

CONNECTING TO THE FUTURE

New fiber infrastructure can do more than legacy networks ever could. It's time to focus on the future and shift away from a “make-do” mindset.

INTRODUCTION

Infrastructure — roads and highways, rail lines, bridges, telephone and internet connections, power grids — is vital to our modern world. Without it, living and working would be much more difficult. Commerce would grind to a halt and businesses would struggle to stay afloat.

Many of these systems have gone years, or even decades, without maintenance or upgrades and are beginning to crumble. Weathering, time and decades of underfunding and neglect make it harder for these necessary services to meet the demands being placed on them, which prioritizes quick and efficient access to resources.

One piece of the nation's infrastructure that is in desperate need of an update is telecom. Decades ago, legacy communications companies laid the foundation using twisted copper lines and coaxial cables. Once they were finished, everything worked to the standards of the day and attention gradually shifted elsewhere.

Investments in telecom infrastructure fell by the wayside as deregulation efforts pushed companies to merge and consolidate — the effects of which are still being felt today in the form of infrastructure that has been handled with a reactive attitude to maintenance instead of a proactive approach. Simply put, the networks that have connected us are rapidly nearing end of life — sometimes even surpassing it.

And the digital-first workplace needs more than legacy infrastructure can deliver to remain competitive.

LEGACY NETWORKS

Whether data is sent over a coaxial cable or transmitted using electricity and light over a fiber connection, legacy telecom infrastructure inches closer toward obsolescence with every new connectivity advancement.

The internet may have been invented in the United States, but efforts to continue modernizing the networks that keep digital traffic moving have lagged behind other nations like Norway, Hungary, Belgium, Romania and the Czech Republic.¹ The United States is now grappling with the challenges created by outdated networks, historic underfunding and aging infrastructure while other developed economies are enjoying the fruits of mature networks made possible by funding at levels that meet or exceed demand.

Upgrading existing infrastructure from copper to fiber is expensive, time consuming and complicated by the vast geography of the United States. After all, two of the leading considerations of connecting premises are the physical distance from the network and any regulations that must be adhered to.

Lastly, one of the biggest hurdles is the matter of politics. Because of the scale and expense of infrastructure upgrades, funding can often lag due to lengthy negotiations and legislative processes at the federal and state levels — leaving fast-growing enterprises waiting for much-needed improvements to connectivity infrastructure.

The Patchwork Problem

As the telecom industry has evolved, so has its complexity. Unfortunately, legacy networks are dominated by asset fragments that have been accumulated and patched together over time. This has created a host of obstacles, notably:

- **Age:** Network infrastructure doesn't improve with age. Quite the opposite. A network built 30 years ago will struggle to support an enterprise's current technological needs without a significant investment of time and resources.
- **Equipment:** Legacy equipment may be two or three generations older than what is available on the market and may have fallen out of support years ago. Keeping pace with bandwidth demands can be a struggle for outdated hardware, leading some providers to install additional equipment along the route in hopes of augmenting existing performance without the expense of a "rip and replace" overhaul. Those efforts can sometimes make the current struggles even worse.
- **Efficiency:** Repairs and patches only work for so long. After enough time, even the most advanced systems will begin to fall behind, which can lead to lagging performance, diminished efficiency and a greater risk of packet loss, bottlenecked traffic and missing or corrupted data.

Consolidation resulting from mergers and acquisitions throughout the telecom industry has compounded these issues, rendering some providers unable to pinpoint exactly where their merged network assets are located.

To make matters harder, critical documentation like network route maps, bandwidth notes and fiber strand count per sheath are often missing or incomplete, putting providers in the bind of sorting out the technical aspects while trying to maintain customer satisfaction.

The Impact on Enterprise

Network outages can have a serious — sometimes disastrous — impact on a business. Downtime comes in many forms, from planned disruptions for hardware upgrades or routine maintenance to unplanned outages caused by natural disasters or cyber-attacks.

No matter the cause, downtime can be extremely expensive.

The true cost of a network outage widely varies by company size and industry, and it's hard to pinpoint the exact cost of network disruptions, but that hasn't stopped experts from trying. The average outage carries a price tag of nearly \$5,600 per minute, or more than \$300,000 per hour.¹

When updates are necessary, the resources and time required for networks that include legacy components are often difficult to justify. Given the sheer scale and complexity of a legacy infrastructure upgrade, it is not uncommon for businesses to choose subpar connectivity over the costs and disruptions involved with upgrading to more capable equipment.

With most of the attention going to flagship technologies and emerging innovations, legacy systems are often overlooked when it comes to their resilience against security breaches and data loss.²

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Greenfield Networks

Modern service providers understand that business requirements have evolved. Simply providing a connection is no longer enough, and businesses demand networks that can accommodate challenges and needs that don't exist yet.

