



## Network and Communications Equipment

Defense – Energy

Telecom Operators

Transport and Smart-city





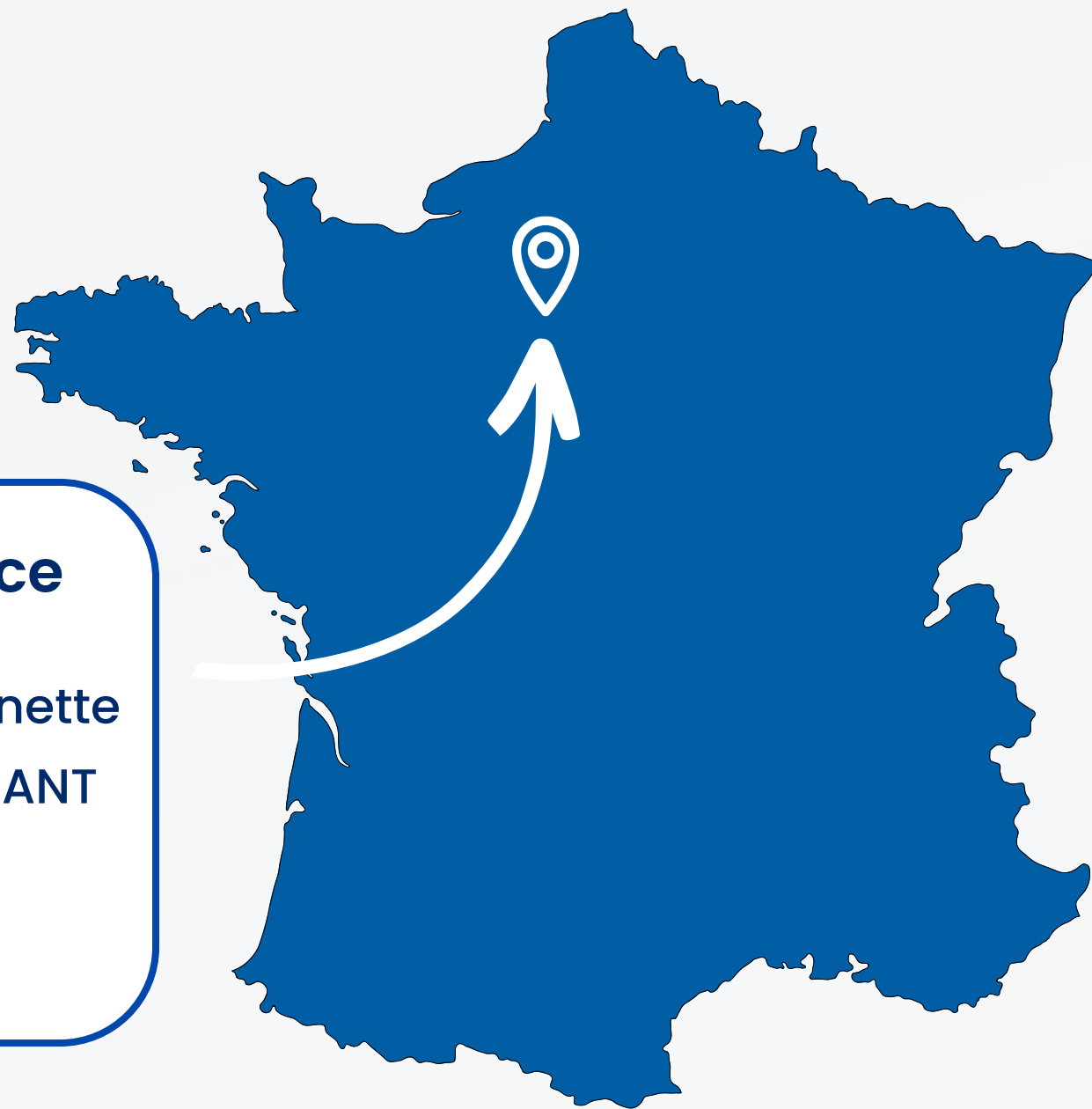
# ABOUT CXR

**CXR is a global provider of Network and Communications solutions!**

CXR is a French company founded in 1974. With extensive expertise in mission-critical networks. Hundreds of thousands of CXR devices are in service in the most critical environments.



