March 2023

Westermo Network Technologies
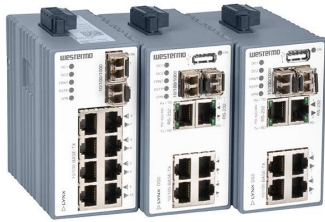
Robust edge LTE devices

Pierre Oberg

Contents

- Company overview
    - Who we are and what we do

- Solutions to industrial challenges
- Remote access

Westermo Network Technologies

LYNX

Robust and super compact switches

REDFOX

High performance rack mount switches

WOLVERINE

Industrial Ethernet extenders

VIPER

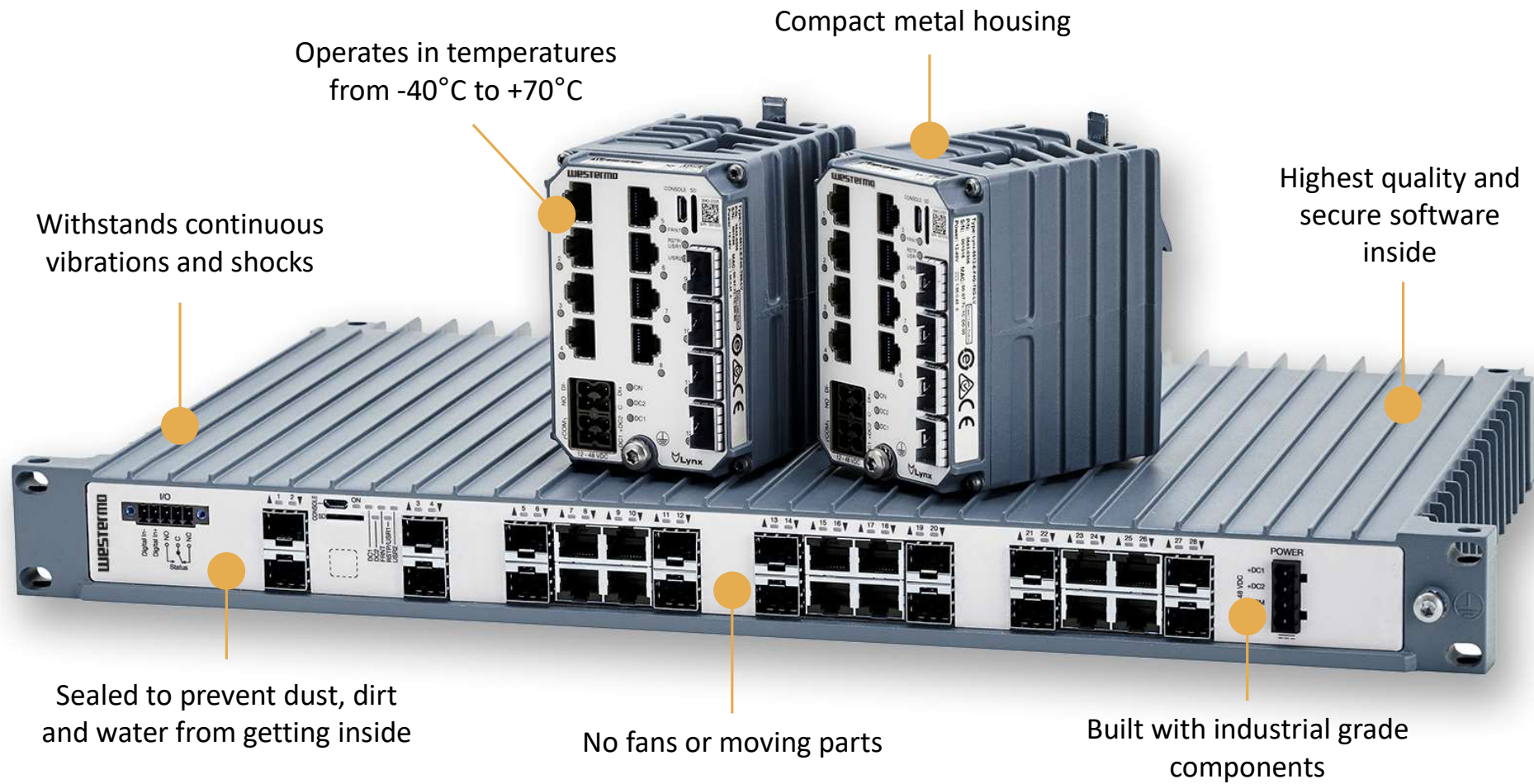Very robust switches for train networks

IBEX

Industrial Wireless WLAN access points and bridges

MERLIN

Secure wireless routing for industrial remote access

WESTERMO | A Beijer Group company

Ultra-robust industrial grade hardware

Operates in temperatures
from -40°C to +70°C

Compact metal housing

Highest quality and
secure software
inside

Withstands continuous
vibrations and shocks

Sealed to prevent dust, dirt
and water from getting inside

No fans or moving parts

Built with industrial grade
components

Westermo - What we do

Westermo products and services are used to create networks for control and monitoring systems within the industry and infrastructure

