



Homeland Security & Critical Infrastructures

CSP COMMUNICATION SERVICE PLATFORM

PROFESSIONAL COMMUNICATIONS ARE CHANGING

Technology evolution is influencing the way security operators work: multimedia communications, APPs, social media are a reality in the enterprise and are migrating to public safety as well.

Wireless broadband is recognized as a key element to drive public safety communications in the new era, but change is impacting even the less demanding sectors: analogue voice communications are being progressively outplaced by digital technologies.

LTE and 5G are going to play will play a strong role in professional communications, but a it is quite widely accepted that a possibly long period where several communications technology will take the scene is going to characterize PMR sector.

Capability to progressively introduce new services into a consolidated environment without disrupting existing way of work is going to be a key success factor for professional organizations.

CSP the bridge towards innovation

Leonardo designed the **CSP (Communication Service Platform) solution** with the aim to provide professional users with integrated network and services across heterogeneous technologies and to bring in professional broadband environment the same level of functionalities, services and reliability supplied by narrowband technologies.

- With CSP communications services are delivered independently on network technologies that can be mixed together
- CSP support smooth network evolution allowing the seamless introduction of new technologies that work side by side with consolidated systems without replacing them but complementing their functionalities when required.

- With CSP existing networks can incrementally grow in functionalities and thus increase their life.

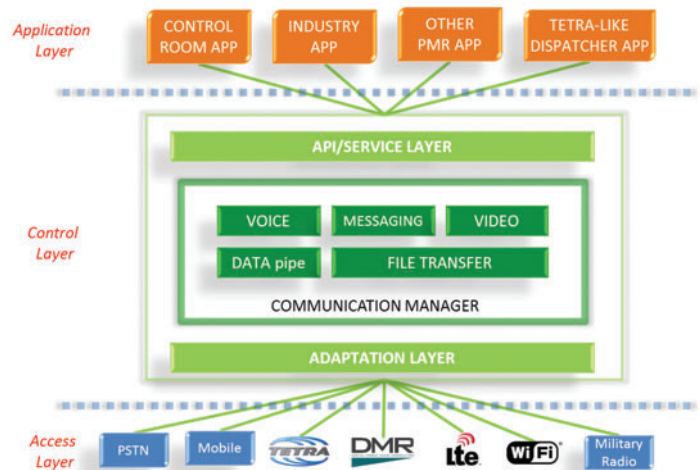
From an architectural point of view the CSP virtualizes the multi technology network so that applications (including voice) can be delivered regardless access technology.

The control layer is a complete core network that implements basic communications services and user management functions and exposes them to upper layer applications; adaptation layer translates individual payload and signaling into a common format so that multi-technology communications can be implemented.

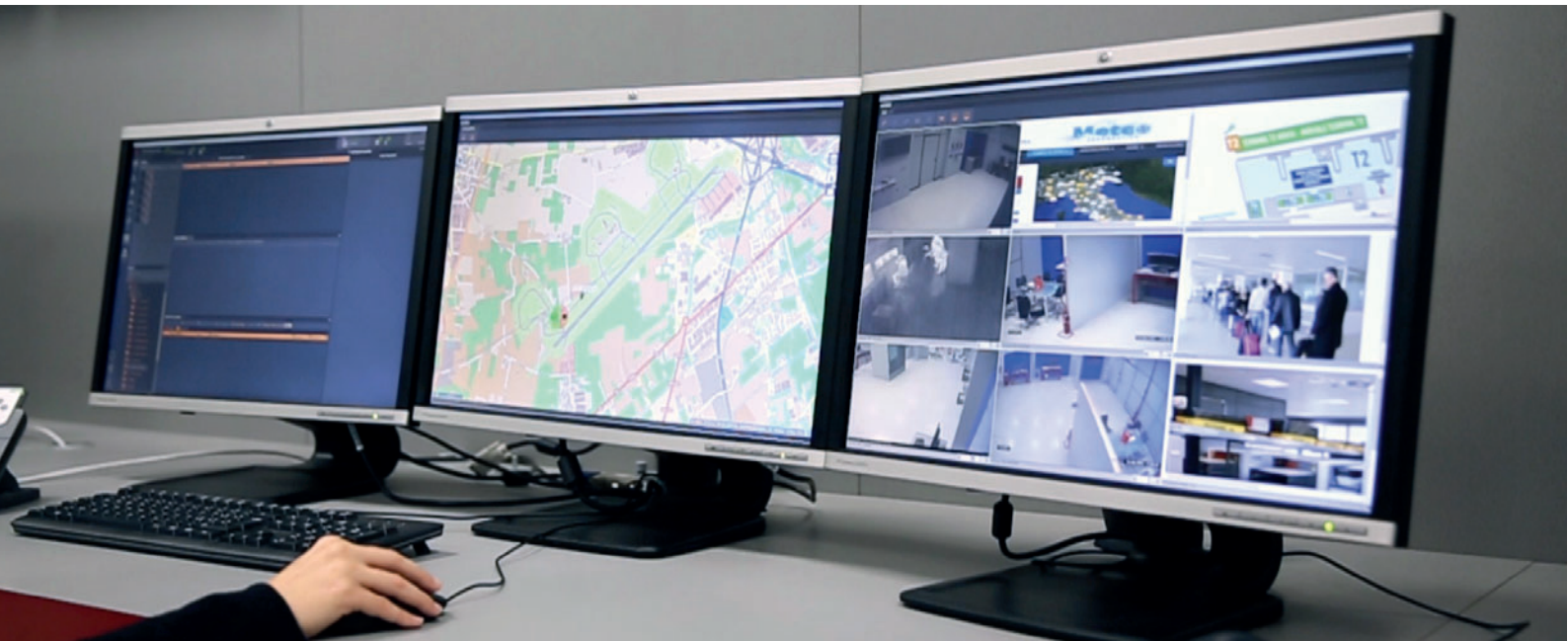
CSP is built on a full IP environment and interacts in a direct way with native IP technologies. Suitable gateways are foreseen for non IP technologies such as previous generation TDM TETRA or analogue networks.

