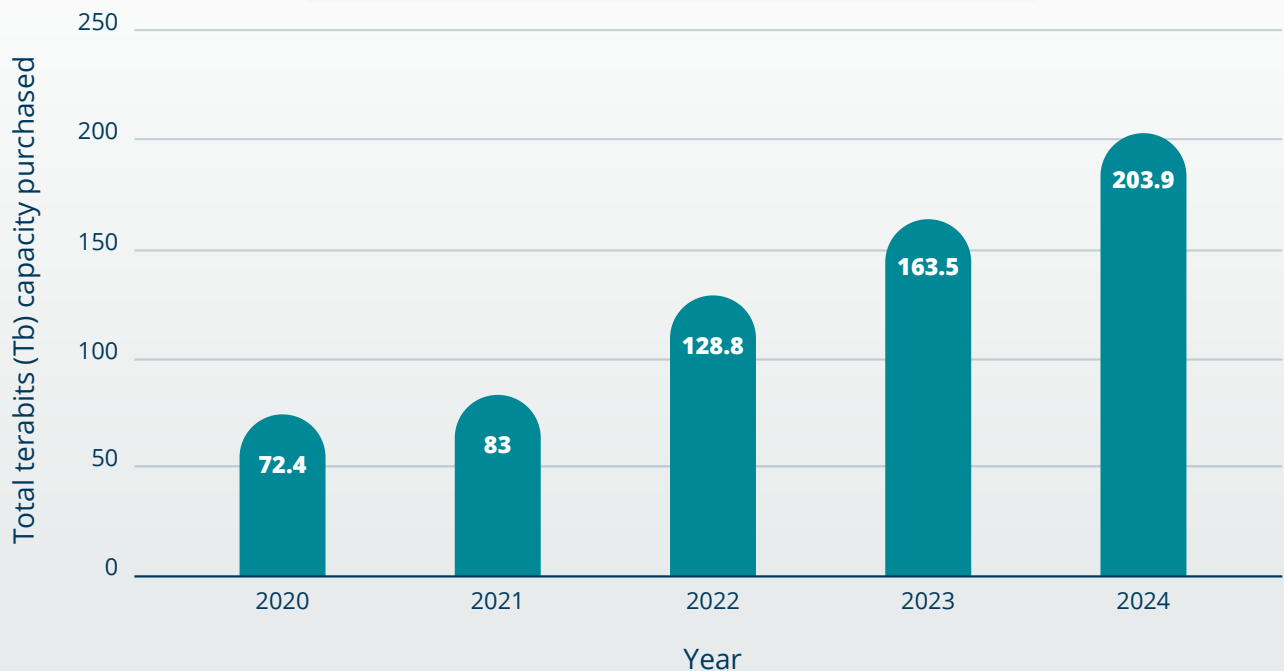**The data we've uncovered paints a striking picture. Let's dig in.**
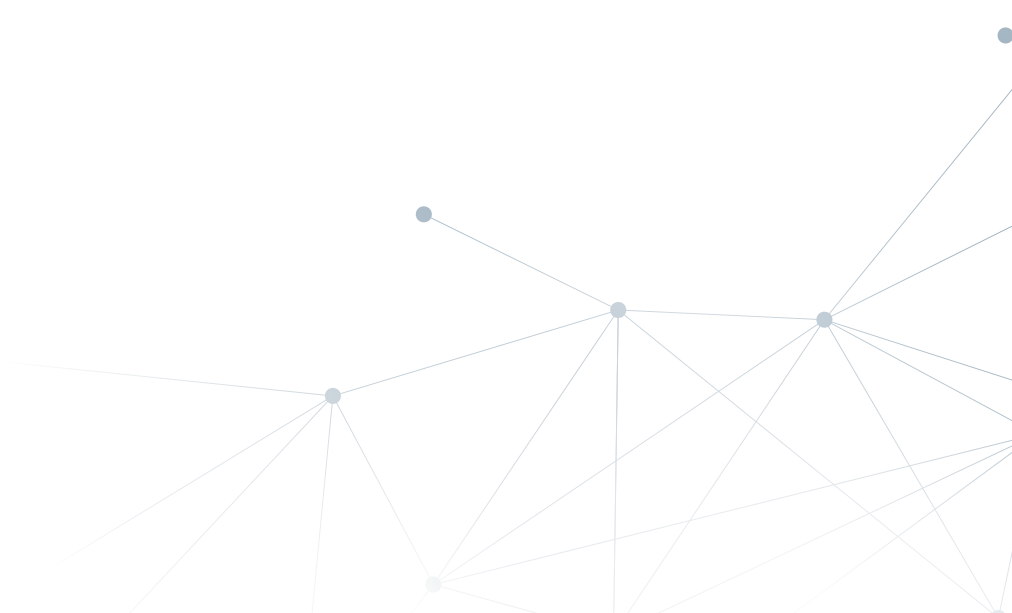
Redefining "Big Bandwidth"

Bigger bandwidth unlocks bigger possibilities, and Zayo customers are seizing the opportunity. Our data shows notable trends towards purchasing bigger bandwidth, with no signs of slowing. By investing in larger wavelength deals, greater network capacity, and higher fiber counts, they aim to stay ahead of rising bandwidth demands and drive innovation.

In this part of our report, we'll take a closer look at bandwidth purchasing trends across Zayo's Wavelengths, Dark Fiber, and Ethernet and IP solutions.

Wavelengths

WAVELENGTH CAPACITY SOARS TO NEW HEIGHTS

Bar chart titled "Wavelength Capacity Soars to New Heights." Y-axis: Total terabits (Tb) capacity purchased, ranging 0 to 250. X-axis: Year.
- 2020: 72.4
- 2021: 83
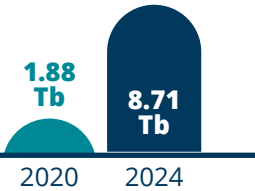- 2022: 128.8
- 2023: 163.5
- 2024: 203.9

+2.8x

Zayo's customers purchased **more than double the wavelength capacity** – 2.8x – in 2024 compared to 2020.

As data demands continue to grow with increased AI and technology adoption, so, too, will the bandwidth needed to support it. Some industries have seen standout growth in total wavelength capacity purchased during this period:
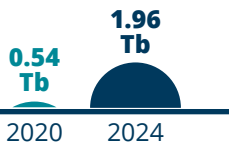
Manufacturing
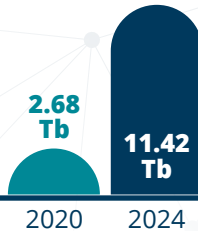## +364%

1.88 Tb — 2020
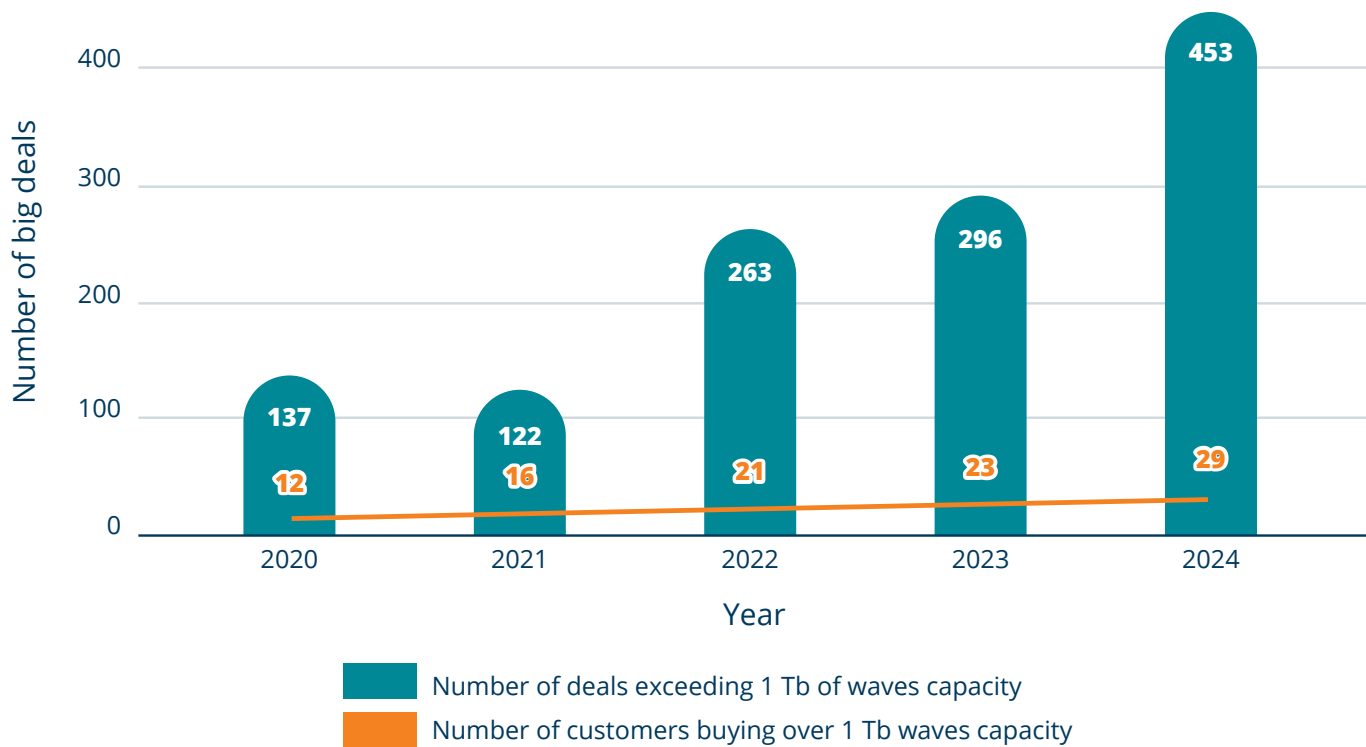8.71 Tb — 2024

Software & Technology
+450%

9.6 Tb — 2020
52.15 Tb — 2024

Public Sector
+261%

0.54 Tb — 2020
1.96 Tb — 2024

Data Centers
+326%

2.68 Tb — 2020
11.42 Tb — 2024
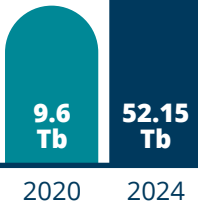
CUSTOMERS MAKING WAVES WITH BIG DEALS

Number of deals exceeding 1 Tb of waves capacity
Number of customers buying over 1 Tb waves capacity

To meet increasing bandwidth needs, customers are purchasing more wavelength capacity at once.