# CXR IS...



## Head Office

17, Rue de L'Ornette  
28410 ABONDANT  
FRANCE

**FRENCH Company**



**+ 1500 completed projects**



**50 years' experience**



**MADE IN  
FRANCE**

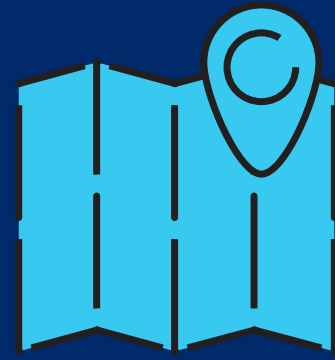
**FRENCH PRODUCTION**



**ISO 9001 – 14001 / Approach**





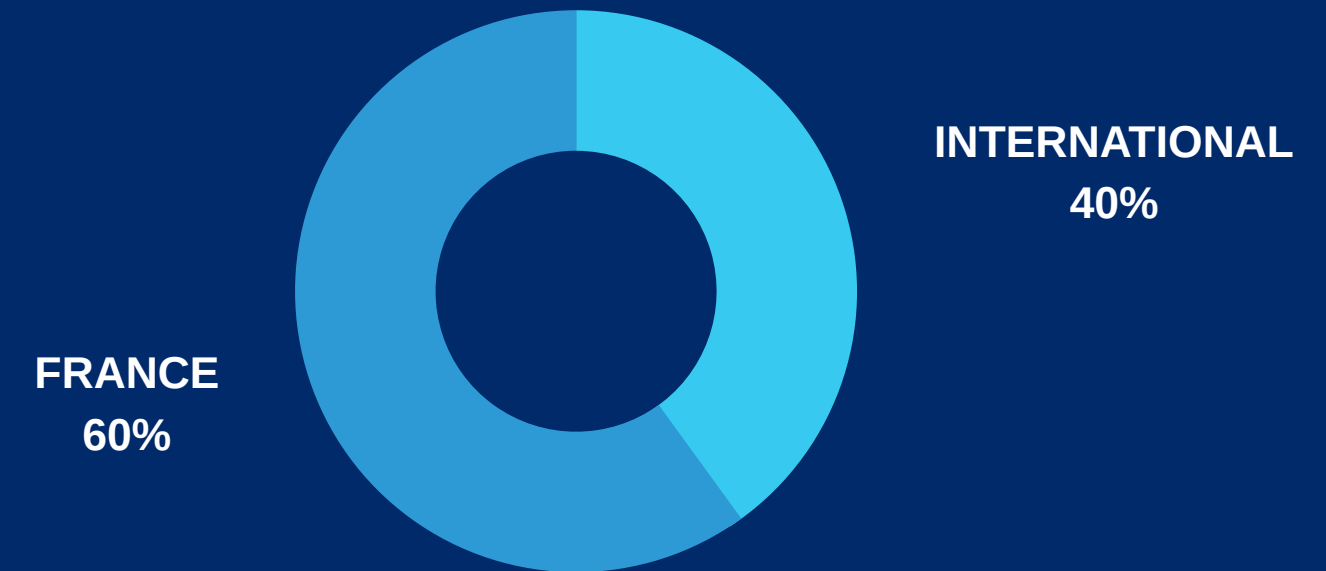


PRESENT IN  
**96**  
COUNTRIES



**CXR INTERNATIONAL PRESENT**

## BREAKDOWN OF OUR SALES



## COMMERCIAL OFFICES



# ABOUT CXR

## OUR VALUES

Sustainable and responsible development.  
Respect for our customers, partners and  
Employees.

Reference for excellence in our market.

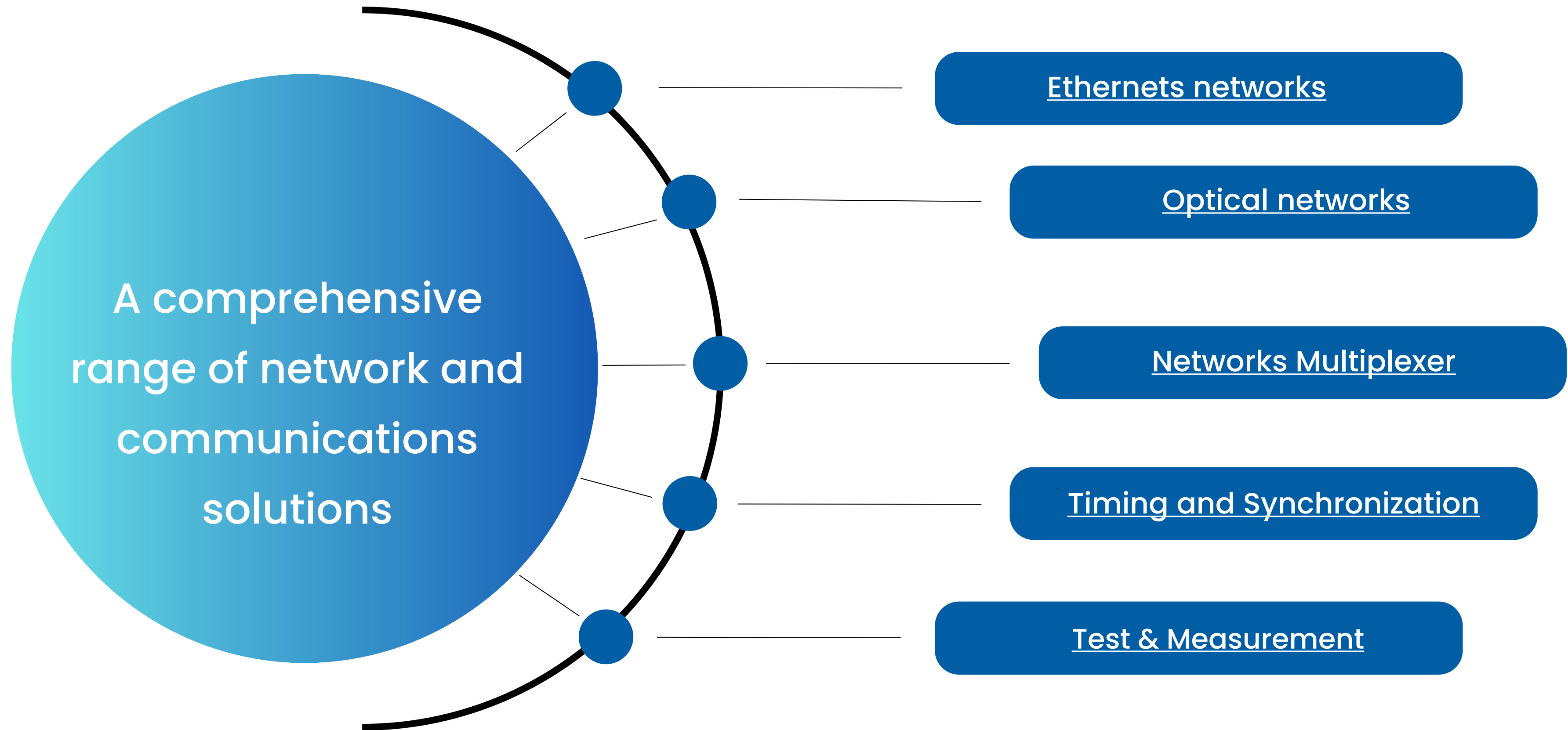
Full commitment.



