Local communities: The move to digital transformation

How smart infrastructure can modernize public service

eBook

Alcatel·Lucent Enterprise

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Overview

Every local community wants to improve its appeal, have a dynamic town center as well as thriving suburbs. With smart city initiatives, communities can promote cultural and historical heritage, draw in visitors and encourage programs for citizens to contribute in a positive way.

The question is, how can local authorities respond to the needs of residents, organizations and businesses with high speed and accessible services? And, how can they ensure safety and security?

Today, many local communities are looking toward digital transformation for answers. Digital transformation provides an effective path forward for local communities as it is no longer the preserve of a few major cities. Innovating and creating new opportunities is open to all! With the possibilities of Internet of Things (IoT), and all its connected objects, as well as simple and effective online services, local communities are ready to invest in their future.

This white paper attempts to address these challenges, while taking the current needs of local territories and authorities into account.

The challenges

Local communities have many challenges to address in order to modernize their services. Whether they are related to the environment, people security, accessibility, regulations or economic development, the first step in overcoming these challenges, is to identify them. Following are just some of the areas that local communities are tackling.

Environmental

Energy transition, reducing carbon footprint associated with transportation, consumption habits, intelligent waste management and recycling.

Security

Ensuring protection and public law and order for citizens and visitors.

Political

Supporting the local elected officials to encourage eDemocracy by involving local influence groups and citizens to participate in community life decision-making.

Accessibility

Developing sustainable mobility for all, across neighborhoods, thanks to proximity and remote public services is key to reducing the digital gap.

Economic

Develop tourism and community appeal to attract and support the creation of new business.

Development challenges

- Develop community centers such as daycares, retirement homes as well as schools to offer innovative services to citizens.
- Modernize cultural, sports and leisure venues as well as tourist amenities and spaces to transform visitor experiences in libraries, museums, concert halls, theaters, tourist attractions and public spaces.
- Maintain and develop community roads.

Engaging the community

Administrators can work together with local citizens to develop projects that benefit the community.

Encouraging citizens and visitors to co-create the community life

Ongoing dialogue can greatly help the community to anticipate expectations, monitor perceptions about current initiatives, all while working together with its citizens. Given the proper tools, associations, organizations, business people, and trades people can all work together to improve community life.

A strong bond between the community and its citizens encourages the creation of new projects, the development or renewal of workplaces and leisure facilities to improve daily life. Local authority stakeholders can collaborate to improve the quality of life of citizens while addressing challenges in a sustainable manner.

Citizens at the heart of public service

If designed with citizen-centricity in mind, digital technologies, based on connected sensors and the analysis of massive connected objects data, can transform the way communities address concerns such as: citizen safety, auto-sharing, resources sharing, industrial innovation, heritage conservation and rural excellence.

❝ **Trust between a town and its citizens is built upon proximity and continuous awareness. But lack of compliance with data safety and confidentiality requirements, can easily compromise trust.** ❞

**SEBASTIEN CLARET,
ALCATEL-LUCENT ENTERPRISE**

Digital transformation modernizes communities

Being 'smart' doesn't necessarily mean following the large cities recipes. Digital transformation can create important opportunities to simplify procedures, exchange opinions, collaborate and support future development.

Responding to citizens' expectations

Digital technologies only have real impact on the community if they facilitate professional cooperation and concentrate on the citizens' needs and expectations.

As the desires of the citizen constantly evolve over time, this requires constant adaptation of resources and services granted to families, business ecosystems and the associative tissue making up the community.

Using data to modernize public services and support local business growth

Data is at the center of new applications and provides valuable information for the development of new services. If made available, it can transform traditional trades and greatly support small local businesses.

Digital applications and services are enabling communities to chart a course for future projects and optimize their operating costs thanks to a broadband, landline and cell phone infrastructure.

Technology focus: Digital technology for all

Can small and medium-sized cities accommodate technologies currently used by large cities?

The acceleration of technology development over the last number of years has enabled the creation of connected devices (IoT) suitable for small- and medium-sized towns. Developments in microprocessor technology have enabled an appreciable reduction in the cost of IoT connected objects.

The implementation of IoT technologies can help make towns safer, more flexible and resilient. But also more efficient and provide economic benefits.

Spurred on by digital technology, communities can progressively modernize and develop numerous new services and tools such as applications that flag urban problems, accelerate emergency situations treatment, or eDemocracy platforms to work together with citizens and develop projects.

Today, network infrastructures (such as IP and WiFi) enable easier connection, security and management. What's more, cloud-type technologies make highly functional applications accessible to even small organizations, without requiring a heavyweight IT infrastructure.

Besides the cloud and affordable IoT objects, other options for small communities to adopt new technologies at lesser costs are to partner with other communities for equivalent initiatives, which would allow to share resources, past experiences, know-how and infrastructures (i.e. data centers). Technology advances have made it easier and more affordable to make the move to digital transformation. It's time for local communities to act!!

Local communities in numbers*

- One out of every two local communities are already involved in a digital transformation processes
- Half of the average-sized towns believe they offer e-government services
- During transformation, 57% of the cities adopt an extended e-services platform
- In Europe, several municipalities and regions will be able to modernize their public services and benefit of EU financing as part of the EU eGovernment 2016-2020 action plan

*RECENT SURVEY CONDUCTED BY M2OCITY
*COUNCIL OF EUROPEAN MUNICIPALITIES AND REGIONS SURVEY (CEMR)

Creating synergies in local communities

With 129,472 cities and municipalities in Europe, there are many opportunities for cooperation and synergies between services. Territorial organization or regionalization, inter-municipal cooperation, metropolization, many initiativesreveal the need to marry local public action to the territories. Digital transformation can help Communities respond to mandatory requirements and foster the necessary cooperation. It fosters a new flexibility through shared IT networks, resources and skills, and enhanced collaboration.

Smart territories modernize their public services

They use mobile services and connected objects to improve services and develop new interactions with citizens

Digital transformation is designed to enhance the user experience, simplify procedures, and reduce costs. Digital services based on mobile applications and the development of connected objects can automate tasks and streamline communication between services. This frees up time for public service personnel to focus on the citizens.

Expert perspectives

" Only a consistent and evolutionary digital transformation can support local community requirements and coordinate the connected objects necessary to deliver innovative services. Local authorities should focus on delivering innovation at the least cost.

The goal is also to ensure interoperability with systems and equipment that are already in operation; to use open standards, operate internally or within the framework of an agglomeration. Return on investment of digital services is even faster and the associated implementation costs reduced (evolutions, licenses, training and supervision included). "

THEIRRY BONNIN
WW SENIOR VICE PRESIDENT
VERTICALS & STRATEGIC ALLIANCES
ALCATEL-LUCENT ENTERPRISE

Regulatory compliance (1)

An inclusive and respectful commitment to privacy.