Accordingly, our data shows a growing trend toward deals of over 1 Tb of wavelength capacity – what we at Zayo call a "big deal."

In 2024, over twice as many customers purchased more than 1 Tb of wavelength capacity compared to 2020, with repeat buyers leading the charge.

The average big deal buyer made 11 such purchases in 2020. By 2024, that number increased to 15 deals on average per buyer, showing a growing demand for high capacity among this group. In 2024, 61.91% of all wavelength capacity was purchased by just ten buyers – all hyperscalers or carriers.

To put **1 Tb of wavelength capacity** into context, customers purchasing terabit-level capacity are buying enough capacity to transmit massive amounts of data, akin to hundreds of thousands of photos, full libraries of HD video, or millions of document files, across the network in milliseconds.

NUMBER OF BIG DEALS PURCHASED BY INDUSTRY 2020 TO 2024

Number of big deals (y-axis) vs Year (x-axis)

2020 — Total 137
- Software & Tech: 20
- Hyperscale: 66
- Carrier: 51

2021 — Total 122
- Other Enterprise: 24
- Software & Tech: 38
- Manufacturing: 31
- Carrier: 29

2022 — Total 263
- Other Enterprise: 38
- Software & Tech: 56
- Hyperscale: 148
- Carrier: 21

2023 — Total 296
- Software & Tech: 41
- Manufacturing: 18
- Hyperscale: 71
- Carrier: 166

2024 — Total 453
- Other Enterprise: 20
- Software & Tech: 116
- Manufacturing: 50
- Hyperscale: 208
- Carrier: 59

Legend:
- Other Enterprise
- Software & Tech
- Manufacturing
- Hyperscale
- Carrier

Hyperscalers, Carriers, and Software & Technology

These industries are purchasing higher capacity to fuel digital innovation, relying on massive bandwidth to power cloud services, data centers, and next-generation technologies that serve businesses of all sizes.

Manufacturing

This industry is boosting bandwidth with 68 deals over 1 Tb of capacity between 2023 and 2024. Rising demands from Industry 4.0, including real-time analytics, IoT, and AI, drive the need for higher-capacity infrastructure.

Other Enterprises

Slowly but surely, other industries like media, finance, and hospitality are investing in more capacity to meet growing bandwidth needs. As enterprises across sectors scale their digital ambitions, the trend toward big deals shows no signs of slowing down.
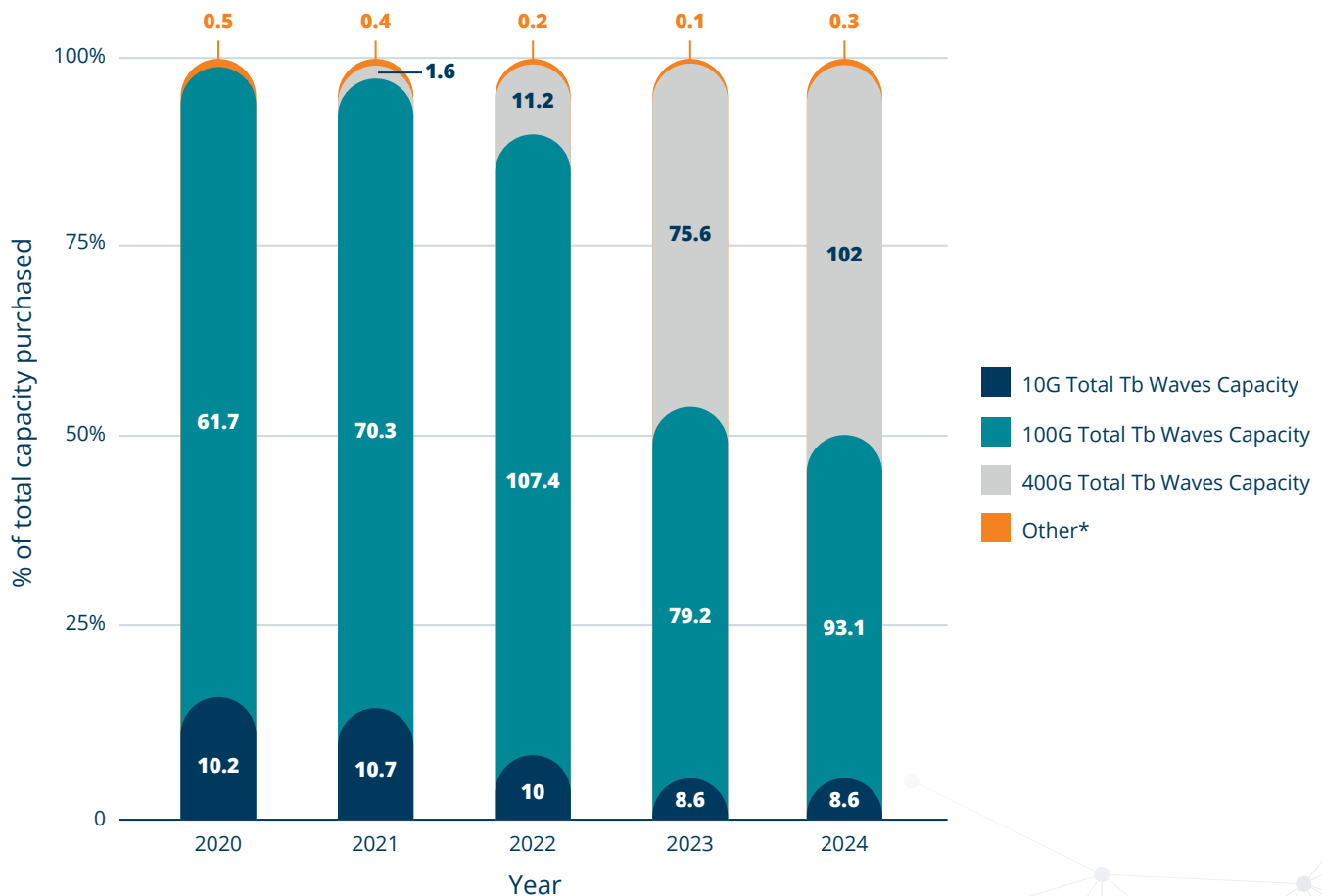
Who's Riding the 400G Wave?

To meet increased demand, innovative companies of all sizes are turning to higher capacity solutions like 400G Wavelengths.

Since Zayo first introduced our 400G Wavelength offering in 2021, forward-looking companies have leveraged the cost-efficiency, space and power savings, network simplicity, and future-proofing capabilities of 400G network capacity over its smaller bandwidth predecessors.

Let's see just how quickly the market caught on.

WAVELENGTH CAPACITY PURCHASED BY BANDWIDTH SIZE

Year	10G Total Tb Waves Capacity	100G Total Tb Waves Capacity	400G Total Tb Waves Capacity	Other*
2020	10.2	61.7		0.5
2021	10.7	70.3	1.6	0.4
2022	10	107.4	11.2	0.2
2023	8.6	79.2	75.6	0.1
2024	8.6	93.1	102	0.3

% of total capacity purchased (y-axis)

