

Integration Services | IPTV Deployment

Reservation Telephone Cooperative, North Dakota, USA

"Calix was right with us every step of the way. They shared learning from other customers' environments and leveraged relationships from across their ecosystem to meet our needs. They stepped up and made it work."



Brooks Goodall, Operations Manager,
Reservation Telephone Cooperative

C H A L L E N G E S

Headquartered in Parshall, North Dakota, a town located within the Fort Berthold Indian Reservation, RTC began in 1950 and was the first to bring telephone services to the rural community of Parshall and the surrounding area. Today RTC serves 20 exchanges, providing voice, data, and video services to 9000 access lines spread over 5698 square miles.

For the past several years, the company had been delivering "cable services" – radio frequency (RF)-based video programming over its existing coaxial infrastructure, as well as RF programming over Calix fiber-to-the-premises (FTTP) technology. Although subscribers rapidly adopted the service, **RF video transport was costly and complex for RTC**. Adding subscribers required adding optical network terminals and RF amplifiers and ensuring that each subscriber was within the prescribed distance range for the technology. **The network was also difficult to scale and lacked the redundancy needed** to help ensure the highest possible service levels.

To Brooks Goodall, operations manager for RTC, it was clear that **the future of video delivery was in IP-based solutions**, specifically Internet Protocol television (IPTV). In 2007, when RTC began replacing its copper and coaxial infrastructure with FTTP, Goodall began looking for an IPTV solution that would take RTC into the future. After evaluating a number of options, he chose Microsoft Mediaroom for the new IPTV services platform. The Mediaroom platform would enable RTC to offer leading-edge and highly-demanded features

S U M M A R Y

Challenges

- IPTV technology was a complex new technology for RTC.
- RTC's advanced middleware solution, Microsoft Mediaroom, required implementation expertise beyond RTC's local talent pool.
- RTC's challenging multi-vendor IPTV ecosystem required specialized integration expertise.
- IPTV services had been promised to subscribers, but deployment was behind schedule.

Solution

Calix Professional Services: Integration Services practice performed a network audit, carrier-class router implementation, and network testing, and produced test plans and procedures.

Results

- Successfully redesigned network and implemented Mediaroom platform on production network.
- Shared knowledge and provided documentation to help RTC grow its solution.
- Achieved high network and service scalability and resiliency.
- Subscribers in RTC's rural markets have gained advanced features and capabilities typically unavailable to consumers even in large metropolitan areas.

such as picture-in-picture, video on demand, digital video recording, and an intuitive user interface. Mediaroom also offered a feature-rich roadmap that he felt would meet the needs of his subscribers far into the future.

Goodall and his team successfully deployed a lab implementation with Mediaroom but struggled for several months to scale the pilot to the production network. RTC's implementation was one of the first Mediaroom Hyper-V configurations designed for independent operating companies (IOCs). As a pioneer in deploying this new configuration across a complex ecosystem, Goodall soon found that there were not

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many resources available that the company could call on for assistance.

“With so many elements involved in the Mediaroom solution, our access network, and the backbone network, we needed help from someone who could help us create a solution that encompassed all of the required pieces,” said Goodall. **“Calix had been our trusted access product vendor, so we called Calix Professional Services for assistance.”**

S O L U T I O N

The Calix Integration Services team stepped up to work side by side with RTC’s local team and its remote engineers. Working within a multivendor ecosystem, **Calix Integration Services is able to help customers implement solutions that require expertise beyond just the access network.** For RTC, the Calix team conducted a network audit, which enabled them to assess the existing network configuration, identify the required VLANs, and quickly isolate issues. Calix **emulated the RTC configuration in the Calix Compatibility Lab** and prepared recommendations for the network. One recommendation included augmenting the existing network with a Cisco 7600 Series router to provide the required quality of service for IPTV services. With the new router in place, Calix implemented all of the necessary changes and conducted network testing to help ensure that the redesigned network would perform as expected.

