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VECTOR

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INSIGHTS FOR A CONNECTED WORLD

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IDEAS. INNOVATION. CONNECTIVITY.

ABOUT VECTOR

VECTOR is a monthly journal published by Global Telecom Engineering and TITANS Network. We explore the engineering, technologies, and ideas driving the future of enterprise connectivity, highlighting innovation, customer success, and the people building tomorrow's communications infrastructure.

> “Technology is most powerful when it enables people to do extraordinary things.”

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CEO'S CORNER

WHY CONNECTIVITY IS BECOMING MISSION CRITICAL

There was a time when connectivity was viewed simply as another business utility. Like electricity or water, it was expected to be there but rarely thought about unless something stopped working. Today, connectivity has evolved from a supporting utility into a strategic business asset.

Connectivity has become the invisible foundation of modern business. Every transaction, every video conference, every cloud application, every shipment, every construction project, every healthcare consultation, and every customer interaction depends on reliable, secure, and resilient communications.

When connectivity fails, business slows - or stops altogether. This transformation has accelerated over the past decade. Organizations are embracing cloud computing, artificial intelligence, connected devices, remote operations, and real-time analytics at an unprecedented pace. These technologies promise greater efficiency and new opportunities, but they also introduce a new reality: every digital innovation depends on a network that performs consistently under all conditions.

> *"Every digital innovation depends on a network that performs consistently under all conditions."*

At Global Telecom Engineering and TITANS Network, we often remind ourselves that our customers are not purchasing internet service or networking equipment simply for the sake of technology. They are investing in operational resilience and business continuity. Whether supporting a construction site, a retail location, a logistics hub, or a remote office, our responsibility is to ensure that people can continue working with confidence, regardless of the challenges around them.

The expectations placed on enterprise connectivity have changed dramatically. Businesses no longer ask whether they need connectivity; they ask whether their network is resilient enough to support the future. They expect secure communications, rapid deployment, intelligent failover, and solutions that can adapt as their operations grow and evolve. Reliability is no longer a competitive advantage - it has become the minimum standard.

This shift is particularly evident in industries where every minute of downtime carries real consequences. Construction projects depend on continuous access to cloud-based plans and project management platforms. Retail operations rely on uninterrupted payment processing and inventory systems. Healthcare providers require secure communications that support patient care. Manufacturers depend on connected equipment and real-time operational data. Across every sector, connectivity has become inseparable from productivity.

Technology itself continues to evolve rapidly, but our mission remains remarkably consistent. We engineer solutions that help organizations stay connected, reduce complexity, and prepare for what comes next. That philosophy extends beyond the products we design and influences how we approach engineering, customer relationships, partnerships, and innovation.

Innovation is not measured by the number of technologies we introduce, but by the problems we solve. The best engineering is often invisible. When networks remain operational during disruptions, when critical applications continue without interruption, and when organizations can focus on their mission instead of their infrastructure, technology has fulfilled its purpose.

That commitment to practical innovation is the foundation of both Global Telecom Engineering and TITANS Network. It is also the spirit behind VECTOR. We created this publication as a forum for engineers, technology leaders, and industry experts to examine the ideas, technologies, and challenges shaping the future of enterprise connectivity. Our goal is not simply to report on technological change, but to contribute meaningfully to the conversations that will define the next generation of communications.

As you read this inaugural issue, I hope you find perspectives that challenge assumptions, inspire new ideas, and reinforce a simple principle that guides everything we build: connectivity is no longer simply infrastructure - it is strategic infrastructure. Organizations that recognize this shift and invest accordingly will be the ones best positioned to innovate, compete, and grow in an increasingly connected world.

Thank you for joining us as we begin this journey. We look forward to exploring the future of connectivity together.

Ahmad Malkawi

AHMAD MALKAWI
Chief Executive Officer
Global Telecom Engineering | TITANS Network

EDITOR'S NOTE

Every Connection Has a Story

Every day, we connect, communicate, work, and create through technologies whose complexity remains largely invisible to us.

Yet behind every reliable network is a much larger story. It is the story of engineers solving complex problems, businesses adapting to new challenges, and technologies evolving to keep people, projects, and ideas connected. It is also the story of innovation - not innovation for its own sake, but innovation that enables organizations to work more efficiently, respond more quickly, and build with greater confidence.

That is the inspiration behind VECTOR.

This journal was not created to promote products or celebrate technology for its own sake. Instead, it was created to explore the ideas, engineering, partnerships, and real-world experiences shaping the future of enterprise connectivity. Technology is changing rapidly, but meaningful progress has always depended on something more enduring: curiosity, collaboration, and the willingness to solve difficult problems.

Each issue of VECTOR will examine the technologies transforming industries while also highlighting the people behind those innovations. We will explore emerging trends, engineering perspectives, customer success stories, practical applications, and the challenges organizations face as connectivity becomes increasingly mission-critical. Our goal is simple: to create a publication that informs, encourages thoughtful discussion, and occasionally inspires a new way of looking at familiar challenges.

In this inaugural issue, we explore the ideas, innovations, and people shaping the future of connectivity.

Whether you are an engineer, a customer, a partner, or simply someone interested in the technologies shaping our connected world, I hope you find something in these pages that challenges an assumption, sparks an idea, or starts a conversation.

I look forward to exploring the future of connectivity with you - one issue, one innovation, and one conversation at a time.

FROM TRUCK ROLLS TO REAL TIME

How wireless connectivity turns the manual steps of cell-site and fiber construction into a real-time, digital workflow

BY MICHAEL IRIZARRY
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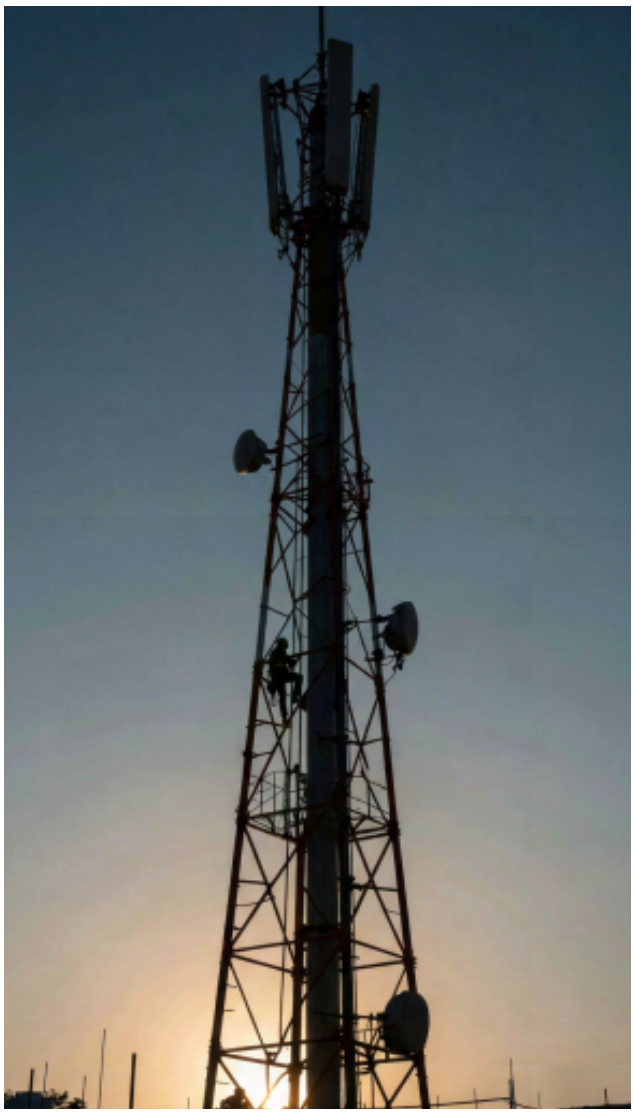
THE PROBLEM

Strip away the marketing, and cell-site and fiber construction are the same shape: a chain of site visits, most of them single-discipline, most of them documented on paper and a phone camera. A crew shows up, does the work, writes it down, and drives away. The mistake — a few degrees of azimuth, a missing serial-number photo, a splice that isn't tied to a map — surfaces days or weeks later, at close-out or during an outage. Fixing it means sending someone back. That return trip is the tax the whole industry pays, and closing the gap that creates it is the entire point of digitizing the work. The catch is that every digital tool depends on the site being connected in real time, which is exactly what tends to be missing. Here is the problem in each trade, and then the fix.

