Alcatel·Lucent Enterprise

INTELLIGENT MOBILITY, URBANIZATION AND PUBLIC SAFETY FOR INDIA

SAFE CITY AND INTELLIGENT MOBILITY SUMMIT INDIA 2023

Presented By

Amit Mehta

Headquarter
Colombes – France

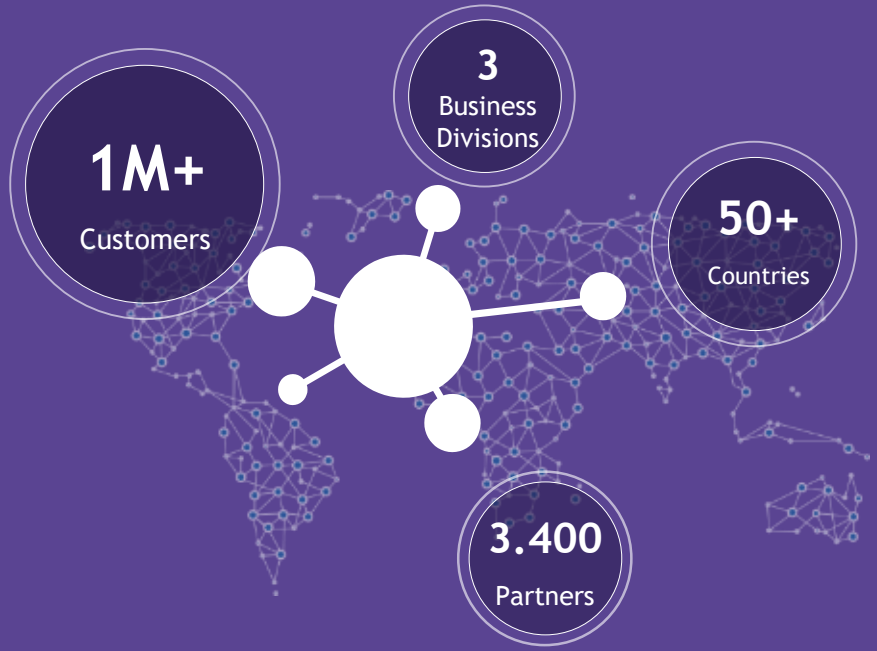
Networks HQ: Calabasas, CA - USA

We make everything connect by delivering digital age networking, communications and cloud solutions with services tailored to ensure our customers' success.

In the Cloud. On Premises. Hybrid.

25 years experience in Networks

Founded in 1919



- Alcatel Lucent Enterprise presence in India from last 25+ years
- ALE R&D Center is in Bangalore (Network) & Chennai (Voice)
- Total Employee approximately 500+ in India
- Professional certification (ACSR, ACPS, ACFE & ACSE) for all partner
- More than 8000+ satisfied ALE customer across India
- More than 1500+ ALE certified Sales and Technical professional across India

WE FOCUS ON CUSTOMISED VERTICAL SOLUTIONS

Our differentiating strategy: Providing specific solutions for end-to-end ecosystems

Government

- Government institutions
- Smart cities
- Smart buildings
- Defense

Education

- Higher education
- Primary & secondary
- Corporate training

Healthcare

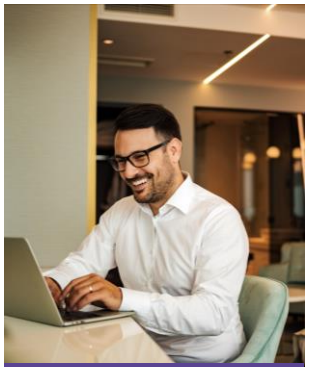
- Hospitals
- Nursing home
- Pharma & life sciences

Transportation

- Railways
- Air Transport International (ATI)
- Intelligent Transportation Systems
- Ports & logistics