Accessibility at the heart of services

Local authorities encourage access to the Internet via wireless networks that cover public spaces, convention centers, libraries, museums and administrative buildings.

Giving citizens access digital services via free Wi-Fi coverage is an important step, but it is only a first step. Promoting digital inclusion and making online public services accessible to all citizens, whatever their specific need would be the next step in effective public services.

General Data Protection Regulation (GDPR) and local communities

According to the GDPR, communities are required to integrate the principles of data protection from the design stage of any electronic public service solution (privacy by design) and by default (privacy by default). They must:

- Ensure continuous compliance on a permanent basis
- Adopt technical and organizational measures to ensure protection throughout the life cycle of the data
- Demonstrate, at all times, an optimal level of data protection*

SOURCE: CNIL

" What is at stake is not only the protection of our privacy, but also the protection of our democracies and the sustainability of our data-based economies. One of the main objectives of the general data protection regulation is to give citizens the power to act and to better control one of the most valuable resources of modern economy: their data. [...] In doing so, we have created the largest free and secure data flow space in the world. Today, Europe not only guarantees strict rules for the protection of privacy at home, but also leads the way globally. "

FRANS TIMMERMANS
VICE PRESIDENT OF THE EUROPEAN COMMISSION RESPONSIBLE FOR AMENDING THE LAW GOVERNING INTER-INSTITUTIONAL RELATIONS OF THE RULE OF LAW AND THE CHARTER OF FUNDAMENTAL RIGHTS.

SOURCE PHOTOS: YVES HERMAN/REUTERS

Regulatory compliance (2)

Reduce the digital gap safely

Europe-wide objectives for access to broadband

The European Union has set up new targets for access to broadband for all European households by 2025:
- All European households, rural or urban, should have access to a connection with a download speed of at least 100 Mbps that can be converted into a gigabit connection
- All urban areas (including grey and white areas), as well as all major roads and railways, should have uninterrupted coverage

The European Union makes grants available to Member States for the implementation of broadband; they can benefit from the European Regional Development Fund (ERDF).

Protect citizens and their private data with IoT

Similar to the protection provided by public video cameras, connected objects can contribute to the protection of vulnerable citizens; they can help reduce acts of vandalism and incivility. In consequence, connected objects can encourage local businesses and expand tourism.

However, smart objects can also create cyber security breaches. For this reason the CNIL recommends securing them, and ensuring compliance with the regulations regarding the shelf-life of digital recordings. Public service personnel and public service providers must be able to detect and counter cyber attacks while protecting private citizen data.

Technologies for innovating public services

Intelligent public services are based on a multitude of technologies
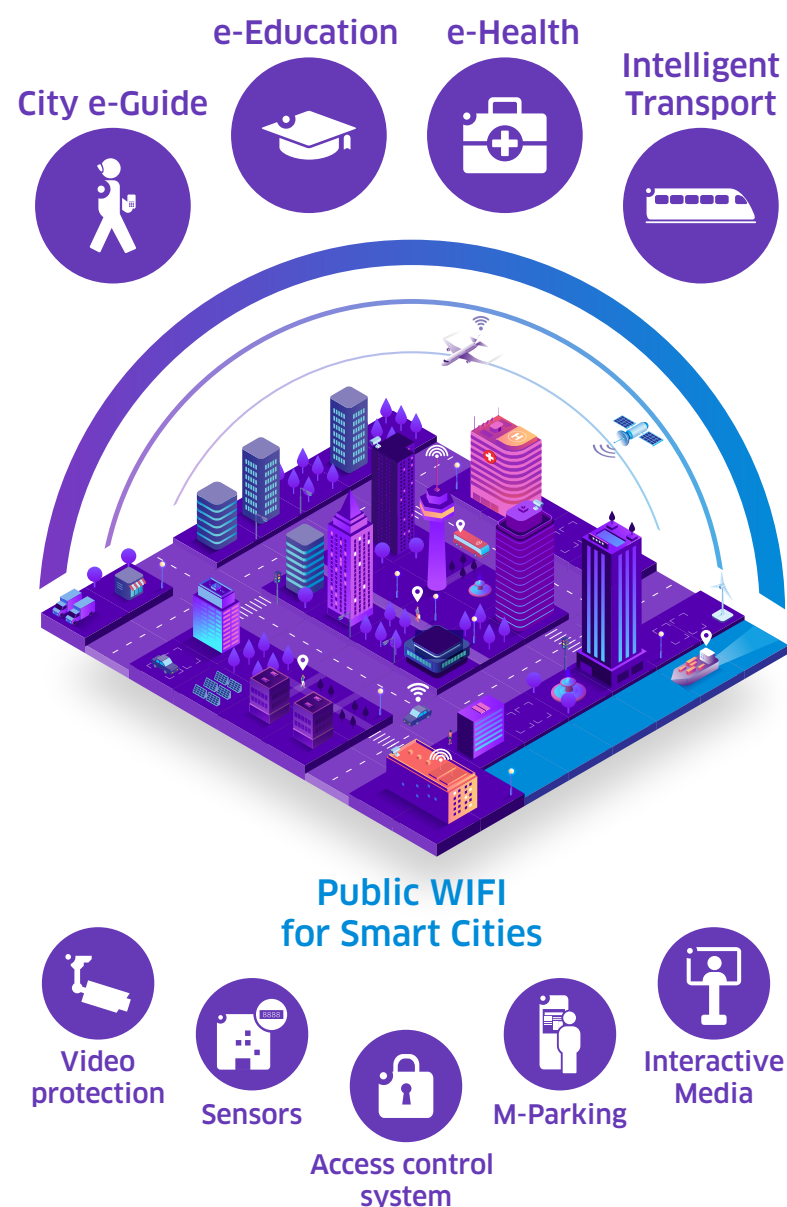
Smart public services examples:

- **Administrative services** such as commissariats, municipal police, town halls, schools, water or energy providers are offering more and more services online
- **Electronic citizen services** facilitating the access to recreation, events and tourist attractions
- **Actions related to sustainable development** such as integrated waste recycling, smart street lighting, smart public services like water and gas
- **Intelligent transport** and smart roads management to keep traffic flowing
- **Keeping people safe** using video protection devices around stations, shopping malls, conference centers, and stadiums

Innovative technologies supporting smart services:

- Optic fiber wired networks and wireless networks using standard protocols (Wi-Fi, ZigBee, LoRa)
- A wide variety of applications hosted in a datacenter or in the cloud including business applications and dedicated services
- An increasing number of connected objects such as video protection cameras, temperature, air, and vehicle metering sensors
- Digital signage and public display systems, smart car parking
- Innovative means of communication including SMS, chat, info-traffic and social networks

Citizen communications
Public services
Security and protection
Intelligent transport
Sustainable development
Tourism

IoT containers
Geolocation VPN / MPLS
DC Fabric Cloud Wi-Fi
IoT Gateways Zigbee 4G/LTE
Analytics BL Control Management
Security FTTx LoRa SCADA Communications
Internet of Things

The digital infrastructure facilitates the adoption of new technologies to support 'smart' initiatives

e-Education

e-Health

City e-Guide

Intelligent Transport

Public WIFI for Smart Cities

Video protection

Sensors

Access control system

M-Parking

Interactive Media

The rise in the number of wireless devices is multiplying mobile user expectations.