ARRIVE → DOCUMENT → ERROR → RETURN

Example 1
Cell-site construction



It starts in the office, where a site-acquisition specialist hunts a parcel and negotiates a lease that lives in a pile of emails and PDFs. Then the site walk: an RF engineer, a structural surveyor, and a civil lead visit — often on separate trips — and capture the tower by hand. Azimuth off a magnetic compass, downtilt off an inclinometer, heights off a laser rangefinder, a photo panorama shot every 30 degrees, all written onto forms, and a loose camera roll that someone transcribes later. That hand-measured survey feeds design and structural analysis, where engineers work from 2D drawings that may not match the steel, and a structural check can take up to three weeks, followed by zoning and permitting that can run up to two years. Civil crews then pour the foundation and stand the tower, logging concrete tickets and grounding checks on paper while the project manager learns real status by phone. During equipment installation, tower hands set each antenna's azimuth, tilt and plumb by compass and eye — a few degrees off changes coverage or causes interference, but nobody knows yet. Crews then run sweeps, PIM and OTDR and hand the site to the carrier's NOC to bring on air. At close-out, the crew assembles a carrier-prescribed package of dozens of photos per sector plus serial numbers and test files; any missing shot or wrong label gets it rejected, which means another climb. The errors made on the tower are discovered after the crew is gone.

Example 2
Fiber / outside-plant (OSP) construction

Fiber is the same story, mostly underground, where a mistake is invisible until something breaks. It begins with high-level design — and when three to five people hand-draw it, the plans disagree, and the field pays for it. Detailed design turns that into prints that field discoveries force into redraws. Then permitting, make-ready, and 811 locates: thousands of permits by jurisdiction, pole loading analysis, joint-use coordination, and paint-and-flag utility marks before anyone digs. On the walkout, crews collect pole data with laser and GPS on paper sheets that get re-keyed in the office.

During construction, crews arrive with plans that no longer match; cable placement logs reel IDs and footage on paper; splicing is recorded on a paper matrix whose events aren't tied to a map, so the network has to be rediscovered later. Testing means bidirectional OTDR traces compiled by hand, and the as-built is redlined on paper and transcribed into the GIS, where traditional QA can only spot-check a fraction of the work before turn-up stalls because the records don't match the plant. In both trades the pattern is identical: the work is captured on paper at the point of work, and the errors it hides are found far downstream, when they are expensive to fix.

THE FACTS BEHIND IT

This is not a rounding error; it is a volume business with a costly defect rate. There were 447,605 cell sites and 166,264 small cells in service at the end of 2024, on about $29 billion of carrier capex that year (CTIA, 2025), and fiber has now passed 88 million U.S. homes, pushed by a $42.45 billion federal build-out, with a record 10.3 million homes passed in 2024 alone. Multiply any per-site inefficiency across that base — tens of thousands of near-identical builds a year — and a small defect rate becomes a very large number.

And the manual process is measurably lossy. On the wireless side, VIAVI reports first-time install failure rates as high as 30% (VIAVI, 2026), with each failure resulting in a repeat visit. On the fiber side, excavation damage is getting worse, not better: the Common Ground Alliance's 2024 DIRT report logged 196,977 damage reports and a damage index that rose from 94.0 to 96.7 year over year, with failure to notify 811 the single biggest root cause at about a quarter of all events. And the data captured in the field is often wrong from the start — standalone GPS drifts 3–5 meters (Emlid, 2024), enough to put a splice in the wrong yard, while survey-grade RTK brings it to a few centimeters.
The common thread is timing: a variance caught on the tower or in the trench is a five-minute correction, but the same variance caught at close-out, at integration, or after backfill is a truck roll, a re-climb, or out-of-warranty rework. Late-caught errors, unseen strikes, drifting records — each is a failure that real-time, connected capture is built to prevent.

THE SOLUTION

The fix is to architect the site from the network out and move the moment of verification from the office, days later, to the field, right now: capture the work once, check it against the design or standard on the spot, and correct it before the crew leaves. Concretely, that is a small, layered stack in each trade — and none of it is theoretical; every tool named below ships and is in commercial use today. What they share is a single design principle: rather than documenting the work for someone to check later, they check it as it happens.

On the tower

A mobile close-out platform (Sitetracker, Tarantula) is the backbone: it pushes the carrier's checklist to the crew and won't let a package close until every required photo and form is captured, so gaps surface before demob. Drone reality capture with automated as-built-versus-design analysis (Optelos, Bentley, vHive) then confirms the finished tower matches the design from the desk. Where a re-climb is unaffordable, on-tower AR validation (vHive, 2025) overlays the design on a live drone view and returns a per-element pass/fail while the crew is still up the tower. Behind them, an engineering digital twin (Bentley OpenTower iQ, 2024) re-analyzes each 5G reload against true geometry, and guided test automation (VIAVI) standardizes commissioning so those 30% first-install failures stop driving repeat visits. Adopted together, they turn close-out from a hopeful binder audit into a verified, one-visit hand-off.

In the trench

The anchor is a GIS single source of truth with an offline-capable mobile app (IQGeo, VETRO, Esri Field Maps) paired with RTK, so conduit, closures and splices are recorded to a few centimeters at the point of work and the as-built is born digital instead of reconstructed from redlines. Automated network design (Comsof, Biarri, Render) kills the plan-inconsistency upstream — Render reports one operator that expects to scale from 150 to 500 miles a year with the same crews (2024). GPS-mapped digital locates (ProStar) replace wash-away paint with survey-grade, shareable records to protect the dig; single-connection bidirectional OTDR (VIAVI FiberComplete PRO) auto-builds the acceptance package with up to 80% less certification time; and computer-vision QA (IQGeo / Deepomatic) scores every install photo against the standard — a German operator is deploying it now with checks that run on-device, offline (IQGeo, 2026). Each tool addresses a different phase, but they do the same thing: they move the record from paper in the office to a validated digital capture at the point of work, so the buried plant is documented correctly the first time — when correction is cheap — instead of being rediscovered during an outage.

The enabler: getting the site connected

None of this runs without connectivity, and a greenfield tower compound or fiber staging yard rarely has a wired drop — trenching fiber for a few weeks of work makes no sense. Fixed Wireless Access solves it: it turns a mid-band 5G signal, already reaching about 90% of the world's population over existing towers, into site broadband through one piece of self-install customer premises equipment.

