



Cambium Networks™

Multi-Billion Dollar Energy Producer Measurably Improves Safety and Efficiency with Centralized Wireless Connectivity



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PETER CAPIELLO
CEO
FUTURE TECHNOLOGIES VENTURE



IN REMOTE, DEMANDING ENVIRONMENTS like oil and gas fields, field operations managers are seriously busy. Whether it's managing teams, setting budgets, establishing goals or monitoring performance, there is no room for lapses in communications. Between the many hats they wear, things can get complicated – but their connectivity infrastructure doesn't need to be.

On top of everyday tasks, energy producers are on the forefront of environmental challenges. They are taking a leadership role in applying the latest technologies to achieve a low-carbon future while meeting energy demands to power activities around the world. Transforming operations for existing facilities delivers safe, efficient operations that reduce carbon footprint and deliver dramatically improved business efficiency. Operational precision requires automation and high-performance connectivity that is centralized, reliable and efficient.

The Challenge

A top-tier Fortune 150 Oil & Gas producer with global operations signed a multi-million-dollar, multi-year contract with Future Technologies Venture for a centralized communications infrastructure that improves efficiency and reduces carbon footprint while also delivering a sustainable operational advantage. Network downtime was affecting efficiency of their workforce. When communications in the field is interrupted, technicians must physically go onsite to check instruments and operations. In a remote and vast environment such as an oil field, this can cost countless lost man-hours.

In today's digital oil field, it is more critical than ever to have a cost-effective wireless communication network. Energy producers are not able to achieve step function efficiency improvements using multiple solutions from multiple vendors. The two-year program reduces cycle time and delivers a lower total cost of ownership (TCO) than alternative solutions. Centralized communications infrastructure enables operators to find and produce new oil and gas reserves, enhance recovery in existing fields and optimize productivity of downstream assets to deliver energy.

“Incremental improvements to multiple systems are time consuming and can only get you so far. Centralized integrated communication systems deliver real value to energy providers,” said Peter Cappiello, CEO of Future Technologies Venture. “By focusing on solving centralized management of the end-to-end network, rather than integrating multiple pieces from independent providers, we reduced the total project timeline by 25%.”

Use Cases

	Application	Results
Wide Area Network	Fiber network extensions connect digital oil field vertical assets using gigabit microwave	<ul style="list-style-type: none"> • Total control over private network • Eliminate recurring connectivity costs
Field Area Network	High-capacity broadband extends to oil wells, pump stations and compressor sites	<ul style="list-style-type: none"> • Leverage single network for multiple applications
IoT Network	Wireless SCADA monitoring and control enable network automation	<ul style="list-style-type: none"> • Eliminate recurring connectivity costs
Video Surveillance	Low-latency broadband streams video from remote locations	<ul style="list-style-type: none"> • Total control over network performance and video prioritization • Leverage one communications network for multiple applications
Wi-Fi Capacity Injection	Broadband capacity injection/backhaul for edge Wi-Fi network	<ul style="list-style-type: none"> • Security of private network infrastructure • Monitoring and control over Wi-Fi access

Reference Architecture





“Utilizing the all outdoor PTP 820C-HP, the customer was able to lower TCO in their microwave network by almost 60%,” says Dave Rumore, Chief Revenue Officer, Future Technologies Venture. “This was accomplished by the ability to use smaller antennas which reduced cost of the antennas, shipping costs and the cost to install.”

The licensed microwave equipment also significantly reduced wind loading which precluded some major tower modifications and in one case, replacement of a tower. Because of the PTP 820C-HP’s zero-footprint design, there were no shelter upgrades required.

“The Cambium Networks wireless fabric is much more than hardware,” said Kent Brown, Senior Director of Industrial & Strategic Account Sales, Cambium Networks. “Our integrated solutions include proactive and deterministic network management and advanced applications to self-optimize performance of the network. Unified management enables industrial network operators to focus on the needs of their core business while the technology delivers the connectivity reliably and at the lowest total cost.”



