



LTE CLOUD FOR PUBLIC SAFETY

Reduce costs and quickly deploy
mobile broadband communications
with hosted core services

LTE CLOUD FOR PUBLIC SAFETY

Real-time first responder communications of visual information – streaming video, pictures and images – along with greater collaboration enhance safety and decision making. Yet current public safety agency budgets and limited personnel skills for deploying and managing mobile broadband can constrain agencies from realizing these benefits today. The Alcatel-Lucent LTE Cloud for Public Safety Solution provides a private next-generation wireless end-to-end communications solution architected specifically for the needs of the public safety community. This features a geographically redundant core communication network for high availability, traffic privacy, public safety focused applications and control centers. This integrated end-to-end solution with management system access is backed by experience with some of the most complex broadband wireless networks in the world.



RELIABLE, SECURE BROADBAND WITH ENHANCED FINANCIAL AND OPERATIONAL CONTROL

The Alcatel-Lucent LTE Cloud for Public Safety Solution can be a key element of an end-to-end mobile broadband network that one or more public safety agencies deploy. This helps reduce initial capital costs, operations cost and risk. Such a network, based upon the industry-standard Long Term Evolution (LTE), provides a state-of-the-art, 4G wireless broadband data network.

Key components of a public safety LTE solution are: devices, Radio Access Network (RAN), backhaul, Evolved Packet Core (EPC), applications and operations support systems.

The LTE Cloud for Public Safety solution consists of a redundant EPC hosted and owned by Alcatel-Lucent, plus the management of these EPCs and the associated RAN equipment. This solution combines all the key services needed to plan, design, operate and manage the LTE network. These include the establishment of joint agency and Alcatel-Lucent core network operational procedures, service management and service level agreement monitoring (SLA).

KEY BENEFITS

- + Rapidly equip first responders with advanced mobile broadband data communications to enhance safety and collaboration.
- + Minimize capital investment while benefitting from a highly available geographically redundant broadband core network for mission critical applications.
- + Mitigate risk and minimize required staff skills and ongoing operations cost with a solution managed by experienced personnel while providing privacy and agency control.
- + Maximize flexibility through a scalable solution offering a pay as you grow model with a monthly subscription fee.



PUBLIC SAFETY LTE SOLUTION COMPONENTS

DEVICES

Dongles, vehicle modems, mobile handheld terminals, tablets

RAN (RADIO ACCESS NETWORK)

Wireless base stations provide devices with wireless access to broadband communications

BACKHAUL

Microwave and IP/MPLS transport network connecting RAN to EPCs

EPC (EVOLVED PACKET CORE)

Set up and control, subscriber configuration, AAA services and gateways providing mobility and policy management functions

APPLICATIONS

Capabilities including real-time video sharing and location based services that enhance safety and decision-making

OPERATIONS SUPPORT SYSTEMS

Enable agencies to provision, personalize, deliver, allocate cost and manage broadband communication services



A hosted solution is offered as a monthly subscription service. This offers an agency the maximum flexibility and an efficient process for adding or changing subscribers and services as needs and multi-agency networks evolve – through a pay as you grow model.

Additional optional services to supplement a LTE Cloud for Public Safety Solution are available to address specific agency needs:

- Backhaul network management
- Advanced applications such as video, location-based services, messaging and voice