Technical Support  
Installation & Expertise  
Service & Maintenance

## OUR SERVICES

Consulting  
R&D  
Training  
Logistics and PAQ





# CXR's strategic markets



Energies



Transport  
&  
Smart-City



Defense



Operators

# A COMPREHENSIVE RANGE OF NETWORK SOLUTIONS

## Ethernet Switches

Access and aggregation

GE/10GE/40GE

CE2.0

Hardened IEC-61850-3 & EN-50121-4

PTP 1588, HSR/PRP, MACsec





# A COMPREHENSIVE RANGE OF NETWORK SOLUTIONS

## Extension Ethernet

SHDSL.Bis, EFM & xDSL  
ADSL, VDSL, DSLAM



# A COMPREHENSIVE RANGE OF NETWORK SOLUTIONS

## Copper

SHDSL.Bis, EFM & xDSL  
ADSL, VDSL, DSLAM



# A COMPREHENSIVE RANGE OF NETWORK SOLUTIONS

## Optical fiber

Fiber, DWDM, MuxPonder, GPON, FTTH, FTTO  
Media converters





# A COMPREHENSIVE RANGE OF NETWORK SOLUTIONS

## MULTIPLEXER

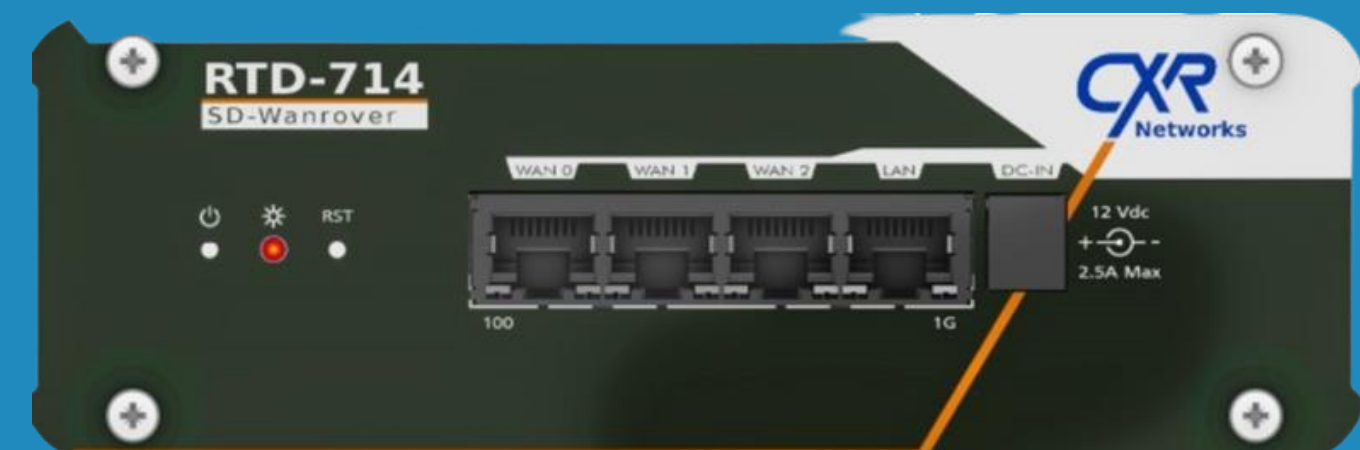
MPLS-TP 1G/10G/40G/100Gbps  
SDH STM1/4/16  
PDH multiservice  
TDM over IP



# A COMPREHENSIVE RANGE OF NETWORK SOLUTIONS

## SDWAN / Cybersecurity

SDWAN Client and Server  
Cybersecurity with Secure  
BootMulti-WAN link aggregator  
Load balancing  
Encryptors



# A COMPREHENSIVE RANGE OF NETWORK SOLUTIONS

## Synchronization

PTP, NTP, IRIG-B, NMEA, 1PPS server  
19" Format, Compact Rail DIN  
PRC, SSU, OCXO, Rubidium





# A COMPREHENSIVE RANGE OF NETWORK SOLUTIONS

## 4G/LTE

4G / WIFI / GPS router

Cybersecurity - digital safe / secure-boot

Dual SIM



# CYBER SECURITY SOLUTIONS for UTILITIES & SCADA NETWORKS

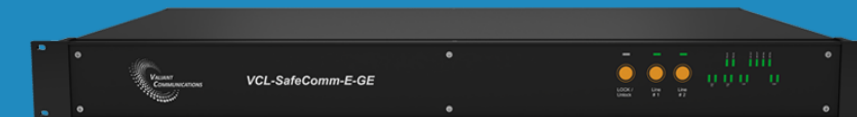
VCL-2143- Detect Cyber attacks in real-time



Isolate digital assets in a cyber attack



VCL-2778, Automatic Ethernet Failover Switch



VCL-2243: RTU Firewall - IEC - 104, MODBUS TCP/IP



# A COMPREHENSIVE RANGE OF NETWORK SOLUTIONS

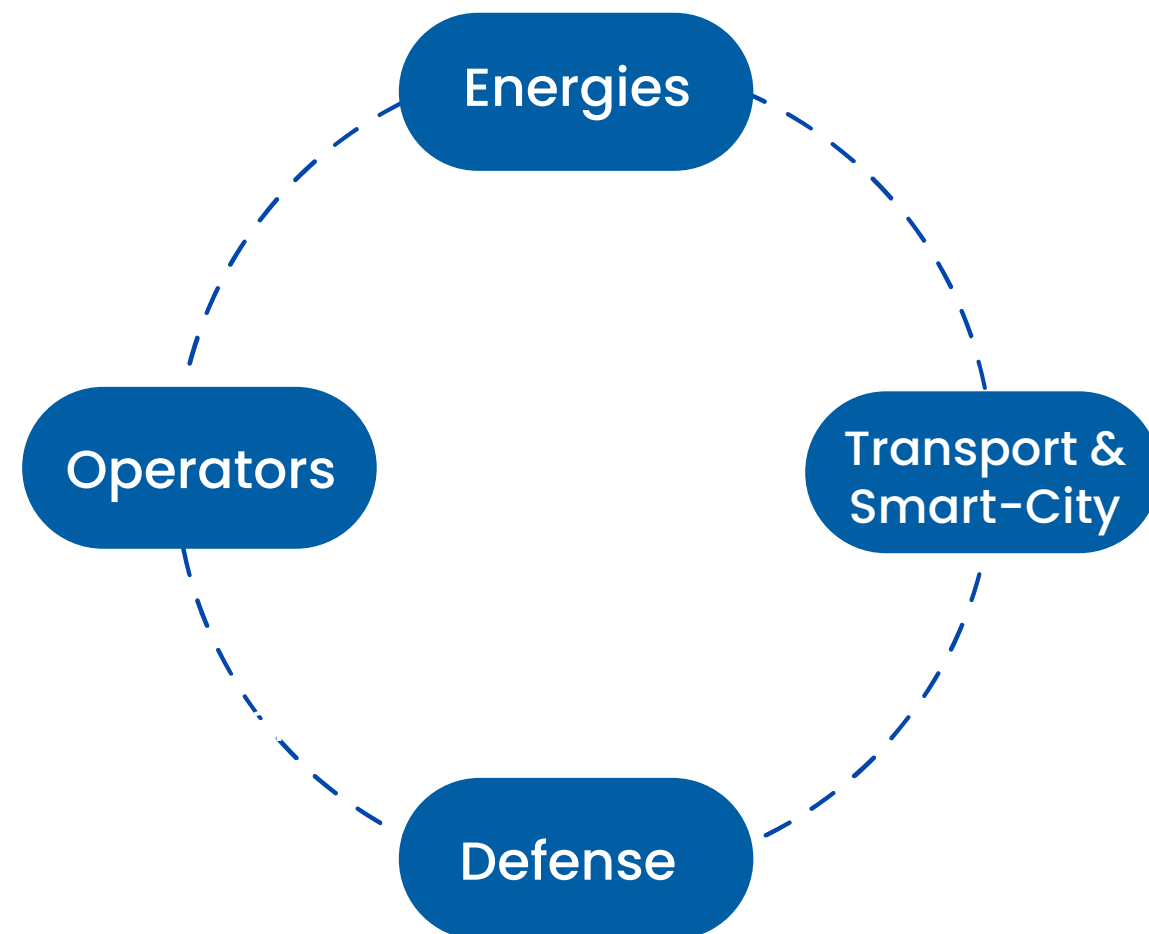
## Test et Measurement

Fiber optic testing  
Copper, tone and probe testing  
Protocol analyzers  
LAN / WAN / Wi-Fi  
Markers and locators





# A partner for critical network operators



### ENERGIES

CXR has developed several product ranges for power generation, transmission and distribution networks. Our products are designed and qualified for installation in electrical substations. Some products are designed for environmental communications.

