

ALE | Where
Everything
Connects



Communications Solutions for Transportation

eBook

Alcatel•Lucent 
Enterprise



ALE Communications Solutions for Transportation

Overview

Alcatel-Lucent Enterprise provides the infrastructure that enables transportation subsystems to be always connected and to deliver the communications and network subsystems that support transportation applications and processes.

With this foundation, ALE customers can:

- Transform the passenger experience
- Increase safety and security
- Improve operations while decreasing costs

The transportation environment is complex. It is made up of several subsystems involving different functional blocks such as the operations control center (OCC), field operations, and security. It is critical that these environments be supported with a voice communications system that can interconnect the different functional blocks seamlessly and securely. ALE solutions are equipped with a set of APIs to allow integration of the transportation subsystems.

Mission-critical reliable architecture

Transportation projects, whether it's new construction, improvements to existing infrastructure, or a complete overhaul, can take years to complete and cause major service disruptions. It is imperative when these projects are undertaken, that they address not only the immediate requirements, but also the requirements for next 10 to 20 years. The network and communications solutions deployed must be highly reliable and future-proof, capable of meeting today's and tomorrow's transportation infrastructure needs.

The ALE solution is based on the [OmniPCX® Enterprise Communication Server](#) which offers:

- High availability for a reliable and always on communications platform
- Centralized or fully distributed deployment, depending on the organization
- Geographical redundancy for distributed networks
- Multi-device compliant for specific purposes such as IP, SIP, TDM, analogue
- Fully virtualized for data center optimization deployment



- Hybrid architecture to protect investments and evolve to new models
 - Support for private and public cloud services
 - Add-on servers for complementary solutions such as recording, notification server, API gateway, and emergency server
- The solution can be deployed for multi-purpose applications including:

Trackside or roadside

Trackside telephony is essential in the railway and ITS sectors for the management of daily operations and security incidents including:

- Monitoring and guaranteeing Emergency Help Point (EHP) availability
- Reducing repair time and map faults

- Notification over multiple devices when any EHP fails
- Daily report generation
- SCADA integration

Rail and road tunnels

Tunnel operation is a critical activity as it involves working in potentially dangerous zones. Close collaboration between the OCC and maintenance staff in the field is vital to:

- Ensure efficient maintenance operations
- Keep tunnel workers safe and secure
- Address issues and emergency incidents quickly

It is important to note that in most tunnels, especially the longer ones, the only viable way to communicate is by radio. Therefore, any communications system deployed in the OCC must be

able to integrate, or interwork with the radio communications system.

Connected stations and airports

Train stations and airports host many businesses that deliver a multitude of services, across multiple areas in the complex. These businesses often come with different communication requirements and user profiles. These can include customer services, control center operations, ground handling people, security contractors, commercial agency, back office staff, and many more.

ALE communications solutions provide multi-service and multi-tenant needs to address different functional entities. A common communications platform provides the foundation to support a diversity of requirements across multiple organizations. Specific and

suitable solutions are available for each entity, which can include; operations, radio communication interconnection, end user kiosk integration, CCTV camera, emergency help point monitoring. Security needs such as alarm notification, emergency request, and recording system requirements can also be addressed.

Commercial agency

The commercial office and virtual agency are customer-facing resources that need to provide efficient contact with passengers. Solutions that improve the customer welcome are critical. The contact center and automated attendant are key to enhancing the passenger experience, driving the success of the business, and creating an impact on the brand image.

Solution 1

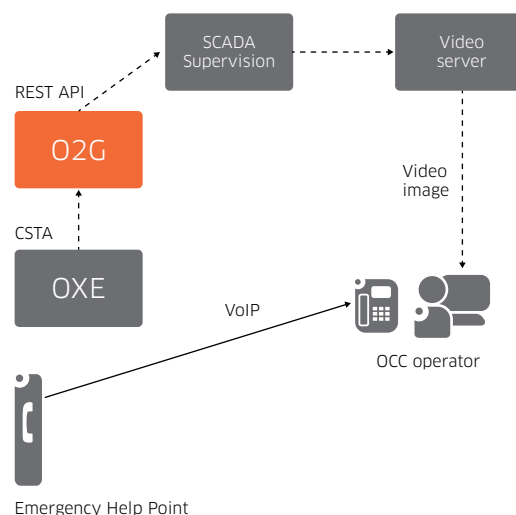
Synchronize video surveillance with EHPs