Today, **400G capacity purchases account for the highest amount of capacity** purchased by Tb – a clear indication that customers favor this higher-capacity solution as bandwidth needs grow.
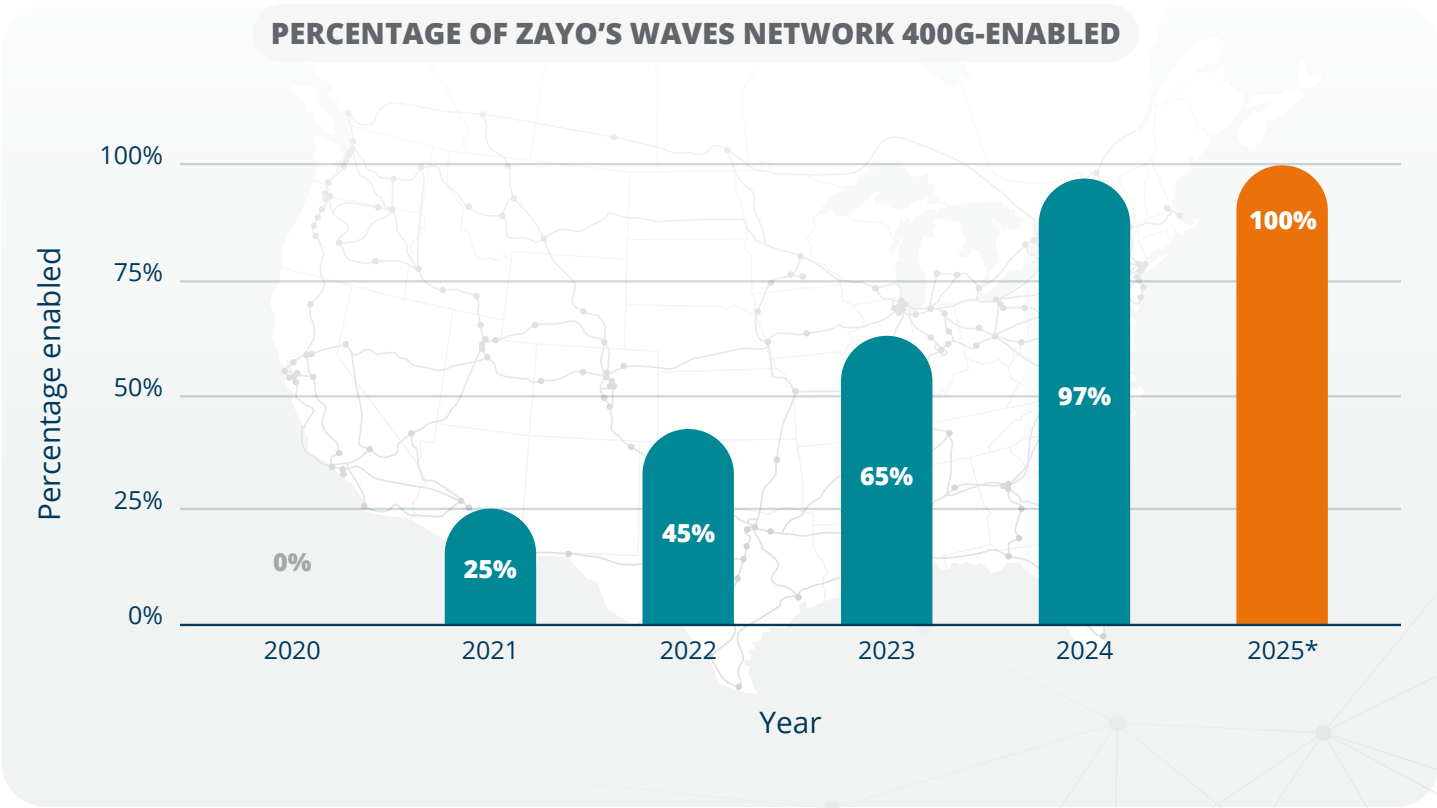
*Though rare, occasionally, companies will purchase irregular bandwidth sizes like 1G or 20G.

Software and technology companies are leading the charge in adopting 400G wavelengths, with **400G capacity accounting for an impressive 82.15%** of their total wavelength capacity purchased.

These businesses rely on high-speed, scalable networks to handle growing data demands, power cloud services, and ensure seamless performance for cutting-edge applications. With 400G, they gain the speed and efficiency needed to innovate and stay ahead.

Over time, we've adjusted our wavelength network according to this demand, upgrading it to be 400G-enabled across the board:
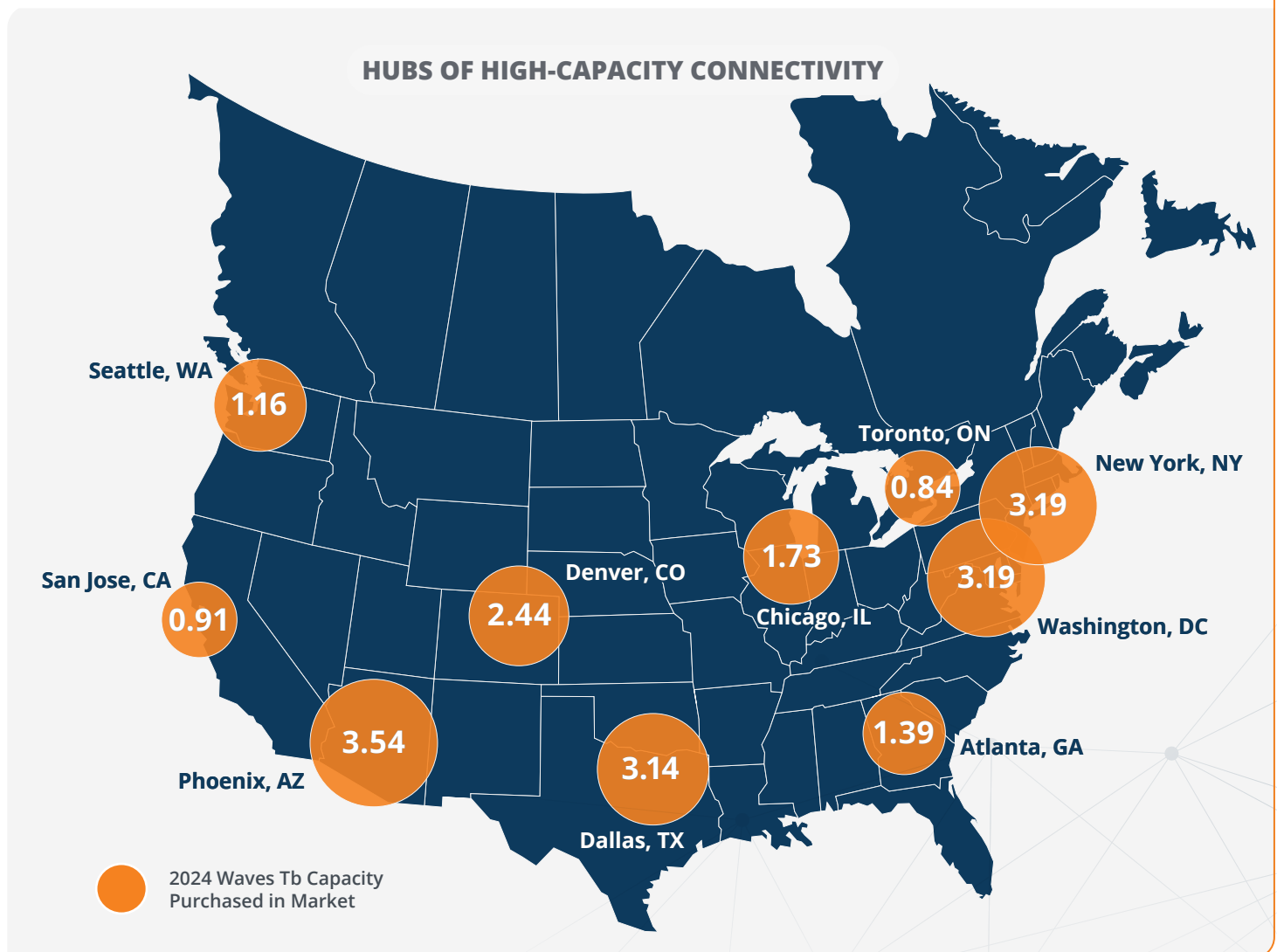
PERCENTAGE OF ZAYO'S WAVES NETWORK 400G-ENABLED

Percentage enabled

Year	Percentage
2020	0%
2021	25%
2022	45%
2023	65%
2024	97%
2025*	100%

The Waves Market Outlook: Traditional Hubs and Emerging Epicenters

Prior to the AI boom, the "where" component of the network demand equation was generally predictable. High fiber demand was reserved for the largest metro areas, where business and people were concentrated and needed the most bandwidth. Long-haul fiber expanded into areas growing in population and commerce to connect major metropolitan areas and emerging ones.

Today, our most popular metro markets are still some with the highest population density and largest economies. These markets are also where hyperscalers and tech companies are fortifying their networks to prepare for AI inference, which will largely happen in metro areas with access to data center power and dense fiber networks:

HUBS OF HIGH-CAPACITY CONNECTIVITY

Seattle, WA — 1.16
Toronto, ON — 0.84
New York, NY — 3.19
San Jose, CA — 0.91
Denver, CO — 2.44
Chicago, IL — 1.73
Washington, DC — 3.19
Phoenix, AZ — 3.54
Dallas, TX — 3.14
Atlanta, GA — 1.39

2024 Waves Tb Capacity Purchased in Market

The demand for new network infrastructure is beginning to happen in less predictable places, driven largely by where space and power are available to build data centers needed to fuel AI.

If we look at our most purchased long-haul wavelength routes, the patterns that shape this story emerge.

DATA'S MOST DEMANDED CORRIDORS

Seattle, WA — 3.4
Wenatchee, WA
Pendleton, OR
13.2
14.1
Sacramento, CA
Salt Lake City, UT — 8
San Jose, CA
12.9
3.4
Phoenix, AZ
7
Chicago, IL
5.8
Washington, DC
7.2
5.2
Memphis, TN
Atlanta, GA
Dallas, TX
Austin, TX