Public WiFi for all

For new interactive experiences, remote connections, orientation, guidance, training and information

Ultra-accessible proximity services

Mobile users expect proximity services to be not only of a good quality but also highly available. They want seamless connectivity, capable of saving them time, in all circumstances. Public employees on the move also need connectivity to access work tools, and collaborate with office teams to deliver faster services.

To support the above use cases and not only, community networks and communications solutions must be, safe and reliable. In order to optimize costs, Wi-Fi services can share the same infrastructure, which must be efficient and secure.

A multitude of use cases

Communities are deploying new, more interactive, wireless applications. Multimedia content, videos, polls, games and virtual tours are available to smartphone, tablet and laptop users throughout concert halls, sports halls, museums and schools community-wide.

Expert perspectives on:
Securing high-speed public connectivity for all

Reconciling public WiFi access and data security

> **Is it possible to reconcile high demand WiFi access for all and large demand with data security?**

NICOLAS DUEZ
WLAN BUSINESS MANAGER
ALCATEL-LUCENT ENTERPRISE

"It is possible to address this problem with the new generation of access points, compatible with the 802.11 AC Protocol and with Gigabit Ethernet or multi-Gigabit Ethernet connectivity. In terms of hardware, to resist harsh climate conditions, some external WiFi access points must be hardened in order to withstand the weather.

Wireless connectivity has become ubiquitous and with that comes the responsibility to respect rules whenever public access to the Internet is offered. Access control through a captive portal which respects data privacy regulations for the citizens and tourists, or unified access based on user profiles for public employees is required to provide optimal data protection.

A solution based on distributed intelligent control enables simplified deployment throughout the community. It optimizes connectivity and avoids performance failures when the number of users increases.

The Alcatel-Lucent OmniAccess® Stellar WLAN solution provides the public sector with an efficient, cost-effective and scalable approach to meeting the mobility needs of citizens and civil servants . It provides easy connectivity, seamless user experience with optimal service quality, better performance, reduced complexity and reduced total cost of ownership (TCO), and of course as a high-speed WiFi network.

In addition, this type of distributed architecture offers the flexibility to evolve any Wi-Fi infrastructure without constraints ."

Connectivity for all
Municipal WiFi

Connectivity has become essential for everyone, as well as in all public places including public transport, museums and public squares. The network guides visitors, and disseminates local services and information to residents.

Municipal WiFi is an indispensable element to reduce the digital divide and bring connectivity for all, especially in white areas.

WiFi connectivity: A European challenge

Thanks to the WiFi4EU program, the European Community is funding the development of municipal wireless networks. More than 2000 communities or agglomerations have enrolled, in order to obtain a grant of up to EUR 15,000 per project.
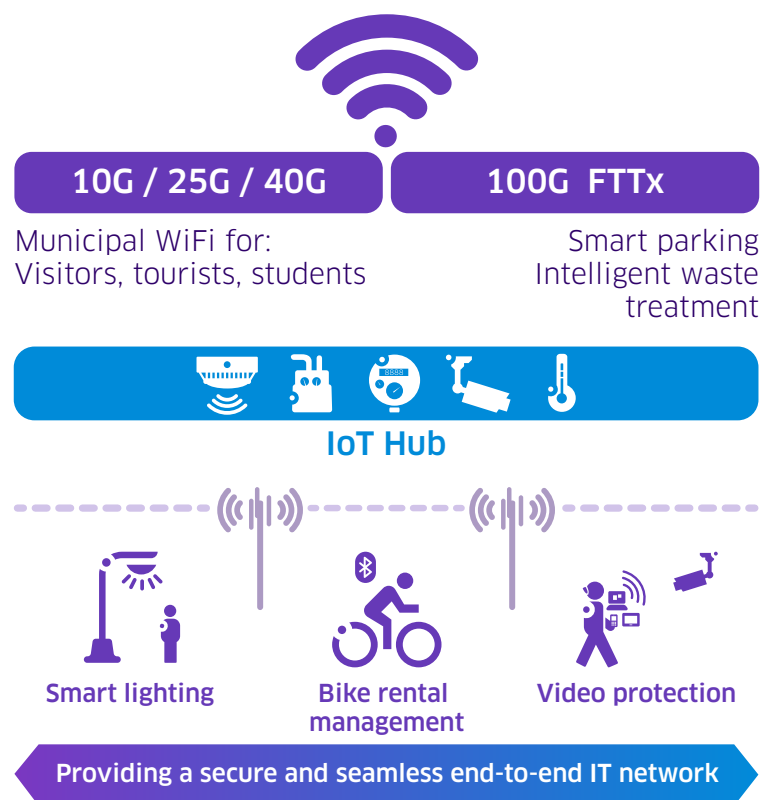
WiFi4EU

66 Connectivity must benefit everyone, regardless of their place of residence or level of salary. We are proposing to equip every village, town and city in Europe with free wireless Internet access around the main centers of public life by 2020. 99

JEAN-CLAUDE JUNCKER,
PRESIDENT OF THE EUROPEAN
COMMISSION

10G / 25G / 40G — 100G FTTx

Municipal WiFi for:
Visitors, tourists, students

Smart parking
Intelligent waste
treatment

IoT Hub

Smart lighting — Bike rental management — Video protection

Providing a secure and seamless end-to-end IT network

A multi-service and secure infrastructure provides the foundation for a smart community

A unified infrastructure supports many services for the community and its citizens.

A one and only network

To connect all public services and connected objects in just one network, the community must rely on a secure multi-service infrastructure. Schools, daycares, city halls, municipal police, annexes, libraries, and rescue stations need dedicated applications enabled by broadband connectivity.

This communications base can be extended to include local partners in the public sector, and it can include information gathered from digital urban display and the multitude of connected objects like CCTV cameras, sensors and detectors.

A unified, simplified administration

End-to-end homogeneity is ensured by a single administration platform. The same network system environment simplifies integration, deployment, and administration and it secures data exchanges.