Improve control center efficiency and passenger security with synchronized video surveillance and emergency voice calls

Overview

In rail and metro stations, emergency help points (EHPs) are positioned on each platform. These help points provide two-way voice communication between a person requesting help and the control center. Visibility of the area around the EHP can assist the control center personnel assess the emergency situation. EHPs and video surveillance systems must be synchronized to enable operators to see, and reassure the passengers with whom they are communicating. This means the cameras around the incident area must be controlled to get a first-hand view of the emergency situation.

Typically, video surveillance equipment monitors each EHP using either the EHP local output, or an IP connection. However, this type of configuration and installation can be challenging depending on the technology and protocol used. For example additional cabling may be required, or protocols and formats may not be compatible.



The solution

The Alcatel-Lucent OmniPCX® Open Gateway (O2G) simplifies the integration between the EHPs and the video surveillance systems. The O2G monitors all phones in real-time and uses RESTful APIs to notify the video surveillance system, or SCADA system of any emergency calls, independent of the type of technology used by the emergency phone. When an operator receives a call from an EHP, O2G notifies the video surveillance system to display and record the video image corresponding to the area where the call originated. With server-to-server integration, the video display is synchronized to the control center operator attending to the call, even in call-forward or overflow cases.

ALE Professional Services can also develop protocol adaptation to provide information in the format and protocol expected by the SCADA system. The protocol adaptor can be hosted on the same O2G server.

Key differentiators

- Compatible with any emergency phone (Analog or SIP)
- Ease of integration: RESTful Open API
- Optional protocol adaptation

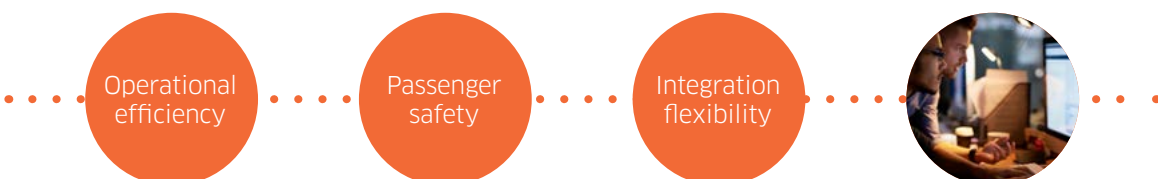
What to order

[OmniPCX Open Gateway with Advanced Tel. RESTful API users](#)

Professional Services for coaching/options

Additional information

[OmniPCX Open Gateway API](#)
[OmniPCX Open Gateway datasheet](#)



Solution 2

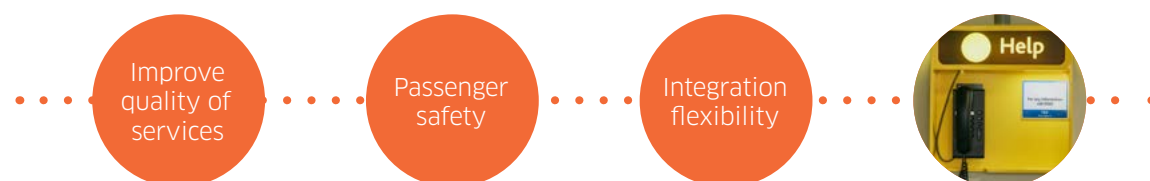
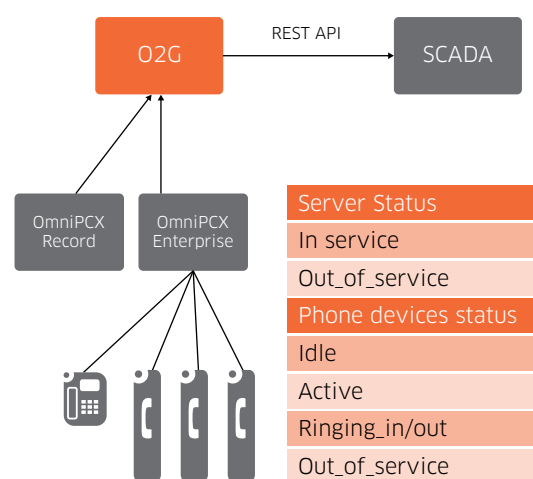
Integrate the telephony subsystem with SCADA

Provide 24/7 EHPs by integrating the telephony subsystem with the supervision platform

Overview

In transportation networks, EHP availability is a quality of service KPI and must be available 24/7. The control center must immediately be made aware of any incidents in order to quickly plan maintenance operations and corrective actions. To do that, the telephony subsystem must send the status of all phones and servers, in real-time, to the SCADA system responsible for supervising the transportation network subsystems.