Strategic Improvements Achieved

✓	End-to-End Coverage	<ul style="list-style-type: none"> • End-to-end coverage for wide area network, field network, indoor and outdoor Wi-Fi – all centrally managed
✓	Services Agility	<ul style="list-style-type: none"> • Ability to provide human capital via an agile framework to meet the dynamic needs of the client over the past two years
✓	Responsive Supply Chain Management	<ul style="list-style-type: none"> • Planning and execution of a plan of record to include demand planning to mitigate/eliminate supply chain delays to meet project and budget requirements of end client
✓	Reduced Cycle Time	<ul style="list-style-type: none"> • Reduction in the total project timeline by 25% or more compared to a blended approach of alternative options • Single supplier responsibility reduced the total number of site visits and build efficiency in the project plan • Minimized operational disruption via reduced number of site trips by completing multiple workstreams in a single site visit
✓	Lower Total Cost of Ownership	<ul style="list-style-type: none"> • Optimized/integrated approach to project management, site development, deployment, network turn-up and equipment procurement yielded the lowest total cost of ownership across the customer entire telecommunications value chain



Technologies

Element Management	cnMaestro™ centralized cloud management provides secure, end-to-end network control offering full network visibility and zero-touch provisioning to optimize system availability, maximize throughput and meet emerging needs.
Long-Range Microwave	PTP 820 series licensed microwave solutions provide up to 1.2 Gbps throughput to connect the data center, field offices, offshore rigs and onshore field area networks.
Fixed Wireless WAN	PMP 450m and 450i fixed wireless broadband multipoint wide area networks use the 3 GHz CBRS and 5 GHz unlicensed spectrum to provide distribution across the field area and business networks.
V-Band Millimeter Wave	60 GHz cnWave™ fixed wireless rapidly provides multi-gigabit connectivity for Wi-Fi and video surveillance without the time and cost of trenching fiber to rigs, facilities and production assets.
Remote I/O & IoT Narrowband	cnReach™ delivers wireless connectivity for SCADA monitoring, measurement, controls, MQTT support and analytics to achieve digital oil field initiative goals while also increasing security and control over data. cnReach also provides a graceful migration from serial to Ethernet.
Ethernet Switching	cnMatrix™ TX switches provide rugged intelligent switching, powering and synchronization capabilities to improve network performance while automating device policies and reducing the time and cost of provisioning and network management.

“Efficiency and reliability are enabling Industry 4.0 initiatives at the intelligent edge of the network,” said Atul Bhatnagar, president and CEO of Cambium Networks. “Our wireless fabric of technologies offers energy producers unprecedented flexibility in designing communication networks that provide the coverage and capacity they need for their mission-critical voice and data communication.”

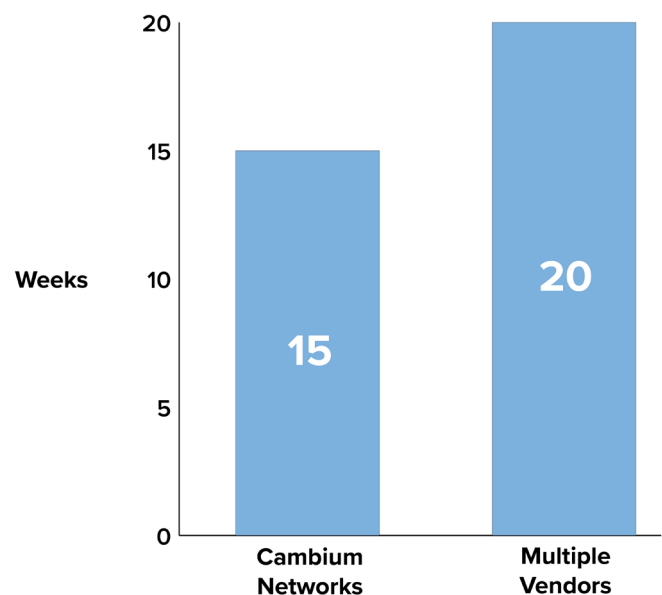
Proven Solution

As much of this network was new technology for the customer (PMP 450m CBRS and PTP 820C-HP), it was important for the customer to fully understand the subtleties of the solution before deployment. The Future Technologies team hosted the customer engineering team for a three-day workshop where their exact network environment was replicated for in-person full interoperability testing in the Future Technologies Innovation Center in Atlanta.