- The traffic from connected objects is confined within dedicated virtual networks
- Whether people connect to the wireless or wired data system, the user experience remains the same
- The network administrator can make very fine adjustments to accessible resources, by user or object profile
- This enables the access to various services depending on each person's role and authorizations

Expert perspective on security, automation and visibility in a multi-service network

And what it means for the operational teams

How to ensure the security of multiple sub-networks and connected objects across the entire community territory?

"The authentication of a connected object by the network triggers an automatic partitioning of the associated services. This ensures the sealing of each type of traffic. Homogenous network access rules (such as application priority, QOS, restricted access,) can be propagated, from the data center, to the the WiFi and LAN access. The network, with these same access rules, can be extended outside the buildings using hardened equipment.

The end-to-end network solution provides secure connectivity across the entire community territory.

What about the IT teams workload on such a MAN* network? Can he be insured with limited resources?

Automation saves time. With the innovative ALE Service Defined Network (SDN) architecture, the network services that connect objects and the control application are created automatically. Network virtualization that provides partitioning and logical redundancy are handled automatically.

Manual administration tasks, such as configuring network access, are now automated. Automation makes the networks more responsive and resilient. Network maintenance is simplified and the infrastructure TCO is decreased.

Smaller operating teams can now manage the entire community network securely. Automating these tasks frees up the team to focus on other important issues such as user satisfaction and support.

Is it possible to control with precision all network elements and connected objects?

Network access rules take into account the the user profile, or the connected object type , the user device, the geographic position, the type of connection, and the application used. This offers precise visibility and the ability to carefully manage the infrastructure.

Full visibility of connected devices and applications in the network provides the raw data for a better network protection. Employee and citizen services are specific, and allow each organization to develop new and more relevant services to a variety of constituents."

LAURENT BOUCHOUCHA
VP DEVELOPMENT, COMMERCIAL NETWORKS
ALCATEL-LUCENT ENTERPRISE

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Cloud and managed services: lowering operational costs

Accelerated implementation and innovation

Accelerated implementation

With cloud and managed services, deploying new services is faster and operating services is simpler. This is particularly true for IoT, which must remain simple to implement.

Choosing cloud and managed services lets IT teams focus on value-added activities rather than spending time implementing infrastructure.

Constantly evolving networks

Networks delivered as a service are digital transformation ready, as adding new technologies is simplified at a decreased network TCO.

As well, artificial intelligence can simplify operations, by providing predictive maintenance.

Centralized network management provides complete control

The Alcatel-Lucent OmniVista® Cirrus Network Management as a Service application provides centralized monitoring and administration of infrastructure that is both simple and flexible. It can be installed on a local server or accessed through the cloud. The community can supervise the networks remotely and reduce operating costs through end-to-end shared data center management up to wireless networks shared by both public employees and citizens.
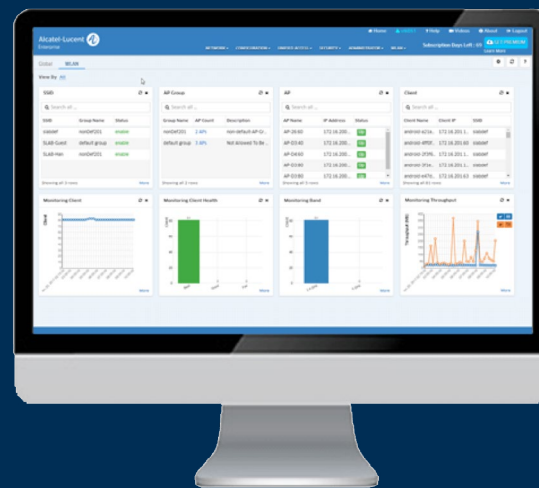
Secure technology: The key to success

A strategic approach that combines several security measures is required to secure today's IoT world.

The rise of connected objects

Connected objects generate new streams of data that networks must act upon. In addition to the volume of information being collected, each object and the integrity of each service must be authenticated. In this time of cyber attacks that target IoT devices, communities need to adapt their oversight practices, increase network automation as well as security levels.
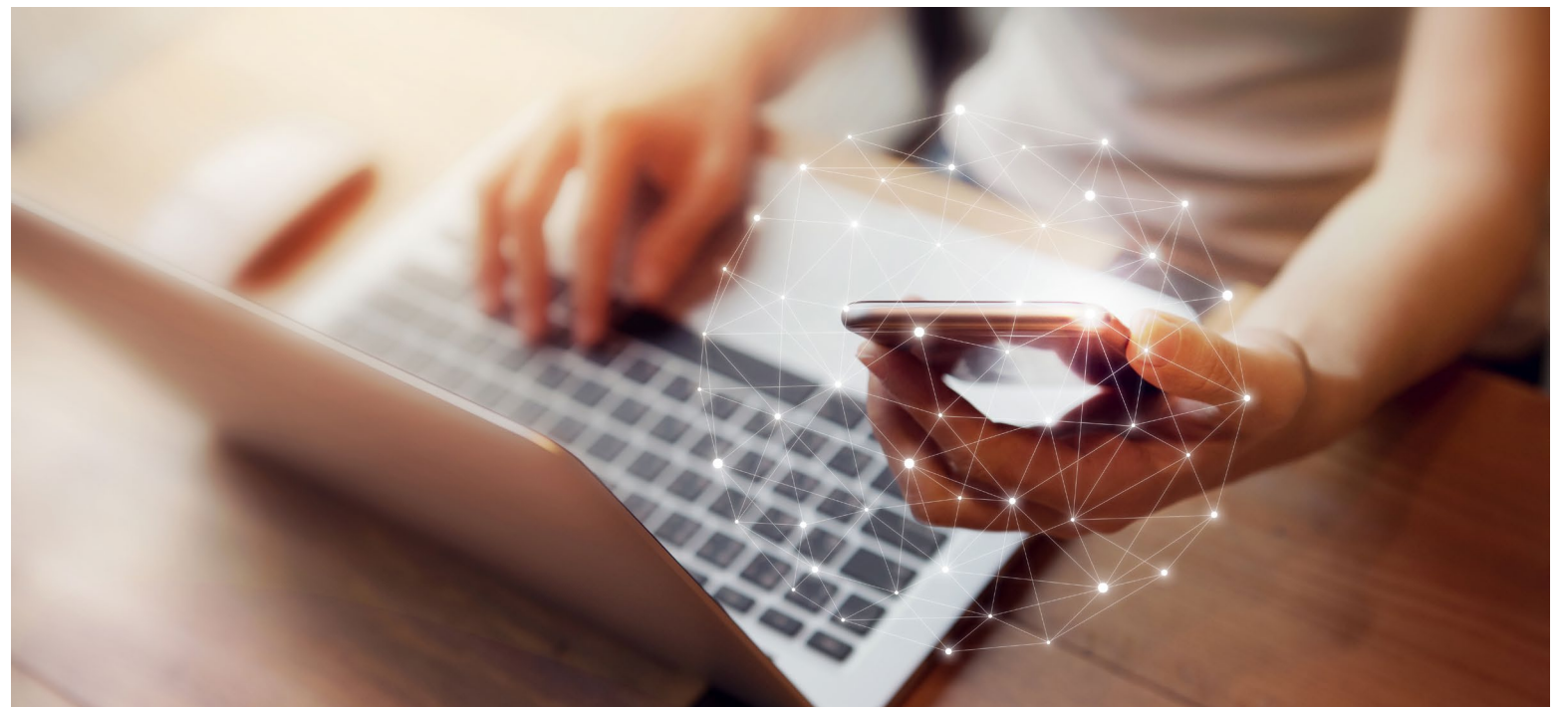
Connected objects: Security risks
Real-world examples