Energy & Utilities

- Upstream
- Mainstream
- Downstream
- Utilities



Hospitality

- Smart hotels & resorts
- Cruise ships
- Stadium
- Museums
- Theme parks

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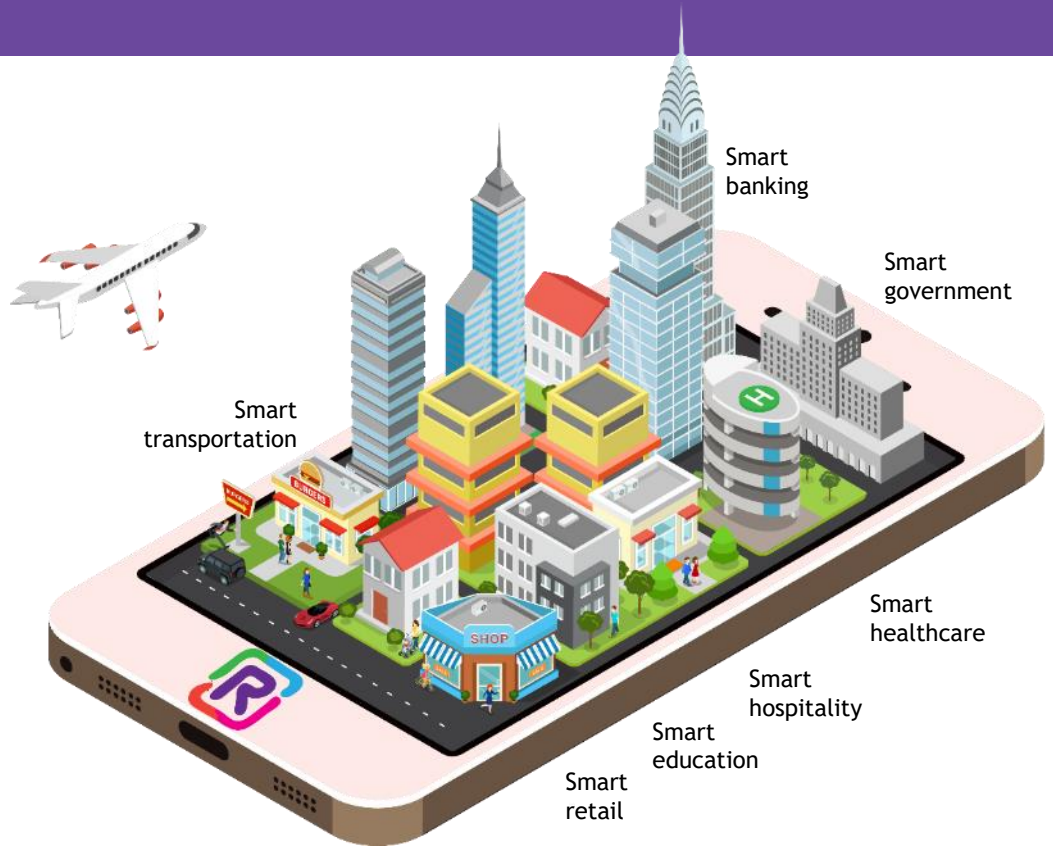
WHAT DO WE MEAN BY SMART CITY?



> “A smart city uses information and communications technology (ICT) to enhance livability, workability, and sustainability.”
>
> *Smart City Council*

CITIZEN-CENTRIC TECHNOLOGIES

SAFE
Emergency awareness, coordination and timely resolution

DIGITAL
Seamless access to government services and personalized experiences

CONNECTED
Secure platforms connecting people, objects, machines, processes

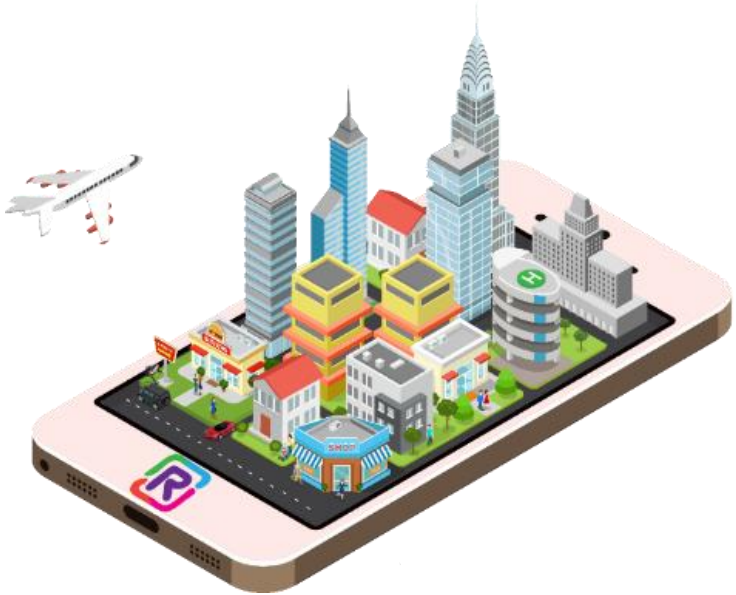
ENGAGED
Citizens, actors of their city and community

