

# Secure and efficient Industrial IoT deployment

Simply, securely and cost-effectively deploy Industrial Internet of Things (IIoTs) to modernise and digitalise your harsh environment networks.

More and more, Industrial Internet of Things (IIoTs) are being deployed to modernise and digitalise the parts of the network that are deployed outdoors. These deployments must be executed in a simple, secure and cost-effective manner.

In the past, organisations have focused primarily on the challenge of IIoT connectivity. Deployment, for the most part, has been an Operational team responsibility. However, as these devices increasingly become targets of malicious attacks, the need for cybersecurity is quickly becoming one of their most significant challenges. This challenge is also a key factor driving Information Technology (IT) and Operational Technology (OT) convergence, making the central and unified management of IT and OT networks imperative for mission-critical applications.

## Digital age networking in the industrial market

Alcatel-Lucent Digital Age Networking provides the foundation for a reliable autonomous network infrastructure which is at the core of every business. Alcatel-Lucent IoT capabilities enable business agility and transformation with secure onboarding, management and monitoring of any IoT device.

- 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
- Centralised role-based policies

- Unified management
- Alcatel-Lucent OmniVista® Network Advisor
- Analytics

- Scalable, efficient and reliable Wi-Fi
- Public and corporate



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# Secure IIoT deployment

Organisations need a simple, automated process for IoT onboarding. Large IoT systems can contain thousands of devices or sensors, and manually provisioning and managing all of these endpoints is complex and error prone. Automated onboarding enables the network infrastructure to dynamically recognise devices and assign them to the appropriate secured network with the right configuration parameters and security policies. This is also known as micro-segmentation, one of the 5-steps towards adopting a zero trust network architecture (ZTNA).

The network components carrying the IIoT traffic also need to be able to withstand harsh environmental conditions and have built-in security measures to prevent either equipment tampering or digital hacking.

Alcatel-Lucent delivers stringent security with:

- ZTNA
- Automated IIoT onboarding
- Policy and profiles attribution (UNP)
- Security of the Operating System (OS) code (switch firmware)
- Segmentation through the SPB protocol

## Accelerate digital transformation with IT-OT convergence

No matter where an enterprise is at today, there are common topics and technology considerations for Information Technology (IT) and Operations Technology (OT) teams looking to collaborate. Convergence starts with discussions focused on networking and cybersecurity requirements for the proposed IIoT solutions, including:

- The types of devices that will access the network. Environmental factors such as extreme heat, cold, vibration, winds, rain, snow, or ice should be considered.
- The security policies each device type should adhere to and the applications with which each device type can communicate
- How information from devices should merge with information from the network and corporate systems to deliver the right information to the right people at the right time

Alcatel-Lucent supports IT-OT convergence with:

- Secure, automated networks to simplify IIoT deployments
- Unified network management to increase efficiency and consistency
- Strong authentication and device recognition for IoTs and sensors
- Same secure switching OS for IT and OT environment creates simplicity and streamlined learning
- Support for industrial protocols such as PROFINET



# Simplify and scale easily

Shortest Path Bridging (SPB) delivers traffic on the shortest path available and enables network virtualisation in carrier grade networks and data centres.

Alcatel-Lucent's unique OmniFabric provides simplification by automating network node provisioning, client device attachment and dynamic service instantiation. With this simplicity and automation, our SPB solution offers high-end services providing a lower Total Cost of Ownership (TCO).

SPB simplifies the network with:

- Scalable, multi-path fabric
- Resiliency, fast convergence
- Multi-tenancy
- Dynamic service instantiation
- Edge-only service provisioning
- Micro-segmentation

Alcatel-Lucent network automation provides:

- Straightforward deployment
- Quick provisioning
- Centralised management groups devices with common policies
- Reduced operational costs
- Reduce complexity, eliminate IT involvement
- Comprehensive visibility in real-time

## Improve efficiency with complementary solutions

Alcatel-Lucent offers a range of complementary solutions to support your IIoT deployment requirements.

Alcatel Lucent OmniVista® Network Advisor is an AI-powered IT companion that eases network teams' daily operations, ensuring the a high quality of experience (QoE). The platform can anticipate and fix network problems. It expedites and simplifies network troubleshooting, improves network security, helps with configuration audit and highlight any sudden change in the network behaviours.

Rainbow™ by Alcatel-Lucent Enterprise Communications Platform as a Service (CPaaS) is an open flexible architecture that integrates real-time communications and collaboration into existing ecosystems.