Choose Westermo when operating conditions are tough, and failure is unacceptable

Choose Westermo when you want the highest quality, efficiency and ease of use

Westermo - Company in brief

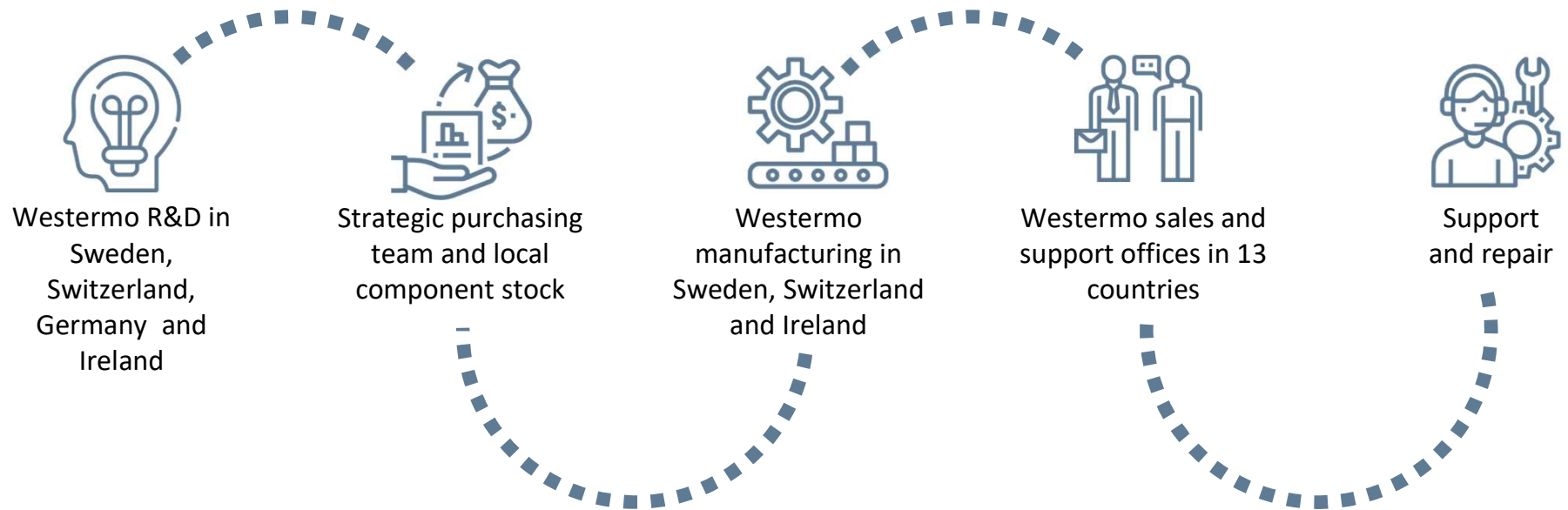Founded in
1975

Number of employees
390

Sales 2022
€95 million

Main development & manufacturing in Sweden

R&D spend
14%

In control of the complete supply chain

Westermo R&D in Sweden, Switzerland, Germany and Ireland

Strategic purchasing team and local component stock

Westermo manufacturing in Sweden, Switzerland and Ireland

Westermo sales and support offices in 13 countries

Support and repair

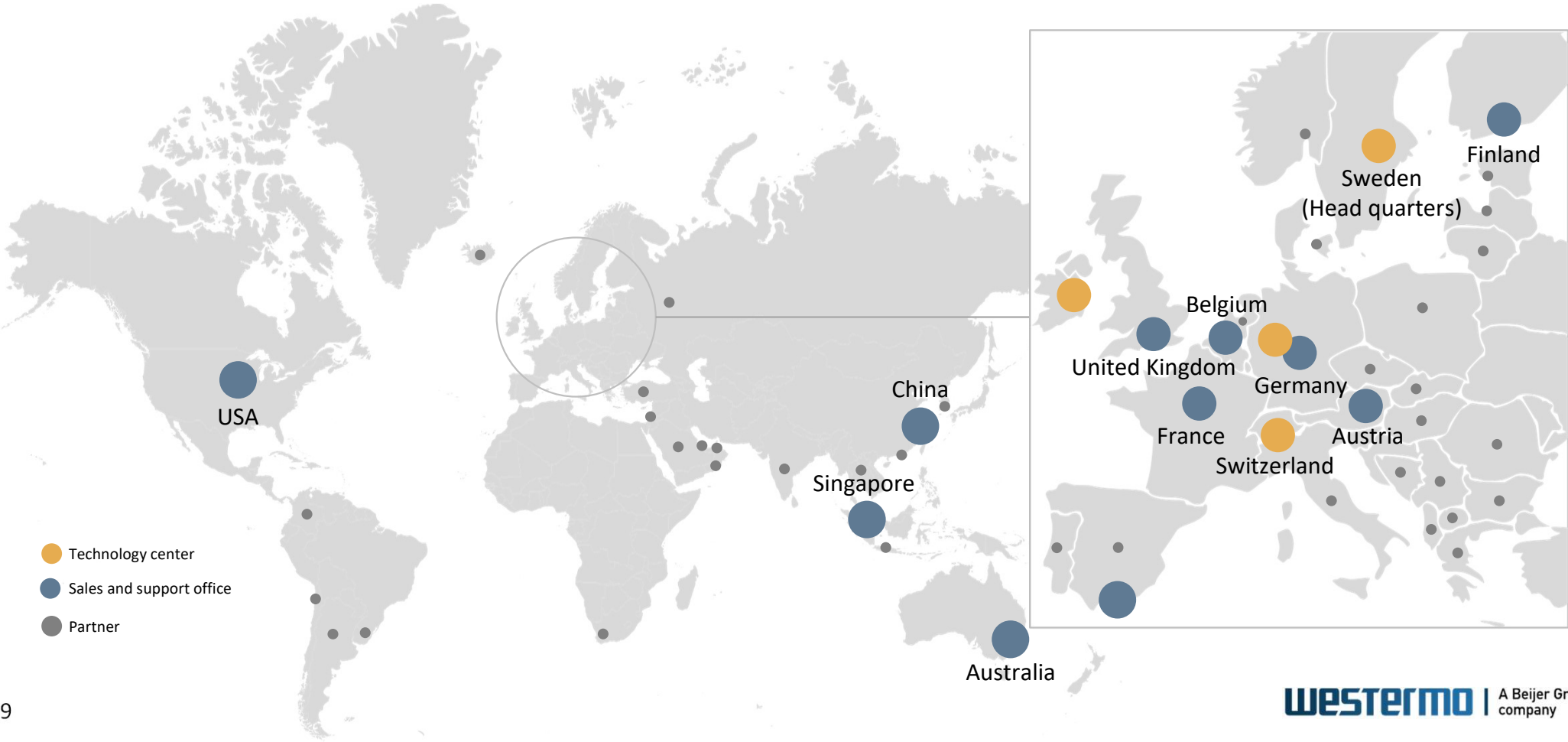**WESTERMO** | A Beijer Group company

Local presence is key to our growth

- 13 Westermo sales and support offices world-wide
- 46 distribution partners world-wide
- Local language
- Local technical support
- Local sales contact
- Same time zone
- Gateway to Westermo central expertise
- Cultural understanding

World-wide sales and support offices

Technology center
Sales and support office
Partner

USA
China
Singapore
Australia

Finland
Sweden (Head quarters)
Belgium
United Kingdom
Germany
France
Austria
Switzerland

westermo | A Beijer Group company

Westermo Data Communications Ltd

Sales & Technical Support for UK and Ireland