**CXR Networks**

### TRANSPORT & SMART-CITY

CXR solutions are designed and qualified to meet the most demanding requirements of urban, rail, air and sea transport networks. Our products provide all the reliability and performance needed to guarantee the safety and control of these networks.

**CXR Networks**

### DEFENSE

CXR supports national defense and emergency services in the development and maintenance of their communications networks.

**CXR Networks**

### OPERATORS

CXR is a supplier of access network equipment to telecommunications operators. These solutions enable operators to provide services with assured availability under optimum economic conditions. CXR offers a comprehensive range of 10GE Carrier Ethernet technologies.

**CXR Networks**

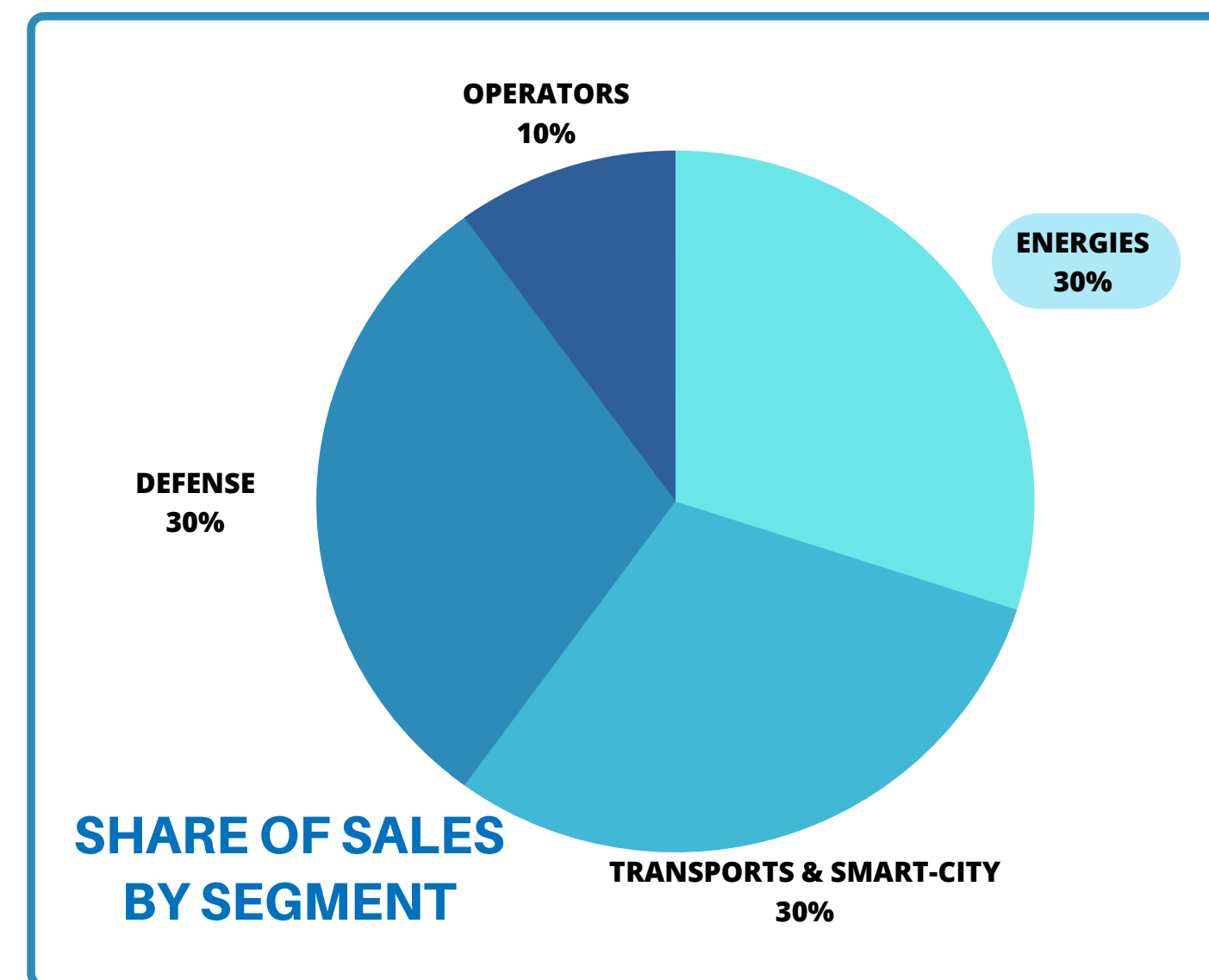




CXR has developed several product ranges for power generation, transmission and distribution networks. Our products are designed and qualified for installation in electrical substations. Some products are designed for environmental communications.

## CXR's strategy is :

Several product ranges for power generation and distribution networks. Our products are designed and qualified for installation in electrical substations to IEC-61850 standards. Some products are designed for communications in 20 kV environments..



# Success Stories

## CXR wins ENEDIS DR PARIS tender for GSHDSL router with cyber-secured copperway-hv3

### ENEDIS - CONNECTION OF HT/BT SUBSTATIONS

#### Context

ENEDIS is modernizing its electricity distribution network to support the development of Smart-Gribs and new energies. HT/BT transformer substations are becoming more intelligent, and require a more efficient IP-based communications network. Cybersecurity issues are at the forefront, to guarantee supply to users and critical emergency and national defense services.

