



Beach Energy, Challenge Networks, and Cisco – Improving Mining Efficiency with LTE and Automation

The challenge

Beach Energy and other mining operations experience continued commodity market volatility, putting pressure on the mining companies to achieve greater operational efficiencies to meet tighter margins. Mining is also a capital-intensive market undergoing significant adoption of networked equipment to support automation, remote monitoring, and predictive maintenance applications.

In the past the company relied on Ultra-High Frequency (UHF) radios and repeaters to communicate at its remote sites. It needed to upgrade the UHF radio network to be able to have more voice channels, and also more private conversations.

The Beach Energy mining operation has one main 60-meter base station tower that also co-locates the core network equipment, mostly to cover the main areas of travel within the mining footprint, and then a network of smaller cells that were added to supplement the coverage.

Summary

Beach Energy is Australia's largest onshore oil producer. The Adelaide-based energy exploration and production company's core operations are spread across 56,000 square kilometers in the Cooper and Eromanga Basins in the northeast of South Australia and southwest Queensland. Beach Energy is rolling out a private 4G/LTE network in a bid to improve communications across its Cooper Basin gas fields. The LTE network will be privately owned and operated by Beach Energy, which holds 2100-MHz-spectrum licenses in the area.

The solution

Beach Energy spent 9 months investigating before making any decisions, and then a further 2 months deploying the main core network.

The company chose to install a private LTE network that gives them the throughput, lower latency, reliability, coverage, and mobility to meet the requirements of critical mining operations. In addition, this LTE network allows them to use data over the network with coverage distances of 1–30 km, and is cost-effective to provide broader coverage to the entire mine site. An average open-pit mine of 20 x 10 km normally requires 5 to 10 access points for complete mine coverage (compared to 200+ Wi-Fi access points to cover the same footprint). LTE also ensures security, critical because the convergence of information and operational technologies brings greater susceptibility to cyber-attacks.

Figure 1. Mining Industry Issues



Productivity, Safety,
Cost out



Control, Uptime



Efficiency, Visibility



Safety, Situational
Awareness

Another major consideration was finding a local integration partner for the design of the network.

Beach chose Melbourne-based Challenge Networks to build the network because the company is based in Australia, has sound qualifications in the field of LTE, and has experience working in harsh environments.

Challenge Networks is a Cisco Partner and was able to install and integrate the network using the Cisco® Premium Mobile Broadband, based on Cisco Ultra Packet Core (UPC) software, along with Nokia Networks' base stations and small cells.

The LTE solution means better voice traffic quality, and also enables high-speed data that allows key field personnel to remotely join video conferencing calls and use applications that are published from their head office in Adelaide. The mining site thus can work more efficiently.

How Cisco helped

Cisco has taken a cloud-to-client approach to 5G and 4G, unifying multivendor solutions into a single, standards-based architecture. The Cisco Premium Mobile Broadband solution is a proven cloud software solution based on our industry-leading Ultra Packet Core software. More than 90 operators worldwide currently use the Cisco Ultra Packet Core, including AT&T, Vodacom, South Korea Telecom (SKT), T-Mobile, and Verizon, to carry more than 350 million subscriber customers and will scale to more than 500 million in a few months.