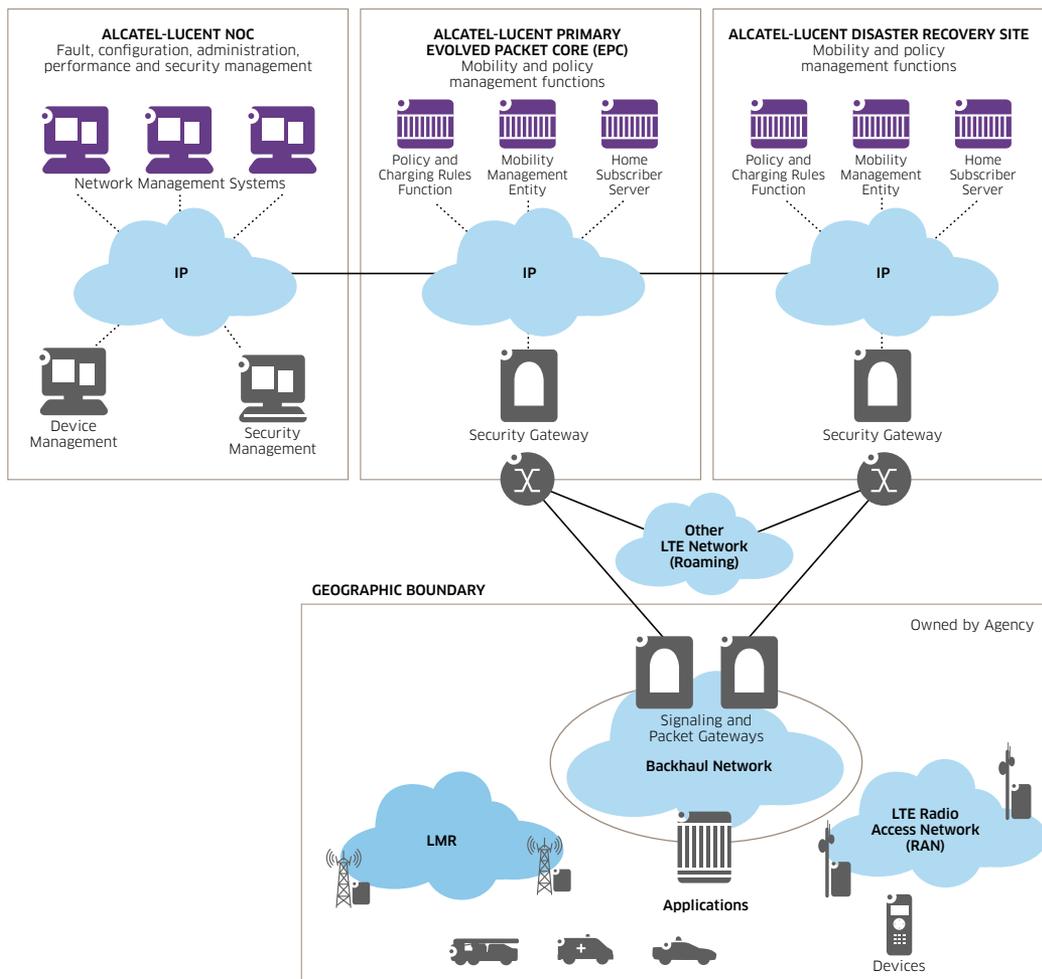
These can be included with an initial deployment or added as needs evolve.

The Alcatel-Lucent hosted EPC is located in a physically secure environment and monitored on a 24-hour, 365-days-a-year basis. For high availability and geographic redundancy a second EPC is located at a different location. This solution allows an agency to use network assets that are owned and managed by Alcatel-Lucent. These assets may be securely shared among several agencies, creating economies of scale for both capital and operational expenses. This shared model minimizes an agency's start-up costs and ongoing operations costs. While the infrastructure may be shared with other public safety agencies, the RANs and optionally the signaling and packet gateways will be owned by each agency and managed by Alcatel-Lucent's Network Operations Center (NOC). The shared EPC is securely partitioned to ensure each agency's data is neither visible nor accessible by any other agency.

To protect the privacy of agency mobile data communications, personnel in the hosted EPC sites will not have access to agency user communications. This is achieved by placing the agency's signaling and packet gateways outside the NOC and as near to the agency as feasible. Therefore agency user traffic remains in the agency-owned part of the solution, and only signaling and management traffic comes to the core.

