



Connected Defense

Secure, resilient networks, communications
and collaboration



Connected Defense

Defense in the 21st century has significantly evolved. High tech now plays a major role, with advanced technologies like virtual reality training and hypersonic weapons common.

While this leading-edge know-how brings extraordinary benefits it has also widened the threat landscape. The enemy has gone digital, and now cyberattacks, information warfare and media manipulation are much more prevalent.

This increasingly complex and interconnected world makes information and communications technologies essential. Modern approaches to warfare such as Multi-Domain Operations (MDO) – which require the orchestration of military activities across all domains and environments – have as their foundation greater collaboration and

information sharing between maritime, land, air, space and cyberspace. Support services crucial to military operations must be connected for increased efficiency, effectiveness and security.

[Digital Age Networking](#) and [Digital Age Communications](#) from Alcatel-Lucent Enterprise provide resilient, secure connectivity, communications and collaboration. Available for deployment on premises, in the cloud, or as a hybrid, these solutions are focused on three vital domains:

- Smart Base
- Field Operations
- Crisis Management



Smart Base

Smart Base infrastructure is critical to maintaining a state of readiness on the site. Operational efficiency ensures preparedness for military operations, campus-wide safety and quality of life for personnel and their families at all times.

Challenges

Like a small city, a military base includes a headquarters and offices, campuses and schools, hospitals, warehouses and more. All facilities must be hyper-aware and provide modern smart building and smart campus capabilities, including:

- Seamless connectivity and superior communications capabilities
- Operational efficiency enabling digital workplaces with mobility, including appropriate devices, automated workflow and enhanced command and control
- A highly secure network addressing risk, resilience and security to protect restricted areas, access, fencing and surveillance
- Advanced secure and resilient communications and networks
- Sustainable, human-centric bases, highly secured through a commitment to Environment, Social and Governance (ESG) goals

ALE Solutions

Alcatel-Lucent Enterprise is at-the-ready, with solutions that address the demands of a next generation smart base.

[Alcatel-Lucent OmniPCX® Enterprise](#) provides advanced features for mission-critical communications including:

- High availability – always-on
- Call preservation
- Encryption
- [Welcome centers, contact centers and automated attendant](#)
- [Alcatel-Lucent OmniVista® 8770 Network Management System](#)
- Adapted fixed or mobile sets, including ATEX DECT and man-down feature

[Rainbow™ by Alcatel-Lucent Enterprise](#) ensures secure communications for every soldier's peace of mind with:

- Highly secure, private communications
- One-to-one or group conversation
- Chat, call, video, voice message
- Anywhere, any-device

Rainbow can be deployed as Edge Services:

- Private cloud, hardware and software in data centre
- Data storage in data centre
- Full data sovereignty

[Rainbow Classroom](#) provides academic learning environments with:

- Secure e-learning
- Breakout rooms
- Managed permissions
- Peer training
- Video recording

[Rainbow Webinar](#) lets instructors deliver online presentations with:

- Large capacity virtual events with up to 500 participants and 10 presenters
- External speakers and participants
- Customized logos and banners
- Ability to rehearse before going live



Field Operations

When operating in the field, robust, highly secure and resilient communications and connectivity that can withstand harsh conditions are a must. Alcatel-Lucent Enterprise provides ruggedized switches that tolerate high temperatures and humidity variations and are resistant to shock. Highly available, encrypted communications ensure that mission-critical communications are always accessible.

Challenges

Field operations can vary greatly, but a secure and robust network is essential for every mission. Whether units are deployed to isolated military camps or onboard military vehicles and ships, proven indoor/outdoor, ruggedised switches tested against harsh conditions and reliable network connectivity can be lifesaving.

- Network and communications equipment must withstand extreme temperatures, dust, smoke and humidity in the most challenging situations
- Mission-critical communications must support mass notifications, priority and pre-emption to ensure important calls always go through and user authentication to control incoming and outgoing calls through pre-defined user groups

ALE Solutions

Alcatel-Lucent Enterprise [Digital Age Networking](#) and [Digital Age Communications](#) solutions for field operations provide [Autonomous Networks](#) that automate mission-critical network operations and improve the user experience. Additionally, [Internet of Things \(IoT\) Management](#) lets operations quickly scale up with secure onboarding, management and device tracking. On the communications side ALE solutions deliver multimedia, multi-device communications and collaboration.

