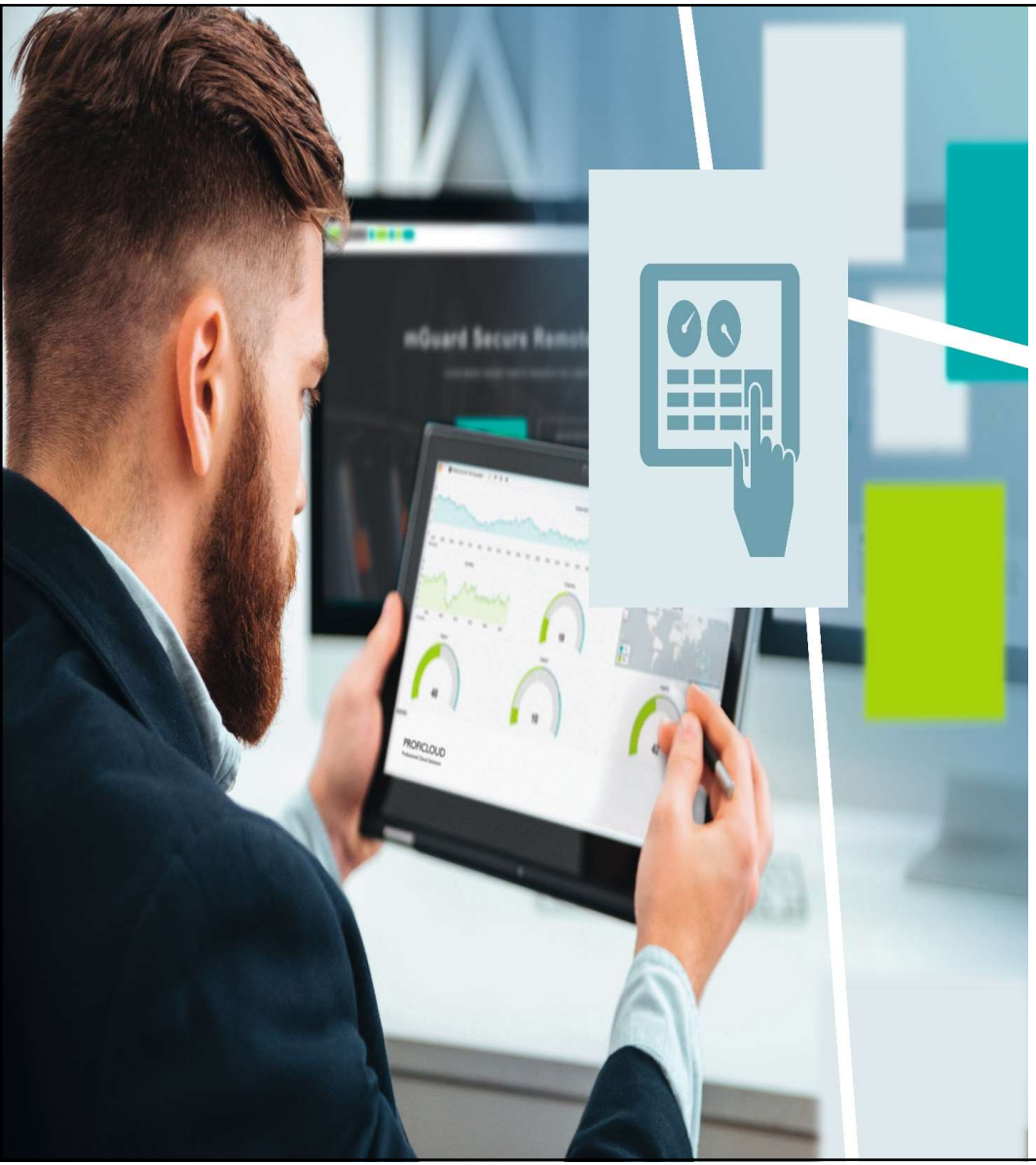


Welcome

Cyberseguridad en planta para máquinas y conexión remota

Antonio Gordillo / 18 Agosto 2021 / Automatización Marketing

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Communication Interfaces

Agenda

- Cyberseguridad y su importancia
- Productos
- mGuard 1100
- TC Router
- TC ROUTER TOM Software
- CLOUD Client



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Top Cyber Attacks In History | Biggest Cyber Attacks Of All Time | Cyber Security | Simplilearn

Implementación de ciberseguridad

Ciber ataques

En mayo del 2019, una computadora infectada con **cinco de las más mortíferas piezas de software** fue vendida por 1.4 millones de dólares, un proyecto del artista chino Guo O Dong, encomendado por la firma de ciberseguridad Deep Instinct, cuyo objetivo es representar físicamente el peligro que suponen las amenazas digitales.

Pese a que se trata de una computadora común y corriente, incluso la fotografía del dispositivo inspira temor cuando se conoce el daño que han causado el **virus ILOVEYOU, Dark Tequila, los gusanos SoBig y MyDoom, el criptogusano Wannacry** y el malware multipropósito
Black Energy.

En conjunto, estas cinco piezas de
malware han ocasionado daños por alrededor de 95,000 millones de dólares a nivel global.

EL ECONOMISTA



#OptimitNetwork

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Productos mGuard

Portafolio












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Production area

Production network

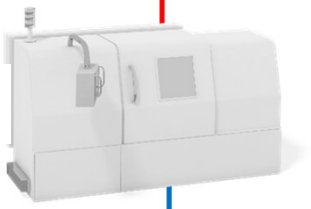
Machine from supplier A

Machine from supplier B

Machine from supplier C

Machine from supplier D

3x









Remote Access Solution A

Remote Access Solution B

Remote Access planned

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Change for the machine manufacturer



NEW

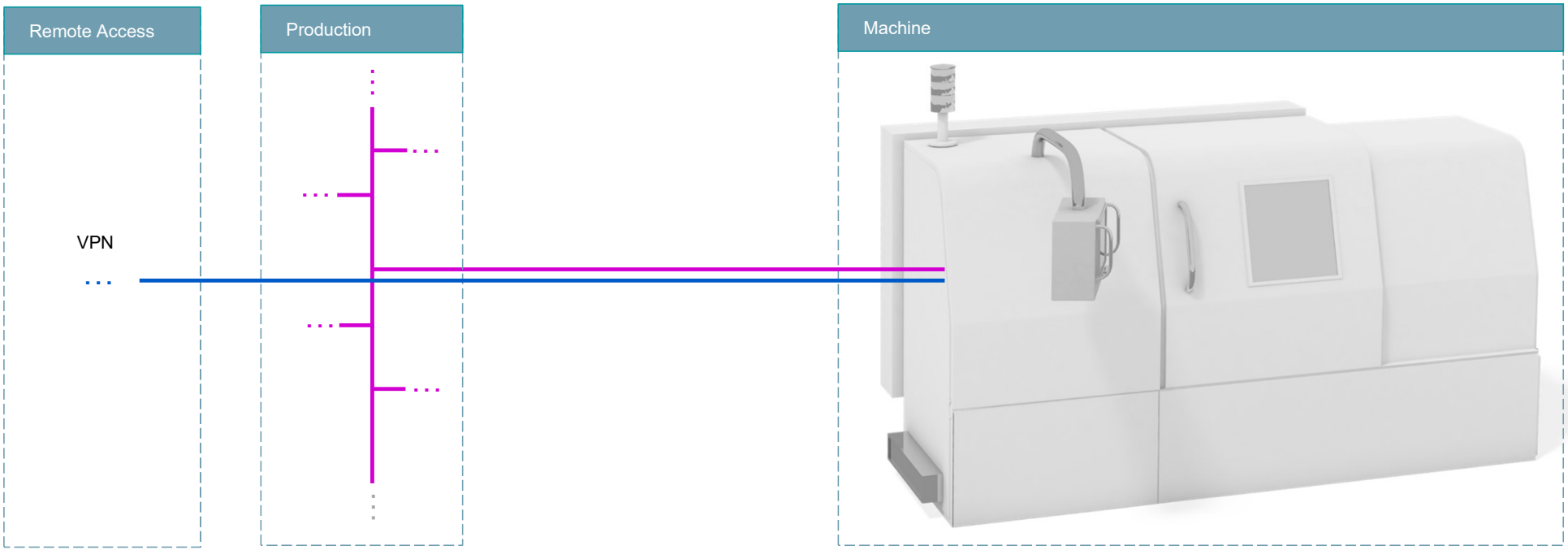
Remote access and security

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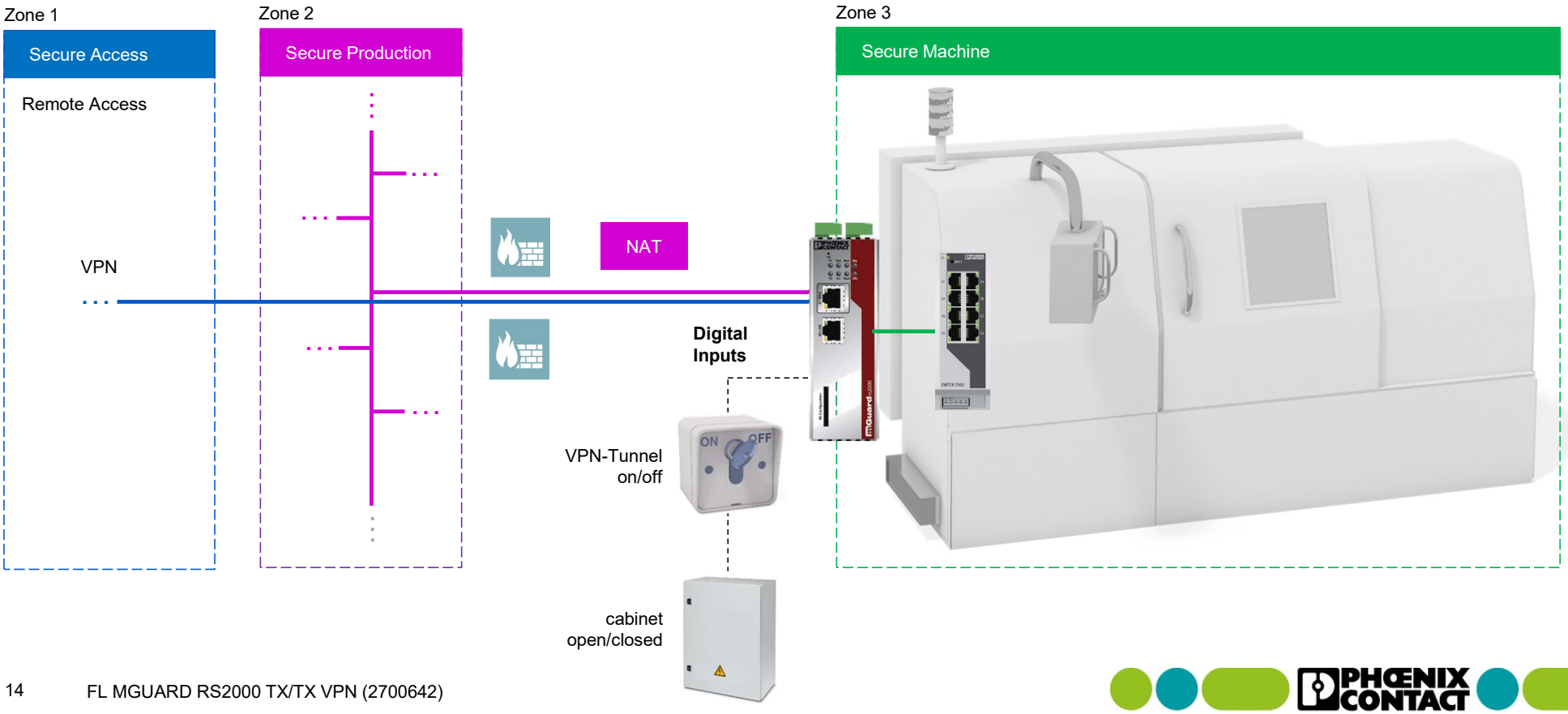
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How to increase security?



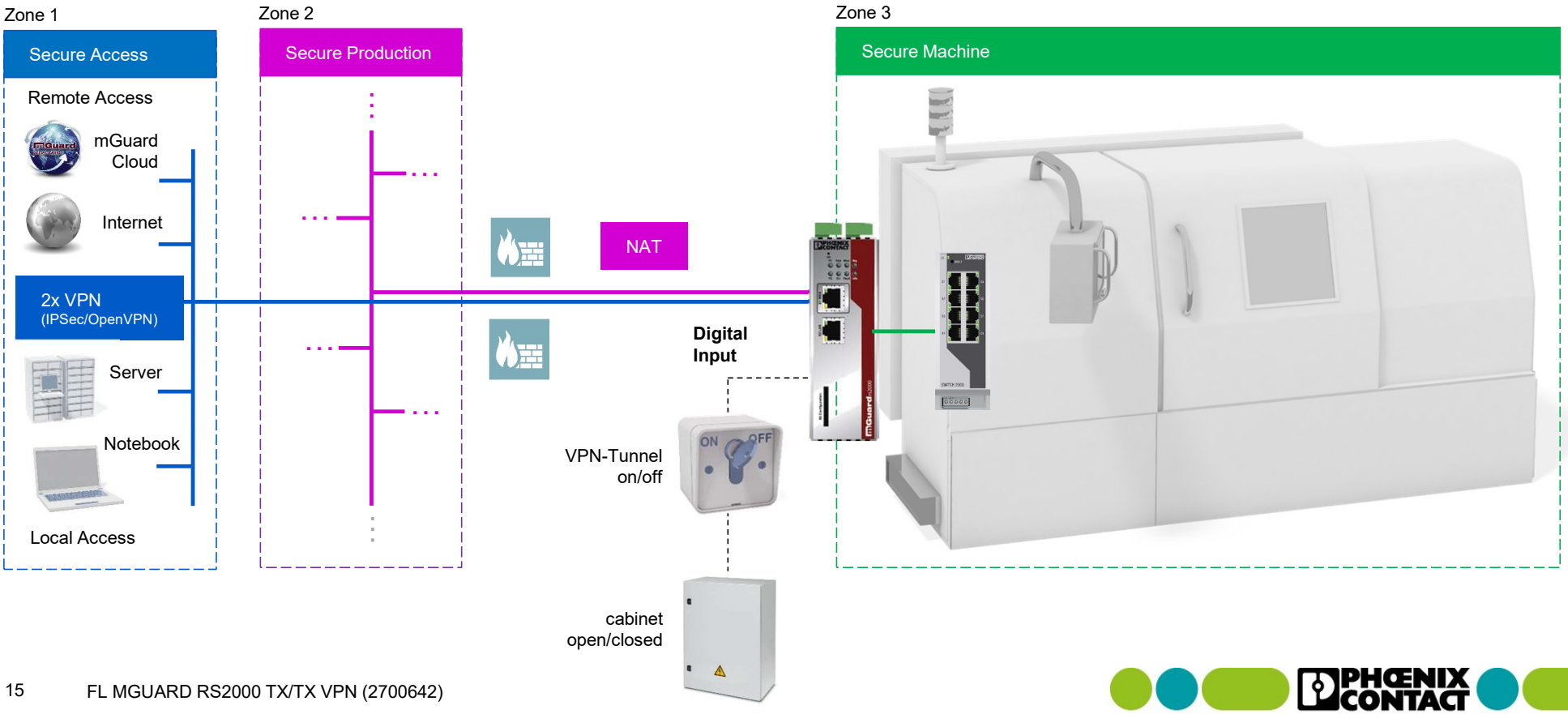
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Solution



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Solution

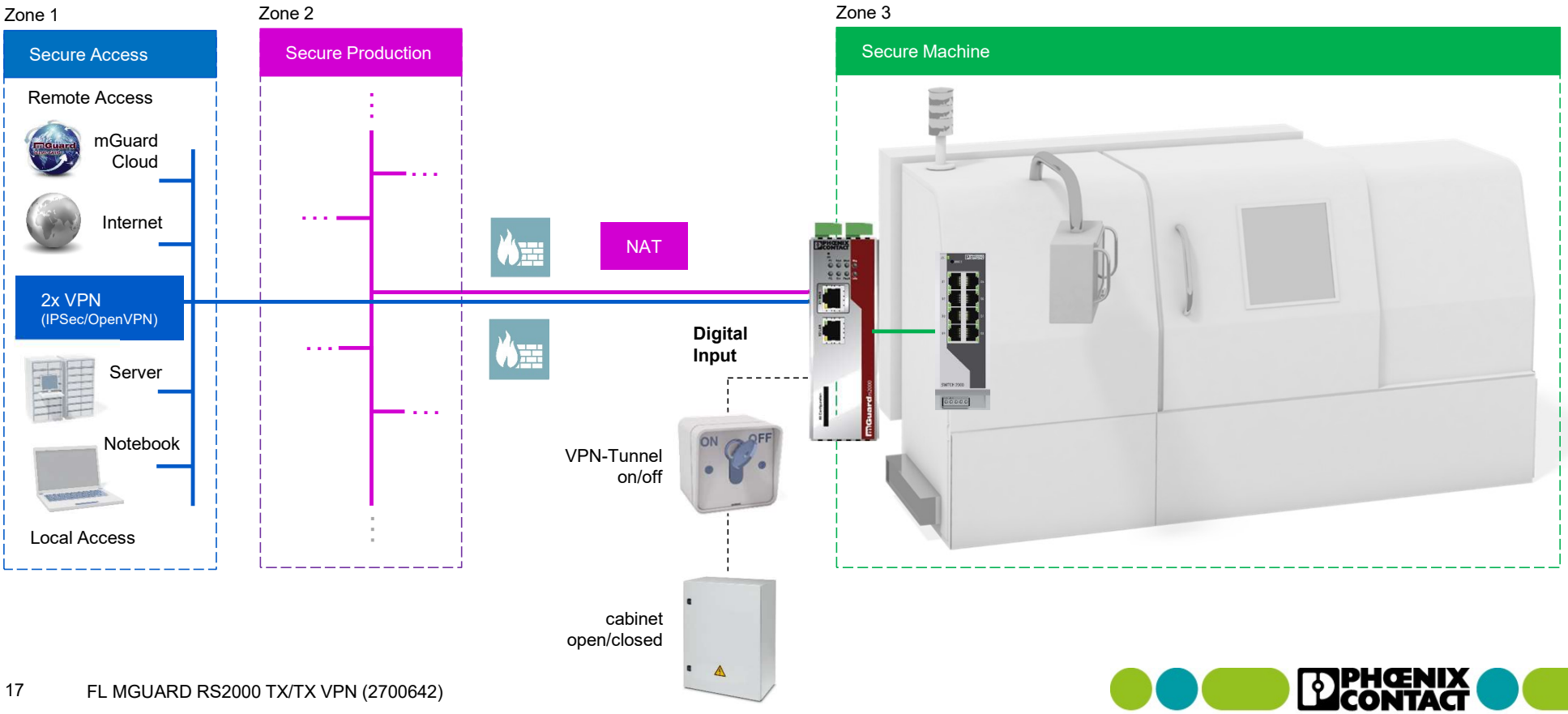


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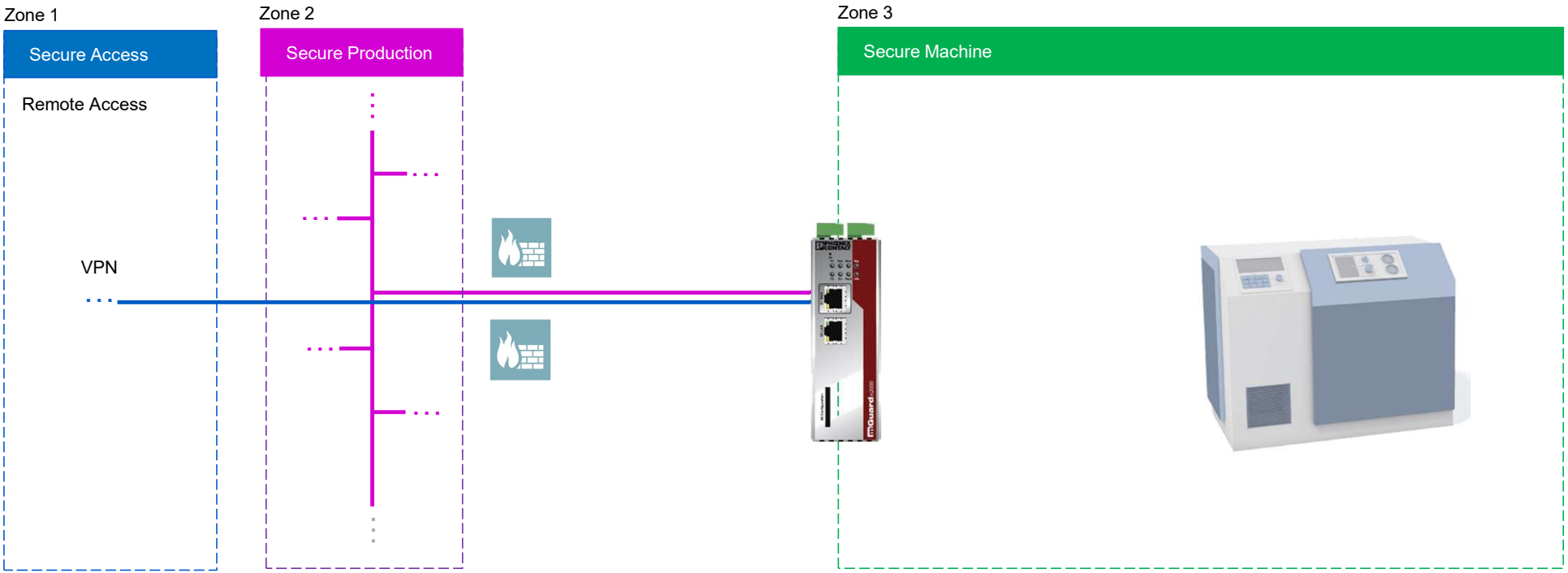
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Perfect Product …



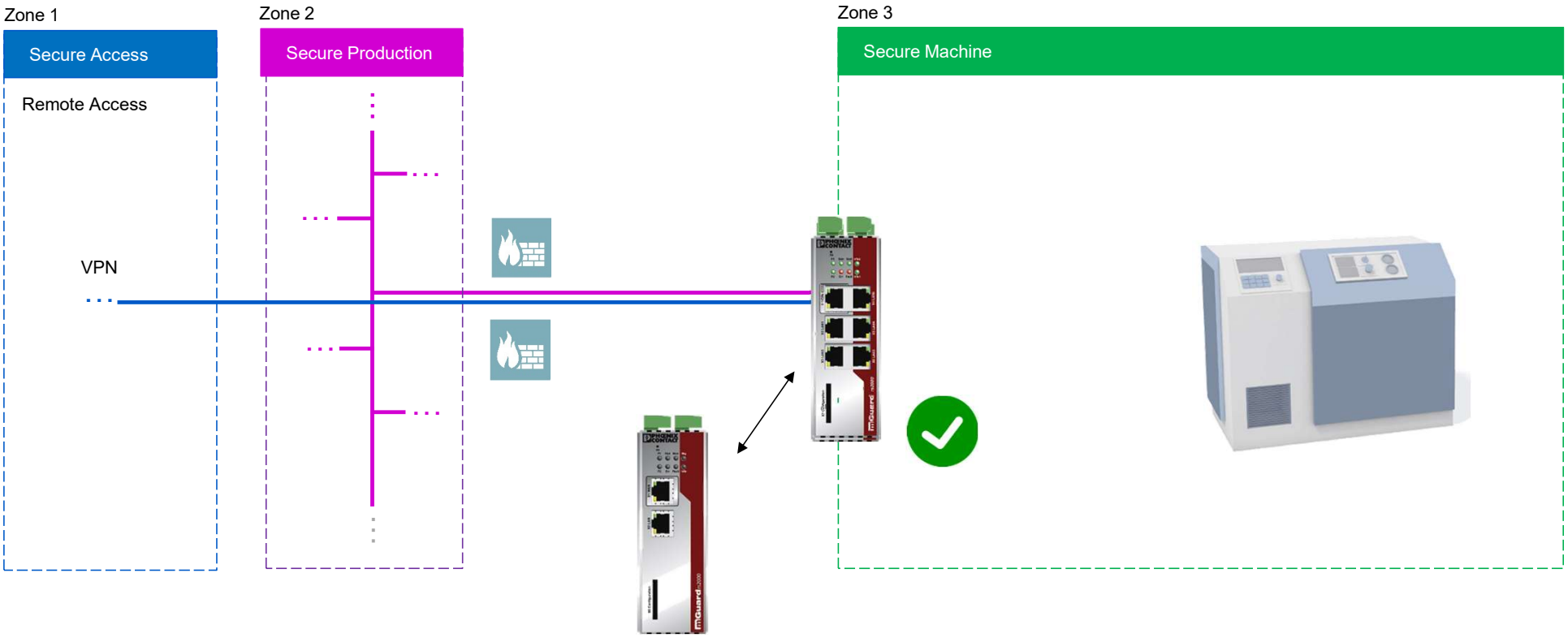
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We have no place