MOBILE
Personalized passenger services with smart mobility and MaaS

HEALTHY
Optimized care pathway with ubiquitous access to quality care for all

SUSTAINABLE
Reduced network technology energy consumption

RESILIENT
Robust technology for mission-critical services



SMART CITIES AND SMART BUILDINGS

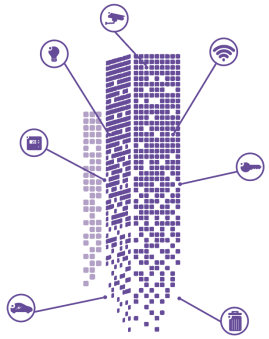
And their key role in sustainability

55% of the world's population live in urban areas

Cities account for **65%** of global energy demand

Buildings contribute **40%** of global carbon emissions

Buildings use **30%** of the world's energy



Smart cities

- ✓ manage resources and services efficiently, improving the operations across the city
- ✓ aim to increase the safety and quality of life of citizens in a sustainable manner

Smart buildings

- ✓ optimize performance, operations and energy consumption
- ✓ aim to make occupants safe, comfortable and productive at the lowest cost and environmental impact

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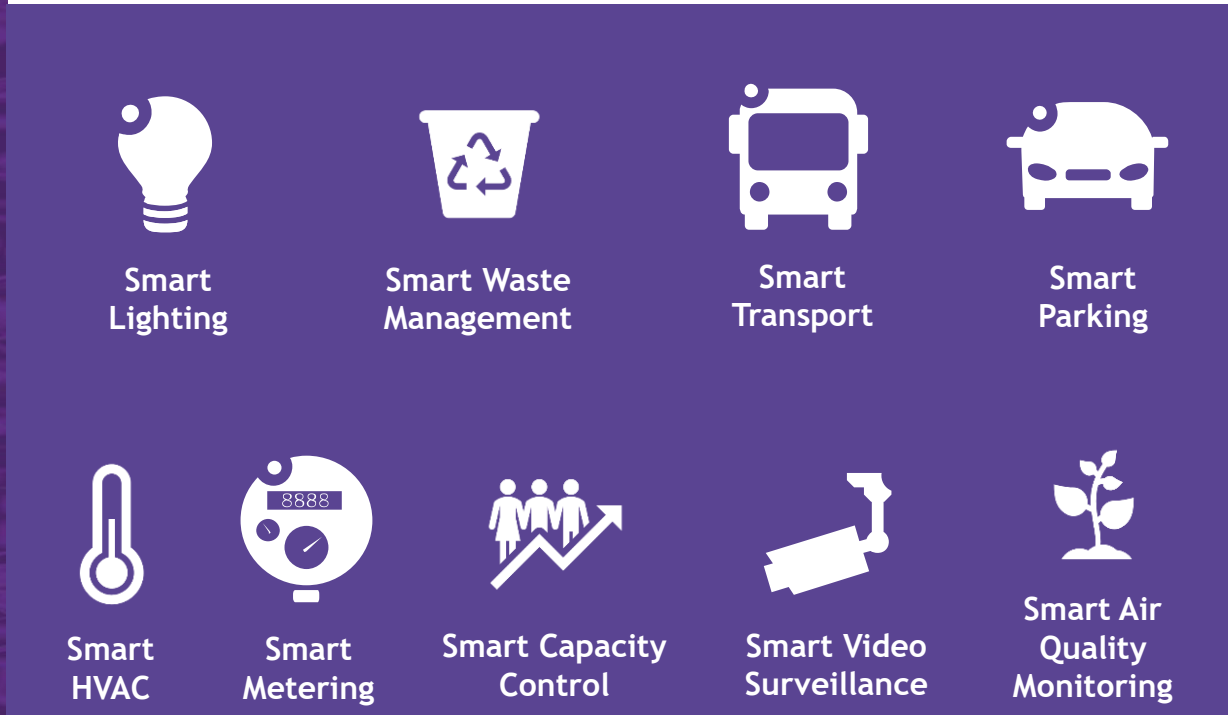
SMART CITY & SMART PUBLIC BUILDINGS