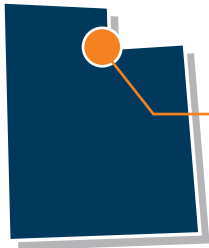● = Terabits (Tb) of capacity purchased on route
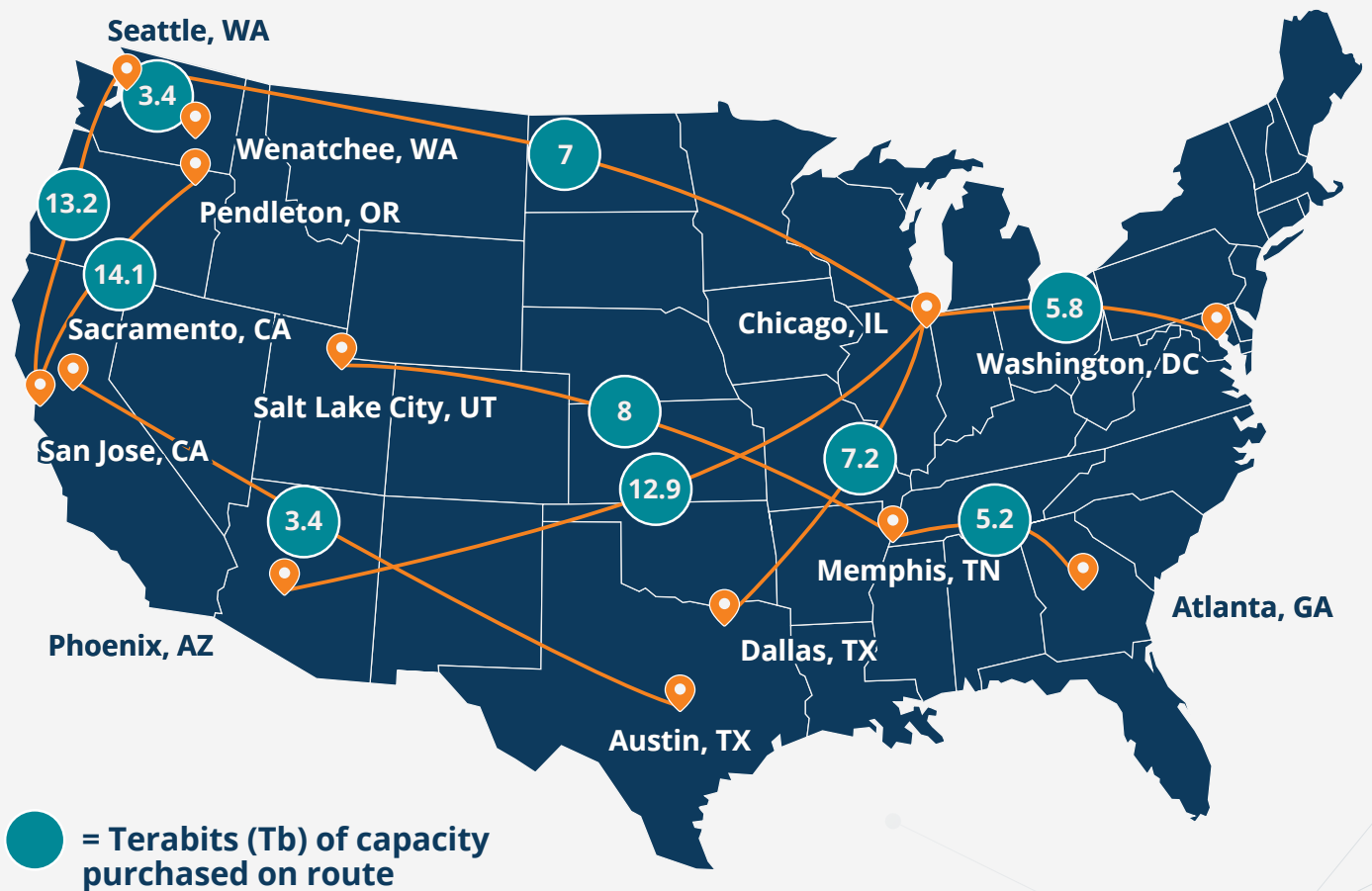
Hot Markets to Watch

## Memphis, TN

Wavelength demand grew by 4300% in one year.

- **From 0.3 Tb in 2023 to 13.2 Tb in 2024**, driven largely by one hyperscale customer.

- Zayo is investing [$90 million in building fiber infrastructure across the state](#) in anticipation of continued growth and innovation.

Salt Lake City, UT

Capacity demand rose 348% in one year.

- **From 2.9 Tb in 2023 to 13.0 Tb in 2024**, driven primarily by hyperscalers.

- Salt Lake's affordable land and energy are fueling data center growth and turning the region into a new infrastructure hotspot.
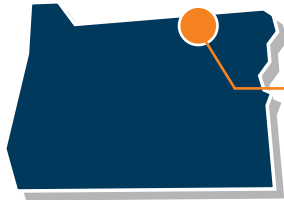
Pendleton, OR

Pendleton to San Jose saw the highest purchased capacity in 2024.

- Not bad for a city of under 20,000, better known for rodeos and ranching than racks.

- **With abundant space and power, Pendleton is emerging as a prime location for AI-driven data centers** – and the infrastructure is racing to keep up.

San Jose, CA

Bandwidth demand jumped 144% from 2023-2024.

- **As a longtime tech epicenter, San Jose continues to set the pace**, driven by major infrastructure investments from hyperscalers, software giants, and tech powerhouses.

- From metro to long-haul, this growth is a clear signal: demand isn't slowing down.
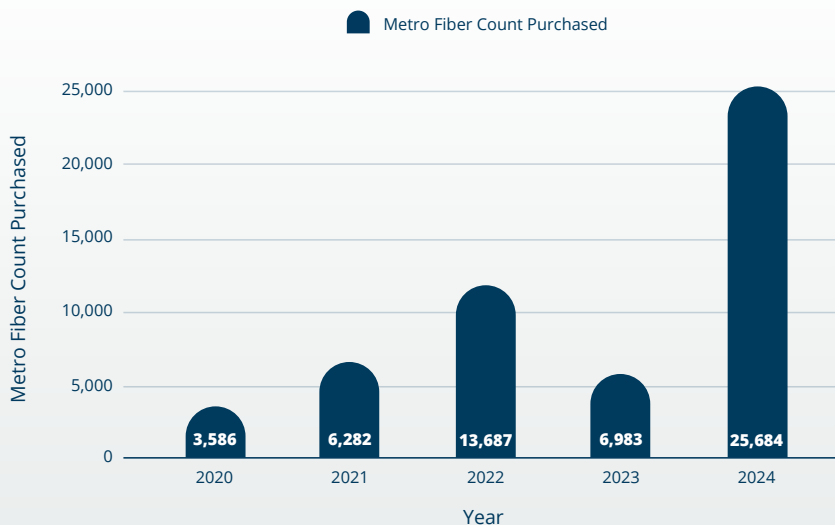
Dark Fiber

Skyrocketing Dark Fiber Demand

While wavelengths meet many industries' needs, dark fiber is a smart long-term investment for customers who demand more – notably hyperscalers, carriers, and large enterprises with fast-growing needs who want full network control. These customers leverage dark fiber to future-proof capacity on their own terms and scale without waiting on anyone's provisioning window.

Our data shows a clear shift: customers aren't just buying dark fiber – they're buying more of it, in higher counts, across both metro and long-haul routes.

Metro Fiber Count Purchased

Metro Fiber Count Purchased

Year	Value
2020	3,586
2021	6,282
2022	13,687
2023	6,983
2024	25,684

Year

Metro Fiber Demand is Accelerating

Despite a dip in 2023, the broader trend is clear: dark fiber demand is surging. Between 2020 and 2024, total **metro fiber count purchases increased by over 600%**, with a massive 268% YoY spike in 2024 alone.

From Big to Borderline Unbelievable:

In 2020, the largest metro dark fiber deal we saw was a 288 fiber-count deal — still something we'd consider a large fiber-count deal today.

But in 2024, a data center operator closed a massive 6,912-fiber count deal — that's a 2,300% increase in the largest metro deal by fiber count in just four years.

This isn't just growth. It's a complete redrawing of what "high capacity" means in the Intelligence Era.

2024 Marks a Clear Turning Point, Likely Driven by AI

There is a growing demand to bring compute and data closer to the edge for real-time performance. Hyperscalers and data centers are securing dense metro networks to support AI inference and regional data center interconnects.

> "
>
> AI training is more backbone-related, but inference will drive more metro fiber, and **Zayo has been investing in our metro fiber for years.**
>
> *– Chaz Kramer, Vice President of Product, Fiber & Transport Networks at Zayo*
>
> "

While hyperscalers and data center operators continue to dominate the largest metro dark fiber deals, they're not the only ones in the game. Enterprises across industries — including finance, manufacturing, and the public sector — are also investing in metro dark fiber, just at a smaller scale.

And we don't predict this growth to slow – according to Zayo-commissioned third-party research, **metro fiber demand is expected to grow by around 20% on average each year over the next five years** (CAGR), creating the need for 70 million new fiber miles.

Zayo has entered into a definitive agreement to acquire Crown Castle's Fiber Solutions business, **expanding our metro footprint by over 100,000 route miles** and **adding 70,000+ on-net locations**.