In many cases, the SCADA system connects directly to each piece of equipment to collect information. In this type of deployment, the EHPs, phones and servers are managed separately, making integration and installation complex.



The solution

The O2G application works as an abstraction layer to provide the status of all EHPs, phones and servers from a single interface based on RESTful APIs.

The O2G can be complemented by additional optional development hosted on the same server, including:

- Auto-testing of analog lines using periodic routines
- Consolidation of phone status with Simple Network Management Protocol (SNMP) information sent by 3rd party devices, for example: hardware status of SIP emergency phones (microphones and loudspeakers)
- Protocol adaptation to make the integration with the SCADA or supervision platform easier

Key differentiators

- Single interface for telephony/interphone subsystem
- Compatible with any phone: SIP, analog phones, and ALE phones*
- Optional protocol adaptation

(*level of service depends on phone type)

What to order

OmniPCX Open Gateway with
Advanced Tel. RESTful API users

Professional Services for RESTful
API coaching or protocol
adaptation

Additional information

OmniPCX Open Gateway API
OmniPCX Open Gateway datasheet

Solution 3

Integrate the telephony subsystem with the ICC

Add communications into the Integrated Command and Control system for an efficient dispatch process

Overview

Modern control centers must make the dispatching process as efficient as possible. The integrated command and control platform (ICC) unifies the management of security and operations from a single interface.

By integrating telephony functions into the ICC application, control center operators can work more efficiently with:

- Click-to-call from the ICC application
- Ability to see the incoming call queue
- Immediate access to phone directory

In many cases, integration is complex and requires Computer Telephony Integration (CTI) experts to implement.

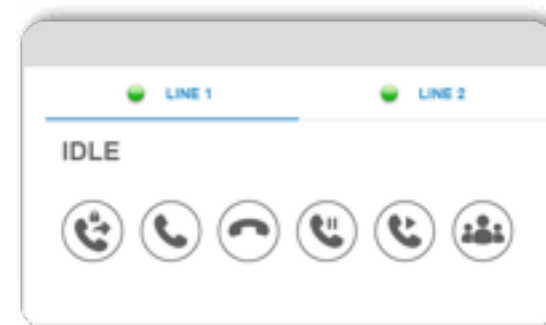
The solution

The O2G provides RESTful APIs to help developers access the OmniPCX Enterprise Communication Server capabilities. It helps ICC platform developers integrate telephony functions (e.g., click-to-call, phone toolbar) into the platform without the need for computer telephony integration (CTI) expertise.



To simplify integration with the web application, an HTML5 Web Softphone using O2G API is available and customizable, as an option:

- Phone features: Answer, Call, Hold/Retrieve, Transfer, Conference, Multi-Line
- Software package installed on O2G server
- Integration using HTML5 IFrame tags
- No management and no configuration required



Key differentiators

- Easy to integrate; no CTI expertise required
- Software designed for mission critical environment (high availability, CPE deployment, secure by design)
- Softphone, call queuing, speed dial available as an option

What to order

[OmniPCX Open Gateway with Advanced Tel. RESTful API users](#)

Professional Services for API coaching

Professional Services for HTML5 Web Softphone

Additional information

[OmniPCX Open Gateway API](#)

[OmniPCX Open Gateway datasheet](#)

Solution 4

Telephony built to support OCC staff

Optimize OCC workspaces and improve control center operator

Overview

A typical control center operator station is equipped with multiple devices and many PC screens that provide information related to the area for which they are responsible. In this type of environment, simplification and optimization of the communications tools are critical to rapidly respond to incidents and operational events.

