Solution Application

Harnessing the Benefits of Private LTE Networks

Improve productivity, safety, cost efficiency, visibility, and control with Casa Systems

Private LTE networks, often associated with public safety, are seen as a modern replacement for land mobile radio (LMR) networks, enabling secure priority communication. But today's private LTE solutions are equally well suited to other environments in which communication is chiefly conducted among members of a closed group. Examples include offshore facilities, cruise ships, and enterprise Industrial Internet of Things (IIoT) applications that require mission-critical control solutions among connected machines with integrated sensors.

Given the expanded capabilities of today's private LTE networks, service providers are looking for tools and technologies that can help them meet the needs of users like those noted above. The solutions must be cost efficient, high performance, and easy to integrate with these new networks.

The Benefits of Private LTE

When communication is primarily among members of a group, and when that group is physically isolated, or when there is a need to segregate traffic away from a public network, private LTE networks deliver many benefits. By providing a private LTE alternative, the service provider can localize compute-intensive services while offering more customization and savings on backhaul costs, making it easier to price effectively.

In the earlier cruise ship example, traffic between passengers and among the crew can be handled without costly satellite backhaul, while local processing dramatically improves quality of service (QoS). Private LTE also offers the enterprise a better way to manage bring-your-own-device (BYOD) challenges by providing explicit control of the QoS parameters independently of the macro network.

Not surprisingly, private LTE is seeing growing mindshare among IT network managers and strategists at the same time it is enjoying global standardization. In addition to providing much-needed low latency and high throughput, private LTE extends reach as sensor and control systems—both static and mobile—can be easily connected over vast areas. QoS can be extended over-the-air to devices in the field.

Now, thanks to private LTE, multiple traffic types with different levels of priority can be brought together on a single infrastructure—without sacrificing the integrity or dependability of the overarching applications.

Calling on Casa Systems

Casa Systems is uniquely well suited to meet both current and emerging market demands for private LTE, in addition to resolving the associated engineering challenges. Casa Systems brings the richest set of network functionality for private LTE networks on the market, flexibly delivering it where it is needed.

Partnering with Casa Systems, companies can eliminate the need for costly, high-capacity backhaul; reduce demand on the network core; and push packet core functionality to the edge.

Apex, a multi-standard small cell, and Axyom™, an ultra-broadband software framework, are designed to elegantly address current and emerging network needs.

Apex Multi-standard Small Cell

Part of Casa's end-to-end, 3G/4G, small-cell solution, the Apex Multi-standard Small Cell solution incorporates real-time, self-organizing, self-optimizing networks (SON), transport security, and backhaul into a low-complexity solution. It successfully addresses coverage and capacity challenges, while being ideally suited for those who want to move from network optimization to network monetization.

Apex's management and SON features were designed to enable zero-touch flow-through provisioning, X2-controlled self-optimization, and granular KPI/service assurance. Apex's low-power requirements, small form factor, 3G/4G band flexibility, and SON features make it ideal for private LTE networks.

casa systems

The Axyom™ Ultra-Broadband Software Framework

The Axyom Ultra-Broadband Software Framework provides all the components service providers need to offer private LTE solutions—and to do so incrementally and rapidly.

Axyom features a suite of virtual network functions designed to help service providers simplify their access networks. This single software platform provides security, management tools, and the ability to offer end users the highest quality experience. Axyom delivers all the access and core network functions service providers need to enable ultra-broadband mobile and Wi-Fi services.

In addition, Axyom's flexible architecture enables placement of network functions where they make the most sense. This allows dramatic improvements in performance, protects the network core, and enables a higher quality of experience (QoE)..

Simultaneous scaling in multiple dimensions is enabled by Casa Systems' unique approach to network functions virtualization (NFV). Virtualization gives service providers the opportunity to address numerous inefficiencies that exist in legacy network architectures.

The Axyom Ultra-Broadband Software Framework addresses service provider network concerns through intelligent pipeline processing, performance acceleration, and application of real-time intelligence.

Boosting Performance with Intel

Intel helped enable customer and partner VNF solutions based on the company's CPU leadership for network solutions and the Intel® Xeon® processor E5-2600 v3 product family. Intel® processors make it possible to transition from using discrete architectures for major workloads to a single architecture that consolidates workloads into a more scalable and simplified solution.

As a result, developers may be able to eliminate special-purpose hardware such as network processors (NPUs), coprocessors, application-specific integrated circuits (ASICs), and field-programmable gate arrays (FPGAs).

Data Plane Development Kit

The Data Plane Development Kit (DPDK) is a powerful set of software libraries that allow Casa Systems to improve the packet processing performance of the solution by more than 10x, driving performance gains that outpace legacy solutions many times over.

In combination with Intel® hardware, the Axyom Ultra-Broadband Software Framework provides greater abilities to scale in/out or up/down based on the needs of the service provider or their customers. DPDK also plays a critical role in ensuring peak packet-processing performance in software-defined networking (SDN) and NFV solutions.

Intel® Quick Assist Technology

The Axyom Ultra-Broadband Software Framework benefits as well from Intel® Quick Assist Technology. The technology provides security and compression acceleration capabilities to improve performance and efficiency across the service provider network.

Choose Casa Systems and Private LTE

The benefits of private LTE are many, from more customization to savings on backhaul costs, inspiring a growing number of IT network managers and others to turn to this approach. Few companies are better equipped than Casa Systems to help with that move, offering unmatched network functionality for private LTE networks.

Learn more about Casa Systems and private LTE at casa-systems.com.

100 Old River Road | Andover, MA 01810 | Tel: 978.688.6706 | www.casa-systems.com