Sample use cases



Benefits

- Sustainability
- Optimization of energy consumption
- Reduction of CO_2 emissions
- Improved livability
- Healthier and safer public spaces
- Automated operations
- Optimization of investments
- Cost savings

BENEFITS OF PUBLIC SAFETY INNITIATIVES

Many leaders are making use of smart surveillance (72%) and facial recognition (68%).

Source: ESI Thoughtlab: Building a Hyperconnected city report

The technologies in greatest use are :

- Smart stations/kiosks that allow emergency calls
- Emergency notification apps
- Smart surveillance
- Police body cameras.

URBANIZATION

Pandemic

Industrial disaster

According to UN, by 2050, 68% of the world population projected to live in urban areas

Terrorism

Natural disaster

People & asset protection

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KEY SECURITY & SAFETY ISSUES

Accident

Abduction

Attacks

Vandalism

Intrusion

Cyber Attacks

System Failure

Shortage

Missing equipment

Incident

Violence act

Harassment

Pollution peak

Extreme weather

Epidemic

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HOW DOES DIGITAL AGE NETWORKING ENABLE SMART CITIES?

High-performance and reliable network fabric
Network automation
Extended capabilities with Nokia solutions

Streamlined portfolio
Indoor and outdoor equipment
Eco-friendly

Secure IoT onboarding
Multi-standard IoT support
Ecosystem integration

Secure network access
Centralized role-based policies
Cybersecurity certifications

Unified management
Analytics
APIs

Scalable, efficient and reliable Wi-Fi
Public and corporate

Asset tracking

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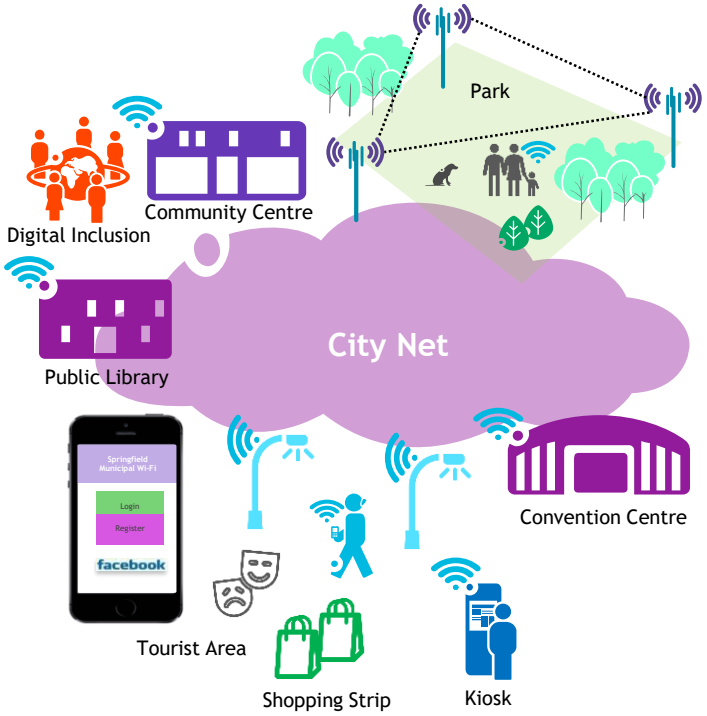
PUBLIC WI-FI