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Solution



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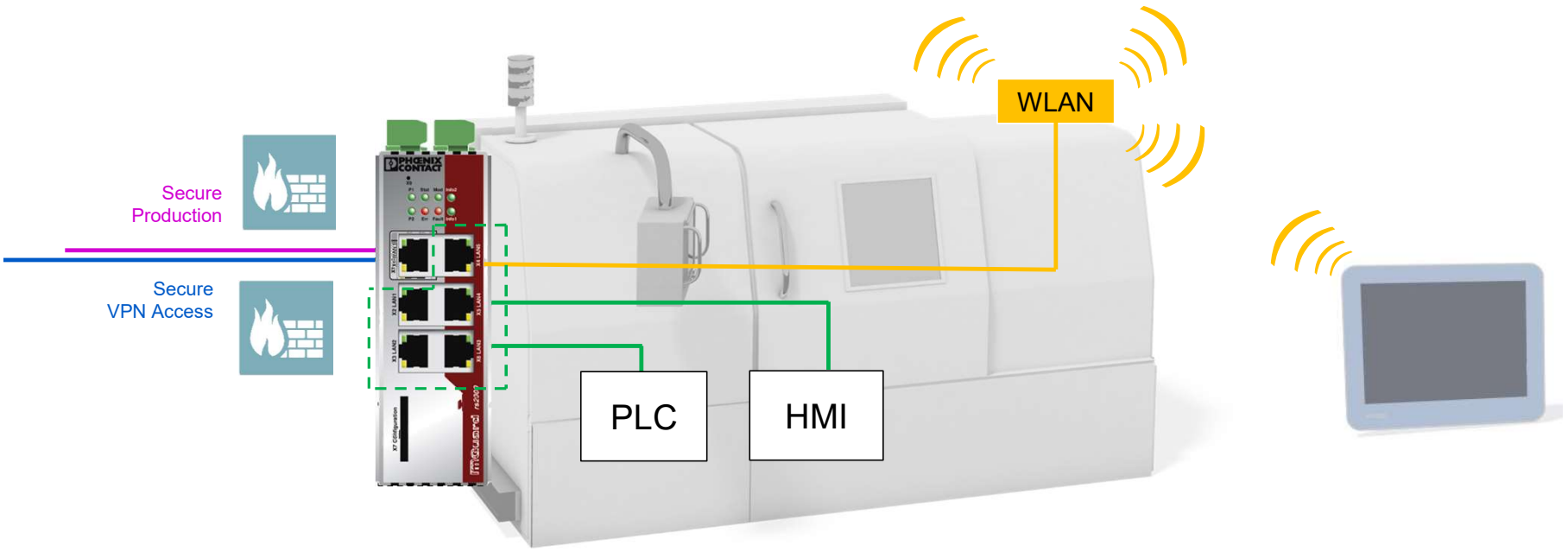


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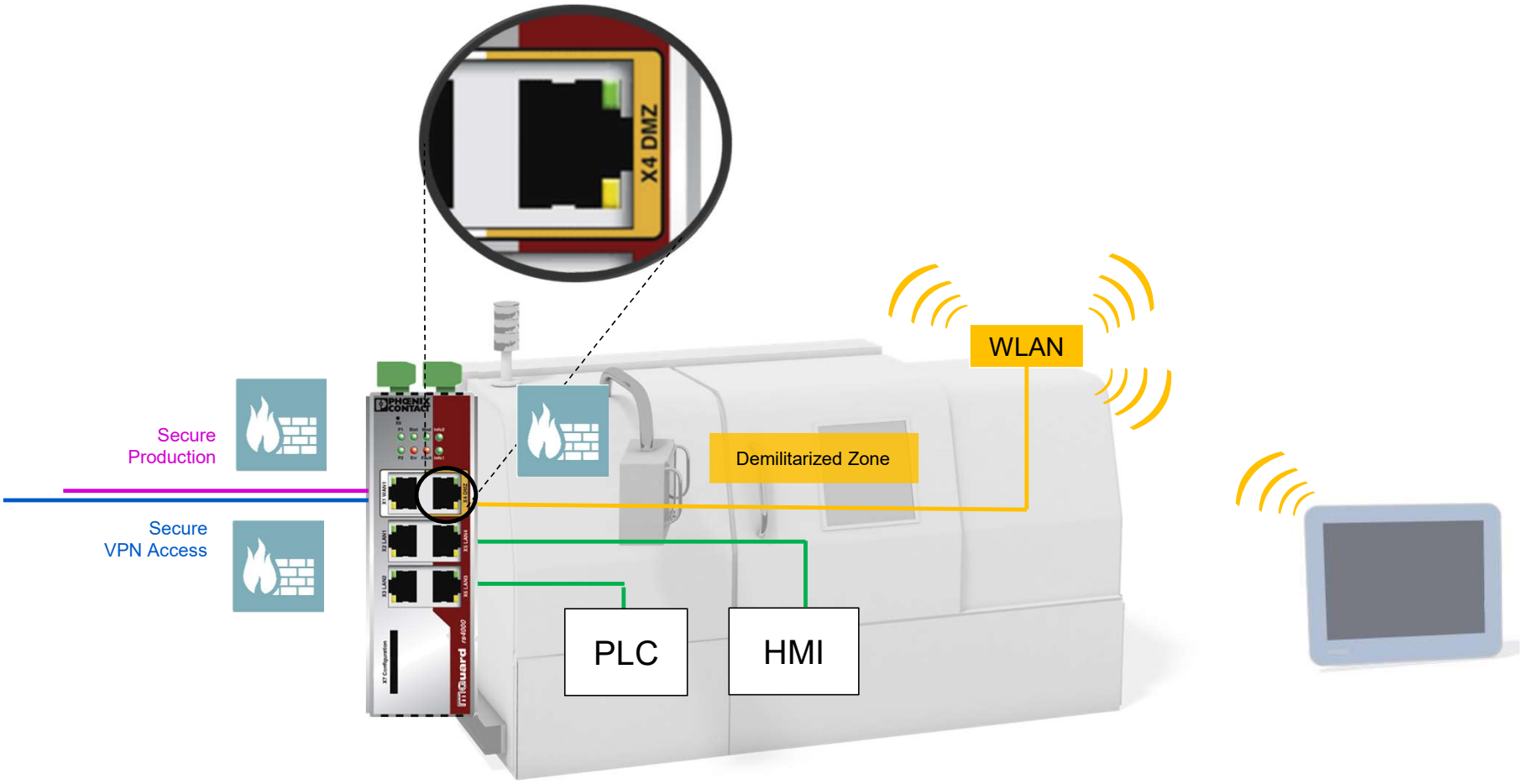


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What about security?



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Three products



FL MGUARD **2000** …



FL MGUARD 200**5** …

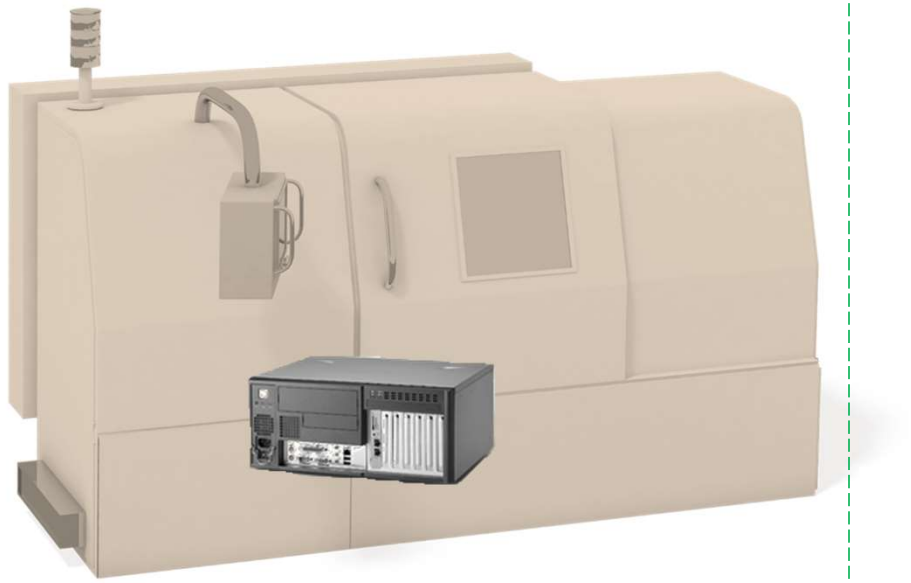


FL MGUARD **4**00**4** …

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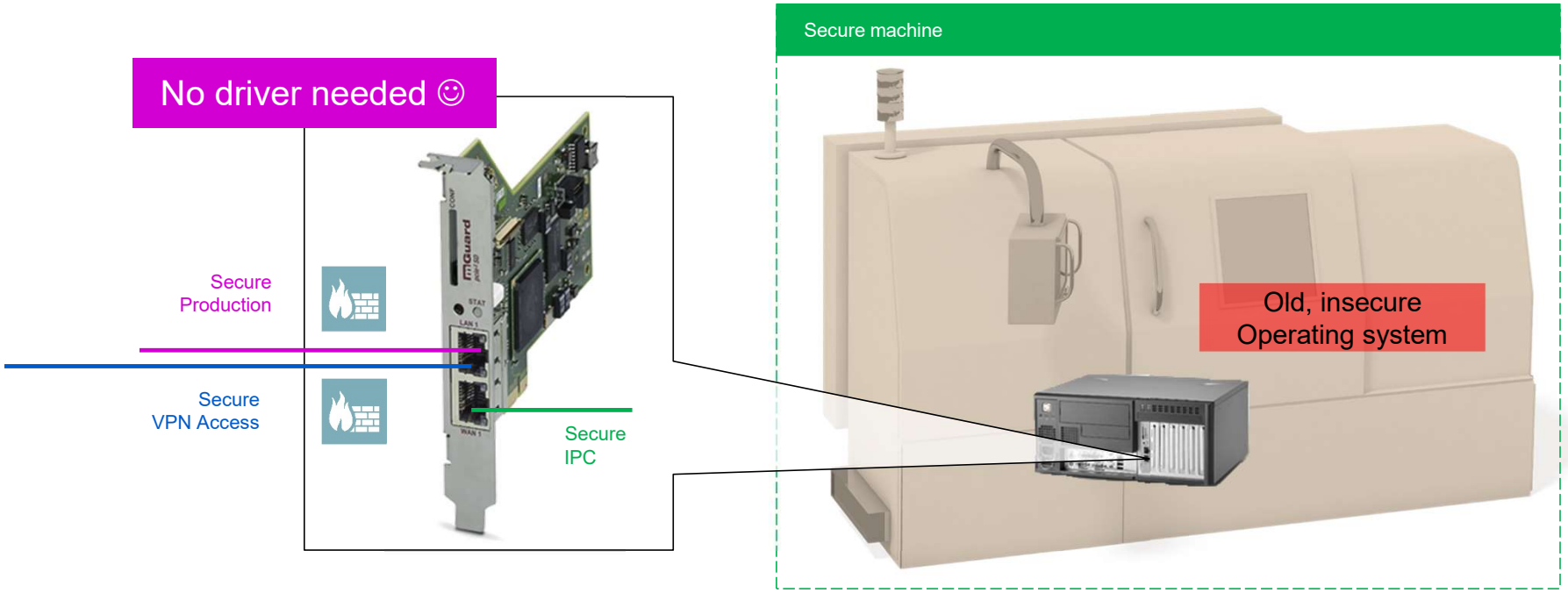
IPC in a machine

Secure machine



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Solution



FL MGUARD PCIE4000 VPN (2701278)
FL MGUARD PCI 4000 VPN (2701275)

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Very little space

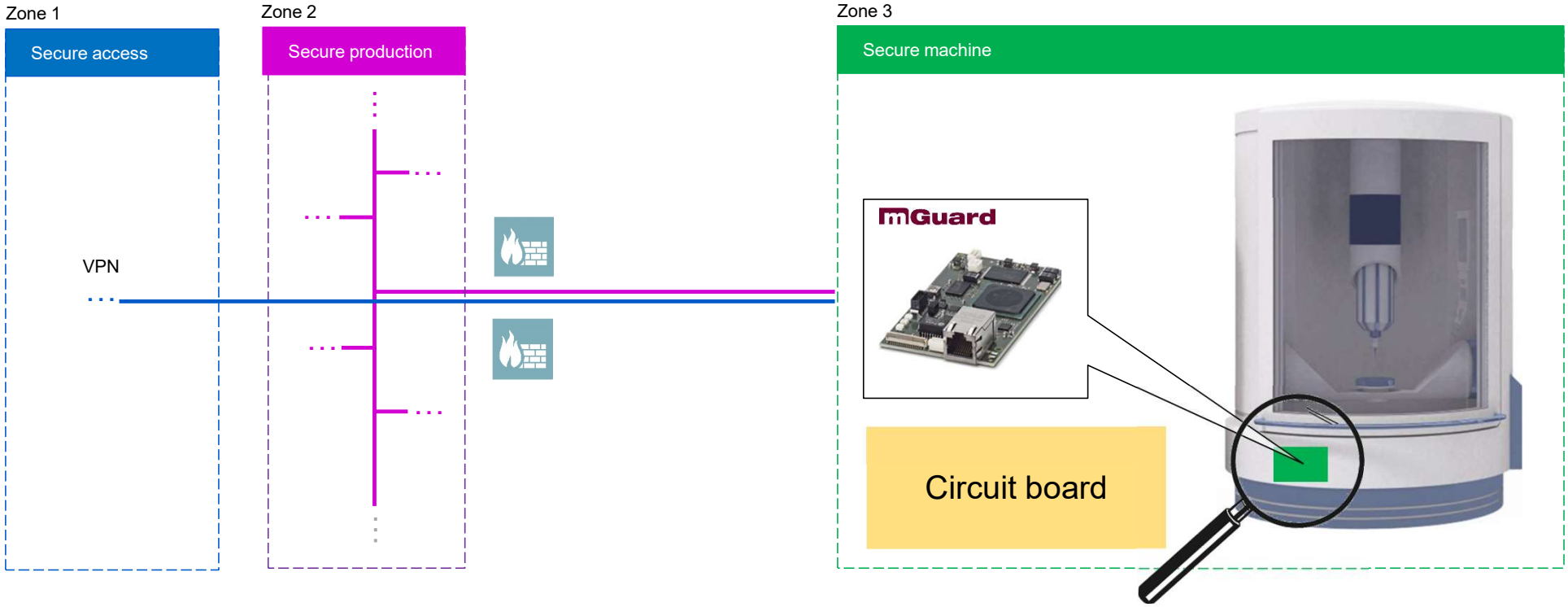




Secure machine



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Security für die Maschine



…2000…



…2005…



…4004…



…PCI/PCIE…



…Core…

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Production area

Production network

Machine from supplier A

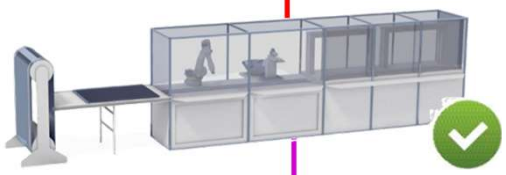
Machine from supplier B

Machine from supplier C

Machine from supplier D

3x









Remote Access Solution A

Remote Access Solution B

Remote Access planned

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Secure VPN remote station

For the beginning

Independent of the mGuard Secure Cloud





Software
(1 VPN-Tunnel)



Office
(250 VPN-Tunnel)



Server room
(3000 VPN-Tunnel)

FL MGUARD SECURE VPN Client (2702579)
FL MGUARD DELTA VPN (2700968)
FL MGUARD CENTERPORT (2702547)

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Production area

Production network

Machine from supplier A

Machine from supplier B

Machine from supplier C

Machine from supplier D

3x









Remote Access Solution A

Remote Access Solution B

Remote Access planned

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Central device / security-Management



for the machine builder



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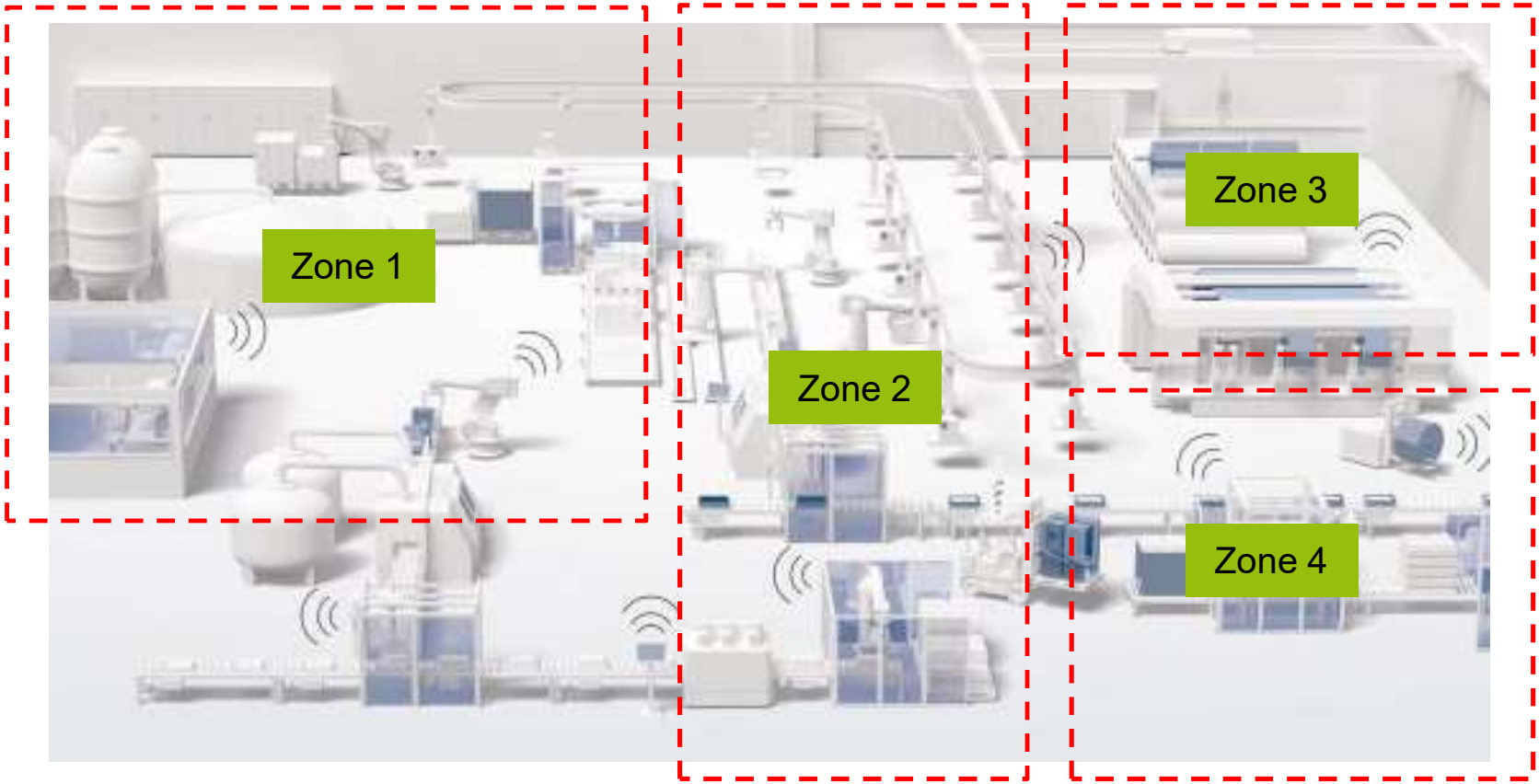
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Zones



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Zones



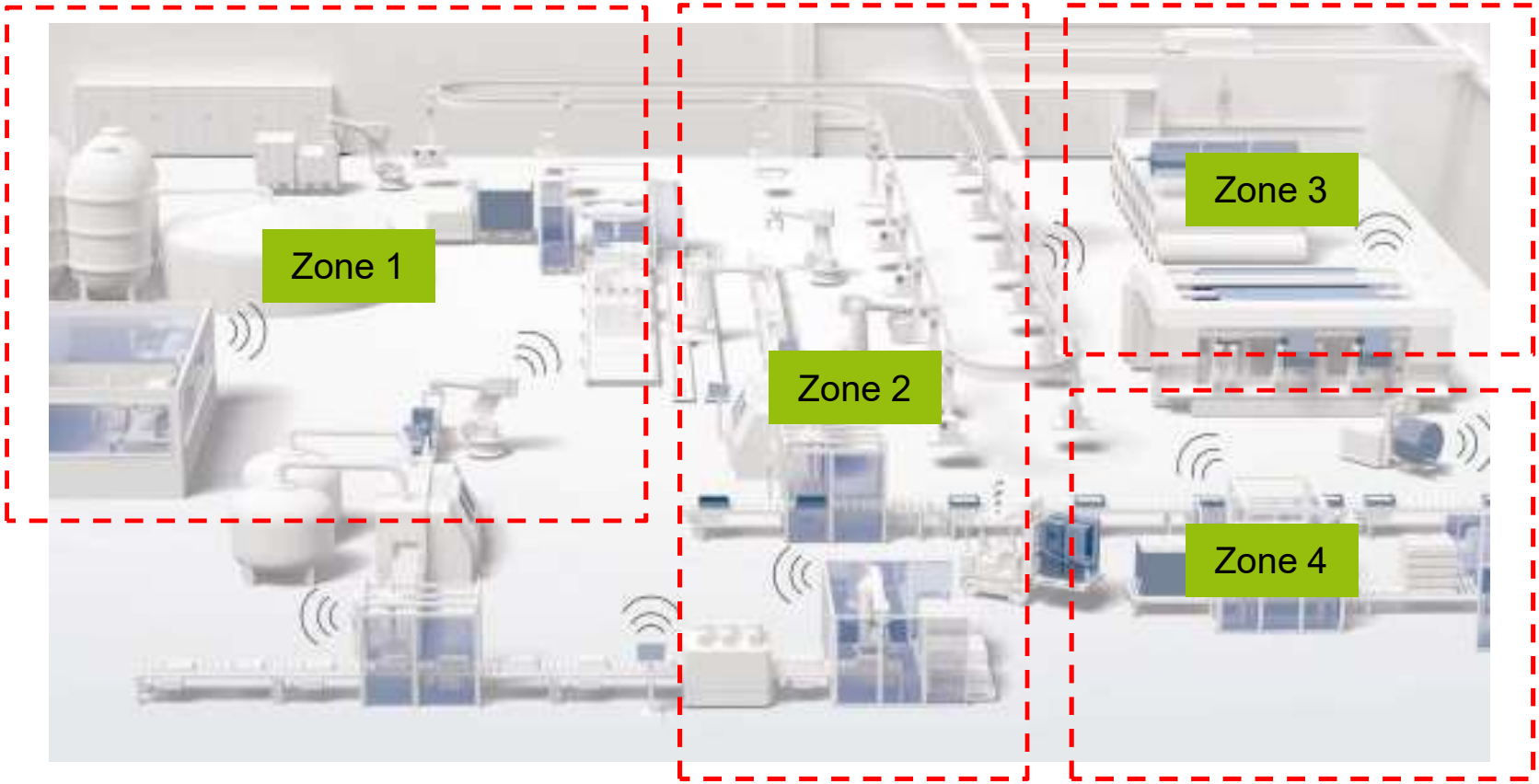
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fiber optic



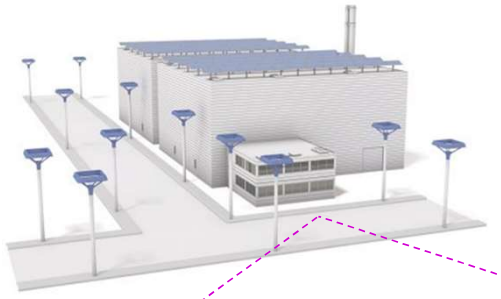
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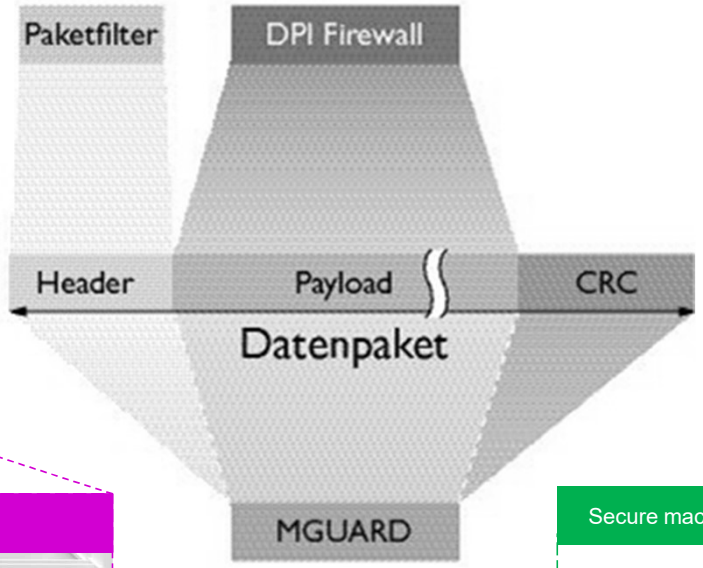
Zones

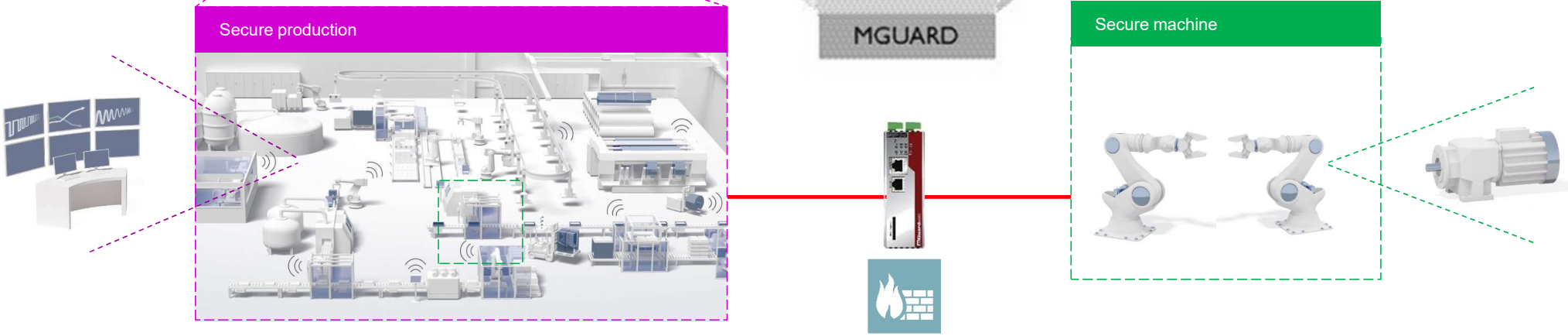


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Deep Package Inspection (DPI)