The solution

The Alcatel-Lucent 8088 Smart DeskPhone offers a compact solution for telephony dispatchers. The 7" touchscreen helps save valuable workspace and makes handling operational communications in high call volume situations easier. The wideband audio handset and earphone support enable better control, room mobility and excellent audio quality. It offers the full range of telephony services found in Alcatel-Lucent Communication Servers which are unsurpassed in terms of functionality, features, reliability and quality of service.

To complement the telephony services, the 8088 Smart DeskPhone can access the private Android application store, or web application to deliver specialized control center applications for operational telephony, emergency conference, alarms and real time events handling, or even control 3rd party solutions such as the IP Public Address System.

Following are examples of applications that can complement the standard 8088 Smart DeskPhone features:



Example 1: With the OpenTouch® Notification Android Smart Application, operators and emergency staff can manage real time events, receive alerts and notifications, and access video surveillance and related event apps directly from their phones.

Example 2: The Operational Telephony Web App provides key features for control center operators to easily see, prioritize and process operational communications: Priority visual call queuing, pick-up any call in the queue, shared and private call queue.

Key differentiators

- Compact design to minimize the required space
- Ambient light sensor and incoming call blinking led adapted to adjustable lighting for 24h/day manned control room
- Openness: Private store and business web application
- Compatible with recording system

What to order

[8088 Smart DeskPhone](#)

[OpenTouch Notification Service](#)

Operational Telephony Web App
available in project mode –
Professional Services

Additional information

[8088 Smart DeskPhone](#)

[User Manual](#)

[OpenTouch Notification Service](#)



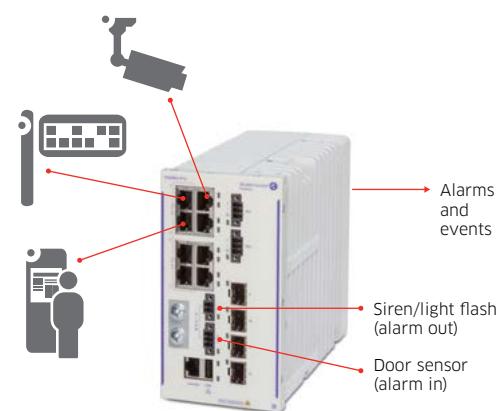
Solution 5

Protect the transportation network infrastructure

Intrusion alarms and real-time monitoring keep trackside and roadside network equipment safe and secure

Overview

Ensuring a safe, secure and robust railway or highway network infrastructure is a two-pronged challenge. First, the trackside and roadside equipment must be able to withstand harsh environmental conditions. Second, real-time infrastructure monitoring is a must for operators to quickly react to any incidents, as well as to proactively plan maintenance operations based on pre-established rules or critical sensor levels.



The solution

The Alcatel-Lucent OmniSwitch 6465 Compact Hardened Ethernet Switch, designed for roadside cabinet installations, connects cameras, signage and signaling systems to keep information flowing to the remote operations control center (OCC).



To protect remote cabinets and detect unauthorized access, door sensors can be connected to the alarm relay of the OmniSwitch 6465. As soon as the door is opened an alarm is triggered on the switch and simultaneously:

- Notifies the operations team in the control center
- Initiates flashing lights or siren alarms to discourage intruders

In the OCC, the OpenTouch Notification Service (OTNS) application collects events coming from the OmniSwitch 6465 and from other connected devices such as emergency phones and intelligent video cameras. The OTNS processes alarms such as a cabinet door opening, emergency call or intrusion detection, and notifies personnel who are most likely to respond to the situation in real-time. In addition to the OTNS web application, OTNS is also available as a SmartApp to send alarm notifications on Smartphones to mobile workers and maintenance staff, allowing the OCC to reach personnel closest to the incident for faster incident resolution.

Key differentiators

- Ethernet switches design for industrial applications with alarm relay
- OTNS supports a large number of protocols and alarms system including: SNMP, Dry Contact, ESPA
- Android and iOS Smart Application for mobile staff

What to order

[OmniSwitch 6465 Compact Hardened Ethernet Switch](#)
[OpenTouch Notification Service Smart App](#)

Additional information

[OmniSwitch 6465 datasheet](#)
[Alcatel-Lucent OpenTouch Notification Service](#)

Solution 6

Record and track voice communications

Leverage voice communications tracking and recording to train customer service personnel and improve post-incident analysis

Overview

In transportation, recording and tracking voice communications are critical. For transportation agencies, operational communications must be recorded and tracked to provide proof of safe operations and for post-incident investigations. Voice recorders are also used to monitor how commercial staff communicates with their customers for coaching and training purposes as well as to review communications in case of malicious calls.



