

Customer Success Story

# ERICSSON ENABLES TRIPLE-PLAY FOR GOLDEN BELT TELEPHONE ASSOCIATION

North America



“We believe that the SmartEdge Multi-Service Edge Router from Ericsson provides us with the power, flexibility, intelligence, reliability, and scale to provide the leading television and Internet services to our customers today while also providing a path for future services.”

Gerald Washburn,  
General Manager, Golden Belt Telephone Association

Golden Belt Telephone Association (GBTA) is a telephone cooperative serving the golden belt region of Kansas. They offer a full range of services and are also dedicated to bettering the lives of those living in rural Kansas. In the rural areas, most people subscribe to satellite television service. Although this is sufficient for national and premium cable channels, they cannot receive the local channels due to licensing agreements. GBTA built a flexible network to deliver broadcast television, high-speed Internet access for Wi-Fi and DSL access. To achieve this objective, they selected the SmartEdge® Multi-Service Edge Router (MSER), which combines the functionality of edge routing, Ethernet aggregation, and subscriber management. The combination of these applications on a single, highly reliable platform allowed them to build a converged, next generation network for current and future services.

## Situation

The Golden Belt Telephone Association ( GBTA) is a Kansas telephone cooperative that provides local and long distance telephone service to the golden belt region of Kansas. In addition to traditional PSTN service, they also provide high speed Internet (HSI), mobile and cable television service. All the services except for cable television were fairly ubiquitous throughout GBTA's service area. Since many of the areas were sparsely populated, the plant build out for cable television was cost prohibitive. As a result, the residents that lived in the rural areas resorted to satellite television.

However, these residents were unable to receive the local broadcasts that provided alerts to customers during the annual storm season. With IPTV technology, GBTA realized that they could provide the residents of the rural areas cable television service that was comparable to that available in the more populated areas. This was a much needed service and differentiated GBTA's IPTV service from satellite television.

To deliver IPTV services, GBTA needed to build out a network that could carry all the services it provided. Due to the large geographical area and the low population density, building out separate networks for each service was not an option. In addition, the network needed to be highly resilient to failures since GBTA's services were absolutely critical for its customers and maintenance was difficult since the central offices were geographically disperse.

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GBTA also planned to assist with the Kan-ed program, whose purpose is to expand the collaboration capabilities of Kansas' educational institutions, libraries, and hospitals. This program encourages video collaboration and innovative distance learning initiatives for certification and ongoing training for professionals living in rural areas. Since the network was to serve public and private constituencies, the resiliency, availability, and performance of the network was critical for GBTA.

## Solution

To build out a next generation network that was highly reliable and capable of providing all of the services offered, GBTA selected the SmartEdge MSER. The combination of edge routing, Ethernet aggregation, and subscriber management provided a platform that could be used to provide IPTV and HSI for Wi-Fi and DSL access.

GBTA took advantage of the SmartEdge platform's virtual router capability to create three separate, logical networks on a common network infrastructure. This capability allows for the creation of logically separate and distinct virtual routers. Each virtual router has all of the functionality that is available from an actual physical router. It has its own route tables, IP address space, and routing protocol processes.

### Video and High Speed Internet Network

With a SONET transport infrastructure in place, the SmartEdge MSER was deployed at the edge to add service intelligence to the network. Internet group management protocol (IGMP) was used to communicate channel changes. Protocol independent multicast sparse mode (PIM-SM) was used to minimize the amount of bandwidth consumed by the broadcast television service. The SmartEdge MSER received the broadcast television stream through network facing Gigabit Ethernet links and replicated the broadcast television stream for each individual subscriber and mapped it onto a bridged PVC for delivery over DSL.

The HSI traffic was transported on a PPP encapsulated PVC to the Internet. The SmartEdge MSER controlled the bandwidth consumed by the HSI to ensure that it did not interfere with the broadcast television stream. The QoS was applied on a per subscriber basis to ensure that no single subscriber consumed an inordinate amount of bandwidth. The SmartEdge MSER also aggregated Wi-Fi subscribers. This traffic was aggregated through a 10/100 Fast Ethernet link and transported to the Internet using PPP encapsulation.

