

# LiveAir Networks



## SERVICE PROVIDER NETWORK

## Regional Service Provider Innovating High-Quality, High-Speed Network Services to Rural Texas

### EXECUTIVE SUMMARY

#### Challenge

Build a high-performance network that can cost-effectively deliver advanced services to rural customers

#### Solution

- Brocade MLX Series Routers to provide core routing and MPLS connectivity
- Brocade Netiron CER Series for edge routing and optical connectivity in creating its TexasBone fiber network
- Brocade Vyatta 5400 vRouters for edge routing and cloud services

#### Results

- Delivered 50 Mbps to 1 Gbps services at highly competitive prices to rural consumers and businesses, gaining 30 to 50 customers per month
- Future-proofed the network to enable easy scalability up to 100 GbE when needed
- Simplified manageability for cost-effective delivery of business private cloud services

What do you get when you cross a small, technologically enterprising group with the challenges of living in rural Texas? Innovation—along with rapid growth and loyal customers. LiveAir Networks launched in 2004 as a local wireless ISP in Smithville, Texas—population 3,900. At that time, living outside of Austin or Houston meant poor-quality Internet connectivity because it was too costly for major carriers to bring services to such a sparsely populated area. Rural residents were consigned to dial-up or satellite services. All that changed with LiveAir.

#### GROWTH FROM THE GET-GO

LiveAir's first Point of Presence (POP) was located next to a wireless tower with access to carrier fiber. As LiveAir developed its wireless Internet business, it was obvious that the company needed to scale so that it

could deliver Gigabit Ethernet (GbE) access and bandwidth-intensive services, such as video and voice over IP. So in 2012, LiveAir began building its 660-mile, monofiber, Dense Wave Division Multiplexing (DWDM) network—dubbed the TexasBone—that would allow the company to extend high-speed fiber optic services to rural homes. Since the TexasBone went live, LiveAir has experienced 300 to 400 megabits of new bandwidth demand every quarter.

“When we embarked on the TexasBone project, we wanted to make sure that our destiny stayed in our control,” explained James Breeden, founder and Chief Executive Officer of LiveAir. “Buying bandwidth from other carriers out here was going to be expensive and difficult to scale as we needed. So we asked ourselves, ‘How can we meet customer demand cost-effectively, with high quality, and meet our business goals?’ Which led us to do something completely different.”

## ISP SEEKS POWERFUL, COST-EFFECTIVE NETWORK FOR FUTURE GROWTH

Delivering high-speed, carrier-class services typically requires a costly, complex network.

However, that wasn't going work for LiveAir. The network had to be easily manageable and highly cost-effective so that LiveAir could deliver high-quality services at competitive prices. So LiveAir built its own infrastructure using deployment techniques that suited their business. One of those techniques was deploying small POPs that can use commodity computing devices to move data. Each time they added a new POP to the network, they bought the lumber and supplies at the local hardware store, built it in their warehouse, and trucked it to the site. This "data outhouse" approach allowed them to grow the network at a fraction of the typical construction costs and redirect more resources into the network.

The network also had to allow LiveAir to proactively build out bandwidth as needed for residential, business, or wholesale customers. Scale was critical to sustainable growth.

"When we started looking at network solutions, we needed wire speed, the ability to manage all of our routing tables, including full BGP, and we needed MPLS," said Breeden. "Basically, we needed everything that goes into a full carrier-grade infrastructure without having the resources of a carrier. That led us to Brocade."

## THE LIVEAIR NETWORK

LiveAir's TexasBone network includes 10 POPs on a 660-mile ring around the state of Texas and serves 45,000 users. The microwave portion of the network includes 60 microwave POPs with high-capacity microwave rings between those, which all connect back to the Brocade fiber network.

Inside of each TexasBone POP is a Brocade® MLXe-4 Series Core Router with a multiport 10 GbE interface module. The Brocade MLX® Series Router helps LiveAir meet massive bandwidth demands, achieve greater network virtualization, and deliver small business cloud services using a smaller infrastructure than traditional carrier networks. These highly scalable routers help LiveAir meet skyrocketing traffic requirements while reducing the cost per bit.

The Brocade MLXe-4 connects the POPs to the backbone network and provides 10 GbE connectivity to the microwave towers, as well as to wireless and fiber distribution networks. The Multiprotocol Label Switching (MPLS) features of the Brocade MLXe4 enable LiveAir to provide private Ethernet transport for a wide range of customers, including wholesale bandwidth customers.