[Alcatel-Lucent OmniSwitch®](#) ruggedized switches feature:

- Secured Diversified Code
- Zero trust network security
- Redundancy and multipath protocols support for high fault tolerance and throughput
 - Operate from -40°C to +74°C
 - Withstand extreme conditions, shocks, vibrations, and EMI/EMC variations
 - Fanless design for resilience and maximum uptime
 - Advanced PoE capabilities (Fast PoE/Perpetual PoE)
 - Auto-fabric technology to simplify installation and service set-up
 - Alarm relays to connect external alarm systems for notification and to provide tamper-proof security

[OmniAccess Stellar WLAN](#) delivers the high-performance connectivity and mobility defense organizations require, including:

- Smart Analytics: Wi-Fi QoE, behaviour and location analytics
- Secure IoT onboarding: Automated IoT classification, connectivity, and secure containment technology
- Performance: Distributed intelligent architecture for high availability, scalability, and low latency

Comprehensive and powerful network management:

- available [on premises](#) or in the [cloud](#)
- full set of components for infrastructure and device configuration, monitoring, backup, scheduling, security, alerts, quarantine, troubleshooting, downtime resolution, and overall management

[Alcatel-Lucent OmniPCX® Enterprise](#) is highly resilient and provides advanced features for mission-critical communications, including:

- Call importance prioritization and closed user groups
- Ivory tower incoming and outgoing call priority
- Encryption
- [Alcatel-Lucent Visual Notification Assistant](#) (VNA) to notify and gather everyone, broadcast alerts and conference



Crisis Management

Incident response – between departments and agencies – requires timely and contextual communications that go beyond classic voice options. Using IoT devices for notifications or integrating video into applications can make a real difference to reaching the right people at the right time.

Challenges

Keeping people and assets safe is essential in any crisis. Multi-modal notifications can provide alerts through broadcast and communications systems, at all required levels, enabling response coordination. Providing contextual and location information ensures that the right people get where they need to be at the right time.

- Instant coordination between army, police, civil defence, medical personnel and local authorities
- Units connected on- and off-site
- Mobile technology so that vehicles such as ambulances can connect to the crisis management team as well as the hospital or other healthcare operations

ALE Solutions

Alcatel-Lucent Enterprise provides a rich ecosystem of communications and collaboration solutions including secure onboarding of IoT devices, Artificial Intelligence (AI) and WebRTC.

[Alcatel-Lucent Visual Notification Assistant](#) (VNA) manages triggers from IoT, emergency numbers or emergency call points to notify everyone across several channels using broadcast and conferencing

[Alcatel-Lucent Enterprise Dispatch Console](#) enables queue management, call prioritizing and routing, and conference set-up

[Rainbow](#) provides:

- Contextual information
- Communications with adaptive routing
- Audit trail
- Control center contact

Alcatel-Lucent OmniPCX RECORD Suite can be used to record a call or environment noise within the OCC

Alcatel-Lucent OmniPCX Open Gateway provides APIs to integrate communications into the Command and Control systems

[Rainbow Room](#) offers the most effective go-to solution for crisis briefing with:

- One-click video meetings
- User-friendly interface
- Superior audio and video quality
- Optimized time management



Security and Data Sovereignty

Alcatel-Lucent Enterprise implements best practices required for end-to-end cybersecurity, including:

- National Institute of Science and Technology (NIST) guidelines when performing risk assessments on new features and cybersecurity features, such as native encryption
- Common Criteria EAL2+ certification
- ISO 27001 standards on all ALE cloud-based solutions
- ANSI CSPN
- Zero Trust Network Architecture (ZTNA), granular network segmentation, and highly specific security policies to reduce the risk of unauthorized access

- Highly specialized, security-specific tests, such as penetration tests
- Key industry certifications, such as HDS, HIPAA, and the Family Educational Rights and Privacy Act (FERPA)

As recognized cybersecurity experts, ALE contributes to European Union proposals for cybersecurity directives. We also leverage our cybersecurity expertise to help customers choose and implement the right mix of secure, unified networking communications and collaboration solutions to meet their needs, and we train their employees in cybersecurity best practises.

ALE certifications



To find out more, visit [Alcatel-Lucent Enterprise Defense solutions](#).