# Use cases bring IIoT to life

## Smart city

Cities around the world are adopting a smart approach to development, from smart public buildings to urban lighting and waste management, as well as public safety. Each of these applications will require the deployment of outdoor IIoT equipment to securely deliver traffic back to the network. Cities will be looking for energy savings, operational efficiency and video surveillance to increase public safety and security, among others.

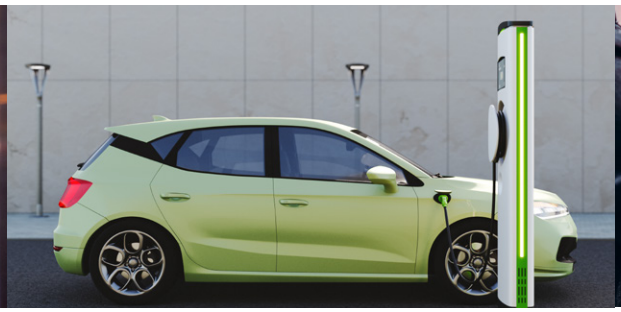
## Intelligent Transportation System (ITS)

As part of a new in-tunnel roadside, traffic management concept in Switzerland, the Alcatel-Lucent OmniSwitch® 6465 (OS6465) and Alcatel-Lucent OmniVista® 2500 Network Management System have been selected to provide powered connectivity for the emergency call system, traffic measurement sensors, traffic light control and CCTV. It also supports Alarm Relay Connectivity for door lock security (ensuring outdoor equipment is not tampered with) and operates in an extended temperature range. Additionally, 'Deny remote command and control' ensures on-site technicians are not put at risk when working on an issue.

## Smart mobility: The connected bus shelter

The connected bus shelter provides an improved level of service as passengers wait for their public transportation. Connected shelters are becoming more prominent as cities attempt to increase ridership and provide passengers with an array of services, while they wait for their bus, tram or shuttle. With the Alcatel-Lucent OmniSwitch® family of ruggedised switches and Alcatel-Lucent OmniAccess® Stellar outdoor access points bus shelters can be transformed into assets with integrated connectivity.







# Alcatel-Lucent IIoT in the real-world

## Liverpool City Region Combined Authority

The Combined Authority makes investments in the areas of transport, employment, culture, digital and housing. The project consisted of a mixed environment, tunnels, roads, ferry terminals, tolls, depot, offices and data centres. The goal was to modernize and improve the network operation. The solution included Alcatel-Lucent ruggedised switches, single management and OS for all equipment, with SPB from core to edge supporting IoT.

Read the full case study.

## Metz Eurometropolis

Metz Eurometropolis is a large city agglomeration with more than 300,000 inhabitants in the West of France. Their smart city solution includes video surveillance for tramways and metro, digital street signage and smart street lighting services. They required hardened equipment to connect a variety of outdoor applications. Metropole benefits from a single solution that addresses both Transportation and Smart City needs, simplified service creation and automation, and secure, easy IoT onboarding for quick deployment.

Read the full case study.

## Nevada Department of Transportation (NDOT)

NDOT is responsible for the planning, construction, operation and maintenance of the 5400 miles of highway and over 1000 bridges that make up Nevada's state highway system. To increase safety and offer drivers real-time information on road, traffic and weather conditions NDOT needed to harden their data network to withstand the harsh Nevada climate and support a growing number of devices. The Alcatel-Lucent OmniSwitch 6865 offered the benefits of a hardened switch while supporting Shortest Path Bridging (SPB), a key requirement for NDOT.

Read the full case study.



# Why Alcatel-Lucent?

Alcatel-Lucent high security functionality and features out-perform other Industrial players with security built into the design. Alcatel-Lucent ruggedised switches include simplified, automated IoT onboarding, reducing human error, OS security code, Zero Trust Network Access (ZTNA) with macro- and micro-segmentation, and analytics to assist with better, quicker decision-making.

Alcatel-Lucent stands out against the competition with:

- Comprehensive network and communications solutions portfolio
- Unified network management
- IT-OT convergence
- High Power over Ethernet for new sensors and IoTs
- Security by design
- Optimised/simplified Layer 2 and Layer 3 network designs reduce administration overhead with granular security and QoS
- Alcatel-Lucent Secure diversified code
- Secure software supply chain
- Perpetual PoE for uninterrupted power to connected PDs even when the PSE switch is rebooting
- Long term support (up to 10 years)
- Certifications include:
  - JITC Certification
  - NATO Certification
  - NDcPP Certification
  - Common Criteria EAL2 Certification
  - FIPS 140-2 Certification
  - NDcPP Certification
  - PROFINET Certification

**Learn more about Alcatel-Lucent solutions for secure and efficient IIoT deployment.**

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