- Municipal Wi-Fi in public spaces, for residents and visitors
  - Parks and pedestrian zones
  - Convention centers
  - Public venues
  - Municipal buildings
  - Tourist areas, etc.
- Enables smart city use cases
  - Digital inclusion
  - Access to e-learning tools
  - Access to citizen digital tools
  - Access to municipal information
  - Wireless IoT use cases



- Stellar WLAN solution
  - Competitive Wi-Fi 6 portfolio
  - Distributed intelligence control
  - Scalability
  - Secure access with role-based access control
  - Secure IoT onboarding
  - IoT multi-standard support
  - Captive portal options
  - Public Wi-Fi regulations

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SMART CITY ENABLED BY IoT

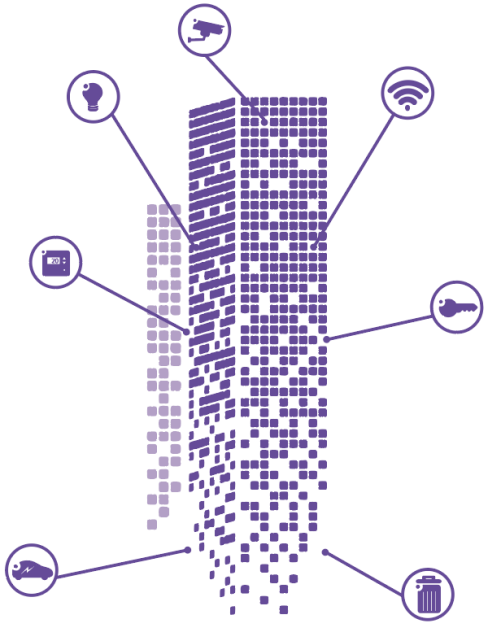
- **The Objective: Deliver new services and automate city operations**
  - Monitor environmental conditions (weather, brightness, air quality,…) and raise alerts / trigger actions based on metrics
  - Provide real-time parking occupancy info to citizens / last mile delivery
  - Control traffic lights and access to restricted traffic areas
  - Monitor and manage city waste collection dynamically
  - Monitor soil moisture in parks and control irrigation
  - …

- **The Challenge: Manage a huge number of disparate IoTs disperse in a city-wide area**
  - Many different IoT objects and platforms to integrate
  - Several technologies
  - Complex operation
  - Cybersecurity risks

- **The ALE Solution**
  - High performance and reliable city-wide network
  - Secure and automated IoT onboarding
  - Security standards and certifications compliance
  - Rainbow workflow and IoT hub to integrate IoT platforms
  - Notification services

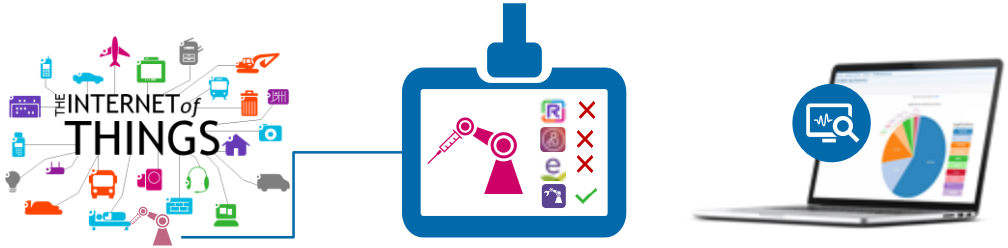
SMART PUBLIC BUILDINGS ENABLED BY IoT

- Many diverse IoTs inside and outside the building
  - Sensors and actuators
  - Surveillance cameras
  - User weareables
- Network requirements
  - Short and medium-range wireless IoT networks support
    - Wi-Fi, Zigbee, BLE
  - High-quality video support for CCTV network
  - Security
  - Automation
  - Easy operations



- ALE key solutions
  - Multi-standard IoT support
  - Secure and automated IoT onboarding
  - Stellar WLAN
  - SPB and IP multicast support
  - Network automation (iFab)
  - Security standards and certifications
  - Rainbow workflow and APIs
- Use case examples
  - Monitor temperature and humidity
  - Monitor brightness
  - Monitor entrances and exits
  - Monitor air quality in rooms
  - Monitor room occupancy rate
  - Indoor location services
  - Raise alerts and trigger actions