CSP ECOSYSTEM

From the operational viewpoint, the heterogeneous network can be regarded as a unique network and a common set of services (voices and messaging) can be offered regardless the access technology; users as well can be managed in a joint way with common



profiles mapping into originating systems. This allows the creation of a common ecosystems where main control room applications can be offered in a heterogeneous environment. CSP ecosystems defines main professional components that are available in a multi-technology environment. Dispatching services, recording, location based application (i.e. AVL) are available in a multi technology environment and provide support for a number of market sector ranging from mission critical public safety applications to CNI protection, transportation and business critical systems.



Versatile deployment

CSP leverages virtual networking concepts and can be deployed across different platforms in centralized or distributed configurations according to system requirements with deployment ranging

from single node to nationwide networks. High availability features are foreseen, as well as disaster tolerance characteristics with semi-automated failover procedures that can be put in place where required.

CSP FLEXIBILITY AT WORK

The flexibility and the characteristics of CSP Ecosystem makes it the ideal solution for several integrated operational contexts. Operational contexts identify possible configurations that can be grouped into “verticals” addressed by special CSP deployments.

Core network

Core network for professional networks CSP implements the SwMi (Switching and Management infrastructure) of Leonardo full-IP TETRA networks (ElettraSuite Adaptanet®). It also provides interoperability platform for Leonardo TETRA and DMR (Tier II and Tier III) network allowing a complete set of professional services. Previous generation TDM TETRA network can join in a CSP networks by means of a suitable Gateway (part of CSP ecosystem) and forming a unified network according to CSP philosophy.

Multi technology and multi-vendor interoperability platform

CSP provides unified network management and subscribers management, implementing an efficient and effective integration solution where multiple technologies are used at the same time, such as in multi-agency context.

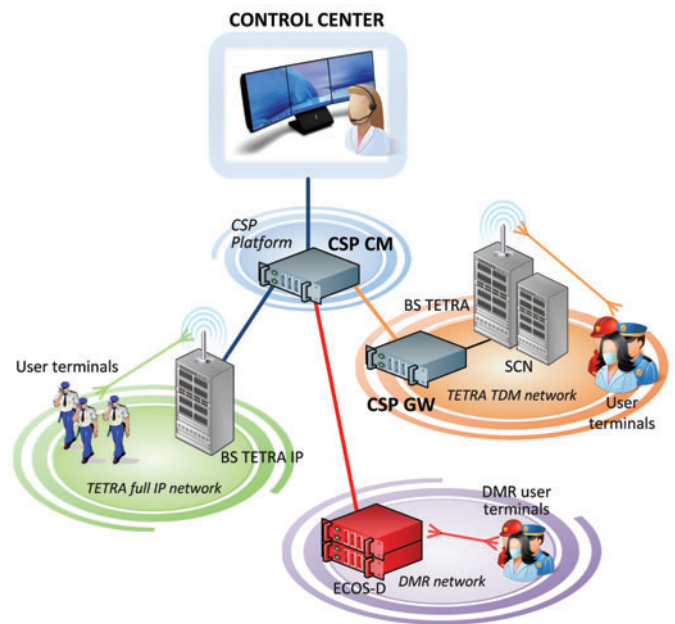
- Each agency uses its own network (fixed infrastructure or deployable system as in case of disaster management)
- A suitable CSP gateway connect agencies' networks to common control room where the CSP Communication Manager supplies uniform professional services to all users involved
- Multi-agency communications groups are established according to operating procedure (need-to-communicate)
- External networks interoperability (i.e. public or corporate) can be established in the same way.

Professional services for LTE

CSP solution can provide an implementation of professional communications services over LTE now that will be upgraded to MCPTT standard in a near future.

CSP extends professional services well beyond voice and provides true multi-media services including video communication.

LTE networks powered by CSP ecosystem can be part of CSP node (CSP-CM) multi-tech solution providing a TETRA LTE integration solution now.



Control Rooms support

CSP can be fruitfully used for implementation of state of the art control rooms leveraging CSP ecosystem and its network agnostic application model.

Complete incident management solution (from call taking to reaction coordination) can be implemented with a single product both for public safety or enterprise domain.

VoIP telephony allowing the implementation of professional call center or an enterprise PABX is part of the solution using a component of CSP Ecosystem (CSP-VoCM).

Dispatching functions, inherited from TETRA, are extended to multi-technology environment and can be enriched with multi-media and video services.

Location based services are available together with recording services in a heterogeneous environment.

Integration with Leonardo Safety and Security Command and Control solution (SC2) is available in order to provide a complete situation awareness and coordination solution.