A device like Global Telecom's Titan 5100 (2024) — a 5G-NR router that mounts to a window, pole, or wall, is IP67-rated, and supports dual-SIM/eSIM, Wi-Fi 6, and zero-touch provisioning — gives a non-technician a working site network in hours instead of the weeks a wired drop demands. The CPE is increasingly built to self-install and provision remotely, which is why FWA has moved from a consumer story to a practical way to light up any dispersed site fast. Some 28 million FWA units shipped in 2024 (GSA, 2025), and FWA is on track for 350 million connections by 2030. Where one CPE isn't enough, private 5G or CBRS covers a larger footprint, low-earth-orbit satellite provides backhaul, and an on-site edge node handles latency-critical work like the AR gate. There is even a loop worth naming: FWA capacity is gated by mid-band spectrum — analysts peg the U.S. big three at room for roughly 32 million FWA subscribers (New Street via Fierce, 2025) — so the very cell sites this brief is about building are what make connectivity possible.

Sequence it in that order, and don't buy it all at once. Connectivity comes first, as a budgeted deliverable — an FWA gateway on day one gives the crew the link everything else rides on. Then, the record-keeping backbone, the close-out platform on the tower side, and the mobile GIS on the fiber side, because that captures the work digitally at the source. Then the verification layer — reality capture and AR for towers, computer-vision QA, and OTDR automation for fiber — where truck-roll and rework costs bite hardest. Each layer inherits the layer beneath it, and all layers inherit the network. Provision it first, and the stack pays for itself; leave it to chance, and the best tools in the industry keep riding back out on the next truck.

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PRIMARY INTERNET VS. FAILOVER: WHY EVERY BUSINESS NEEDS BOTH

BY NAROTHUM SAXENA
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For most businesses, the internet connection is invisible right up until it isn't. Point-of-sale systems freeze, VoIP calls drop, cloud applications stop syncing, and a workday that seemed ordinary suddenly grinds to a halt. The financial impact of that moment is larger than most owners assume — and it's why a growing number of businesses are treating internet resilience the same way they treat backup power or data backups: as a baseline requirement, not an optional upgrade.

The Real Cost of Going Offline

Downtime costs vary widely by company size and industry, but the financial impact can be substantial. Business.com, citing industry data from Sherweb, reports that small-business downtime can cost between $127 and $427 per minute—meaning a three-hour outage could amount to roughly $22,500 to $77,000 (Business.com). At the enterprise end, Splunk's 2026 Hidden Costs of Downtime research, conducted in partnership with Oxford Economics, puts the average cost of downtime at approximately $15,000 per minute, with unplanned outages and service degradation costing Global 2000 companies a combined $600 billion annually (Splunk, 2026; Gatling, 2026). Even older, more conservative Gartner figures — often cited at $5,600 per minute — still work out to well over $300,000 for a single hour (Atlassian).
Those numbers aren't just about lost sales. They include idle payroll, missed customer commitments, and the slower-moving damage of reputation and customer churn. For a small consulting firm billing $150 an hour with five people on staff, an hour of downtime can mean $750 in lost billable time before a single client complaint comes in (Business.com).

Why a Single Connection Is a Single Point of Failure

A primary connection — typically fiber, cable, or DSL — is usually the fastest and most cost-effective way to move data in and out of a business. But it shares a common weakness with any single line: it runs through one physical path. A backhoe hitting a buried cable, a local outage at the provider, or a weather event can take the entire connection down at once, and there's no way to route around the failure because there's nothing to route to.
This is the core argument for failover: a second, independent connection that a business's network can switch to automatically when the primary line drops, so operations continue with little or no interruption.

How Fixed Wireless Access Fills That Role

Increasingly, that second connection is Fixed Wireless Access (FWA) delivered through a piece of Customer Premises Equipment, or CPE. Rather than depending on buried cable, FWA connects a business directly to a cellular base station over licensed 4G LTE or 5G spectrum. A receiver — mounted indoors, outdoors, or on a rooftop — picks up the signal and converts it into standard Wi-Fi or Ethernet connectivity that the business's existing network can use.

Because it doesn't rely on the same trenches, poles, or exchange equipment as a wired line, FWA gives a business a genuinely independent path to the internet. Modern business-grade FWA CPE typically supports dual-SIM or multi-carrier setups, so if one cellular network is congested or down in an area, the device can shift to another. Many units are also designed for fast, largely self-service installation — a meaningful advantage over wired backup circuits, which can take weeks to provision.

Equipment vendors in this space, including Global Telecom Engineering, build CPE specifically around this use case. The company's TITAN 5100, for example, is marketed as a 5G fixed-wireless router with automatic, dual-SIM failover and industrial-grade construction intended for continuous, unattended operation (Global Telecom Engineering). Global Telecom also pairs its hardware with an Intent-Based Connectivity Optimization platform that continuously steers connected devices toward the strongest, least-congested cell sector available, which is a separate layer from carrier-level failover but works alongside it to keep performance consistent (Global Telecom Engineering).

One example of this approach packaged as a dedicated service is TITANS Network, a connectivity brand powered by Global Telecom Engineering. In February 2026, the company announced enhanced FWA failover capabilities aimed at business and residential customers, describing a system that continuously monitors the primary connection and automatically switches to a backup path during outages, severe weather, or network disruptions, without requiring manual intervention (Business Wire). It's a useful illustration of what a purpose-built failover offering looks like in practice, though businesses evaluating any provider should confirm current specifications, coverage, and pricing directly, since offerings in this space change quickly.

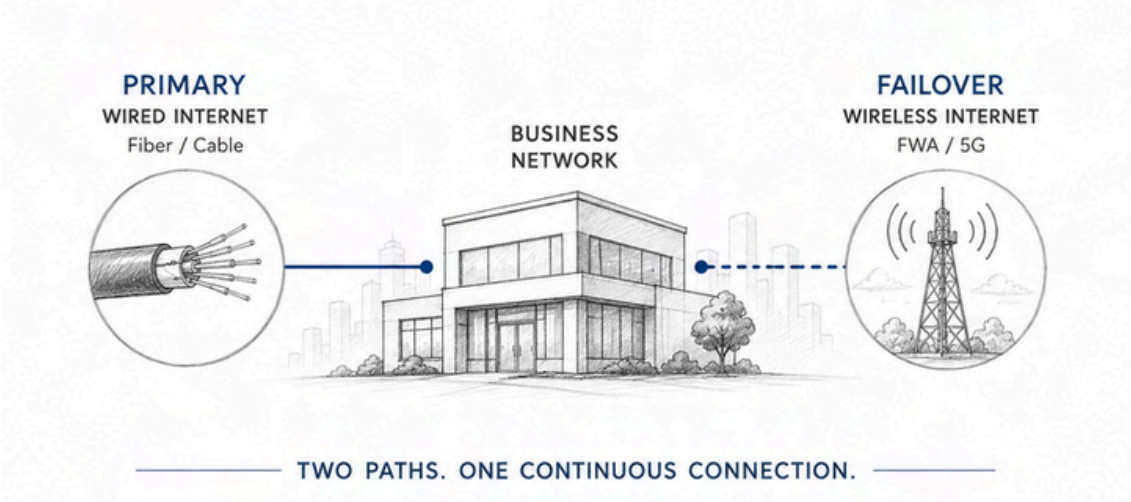
Primary and Failover, Working Together

The two connections aren't competitors — they're a system. The primary line, usually fiber or cable, carries the bulk of everyday traffic because it typically offers the best price for high, sustained bandwidth. The failover connection sits in reserve, watched by a router or SD-WAN device that continuously checks the primary line's health. The moment it detects an outage, it reroutes traffic to the FWA connection automatically, ideally without staff noticing anything beyond a brief blip.

This arrangement matters most for the systems a business genuinely cannot afford to lose even briefly: card payment processing, VoIP phone lines, security systems, cloud-based inventory and scheduling tools, and remote access for staff. For a retailer, that might mean transactions continue to clear during a fiber outage. For a healthcare office, it might mean patient records are accessible. For a logistics operation, it might mean drivers and dispatchers stay connected during a delivery window that can't slip.