An influx of federal funding programs and private dollars is motivating service providers to create and deploy new fiber infrastructure — also known as a “greenfield project” — and expand existing networks with scalability, affordability and sustainability in mind to accommodate future connectivity advancements, specifically:

- **Age:** Many service providers are designing and building thousands of new fiber route miles annually, laying the foundation for the bandwidth capacity and technology that is on the horizon, such as network speeds of 400 Gbps, 800 Gbps and even 1.2 Tbps backbone capacity.
- **Equipment:** Innovations in equipment elevate the mechanisms that transport data. Equipment produced today has the benefit of decades of technological advancements. From the splicing and testing equipment used to the pole attachments and pipes in the ground, today's equipment is designed to handle huge volumes of traffic and maximize throughput that can scale as demands change.
- **Efficiency:** The post-COVID era has pushed bandwidth capacity and network quality to the forefront. Increasingly, enterprise organizations are feeling how much latency impacts their operations. Smooth, seamless connectivity is critical to keeping employees connected and productive.

Network providers deploying greenfield projects can document where their routes are located, track how networks are built and record enhancements, creating institutional knowledge with each install or improvement.

These ground-up digital infrastructure projects are pushing back against the status quo with routes designed for high-speed, low-latency data transport and are optimized beyond conventional methods through automation and artificial intelligence.

The Bonus of Fiber Density

Recent funding initiatives, such as the Broadband Equity Access and Deployment (BEAD) program, have allocated billions of dollars in investments and have accelerated the deployment of new infrastructure and the expansion of current networks. More progress must be made to increase the density of new fiber networks in order to maintain the trajectory of innovation.

Greenfield fiber service providers have the upper hand when it comes to creating dense fiber networks by exploiting smaller footprints and next-gen equipment to go where traditional networks would struggle to penetrate. Compare that to legacy providers, which may not be able to accommodate upgrades without the expense and delay of construction.

With greater density, businesses of all sizes have greater connectivity options with more route diversity and improved support for cloud and disaster recovery strategies. Thus, investments made today stand to generate significant economic value in the future.

FOCUS ON MINDSET

Legacy Providers: Maintenance Mindset

Legacy service providers often operate with a maintenance mindset — forcing enterprise businesses to make do with infrastructure that can't keep up.

Keeping the network operational means addressing potential problems through continual monitoring and service, and by periodically applying patches.

However, many providers are not investing in growing or upgrading their networks to the same degree as other providers.

Whether there are multiple layers of legacy infrastructure due to mergers and acquisitions, or the challenges of increased latency and inefficiencies created by consolidations, service providers working with a maintenance mindset are prone to obstacles that often consume time and resources that could be better used elsewhere.

Greenfield Providers: New-build Mindset

As fiber networks have emerged as the leading choice for enterprise businesses, providers with a new-build mindset are positioned to be agile and forward-looking.

New fiber networks are stronger, faster and more resilient, offering a level of versatility and sophistication that is unmatched when compared to legacy connectivity options — including older fiber networks.

Greenfield fiber networks offer new equipment with inherent scalability to satisfy increasing appetites for capacity needs with improved technology to address maintenance updates and reduce the risk of an outage. Service providers that adopt a new-build mindset can more easily deploy scalable, high-capacity infrastructure to meet the needs of today's enterprise business customers — with the inherent benefits of a "new" network as a true differentiator.

CLOSING SUMMARY

Network infrastructure has come a long way from where it was even a decade ago. So have the needs and priorities of businesses that depend on enterprise-grade networks. Always on, always ready, always accessible connectivity is an expectation, not a "wish list item." That doesn't always mean those demands are met the way they should be.

Greenfield fiber providers like Everstream are investing in a new fiber infrastructure to support the demands of future-focused businesses while fostering an environment that uses the delivery of solutions that satisfy the needs of customers as a measure of success.

The advantages of new fiber networks versus legacy connectivity are hard to ignore. Compared to the services that a provider with knowledgeable professionals, experienced local teams and a focus on accountability and service can offer, legacy providers simply can't compete.

Citations

1. Cooper, Tyler. "Why Is the American Internet Empire Crumbling?" BroadbandNow, BroadbandNow Research, 26 Oct. 2021, broadbandnow.com/report/why-is-the-american-internet-empire-crumbling. Accessed 28 Nov. 2023.
2. Bahl, Romil. "Council Post: How to Guard against the Cost of Unplanned Downtime and Network Outages." Forbes, 26 Aug. 2022, www.forbes.com/sites/forbestechcouncil/2022/08/26/how-to-guard-against-the-cost-of-unplanned-downtime-and-network-outages/?sh=358a3ca85e0f. Accessed 28 Nov. 2023.
3. Team, I. R. "What Are Legacy Systems and Why Do Companies Still Use Them? | IR." www.ir.com, www.ir.com/guides/what-are-legacy-systems-and-why-do-companies-still-use-them.

About Everstream®

Everstream has raised the bar for business connectivity, delivering a business-only fiber network with the speed, reliability, scale and performance that today's enterprises demand. With more than 27,500 route miles of fiber and speeds up to 100 Gbps, Everstream's enterprise-grade network delivers robust business fiber services, including dedicated internet access, dark fiber, ethernet and data center solutions. Through its "Do What You Say You Will Do" approach, Everstream is a valued partner dedicated to the success of business customers. For more information, visit everstream.net.