ALE IoT MANAGEMENT



- Automated provisioning of IoT devices into secure IoT network containers
- Wired and wireless IoT devices
- IoT fingerprinting, DS-PSK, 802.1x
- IoT monitoring through OmniVista NMS
- IoT connectivity natively supported
  - Ethernet, Wi-Fi, BLE, Zigbee
- Gatways, APIs and IoT Hub to integrate with any IoT ecosystem
  - LoraWAN, KNX, Modbus, SCADA,…

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SMART CITY USE CASES

Smart lighting, waste management and video protection

Smart lighting

Save energy with remotely-controlled on-off timing and dimming depending on time of year, weather conditions and motion detection

Smart waste management

Reduce waste collection activities, fleets, fuel usage and CO2 emissions with smart bins that can compact waste and inform their fill level

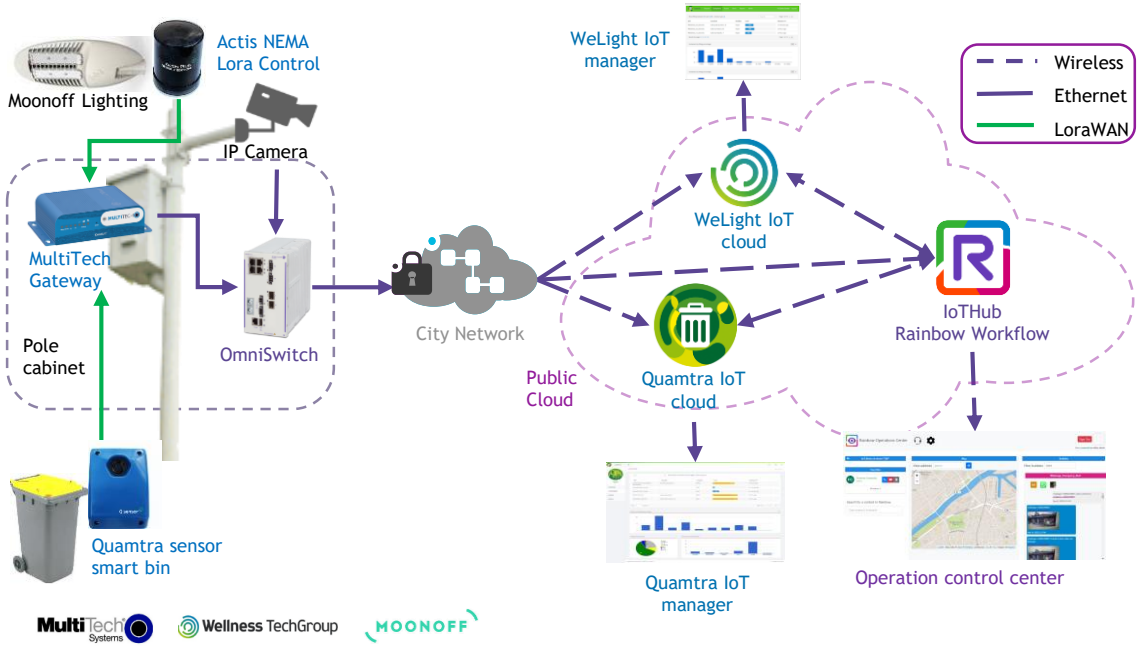
Video protection

Improve public safety and security with licence plate recognition, vehicle tracking, dangerous situation recognition and analytics

SMART CITY USE CASE

Smart lighting and smart waste management

- Benefits
  - Energy savings
  - Operational efficiency
- IoT devices
  - LoraWAN light sensor
  - LoraWAN waste bin capacity sensor
  - IP camera
- Implemented with
  - ALE ruggedized switch
  - ALE OmniVista management
  - Rainbow IoT Hub and Workflow
  - MultiTech LoraWAN gateway
  - Wellness smart light and smart waste management platforms



Demo videos: Smart City Light Demo, Smart City Connected Operations Demo
Demo available in EBC Colombes

SMART CITY / SMART PUBLIC BUILDING USE CASE

Smart video surveillance for public safety

- Benefits
  - Increased public safety & security
- IoT devices
  - IP camera
  - Horn speaker
- Implemented with
  - ALE ruggedized equipment in the access
  - ALE high-performance switches in the core
  - Rainbow Workflow

