

Case Study: City of Portland, Texas



Portland, Tx

Challenge

Find a cost effective routing and security solution to scale from core to edge of Metropolitan Area Network

Solution

Vyatta Open Networking Software

Benefits

- Easy to manage
- Cost effective
- High reliability
- Complete networking solution
- Reduced learning curve
- Flexibility to meet current and future requirements

"Vyatta is the heart of our citywide network"

Vyatta Provides Scalable Routing and Security Solution for Citywide Network

Located along the Texas Gulf Coast, across the bay from Corpus Christie, the City of Portland, Texas, is an idyllic village of 17,000 residents. Like any small town, Portland is tasked with providing the highest level of public services in the most fiscally responsible way.

Challenge

The State of Texas was requiring that local police departments migrate connectivity to the statewide Texas Law Enforcement Telecommunications System (TLETS), which provides on-line access to the drivers' license, vehicle registration, and criminal history databases, from an antiquated SNA protocol over land line to Internet Protocol (IP) via satellite.

Due to stringent security requirements that included AES encryption for all networks that connect to the TLETS database, the city was faced with a potentially costly upgrade and overhaul to their legacy non-IP networking systems. The City needed an economical way to securely connect to the state system and share that data. The City of Portland viewed this state mandated change, together with the concurrent construction of a new police station, as an opportunity to evaluate their entire communications infrastructure, creating an end-to-end IP network—from police and fire to city hall and other public agencies.

Solution

Terrell Elliott, Detective Sergeant and IT Manager for Portland, began researching open source networking solutions that could provide an economical answer to the TLETS integration and security problem. That led Elliott to Vyatta whose solutions combine enterprise-class routing and security with the performance and economics of open systems, giving network administrators the ability to innovate, scale, and grow in ways that were previously unavailable. Elliott found Vyatta the ideal solution that could not only offer secure, economical TLETS integration, but could also serve as an end-to-end routing and security solution citywide.

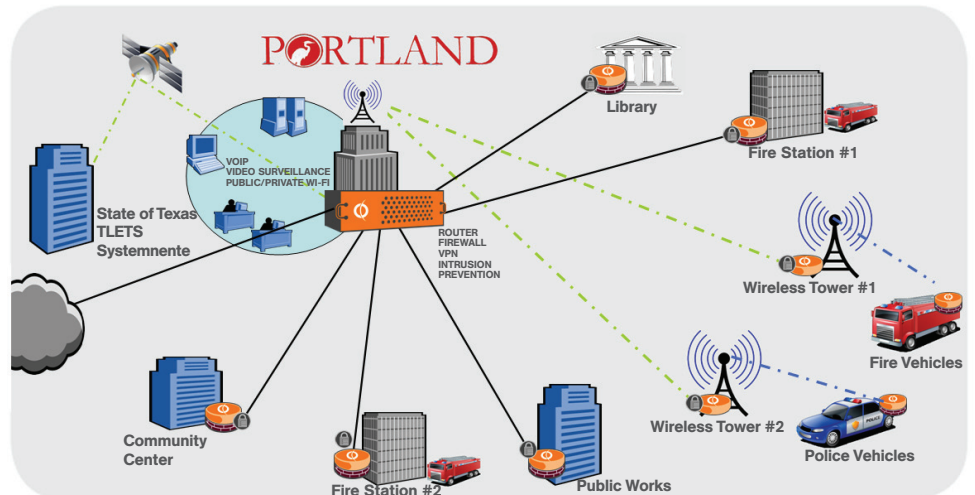
At the network core, Elliott installed Vyatta software on a server with two dual-core Xeon processors with a total of 24 GigE interfaces at the Police Station. Tackling the TLETS issue first, Elliott connected one of these interfaces to a satellite dish and personal earth station, providing access to the TLETS database.

That got TLETS into the Police Station, but Cellular data is notoriously poor in the Portland area. Elliott needed a more dependable means of extending connectivity to the City's seven patrol cars anywhere within the Portland city limits. He established a line-of-site microwave connection from the Police Station to two water towers and a dedicated communications tower. An additional microwave link between towers provided failover. At each of the towers



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he installed Vyatta routers. To communicate with the patrol cars, Elliott deployed iNET 900 radio modems on both towers. In each of the seven patrol cars and some fire vehicles, Elliott installed an instance of the Vyatta software on small form factor hardware and an iNET 900 radio modem. "Vyatta not only performs the routing function, but also provides firewall, content inspection and VPN for TLETS and the other software, such as the Automated Vehicle Location system, that goes out to the cars," says Elliott. Mobile communication will eventually extend to all fire and emergency medical vehicles as well.

With TLETS issues resolved, Elliott turned to the rest of the City's networking needs.

His plan: nothing less than creating a Metropolitan Area Network (MAN) based on Vyatta routers supporting voice and data at every City facility. Elliott installed Vyatta routers at each City location including the Public Works Department, the Community Center, two fire stations, and the Library. Together with the central router at the Police station, Vyatta routers manage the full range of services including Internet access, public and secure Wi-Fi, VoIP telephony, a video surveillance system, and an intelligent building access system. Layers of redundancy ensure availability.

Benefits

Operating budgets are always an issue for communities, no matter what their size. Vyatta offered the City of Portland a cost-

effective solution that didn't compromise availability or security. "I could easily see us spending well over \$250,000 for Cisco equipment to replicate what we did here for less than \$10,000 with Vyatta," estimates Elliott.

Residents of Portland depend on the City for police, fire, and medical services. The City must keep running, even when disaster strikes. Vyatta has given Elliott the tools and flexibility to engineer multiple layers of redundancy throughout the network for high availability.

Managing a network with different classes of routers, VPN appliances, and firewalls could be complicated. "The big advantage of doing all this with Vyatta is a much shorter learning curve," says Elliott. "Instead of having to learn a dozen different devices, you have one operating system and one set of command line instructions across multiple devices large and small."

Facing a connectivity issue brought on by a state level system change, the City of Portland turned what could have been a communications setback into an opportunity to migrate its entire municipal network infrastructure to a reliable, secure, and cost-effective IP-based system thanks to Vyatta.