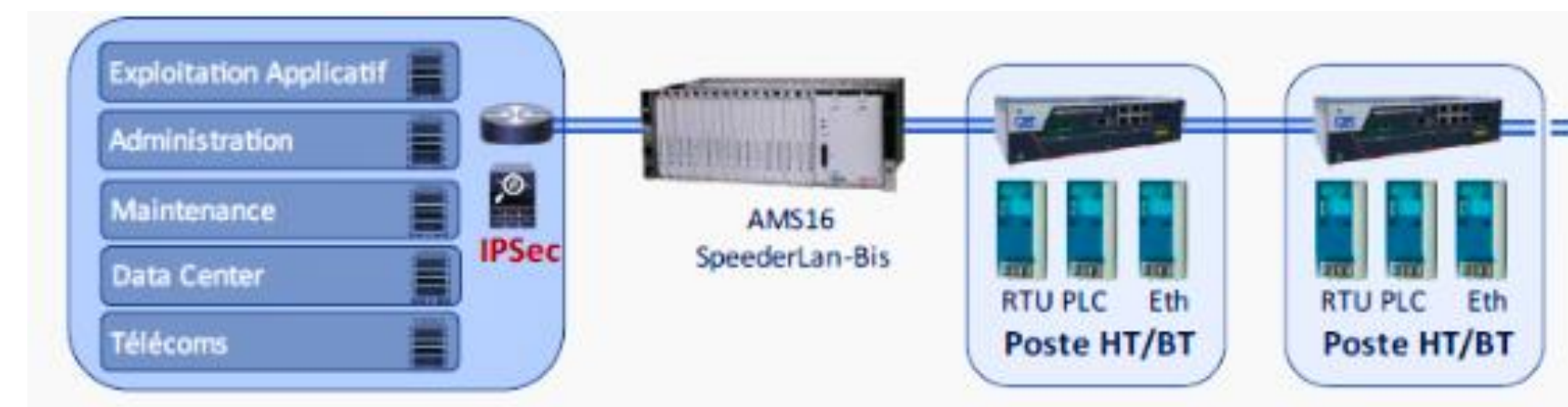
#### The CXR solution

The CopperWay-Bis-HV3 is a new-generation router dedicated to HT/BT substations and IEC-61850 environments up to 20 KV. It connects HT/BT substations via existing pilot cables, or gigabit Ethernet fiber optics. It provides six Ethernet interfaces to connect the various components of the substation.



#### Benefits

Enedis chose CopperWay-Bis-HV3 for its optimal integration into HT/BT substations, thanks to its multiple communication interfaces and galvanic isolation from 20KV pilot cables. Cybersecurity hardware and software features enable Enedis to implement very strict security rules to meet these critical challenges.







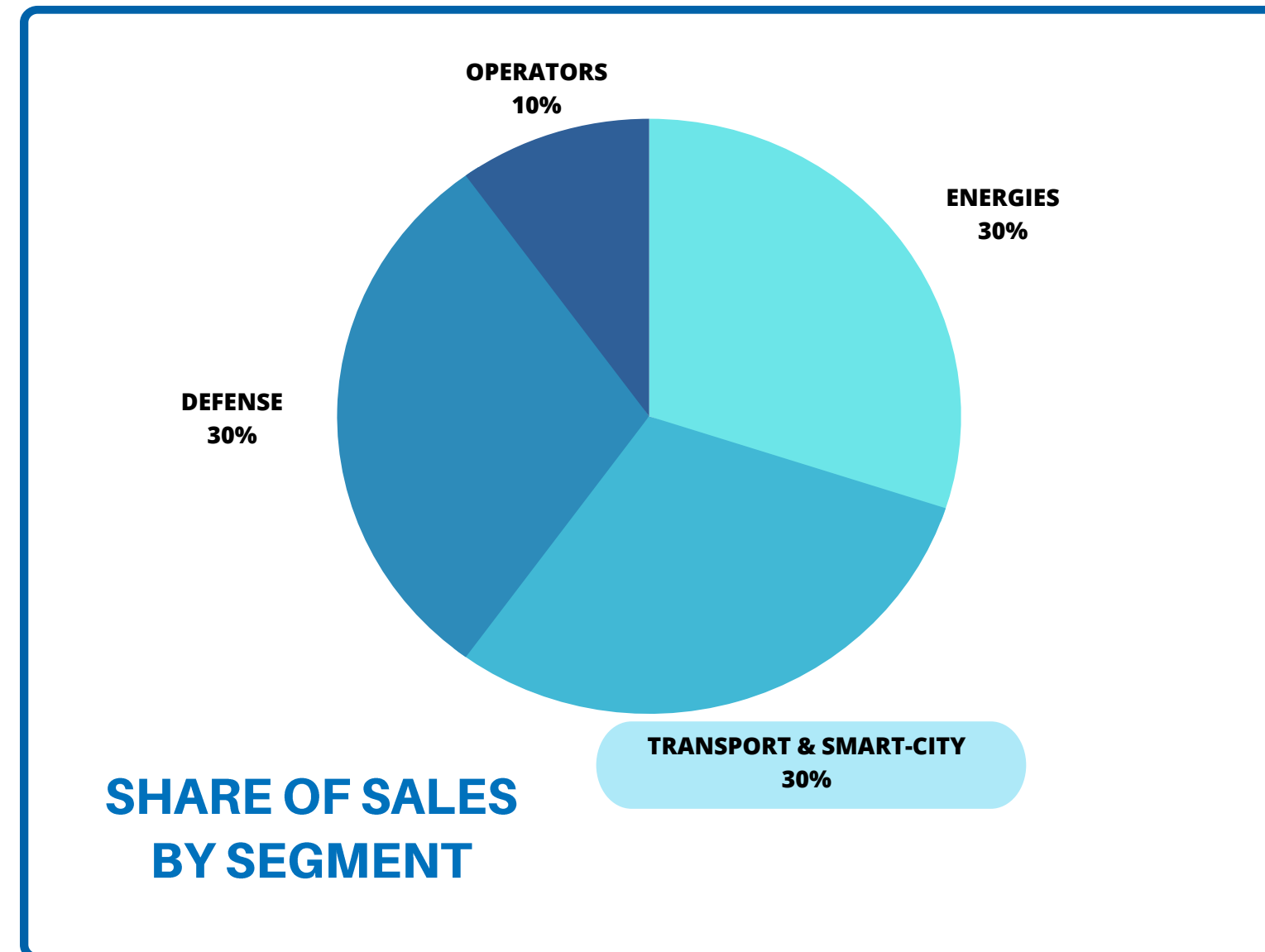
## CXR's strategy is :

Leverage existing networks to facilitate their migration and upgrading to new technologies.