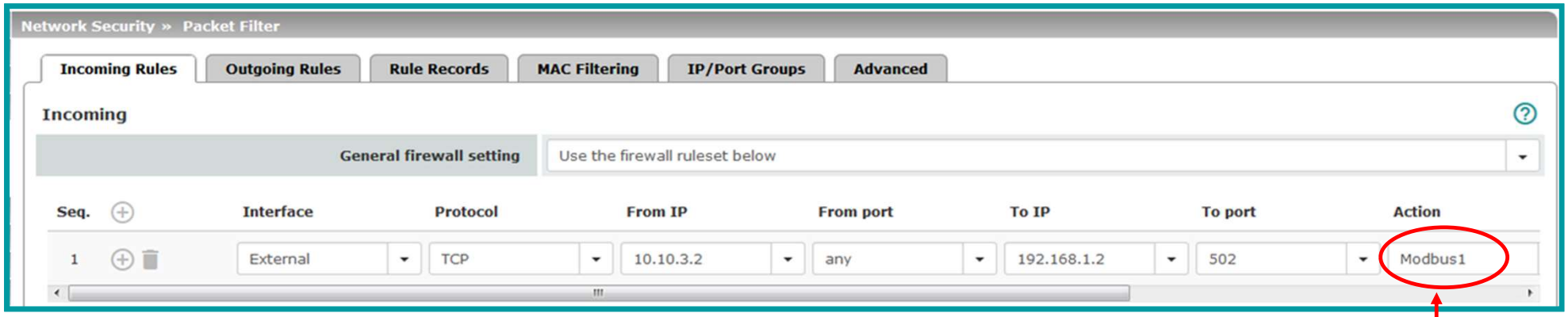


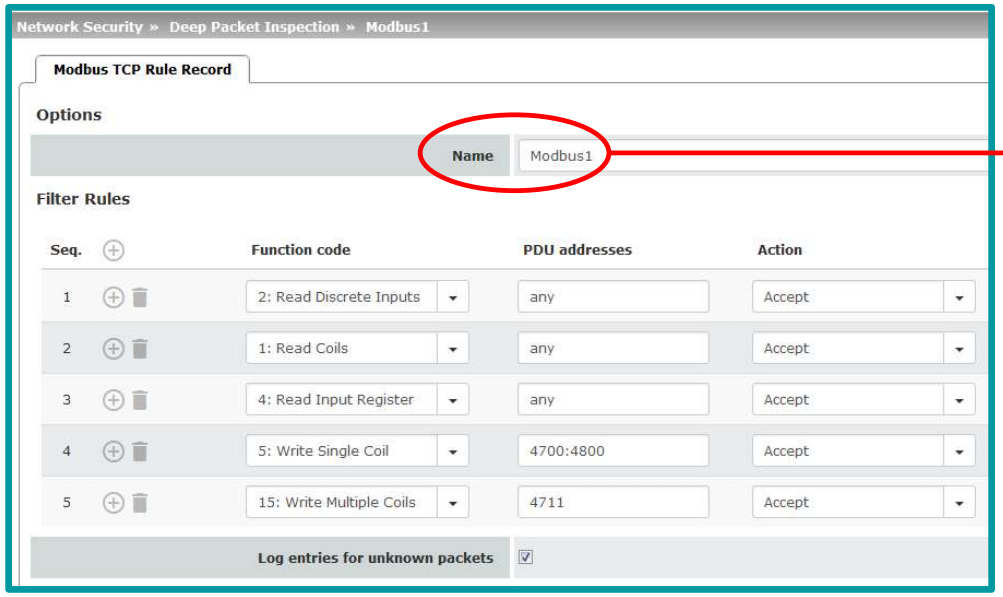


FL MGUARD LIC MODBUS Inspector (2702980)
FL MGUARD LIC OPC INSP Classic (2702191)

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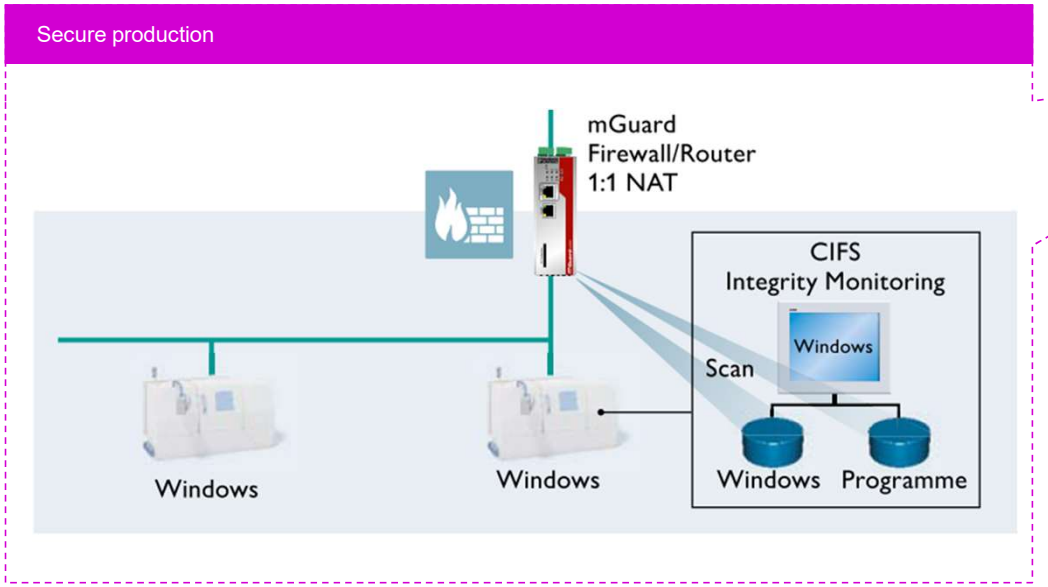
Deep Package Inspection: Modbus TCP

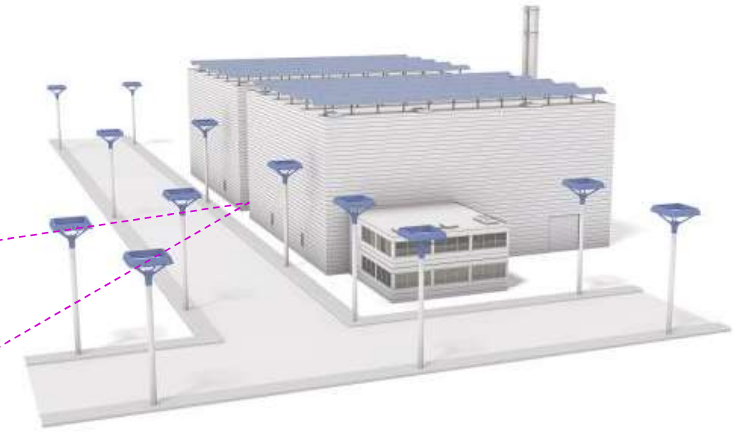




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CIFS Integrity Monitoring

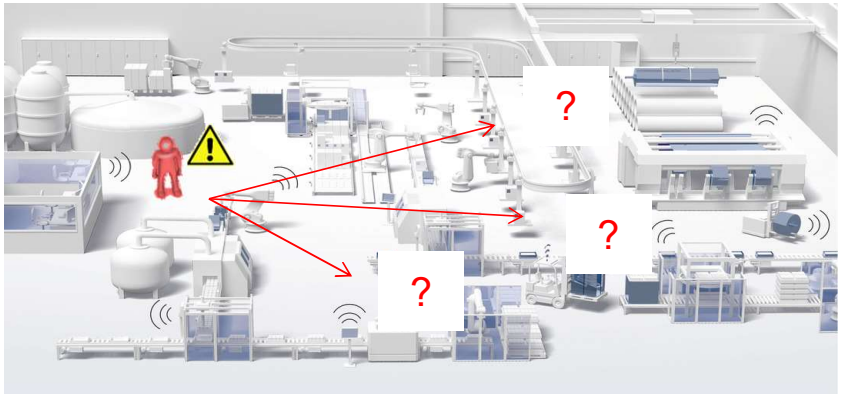




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Foreign service technician

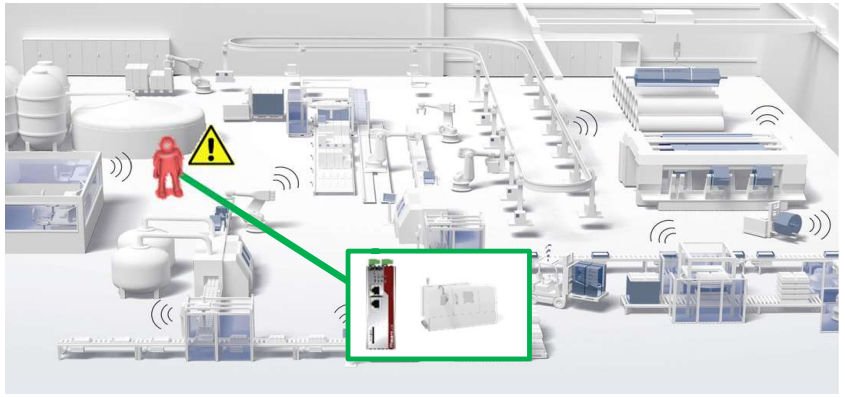




:

Foreign service technician

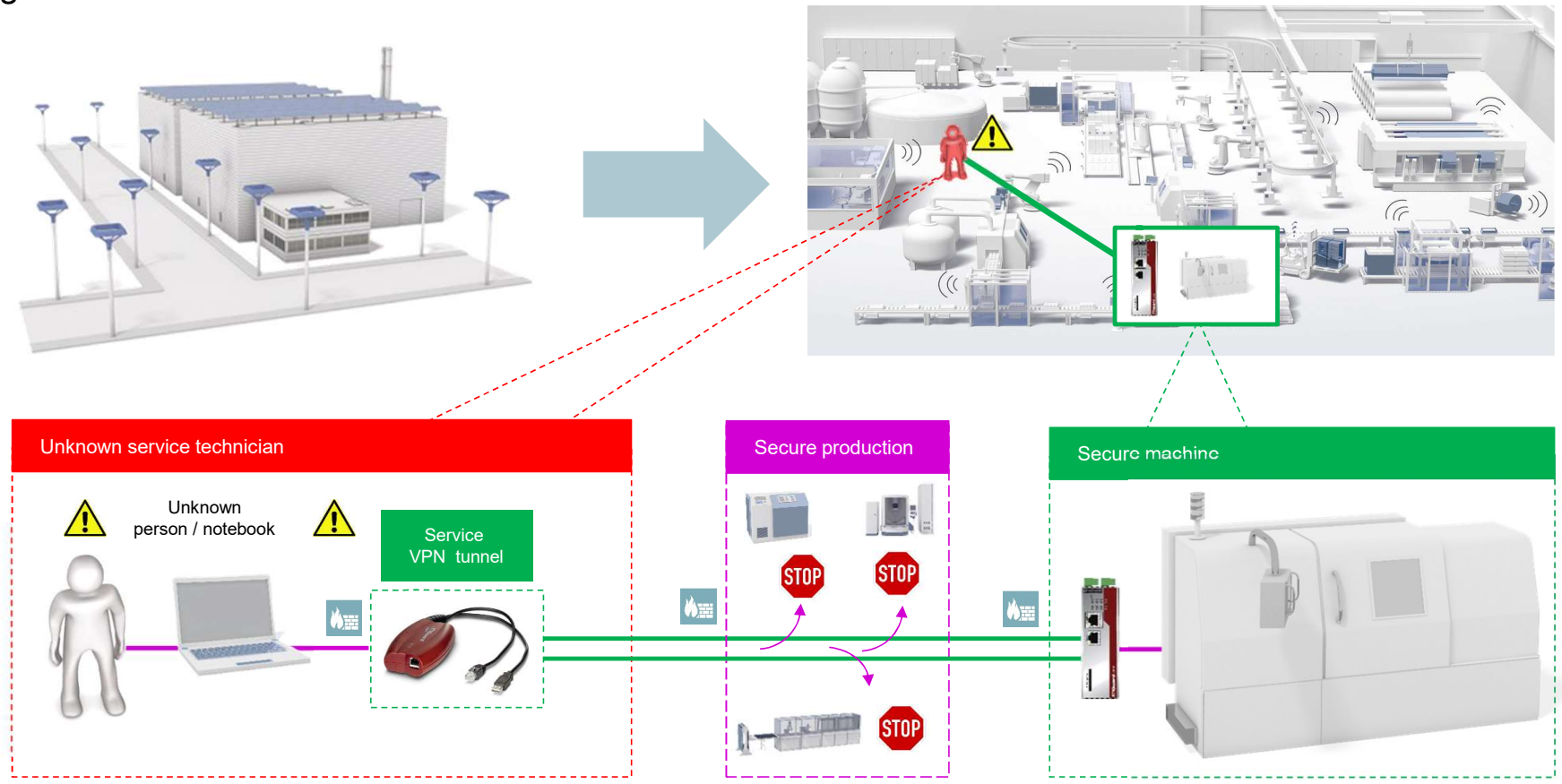






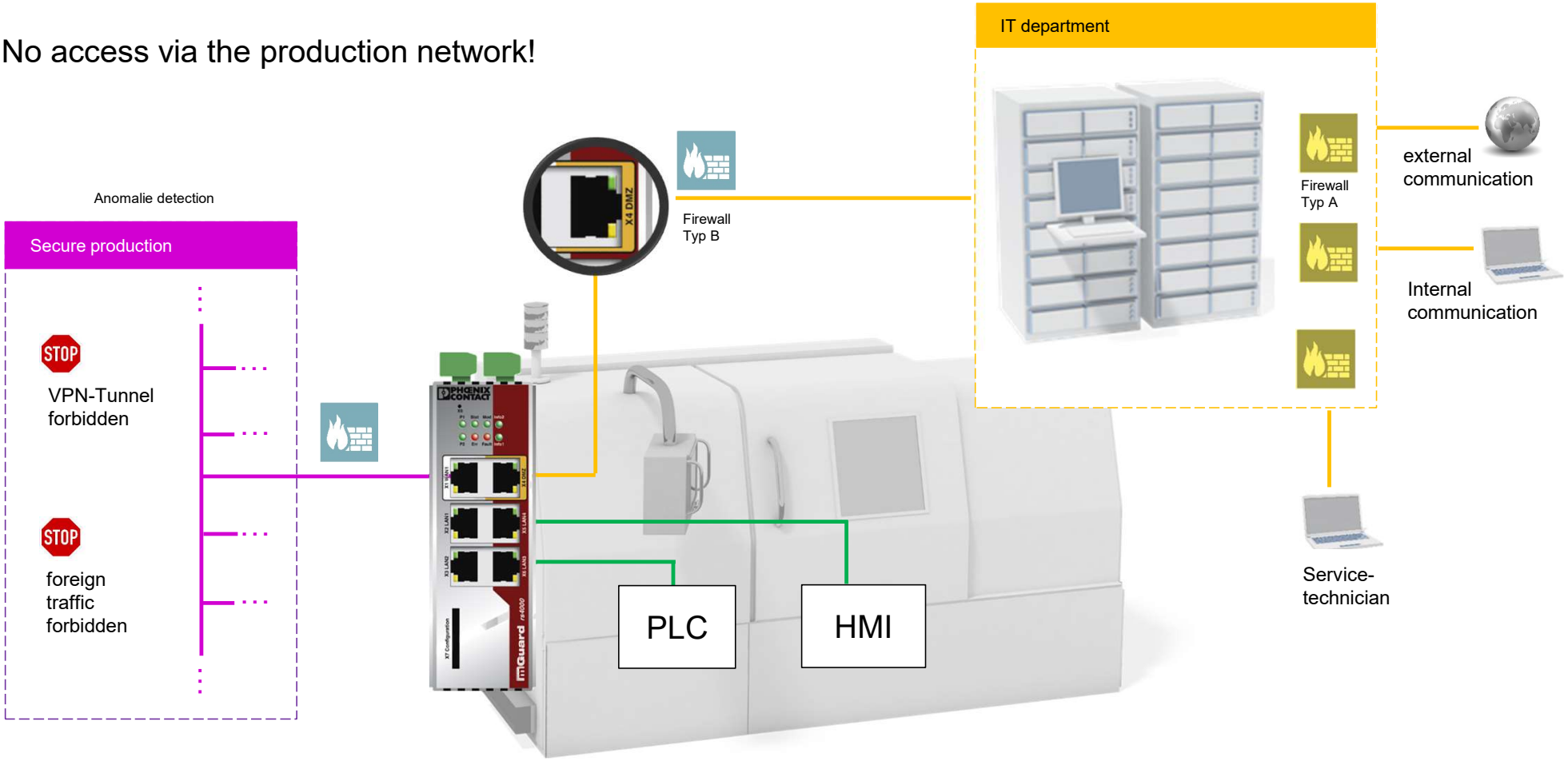
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Foreign service technician



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No access via the production network!



FL MGUARD RS4004 TX/DTX VPN (2701877)
FL MGUARD RS4004 TX/DTX (2701876)

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Device management



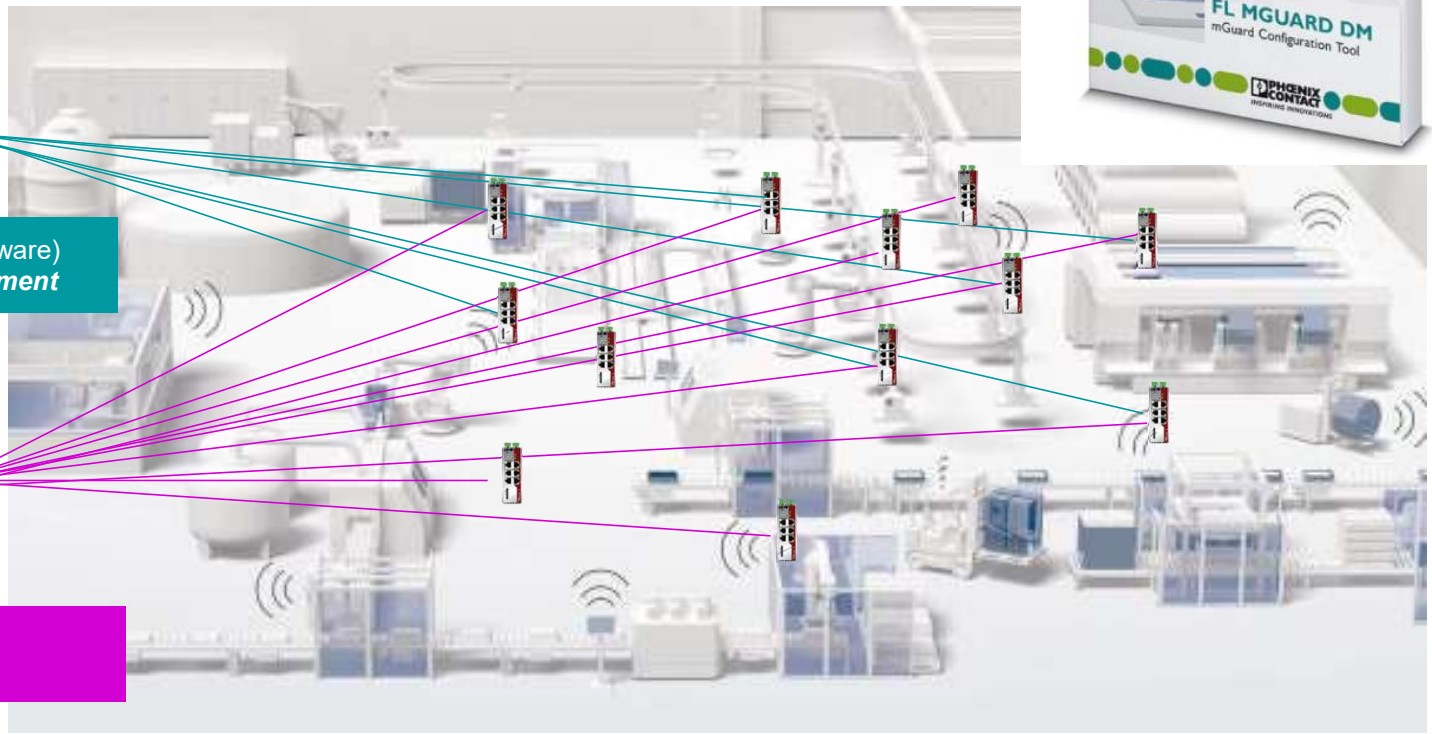
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Device management





FL MGUARD DM Unlimited (Software)
Configuration / Patch Management





Radius Server:
Passwort Management

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Products alone are not everything

SecurITy made in Germany
TeleTrusT Quality Seal
www.teletrust.de/itsmig



+



Own hardware development
and production (Bad Pyrmont)

Own firmware development
(Berlin)

Link: https://www.teletrust.de/en/itsmig/

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Products alone are not everything



Official website of the Department of Homeland Security

ICS-CERT

INDUSTRIAL CONTROL SYSTEMS CYBER EMERGENCY RESPONSE TEAM

HOME | ABOUT | ICSJWG | INFORMATION PRODUCTS | TRAINING | FAQ

Control Systems

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- Calendar
- ICSJWG
- Information Products
- Training
- Recommended Practices
- Assessments
- Standards & References
- Related Sites
- FAQ

Advisory (ICSA-17-131-01)

Phoenix Contact GmbH mGuard

Original release date: May 11, 2017

More Advisories

Print | Tweet | Send | Share

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CVSS v3 8.6

ATTENTION: Remotely exploitable/low skill level to exploit

Vendor: Phoenix Contact GmbH

Equipment: mGuard

Vulnerabilities: Resource Exhaustion, Improper Authentication

AFFECTED PRODUCTS

The following versions of mGuard, a network device, are affected:

- mGuard firmware versions 8.3.0 to 8.4.2

Firmware was not bad.
It is now even better.

Source: https://ics-cert.us-cert.gov/advisories/ICSA-17-131-01

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Products alone are not everything

fast + accurate

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Open partnership

Security information and event management (SIEM)



Anomaly detection



Link: https://www.teletrust.de/en/itsmig/

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Cyber Security

New mGuard 1100

new





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Remote Maintenance



TC CLOUD CLIENT

Only **remote maintenance**



MGUARD RS2000

Remote maintenance and **integration** of machines into the factory network



MGUARD RS4000

Remote maintenance (optionally via mobile radio) and **integration** of machines into **complex** factory networks

Remote connections with mGuard portfolio

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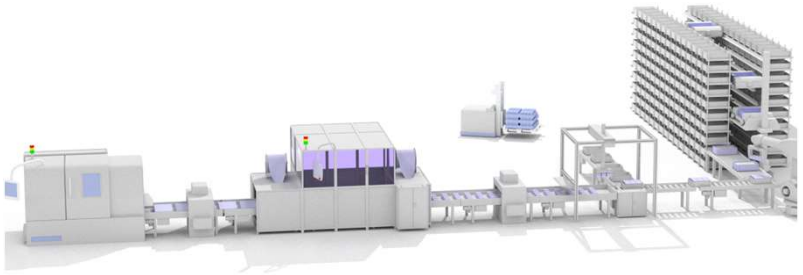
Why remote maintenance?

Aim of the remote maintenance



Service Technician

Secure remote access



Machine

Target:

- Monitoring, control, maintenance concepts 24/7
- Predictive maintenance - avoidance of malfunctions and failures
- Reduce reaction times

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Why remote maintenance?

Advantages of remote maintenance

Saving time and money
in the event of servicing

Reduce or avoid machine
downtime

Expert knowledge also on
discarding sites



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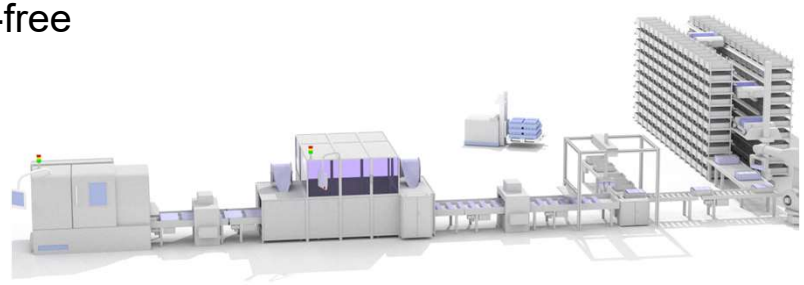
Remote maintenance access

Remote maintenance access

What are the requirements?

Secure, reliable and trouble-free remote access

Firewall in the VPN tunnel to secure access



Simple integration of machines / plants

Worldwide access

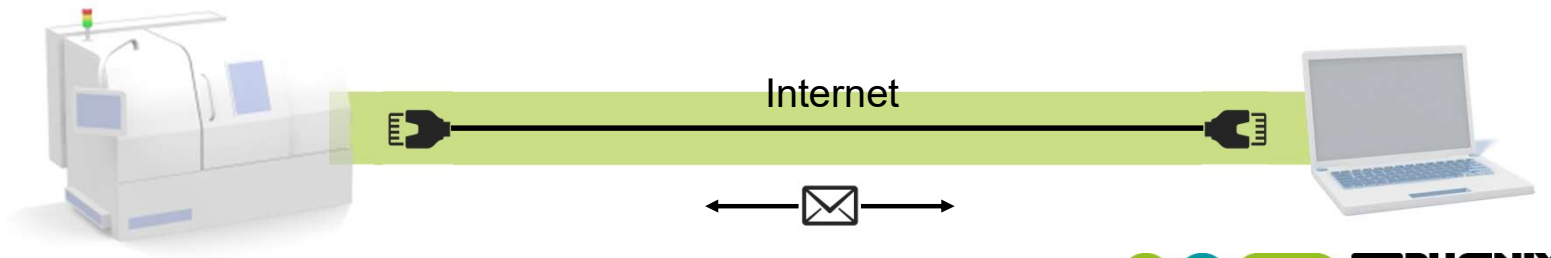
VPN communication without changes to the corporate firewall

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Remote maintenance access

VPN

- VPN means Virtual Private Network
- A VPN connection enables encrypted, targeted transmission of data via public networks such as the Internet.



