THE SERVICE PROVIDER NETWORK CAPACITY IMPERATIVE

Why ISPs will continue to need higher Routing & Switching capacity!

Seven forces driving sustained investment in aggregation, edge, core, and high-speed connectivity infrastructure.

Internet Service Providers will continue investing in higher-capacity routers and switches because data volumes are growing, traffic patterns are evolving, and subscribers demand faster, more reliable connectivity.

For networking equipment providers such as MHz, the opportunity extends beyond adding ports: it includes dense 100G/400G interfaces, emerging 800G-capable platforms, more switching capacity, power efficiency, and scalable routing.

THE DEMAND SIGNAL

767 GB	9.9%	21.7%
Average monthly U.S. broadband usage per subscriber, 2025	Annual usage growth, 2024–2025	Annual upstream usage growth, 2024–2025

Source: USTelecom, 2025 Broadband Capex Report (September 2026), as cited in supplied material.

The Central Business Case

Increasing customer access speed creates downstream consequences throughout the entire network. More traffic—and stricter availability requirements—can require upgrades at aggregation, metro edge, core, and peering layers even when subscriber counts remain flat.

01 Internet traffic continues to grow

Higher monthly usage and busy-hour demand force providers to revisit oversubscription, uplink capacity, and network headroom. Subscriber growth is not a prerequisite for infrastructure investment.

02 AI creates new traffic patterns

AI assistants, intelligent cameras, enterprise cloud applications, and industrial devices can generate interactive, bidirectional, and latency-sensitive network flows. These workloads may increase demand for uplinks, faster interfaces, packet processing, and traffic engineering.

Where the bandwidth pressure builds

03 Broadband upgrades increase upstream requirements

Moving from 100 Mbps plans to 1G, 2G, 5G, and 10G access does not mean every customer transmits at line rate continuously. But rising real-world peak demand eventually requires larger shared aggregation and core capacities.

SIMPLIFIED ISP DATA PATH

SUBSCRIBERS

1G • 2G • 5G • 10G access

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ACCESS & AGGREGATION SWITCHES

10G • 25G • 100G uplinks

↓

METRO / EDGE ROUTERS

100G • 400G interfaces

↓

CORE / PEERING ROUTERS

400G • 800G-capable platforms

↓

INTERNET, CLOUD & CONTENT

Interconnection and services

Illustrative interface speeds; individual ISP designs and investment schedules vary.

04 Streaming, gaming & immersive media

4K/8K streaming, cloud gaming, live broadcasts, and immersive applications raise concurrency and throughput requirements while increasing the importance of latency, jitter, and packet loss. Compression and caching help, but do not remove the capacity challenge.

05 Cloud and data center interconnection

Growing cloud adoption increases traffic among subscribers, enterprise sites, exchanges, and cloud regions. Not all AI data-center traffic crosses public ISP networks; private internal fabrics carry much of it. Inter-site and user-to-cloud flows nonetheless create transport and routing demand.

Reliability reinforces the cycle

06 Resiliency requires spare capacity

Networks need headroom for fiber cuts, hardware failure, planned maintenance, surges, and redundant paths. Two 100G links each carrying 80G cannot accommodate their combined 160G load on one remaining link after a failure. Thus, capacity expansion often precedes full utilization.

07 Technology refresh is inevitable

End-of-support, cybersecurity needs, power/cooling expenses, limited port speeds, routing-table constraints, and new service capabilities prompt replacement even when traffic growth moderates. New ASICs and optics can deliver more transported bits per watt and rack unit.

CAPACITY GROWTH COMPOUNDS

Illustrative planning scenario: a network starting at 100 Gbps busy-hour demand with 20% annual growth.

Y0	Y1	Y2	Y3	Y4	Y5
100G	120G	144G	173G	207G	249G

At this rate, peak traffic reaches roughly 2.5× the original level in five years, before redundancy and reserve headroom. This is an illustration, not an industry-wide forecast.

THE BOTTOM LINE

More traffic. Faster access. More resilience. Smarter infrastructure.

Even with slower subscriber additions, usage per subscriber and peak network demand can rise. ISPs must continually expand, optimize, and refresh the routers and switches connecting customers to the internet, cloud, and critical services.

Implications for the Network

- High-density 100G / 400G interfaces and 800G-ready roadmaps
- Greater switching-fabric throughput and packet-processing scale
- Power efficiency: more bandwidth per watt and per rack unit
- Reliability, redundancy, automation, and traffic visibility
- Smooth migration from aging platforms without operational disruption

Source notes

USTelecom — 2025 Broadband Capex Report, September 2026 (usage statistics).

Ericsson — Mobility Report, June 2026 (mobile traffic forecast and industry context).

Cisco — FY2026 earnings / networking product results (vendor-growth statement).

Planning examples, architecture interface tiers, and compound-growth figures are illustrative.

Contact your MHz Account Manager to schedule a discussion with a Routing & Switching Network specialist!

- **MHz can help you prepare your Core & Edge network for 100/400/800G Connections & Transport, so you'll be ready for *"Speeds of Tomorrow"*!**
- **MHz Client Services can help you meet your deadline issues with Project Pre-Planning, Design & Management, to take you into the future!**
- **MHz Client Services can provide physical and logical audit w/ mapping of all network devices and IP scopes in use; identify EOS hardware; discuss future upgrade recommendations, to match your budget, cash flow and ROI objectives!**
- **MHz Routing & Switching integration & activation services, will exceed your expectations!**

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