RAPID GROWTH IN LONG-HAUL FIBER PURCHASES

Long-Haul Fiber Count Purchased

Year	Count
2020	6,004
2021	4,302
2022	4,299
2023	5,472
2024	8,351
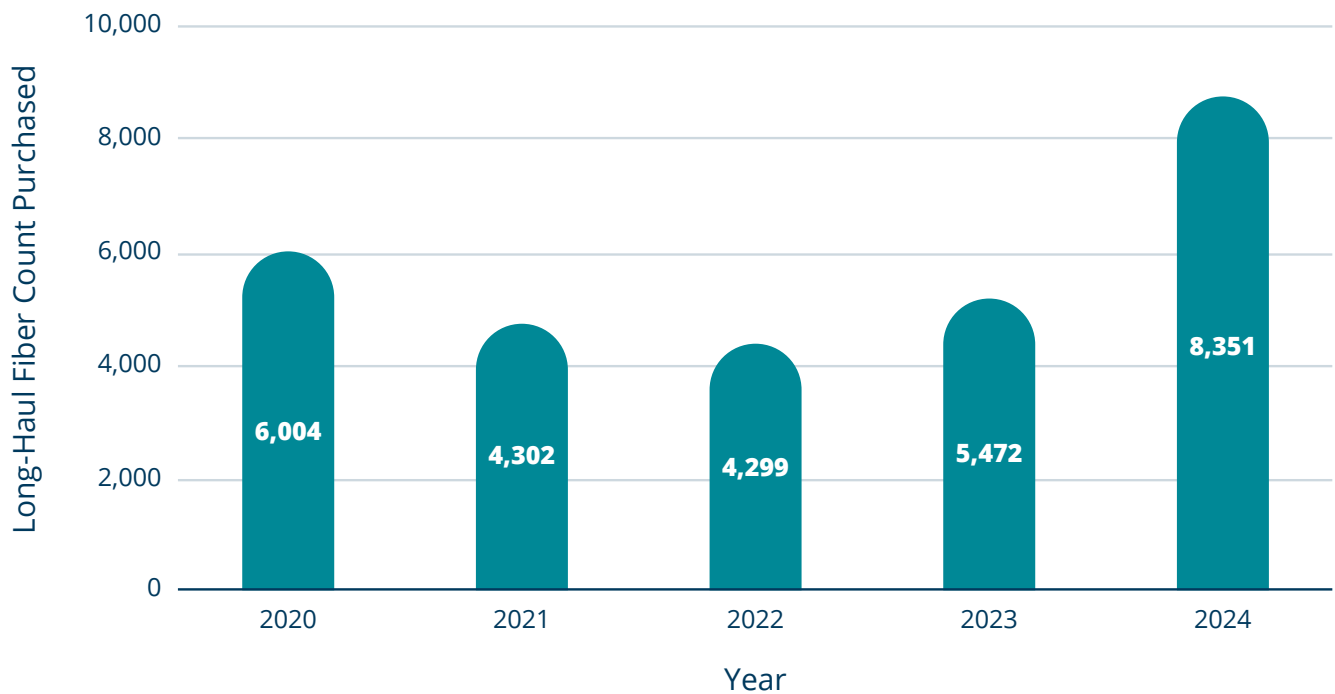
> **New AI or machine learning data centers are popping up in places where they can find cheap land and power.** That means they're using substantial amounts of fiber and space and power at ILAs to support that fiber because 1) They're uncertain how quickly they'll need to scale, so they're giving themselves the flexibility to turn up more capacity quicker and 2) Because of that uncertainty, and because their competitors are taking similar approaches, it's a bit of a land grab.
>
> *– Brandon Gouin, Vice President of Strategic Network Sales at Zayo*

Long-Haul Fiber is Heating Up

While metro dark fiber demand has seen explosive growth, long haul demand is rising steadily. The last two years mark some of the strongest year-over-year gains we've seen, and 2024 stands out as a clear turning point.

AI Demand Is Pushing Data Centers to New Frontiers

As AI infrastructure demands more space, power, and cooling, hyperscalers are expanding into non-traditional markets – places where space and power are abundant and affordable. These remote clusters need to stay connected to core metros, cloud regions, and training environments – and long-haul fiber networks will connect them.

> "Keeping pace with the next wave of AI growth will require new long-haul networks to enable the rapid scaling of capacity needs in both existing and emerging AI data center markets. In 2024, Zayo saw significant AI-driven demand for long-haul routes, including **more than $1 billion in AI-related deals and an additional $3 billion in pipeline.** This demand shows no signs of letting up.
>
> *– Steve Smith, Chief Executive Officer at Zayo*

2024 Isn't a Blip

As AI clusters emerge outside of major metropolitan cities, the need to interconnect distributed infrastructure is becoming urgent. Customers are investing in high-capacity long-haul fiber to stitch together a new national backbone purpose-built for the scale, speed, and complexity of AI.

Zayo's third-party research found that **long-haul fiber demand is expected to grow around 35% on average each year over the next five years** (CAGR), creating a need for 120 million new fiber miles.

Ethernet & Internet

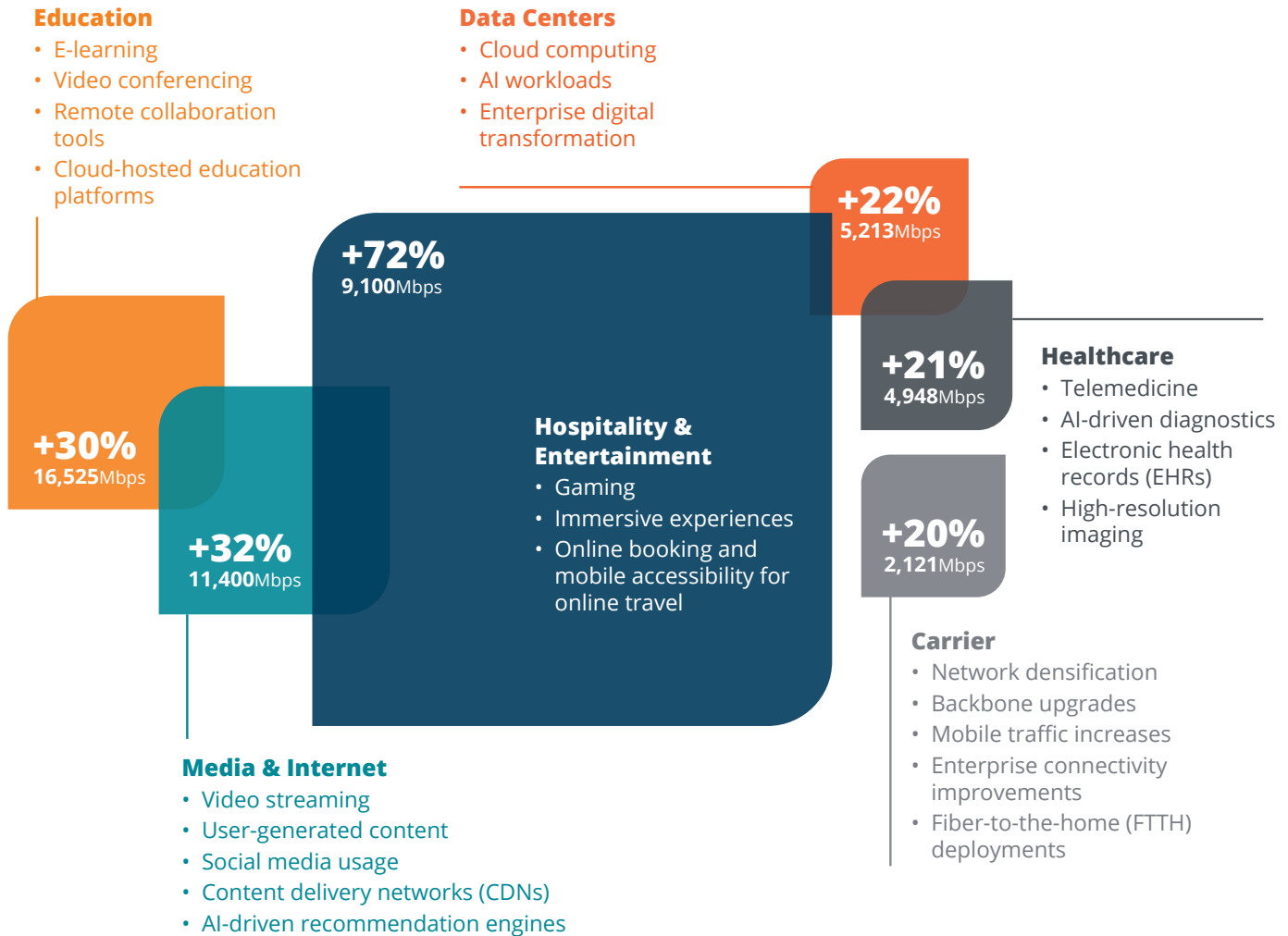While wavelengths and dark fiber undoubtedly tell the most compelling story about big bandwidth demand, we'd be remiss not to mention the growth in Ethernet and Internet demand.

Overall, we've seen a compound annual growth rate **(CAGR) of 10% in average committed bandwidth since 2021 across our Ethernet and Internet** (Dedicated Internet Access and IP Transit) products.

ELEVATED GROWTH IN ETHERNET
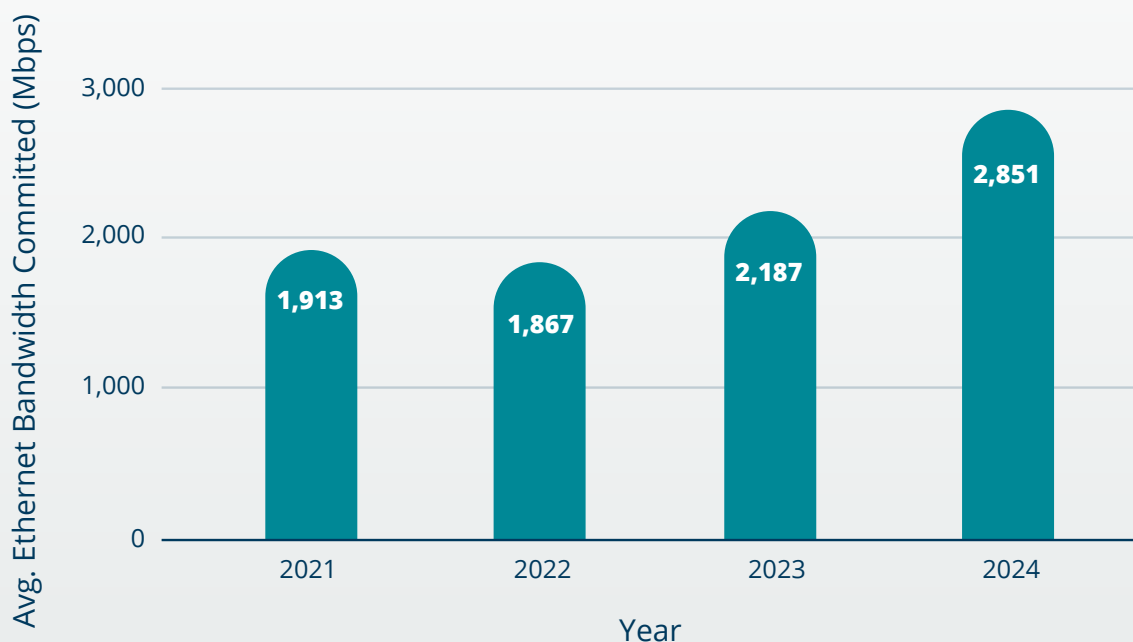
On average, customers across industries are purchasing **49% more Ethernet bandwidth** than they were in 2021. Though the use cases driving demand differ, data-intensive applications drive the need for more Ethernet bandwidth across industries.