- Based near Southampton + satellite office in Newcastle

- Established 1995

- 13 employees

- Sales Support, Technical Support, Training, Logistics

UK service and support

We are ready and prepared to offer best in class service and support

- Industry expertise

- Business hours technical support hotline

- Onsite troubleshooting, FAT and SAT support

- Cellular network site surveys

- WeOS technology suite
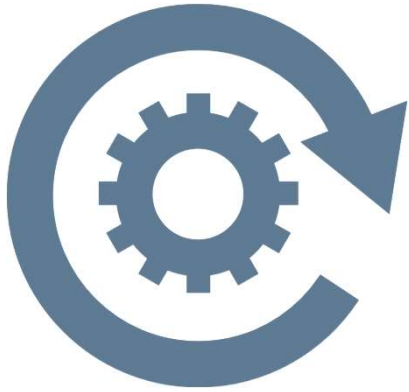
- Standard and bespoke training courses

Westermo | A Beijer Group company

Major Customers in UK

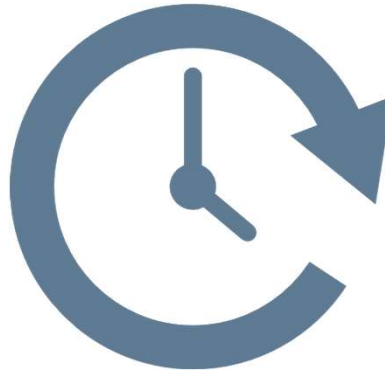# Solutions to industrial challenges

westermo | A Beijer Group company

Industrial challenges

Uninterrupted
service 24/7

High level of
cybersecurity

Long operational
life-time

Easy to configure
and maintain

WESTErmo | A Beijer Group company

Environmental robustness

- Isolation and transient protection
- Wide temperature range
- EMC immunity to highest levels
- Low power consumption and compact design
- Withstands continuous vibrations and shocks
- All-metal housings and high IP ratings

Uninterrupted
service 24/7

WESTERMO | A Beijer Group company

Industrial cybersecurity

In addition to features and protocol support in our network products Westermo provides