1. Camera with integrated detection can recognize events and send notifications to Rainbow

Rainbow platform

2. Operators can get visual situational awareness, distribute the information, involve more stakeholders

3. Horn speaker and intercom allow to interact with citizens

Access ruggedized equipment for CCTV network in outdoor and harsh environments

OS6465/T

OS6865

AP136x

Demo video: Smart City Safety and Security Demonstration
Demo available in EBC Colombes

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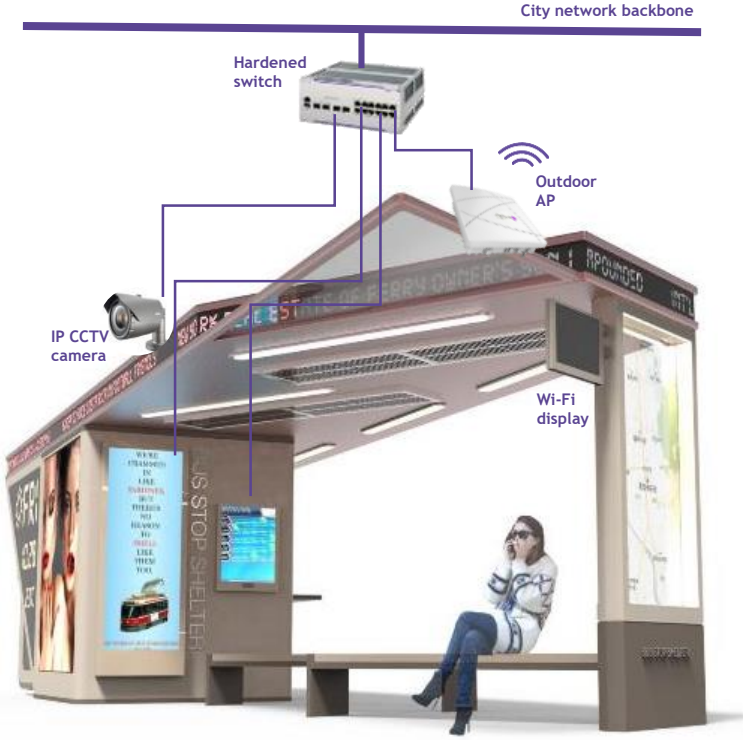
SMART MOBILITY- CONNECTED BUS SHELTER
RAISE THE LEVEL OF SERVICE AS PASSENGERS WAIT FOR TRANSPORTATION

- Transform a bus shelter into an asset with integrated connectivity for citizens and city IoTs
- Enable a world of services for citizens
  - Offer public Wi-Fi service
  - Sell tickets through ticket/payment kiosks
  - Show information through digital displays
  - Offer services through interactive touchscreen monitors
- Increase city security & safety with IP communications
  - IP phones for service/emergency calls
  - IP CCTV cameras for safety and security
- Get ROI through advertisement



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CUSTOMER REFERENCES

A METROPOLE IN FRANCE

SPB multi-services network for smart city

The customer

- This customer is a large city agglomeration, with more than 300,000 habitants on the West of France
- Their smart city solution includes video surveillance for tramways and metro, street digital signage and smart street lighting services

Requirements

- Hardened switches to connect various IP equipment located in tramway stations and in the city street network
- Supported IoTs: PTZ cameras, streetlights and street signals
- The hardened switch to connect and power the PTZ cams must be a very compact factor and must support 802.3bt HPoE, private VLAN, fast boot and backup power supply
- The proposed network solution must be ready to support future IoT deployments, including the necessary PoE budget

Products in solution

- OmniSwitch 6900, 6865, 6465
- OmniVista 2500

Benefits

- Simple management thanks to single OS across the entire network including ruggedized switches
- One single solution fulfills both Transport and Smart City vertical needs
- Service creation simplification and automation with SPB
- Augmented security with SPB network segmentation
- Easy IoT secure onboarding allows for quicker deployments

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CITY OF OCALA - USA

Smart city customer case

City of Ocala (Florida, USA) is a city in Marion County, Florida, United States, with a population over 60K inhabitants, making it the 49th most populated city in Florida

The city's municipal broadband network connected hospitals, schools, and local government to keep its citizens safe, healthy, and informed.