Education
- E-learning
- Video conferencing
- Remote collaboration tools
- Cloud-hosted education platforms

Data Centers
- Cloud computing
- AI workloads
- Enterprise digital transformation

+22%
5,213Mbps

+72%
9,100Mbps

+21%
4,948Mbps

+30%
16,525Mbps

Hospitality & Entertainment
- Gaming
- Immersive experiences
- Online booking and mobile accessibility for online travel

Healthcare
- Telemedicine
- AI-driven diagnostics
- Electronic health records (EHRs)
- High-resolution imaging

+32%
11,400Mbps

+20%
2,121Mbps

Media & Internet
- Video streaming
- User-generated content
- Social media usage
- Content delivery networks (CDNs)
- AI-driven recommendation engines

Carrier
- Network densification
- Backbone upgrades
- Mobile traffic increases
- Enterprise connectivity improvements
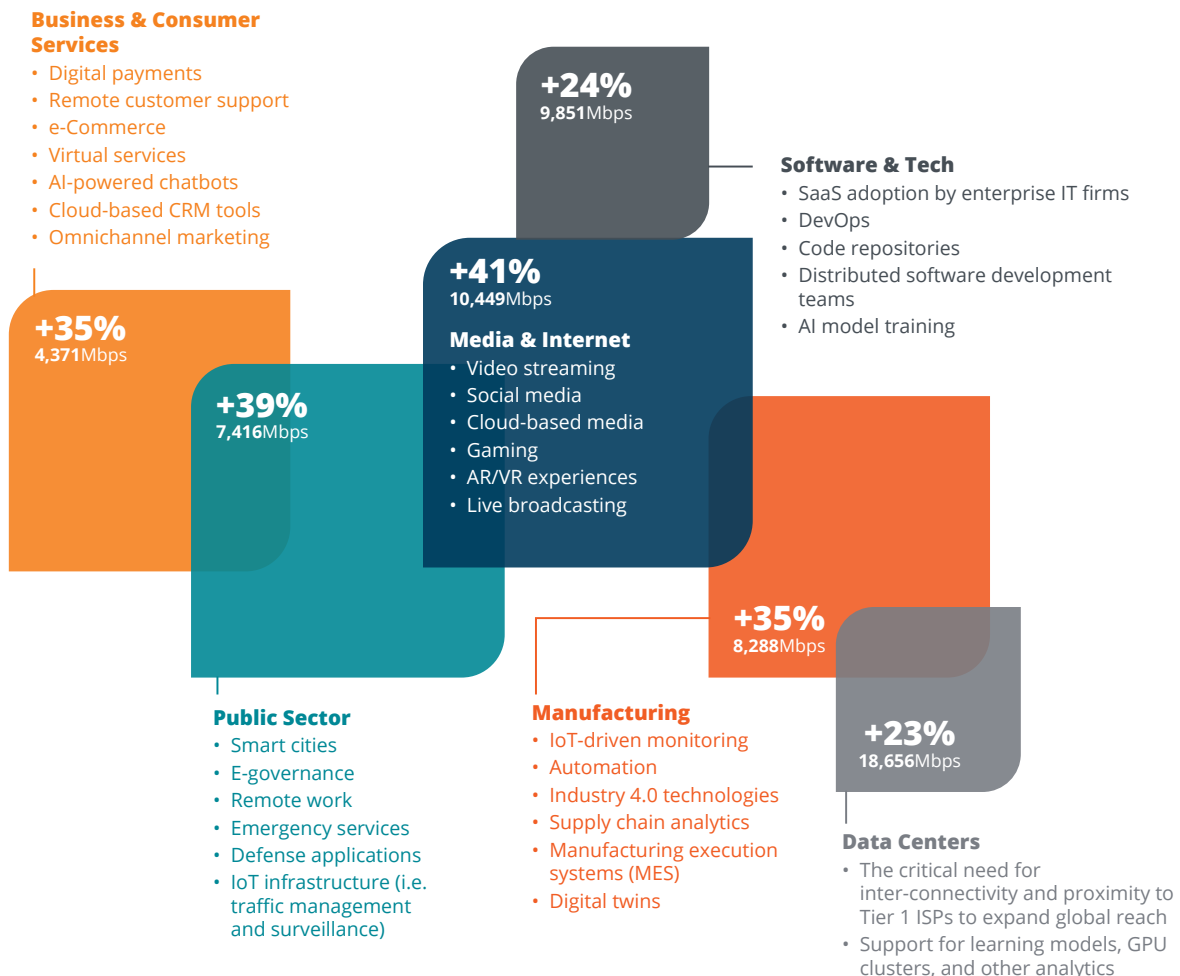- Fiber-to-the-home (FTTH) deployments

*Percent growth is CAGR 2021-2024

**Mbps is average committed bandwidth in 2024

MORE INTEREST IN INTERNET
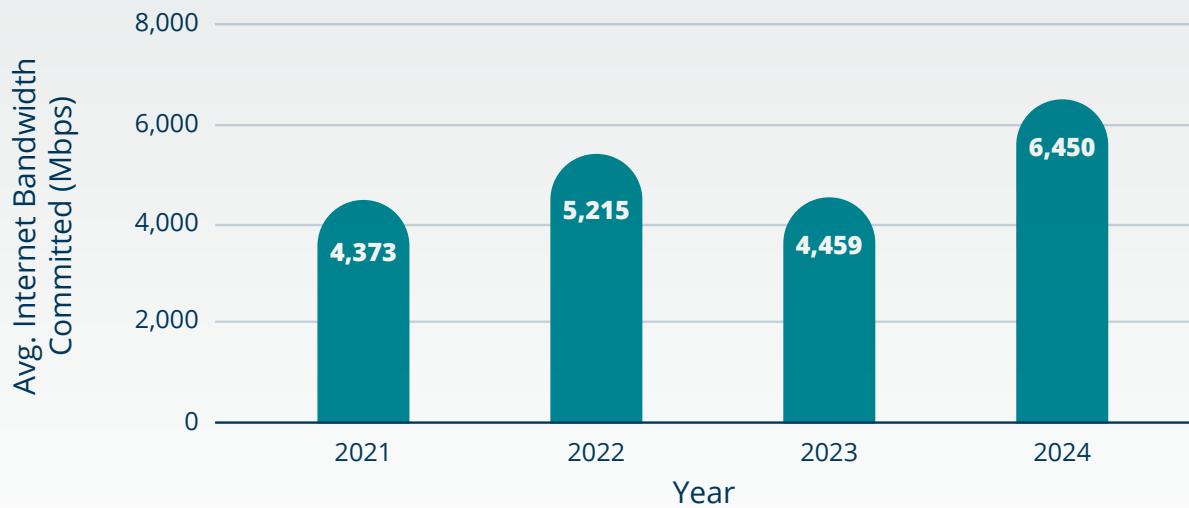
Average bandwidth growth has followed a similar trajectory for customers using Zayo's IP services products. From 2021 to 2024, customers purchased, on average, **47.5% more Internet bandwidth**.

Business & Consumer Services
- Digital payments
- Remote customer support
- e-Commerce
- Virtual services
- AI-powered chatbots
- Cloud-based CRM tools
- Omnichannel marketing

+24%
9,851 Mbps

Software & Tech
- SaaS adoption by enterprise IT firms
- DevOps
- Code repositories
- Distributed software development teams
- AI model training

+35%
4,371 Mbps

+41%
10,449 Mbps

Media & Internet
- Video streaming
- Social media
- Cloud-based media
- Gaming
- AR/VR experiences
- Live broadcasting

+39%
7,416 Mbps

+35%
8,288 Mbps

Public Sector
- Smart cities
- E-governance
- Remote work
- Emergency services
- Defense applications
- IoT infrastructure (i.e. traffic management and surveillance)

Manufacturing
- IoT-driven monitoring
- Automation
- Industry 4.0 technologies
- Supply chain analytics
- Manufacturing execution systems (MES)
- Digital twins

+23%
18,656 Mbps

Data Centers
- The critical need for inter-connectivity and proximity to Tier 1 ISPs to expand global reach
- Support for learning models, GPU clusters, and other analytics

*Percent growth is CAGR 2021-2024

**Mbps is average committed bandwidth in 2024

Trends Shaping the Bandwidth Boom

It's obvious that bandwidth demand is skyrocketing, but what's driving it? Let's break down the key factors behind this spike and explore how Zayo's purchasing data reveals the bigger picture.

AI is a Bandwidth Multiplier

AI has become the undeniable driving force behind the growing demand for bandwidth. The very tech giants that invented the Cloud are now vying to lead the AI revolution. They're pouring billions into AI infrastructure by building and upgrading massive data centers in a battle for a competitive edge in the AI arms race. In 2024 alone, the five largest hyperscalers invested a collective $197 billion in AI infrastructure.