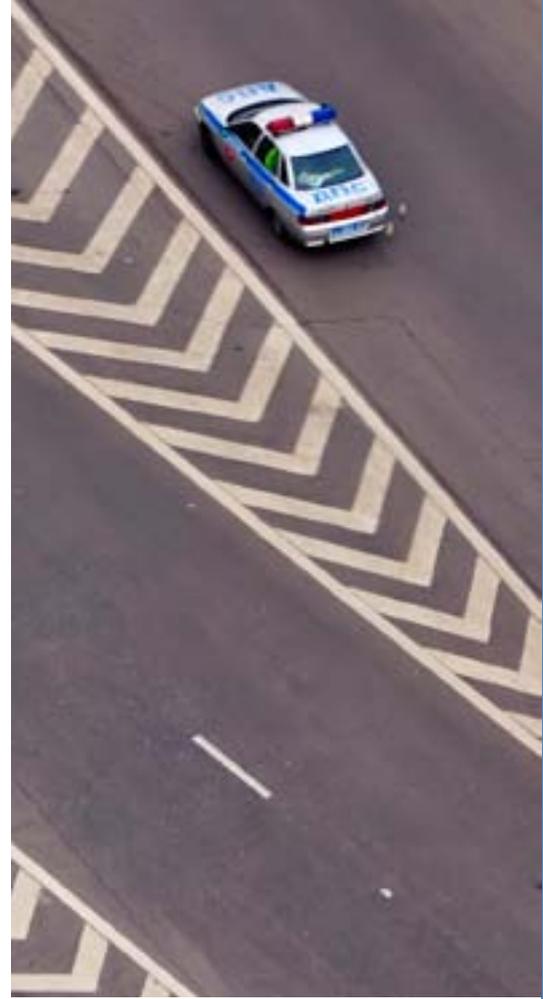
Since Alcatel-Lucent owns the EPC, we will be responsible for ensuring the platform is upgraded as necessary and operates in accordance with the agreed-to service levels. This provides agencies with investment protection and reduces their overall risk as mobile broadband standards and government broadband regulations evolve.

Figure 1. Alcatel-Lucent LTE Cloud for Public Safety Solution as a key element in an end-to-end Public Safety LTE solution to reduce initial capital outlay, operational expense and risk.



Alcatel-Lucent provides a world class NOC platform which will be utilized to manage the EPCs and RAN equipment. This NOC uses integrated element management systems (EMS) to seamlessly configure, manage and monitor the contracted elements. By following the established Fault, Configuration, Administration, Performance and Security (FCAPS) standards, a single source is used to control the network, without interfering with or storing data traffic. The EMS provides access to the network elements and devices to establish, authenticate, monitor and manage the network, users and applications. Public safety agencies have an option to manage all, or a part, of their subscriber activities and devices.

The optional hosted EMS extends management by the Alcatel-Lucent NOC to the devices for complete end-to-end solution management. This further reduces an agency's required skill and operating costs. An additional benefit is that Alcatel-Lucent will coordinate and perform the installation of a new or upgraded feature set or capabilities, as needed. Yet with a hosted EMS, an agency retains the capability to control and monitor their network's performance to ensure it meets their mission critical application needs



SOLUTION FEATURES

FEATURE	BENEFIT
Geo-redundant, reliable and private core	Minimizes initial capital cost for a highly available core required as part of an end-to-end public safety LTE solution for mission critical communications while providing investment protection and reducing risk.
End-to-end network management with agency control	Operation by experienced Alcatel-Lucent NOC personnel reduces required agency skills and operating costs while providing agency control and monitoring to ensure the level of required performance backed by a service level agreement. Optional hosted EMS extends benefits end-to-end.
Easy and financially viable solution scalability	Scale number of users and agencies with a monthly subscription service which facilitates predictable cost/budgeting and eliminates the need for periodic core network capital investments.
Advanced applications	Cost allocation and SMS capabilities can be supplemented with optional turnkey managed video, location-based services, messaging and voice capabilities to enhance agency effectiveness while accelerating introduction and reducing risk.

THE ALCATEL-LUCENT ADVANTAGE

SUPPORTING PUBLIC SAFETY AGENCIES IN EVERY STEP OF THEIR COMMUNICATIONS TRANSFORMATION

Alcatel-Lucent is trusted with the design, integration and management of the most complex networks in the world. Our global team of experts uses carrier-proven LTE network processes and tools to mitigate risk and reduce costs in multi-vendor, multi-technology environments – from the earliest planning stages through end-to-end network integration and network operations. Network operations services take the pressure off public safety agencies so they can focus on their core mandate.

WITH ALCATEL-LUCENT DYNAMIC COMMUNICATIONS, INCREASE RESPONSIVENESS EVERYWHERE AND ENHANCE SAFETY FOR EVERYONE

www.alcatel-lucent.com/publicsafety