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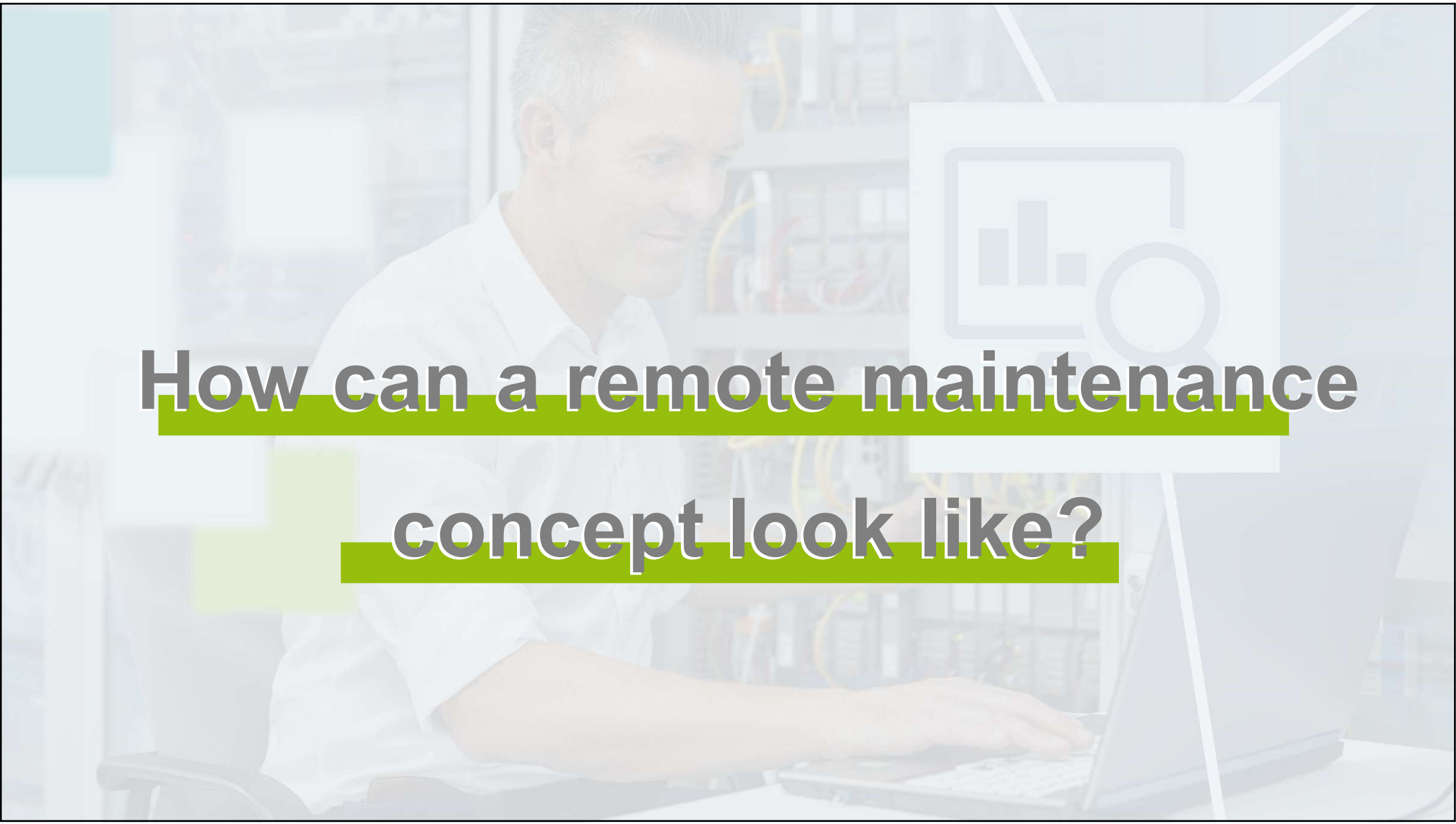
Remote maintenance access

Secure remote access



- Secure data transmission via VPN tunnel
- All accesses are traceable
- Connection only on request
- Key switch on machine for connection establishment
- SMS or call to Router to initiate remote maintenance
- No access to the superimposed network
- Use of modern encryption standards (IPSec, OpenVPN)

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How can a remote maintenance concept look like?

How can a remote maintenance concept look like?

VPN Server vs. Cloud



Wired Internet connection

Mobile network

- Secure transparent communication channel is established between two devices via the Internet

or



Wired Internet connection

Mobile network

- Secure transparent communication channel is established between the field device and the service technician, over the Internet and the mGuard Secure Remote Service

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How can a remote maintenance concept look like?

VPN Server - General



Secure, transparent communication channel

Access rights freely definable

Own control over the VPN connections



Business Internet access required (Fix-IP)

Firewall, routing and VPN functionality to protect against malicious cyber attacks

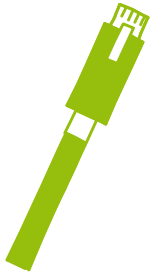
Use of certificates or passwords

IT know-how necessary

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How can a remote maintenance concept look like?

Wired vs. mobile telephony



Cabled Internet connection

- ✓ Simply
- ✓ Cost-effective

or



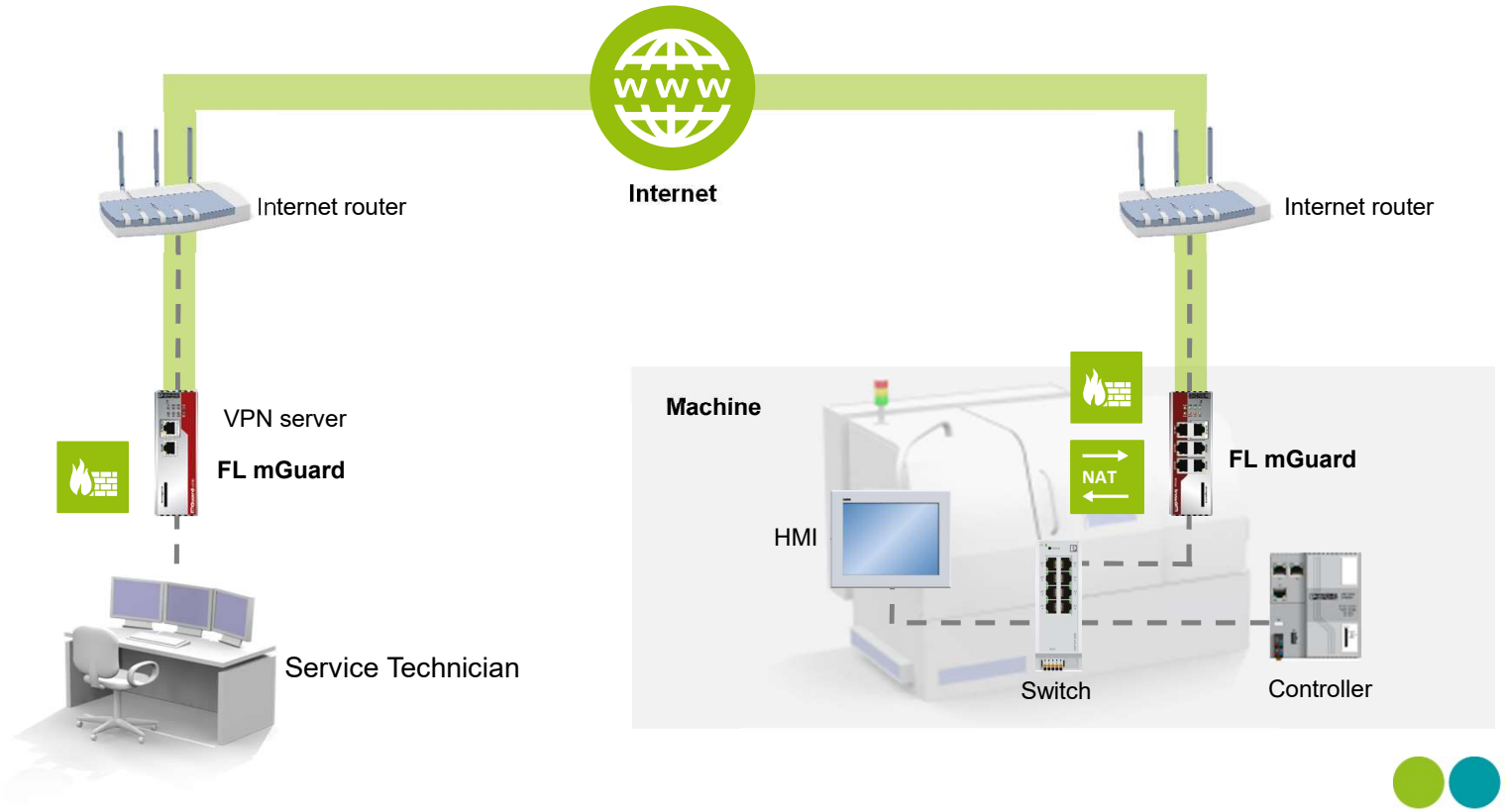
Mobile radio (2G / 3G / 4G)

- ✓ High area coverage
- ✓ No cable-based Internet connection required on site

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How can a remote maintenance concept look like?

VPN Server - Wired Internet connection



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How can a remote maintenance concept look like?

VPN Server - Wired Internet connection



FL mGuard

+ NAT function

Allows you to replace the destination or source IP address of a data packet with another address

+ Central Management Tool

Central device management software for MGUARDs for any number of devices in the field.

- Central configuration of several thousand appliances
- template-based management tool
- Suitable for remote maintenance applications

+ Firewall Function

Protects connected network against unwanted network access

+ DMZ Port

Connection for local service technicians who are only allowed certain accesses to the network

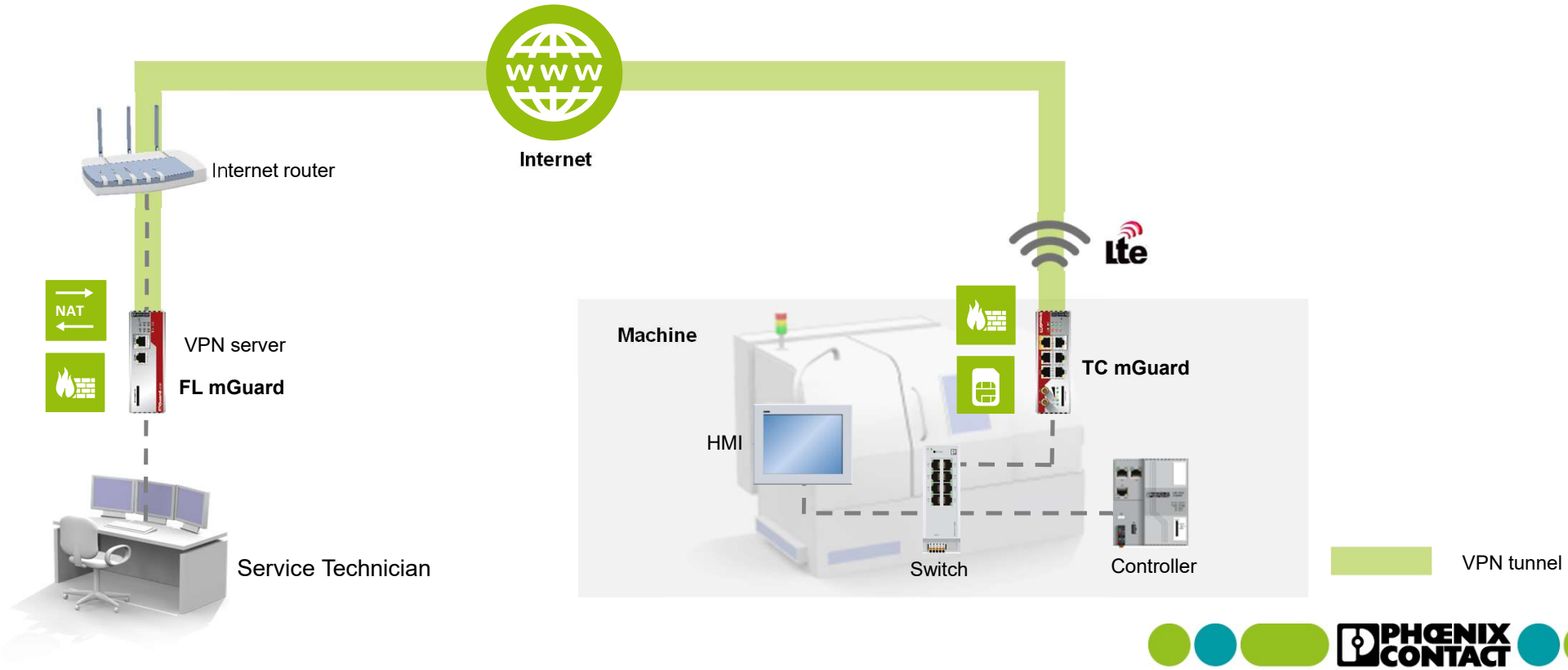
+ No special VPN client software required

Service technicians can connect any computer to the VPN server (FL mGuard)

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INSPIRING INNOVATIONS

How can a remote maintenance concept look like?

VPN Server - mobile phone network (2G / 3G / 4G)



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INSPIRING INNOVATIONS

How can a remote maintenance concept look like?

VPN Server - mobile phone network (2G / 3G / 4G)

+ Higher reliability

WAN and mobile radio Connection to the device.

Two SIM cards can be used in order to establish mobile communications with different providers. It is

+ No special VPN client software required

Service technicians can connect any computer to the VPN server (FL mGuard)



TC mGuard

+ 4G Mobile Router (LTE)

Fallback to 3G (UMTS/HSPA) or 2G (GPRS/EDGE)

Firewall Function +

Protects connected network against unwanted network access

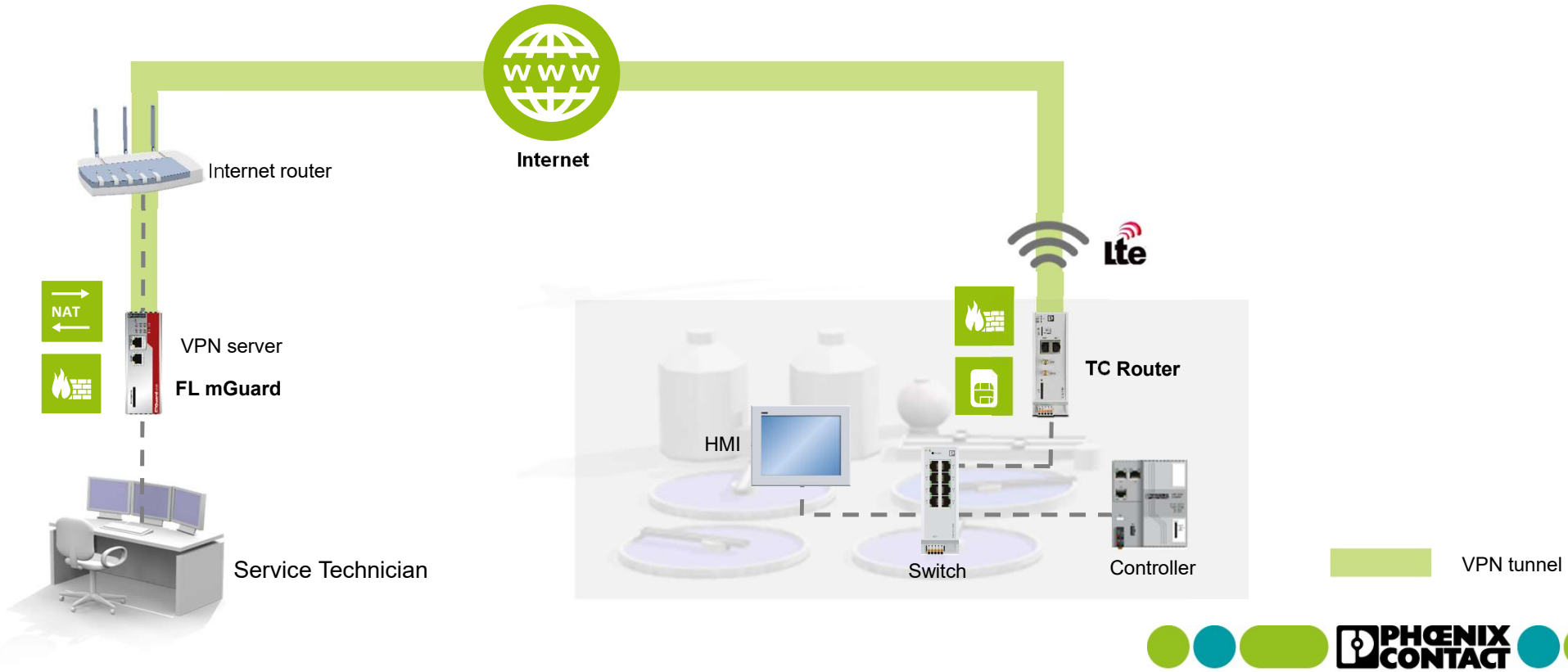
DMZ Port +

Connection for local service technicians who are only allowed certain accesses to the network

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How can a remote maintenance concept look like?

VPN Server - mobile phone network (2G / 3G / 4G)



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How can a remote maintenance concept look like?

VPN Server - mobile phone network (2G / 3G / 4G)

+ Cheaper solution

Cheaper solution compared to the mGuard, as the functions are reduced.

+ Up to three VPN tunnels simultaneously

VPN remote start by call or SMS



TC Router

4G Mobile Router (LTE) +

Fallback to 3G (UMTS/HSPA) or 2G (GPRS/EDGE)

Firewall +

Stateful-Inspection- Firewall for dynamic filters

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How can a remote maintenance concept look like?

VPN Server - mobile phone network (2G / 3G / 4G)



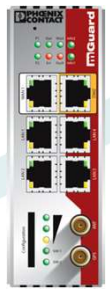
TC ROUTER

Universal cellular router, simple firewall



MGUARD RS2000

Remote communication with redundant providers, simple firewall



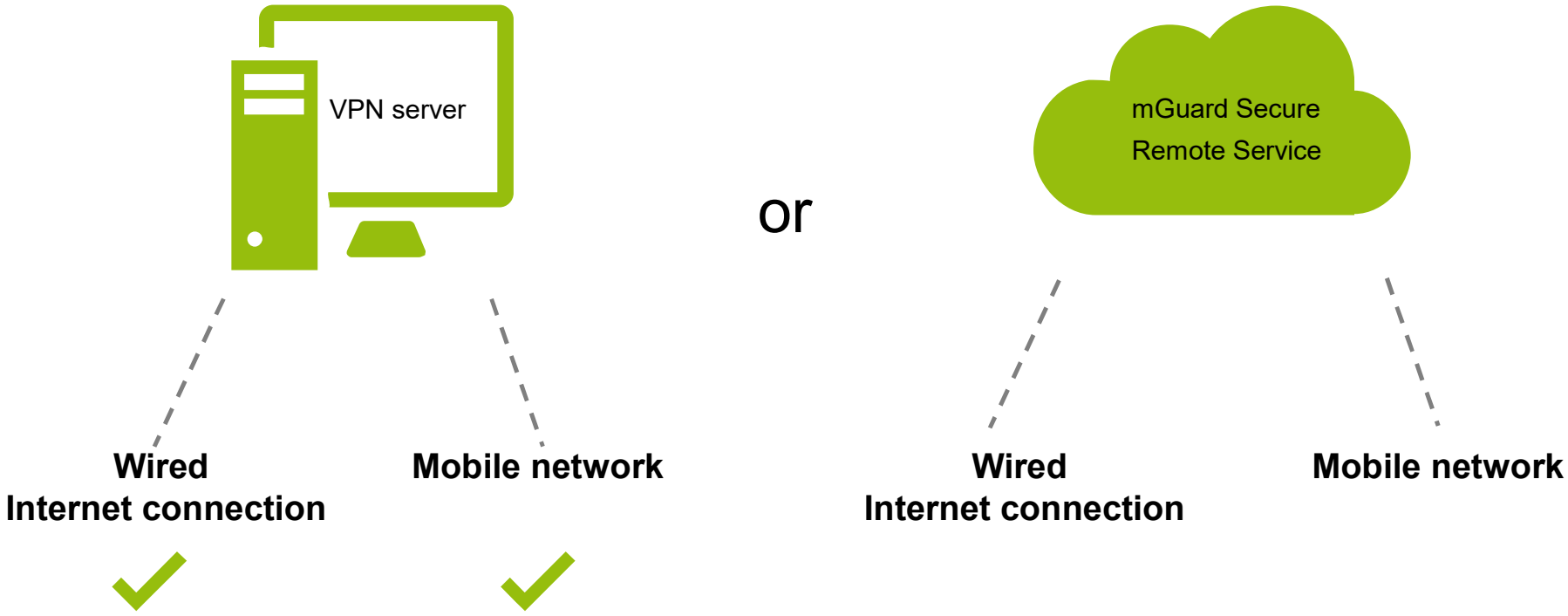
MGUARD RS4000

Remote communication with fallback->
WAN to the mobile network, intelligent firewall

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How can a remote maintenance concept look like?

VPN Server vs. Cloud



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How can a remote maintenance concept look like?

Cloud - General



Secure transparent communication channel over the Internet with the mGuard Secure Remote Service

Turnkey VPN solution

mGuard Secure Remote Service

No IT know-how necessary

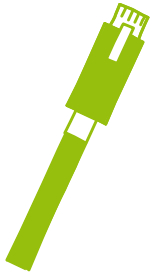
Any Internet access can be used

Simple commissioning through configuration wizard

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How can a remote maintenance concept look like?

Wired vs. mobile telephony



Cabled Internet connection

- ✓ Simply
- ✓ Cost-effective

or



Mobile radio (2G / 3G / 4G)

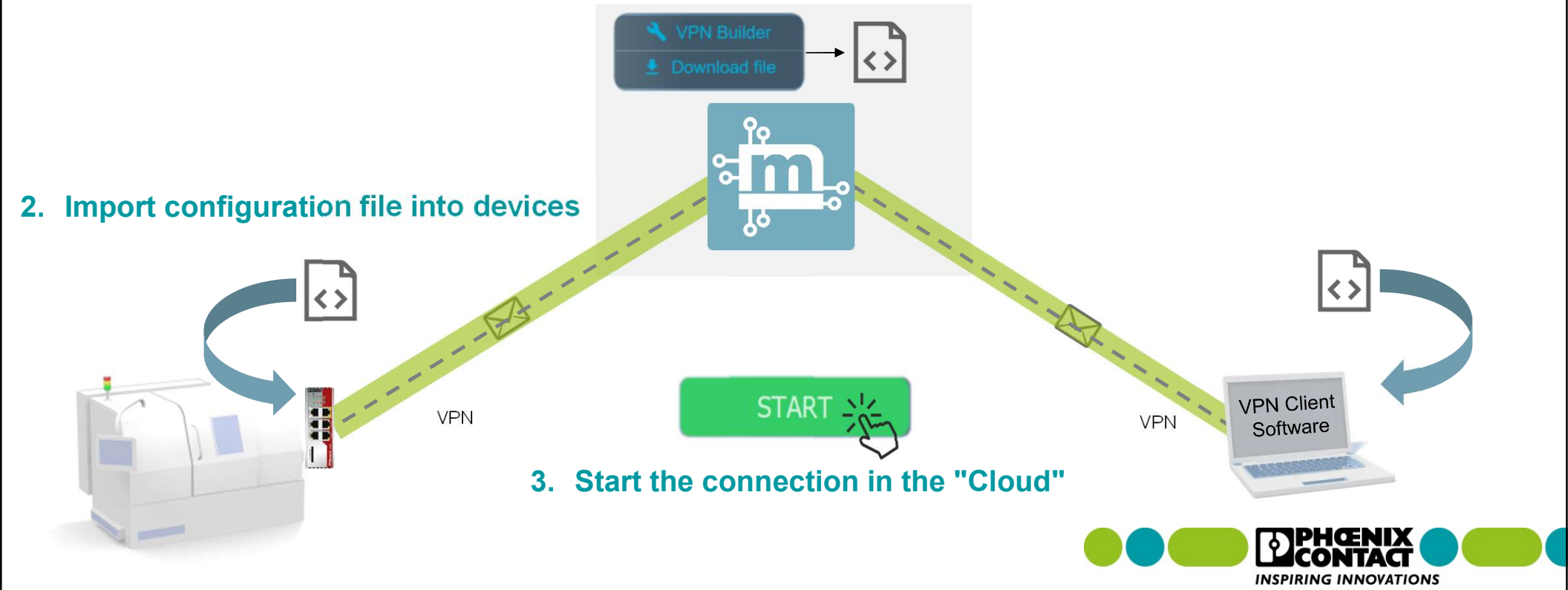
- ✓ High area coverage
- ✓ No cable-based Internet connection required on site

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How can a remote maintenance concept look like?

Cloud – Configuration in 3 steps

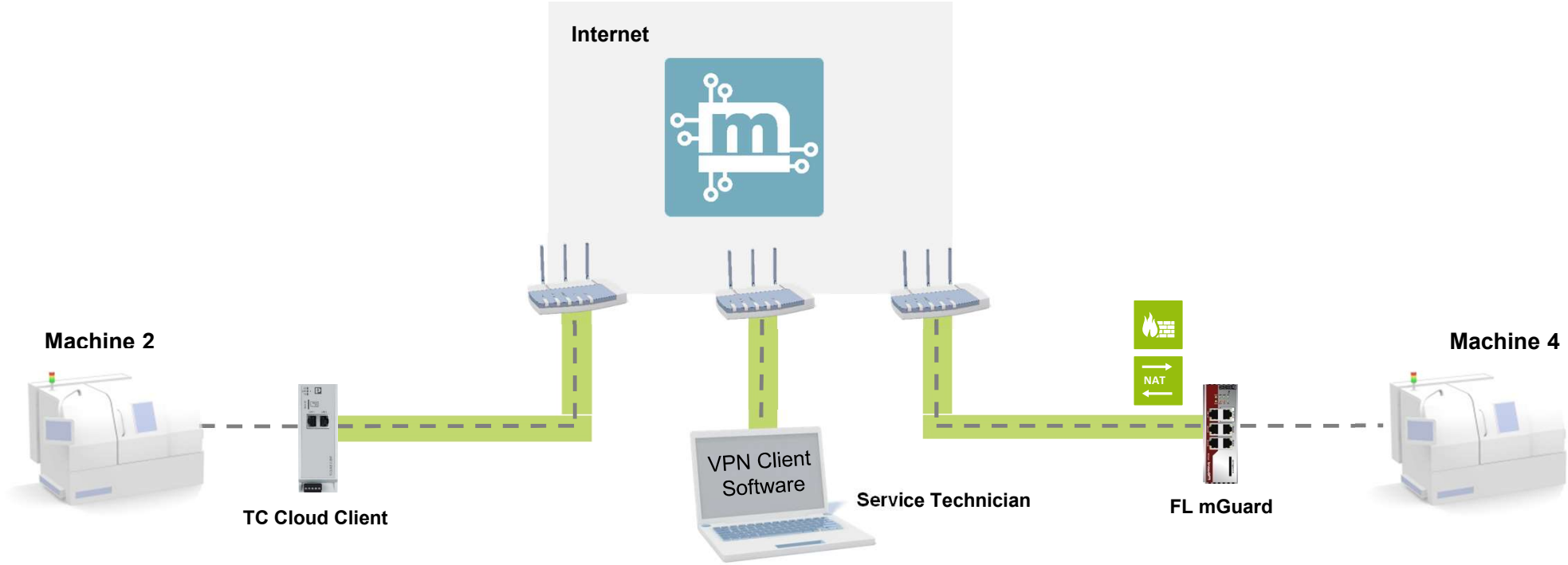
1. Create configuration file for devices



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How can a remote maintenance concept look like?