The Bottom Line

Connectivity has quietly become as foundational to running a business as electricity or water — and, like those utilities, it benefits from redundancy. A wired primary connection paired with a wireless failover path, delivered through FWA CPE, gives businesses a practical, increasingly affordable way to make sure a single point of failure doesn't become a full-day (or full-cost) outage.



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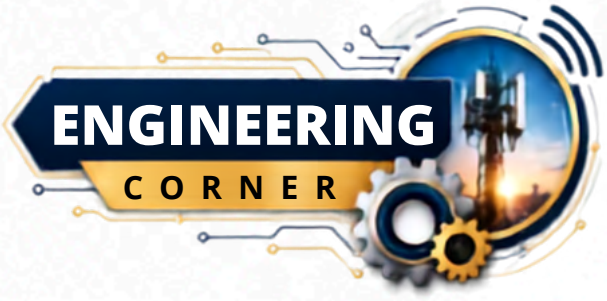
WHAT MAKES ENTERPRISE INTERNET DIFFERENT FROM CONSUMER INTERNET?

The difference isn't simply speed. It's what happens when the connection becomes part of the business.



BY AMIT UMATT
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At first glance, consumer and enterprise internet appear to do essentially the same thing. Both connect users and devices to the internet, both can deliver impressive speeds, and both may rely on fiber, cable, or wireless infrastructure.

On an ordinary day, when everything is working as expected, the difference between them may not be particularly obvious. However, the difference becomes much clearer when something goes wrong.
For a household, an internet outage is disruptive: streaming stops, smart devices may disconnect, someone working from home may have to switch to a mobile hotspot or wait for service to return.
For a business, the same loss of connectivity can stop payment processing, interrupt VoIP communications, disconnect cloud applications, affect cameras and security systems, prevent employees from accessing critical information, and disrupt operations across an entire location.

At sufficient scale, those disruptions become expensive.

Uptime Institute's 2026 Annual Outage Analysis found that 57% of respondents who had experienced a major outage said their most recent incident cost more than $100,000. One in five reported costs exceeding $1 million (Uptime Institute Intelligence, 2026).
The research also found that outages associated with fiber and connectivity problems are increasing and are more likely to produce extended disruptions.
Those figures describe major IT and data-center interruptions rather than the typical broadband interruption, but they illustrate something important: as organizations become more dependent on connected systems, the consequences of losing connectivity increase.
That is why enterprise connectivity cannot be evaluated on download speed alone.
In fact, the internet itself does not fundamentally change when a business connects to it. What changes is the architecture surrounding the connection - and the consequences attached to its failure.
Enterprise connectivity is therefore less about purchasing a "better internet" and more about engineering a network around a different assumption: The connection matters enough that failure must be planned for.

KEY TAKEAWAY

Enterprise connectivity is not about purchasing a better internet. It is about engineering a network around a different assumption: that the connection matters enough that failure must be planned for. Planned resilience — not raw speed — is what separates enterprise architecture from consumer service.

1 Resilience Is Designed Into the Architecture

A typical residential connection may consist of one internet service provider feeding a modem or gateway. If that connection falls, the household loses internet access until service is restored or the user finds another way to connect.

An enterprise architecture can be designed differently. A business may combine a primary connection—such as fiber—with an independent secondary path using another wired provider or 4G/5G fixed wireless access. A dual-WAN router, SD-WAN platform, or other network appliance can continuously monitor the available connections and respond when the primary path becomes unavailable.

Modern enterprise networking systems can go far beyond simply determining whether a circuit is “up” or “down.” They can evaluate network conditions such as latency, packet loss, jitter, and other performance indicators and use that information to make routing decisions.

This leads to one of the most important distinctions in enterprise connectivity:

Redundancy is not simply owning two internet connections. It is having an architecture capable of recognizing a problem and using an alternate path when it is needed.

And independence matters. Two *connections are not* **necessarily two** *independent* **connections.**
A company could purchase service from two providers and still have a common point of failure if two connections enter the building through the same conduit, depend on shared local infrastructure, or ultimately traverse the same vulnerable physical path.

True resilience therefore requires thinking in terms of failure domains.

- What infrastructure do the connections share?
- Where do they diverge?
- Does the backup use a different access technology or carrier?
- Can the network recognize a failure automatically?
- And once the primary connection returns, can traffic transition back without creating another operational problem?

“Redundancy is not simply owning two internet connections. It is having an architecture capable of recognizing a problem and using an alternate path when it is needed.

This is why combining different connectivity technologies can be particularly valuable. A wired primary connection and a cellular secondary connection, for example, may provide greater path diversity than two services dependent upon the same physical infrastructure.

2 An SLA Changes the Relationship

Consumer internet is generally delivered as a best-effort service. Enterprise connectivity may instead be governed by a Service Level Agreement, or SLA, defining specific expectations between the provider and the customer.

Depending on the service, an SLA may address availability, response times, restoration objectives, or measurable network-performance parameters.

An SLA does not mean an enterprise connection can never fail. What an SLA can change is the relationship between the customer and the service provider.

Performance and support expectations can become defined, measurable, and accountable rather than simply assumed. For a business whose operations depend on connectivity, that distinction may be far more valuable than another hundred megabits on a speed test.

3 Performance Means More Than Bandwidth

Internet services are frequently marketed by speed:
500 Mbps. 1 Gbps. Multi-gigabit.
Those numbers matter, but they do not tell the entire story.
A 1 Gbps connection experiencing significant packet loss or unstable latency may perform worse than a slower, more stable connection. Voice communications, videoconferencing, cloud applications, remote desktop environments, and point-of-sale systems can all be sensitive to network conditions.
That is why enterprise networks consider performance characteristics beyond bandwidth, including latency, jitter, packet loss, availability, and path health. A connection can also remain online while its performance deteriorates. Voice calls may become difficult to understand, cloud applications may respond slowly, video may freeze, and transactions may take longer to complete.

> **In other words, "connected" does not necessarily mean "performing."**

Enterprise networking is designed to recognize that distinction. Quality-of-Service mechanisms can prioritize critical traffic, while application-aware routing and resource-management tools can select available paths according to application requirements and current network conditions.

Industry standards reflect the same principle. MEF's work on SD-WAN performance monitoring addresses both degradation and failure across WAN connectivity rather than treating a connection as simply available or unavailable.

The objective is not simply to provide the biggest pipe.

It is to deliver predictable performance to the applications the business depends upon.

4 Enterprise Hardware Has a Different Job

A home router may support a family and a collection of laptops, phones, televisions, cameras, and smart devices. Enterprise equipment may have to operate in an entirely different environment.

A business gateway may need to run continuously at a remote location, manage multiple WAN connections, maintain VPNs, enforce security policies, support automatic failover, and remain manageable by an IT team hundreds or thousands of miles away.

For companies operating many locations, centralized management becomes particularly important. Instead of configuring devices individually, enterprise platforms can give administrators visibility across an entire fleet.

That may include topology, application health, alarms, events, logs, telemetry, security information, configuration status, firmware versions, and network performance.

The operating question therefore changes from: **"Is the internet working at this location?"**

"What is happening across the network—and can we see the problem before the user calls us?"

That change—from connectivity to **observability**—is one of the defining characteristics of modern enterprise networking.

5 Support Extends Beyond the Help Desk

Remote diagnostics & telemetry - identify and troubleshoot faults without on-site intervention.

Centralized configuration & patching - manage firmware, security updates, policies, and credentials across distributed devices.

Escalation & remediation — engineering support, hardware replacement, and structured incident resolution.