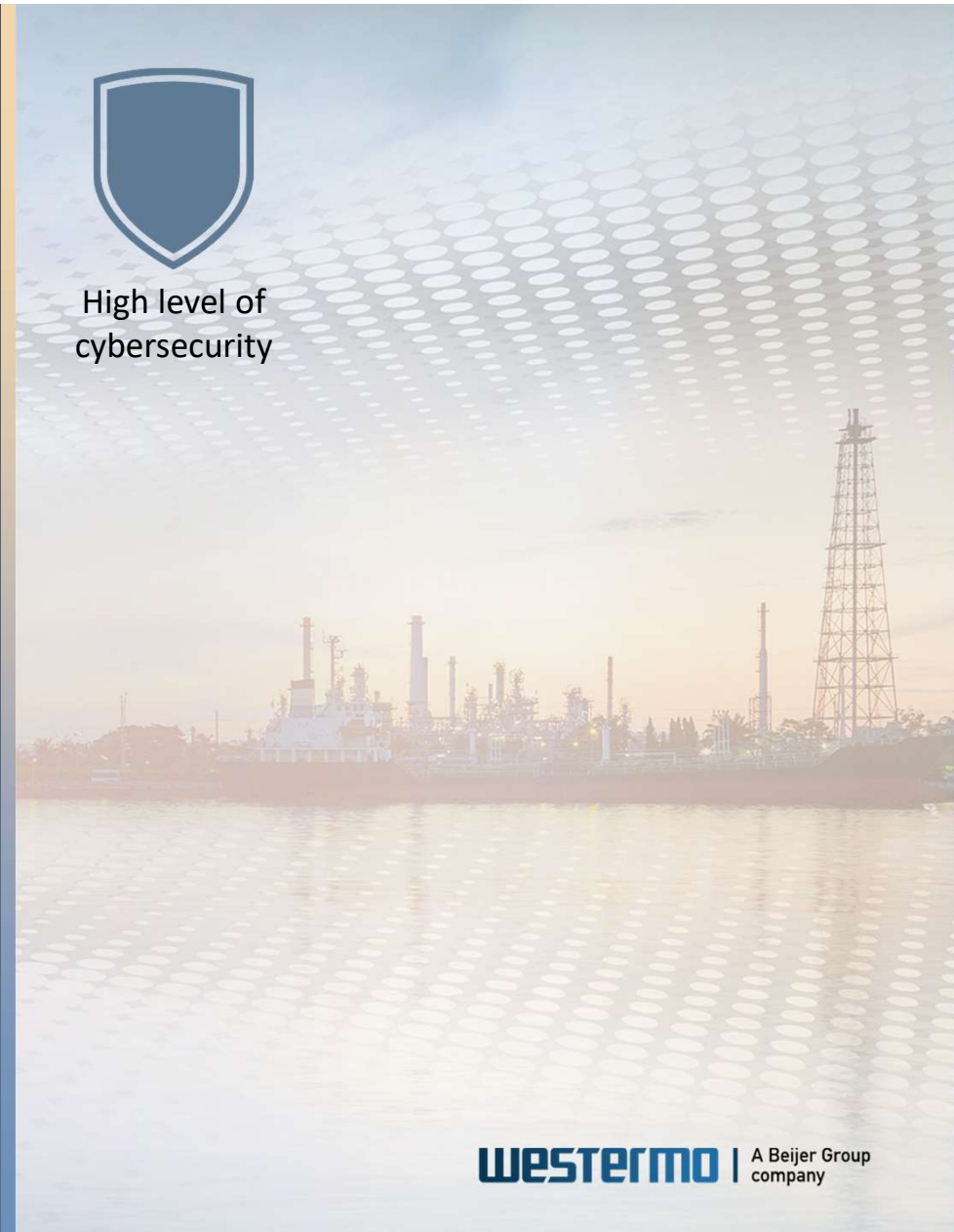**Technical expertise**

Secure supply chain

Rapid incident response

Simple network security configuration

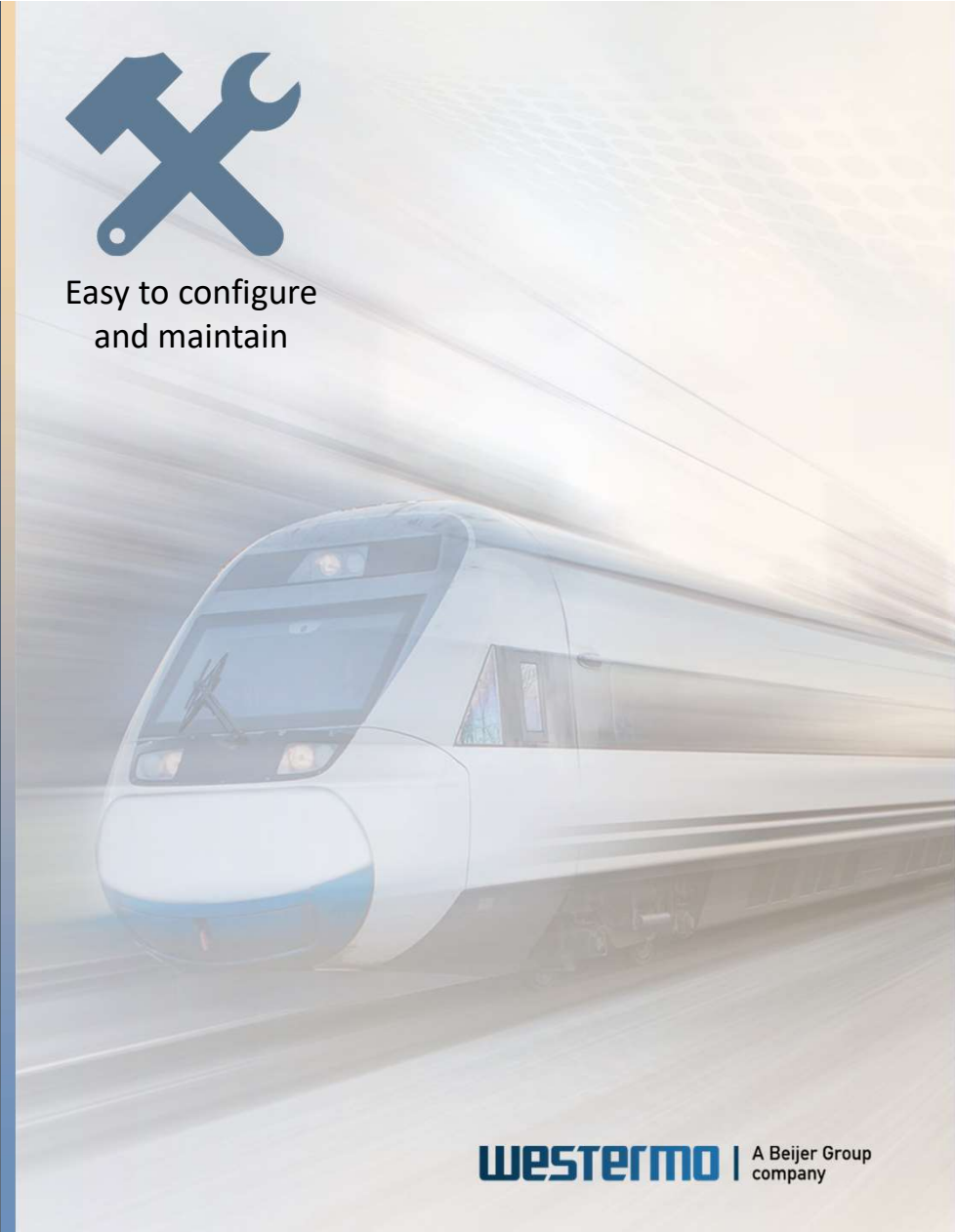High level of cybersecurity

WESTERMO | A Beijer Group company

"Made easy"