Cloud - Wired Internet access



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How can a remote maintenance concept look like?

Cloud - Wired Internet access

+ Firewall Function

Protects connected network against unwanted network access

+ DMZ Port

Connection for local service technicians who are only allowed certain accesses to the network



FL mGuard



TC Cloud Client

Only for "simple" Remote maintenance +

No firewall function

Direct integration into existing networks +

Simple Internet connection is sufficient

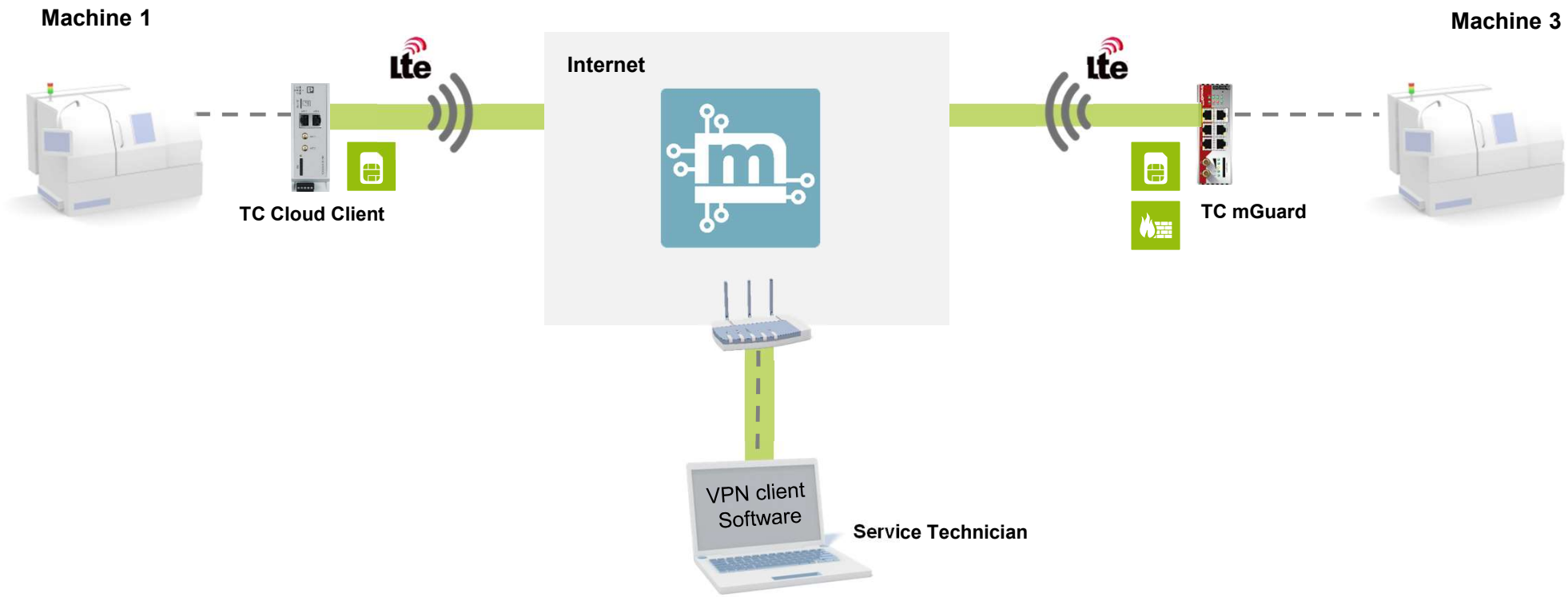
WAN and LAN Connection on the device

Simple Internet connection is sufficient

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How can a remote maintenance concept look like?

Cloud - Mobile network (2G / 3G / 4G)



How can a remote maintenance concept look like?

Cloud - Mobile network (2G / 3G / 4G)

+ Firewall Function

Protects connected network against unwanted network access

+ DMZ Port

Connection for local service technicians who are only allowed certain accesses to the network



TC mGuard



TC Cloud Client

Only for "simple" Remote maintenance +

No firewall function

4G Mobile Router (LTE) +

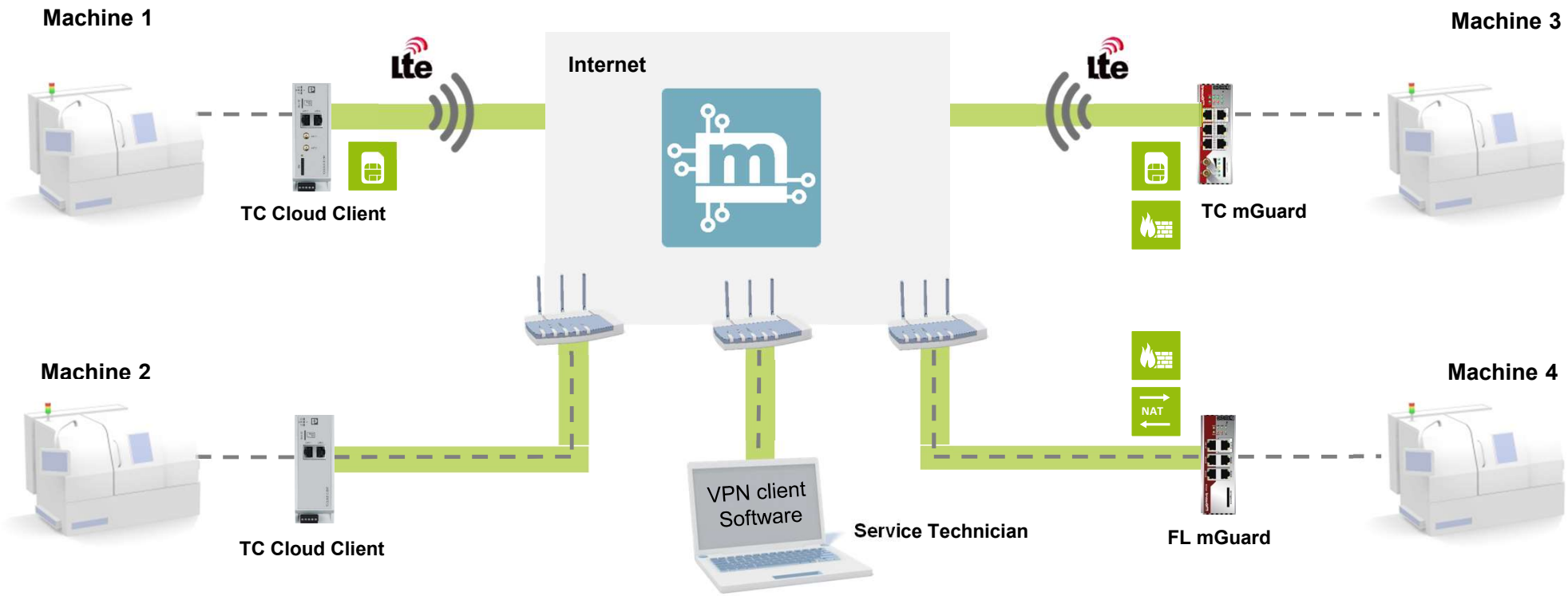
Connects networks with the mGuard Secure Remote Service (Cloud only) over the mobile network.

WAN and mobile telephony Connection on the device

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How can a remote maintenance concept look like?

Cloud - Mobile network (2G / 3G / 4G)



PHOENIX CONTACT
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How can a remote maintenance concept look like?

Cloud - General



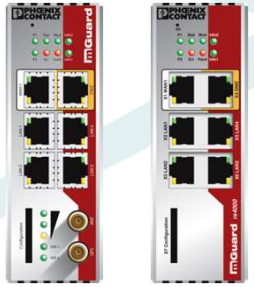
TC CLOUD CLIENT

Only **remote maintenance**



MGUARD RS2000

Remote maintenance and **integration** of machines into the factory network



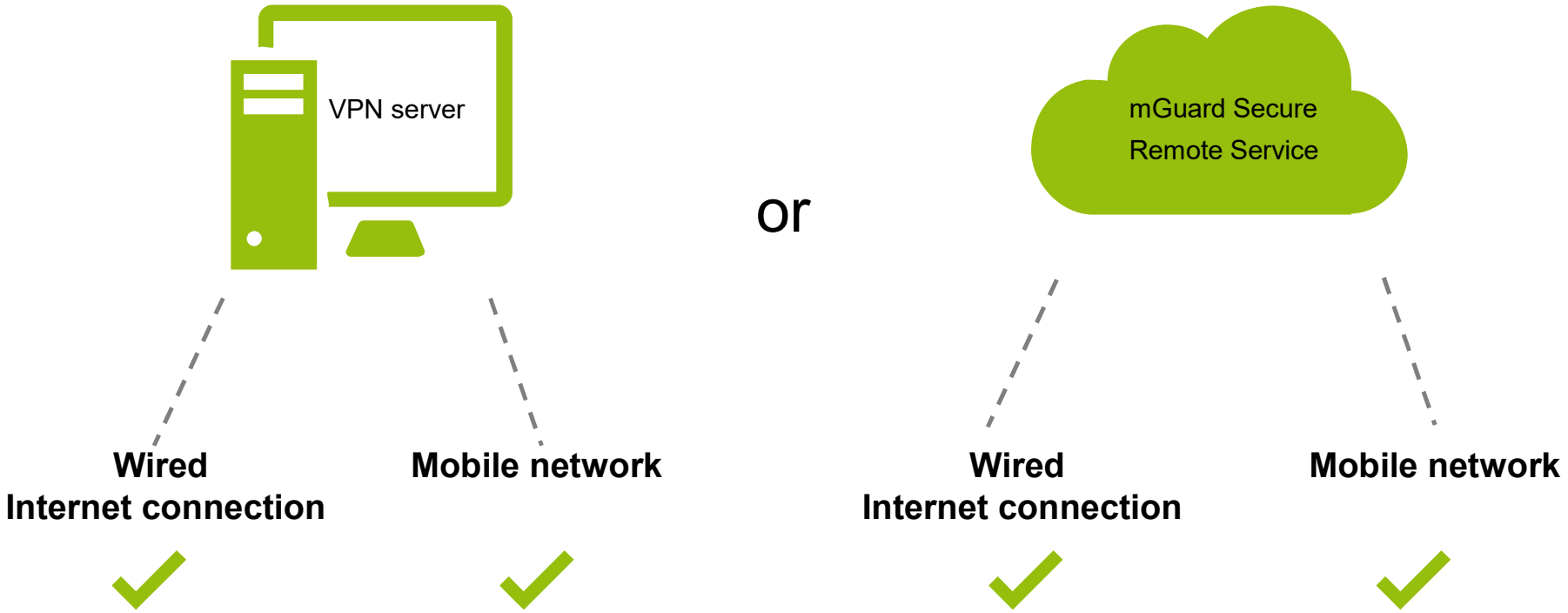
MGUARD RS4000

Remote maintenance (optionally via mobile radio) and **integration** of machines into **complex** factory networks

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How can a remote maintenance concept look like?

VPN Server vs. Cloud



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How can a remote maintenance concept look like?

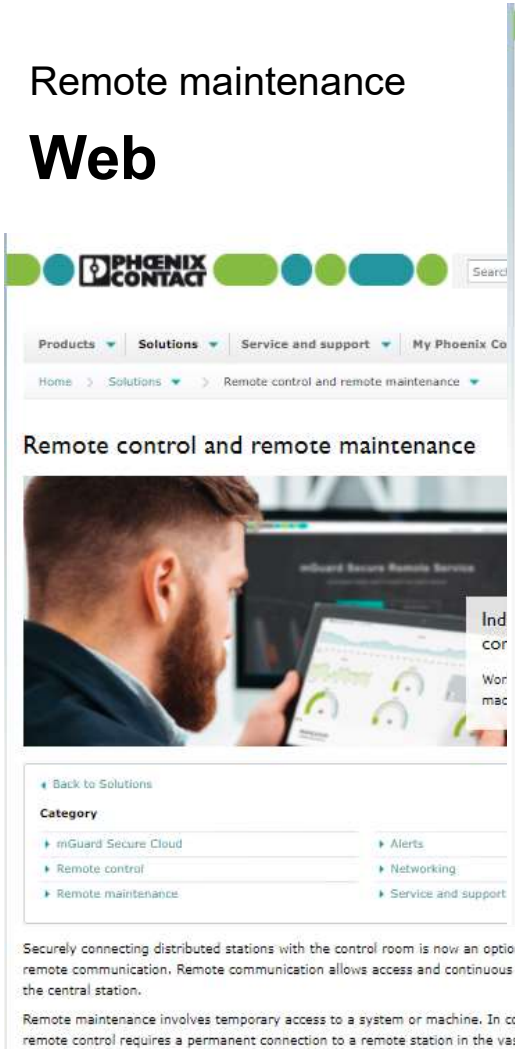
Overview

	VPN server	mGuard Secure Remote Service
Description	▪ Secure transparent communication channel is established between two devices via the Internet	▪ Secure transparent communication channel is established between the field device and the service technician, over the Internet and the mGuard Secure Remote Service
Internet connection	▪ Business Internet access required (Fix IP address)	▪ Any Internet access can be used
Advantages	▪ Firewall. Routing and VPN functionalities for Cyber Attack Protection ▪ Complete self control of the VPN tunnel	▪ Turnkey VPN solution ▪ Simple commissioning through configuration wizard ▪ Secure transparent communication channel
Additional features	▪ Encryption certificates required ▪ No access to the superimposed network via VPN possible (conditional firewall)	▪ Support for iOs devices like iPad and iPhone ▪ Logbook - Access logging of all accesses ▪ Free Basic Account
Devices	▪ WIRED: FL mGuard.. ▪ MOBILE: TC Router, TC mGuard..	▪ WIRED: TC Cloud Client..TX, FL mGuard.. ▪ MOBILE: TC Cloud Client..4G, TC mGuard..
IT expertise	■■■□□	■□□□□

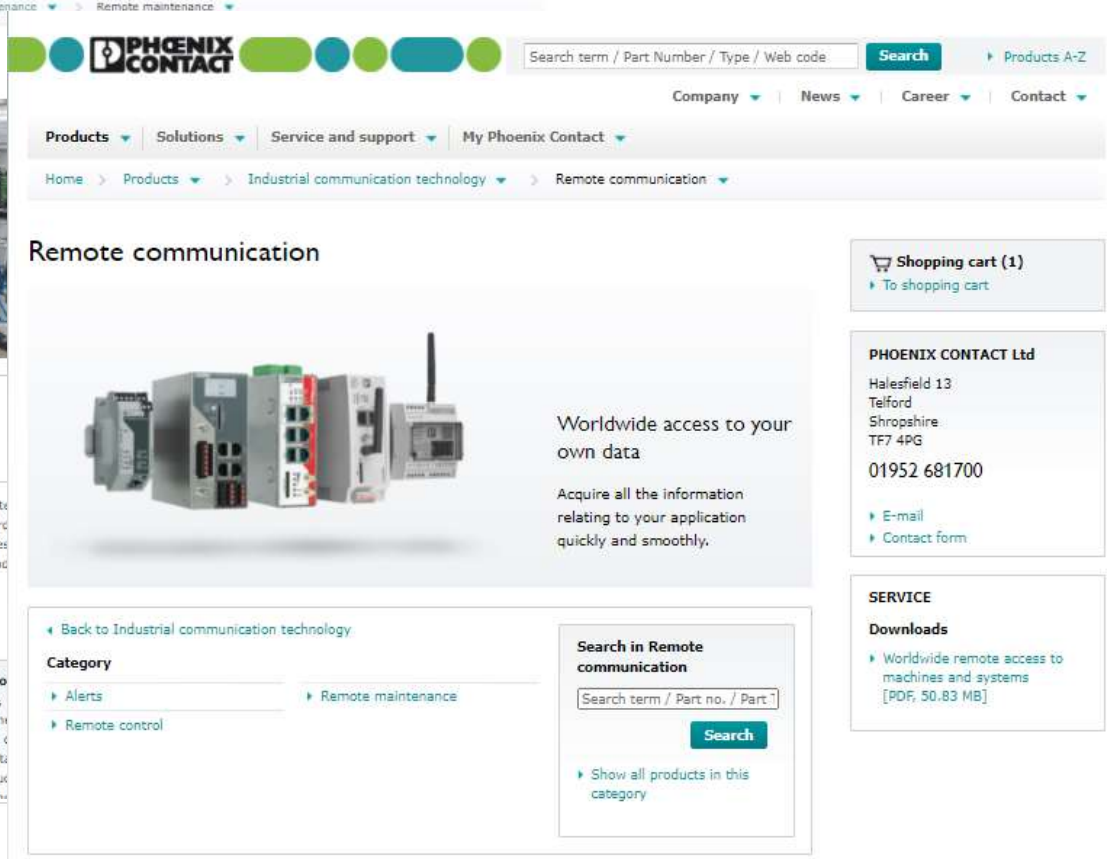
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Remote maintenance

Web







INSPIRING INNOVATIONS

mGuard secure cloud

Remote Maintenance

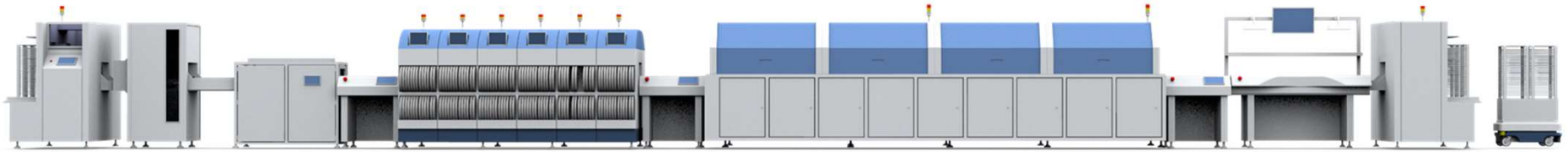


Remote maintenance with mGuard Secure Cloud

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Example

Machine Integration



Example FL MGUARD 1100 and it´s NAT Function

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Network Address Translation (NAT)-Solutions

NAT + Firewall



mGuard 1100

NAT + managed Switch



NAT 2000

NAT + Security + managed Switch

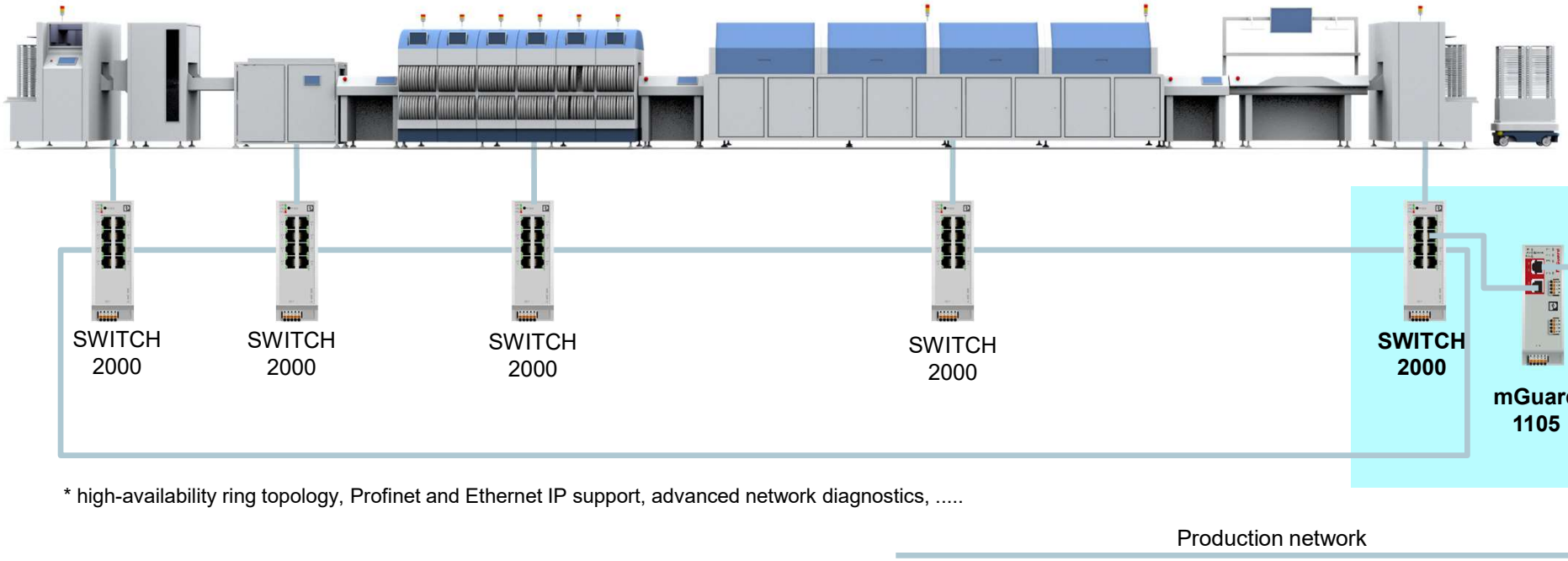


mGuard 1100 & Switch 2000

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Secure machine integration

NAT + Security + managed Switch*

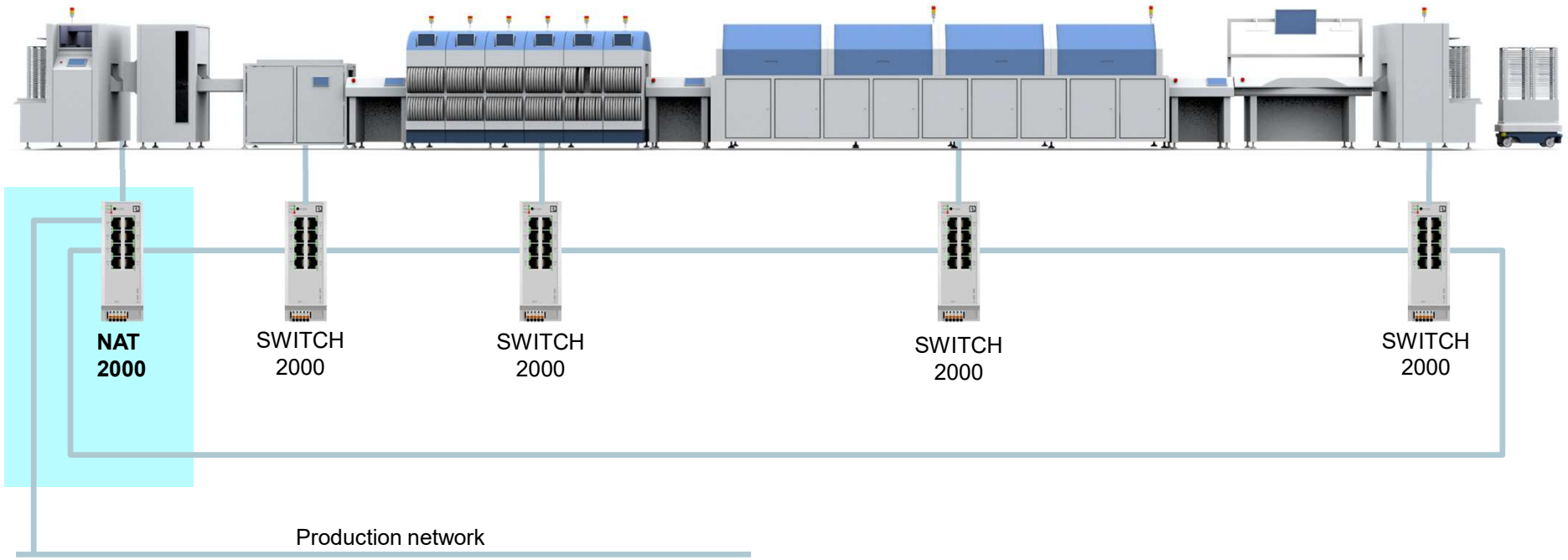


* high-availability ring topology, Profinet and Ethernet IP support, advanced network diagnostics, ...

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Network integration

NAT + managed Switch*

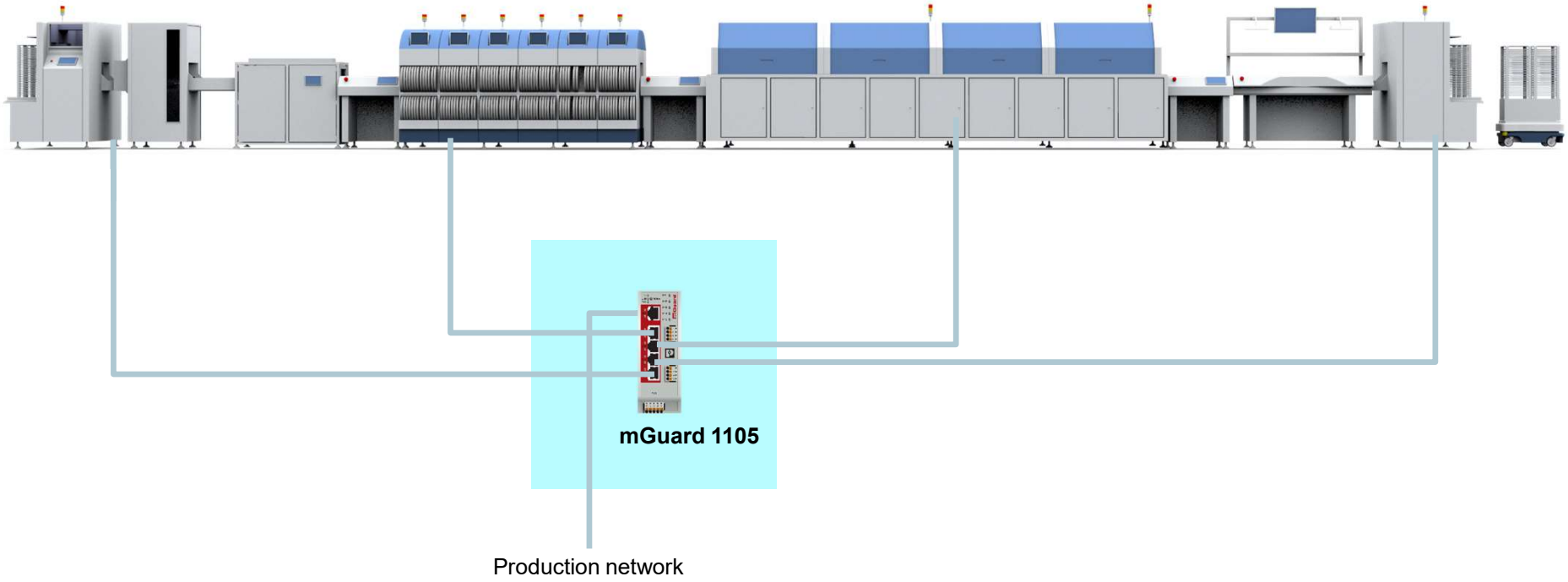


* high-availability ring topology, Profinet and Ethernet IP support, advanced network diagnostics, ...