While data centers have largely dominated the conversation around AI infrastructure, AI's future isn't just built in data centers; it flows through the networks that connect them. Networks are the lifeblood of AI, powering massive data transfers, low latency, and edge computing to unlock the full potential of intelligent applications.

Hyperscaler bandwidth buying trends indicate a shift toward more capacity:

- Hyperscalers accounted for **41.2%** of all Wavelengths **deals exceeding 1 Tb capacity** from 2020 to 2024
- Hyperscaler Wavelengths purchases more than doubled, climbing 132.92% from **18.2 Tb in 2020 to 42.4 Tb in 2024**
- From 2020 to 2024, **hyperscalers purchased 57.2% of Zayo's metro dark fiber** sold by fiber count
- The largest long-haul dark fiber deal in 2024 was an **864 fiber-count purchase** by a hyperscaler

Unsurprisingly, these buyers have a lot of sway when it comes to where Zayo builds its network. As a direct response to unprecedented hyperscaler fiber demand, Zayo is purpose-building over 5,000 route miles of fiber to locations where we expect AI to drive demand. These networks will be critical in helping to avert a potential bandwidth gap in the U.S. and fuel continued innovation.

Enterprises Continue to Digitally Transform

McKinsey reported that in 2024, <u>around 90% of organizations were engaged in some form of digital transformation</u> – a process they call a "long-term effort" that often spans the entirety of careers.

According to our research, digital transformation isn't just changing how companies operate, it's fundamentally shifting bandwidth consumption patterns. We spoke to IT decision-makers from various industries to understand what's driving bandwidth purchasing needs.

Here's what we learned:

Multiple Applications Drive Enterprise Bandwidth Demand – But They Might Not Be What You Think

AI isn't the only thing driving enterprise bandwidth demand. We noted some commonalities between the biggest bandwidth hogs across industries. Notably, some of the biggest bandwidth consumers have become essential tools to keep distributed workforces connected and collaborative in the wake of the Distributed Era.

Large Media Files

"The more intense graphics become, the more bandwidth you need to send this data and back it up. From a network perspective, we have high bandwidth usage regardless of the business type, but it does exponentially grow depending on the level of interface and commitments we have to our client base." – VP of Global IT at a Marketing and Commercial Printing Company.

Personal Applications

"When people started working remotely, they were multitasking. So when they returned to the office, they brought these habits to the office. I've had instances where the site VPs contact me and say 'These business processes are slowing down, what's happening?' Then I see there's huge traffic to a social media or video app. In some sites, we turn access to these applications off, even on a temporary basis, to retrain our workforce to behave differently." – IT Director at a Health Tech Company

Video Conferencing and High-Resolution Video

"We're making a lot of improvements around our campus networks with video, so anytime we add new systems, they're much higher resolution."
– Director, Cloud & Systems Engineering at a Regional Hospital Network

Additionally, several leaders listed security applications, data-driven decision-making, and seasonal demand as significant bandwidth demand drivers.

Enterprises are Still Fine-Tuning Cloud Strategies

Nearly two decades after the Cloud Era kicked off, enterprises of all sizes are still refining their cloud strategies. While we generally heard from enterprises that while the goal is to go more cloud, with scalability a top consideration, many industries are tied to on-premises architectures for sensitive workloads. Hybrid, multi-cloud environments have become the premier cloud architecture as a result.

Some leaders noted the challenge of integrating legacy systems and migrating those workloads to the cloud.

> **"We had a legacy ERP system being moved to the hosted cloud. So there was a component of this legacy beast that we kept alive and pulling out our workflows and putting them in the cloud. We purchased a legacy company with legacy systems, and 20 years ago you had to run on-prem."**
>
> – Director of Network Engineering at a Collectibles Company

Others are further along on their cloud migration journeys, with a goal of being as cloud-based as possible.

> **"The desire is to be fully transformed to cloud, but in my experience working for several years on transformation to cloud, it can't be 100%. It may end up either 80 or 85%, and if we can accommodate cost, then maybe 90%."**
>
> – Director, Data Center Network, Security, and Cloud Networks at a Large International Hotel Chain

Some also see the cloud as a way to offload some of their growing bandwidth requirements to a cloud service provider.

> **"We want to make sure all the computing processing is happening in the cloud. So we kind of defer that burden. We'll pay for it, but we want to defer that."**
>
> – IT Director at a Health Tech Company

> AI largely dominates bandwidth demand, but it doesn't only live within that space. **You still have cloud providers who need to provide cloud services, and that's going to continue to grow.**
>
> – *Chaz Kramer, Vice President of Product, Fiber & Transport Networks at Zayo*

AI Adoption Rates Vary Across Enterprises

Though a large bandwidth consumer for those implementing it, levels of AI adoption ran the gamut. Some enterprises were just barely scratching the surface of AI adoption within their companies, beginning with the simpler use cases to drive adoption.

> **"Our user base tends to be older and less willing to change and move to different things – especially things like AI, so I'd like to start slowly using applications like Copilot. Once they start seeing how much more efficient they can be with it, we'll start looking at how we can use AI more on the manufacturing side."**
>
> – Director of IT at a Precast Concrete Manufacturing Company

Others have loftier goals, especially in industries like finance and healthcare:

> **"Right now, we're still using AI through SaaS models, but we have a concept of bringing AI in-house and building our own LLMs."**
>
> – Senior Vice President, Enterprise Architect at a U.S.-based Global Bank.

> **"**AI is data hungry, so getting massive amounts of data into training and inference facilities has huge network demands, which is driving a lot of the growth we see today from hyperscalers and neoclouds. **Eventually it's going to matriculate over to the enterprise space as real, AI-based use cases and applications become more and more relevant."**
>
> *– Brian Daniels, Chief Sales Officer at Zayo*

Earlier and more enthusiastic adopters are already seeing the shift in bandwidth consumption to support these applications.

> **"We're doing a lot of real-time data processing and the AI-driven workload is increasing. Instead of doing data processing off hours, it's happening during production hours. That's why AI is one of the biggest bandwidth drivers."**
>
> – Director, Data Center Network, Security, and Cloud Networks at a Large International Hotel Chain

As AI applications consume more bandwidth, network leaders seek ways to ensure bandwidth is available to meet growing demand for critical applications.

> **"IoT devices closer to the patient – whether these are remote oxygen sensors, cameras, or other AI-enabled edge devices – are some examples of where bandwidth is absolutely critical and we can't afford saturation."**
>
> – Senior Director of Architecture, Infrastructure Engineering at a University Healthcare System

"As-a-Service" Models are Gaining Traction for Financial and Operational Efficiency

Network-as-a-Service models enable resource-constrained teams to leverage automation to take a hands-off approach to networking and scale resources on demand and as needed.

> **We expect the acquisition and consumption of bandwidth will be far more automated and touchless than today.** Large pipes, made available quickly with coordination to source and destination networks.
>
> *– Aaron Werley, Senior Vice President of Engineering at Zayo*

Finances are a key part of the equation when it comes to adopting as-a-service models. For some, a flexible cost model is most attractive.

> "We don't like CapEx-heavy investments, and we don't like having long-term contracts. We want flexibility on bandwidth changes and the option to expand the contract based on ad-hoc requirements. An OpEx model gives us the flexibility to reduce our initial investment and shift toward ongoing operational costs like maintenance support."
>
> – Senior Vice President, Enterprise Architect at a U.S.-based Global Bank

Resiliency is a Top Network Consideration

Many of our IT leader participants noted that resiliency is a key component of their network and IT strategies.

This includes investing in network redundancy to ensure consistent uptime – especially in industries like the public sector which deal with emergency scenarios. But this isn't always easy, and wireless or satellite connections often act as redundant networks in remote locations.

Remaining operational in emergency scenarios, like natural disasters is a data center consideration as much as a network one.

> "
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> I've been augmenting reliable fiber connectivity with satellite communications, but tying it back to **a backbone that's fiber connected.** You have to have a hybrid relationship, because you're not going to be able to dig trenches and get fiber to some places.
>
> *– Assistant Chief Information Officer at a Federal Government Agency*
>
> "

"We've been able to keep the Internet up at least last year through the last two hurricanes. Previously, when we had an outage in the primary data center, the entire district would basically be in the black. We had a truly singular point of failure, so we built resiliency into our network. Right now, we utilize the same ISP, but coming in from two different directions and we're probably going to be looking at supplementing that with a separate ISP so that we have even greater resiliency in the near future."

