Next Generation Networks Powering 5G and the Industrial Internet of Things

Ligado Networks Market Vision
At Ligado Networks, our mission is to accelerate digital transformations and modernize American infrastructure by building Custom Private Networks that power 5G and the Industrial Internet of Things (IIoT) solutions.

The Future is Now

Making stronger connections is Ligado’s purpose. As we begin to deploy next-generation connectivity, a vision emerges of enabling applications that improve industrial efficiency, increase worker safety, and optimize and secure critical infrastructure that serves business and government.

That’s why we are focused on creating powerful commercial and technology solutions delivering highly secure and ultra-reliable communications over Custom Private Networks to accelerate the emerging 5G-market, IIoT adoption and digital transformations.

The Power of Custom Private Networks

The key to IIoT success is not only confidence in achieving a return on investment but also creating a path to accelerated top-line and bottom-line performance. Starting with a foundation of reliable and secure communications through Custom Private Networks, Ligado will bring customers a complete partner and technology ecosystem and custom solutions to drive profitable growth.

Our services are focused on providing superior performance while supporting the needs of industrial customers to customize and control their network. We will combine the dedicated use of licensed spectrum with leading technologies to support reliable and secure connectivity for an expanding array of narrowband and broadband applications. Mid-band spectrum licenses, terrestrial-and-satellite capabilities, and deep operational experience customizing network solutions are key to Ligado’s unique value proposition.

Together with our technology partners, Ligado Networks is making stronger connections, advancing the next generation of American infrastructure, and paving the way for innovations yet to be imagined.

“As mobile networks evolve to accelerate 5G and Industrial IoT solutions, Ligado’s vision for Custom Private Networks represents a new approach combining superior performance, innovative spectrum use, and flexible network management to serve the demands of critical industries and advance the next generation of American infrastructure.”

IVAN SEIDENBERG
Chairman of the Board, Ligado
Public Safety
Simplifying operations and coordinating across agencies during emergencies and rescue missions through resilient and robust voice communications and enhanced situational awareness.

Utilities
From modernizing the distribution system to evolving the smart grid, highly reliable connectivity to improve operational efficiency, boost worker and community safety and digitize the next generation of utility infrastructure.

Supply Chain Management
Improving full supply chain operations, increasing efficiency, preventing loss, and driving smarter decisions in high-density pick-and-pack environments, including transiting through multi-modal hubs or while steaming out of harbor.

Real Benefits for Vital Industries

Manufacturing
Superior performance even in challenging dense, machine-oriented environments to efficiently operate a factory floor — providing extended coverage, supporting physical plant operation and logistics, and enhancing both security and worker safety across entire campuses.

Natural Resources & Agriculture
Guaranteed coverage and high-precision, pinpoint-location accuracy for automated equipment and unmanned inspection and monitoring in remote areas such as expansive croplands, large mines, and oil fields.

Commercial Transportation
Supporting asset tracking, real-time location needs, enhanced safety, and operational efficiency — even in ‘dark’ territories — for trucking companies and rail carriers.

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Customization & Control
Ligado’s collaborative approach will provide network implementation and management designed to meet the business objectives of industrial companies. Ligado considers the customer’s digital maturity, existing and new capabilities, and operating environments to implement seamless IoT deployments delivering the greatest value. Working with customers, Ligado will devise wireless solutions addressing environments ranging from in-building or campuswide deployments to regional or nationwide networks utilizing roaming or satellite to extend coverage. Ligado will provide flexible options enabling customers to control their own networks.

A Service Model Made for Industrial IoT
Whether customers need turnkey deployments and managed services or customer-managed solutions, Ligado will deliver the most efficient and technically advanced connectivity for the customer’s specific 5G and IoT applications.

Network Enablement
Ligado will provide the planning, deployment, and testing needed to stand up customers’ connectivity. Ligado’s dedicated, licensed, mid-band spectrum, and an ecosystem of compatible devices deliver the performance, security, and reliability to power successful deployments.