Fleet lifecycle management — maintain device health, security, configuration, and performance from deployment through retirement.

Enterprise infrastructure must remain manageable, secure, and supportable throughout its operational life.

Lifecycle management is therefore part of network design.

6 Security Must Scale With the Business

Distributed networks expand the security perimeter.

Cloud, remote users, and IoT create new points of exposure.

Zero-trust architectures secure access beyond traditional network boundaries.

The network edge is part of the security architecture.
Enterprise environments may require VPN connectivity, segmentation, firewall policies, encrypted traffic, secure remote access, centralized authentication, device-level controls, and carefully defined access among users, locations, cloud resources, and business systems.
The scale of the threat is significant.
Verizon's 2025 Data Breach Investigations Report analyzed more than 22,000 security incidents, including 12,195 confirmed breaches. It reported a 34% increase in the exploitation of vulnerabilities as an initial attack vector, while third-party involvement in breaches doubled to 30% (Verizon Business, 2025). Those findings reinforce an important principle: connectivity cannot be separated from security. Every branch, remote site, gateway, connected device, and externally accessible system can become part of an organization's attack surface.

And enterprise security is not a one-time configuration. Firmware updates, vulnerability management, access policies, authentication, monitoring, segmentation, and long-term software support all become part of maintaining the network over time.

7 Failover Is Only Useful If You Know It Works

There is another distinction that is easy to overlook. Having a backup connection does not necessarily mean a business has resilient connectivity. The secondary path must also be available when needed, which means it has to be monitored.

A backup circuit could fail silently. A SIM could become inactive, a cellular carrier could lose coverage at a location, or a configuration change could prevent failover from occurring correctly. An unused backup path could remain broken for weeks or months without anyone noticing.
Then the primary connection fails.
Only at that moment does the organization discover that its redundancy existed on paper but not in practice.

Enterprise systems can continuously assess connection health and generate events when failures occur. Cellular-capable platforms may also provide visibility into carrier status, signal conditions, SIM state, and transitions between available connections.
This is why resilience requires more than a second connection. It requires monitoring, testing, and visibility into both paths.

A backup that is never monitored is not a resilience strategy. It is an assumption.

8 Scale Changes the Problem

Many differences between consumer and enterprise connectivity emerge at scale. Configuring one router manually is manageable; managing hundreds of distributed devices requires centralized provisioning, monitoring, and control.

At scale, seemingly simple tasks become fleet-management problems.

- How do you change a firewall policy across hundreds of locations?
- How do you update firmware without disrupting operations?
- How do you identify which devices have failed to update?
- How do you rotate credentials?
- How do you determine whether poor application performance at 15 locations is caused by a carrier, a configuration, a device, or the application itself?
- How do you replace failed hardware without sending an engineer to every site?

This is where centralized provisioning, configuration templates, telemetry, remote diagnostics, automation, and lifecycle management become increasingly important.
The value of enterprise management is therefore not simply convenience; it is operational scalability.
The network has to remain manageable as the business grows.

Same Internet. Different Design Assumptions.

ACCESS	OPERATIONAL CONTINUITY
Advertised speed	Application performance
One primary path	Diverse primary and backup paths
Best-effort service	SLA-backed services
Local device management	Centralized fleet management
Basic connectivity status	Telemetry and path health
Standard customer support	Defined escalation and restoration processes
Household-scale deployment	Multi-site and fleet-scale operations
Basic security controls	Segmentation, policy enforcement and secure remote access
Manual intervention when service fails	Automated failover and recovery
Monthly service price	Cost of downtime and total operational cost

The Real Difference: Designing for Consequence

The greater the operational dependency, the more important resilience becomes. That is where the economics of enterprise connectivity begin to change. The decision is no longer simply: How much does my internet connection cost each month?

Small Office

A small office with limited dependence on cloud applications may be able to tolerate an occasional outage.

Construction Site

A construction site coordinating crews, cloud-based plans, cameras, connected equipment, inspections, and real-time field information may not.

Retail

A retailer processing transactions and maintaining cloud-based inventory may face a different calculation.

What does reliable connectivity allow the business to do—and what does losing it cost?

Consumer internet is primarily about providing access. Enterprise connectivity is about maintaining operations—through resilience, performance, security, visibility, scalability, support, and recovery. The defining feature of enterprise connectivity is not that the network never fails. It is that failure is anticipated, detected, managed, and designed around.

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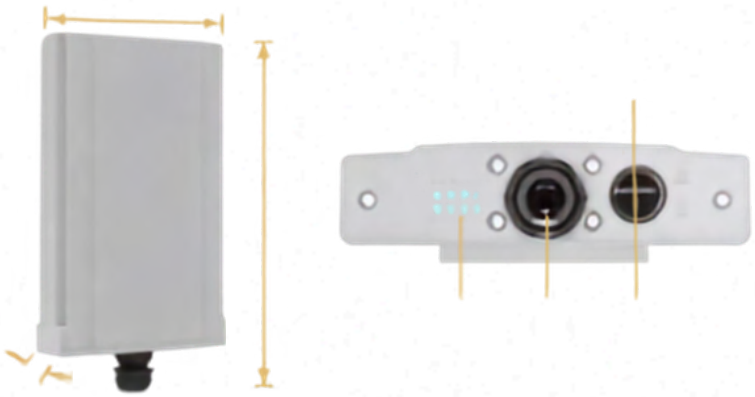
TITANS Network Spotlight

WHY RELIABLE CONNECTIVITY STARTS WITH THE RIGHT DEVICE

BY RON HERON
VP of Channel Sales
Global Telecom Engineering | TITANS Network

Nearly every modern business relies on connectivity. From cloud applications and payment systems to security cameras and collaboration tools, modern operations depend on a network that simply works.

Organizations often focus on the monthly service plan while overlooking the most important piece of the solution: the device providing the connection.



28 MILLION
FWA CPE units shipped by surveyed vendors in 2024
↑ 22% year over year
Source: GSA 2025 FWA CPE Market Survey

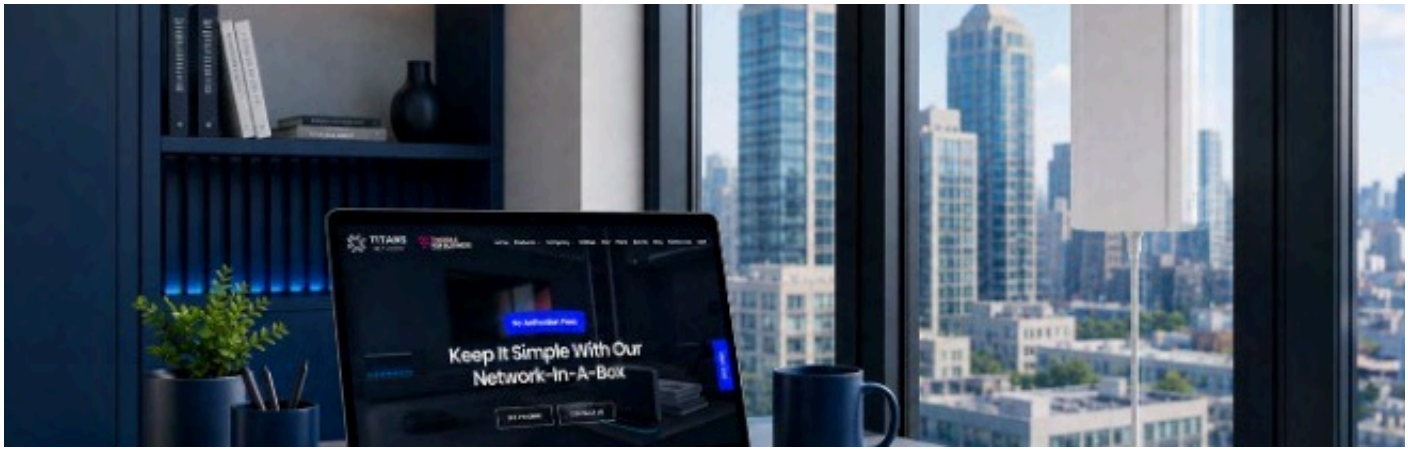
At TITANS Network, reliable connectivity starts with enterprise-grade equipment designed specifically for business environments. By combining world-class fixed wireless access (FWA) hardware with integrated network connectivity, TITANS delivers a complete solution that helps organizations stay connected wherever business takes them.