– Chief Technology Officer at a Large Public K-12 School District

Enterprises must prioritize resilient, automated networking to meet the growing demands of AI and hybrid-cloud architectures. In the Intelligence Era, the right network stack will be key to powering innovation and connecting teams seamlessly.
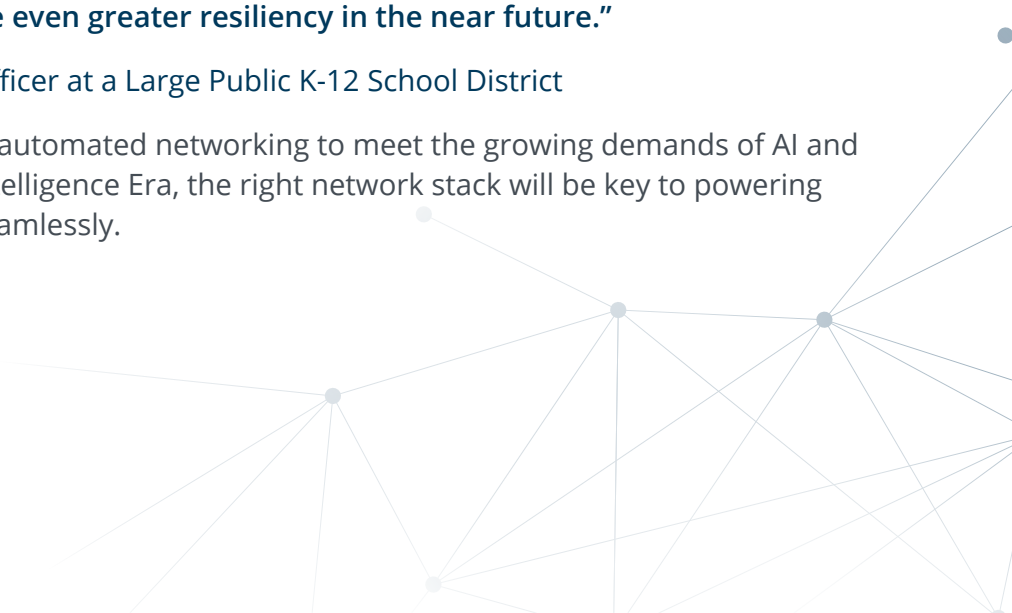
Telecommunications Trends Drive Even Greater Bandwidth Needs

Some of Zayo's largest customers are other carriers, and their recent purchasing trends reveal a lot about the growing demand for bandwidth in the carrier industry. Carriers rely on Zayo's fiber and connectivity solutions to expand their networks and enter new markets, and the numbers show just how significant this demand is.

Key highlights:

- A regional carrier purchased an unprecedented **1,600-count long-haul dark fiber deal** in 2020 to support its services and customers for years to come
- **Carriers accounted for 34% of all metro dark fiber** purchased by fiber count between 2020 and 2024
- Carriers purchased **25.6% of all Wavelength big deals** from 2020 to 2024
- **400G Waves made up half** of the 67.7 Tb of Wavelength capacity purchased by carriers

Demand for high-speed Internet is rising as consumers and businesses rely on bandwidth-heavy applications like video conferencing, streaming, AI, and IoT devices. At the same time, carriers are expanding into remote markets, requiring larger networks to reach underserved areas.

A new trend is accelerating this strain: partnerships between terrestrial giants like AT&T and satellite providers like SpaceX. These alliances aim to eliminate dead zones, boost emergency communication, and enhance network resilience, but they also drive up bandwidth demands. Seamless integration between terrestrial networks and satellites enables IoT adoption in remote areas, further increasing resource pressure. The future of connectivity is here, but it comes with new challenges for network capacity.

In addition, carriers are deploying more spectrum to make mobile networks faster, more reliable, and future ready. As telecom providers look ahead and plan for 6G networks, they will need even wider spectrum channels to support the bandwidth-intensive applications that will run on these networks.

As these carrier trends catch speed, we anticipate even greater bandwidth demands from this industry.

> **New spectrum auctioned off will require a denser mobile network**, and the spectrum will have a lot more capacity. Correspondingly, the pipes feeding all mobile sites will also need to be much 'fatter.'
>
> – *Nikos Katinakis, Chief Technology Officer at Zayo*

What's Next in Network Bandwidth Demand

A Look into Zayo's Crystal Ball

We asked Zayo's experts across departments to weigh in on record-breaking bandwidth growth and the trends that will shape the future of bandwidth.

Here are the predictions they shared:

AI Will Be the Primary Driver of Bandwidth Demand

Our leaders expect AI to continue to drive exponential bandwidth growth – and we're just seeing the tip of the iceberg of what AI can do and the bandwidth it will demand.

> The true impact of AI inference is yet to be fully realized. **Early stage generative AI companies are driving tremendous growth,** but we have to keep in mind that Gen AI and Agentic AI are only a few years old.
>
> **– James Tomko,** *Vice President of Strategic Sales, AI, Cloud Service Providers & Data Centers at Zayo*

> In the next 10 years, **quantum will start being commercialized.** It is also expected it will follow a similar 'curve' as AI – first all will be centralized and all queries will have to travel to those few locations before it gets distributed.
>
> **– Nikos Katinakis,** *Chief Technology Officer at Zayo*

Quantum Computing Will Begin to Emerge as a **New Bandwidth Consumer**

AI isn't the only bandwidth-intensive trend Zayo's leaders are watching.

As quantum computing evolves, there will be a need for low-latency, high-bandwidth interconnections between quantum systems and traditional computing models, driving more demand for robust network infrastructure.

Customers Will Demand Flexibility and Scalability in Bandwidth Consumption

Zayo leaders predict that network automation and "as-a-Service" models will increase in popularity and availability as enterprises seek more dynamic, on-demand bandwidth scaling options.

Increasing bandwidth demand will also drive the need for NaaS models as customers look to meet growing needs as quickly as possible.

Training private AI models will be an early use case for network-as-a-service (NaaS). Customers will need temporary high bandwidth while training, then will want to disconnect when they're done. They'll look for flexibility instead of one-year commitments.

– James Tomko, Vice President of Strategic Sales, AI, Cloud Service Providers & Data Centers at Zayo

It's not only the amount of bandwidth that customers are acquiring that's evolving, the timelines in which they need that bandwidth, and the flexibility they need to manage and control their network with that level of bandwidth. **They want massive amounts of capacity that's easy to procure and is very flexible.**

– Brian Daniels, Chief Sales Officer at Zayo

I don't think bandwidth demand will outpace supply once the fiber is in the ground. The optical, IP, and radio capability should keep up with demand. **It will continue to drive significant investment to use those capabilities.**

– Nikos Katinakis, Chief Technology Officer at Zayo

Strategic Fiber Growth Will Meet Growing Bandwidth Demand

Zayo's leaders are confident that we can meet growing bandwidth demands with careful network planning and continued expansion.

What we've been trying to do, especially with our big enterprise customers, is to **stay in front of their demand curve, understanding where they're going to need capacity over time.** Both the hyperscale and cloud space are eating up a lot of this network capacity that we reserve for enterprise customers.

– Brian Daniels, Chief Sales Officer at Zayo

AI training is really focused on fiber, and fiber is a finite asset. With that, there can be bottlenecks, but those bottlenecks can be resolved either by pulling new fiber through existing conduit or building new routes.

– Max Clauson, Senior Vice President of Product, Network Connectivity at Zayo

New Telecommunications <mark>Market Entrants</mark> Will Face Significant Challenges

Zayo's leaders expect new entrants to chase growing bandwidth demand but say breaking into the market won't be easy.

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We absolutely anticipate more players entering the market. When you have a demand signal that clearly outpaces the supply side, you're always going to get new entrants looking for a piece of that market. **The winners are going to be those with the right infrastructure in place, and those who made the right bets in terms of new investments.**

– Chaz Kramer, Vice President of Product, Fiber & Transport at Zayo

Some of the newer entrants don't have a firm grasp and understanding of what it actually takes to build a network, operate it, and then execute on follow-on business. That's going to present challenges as they look to sell the network once they have it built or even just building it to begin with.

– Brandon Gouin, Vice President of Strategic Network Sales at Zayo

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Bandwidth is the New Oil, and Zayo is Building the Pipelines

Our data tells a clear message: innovative businesses need more bandwidth to power what's next – and they need it at a never-before-seen scale and speed. But building the fiber networks needed to deliver this bandwidth at scale isn't easy – it's complex, costly, and risky to do.

Zayo is leading the charge in powering the Intelligence Era, delivering the network solutions businesses need today—and building for tomorrow. Here's why no one else can deliver like Zayo:

High-Bandwidth Solutions - Zayo is one of the first to bring 100G Ethernet to market, and our Wavelength network will be 100% 400G-enabled by the end of 2025, offering high-capacity networking in places no one else can reach.

Strategic Expansion for Future Growth - In 2024 alone, we added 8.3Tb of private peering capacity. With the acquisition of Crown Castle's network assets in 2025, we're expanding by another 100,000 route miles to ensure we're exactly where the market needs us.

Purpose-Built for AI - We're not just adapting to AI, we're designing our network strategically to meet its needs. By building 5,000 new route miles specifically to meet AI demand, we're setting the foundation for the next generation of innovation.

A Network Footprint Built to Scale - Zayo is strengthening backbone capacity with over 19 million global fiber miles and counting. We're upgrading popular long-haul corridors and building diverse, resilient routes in secondary markets where capacity needs will grow.

Faster, More Reliable Network Services - With 350+ Tb of ready-to-go Wavelength capacity and 100+ Quick Connect Data Centers, we're making it easier than ever to get connected. We're also investing in fiber monitoring, using advanced tools to detect and resolve issues before they impact customers' operations.

Improved Speed and Service Delivery - From 2023 to 2024, we cut our Waves service delivery times by 58.5% and improved Network Connectivity service on-time delivery by 16.7% from Q4 2023 to Q4 2024. When you need us, we deliver.

Zayo is where the future of connectivity meets reliability, scalability, and innovation. No one else has the network, the solutions, or the vision to keep pace with the demands of the Intelligence Era.

About Zayo

For more than 17 years, Zayo has empowered some of the world's largest and most innovative companies to connect what's next for their business. The Zayo group of companies connects 400 global markets with future-ready networks that span over 19 million fiber miles and 147,000 route miles. Zayo's tailored connectivity solutions and managed services enable carriers, cloud providers, data centers, schools, and enterprises to deliver exceptional experiences from edge to core to cloud. Discover how Zayo connects what's next at www.zayo.com and follow us on LinkedIn.

Discover the true AI-ready infrastructure innovators trust.

Talk to Zayo's experts today.
CONTACT US