The diversity of interfaces and edge routing capabilities allowed GBTA to deploy a single creation platform for all of its IP services. This simplified the design, deployment, and ongoing maintenance of the network.

### Management Network

A separate, logical management network was created using the SmartEdge MSER's virtual router capabilities. GBTA took this approach since a majority of their POPs were actually huts in rural areas. As a result, no physical connectivity was available for an out-of-band management network. By using a dedicated virtual router, OSPF, and common VLAN, GBTA was able to create a logical out-of-band management network. This approach had all the benefits of having a dedicated out-of-band management network without the need to create a physically separate network.

For alarm monitoring and maintenance, GBTA deployed the NetOp™ EMS (Element Management System). With its tight integration with the SmartEdge MSER and standards-based application programming interfaces, it facilitated the back end integration with billing and operational support systems.

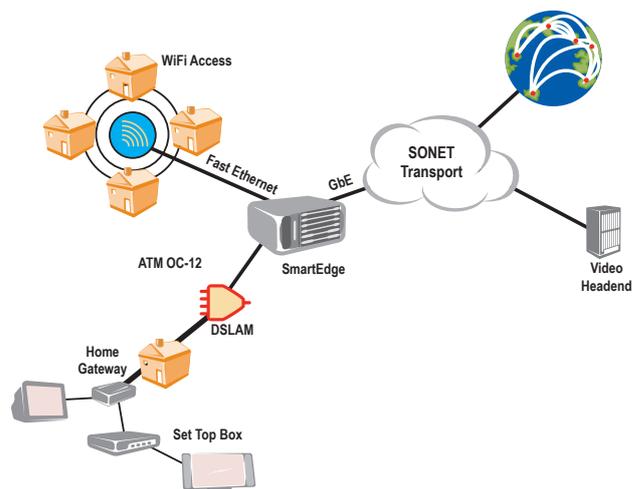
### High Availability

The SmartEdge MSER has the ability to seamlessly failover and maintains all subscriber and multicast sessions in the event of a failure. This capability provides continuous services, which is critical to the residents of rural Kansas. Unlike other data networking platforms, the SmartEdge MSER continues to forward traffic even when a control module fails.

### Benefits

The SmartEdge platform enabled GBTA to deploy a network that is efficient in design and performance. Furthermore, the network is extremely reliable and provides the scalability to add additional services and subscribers in the future. The carrier-class reliability that comes from a purpose built platform essentially allows GBTA to provide a broadband dial tone to its customer base. The single, next-generation IP network infrastructure provides GBTA advantages operationally. Rather than having to build out and manage separate networks for each service, they now only need to manage a single common network infrastructure. As services advance and their customers demand features such as mobility, they will be able to provide a common experience regardless of access technology or end device. GBTA has already begun to go in this direction by offering Wi-Fi and DSL access services.

Another benefit is the time-to-market for new services. Since there is a consistent central service creation point at the IP edge, creating new services is easier than if multiple service creation points were deployed. For example, one possible future service is VoIP, which requires advanced QoS due to the sensitivity of the traffic to jitter and latency. Once the traffic QoS management requirements are established in the SmartEdge platform, the QoS policies will be applied whether the access is through DSL or Wi-Fi.



There is no doubt that as broadband adoption continues to grow, the end customers will become more advanced and demand more bandwidth and services. With its converged, next generation network, GBTA is in an excellent position to provide its customers world-class broadband and IP services.

# Highlights

## Customer

A local telephone cooperative founded in 1953 that provides telephone, broadband, mobile, and video services to the golden belt region of Kansas.

## Customer Objective

Deploy a converged, next generation broadband network that is flexible, reliable, and scalable for video, voice, and data services.

## Ericsson Solution

The company deployed the SmartEdge MSER for its high availability, multicast, and service creation capabilities to reduce time-to-market for new and existing video, voice, and data services.

## Customer Benefits

Simplified the network by eliminating the need for a Layer 2 aggregation network resulting in operational savings including costs related to hosting, power, and technician training.

## Applications

Triple Play