- Software tools for "Made Easy" network configuration and maintenance
- Over 40 years of market expertise
- Local presence in many countries
- Renowned technical support
- Network Applications Team
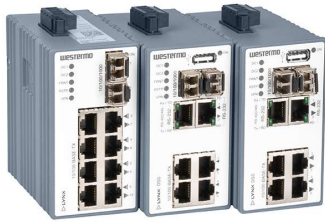- Long term product availability

Easy to configure and maintain

WESTERMO | A Beijer Group company

Ultra-reliable network products

LYNX

Robust and super compact switches

REDFOX

High performance rack mount switches

WOLVERINE

Industrial Ethernet extenders

VIPER

Very robust switches for train networks

IBEX

Industrial Wireless WLAN access points and bridges

MERLIN

Secure wireless routing for industrial remote access
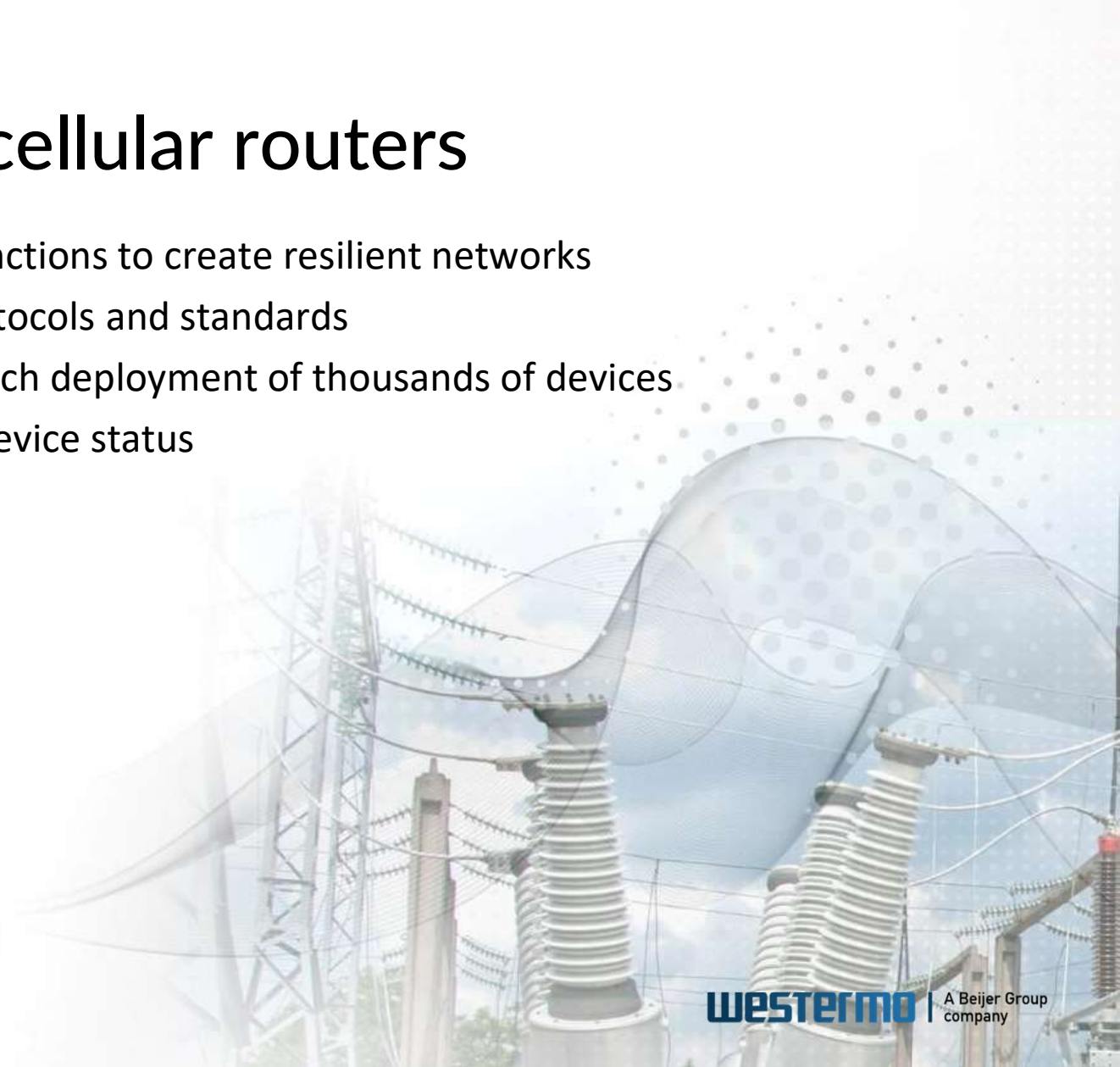
WESTERMO | A Beijer Group company

Remote access

LTE edge devices

Substation and IoT cellular routers

- Hardened devices incorporating functions to create resilient networks
- Wide support for cybersecurity protocols and standards
- Software solution allowing zero touch deployment of thousands of devices
- Real-time system monitoring and device status

MERLIN

Westermo | A Beijer Group company

Looking back

- 1000s of tele modems installed in the UK
  - TDW-33, TD-36 etc

- 1000s of 3G and 4G routers installed in the UK
  - MRD-350, MRD-455

westermo | A Beijer Group company

Going forward - Merlin portfolio

- **Merlin 4400 series**

  Highlights include:
  - Cyber security - TPM (Trusted Platform Module)
  - Serial protocol conversion