### TRANSPORT & SMART-CITY

CXR solutions are designed and qualified to meet the most demanding requirements of urban, rail, air and sea transport networks. Our products provide all the reliability and performance needed to guarantee the safety and control of these networks.



# TRANSPORT & SMART-CITY

## Road

- Freeways
- Nationales
- DIR
- Ring roads



## Urban

- Smart-City
- SLT
- BUS



## Rail

- Train
- Subway
- Tramway



## Airport

- Infrastructure
- Radio
- Communication
- Power plant management



## Grand port

- Maritime
- Yachting
- Merchandise





# Success Stories

Transport &  
Smart-City

## RUGGED ETHERNET SWITCH FOR RAILWAY TELECOMMUNICATIONS





# Success Stories

Transport &  
Smart-City

## TRAFFIC LIGHT MANAGEMENT



## Several French metropolises



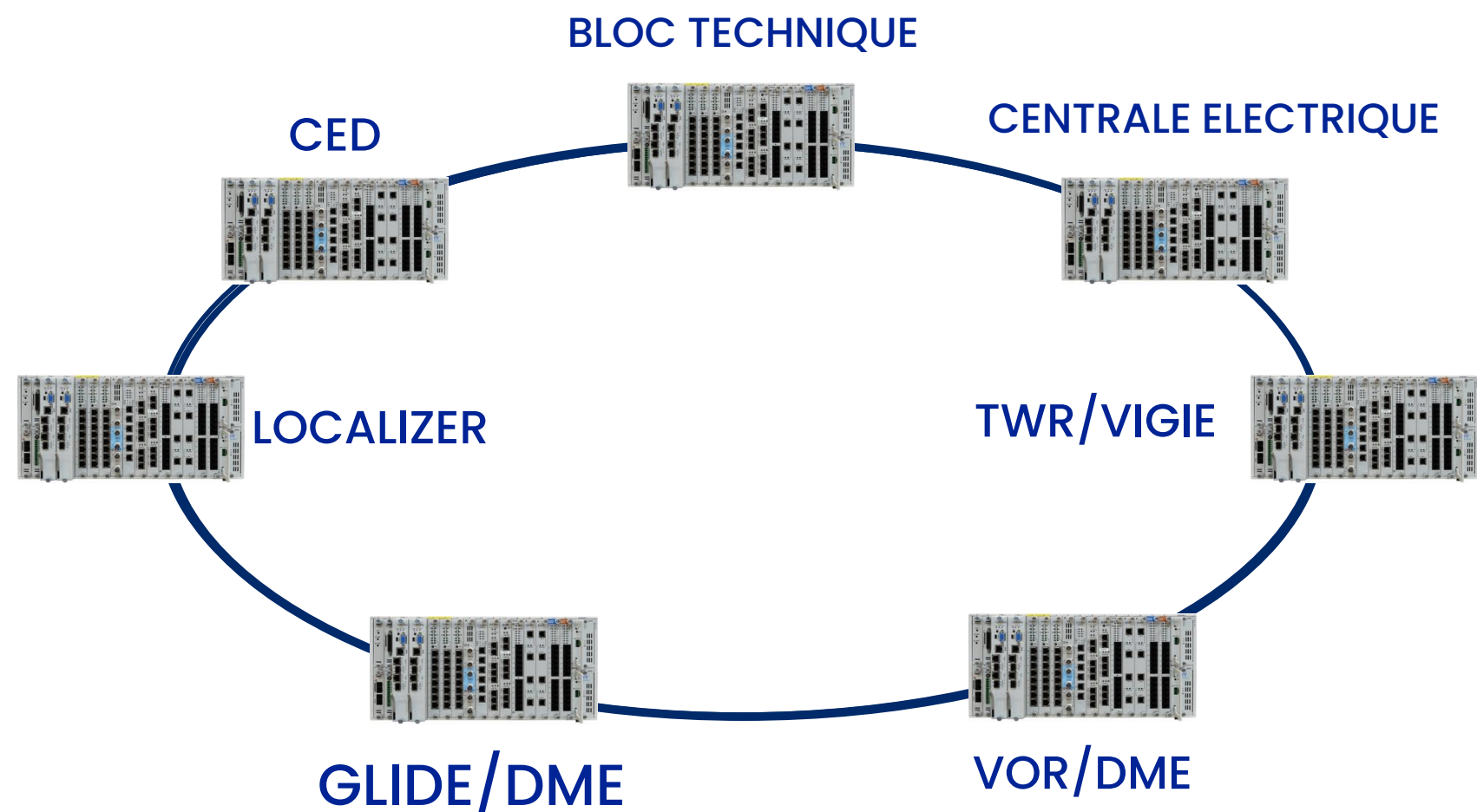
**NANTES - MARSEILLE - GRENOBLE - PARIS  
NÎMES - BORDEAUX - NICE - STRASBOURG  
LIMOGES - LILLE - ORLÉANS - DIJON  
RENNES - CAEN - CLERMONT-FERRAND**