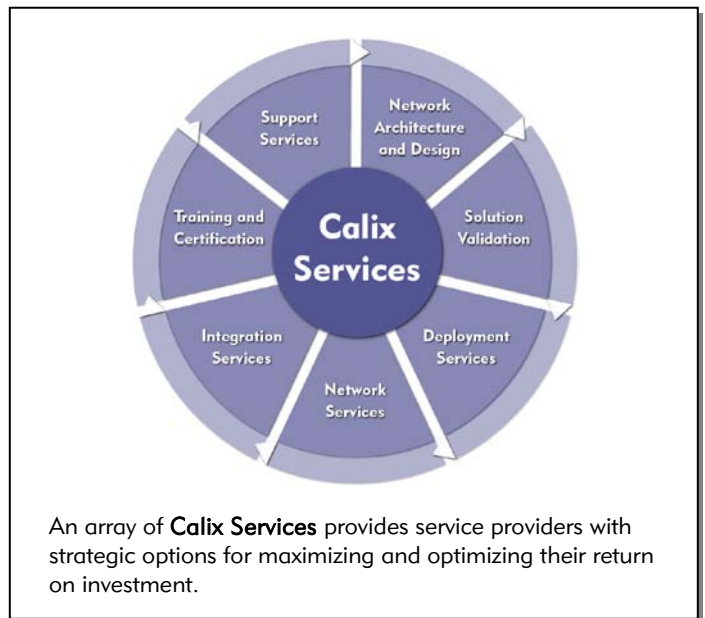
The **Calix Integration Services team provided comprehensive documentation, including network diagrams and procedures for adding subscribers, bandwidth, and equipment when needed.** Interactive discussions and the documentation package prepared the RTC team for a high take rate and traffic growth once Calix turned up a portion of the new network for subscribers.

“Calix was right with us every step of the way,” said Goodall. “They shared experiences from other customer deployments and leveraged relationships from across their vendor ecosystem to meet our needs. **They stepped up and made it work.”**

R E S U L T S

Within two weeks of launching the project, Calix had the Mediaroom solution working. The overall project implementation timeline was quickly recovered, and the first customer connection went live in July 2010, within the timeframe that RTC had promised. By the end of July the service had already turned up 100 customers. With its new IPTV infrastructure, **RTC expects to save hundreds of thousands of dollars in service delivery costs when compared to its traditional RF delivery network.** As soon as the company completed the first step of its transition, it began to save on delivery costs for new subscribers in areas with fiber access infrastructure. Existing RF video customers will be migrated to IPTV as fiber is deployed to those areas, which will increase savings over time.

New RTC IPTV subscribers enjoy an exceptionally compelling user experience, with a range of advanced capabilities that exceeds offerings in large metropolitan areas. Once a residence is converted to a “Whole Home Network,” RTC’s customers are then able to connect multiple devices such as handheld PDA’s, laptops, and iPods to their network and then able to view content from those devices on their TV screen. Traditionally computer and TV networks are



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separate; Mediaroom combines these to create a single multimedia network. Another of the premier features of Microsoft Mediaroom is its instant channel change capability, which overcomes an inherent shortcoming of traditional IPTV by eliminating buffering time for channel change requests. Viewers change channels instantly, without the 2 to 5-second delays often seen in other IPTV, satellite, and many cable deployments.

With picture-in-picture, viewers can watch one channel displayed in full screen mode while simultaneously viewing one or more other channels displayed in smaller inset windows, typically located in the corners or in the lower area of the screen. This enables viewers to watch the currently selected channel in full screen mode while scrolling through programs being broadcast on other channels. Seamlessly integrated video on demand allows viewers to choose previously recorded programming, such as movies or a TV episode, and watch it instantly, with full trick-mode control. Viewers can also automatically record live programming and immediately transfer it to a digital video recorder in a single step.

Digital video recorders deployed with RTC's IPTV offering allow subscribers to watch recorded content on multiple TVs in the house with only one set-top box equipped with a recorder. Set-top boxes on TV sets in other rooms can access content from the recorder equipped set-top box for viewing at any time. Mediaroom also enables customers to use a Microsoft Xbox device as a superior set-top box. The Xbox's rich media features are designed to support a Mediaroom client and allow customers to use a device that they already have while directly lowering RTC's deployment costs.

Flexible, IP-based service delivery means that engineers and technicians no longer have to worry about distance limitations, and scaling the service for rapid subscriber adoption is much easier and more cost-effective. RTC had a 70 percent take rate with its legacy RF video service, and expects the new IPTV services to match that once the Mediaroom network is fully deployed.

Both RTC and their customers save with IPTV services. **The new fiber access infrastructure simplifies video transport with far greater scalability than copper, making it more cost-effective to manage and provision.**

"We wanted to deploy IPTV right the first time," said Goodall. "As we begin to help our communities re-invent their infrastructures, they will only adopt it if it works, and they are satisfied with it. **Calix is always here to help us succeed."**

A B O U T C A L I X

Calix is a leading provider in North America of broadband communications access systems and software for copper- and fiber-based network architectures that enable communications service providers to connect to their residential and business subscribers. Calix has shipped over seven million ports of its Unified Access Infrastructure portfolio to more than 600 North American and international customers, whose networks serve over 40 million subscriber lines in total. For more information, visit www.calix.com.

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professionalservices@calix.com

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