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Secure network integration

NAT + Security



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Technical facts

mGuard 1102/1105

5 multicolor LED

Computing power
- ARMv8 64-bit processor
- Marvell ARMADA 88F3720 / 1 GHz CPU clock
- 1024 Mbyte DDR3 SDRAM
- 4 GB flash memory
- TPM 2.0
- Real time clock
- 4 port unmanaged switch (1105)



3 x digital IO
currently one used*

SD card slot
backside

Ethernet ports
- RJ45 | Full Duplex | Auto-MDIX
- Ethernet
- Fast Ethernet
- Gigabit Ethernet

Operating temperature
0° to 60°C *

24V DC
no redundant power supply *

Push-In terminals
all on the front level

* Further information in the comment area of this PowerPoint or on request

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Industrial Security-Router with mGuard security technology

mGuard 1102/1105



- Stateful-Inspection-Firewall
- Standard-Routing, NAT, 1:1-NAT, Port-Forwarding
- "Stealth Mode" for secure network segmentation without changing the network or its configuration (Layer 2 transparent)

Key Feature:

- **Gigabit-Speed**
- **mGuard Security Technology** for secure network protection
- **Automatic firewall rule creation** based on a reference communication

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INSPIRING INNOVATIONS

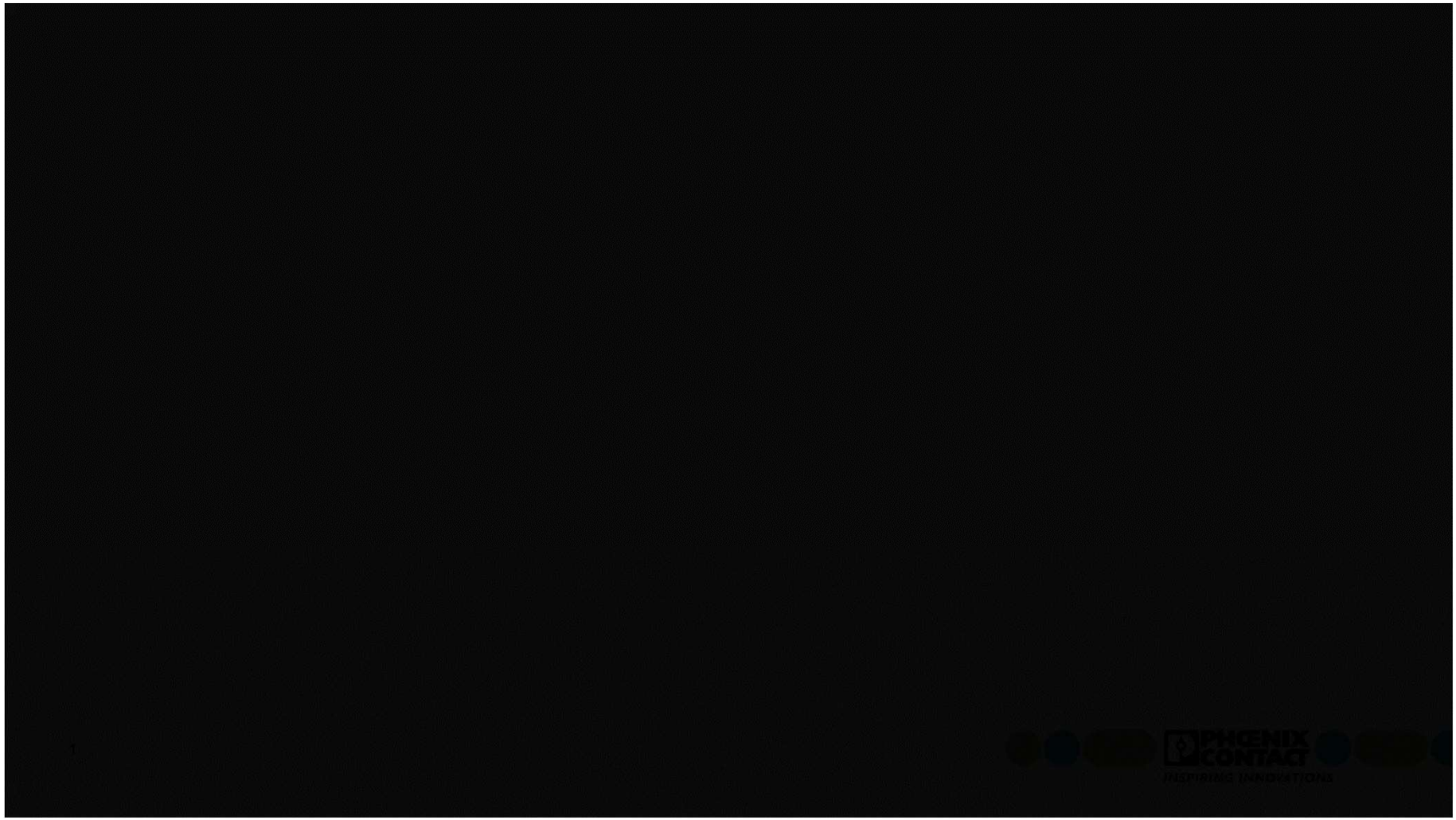
mGuard 1100



The industrial NAT Firewall,
connecting networks easy and secure.

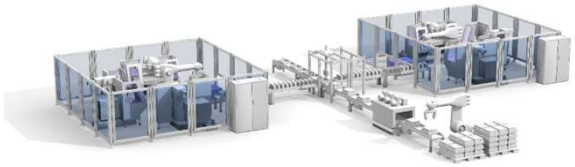
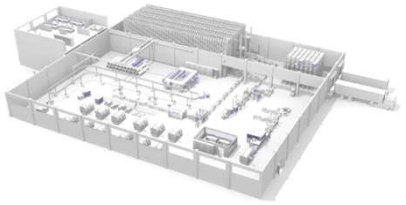
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mGuard product families

mGuard 1000	mGuard 2000	mGuard 4000
		
Integrate machines in production networks securly	**Secure remote access + security**	**Integration of OT security into the IT security infrastructure**
Key Features Routing, NAT, Firewall with assistent High data throughput	**Key Features** VPN remote access mGuard secure cloud Firewall	**Key Features** IP/Port Groups, Emergency Mode, User firewall, DMZ, Network Access Server, ….. High Performance

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Result

Our mGuards make everyone happy



+



+



Machine builder ☺

Production ☺

IT department ☺

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Cyber Security

New mGuard 1100

new



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Cyber security for the control cabinet with COMPLETE line

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mGuard 1100

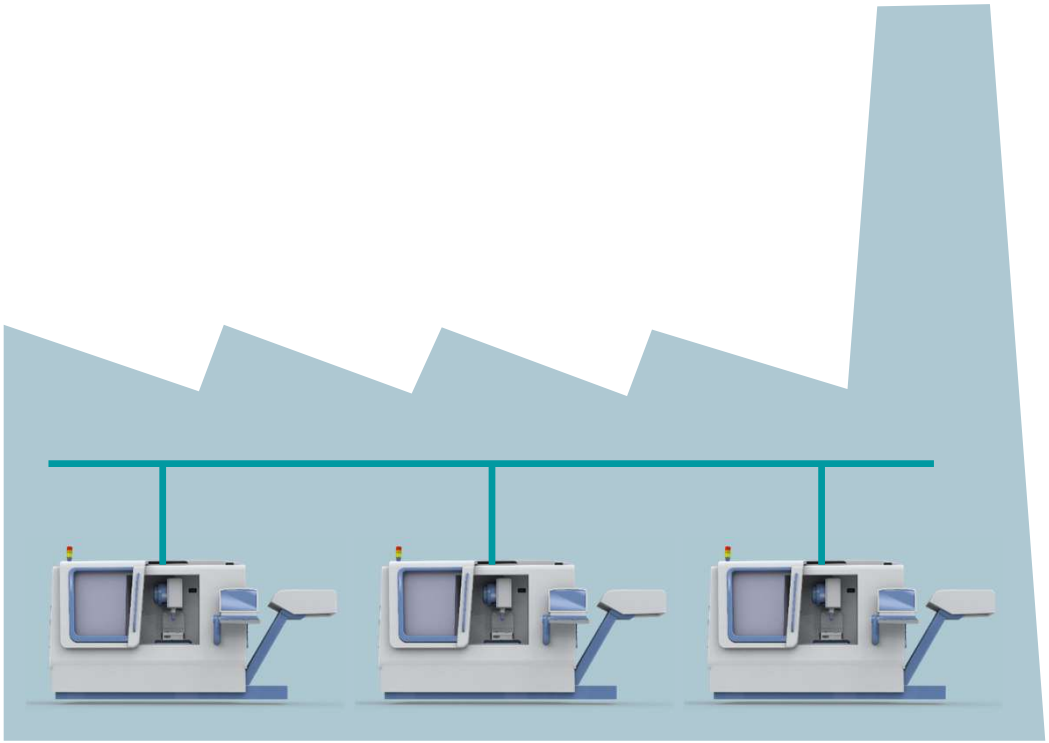
The industrial NAT Firewall, connecting networks easy and secure.



… for the automation technician (OT).

mGuard 1100

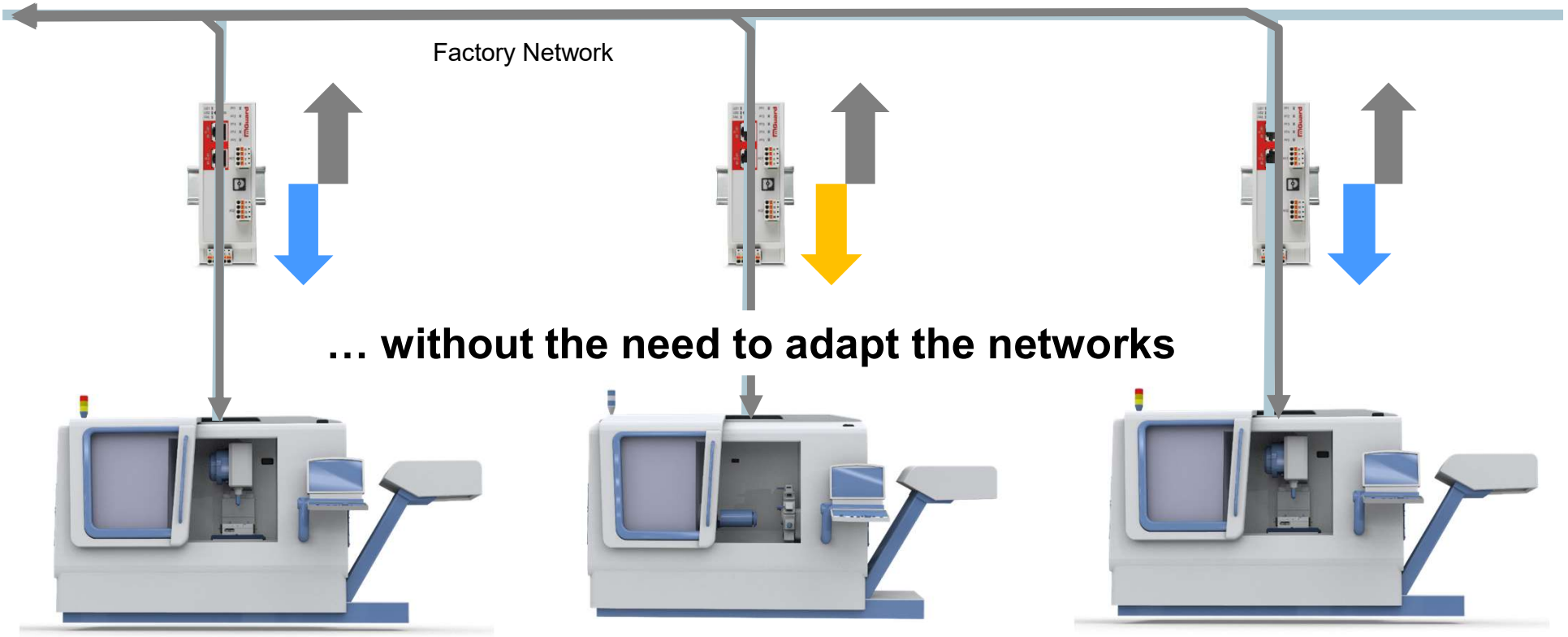
For the integration of machines into the networked factory



… **without the need to adapt** the networks.

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Simply integrate your machine into the factory network …

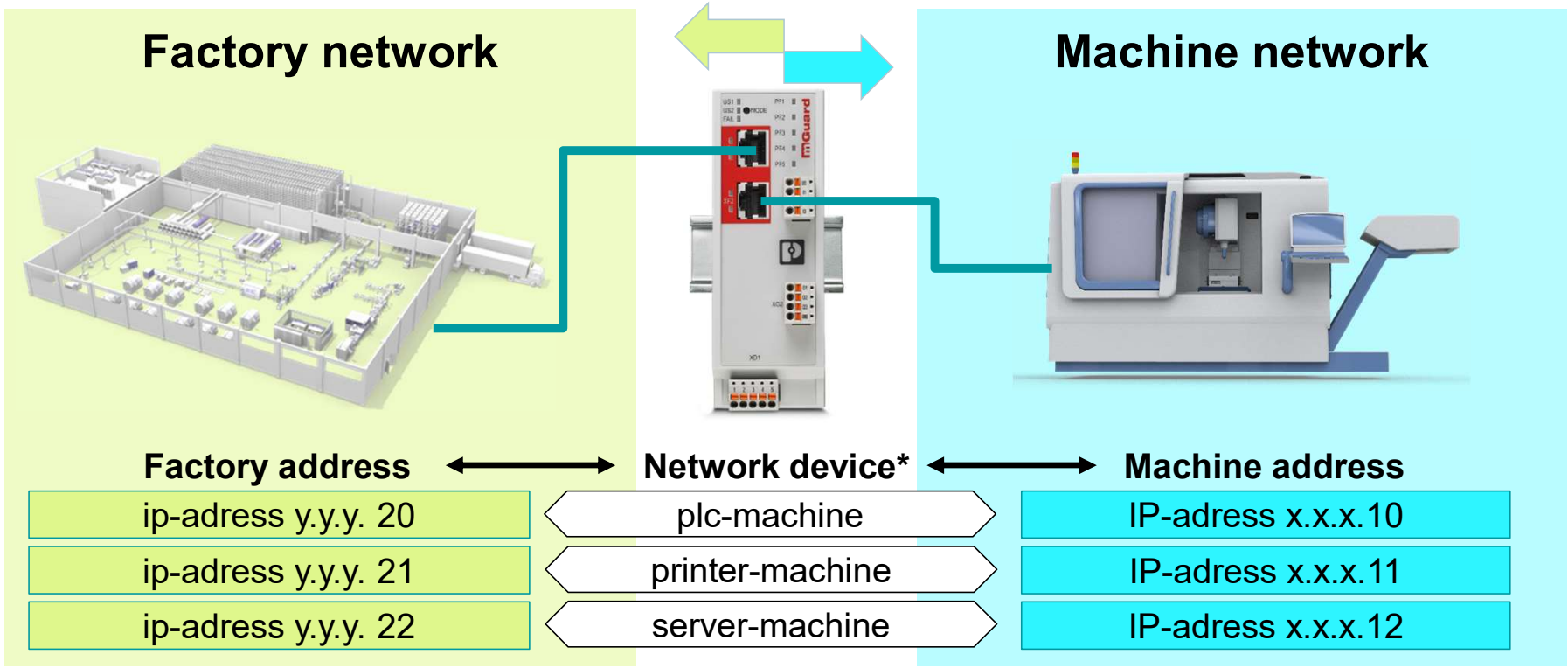


… without the need to adapt the networks

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Connecting networks without the need to adapt the networks

Network Address Translation (NAT)

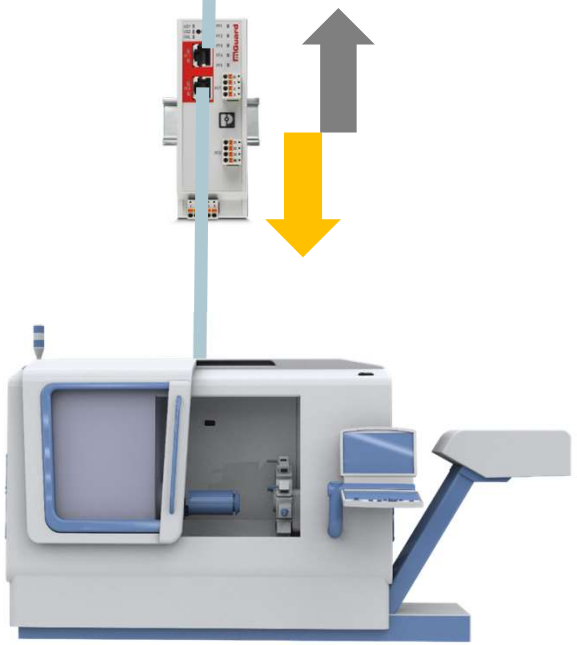


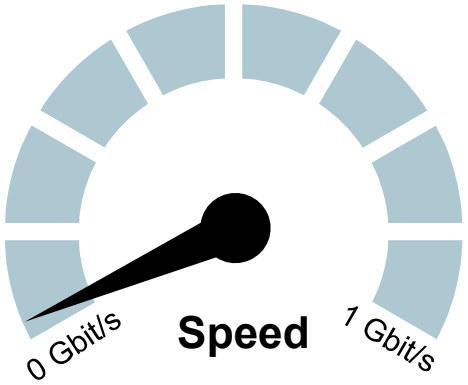
* The device has an own address in both networks. The network and device configuration does not need to be changed.

PHOENIX CONTACT
INSPIRING INNOVATIONS

mGuard 1100

Connecting networks with super fast Gigabit speed.

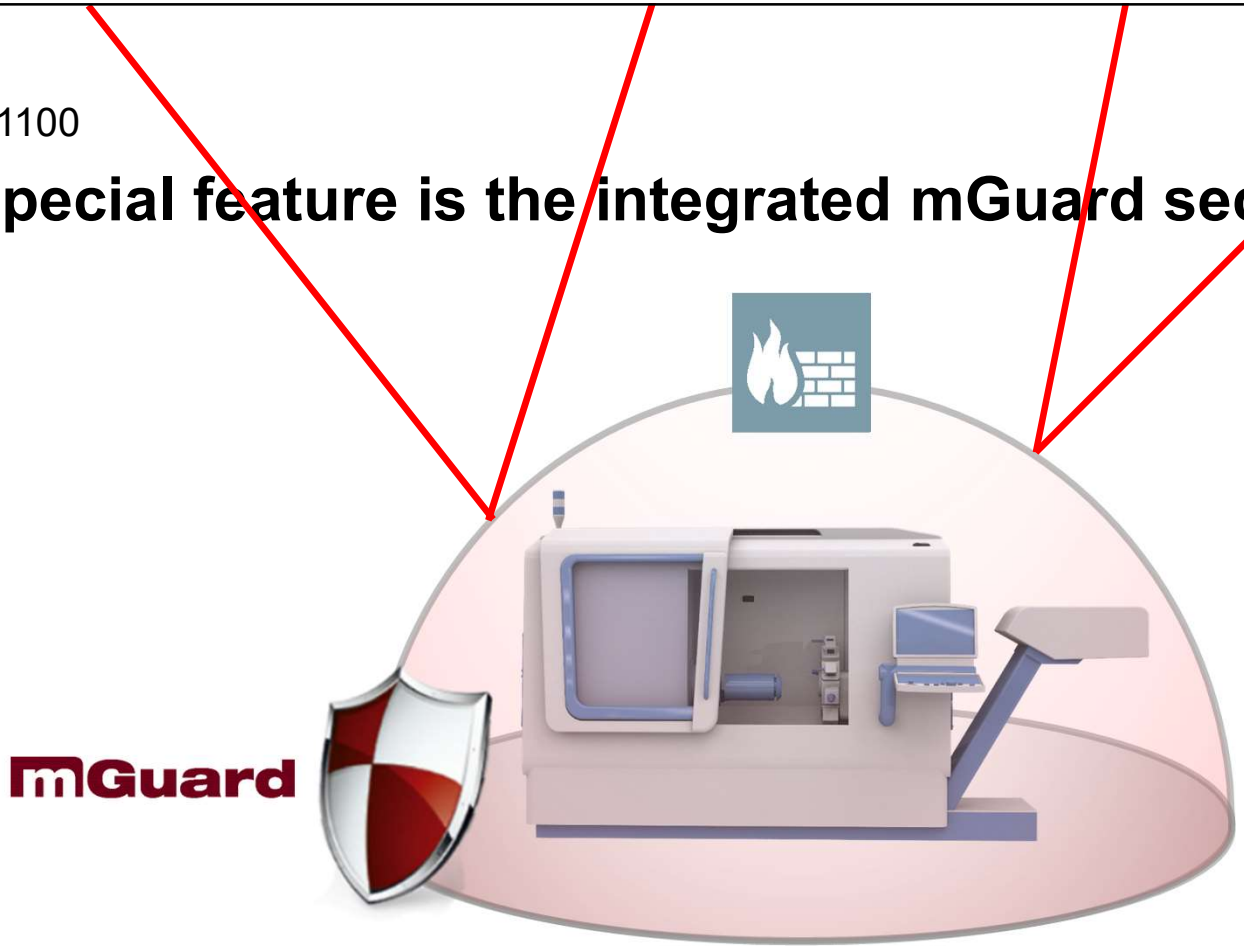




PHOENIX CONTACT
INSPIRING INNOVATIONS

mGuard 1100

The special feature is the integrated mGuard security technology



… which **protects your machine** network securely for unwanted communication.

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mGuard 1100

mGuard Security Technology



Secure by Design

Experts guarantee security from the beginning of development. It‘s not added later.



Product Security Incident Response Team

Daily Monitoring of vulnerabilities in the used open source components. These are Evaluated and fixed depending on the severity of the problem immidiately or in the next regular release.



Product/Solution

Specialy hardened Linux system and technologies selected acording security apects.