Paralyzing a transportation system

In 2017, the Swedish transport authority Trafikverket suffered a Distributed Denial of Service attack, (DDoS) that halted their automated train operation, e-mail and the IT network. Swedish railway users were without transportation and had no knowledge of the incident.

Taking data hostage

In May of 2017, WannaCry Ransomware held several governments networks hostage by encrypting files with malicious code. Files from the Ministry of Internal Affairs of the Russian Federation, the Ministry of Foreign Affairs of Romania and various administrations in India were affected with a code that required keys necessary to decipher them.

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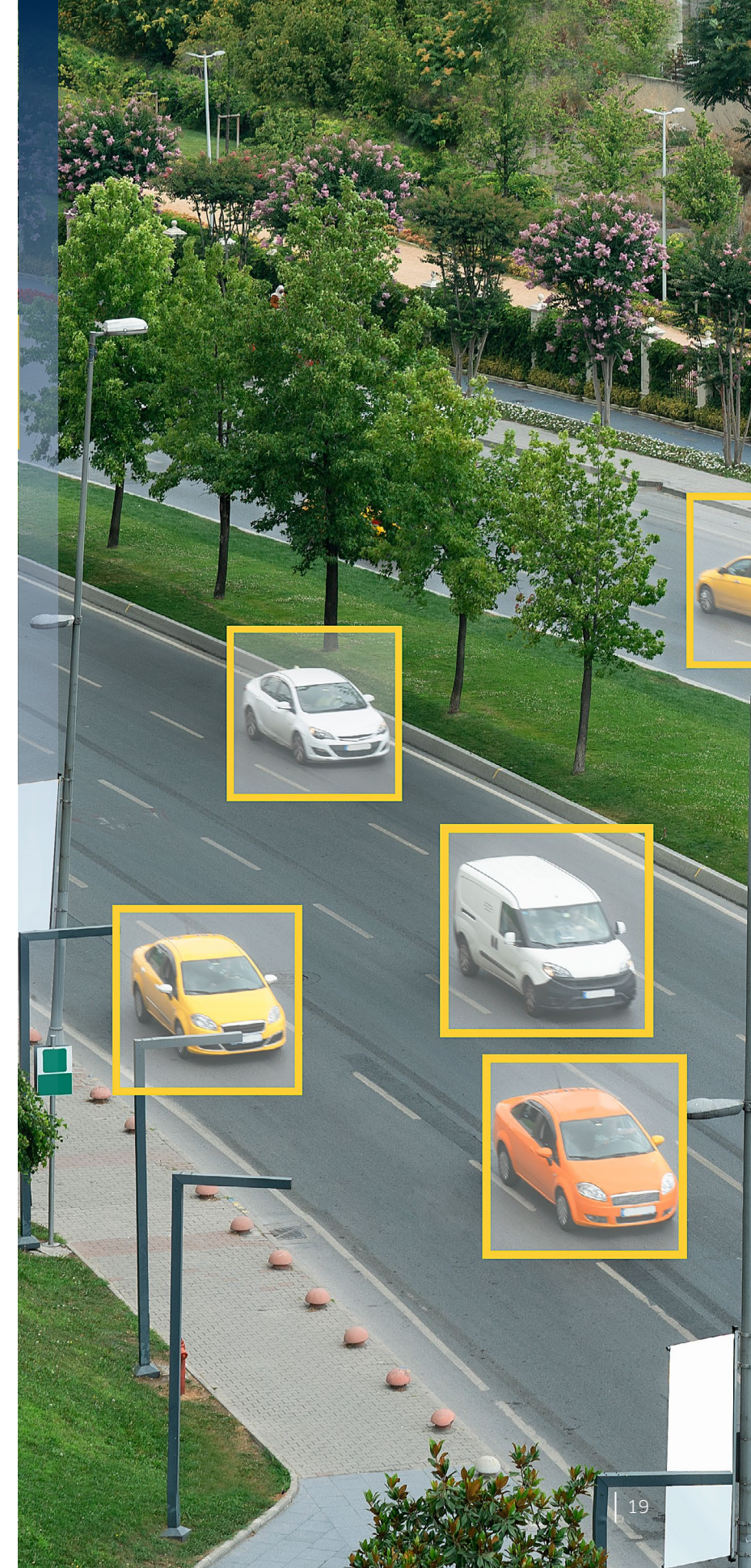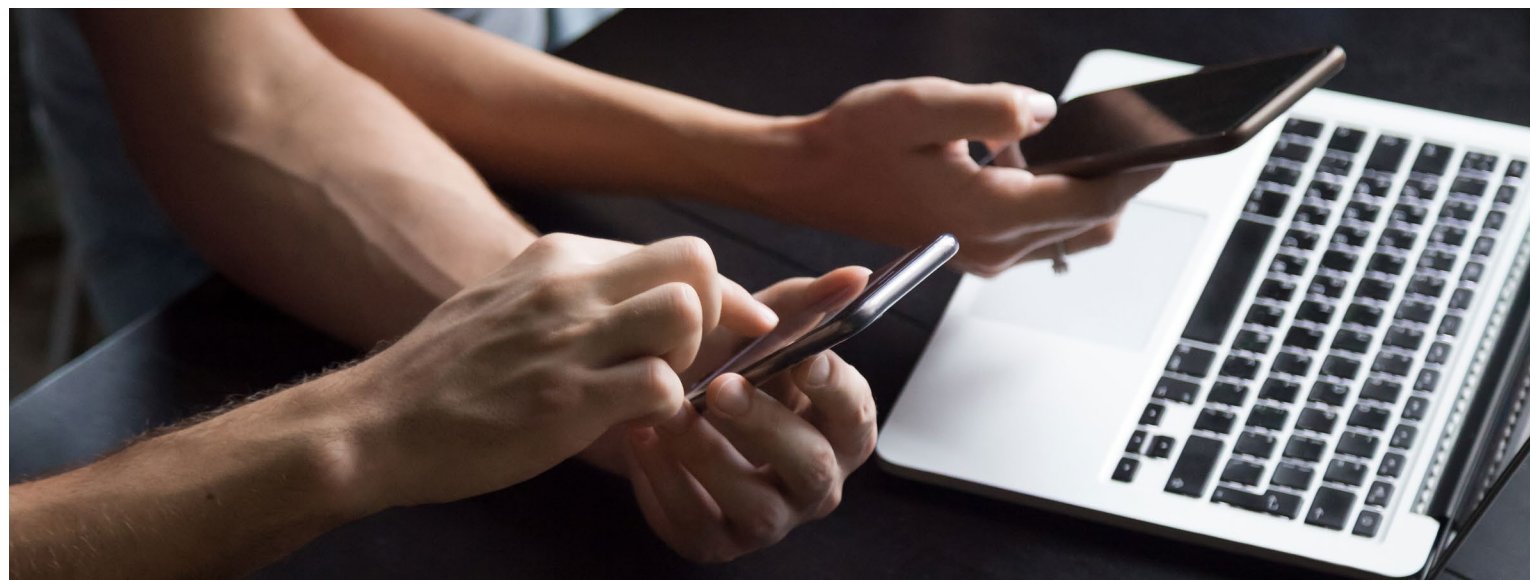
How IoT Containment works