LiveAir uses the Brocade Vyatta® 5400 vRouter in the microwave network's routing core to manage all sub-1 GbE routing needs. The Brocade Vyatta vRouter offers dynamic routing, Policy-Based Routing (PBR), stateful firewall, virtual private network (VPN) support, and traffic management in a platform that is optimized for virtualized environments. The Brocade Vyatta 5400 vRouter also supports all major hypervisors and can be installed on any standard x86-based system.

Compact Brocade NetIron® CER Series MPLS routers provide edge and aggregation routing and enable LiveAir to broadly and cost-effectively deploy high-margin business VPN and IP voice, video, and data services. With hardware routing in the fiber network and software routing in the microwave network, LiveAir has achieved cost-effective high performance for its entire 45,000-user network.

## TAKING HIGH PERFORMANCE TO THE COUNTRY

Today, LiveAir offers a full complement of services. The residential fiber network offers 50 Mbps to 1 Gbps services at prices ranging between \$35 to \$75 per month. Businesses have access to the same services as well as IP voice services. Large business services provide dedicated fiber connections and bandwidth for hospitals, school districts, and governments. LiveAir also sells access to other carriers and ISPs, enabling them to reach customers that they would not otherwise be able to serve.

Providing gigabit Internet access over Fiber To The Home (FTTH) is not easy, even in a large metropolitan area. Yet LiveAir has delivered these capabilities to rural customers before any carrier was able to deliver them to the state's capital city of Austin.

"It is very possible to build rural infrastructure at very high speeds and with very high bandwidths to meet consumer demand in rural Texas," says Breeden. "We did it with wireless infrastructure and now we're doing it with fiber."

## TIPPING THE SCALE WITH A NEW FORMULA

LiveAir is growing rapidly, gaining 30 to 50 customers per month. The company is expanding its fiber network to more rural communities with fiber and hybrid fiber wireless technologies. It also is expanding its wireless footprint and capacity to deliver 50- to 100-megabit solutions over wireless to rural areas. And as the company looks into the future, it sees even more business and wholesale customers, which will enable it to grow its transit network and its relationships beyond Texas. The Brocade MLX platform gives LiveAir the scalability it needs to stay ahead of rapid growth. Today they run 10 GbE interfaces and bonded 1 GbE interfaces on the Brocade MLX platform. However, they clearly see a future where they will be transporting much more high-bandwidth traffic.

“We’re probably the most flexible provider on the planet,” said Breeden. “We can move to 40 and 100 GbE interfaces as needed. We can add ports easily to an existing router without forklift upgrades. And we’ve been able to do that by designing our fiber network with the Brocade platform as our core.”

## SIMPLIFYING MANAGEABILITY AS THEY MOVE TO THE CLOUD

LiveAir has used the Brocade Vyatta vRouter’s software routing features for several years and have nothing but praise for it. The software’s intuitive command line interface can bring new staff members up to speed in just days.

Breeden also likes the fact that the Brocade Vyatta vRouter can run on any hardware. “We’ve gone to local electronics stores and bought entire stocks of PCs off the shelf,” he said. “We didn’t need true server-class hardware to move that amount of traffic.”

LiveAir’s virtual cloud environment relies on the Brocade Vyatta vRouter as a virtual machine that interconnects cloud servers to the physical infrastructure powered by the Brocade MLX Routers.

These advanced capabilities enable LiveAir to cost-effectively offer small business private cloud solutions. They don’t have the expenses associated with dedicating traditional routers to each small business. At the same time, business customers benefit from data center-level bandwidth and resiliency without the traditional expense of co-location or cloud servers.

## WHY BROCADE

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—James Breeden, Chief Executive Officer, LiveAir

## NEXT STEPS

Even with aggressive growth goals, LiveAir’s number one priority is its customers and they’re dedicated to providing the best support with high-quality services that are unmatched by any competitor—large or small.

“It boils down to the fact that when you’re a LiveAir client, you’re working with neighbors who are helping neighbors live the lifestyle that they want to live,” said Breeden. “We thank all of our clients for their support over the last ten years and hope they’ll be with us for the next ten.”

For more information, visit [www.brocade.com](http://www.brocade.com).

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