Enterprise Hardware Matters

Not all networking equipment is created equal. Consumer-grade routers may be sufficient for basic home use, but business environments require greater reliability, security, and performance. Whether supporting critical operations, remote employees, or temporary locations, organizations need equipment engineered for continuous operation and real-world business demands.

That is why TITANS Network is built on enterprise-grade hardware designed to deliver dependable connectivity in challenging environments.

Just as businesses invest in quality servers, computers, and security systems, they should invest in the network infrastructure that keeps their operations online.



Simplifying Cellular Connectivity

Historically, deploying a cellular internet solution often meant purchasing hardware from one vendor and wireless service from another. Managing carriers, provisioning service, and supporting multiple vendors introduced unnecessary complexity.
TITANS Network eliminates that challenge by combining enterprise hardware and connectivity into a single solution. Businesses receive a device that is ready to deploy with connectivity already included, removing the need to establish and manage separate carrier relationships.

A Better Solution for Business Connectivity

01 Failover Connectivity

Network outages are expensive. Lost productivity, interrupted transactions, and unavailable systems can quickly impact business operations.
TITANS Network provides a reliable backup connection that helps organizations maintain connectivity when primary circuits experience interruptions. Instead of waiting for service restoration, businesses can continue operating with minimal disruption.
For many organizations, connectivity is not just about internet access. It is about business continuity.

02 Rapid Deployment

The modern workforce is increasingly mobile.
Whether supporting remote employees, temporary project offices, pop-up locations, or mobile operations, organizations need connectivity that can be deployed quickly without lengthy installation schedules.
TITANS Network provides fast, reliable connectivity wherever it is needed, enabling businesses to stay productive without waiting weeks for traditional services to be installed.

TITANS keeps business moving when the network doesn't.

CONSTRUCTION SITES: THE PERFECT EXAMPLE

Construction sites represent one of the clearest examples of where TITANS Network creates value.

Projects frequently begin long before permanent internet infrastructure is available. Teams need immediate access to project management systems, plans, timekeeping platforms, security cameras, and cloud storage.

Without dedicated connectivity, workers often rely on personal hotspots or leave the jobsite to upload photos, videos, and project documentation.

That lost time adds up quickly. When project managers, subcontractors, inspectors, and field teams cannot reliably access the systems they depend on, small delays can turn into missed updates, slower decisions, and unnecessary trips away from the jobsite. Reliable connectivity helps keep the flow of information moving from the trailer to the field to the back office.

TITANS Network enables connectivity from day one, helping crews remain productive and connected throughout the life of the project. Instead of waiting for traditional services, teams can focus on building while maintaining reliable access to the digital tools that keep projects moving.

MORE THAN CONNECTIVITY

At the end of the day, connectivity alone is only part of the solution.

A business network is only as reliable as the device delivering the connection. That is why TITANS Network combines enterprise-grade hardware with integrated connectivity to deliver a complete business solution.

After all, businesses trust premium equipment to run their operations. Why trust something as important as network connectivity to a device that was never designed for the job?

THIS MONTH IN CONNECTIVITY

AI Is Moving Deeper into Network Operations

BY ANDRADA COSTOIU
Editor | VECTOR

Connectivity is evolving faster than ever. In each issue, we highlight the technologies, standards, research, and policies shaping the networks that power business, industry, and society.

> From AI-driven network operations to predictive digital twins, evolving cybersecurity strategies, and the early foundations of 6G, these developments are changing not only what networks can do, but how they are designed, managed, secured, and prepared for what comes next.

AI-Driven Operations | Evolving Cybersecurity | Predictive Digital Twins | Foundations of 6G | Networks for Business & Society

Artificial intelligence is becoming part of how networks are managed and optimized—not simply another application running across them.

3GPP began integrating AI/ML more formally into 5G-Advanced with Release 18, and Release 19 expands those capabilities. Current work includes AI/ML frameworks for network analytics and optimization, as well as radio-side use cases such as beam management, channel-state information feedback, positioning, and mobility management. 3GPP describes this evolution as part of the path toward increasingly AI-enabled mobile networks (Taksande et al., 2025; Gao et al., 2026).

Researchers are now looking beyond individual AI functions toward systems that can learn network behavior and evaluate the consequences of possible actions before they are applied. Recent work on telecom world models proposes combining learned network dynamics, predictive planning, foundation models, and operator-controlled parameters so that AI systems can anticipate how configuration changes may affect network performance (Zheng et al., 2026; Zou et al., 2026).

The direction is significant: network intelligence is moving from monitoring what happened toward predicting what may happen next and helping determine what the network should do about it.

Digital Twins Are Evolving Toward Predictive Network Models

Digital twins have traditionally provided virtual representations of physical systems that engineers can use for monitoring, simulation, and optimization. In telecommunications research, that concept is now expanding.

Recent work explores combining digital twins with foundation models, learned network dynamics, and agent-based decision systems. Rather than simply reproducing the current state of a network, these models could simulate traffic changes, mobility failures, radio conditions, and the effects of proposed configuration changes before those changes reach the live network (Zheng et al., 2026; Zou et al., 2026).

One emerging concept is the telecom world model: a model designed not only to represent network state but also to predict how that state may evolve in response to operator actions and changing conditions. Researchers are investigating these systems for planning, optimization, network slicing, and autonomous operation (Zou et al., 2026).

Digital twins therefore may be evolving from engineering replicas into something more powerful: predictive environments in which networks can be tested before they are changed.

Cybersecurity Is Expanding to AI and the Supply Chain

Cybersecurity is increasingly being treated as a lifecycle and ecosystem problem rather than simply a matter of defending the network perimeter.

In April 2026, NIST began developing a new AI Risk Management Framework Profile for Trustworthy AI in Critical Infrastructure. The work is intended to help operators manage AI-enabled systems across IT, operational technology, and industrial control environments, with emphasis on safety, security, reliability, explainability, fail-safe behavior, and risks extending across AI lifecycles and supply chains (NIST, 2026a).

NIST has also strengthened its cybersecurity supply-chain guidance. In June, it released SP 800-18 Revision 2, integrating cybersecurity supply-chain risk management into system planning, followed in July by a new due diligence guide for assessing ICT suppliers and products (NIST, 2026b).

The implication for connected businesses is increasingly clear: security is no longer limited to protecting traffic crossing the network. Devices, software, suppliers, cloud services, AI systems, and the organizations behind them all become part of the risk environment.

6G Is Moving from Vision to Formal Study

6G remains years away from commercial deployment, but the standards process is no longer purely theoretical.

3GPP Release 20 now includes formal early studies of the 6G system, covering network architecture, management and orchestration, application enablement, network selection, and core network resilience and reliability. 3GPP says Release 20 combines continued 5G-Advanced work with early 6G studies as the industry moves toward the eventual IMT-2030 standard (3GPP, 2026).