IoT is a large topic. How can your teams approach it with confidence?

Objects connected to an organization's network can expose shared resources, or be vulnerable to private data being extracted as it transits the network.

Through virtual network segmentation, sensors and applications that control them are isolated in virtual containers that reduce the risk of cyber attacks, without requiring a dedicated network to be built and managed.

An IoT container strategy ensures the secure and efficient integration and support of sensors, probes and connected devices. An extended services layer is used to oversee the exchange and compliance of the infrastructure.

IoT Containment identifies connected objects by their network signature or footprint. Creating profiles from each signature helps define network access, quality of service, and permitted protocols. A virtual "container" for each type of device or service is created. The availability of connected objects is simplified, and security is strengthened.

The system administration understands the objects, "normal" behavior and an alarm can be triggered in the event of a suspicious action. For example, a connected object attempting to use an unauthorized application could be detected and blocked, thereby avoiding any risk of malicious activity.

Focus on network security:
A multilayer approach to secure IoT

66 **ALE network switches simplify the management of secure networks. They provide effective embedded firmware against denial of services and protect access to the core of the network. Connected objects services are also secured by the intelligent Fabric (iFab) architecture, built on the Shortest Path Bridging (SPB) standard; network core switches are invisible to hackers, reducing the risk of an IP attack.**

Risks associated with manual configuration, (often the main source of vulnerabilities) are reduced by the automation mechanisms. The creation of "containers" in the network separates data exchanges, for example, servers and cameras communicate on separate network segments. As a result, an attack on a connected object affects only a small portion of the network, which eliminates unplanned service interruptions. 99

**FABRICE LIEUVIN
SENIOR DIRECTOR SOLUTION ARCHITECTS
ALCATEL-LUCENT ENTERPRISE**

Additional methods for strengthening network security

The protection of connected objects relies on a number of standard authentication processes such as, IEEE 802.1 X with a list of pre-recorded MAC addresses, or after automatic detection and recognition. The object is automatically assigned to a profile where settings regulate access control, bandwidth consumed, VLAN, and the QoS level. Only authorized traffic is transmitted, and only on the correct virtual network. Connected objects and their traffic can be precisely defined to avoid unauthorized objects from communicating on the network.

A deep packet inspection takes place on layers 2 through 7. It is done at the speed of the media, which accurately reveals the traffic generated, by the object, and by the user. With this detailed information, the Administrator can make decisions concerning network management.

The Alcatel-Lucent operating system, identical for each ALE switch, is strengthened to ensure network integrity. It is verified and certified by LGS innovations.

Innovative geo mapping services for citizens

Leverage local community wireless infrastructure to develop accurate, personalized, and efficient services.

Improve accuracy

Interactive and digital signage allow local authorities to communicate information about traffic issues or provide self-service tools within large campuses or public buildings. Often, however, users prefer notifications sent directly to their smartphones.

Providing citizens with emergency interventions that take into account their specific location is essential, such as in case of a fall, or in the event of a public emergency. Similarly, the ability to transmit geo-localized information to smartphones can assist in the rapid evacuation of a public building, in case of a threat.

Taking public services into the future

Analysis of location data helps to identify the need for new services and new resources. It can also help with planning for new public places, new roads as well as new public infrastructure.

With connected objects that deliver traffic data, in real-time, transportation and infrastructure challenges can be anticipated. Delays or accidents can be circumvented and maintenance operations can intervene to improve system capacity and reduce operating expenses.

Geolocation transforms the management of public spaces, and how emergencies are handled

Indoor geolocation technology enriches municipal worker, citizen and visitor applications.

With precise positioning in buildings, (such as museums, railway stations, airports, and conference centers) geolocation technology can enable the development of integrated services into the applications used by the town and in its buildings.

1. Citizen enters public venue, such as a museum. Launches the smart city application. Their location is identified on the map.

2. Citizen shares their signup ID with other members in their party so they can keep track of their location

3. A specific GEO tag is assigned to infants or elderly members so GEO fencing alerts will alert the user when they exceed the allowable perimeter

4. Their map will also list the different exhibits. Select exhibit of interest and associated wait times are displayed as well as associated exhibit description.

5. After visiting the exhibit, citizen records their experience so it will be uploaded to the venue social media platform to share with other visitors.

6. Need to find a restroom, gift shop or restaurant? Click on POI (point of interest) to get directions.

7. In case of emergency, citizens/visitors will be alerted and the quickest path to an exit will be highlighted on their map.

8. Venue security administrators can use the tracker to locate and mobilize security staff quickly, and insure all visitors are evacuated.

City app: The city at my fingertips
Transforming citizen interactions and services

Towns offer mobile apps to residents, directly accessible on their phone or tablet. These applications can link services within the community to meet a multitude of requirements.

Use cases
- Relationships between the municipal entities and the citizens are improved by delivering public services and information on ongoing regular basis.
- The mobile app enables calls 24/7, with chat bots that have learned to recognize the main requests, through the use of cognitive AI.
- Municipal personnel can alert citizens with an SMS that they can pick up administrative documents without having to wait in a queue.