Team/Company

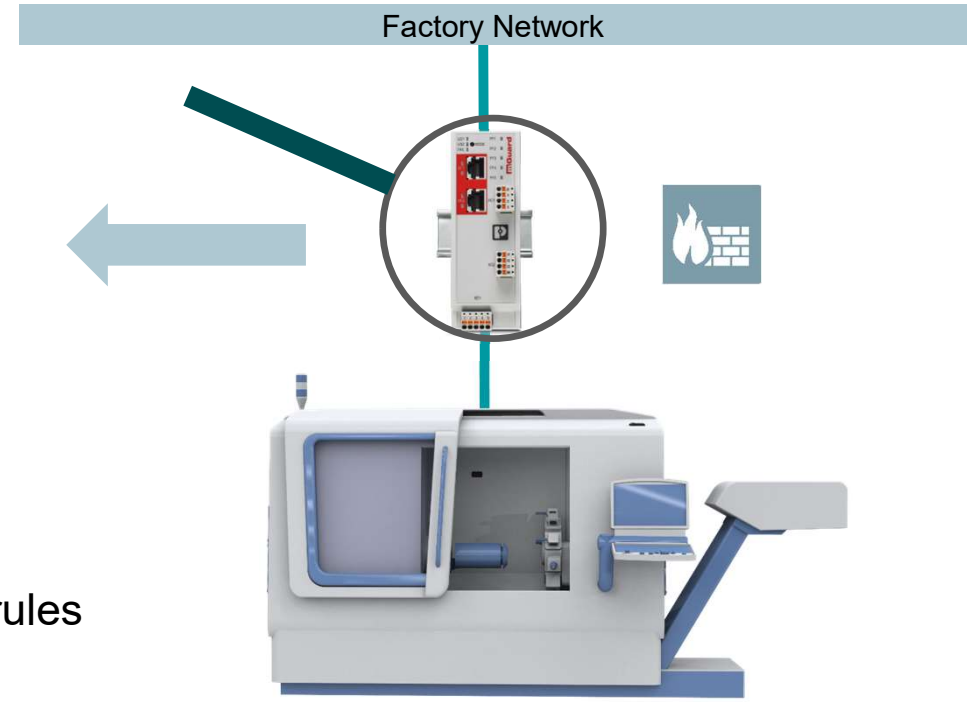
Experience on Cyber Security since 20 Years. Experienced consulting team supports you in complex rollout scenarios.

mGuard 1100

Firewall Assistant

Zeile hinzufügen

ID	Von IP/Netzwerk	Nach IP/Netzwerk	Nach Port	Protokoll	Aktion	Log
1	192.168.10.83	192.168.0.45		UDP	Annehmen	
2	192.168.10.83	192.168.1.60		TCP	Annehmen	
3	192.168.10.83	178.202.90.223		TCP	Annehmen	
4	192.168.10.83	192.168.1.1		TCP	Annehmen	
5	192.168.10.83	192.168.1.33		TCP	Annehmen	
6	192.168.10.83	192.168.1.7		TCP	Annehmen	
7	192.168.10.83	192.168.1.7		TCP	Annehmen	
8	192.168.10.83	192.168.1.7		TCP	Annehmen	
9	192.168.10.83	192.168.1.7		TCP	Annehmen	
10	192.168.10.83	192.168.0.1		TCP	Annehmen	

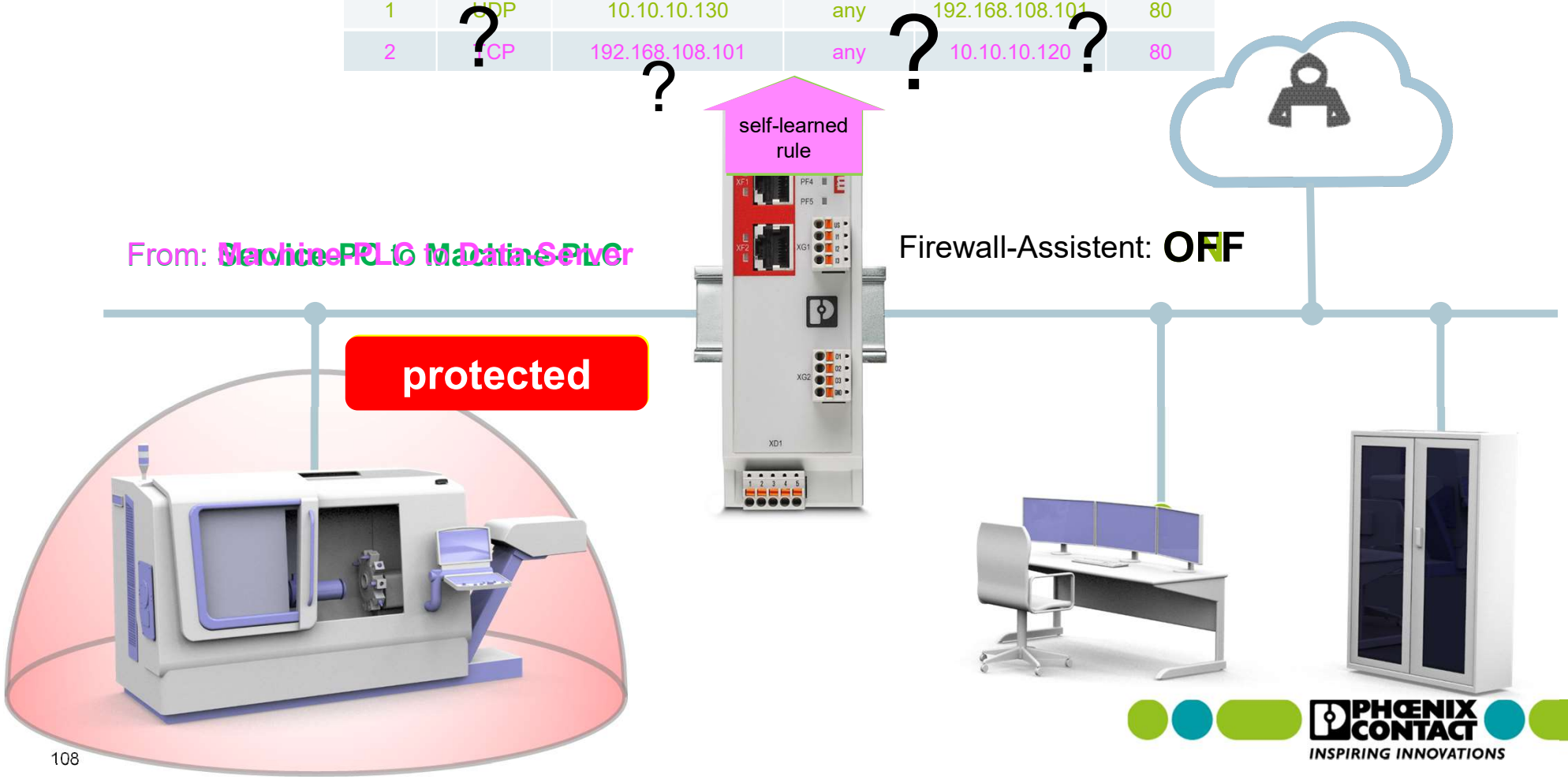


Automatically create the required firewall rules based on a reference communication

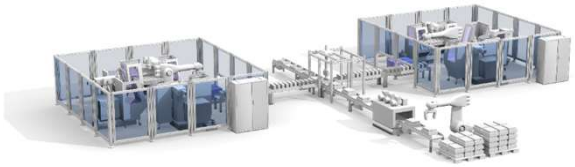
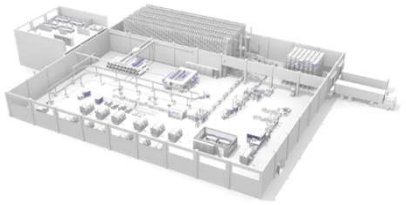
PHOENIX CONTACT
INSPIRING INNOVATIONS

Firewall rules

Seq.	Protocol	From IP	From port	To IP	To port
1	UDP	10.10.10.130	any	192.168.108.101	80
2	TCP	192.168.108.101	any	10.10.10.120	80



mGuard product families

mGuard 1000	mGuard 2000	mGuard 4000
		
Integrate machines in production networks securly	**Secure remote access + security**	**Integration of OT security into the IT security infrastructure**
Key Features Routing, NAT, Firewall with assistent High data throughput	**Key Features** VPN remote access mGuard secure cloud Firewall	**Key Features** IP/Port Groups, Emergency Mode, User firewall, DMZ, Network Access Server, ….. High Performance

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Network Address Translation (NAT)-Solutions

NAT + Firewall



mGuard 1100

NAT + managed Switch



NAT 2000

NAT + Security + managed Switch

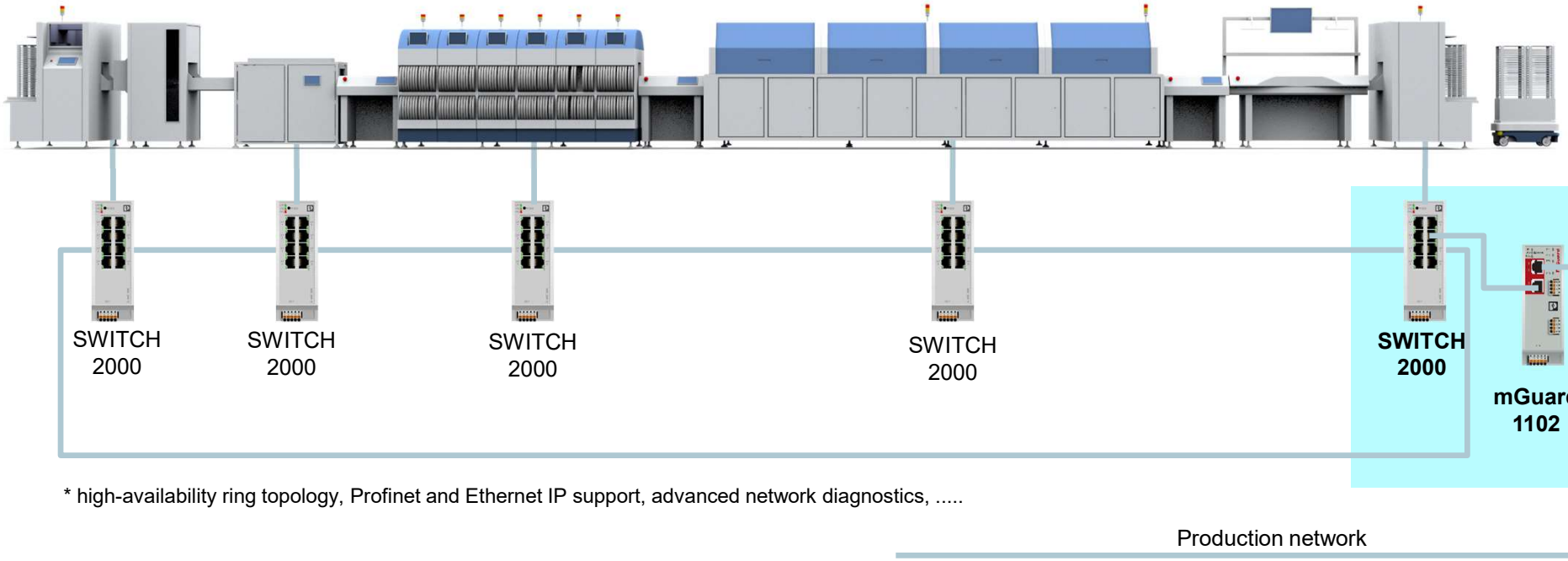


mGuard 1100 & Switch 2000

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INSPIRING INNOVATIONS

Secure machine integration

NAT + Security + managed Switche*

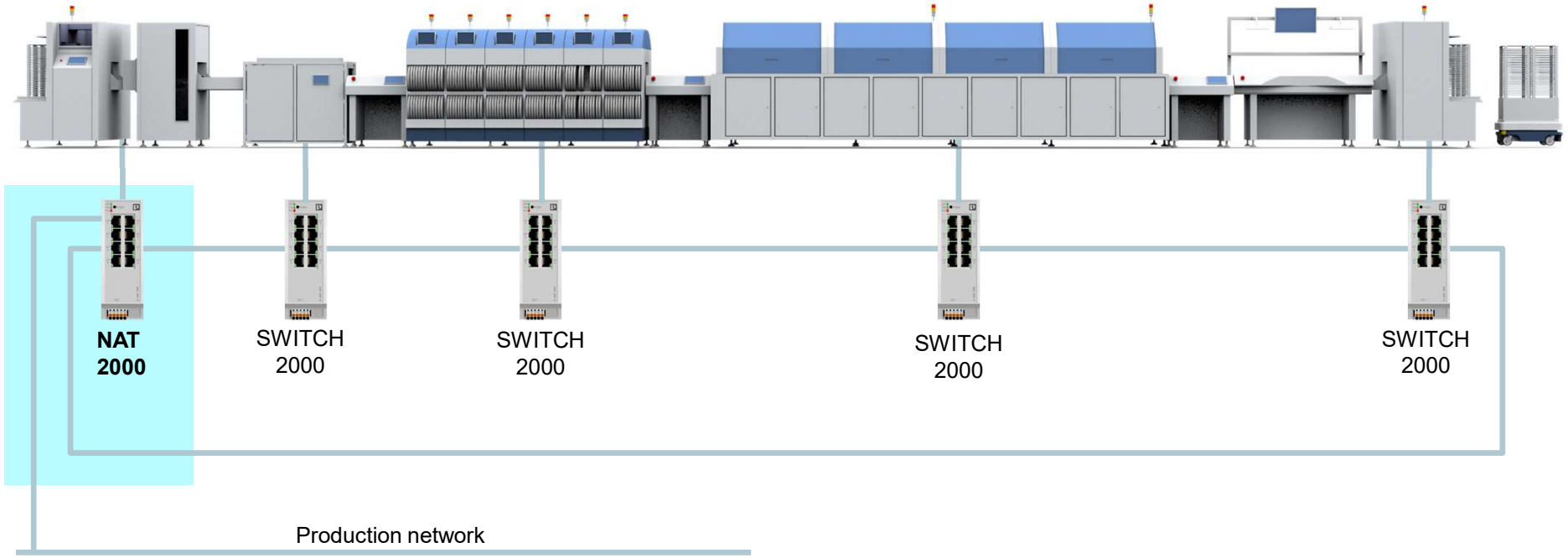


* high-availability ring topology, Profinet and Ethernet IP support, advanced network diagnostics, ...

PHOENIX CONTACT
INSPIRING INNOVATIONS

Network integration

NAT + managed Switche*



* high-availability ring topology, Profinet and Ethernet IP support, advanced network diagnostics, ...

PHOENIX CONTACT
INSPIRING INNOVATIONS

Technical facts

mGuard 1102/1105

5 multicolor LED

Computing power
- ARMv8 64-bit processor
- Marvell ARMADA 88F3720 / 1 GHz CPU clock
- 1024 Mbyte DDR3 SDRAM
- 4 GB flash memory
- TPM 2.0
- Real time clock
- 4 port unmanaged switch (1105)



Ethernet ports
- RJ45 | Full Duplex | Auto-MDIX
- Ethernet
- Fast Ethernet
- Gigabit Ethernet

3 x digital IO
currently one used*

SD card slot
backside

Operating temperature
0° to 60°C *

Push-In terminals
all on the front level

24V DC
no redundant power supply *

INSPIRING INNOVATIONS

* Further information in the comment area of this PowerPoint or on request

Industrial Security-Router with mGuard security technology

mGuard 1102/1105



- Stateful-Inspection-Firewall
- Standard-Routing, NAT, 1:1-NAT, Port-Forwarding
- "Stealth Mode" for secure network segmentation without changing the network or its configuration (Layer 2 transparent)

Key Feature:

- **Gigabit-Speed**
- **mGuard Security Technology** for secure network protection
- **Automatic firewall rule creation** based on a reference communication

PHOENIX CONTACT
INSPIRING INNOVATIONS

mGuard 1100



The industrial NAT Firewall,
connecting networks easy and secure.

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INSPIRING INNOVATIONS

What‘s new at TC Router ?



TC Router and TOM

Mobile communication

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TC ROUTER

- Expanding capabilities

- Urban Infrastructure
  Water procurement and wastewater treatment
- Oil and gas industry
  Acquiring process data from pumps and pipeline monitoring
- Traffic
  Traffic lights, intelligent traffic signs and parking guiding systems
- Renewable energy
  Networking for wind generators and solar parks

Features

- 4G LTE connections up to 150 mbps, fallback to 3G and 2G
- WLAN (WiFi 4) up to 150 mbps, 2,4 GHz and 5 GHz, IEEE 802.11a/b/g/n, MIMO
- Micro-SIM and eSIM with up to 10 different profiles
- VPN support (IPsec and OpenVPN) as client and server
- Extended operating temperature range -40°C … 70°C
- 4 digital inputs and 2 digital outputs or integrated serial RS-232/RS-485
- Wide-range power supply, 10…30 VDC



TC Router

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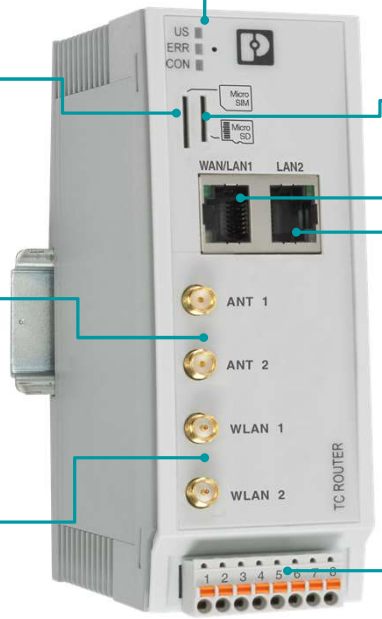
TC ROUTER 4000 - The new router platform for mobile networks

Overview

Status LEDs for instant diagnostic

Micro-SIM and **eSIM** with up to 10 different profiles

Micro SD Slot to load configuration



Adjustable **LAN/WAN** port (Fallback or redundency)

4G LTE CAT4 connections up to 150 MBit/s, fallback to 3G and 2G

LAN Ethernet port

WLAN (WiFi 4) Access Point up to 150 MBit/s, 2,4 GHz or 5 GHz, IEEE 802.11a/b/g/n, MIMO

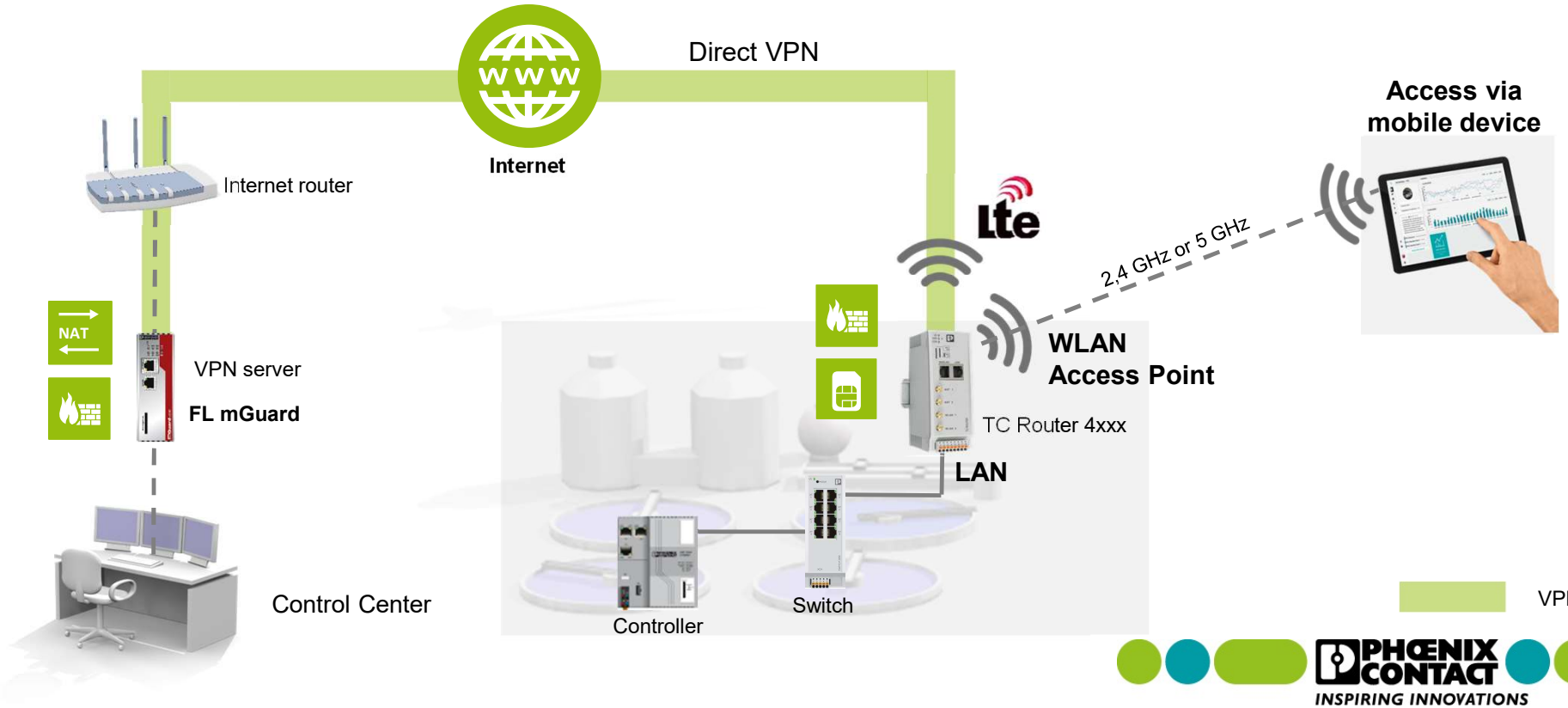
Digital **inputs** and **outputs** or **serial interface** with less IO

VPN support (IPsec and OpenVPN) as client and server
Extended operating temperature range -40°C … 70°C

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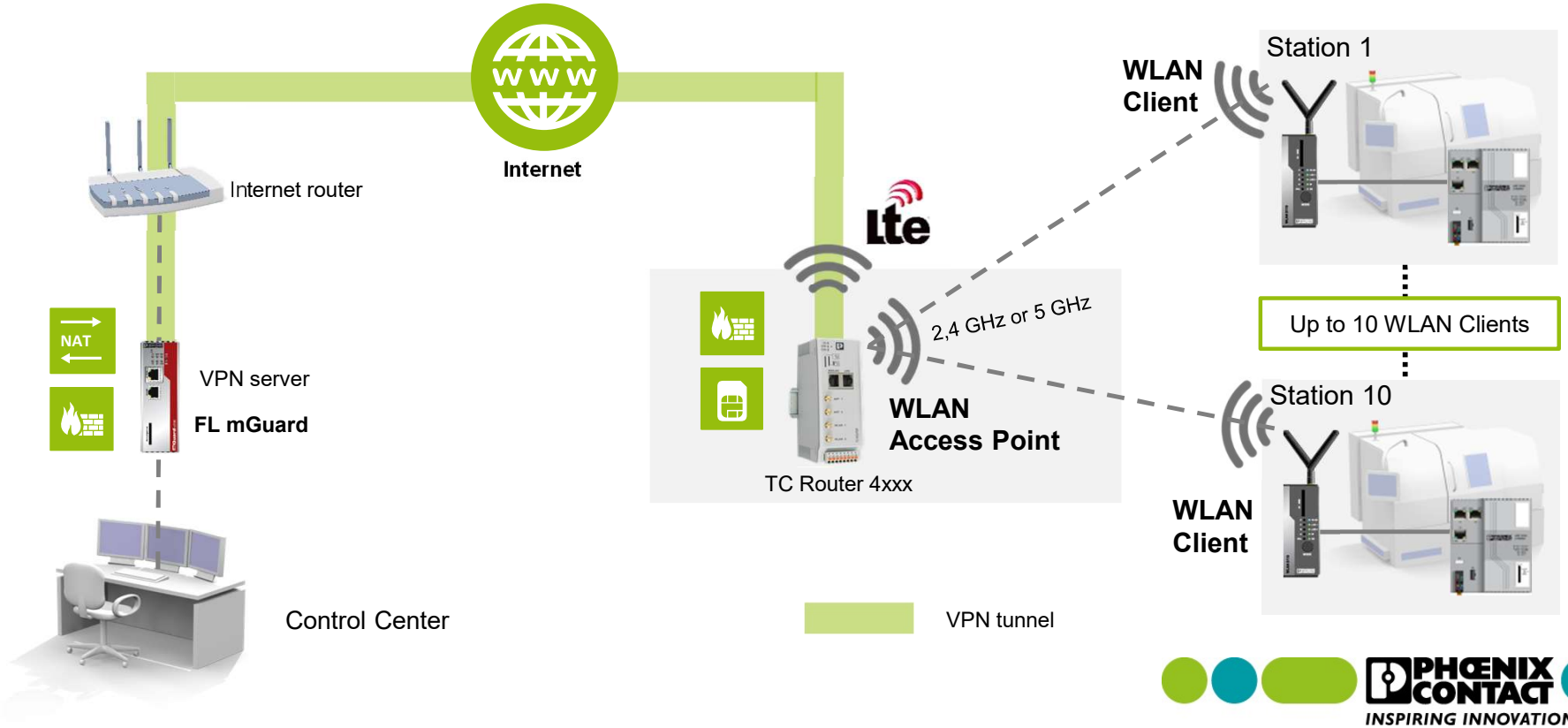
TC ROUTER 4000 - The new router platform for mobile networks

Application example: LAN and WLAN Access Point



TC ROUTER 4000 - The new router platform for mobile networks

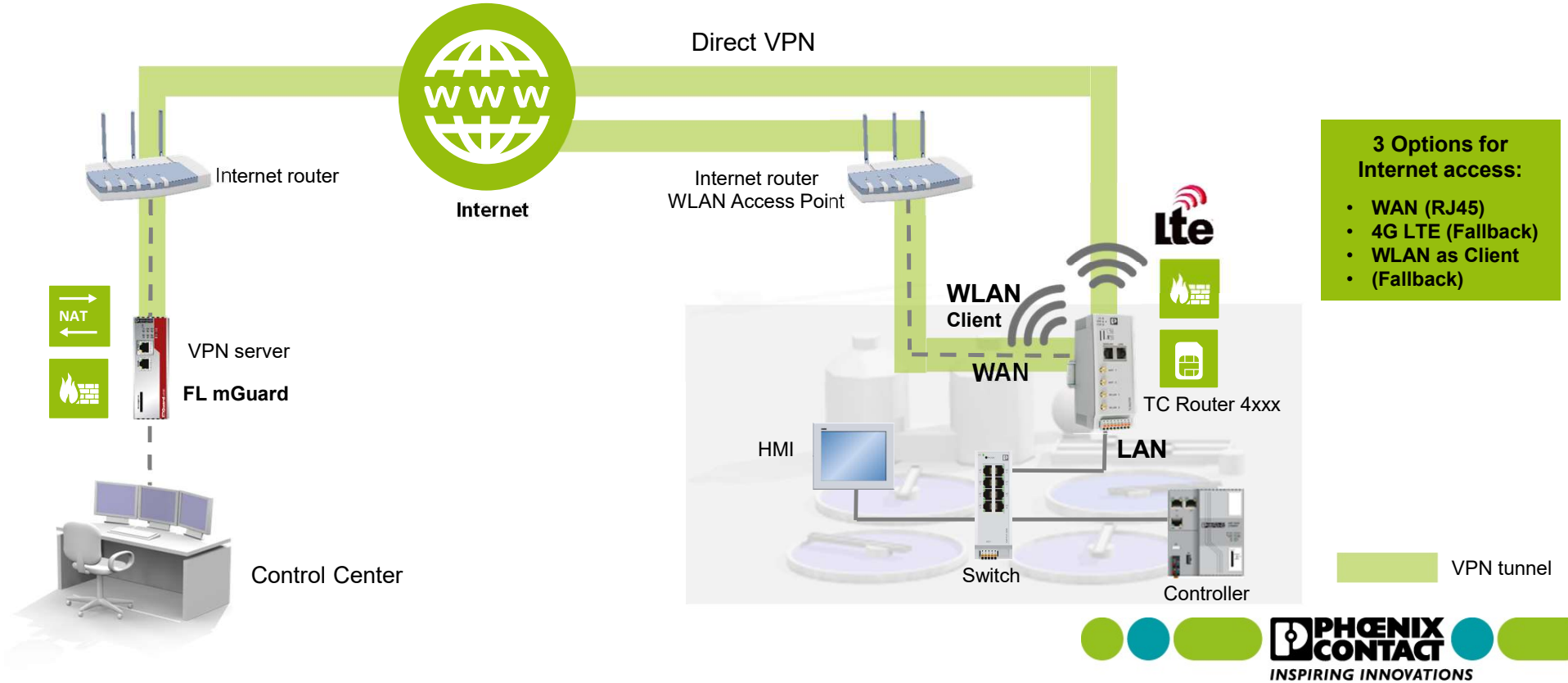
Application example: WLAN Access Point



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TC ROUTER 4000 - The new router platform for mobile networks

Application example: WAN, WLAN or mobile Internet access



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TC ROUTER 4000 - The new router platform for mobile networks

New Variants



*





*





	TC ROUTER 4002T-4G EU	TC ROUTER 4102T-4G EU WLAN	TC ROUTER 4202T-4G EU WLAN	TC ANT MOBILE WALL 5M	RAD-ISM-2400-ANT-OMNI-2-1-RSMA
Function	4G-LTE Router with 2 Ethernet-ports, 4 DI & 2 DO	4G-LTE Router with 2 Ethernet-ports, 4 DI & 2 DO and **WLAN**	4G-LTE Router with 2 Ethernet-ports, 2 DI, 1 DO, **RS-232/485 and WLAN**	Multiband cellular antenna with mounting bracket for outdoor installation, 5m antenna cable (SMA) More solutions available.	2,4 GHz WLAN antenna with mounting bracket for outdoor installation, 1,5m antenna cable (RSMA) More solutions available.
Mobile radio Interface / Interfaces	4G (Fallback 3G or 2G) EU market	4G (Fallback 3G or 2G) WLAN Client & Access Point EU market	4G (Fallback 3G or 2G) WLAN Client & Access Point RS232/485, EU market		
Transmission speed	150 Mbit/s LTE Downlink 50 Mbit/s Upload	150 Mbit/s LTE Downlink 50 Mbit/s Upload	150 Mbit/s LTE Downlink 50 Mbit/s Upload		
Switching inputs and outputs	4 digital Inputs, 2 digital output	4 digital Inputs, 2 digital output	2 digital Inputs, 1 digital output and RS-232 or RS-485		
Order number	1234352	1234353	1234354	2702273	2701362

** will be launched within 2021*

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Pre-Launch Information

TC ROUTER - product overview

Product key: DNC4..