Streamlined Installation

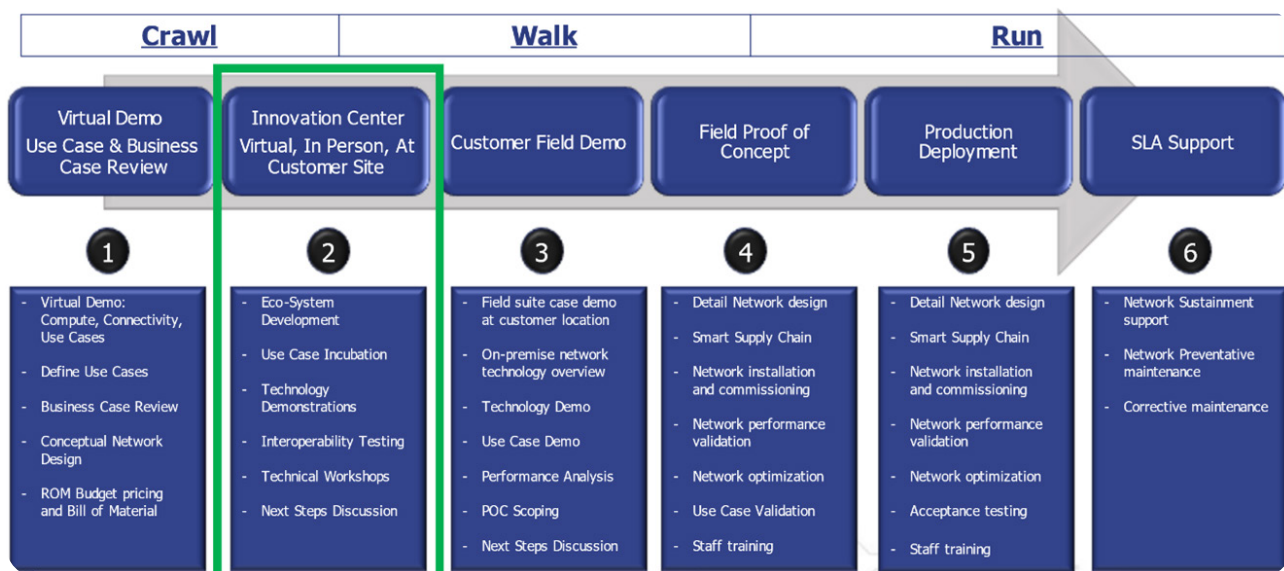
Upon completion of the workshop, the customer was granted remote access to the lab to continue to operate the test network to confirm performance. The result was an approved “Golden Configuration” that allowed for Bill of Materials (BOM) creation well in advance of deployment and enabled the products to be shipped to the field in a standardized configuration that minimized time on site, reduced disruption to operations, streamlined installation and met all customer objectives.

Future Technologies’ Centralized Management Project Timeline



Future Technologies Venture

The unique challenges of the Oil & Gas industry require robust solutions that provide mission-critical connectivity in harsh environments. Future Technologies is a lead system integrator across the full end-to-end value chain that delivers complex, multi-technology critical telecommunications solutions. Our work in this arena includes the construction of onshore and offshore networks that are accredited by Safeland, ISNetworld, Safety LMS and OSHA. Planning, project management, engineering, site development, supply chain, deployment and support are efficiently conducted via our proven six-step process. With more than 150,000 wireless sites deployed in hundreds of enterprise and industrial locations, businesses trust the measurable value our solutions deliver.



Cambium Networks

Network operators with a unified view of an entire network are best equipped to satisfy end users, control costs and offer new services. They achieve sustained growth in their discipline and challenge norms with disruptively superior service at attractive costs. Our wireless fabric portfolio of indoor and outdoor Wi-Fi, fixed wireless, centralized management and advanced services solutions enables next-generation multi-gigabit connectivity in leading enterprise and industrial applications. Listening to the needs of network operators and applying our decade of experience enables us to deliver an end-to-end portfolio of solutions that interoperate smoothly and are managed via a single pane of glass.