What is CPaaS and how can it help?
Communications platform as a Service (CPaaS) can transform the way cities communicate, develop new services, and interact with citizens. CPaaS can stimulate interactions by providing notifications about the status of requests, delivering customer surveys, through to the integration of bots. The fundamental role of CPaaS is to connect everything. Contextual information can be synchronized seamlessly during a call or Web interaction, allowing personnel, or bots, to offer a personalized service, based on the eServices that have been requested by the citizens, Web page visited, or previous queries.

City app and CPaaS: Use cases in service automation

CPaaS and IoT enable communications between connected objects and humans

Flood prevention

- Water level sensor automatically launches an alert and a general call to municipal services, municipal police and firefighters
- A video/telephone conference is triggered between all stakeholders
- An alert is launched to citizens stating the location of the disaster and suggesting an alternative route to bypass the area concerned
- Traffic lights are activated to isolate the public access in the zone
- Activation of video cameras around the zone enables real time display of traffic
- Traffic lights are activated to facilitate the access to the emergency and/or cleaning services
- The public services are alerted once the zone is clear again. Traffic lights are re-activated to encourage traffic flow

Intelligent household waste collection and treatment

- Mrs. Ford uses the town's mobile app, on her phone, at 10 p.m., to request the pickup of some large waste items
- She interacts with the chat bot which sends a notice to the required service team
- The request is sent to agent Tom., the next morning at 9.00 a.m. He informs Mrs. Ford that her request has been received and that she can put the items at an agreed upon location before 10.30 a.m. that same day

Reporting safety and damage concerns

- Citizens can interact with municipal authorities to report damage to public locations or safety issues
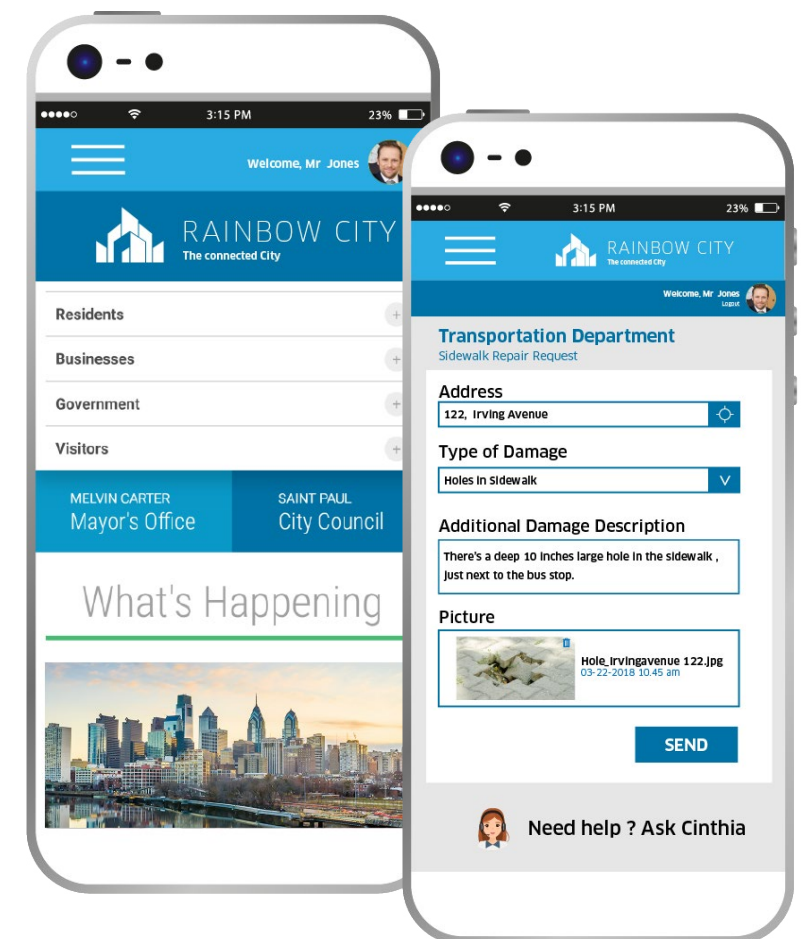
Encourage citizens to alert authorities in the event of public property and security concerns.

Expert perspectives on CPaaS

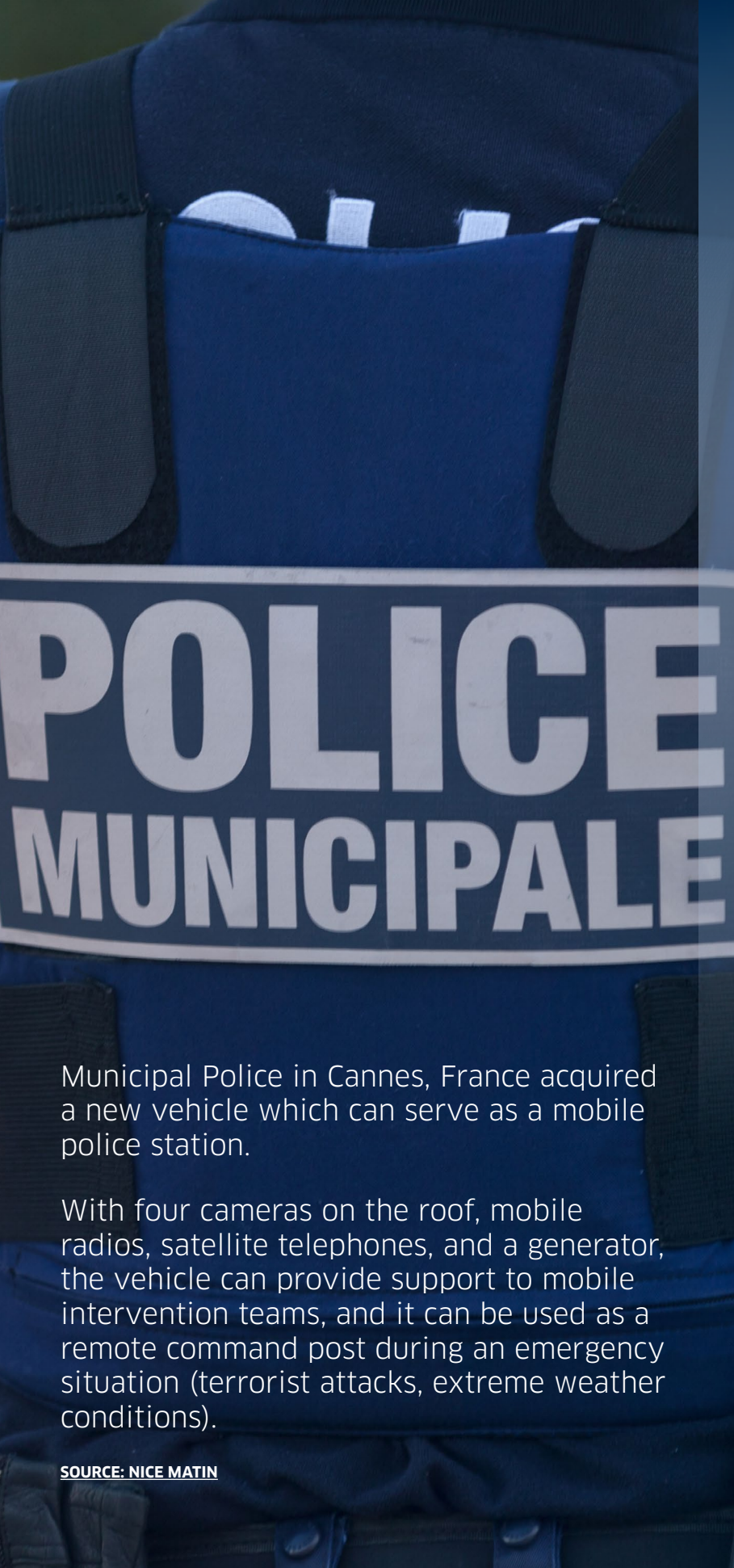**❝ How can CPaaS transform public services? ❞**