At the onset of the 2020 health crisis, OFN provided additional bandwidth for telemedicine, distance learning, and remote working, without delay

A network to connect municipal organizations

It enables public services, such as free Wi-Fi in city parks and city downtown

And smart city services, including public safety cameras and traffic management apps

See the customer case study: link

WHY ALCATEL-LUCENT ENTERPRISE?

"The OmniSwitch switches are the part of the brain that makes us work. ALE provides a great piece of equipment. My engineers say they like the simplicity of it and most importantly, the support they get."

Mel Poole
Director of Ocala Fiber Network

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GOVERNMENT PUBLIC CUSTOMER REFERENCES WORLDWIDE

City of Frankfurt

Sardegna Ricerche

Evangelical Supreme Ecclesiastical Council

Wembley Park

DIRECCTE

Ocala Fiber Network

City of Vila Franca de Xira

Secretary of Energy

Arroyomolinos City Council

Fukuoka City

Blickle and Scherer

City of Münster

Bangkok Metropolitan Administration

Tamaulipas State Government

The Australian Government

Ville de la Tronche

RISE

Athens Water Supply and Sewerage Company

Volusia County

Valencia Regional Government

The Scottish Government

City of Montrouge

Fortaleza City Hall

Urban Community Est-Ensemble

NETWORK PORTFOLIO

= Hardened

OmniVista® NMS & Security

OmniVista Network Advisor

Asset Tracking

ALE COMMUNICATIONS PORTFOLIO

Any Cloud

OXO Connect
OXO Connect Evolution
Call Management
all-in-one servers

4645 Voicemail, OT SBC,
OmniVista 8770 NMS, OTMS
Call Management Suite

OTEC
Call Management As a Service

Rainbow Hybrid
Hybrid UC, CPaaS,
SaaS connectors

Rainbow Edge
Private cloud hybrid
UC, CPaaS, SaaS connectors

Rainbow Hub
Full cloud PBX + Hybrid
UC, SaaS connectors

Rainbow Office
Full cloud UCaaS

Any Vertical SaaS

Any Business SaaS

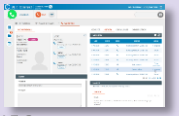
Connect Everything

4059EE Attendant Console
Greet customers personally
by an attendant

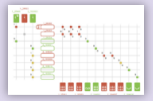
Visual Automated Attendant
Multitenant voice response
and call routing software

Dispatch Console
Dispatch high traffic of
internal and external calls

OmniPCX RECORD Suite
Call recording, replay
and mentoring software

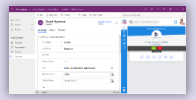


ALE Connect
Omnichannel interactions,
hybrid CCaaS



OmniTouch Contact Center SE
Patented call distribution
and call supervision software

Rainbow Click To Connect
Chat, call, video from within
any website



Rainbow CRM Connect
Call, share from within
your CRM app of choice

Industries / Verticals

Visual Notification Assistant
Broadcast voice and text messages to phones, Rainbow and more. Manage situations including geolocation of ALE phones

IoT Hub
Connect IoT to Rainbow and to any workflow

OmniPCX Open Gateway
Integrate ALE communications in your business app of choice

Rainbow Alert
Priority-based messaging with persistent audio alerts

Remote Visual Assistance
Digitizing and connecting field services for operational excellence

Rainbow Classroom
Recreate the physical classroom in cyberspace with real-time collaboration with or without an LMS

Digital Workplace

8158s WLAN

8168s WLAN

8212 DECT

8234 DECT

8244 DECT

8254 DECT

8262 DECT

8262Ex DECT

8135s

IP Desktop Softphone

ALE SoftPhone

8008G/8008

ALE-2

ALE-20/ALE-20h

ALE-30h

ALE-300

ALE-400

ALE-500

ALE-500 no handset

8088 nocam

8088

Rainbow Enterprise
Rainbow Business

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Enterprise
THANK YOU