# Success Stories

Transport &  
Smart-City

## INFRASTRUCTURE ATM AIRPORTS



CXR has equipped more than 150 airports worldwide





# Success Stories

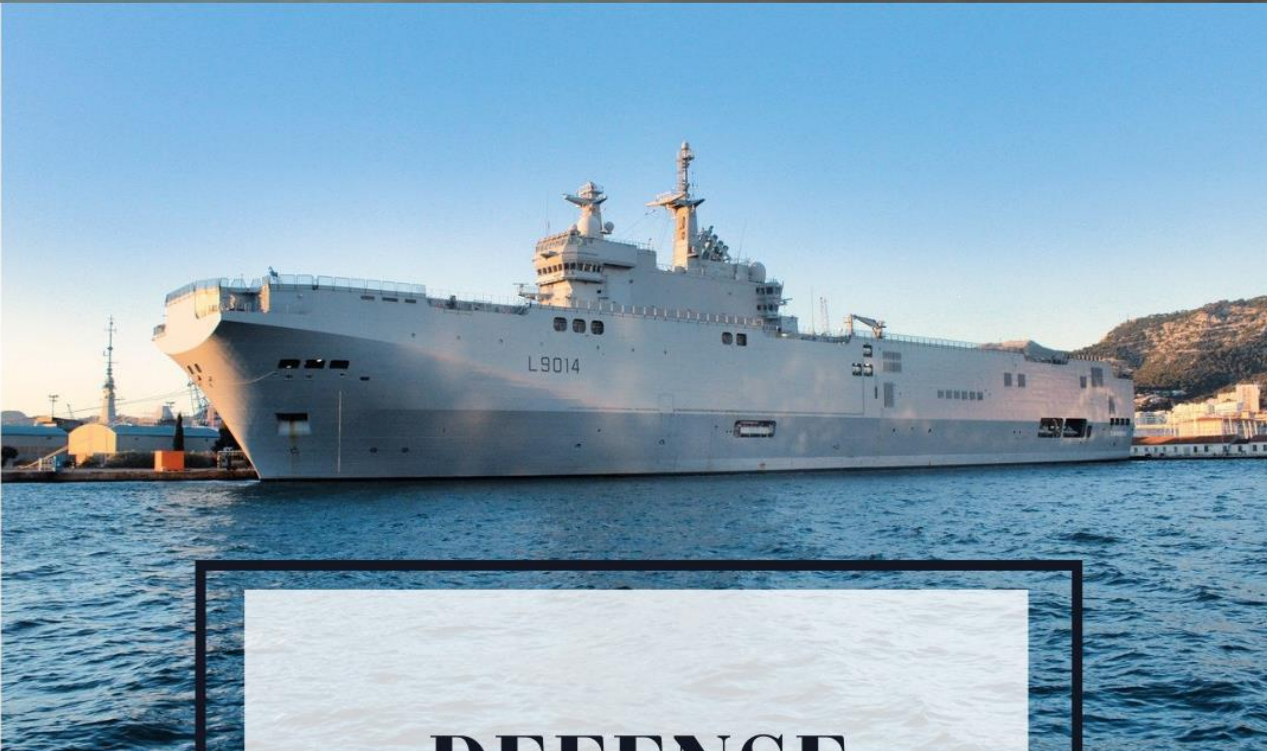
LARGE SEAPORT

**DunkERQUE**  
PORT  
Grand Port Maritime de Dunkerque

Transport &  
Smart-City







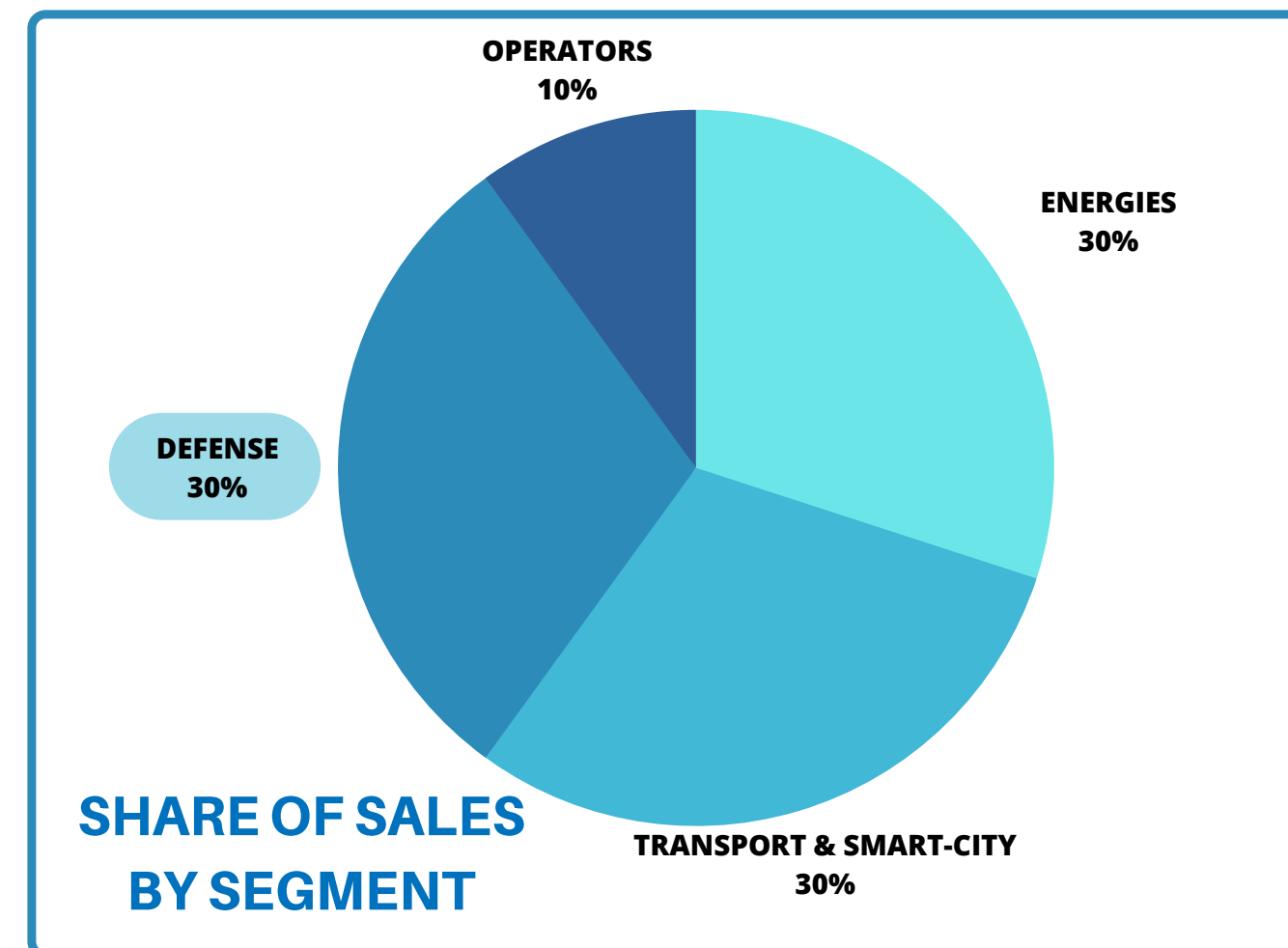
## DEFENSE

CXR supports national defense and emergency services in the development and maintenance of their communications networks.

## CXR's strategy is :

These networks may be subject to severe constraints in terms of integration into specific systems, security, robustness or maintenance.

CXR responds to these specific needs with products and R&D and production logistics services that have proven their worth in these contexts for many years.



# Success Stories

## AIRBUS AND THE TETRAPOL TACTICAL NETWORK



### Context

Airbus is upgrading the Tetrapol radio communications network used by the French Ministry of Defense for the various army corps and all emergency and security services. The Tetrapol network is evolving from TDM to IP technologies. Thousands of base stations are being upgraded with Ethernet/IP equipment to meet the specific requirements of this national defense network.