**JACQUES DER-OHANIAN
DIRECTOR SOLUTIONS, VERTICAL MARKETS,
COMMUNICATIONS DIVISION
ALCATEL-LUCENT ENTERPRISE**

"Alcatel-Lucent Rainbow CPaaS connects local community voices including citizens, elected officials, business owners and individuals. It provides a platform to create the social cohesion sometimes lacking in municipal settings, by facilitating private and public collaboration.

The option to connect bots, or automatic translators, will significantly improve citizen welcome, enable optimized security, and extend public services. The ability to connect objects, as well as the possibilities enabled by artificial intelligence can open up new opportunities.

Imagine being able to detect an increase in traffic due to weather conditions, or anticipate a rise in pollution levels. Now think about being able to advise those at risk using email, SMS, app notification, or a voice call, and having the ability to manage the traffic lights to ensure the safe movement of people through an affected area. All of this and more is possible with a CPaaS that connect people, objects and processes."

Reliable, safer transportation
Use cases

More efficient and less expensive transportation use sensors, digital cameras and communication systems to improve passenger safety and comfort while reducing costs and risks.

Dynamic road signage for intelligent transportation systems (ITS) Information provided by sensors and cameras, display in real-time, the state of the roads, toll prices, lane closures and projected travel times.

Video protection solutions use high-resolution CCTV cameras to secure airports and rail stations. They also provide the continuous monitoring of passport checkpoints, as well as the the movement of people and crowds.

Smart bus shelters facilitate communication with passengers, either to prevent a possible delay, for a service call, or an emergency. IP/CCTV cameras provide remote protection against aggressive actions. Motion detection LED lighting offers both power saving and security periods of darkness.

Connected public vehicles, such as public transport, municipal police, and firefighters, can increase public security.

Municipal Police in Cannes, France acquired a new vehicle which can serve as a mobile police station.

With four cameras on the roof, mobile radios, satellite telephones, and a generator, the vehicle can provide support to mobile intervention teams, and it can be used as a remote command post during an emergency situation (terrorist attacks, extreme weather conditions).

SOURCE: NICE MATIN

Your digital transformation partner

Alcatel-Lucent Enterprise provides solutions that connect everything, to deliver effective technologies for staff, citizens and organizations. Automated operations provided by ALE solutions can help reduce TCO. Communities need to accelerate the deployment of IoT infrastructures so that they can make value-added services available to their constituents.

The architectural flexibility of the ALE network solution ensures that local communities have the ability to evolve, while benefiting from a secure system that complies with GDPR and data privacy regulations.

- **Secure and resilient systems**: Network security provided at all levels (from core to access) to protect real-time communication systems and ensure confidentiality.
- **Flexibility**: deploy and evolve at your own pace. Quickly and easily upgrade existing network and communication capabilities, and optimize your budget with innovative, operating expense (OPEX)-based communication deployment options.
- **User experience**: easy-to-use solutions from deployment, to administration, to use. Focused on customer welcome, mobility, and collaboration without borders.
- **Simplified integration**: an open system makes it easy to integrate custom communications, or IoT-enabled processes, with user-oriented mobile, or Web applications.

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Glossary

- CNIL: Commission nationale de l'informatique et des libertés - https://www.cnil.fr
- CPaaS: Communications Platform as a Service (CPaaS) is a cloud platform that allows developers to add real-time communication capabilities (voice, video, instant messaging) to their business applications without having to create a dedicated infrastructure.
- ELAN: law passed in the Senate on 16 October 2018 and published in the Official Gazette of 24 November 2018, aiming to protect the most fragile, improve the living environment, social housing and revitalize the city centers.
- GRC (Citizen Relationship Management): artificial intelligence, methods and techniques for making machines capable of simulating intelligence.
- GDPR: General Data Protection Regulation
- IoT: Internet of things, family of objects connected to the Internet network, including detectors, sensors and actuators.
- IoT Hub: IoT HUB Framework is a software toolbox enabling development of global solutions for intelligent towns.
- FTTx: High-speed fiber optic network distribution technology up to the building or apartment, closest to the company or residents.
- LoRa: Low-speed radio communication protocol for low-power objects.
- MAN: Metropolitan Area NetworkMPLS: MultiProtocol Label Switching, mode of transport of data by switching of labels inserted at the input of the network and withdrawn at its output.
- SCADA: Supervisory Control And Data Acquisition, installation remote technical system maintenance.
- Wi-Fi: Wireless communication network between computers, peripherals, TVs and connected objects, powered by radio waves.
- Zigbee: protocol for personal or household equipment equipped with small low-power radio transmitters
- ERDF: European Regional Development Funds

Useful links

- IoT in the government sector
- Stellar Wi-Fi for public services
- CPaaS: connecting everything in public services
- Alcatel-Lucent Government Solutions
- Privacy by design: Building a business collaboration in accordance with RGPD regulations
- IoT Hub

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Alcatel-Lucent Enterprise partners with you on your digital transformation journey. We provide valuable advice, with reliable, flexible, intelligent and personalized services to build networks that accelerate your digital transformation.

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Intelligent communities leverage networks, connected objects and services that can improve efficiency, collect and disseminate information in real-time to municipal personnel, citizens and visitors.

Let's work together to build the infrastructure local communities need to deliver the collaboration and public services they deserve to create a connected community.

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Our mission is to connect everything to create the personalized technology experiences that customers need. On your premises, in the cloud or in a hybrid model, we provide effective network and communications solutions for your people, processes and customers.

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