- **Merlin 4600 series**

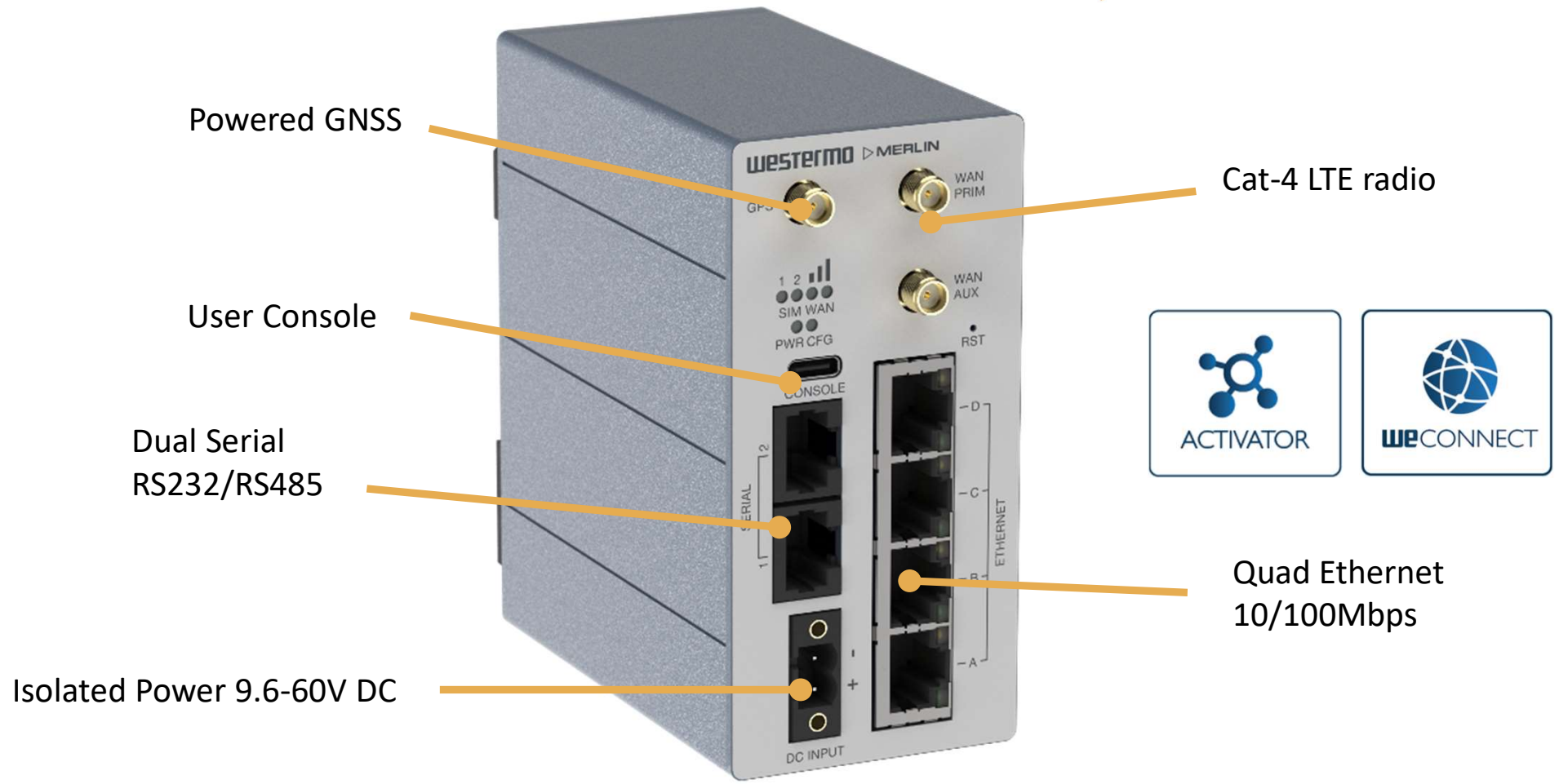 In addition to 4400 series:
  - 61850-3 environmental robustness
    - 4kV port isolation, ESD tested to 6kV contact and 8kV air discharge
    - 500 (!) ms holdup
  - Large port count (also including variants with fibre ports, I/O)