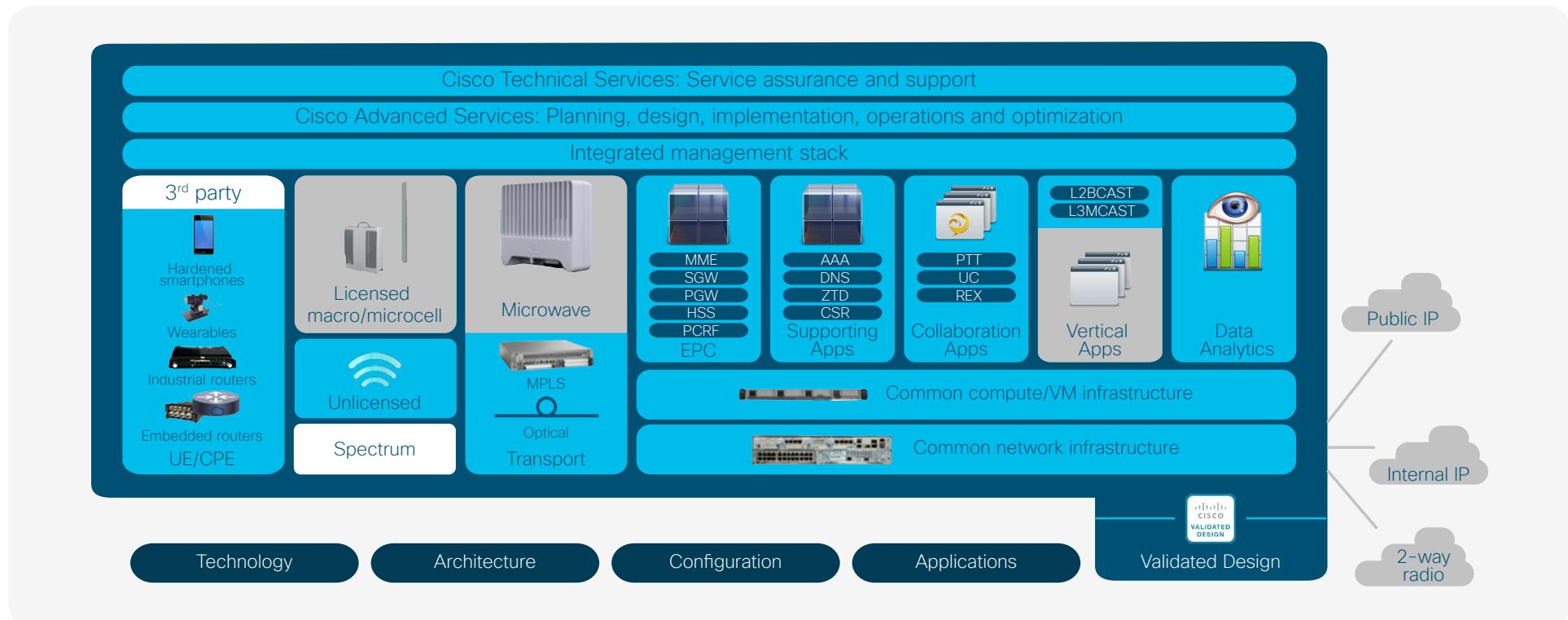
Having an extended ecosystem of partners is critical because LTE is very complex. When building mission-critical carrier-grade networks requiring

at least 99.999-percent availability, it is important to choose a solution from vendors such as Cisco with a proven history in this technology and supplied and implemented by partners like Challenge Networks.

Cisco Premium Mobile Broadband

The Premium Mobile Broadband (PMB) solution, part of the Cisco Ultra Services Platform, uses Cisco Validated Designs that integrate PMB with other key features such as Wi-Fi, small cells, and other services as seen in Figure 2. PMB is deployed today in LTE networks serving the mining, public safety, mass transit, military, and other industrial markets in private, public, and hybrid models.

Figure 2. Cisco Validated Design (CVD) Architecture



“Cisco offered a scalable, virtualized (mobile) core integrated into a technology platform that we already understood.”

- Simon McMahon,
Beach Energy general manager of IT.

Service providers and enterprises can deploy Cisco Premium Mobile Broadband for use cases ranging from tactical LTE for site dedicated coverage to large-scale dedicated LTE networks. The solution uses a flat IP architecture that enables higher data rates and improves availability, while reducing latency and complexity.

More information

For more information, please visit:

Cisco Ultra Packet Core: <https://www.cisco.com/c/en/us/solutions/service-provider/virtualized-packet-core/index.html>

Cisco Premium Mobile Broadband: <https://www.cisco.com/c/en/us/solutions/enterprise-networks/premium-mobile-broadband/index.html>