NIST added another important milestone in June 2026 with publication of its 6G Communications Roadmap, developed after six months of stakeholder engagement to guide its research over the next five to seven years. NIST's broader 6G work includes AI-native wireless networks, security and resilience, spectrum, Open RAN, integrated sensing and communications, and new approaches to automated network management (Rouil et al., 2026).

Trust is becoming part of that conversation as well. A July 2026 research paper proposes an architecture in which AI-driven network functions could be audited against machine-verifiable 3GPP specifications before deployment and during operation. That work is still research—not a 3GPP standard—but it illustrates an important emerging concern: if AI is going to help operate future networks, operators will need ways to verify what those systems are doing and why (Jiang, Huang, & Wang, 2026).

The evolution toward 6G therefore appears to be about more than speed. Resilience, automation, intelligence, security, interoperability, and trust are becoming part of the architecture from the beginning.

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PARTNER SPOTLIGHT

GLOBAL TELECOM JOINS THE ANTERIX ACTIVE ECOSYSTEM

Advancing Private Wireless Solutions for the Utility Industry

BY CHRISTY WHEAT
Vice President, Operations
Global Telecom Engineering | TITANS Network

Global Telecom Engineering has joined the Anterix Active Ecosystem[1], expanding the company's commitment to developing hardware and software solutions for mission-critical communications.

Anterix is the market leader in mission-critical private 900 MHz spectrum for the utility sector. Its 900 MHz foundation enables utilities to build private, utility-controlled wireless networks designed for operational control, security, resilience, and long-term scale. The Anterix Active Ecosystem brings together more than 150 technology and infrastructure partners supporting the development and deployment of private wireless solutions for grid modernization.

As part of the ecosystem, Global Telecom will contribute hardware and software solutions designed to support utility private wireless deployments. The company's experience developing purpose-built wireless devices, IoT connectivity solutions, and device management technologies positions Global Telecom to help extend connectivity from the network to the devices and applications operating at the edge.

PRIVATE WIRELESS FOR THE MODERN GRID

Private 900 MHz wireless networks are enabling utilities to support applications ranging from grid automation and remote asset monitoring to field communications and real-time situational awareness.

Recent Anterix utility deployments illustrate these applications in practice, including field automation, outage response, remote equipment control, monitoring, and grid modernization.

Unlike commercial wireless services, a private network gives a utility greater control over the communications infrastructure supporting its operations. That control can become increasingly important as more sensors, field devices, distributed energy resources, and intelligent systems become connected across the grid.

Joining the Anterix Active Ecosystem represents an exciting step forward for Global Telecom as we continue expanding our presence within the utility and critical infrastructure markets. Together with Anterix and its ecosystem of technology leaders, we look forward to helping utilities build the secure, resilient, and future-ready communications infrastructure required for the next generation of grid operations.

COMPANY NEWS

5G TITAN FAMILY ACHIEVES KEY U.S. CARRIER CERTIFICATIONS

TITAN 5000, TITAN 5100, and TITAN 5400 reach important certification milestones across major U.S. wireless networks

BY MARY GRANDAW
Sr Director, Product Certification
Global Telecom Engineering | TITANS Network

TITAN 5000, TITAN 5100, and TITAN 5400 reach important certification milestones across major U.S. wireless networks

Device Certification Update: 5G TITAN Family Achieves Key U.S. Carrier Certifications
As part of Global Telecom's ongoing commitment to delivering advanced wireless solutions, the company successfully completed carrier certification activities for the 5G TITAN Family by the end of 2025. The certified portfolio includes the **TITAN 5000**, **TITAN 5100**, and **TITAN 5400** platforms, further strengthening Global Telecom's position in supporting next-generation connectivity across enterprise and consumer markets.

CERTIFIED ACROSS LEADING U.S. NETWORKS

The TITAN family has achieved certification with the following U.S. wireless carriers:

- T-Mobile: Certified TITAN 5000 and TITAN 5100, including T-Priority and TITAN 5400
- Verizon Wireless, certification for TITAN 5000 and TITAN 5100
- U.S. Cellular (USCC), with certification completed for the TITAN 5000 and TITAN 5100; notably, the TITAN 5100 has progressed to commercial deployment on the USCC network

WHY CERTIFICATION MATTERS

For enterprise customers, carrier certification is more than a technical design choice - it's a key consideration as part of a much larger wireless environment, and their performance depends on successful interaction with the network carrying their traffic.

These certification milestones validate the TITAN platform's interoperability, network performance, and readiness for deployment across major U.S. carrier networks. Carrier approval enables customers to confidently deploy TITAN solutions while benefiting from optimized network compatibility and support.

Global Telecom continues to invest proactively in device design, engineering, and certification programs to ensure its portfolio remains aligned with evolving market requirements. Through ongoing innovation and technology leadership, the company is committed to delivering high-performance connectivity solutions and value-added services that address the changing needs of both business and consumer customers worldwide.

Tech Tip of the Month

Your RTK Is Only as Reliable as Its Connection

Modern construction sites increasingly rely on RTK GNSS for machine control, grading, layout, staking, and as-built verification. Network-delivered RTK corrections can provide centimeter-level positioning — but that precision depends on more than a clear view of the satellites. It also depends on the correction data reaching the equipment reliably.

BEFORE THE FIRST CUT

Check the correction path — not just the satellites.

If your site relies on network RTK or VRS corrections, test connectivity where the machines will actually work, not just at the trailer. A rover can have a clear view of the sky and still lose the correction stream it needs for centimeter-level positioning.

Before production begins:

- Test RTK/VRS connectivity throughout the actual work zone.
- Identify cellular dead zones around excavations, structures, grade changes, and site edges.
- Confirm how your equipment behaves if the correction stream is interrupted.
- Establish an alternate correction or connectivity path for precision-critical work.

> The GNSS receiver may see the satellites. That doesn't mean it can see the network.

TECH NOTE: Network RTK systems can deliver positioning accuracy on the order of a few centimeters when correction data and other required conditions are maintained.

Sources: Trimble, GNSS RTK Internet Base Station Service; Trimble Civil Construction, Site and Data Management and Correction Sources.

Contributors

Our contributors bring together visionary leadership, technical expertise, and creative expression - driving conversations and ideas that connect technology, people, and purpose.

Ahmad Malkawi

CHIEF EXECUTIVE OFFICER
GLOBAL TELECOM ENGINEERING | TITANS NETWORK

Ahmad Malkawi is the Founder and Chief Executive Officer of Global Telecom Engineering and TITANS Network, a telecommunications executive, technology innovator, and inventor with more than two decades of experience spanning wireless communications, mobile broadband, device engineering, and advanced connectivity solutions. Prior to founding Global Telecom Engineering in 2018, he built his career within some of the world's most influential telecommunications and semiconductor organizations, including AT&T, Qualcomm, and Sprint, developing deep expertise across the wireless technology ecosystem.

As an inventor, Ahmad holds multiple U.S. patents in wireless communications technology, including innovations in driverless wireless module architecture designed to simplify the integration of wireless connectivity into host devices. As CEO, he has led the development and commercialization of Global Telecom's TITAN portfolio of advanced 5G and fixed wireless access platforms, achieving carrier certifications across major U.S. wireless networks and advancing solutions across enterprise, IoT, and mission-critical connectivity markets. His leadership brings together engineering innovation, intellectual property development, product strategy, carrier relationships, and commercialization, transforming complex wireless technologies into scalable solutions for real-world applications.

Amit Umatt

FIELD APPLICATION ENGINEER
GLOBAL TELECOM ENGINEERING

Amit Umatt serves as a Field Application Engineer at Global Telecom Engineering, working across wireless IoT and fixed wireless hardware and software solutions, including integration, testing, OEM support, carrier certification, and technical acceptance. He brings more than 19 years of experience in wireless technologies, with expertise spanning NR, LTE, UMTS/GSM, and IMS.