The solution

The Alcatel-Lucent OmniPCX Record Suite offers a complete recording and tracking solution for operational communications and customer/passenger interactions as well as web-based audio and video call recording.

OmniPCX RECORD Suite enables recording, monitoring and evaluation of customer/employee interactions with easy-to-use, web-based applications. It is easy to deploy and extremely cost-effective with seamless integration into any OmniPCX Enterprise Communication Server environment.

On a project basis, specific and complementary development are available to deliver permanent ambient recording in specific areas such as the OCC room and station platform or to record radio communications.

Key differentiators

- Easy and cost-effective implementation
- Regulatory compliance and data protection
- Supports a wide range of telephony devices to record all operational communications
- Geo-redundancy support
- RESTful APIs for operator workstation integration (e.g., search and playback)
- SIP video recording to record video conferences

What to order

[OmniPCX Record Suite](#)

Additional information

[OmniPCX Record Suite datasheet](#)

Efficient risk management

Regulatory compliance and data protection

Improve quality of service

Attractive price

Automated customer welcome processes

Improve passenger welcome with an automated attendant

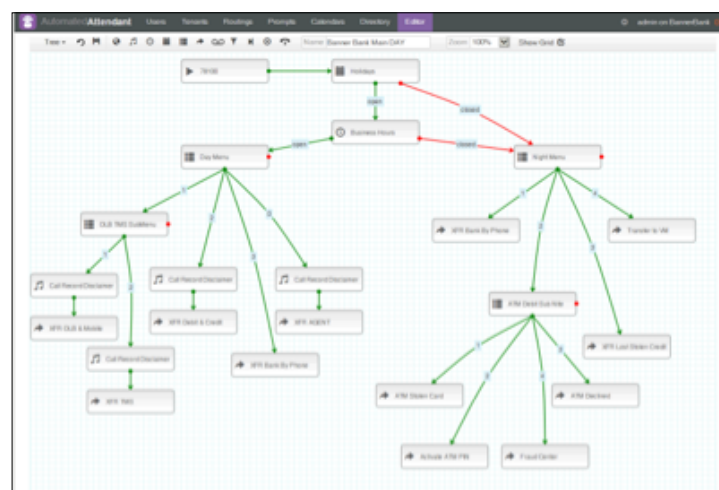


Overview

Transportation operators are looking for an automated welcome solution to deliver more customer self-services in an efficient and professional manner.

The solution

The Alcatel-Lucent Visual Automated Attendant provides a virtual attendant available 24/7, to deliver professional, quality customer interactions. It can replace or complement human attendants by greeting the caller with a welcome message and routing the call to the right contact or service.



Connecting the Visual Automated Attendant to the Passenger Information System API, or database, provides passengers with direct access to flight, train, or bus schedules. In addition, the Visual Automated Attendant can deliver time-sensitive information such as weather delays or scheduling changes.

By including a brief survey at the end of call, the Visual Automated Attendant can collect passenger feedback to improve passenger welcome services.

Key differentiators

- Graphical and intuitive programming interface
- Scalable, multi-tenant and SIP-based solution
- Interactive Voice Response (IVR) option with SQL and HTTP connector
- Text-to-speech conversion