### Advantages

Airbus found in the SWM-3640 a compact 1U/19" unit with two redundant 48 Vdc power supplies, a key advantage in guaranteeing the availability required for Tetrapol communications.

### The CXR solution

The SWM-3640 Ethernet switch range has been selected by Airbus for the Tetrapol network. These switches feature a wide range of Layer 2 and Layer 3 protocols, as well as security and packet filtering to meet the demanding requirements of the Tetrapol network. The SWM-3640 fits perfectly into base station telecom racks, thanks to its compact size and choice of 230 Vac or 48 Vdc power supplies.



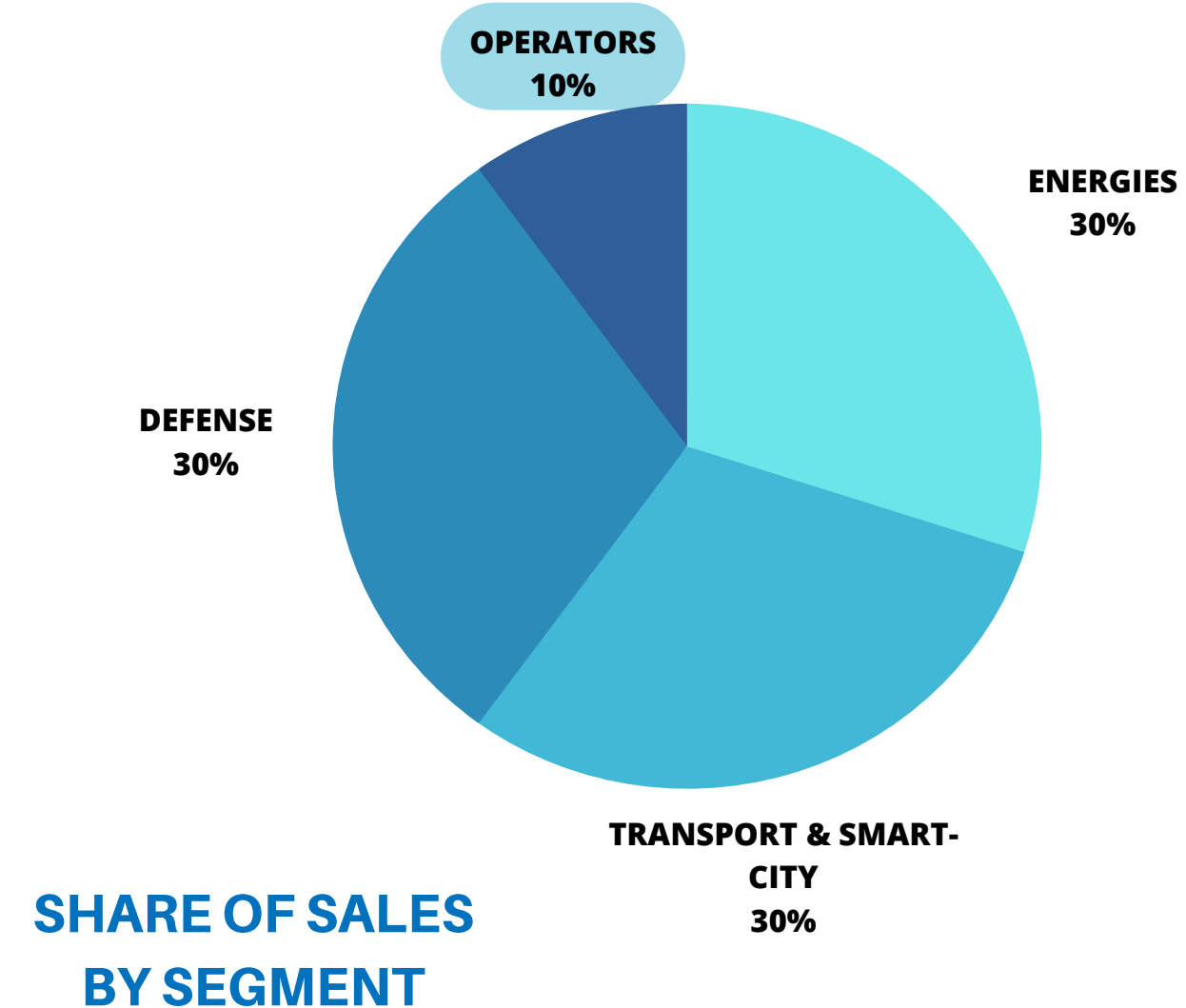




## OPERATORS

# CXR's strategy is :

Provide solutions to operators to ensure high-availability services. CXR offers a comprehensive range of PGE / GPON / DWDM / MPLS - TP/SDH/PDH multiservice platform technologies.



CXR is a supplier of access network equipment to telecommunications operators. These solutions enable operators to provide services with assured availability under optimum economic conditions. CXR offers a comprehensive range of 10GE Carrier Ethernet technologies.



# Success Stories

ILIAD INTERNET SERVICES IN ITALY



## Contexte

Iliad is expanding its presence in Italy, and needs to develop an aggregation network capable of delivering all the quality of service expected by its business customers, and allowing an increase in bandwidth to keep pace with its growth.

## La solution CXR

The PT-7860 is a Packet Mode Transport platform featuring MPLS-TP and Carrier Ethernet CE 2.0 operator functions, as well as circuit emulation and synchronization services. It delivers multiple Gigabit and 10-Gigabit accesses to Regional Points of Presence, with SLA management features that ensure the highest quality of user experience.

## Avantages

The PT-7860 is modular and scalable to meet future broadband requirements. The iNMS software platform enables rapid deployment of the network and services, with automatic commissioning and testing functions that have been key success factors for Iliad.



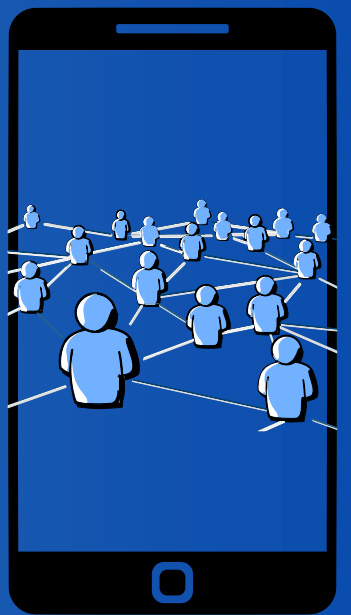


**DO YOU HAVE  
ANY QUESTIONS?**



# Thank you for your attention !

Follow us on social  
networks



[www.cxr.com](http://www.cxr.com)