Previously at Qualcomm, Amit managed complex OEM wireless programs from concept through carrier acceptance and commercial launch. His experience includes building trusted relationships with carrier partners, engineering teams, and OEM leadership to drive alignment, accelerate delivery, and ensure high-quality product outcomes. He brings a strong ability to navigate complex technical environments, advocate for customer needs, and lead engagements that strengthen long-term partnerships and support organizational goals.

Andrada Costoiu

FOUNDING EDITOR | VECTOR
VICE PRESIDENT OF MARKETING
GLOBAL TELECOM ENGINEERING | TITANS NETWORK

Andrada Costoiu is the Founding Editor of VECTOR and Vice President of Marketing for Global Telecom Engineering and TITANS Network, where she leads editorial strategy, brand development, and communications. Her multidisciplinary background spans political science, international affairs, business, education, publishing, and aviation, bringing a broad perspective to the intersection of technology, organizations, and people.

Beyond telecommunications, Andrada is Director of the UCI Ethics Center Summer Mentoring Program, an international academic initiative serving more than 600 students in 2026. A published author and a pilot, she also serves as Chair of the Orange County Chapter of The Ninety-Nines, the international organization of women pilots. Across her work in business, academia, publishing, and aviation, she is particularly interested in how technology and innovation shape human experience and society.

Christy Wheat

VICE PRESIDENT OF OPERATIONS
GLOBAL TELECOM ENGINEERING | TITANS NETWORK

Christy Wheat is Vice President of Operations at Global Telecom Engineering, bringing two decades of telecommunications experience and a distinguished background in operational leadership, sales, and business transformation. During her 20-year career with AT&T, she held senior leadership positions including Chief of Staff to the CEO of AT&T Mobility and Assistant Vice President of Operations.

At Global Telecom, Christy plays a key role in shaping the operational strategy and infrastructure that support the company's growth, spanning business operations, compliance, sales execution, and strategic planning. Her ability to translate strategy into execution and build scalable organizations has made her an integral part of Global Telecom's continued evolution.

Mary Grandaw

SR. DIRECTOR, PRODUCT CERTIFICATION
GLOBAL TELECOM ENGINEERING | TITANS NETWORK

Mary Grandaw leads Global Telecom Engineering Certification, focusing on carrier compliance, network performance, and scalable processes that support diverse IoT deployments. With more than 20 years of experience across technology—including certification, product development, sales, UX design, and more—she brings a uniquely holistic perspective to helping partners and customers navigate complex carrier and standards requirements.

Beyond her technical work, Mary is an inventor, world traveler, and lover of music and art. Her passion for people and cultures has taken her far from the Midwest to the heart of the Amazon rainforest, where she studied with Indigenous healers. Her name—and her family's—is also traveling across another world aboard NASA's Mars rover.

Michael S. Irizarry, Ph.D.

CHIEF TECHNOLOGY OFFICER
GLOBAL TELECOM ENGINEERING & TITANS NETWORK

For more than 30 years, Mike has driven technology strategies that led to superior business performance. At UScellular, Mike has directed highly complex network and technology initiatives and projects with accountability for strategic investments. With a transformational leadership style, Mike has inspired teams to flawlessly execute key business initiatives ranging from the successful prevention of cyberattacks and network upgrades to the digital transformation of end-to-end business processes.

Mike oversaw UScellular's information systems and technology as well as all the company's wireless technology, strategy, operations, and engineering. This work encompasses network build-outs, network operations, and technological advancements such as 5G, Voice over LTE (VoLTE), and network expansions.

Additionally, Mike led UScellular's information systems, strategic operations program and enterprise program management teams. These teams focus on application development, data warehousing, wireless billing technologies and support for data centers and end users, all of which help associates deliver an excellent customer experience. Prior to UScellular, Mike held leadership positions at Verizon, Bell Atlantic Mobile, and PageNet.
Mike is a senior member of the Association for Computing Machinery, a senior member of the I.E.E.E. and its communications and computer societies, and previously worked with the 6G Alliance and ATIS. Mike was a member of UScellular's board of directors, the NGMN Alliance board, and the ORAN Alliance. Mike is also on the Advisory boards of Global Telecom, Ubicquia, and Connect 5G and is a board member of ByVerTek and Sprocket Network.

Narothum Saxena

VICE PRESIDENT OF EMERGING TECHNOLOGIES
GLOBAL TELECOM ENGINEERING | TITANS NETWORK

Narothum Saxena is Vice President of Emerging Technologies at Global Telecom Engineering. With more than three decades of leadership in wireless and next-generation communications, he has shaped technology strategies that drive business and network transformation.

He previously served as Vice President of Technology Strategy & Architecture at UScellular, guiding major transitions from 3G through 5G. Narothum also serves on the Advisory Board of Hyperblox and as a strategic advisor to Origami Networks. He holds a master's degree in electrical engineering and computer science from the University of Illinois Chicago and completed an executive management program at the University of Chicago.

Ron Heron

VICE PRESIDENT OF CHANNEL SALES
GLOBAL TELECOM ENGINEERING | TITANS NETWORK

Ron Heron is Vice President of Channel Sales at Global Telecom Engineering, bringing more than 30 years of wireless and telecommunications experience spanning engineering, network operations, product strategy, marketing, and business connectivity. He spent much of his career at UScellular, where he ultimately led the company's B2B product organization and helped shape
a 5G Fixed Wireless Access strategy, device ecosystem, and business connectivity solutions.

At Global Telecom, Ron leads channel strategy, strategic partnerships, and go-to-market initiatives across the company's connectivity and hardware portfolio. His career combines deep technical knowledge with commercial leadership, with particular expertise in FWA, business continuity, enterprise connectivity, and building partner ecosystems that bring wireless solutions to market.

MEET MORE OF OUR TEAM

Aya Malkawi

CREATIVE DESIGNER
GLOBAL TELECOM ENGINEERING | TITANS NETWORK

Aya Malkawi brings a distinctive creative perspective to Global Telecom's visual identity and brand communications, translating complex ideas and technology into compelling, sophisticated visual experiences. As Creative Designer, her work spans digital design, brand development, marketing creative, and visual storytelling, helping shape how the company and its technologies are presented across audiences and platforms.
Combining creative vision with a strong understanding of brand, Aya helps transform ideas into cohesive visual narratives that strengthen Global Telecom's identity and create a consistent, recognizable presence across its communications.

Bayan Zeno

SENIOR WEB DEVELOPER & SYSTEM ADMINISTRATOR
GLOBAL TELECOM ENGINEERING | TITANS NETWORK

Bayan Zeno brings together expertise in web development, systems administration, and digital infrastructure, playing an important role in the technology that powers Global Telecom's digital presence. As Senior Web Developer & System Administrator, she oversees the development, management, and reliability of the company's web platforms, server environments, and supporting systems, helping ensure a secure, scalable, and high-performing digital ecosystem.
Bridging software development and infrastructure, Bayan helps transform business and digital requirements into robust technology solutions, supporting the platforms that strengthen Global Telecom's online capabilities and continued growth.

TITANS NETWORK

GLOBAL TELECOM ENGINEERING
WE ENGINEER CONNECTIVITY

HAVE A STORY TO TELL?

VECTOR is built around the ideas, expertise, and innovations shaping our industry. If you have an article idea, technical insight, project, partnership, or story you would like to share, we'd love to hear from you.

Contact Andrada Costoiu | Founding Editor, VECTOR
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