Integrated Connectivity
Ligado plans to bring customers a seamless connectivity experience ensuring existing and new technologies work together without sacrificing performance. For customers with extended coverage needs, Ligado will offer an integrated satellite-terrestrial solution to reach isolated locations, dispersed assets, and all points in between.

Core Network Architecture
Whether using an on-premise core network or connecting to Ligado’s hosted core network, Ligado’s flexible architecture offers customers increase security and reliability, and control tailored to their business needs. Robust encryption technologies and a private cloud architecture greatly enhance cybersecurity and provide an additional layer of security and scalability that customers demand. Geographic redundancy and disaster recovery safeguards provide ultra-reliability, and a complete suite of network management tools will provide full-operational support.

Managed Services
Ligado’s network operations team can manage all aspects of the network, leveraging deep operational experience and advanced network-management tools.

Value-Added Services
Ligado’s value-added services will be designed to seamlessly integrate with network connectivity solutions. These value-added services will leverage unique technological capabilities such as Ligado’s Custom Private Networks and SkyTerra 1’s L-band satellite.

Licensed Spectrum for Reliable and Secure Connections
Offering a combination of capacity and coverage, Ligado’s mid-band spectrum will support network deployment options that include small cells, micro sites, macro sites, and satellite access. Because Ligado will make available licensed spectrum on a dedicated basis for industrial locations, customer private networks are protected from outside interference thereby ensuring the highest levels of availability, reliability, and security. Business-critical operations and safety-critical systems require ultra-reliable and highly secure networks that operate using licensed spectrum.
Making connections is Ligado’s core mission. Our vision is to modernize American infrastructure by connecting the Industrial Internet of Things. With our current state-of-the-art satellite technology and plans to deploy Custom Private Networks for the businesses that keep this country running, we’re paving the way for future innovations.

**Value-Added Services**

The unique capabilities of our North American satellite will power emerging applications, designed to seamlessly integrate with network-connectivity solutions.

**Unmanned Systems**
Unmanned systems — whether aerial vehicles, marine vehicles or self-driving cars — are playing greater roles in areas ranging from safety and security to delivery. Ligado’s advanced connectivity is focused on ensuring unmanned systems can be operated safely, securely and efficiently beyond visual line of sight.

**High Precision Location**
An expanding number of applications require centimeter-level accuracy. With its technology partners, Ligado’s carrier-grade High Precision Location services will tightly integrate satellite connectivity with a North American-correction data system to enable next-generation IIoT applications at lower costs and help realize new possibilities in automation and operations.

**Powerline Inspection Use Case:** Ligado’s network solutions take reliability to the next level, with command and control redundancy and the ability to deliver bandwidth-intensive payloads.

**Commercial Trucking Use Case:** Ligado generates and delivers correction data to commercial trucks throughout its North American satellite footprint, enabling precise location.

**Our Satellite Capabilities Today**
Ligado’s one-of-a-kind SkyTerra 1 satellite network uses a 22-meter reflector-based antenna — the largest in service on a commercial satellite — to enable pervasive communications to small devices.

**Coverage & Capacity**
Our network employs state-of-the-art capabilities such as ground-based beamforming technology for targeted bandwidth resource allocations which lead to stronger mobile connections and greater flexibility in managing network capacity.

As our system operates using L-band spectrum, Ligado’s satellite connectivity is not only less susceptible to rain fade or dense foliage but can also be tightly integrated with our terrestrial network offerings to deliver seamless terrestrial-satellite coverage.

**Skyterra 1 Features**
- State-of-the-art capabilities, including ground-based beamforming technology and targeted bandwidth resource allocations enabling greater flexibility in network-capacity management
- Ideal for pervasive connectivity to small, fixed, and mobile devices
- Unicast, multicast, and broadcast capabilities
- Serving mission-critical industries with voice, PTT, and IoT applications

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