

North America Wireless Service Provider Architecture, Design and Integration Services Case Study

Large North America Wireless Service Provider relies on Tellabs Global Services to design and implement nationwide mobile backhaul network to support massive increase in data transport.

Business Challenge

A Tellabs customer, one of the world's largest providers of voice and data services and solutions for individuals and businesses, is involved in literally every aspect of telecommunications services, and works constantly to push the envelope with new services and solutions.

This service provider is working aggressively to expand its service offerings and to lead the market toward three-screen integration, seamlessly connecting personal computers, television and mobile devices.

On the network side, the resulting explosion in customer demand for bandwidth has put enormous pressure on them to stay ahead of the growth curve. The company has seen an astonishing 5,000% increase in mobile data traffic in the last three years alone.

Planning ahead, they are investing heavily to expand network capacity and speed including enhancing its 3G network and laying the foundation for 4G in 2010 and 2011.

Amid that buildout, the service provider needed to architect, design and quickly integrate a new Ethernet-based backhaul network - and related services - for 15,000 cell sites across the U.S.

The company needed to do this with limited internal resources and in concert with a diverse group of cell site vendors serving different parts of the country.

As such, they needed a partner with extensive experience and understanding of both the technology and the business applications of mobile backhaul - and the expertise to integrate the new equipment and services with their existing multiservice routers. The partner would also have to work with and coordinate more than 20 internal technology teams.

"The challenge was enormous," according to Brian Micene, head of North America Services Sales for Tellabs. "There were tons of variables: multiple cell tower vendors, multiple sites, including thousands in some cities, and multiple equipment and transport vendors. They had different skill sets in different regions, and almost everyone was stretched beyond capacity already."

Tellabs Solution

Tellabs was already a trusted partner based on previous work helping the service provider migrate to IP and to its 3G wireless network. Initiating a new project with Tellabs Architecture and Design Services was thus a fairly easy choice; the provider's executives had great

Executive Summary

Customer

Large North America Wireless Service Provider

Business Challenge

Upgrade existing national network to meet new demands for customer services and massive increase in data transport

Tellabs Solution

Architect, design and integrate new Ethernet-based mobile backhaul network and services into existing nationwide system

Business Results

- Creation and approval of complete next-generation, implementation-ready design based on industry best practices helped speed time to market
- Comprehensive Final Engineering Design Package supported effective implementation and simplified ongoing operations
- Full implementation and integration of extremely complex new system across nationwide network including 15,000 cell towers substantially faster and at lower cost than using internal resources

confidence that Tellabs would come through with an implementation-ready, best practice network design. Given Tellabs past integration experience as well as its contract to do the design work, it also made sense to hire Tellabs for the integration itself.

Phase one of the project focused on architecture and design. Specifically, this meant Tellabs senior engineers working with the service provider on a comprehensive assessment of current and new equipment, existing services, projected customer growth and potential new services - all to support creation of the most appropriate architecture and design for the new network.

Most important to the operator was designing for long-term flexibility as well as capacity to ensure easier future upgrades. In the service provider business, the necessity of almost continuous upgrades beyond even the best planning is a virtual certainty.

On the Tellabs side, the ability to tap a deep talent pool of field teams and engineers familiar with the equipment and related issues was a crucial factor in quickly translating a high-level architecture into detailed plans for their vast network of cell sites around the country.



Similarly, Tellabs' strong existing relationships with the provider's third-party equipment and software vendors proved extremely useful in gaining quick approval of the new design with all relevant partners.

With design in hand, Tellabs mapped out a comprehensive migration plan, and provided complete documentation at the national, regional, and local levels to ensure full alignment and minimize confusion or delay in moving to the integration phase.

Tellabs Integration Services has vast experience with mobile backhaul, but the project still represented a substantial challenge. The team had to create a detailed plan and timeline to integrate, test and roll out an entire next generation Ethernet network across 15,000 sites with relatively little time to spare.

In practice, this meant working with the provider on more than 200 major, discrete tasks in each region to get from start to finish. It also meant working with and coordinating the operator's more than 20 different field engineering and operations teams spread throughout the regions that together provided essential support for the integration.

The existence of Tellabs field teams already familiar and working with them on earlier engagements was critical in smoothing the way forward with the project. This knowledge and experience minimized the need and time spent on superfluous introduction meetings and reviews.

As noted earlier, Tellabs' comfortable relationships with the service provider's entire ecosystem of equipment and software vendors similarly eased the path and accelerated the entire integration program.

The Result

For the operator, the project was a tremendous success. First, Tellabs produced a comprehensive, next-generation design for its mobile backhaul network based on industry best practice, and gained approval by all internal and external stakeholders in a very short time given the complexity and multiple groups involved.

"Time to market was a huge issue," according to Brian Micene. "With limited in-house resources for the design work, they absolutely understood the value of having outside experts quickly do the architecture and design and get approval across all constituencies."

Critically, the design was optimized for rapid growth to help ensure that the service provider would stay ahead of its data traffic growth curve, minimize customer dissatisfaction and maximize opportunities for new service development and revenue growth.

Because Tellabs utilized an exhaustively iterative process and walked their engineers through every step of the design process, the operator emerged from the design phase with extreme confidence in the quality of the plan.

To help ensure that confidence and to transfer as much knowledge to the provider's staff as possible, Tellabs concluded the design phase by delivering a Comprehensive Final Engineering Design Package, including:

- All network equipment layouts and physical connections
- Detailed configuration information for each element
- Naming conventions for customer sites
- Circuits
- IP addressing scheme
- Application layer design
- Node configuration
- System installation and equipment requirements
- Port listings with protocol and traffic engineering details as well as design criteria

The integration phase also proceeded far more quickly - and at lower cost - than if the operator had done it entirely with internal resources. The Tellabs integration teams had extensive experience both with mobile backhaul integrations generally and with the service provider's network specifically, which speeded the process and minimized risk of mistakes on an extremely complex project.

According to the service provider, the Tellabs integration consultants provided the essential "glue" for the project. They could see the entire end-to-end process required to integrate such complicated technology across a vast nationwide network; they also knew how to avoid the likely pitfalls along the way in dealing with so many cell sites and internal and third-party teams.

Finally, Tellabs' expert and experienced field staff helped educate the operator's staff on all aspects of network architecture, design and integration while also providing complete documentation to support more effective upgrades in the future.

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