	Ord.-No.	Designation			Function description
	1234352	TC ROUTER 4002T-4G EU			4G-LTE Router with 2 Ethernet-ports, 4 DI & 2 DO
*	**1234353**	**TC ROUTER 4102T-4G EU WLAN**			**4G-LTE Router with 2 Ethernet-ports, 4 DI & 2 DO and WLAN**
	1234354	TC ROUTER 4202T-4G EU WLAN			4G-LTE Router with 2 Ethernet-ports, 2 DI, 1 DO, RS-232/485 and WLAN

** **bold** marked variants to be launched at Hanover trade show 2021, all other variants to follow within 2021*

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TC ROUTER Online Manager

TOM



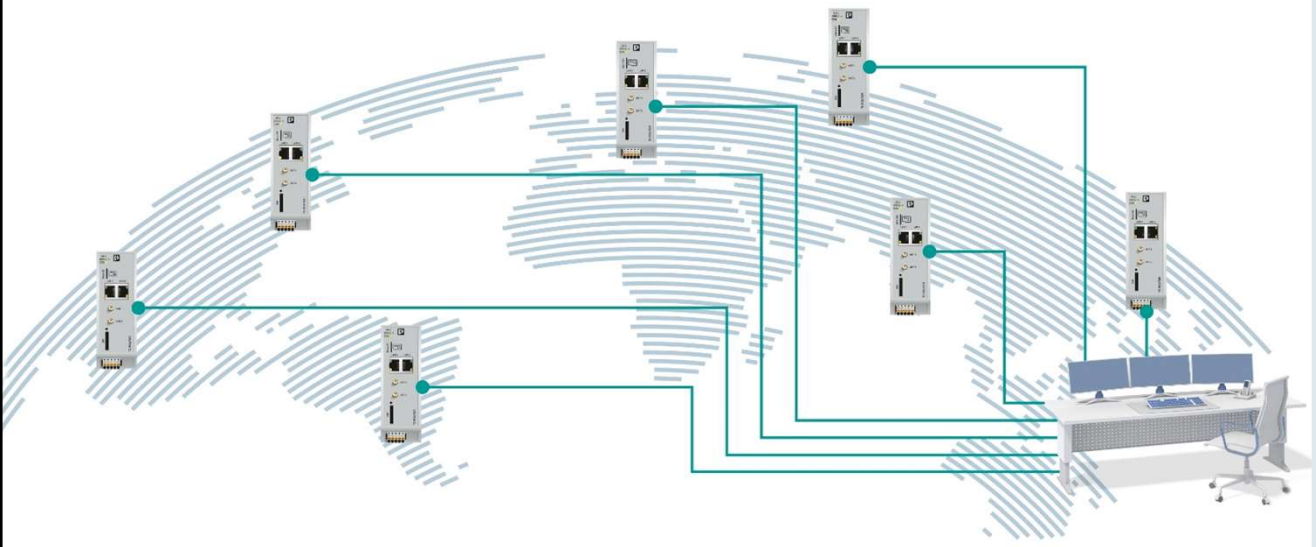


TC ROUTER TOM Software

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TC Router **O**nline **M**anager

Management for all TC Router

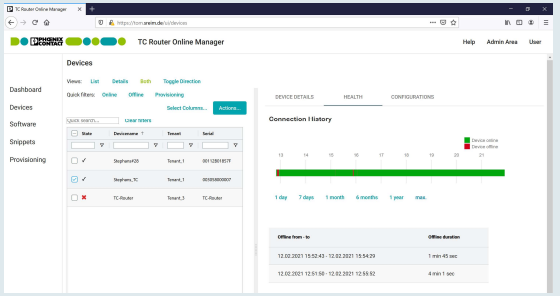


NEW

TOM



- Security and Firmware updates
- Configuration changes
- Device status
- Locally (on premise) or in a cloud.
- Up to 22500 routers can be managed.



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What‘s new at Cloud Clients ?

CLOUD Client

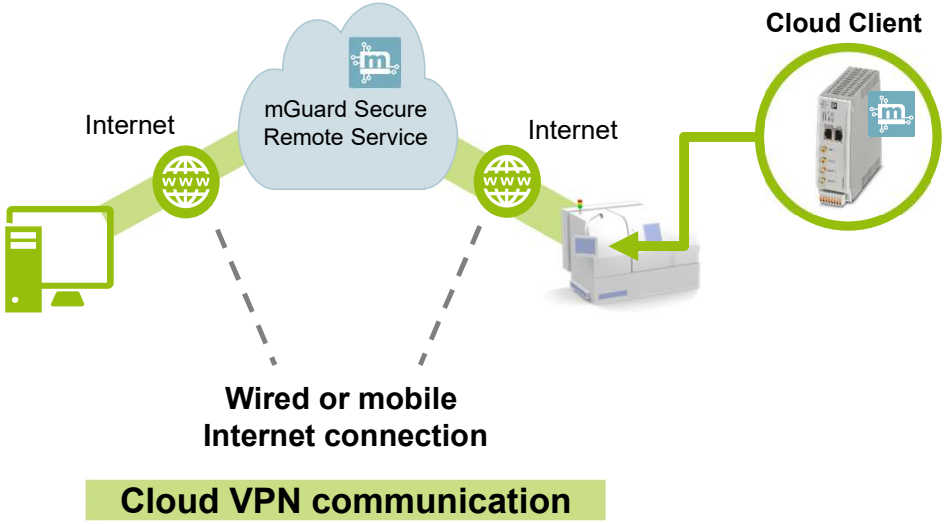


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Products

CLOUD CLIENT’s for mGuard Secure Remote Service

Secure transparent communication channel between the field device and the service technician, over the Internet and the mGuard Secure Cloud

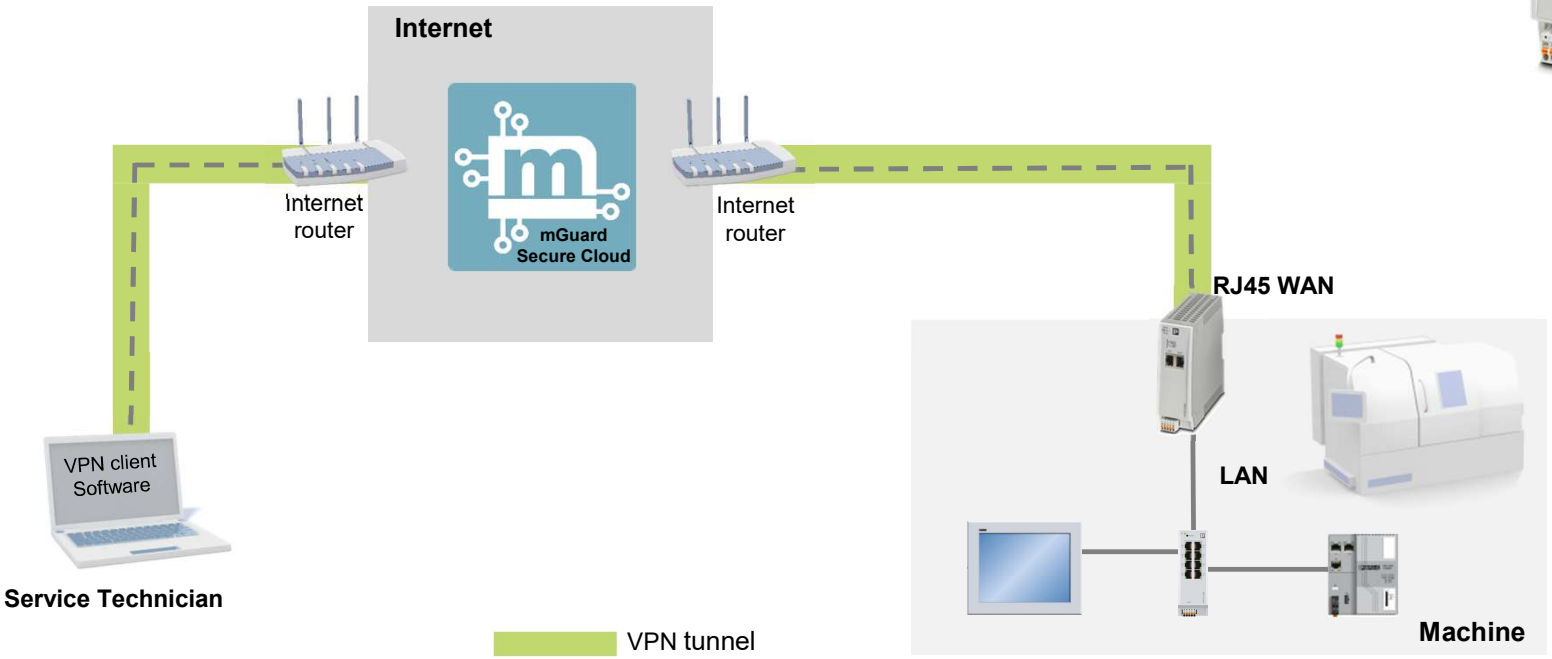


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Products

CLOUD CLIENT 1101-TX/TX





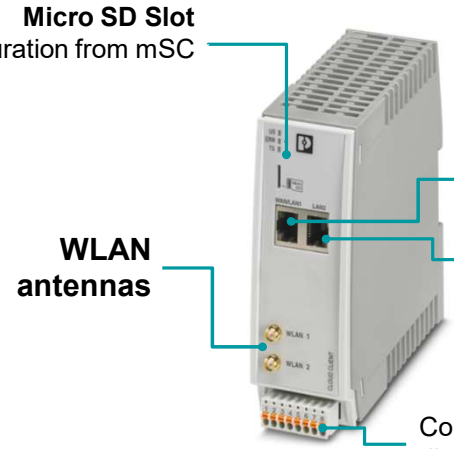
Internet access:

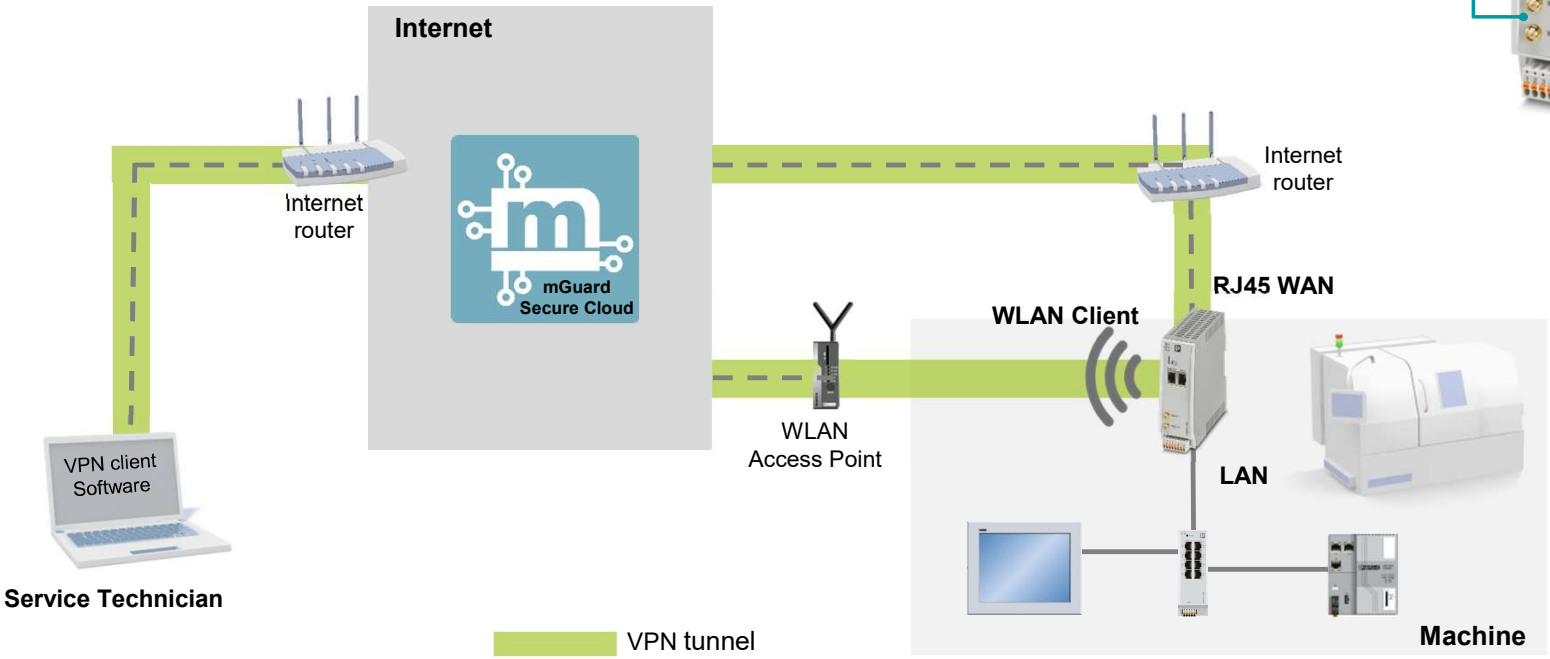
- **WAN (RJ45)**

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Products

CLOUD CLIENT 2002T-WLAN





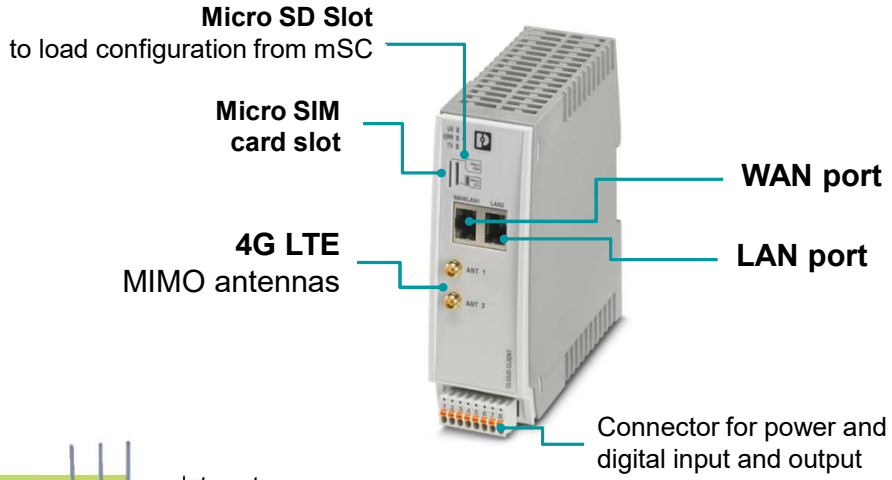
Internet access:

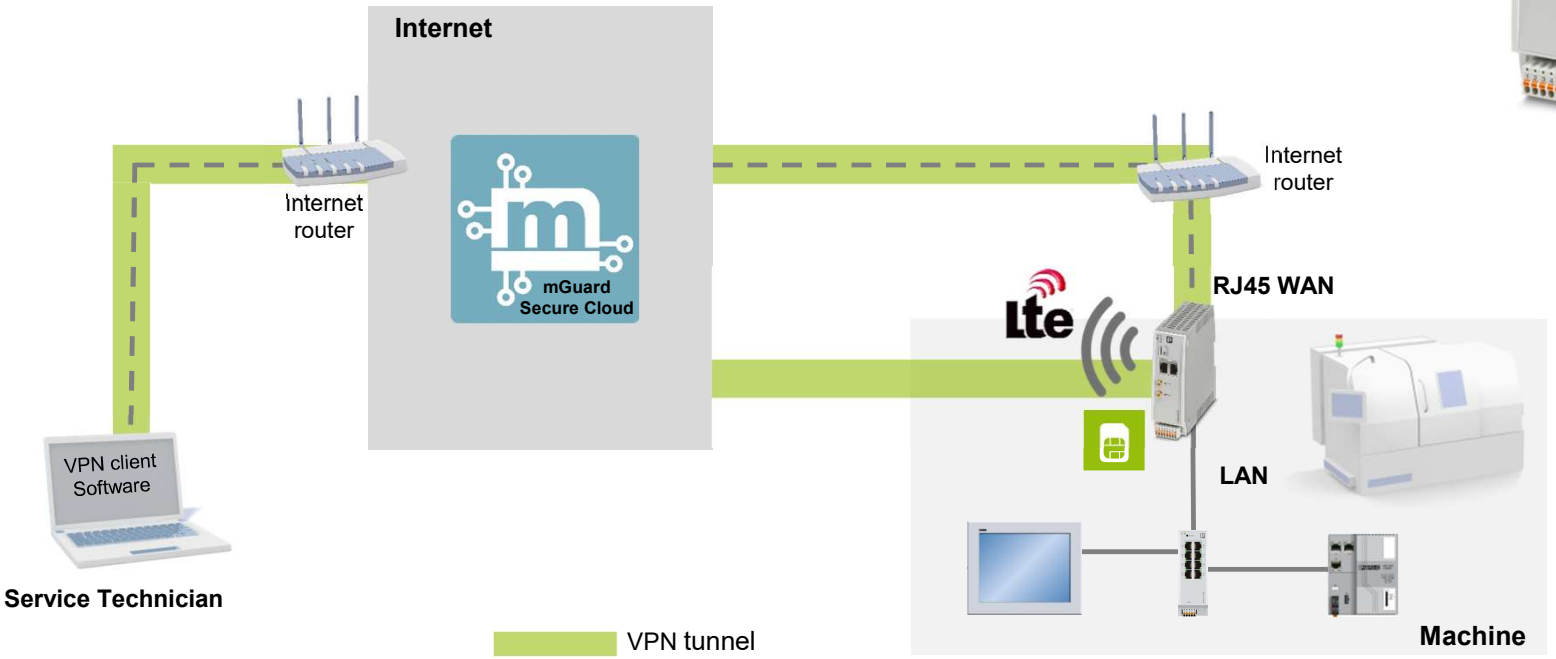
- **WAN (RJ45)**
- **WLAN as client (fallback)**

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Products

CLOUD CLIENT 2002T-4G EU





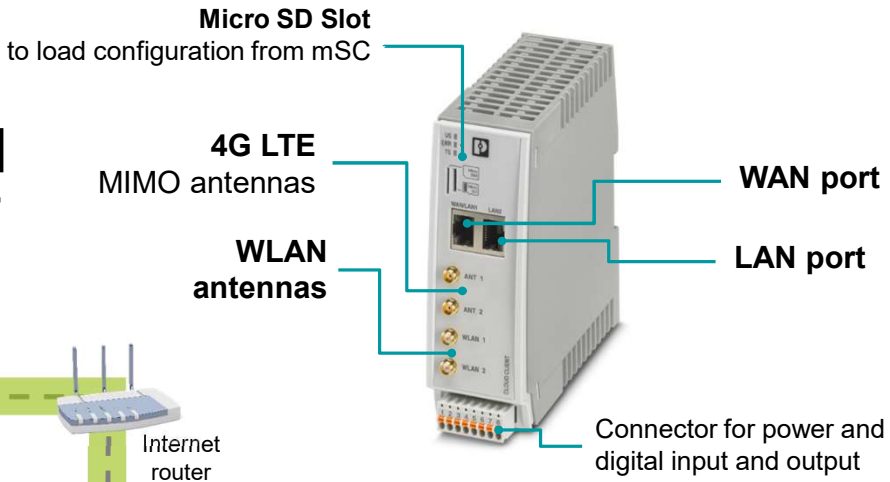
Internet access:

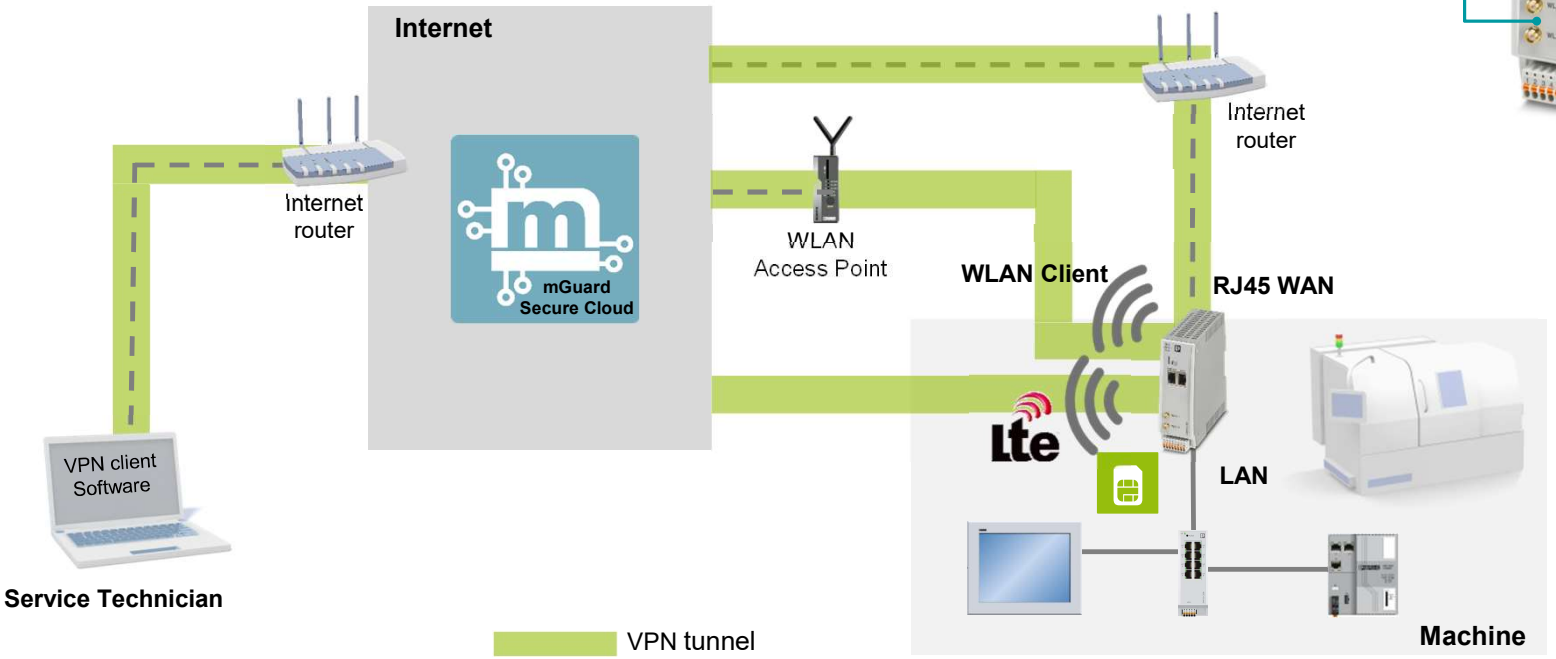
- **WAN (RJ45)**
- **4G LTE (Fallback)**

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Products

CLOUD CLIENT 2102T-4G EU WLAN





Internet access:

- **WAN (RJ45)**
- **4G LTE (Fallback)**
- **WLAN as Client (Fallback)**

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New Products 2021

CLOUD CLIENTs



available Q2/21





available Q2/21



	CLOUD CLIENT 1101-TX/TX	CLOUD CLIENT 2002T-4G EU	CLOUD CLIENT 2002T-WLAN	CLOUD CLIENT 2102T-4G EU WLAN
Transmission medium	Ethernet WAN	4G LTE Ethernet WAN	WiFi (WLAN) Ethernet WAN	4G LTE WiFi (WLAN) Ethernet WAN
Description	VPN-Router for mGuard Secure Cloud via WAN (successor of CC 1002-TX/TX)	VPN-Router for mGuard Secure Cloud via 4G or WAN	VPN-Router for mGuard Secure Cloud via WLAN or WAN	VPN-Router for mGuard Secure Cloud via 4G, WLAN or WAN
Configuration	**Device configuration in mGuard Secure Cloud, simplified Web-Interface**			
Firewall	Easy to use firewall w/ predfined rules			
VPN Tunnel	1 IPsec VPN tunnel to the mGuard Secure Cloud			
Order number	1221706	1234355	1234360	1234357

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Pre-Launch Information

CLOUD CLIENT - product overview

Product key: DNC4..

	Ord.-No.	Designation			Function description
	1234355	CLOUD CLIENT 2002T-4G EU			Cloud Client for mGuard Secure Cloud connections via 4G-LTE
*	**1234360**	**CLOUD CLIENT 2002T-WLAN**			**Cloud Client for mGuard Secure Cloud connections via WLAN**
	1234357	CLOUD CLIENT 2102T-4G EU WLAN			Cloud Client for mGuard Secure Cloud connections via WLAN or 4G-LTE
*	**1221706**	**CLOUD CLIENT 1101T-TX/TX**			**Cloud Client for mGuard Secure Cloud connections via LAN/WAN Ethernet ports**

** **bold** marked variants to be launched at Hanover trade show 2021, all other variants to follow within 2021*

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Magazine for customers Phoenix Contact

UPDATE





UPDATE Magazine

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Why is ICS security so important?



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mGuard

Ataques de Ciberseguridad



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