- **Merlin 4100 series (to be launched shortly)**
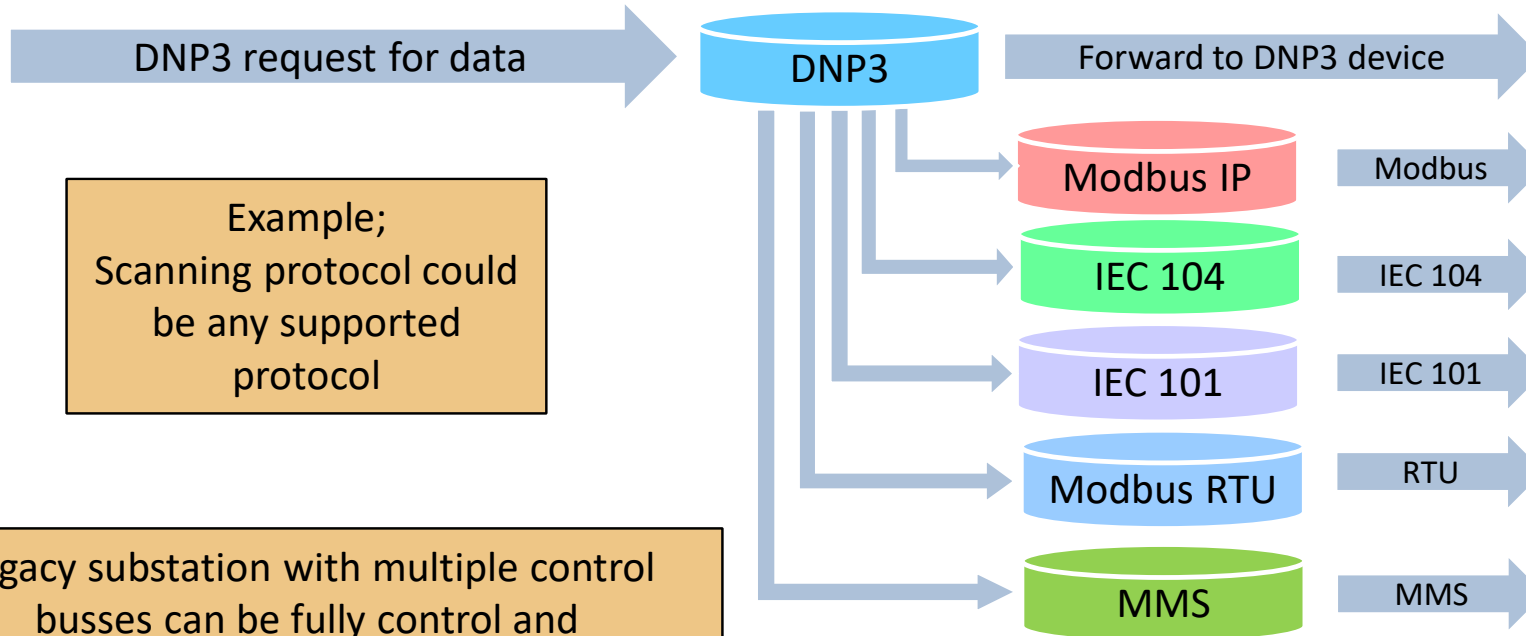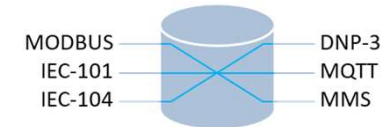 - Compact, small form factor
  - Fewer ports

Merlin 4400

Powered GNSS

Cat-4 LTE radio

User Console

Dual Serial
RS232/RS485

Quad Ethernet
10/100Mbps

Isolated Power 9.6-60V DC

SCADA protocol conversion

MODBUS —— DNP-3
IEC-101 —— MQTT
IEC-104 —— MMS

One common IP address and protocol to address multiple device and protocols

DNP3 request for data → **DNP3** → Forward to DNP3 device

Example;
Scanning protocol could be any supported protocol

Modbus IP → Modbus

IEC 104 → IEC 104

IEC 101 → IEC 101

Modbus RTU → RTU

MMS → MMS

Legacy substation with multiple control busses can be fully control and communicate though one point of presence on the SCADA system

**westermo** | A Beijer Group company

SCADA protocol conversion

- One common protocol towards the SCADA
- Remote site multiple devices and protocols
- Merlin acts as a Master towards devices on site
- Incoming request is mapped to local protocols
- List of supported protocols is growing
- Applications not limited to Energy other industries require protocol translation
- Cost effect solution to integrate existing assets to a common SCADA system
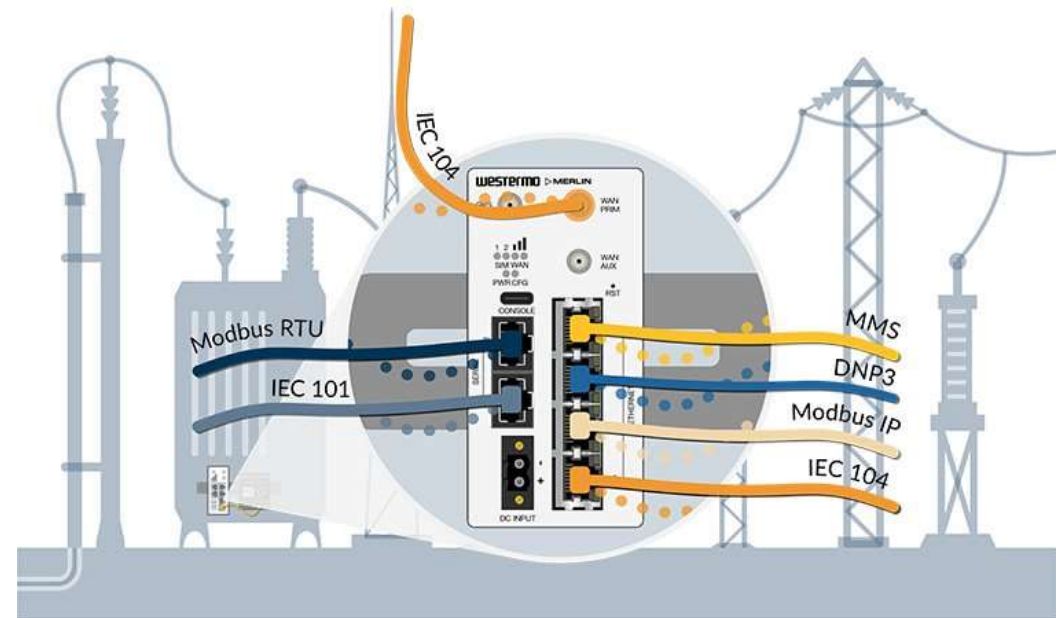
Centralized Management
Activator

- Install on premises or on the Cloud
- Cost savings on installations and ongoing management
- Offline configuration
  - Router Templates
  - Quick pages for easy setup of each site
  - Bulk imports CSV & XML files
- Secure Bulk update of devices
  - New firmware
  - Security Policy changes
  - Configuration changes