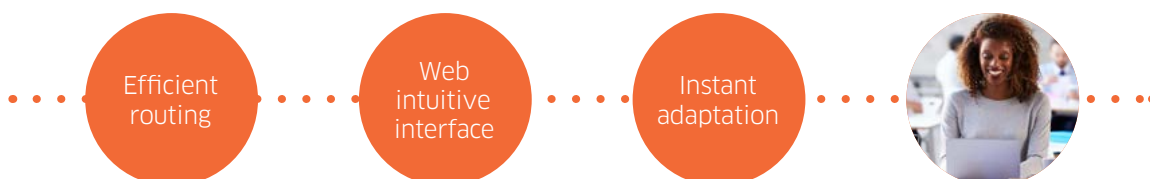
What to order

Visual Automated Attendant

Additional information

Visual Automated Attendant datasheet

Visual Automated Attendant video



Solution 8

Video conference solution for meeting and crisis rooms

Video conferencing for better collaboration for day-to-day operations and crisis

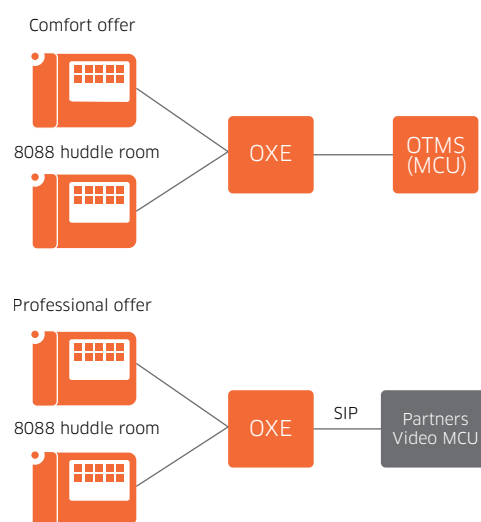
Overview

Video technology is cost-effective while achieving efficient, unified and productive responses to emergency situations. For example, in railway environments, video conferencing enables communications between the operations control center (OCC) and the station master for daily meetings or crisis management situations.

The solution

Alcatel-Lucent Enterprise offers two solution categories for multimedia communications:

Comfort offer: For customers requiring basic video services such as peer-to-peer, scheduled conference and selective presence, the Alcatel-Lucent OpenTouch Multimedia Server (a multipoint control unit (MCU)) connects video end-points such as the 8088 Smart DeskPhone and the OpenTouch Conversation PC application.



Professional offer: For additional features such as high definition, telepresence, recording and multi-device support, ALE offers interoperability with a video technology partner, such as Polycom or Vidyo to deliver rich telephony features combined with value-added video services.

The 8088 Smart DeskPhone offers an intuitive HD video user experience. Managers, at their desks, can escalate business communications to peer-to-peer, or multi-party HD video sessions with a single tap. The 8088 Smart DeskPhone also offers an HDMI output for screen replication to an external monitor, which can transform a number of regular meeting rooms into video-enabled conference rooms (also known as huddle rooms).



What to order

[8088 Smart DeskPhone](#)

[OpenTouch Multimedia Services](#)

3rd party Video MCU (Vidyo or Polycom)

Additional information

[8088 Smart DeskPhone](#)

[OpenTouch Multimedia Services](#)

[Interworking Report Vidyo](#)

[Interworking Report Polycom](#)



Solution 9

Emergency notification

Increase responsiveness and safety in passenger transit areas with an emergency notification system

Overview

For transportation operators and public authorities, saving time means saving lives. Security personnel and public safety responders are charged with acting quickly and effectively to emergencies, to protect rail station or the airport passengers. They cannot allow operational obstacles to interfere with the mission. In order to respond quickly, they require accurate information about a caller, including location and emergency details. It is also crucial to be able to record calls, for training and coaching purposes, or for further analysis.

The solution

The Alcatel-Lucent Emergency Notification Server (ENS) addresses these challenges among others by tracking all emergency calls (outgoing 911/112 calls, or emergency hotline panic buttons) from all workspaces and localizing and routing the calls to the correct emergency responders.

The ENS enables quick, accurate involvement and responses from all key personnel in case of emergency, both on-site and at remote locations as well as at the Public Safety Answering Point (PSAP).



Key differentiators

- All-in-one solution: Recording capabilities integrated into the application
- High availability: Redundancy and integration with OXE high availability
- 100% software solution with web-based management interface
- Multiple call alert and notification tools for security personnel
- Automatic callback if the call gets cut off
- Automatic conference bridges can be created among emergency personnel

What to order

[Emergency Notification Server](#)

Additional information

[Emergency Notification Server datasheet](#)

[Emergency Notification Server video](#)



Learn more about how ALE is helping transportation providers build pathways to the future.

Check out the [ALE blogs](#) to get insights from our experts.

We are ALE.

We make everything connect by delivering technology that works, for you. With our global reach, and local focus, we deliver networking and communications. On Premises. Hybrid. Cloud.

ALE | **Where Everything Connects**