WESTERMO | A Beijer Group company
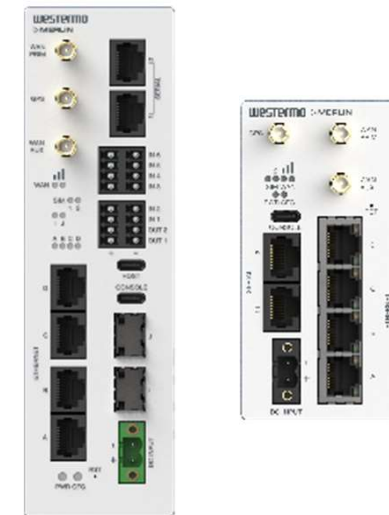
Easy deployment

- Zero Touch deployment
- Faster site installation time
- Accurate Configuration, software update and patch deployment
- Simplifies deploying and managing thousands of routers
- Secure Bulk update of devices
  - New firmware
  - Security Policy changes
  - Configuration changes

ACTIVATOR

Deploy routers to site
(Customer Factory
Config)

Assign config to router
or update
from Activator

WESTERMO | A Beijer Group company

Summary

- Robust LTE edge devices – We have a product portfolio that fits
  - And the other network devices needed to build a complete solution

- Westermo has helped the Utilities through several technology shifts in the past
  - We want to help also this time
  - We are <u>here</u> to help you

WESTERMO | A Beijer Group company

US3　　　　　End slide

Ulrika Svensson, 2020-04-24

Appendix:
Ethernet products

WESTERMO | A Beijer Group company

Compact switches and device servers

- Compact industrial Ethernet switch design
- Designed for use in industrial applications
- Robust for long service life
- Unique future proof industrial networking solutions

High end routing performance

- High performance and configurable
- Designed for demanding Edge Network applications
- Robust for long service life
- Unique future proof industrial networking solutions

Extend far beyond the limits of Ethernet

- Save time and money reusing existing cables
- Designed for use in industrial applications
- Robust for long service life
- Unique future proof industrial networking solutions

Wide range of industrial datacom products

Unmanaged switches

Serial converters and repeaters

Broadband DSL routers

Leased line / PSTN modems

Fibre optic modems

Ethernet media converters

**WESTERMO** | A Beijer Group company

Reliable and versatile software solution

- Same software on all Ethernet switches and extenders
- Continuous software validation ensures the highest quality
- Resilient secure multimedia network solutions
- Simple and flexible configuration

WESTERMO | A Beijer Group company

Industrial network configuration tool

- Simplified and rapid network configuration
- Network monitoring and diagnostics
- Easy maintenance of network components
- Network security and overview
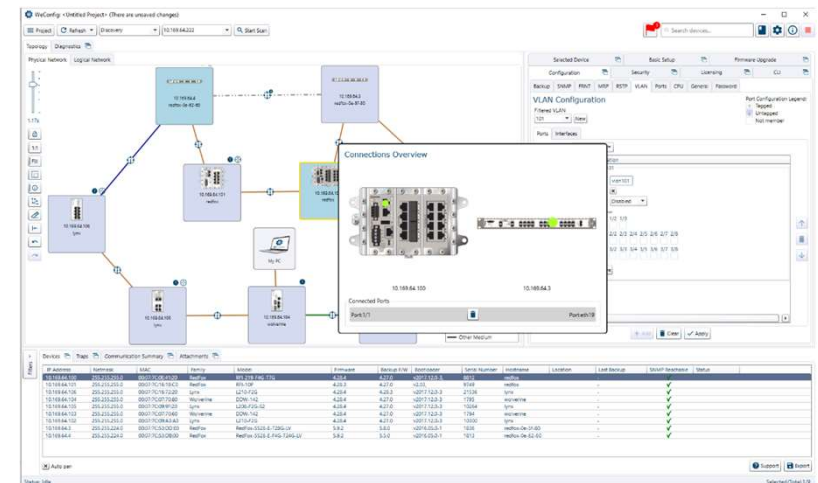
Secure remote access to the network edge

- Easily create a secure encrypted network between remote locations
- All that is needed is a connection to the Internet
- Designed to solve common industrial problems
- Reliable connectivity when needed
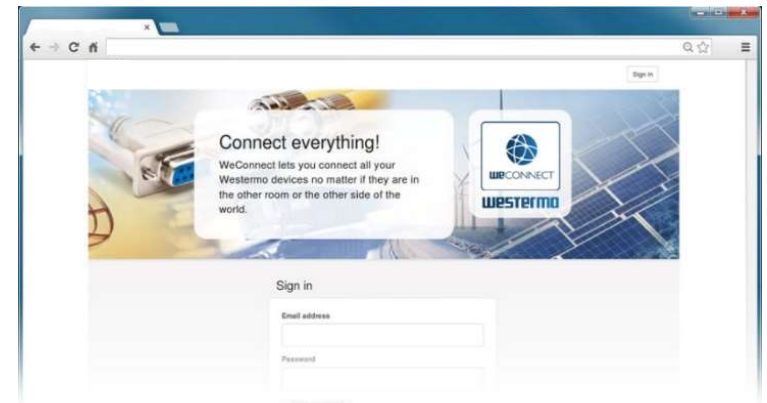
Summary

Who we are and what we do

- Westermo products are used for creating the most reliable networks possible for critical control systems

Solutions to industrial challenges

- Westermo has specifically developed solutions to meet the extreme requirements for mission critical industrial control systems

The most reliable products on the market

- Westermo products are designed for use in harsh environments and allow you to build cost-effective, reliable, secure industrial networks

US1   End slide
Ulrika Svensson, 2020-04-24