

Industrial Communication

Skab en stabil produktion

Design et robust automationsnetværk

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Dagens værter

Per Krogh Christiansen, Technology Specialist
Jesper Kristiansen, Technology Specialist



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Agenda

Robust netværksdesign med PROFINET

Fysisk samling af netværk

Valg af netværkskomponenter

Oppetid på produktionsanlæg



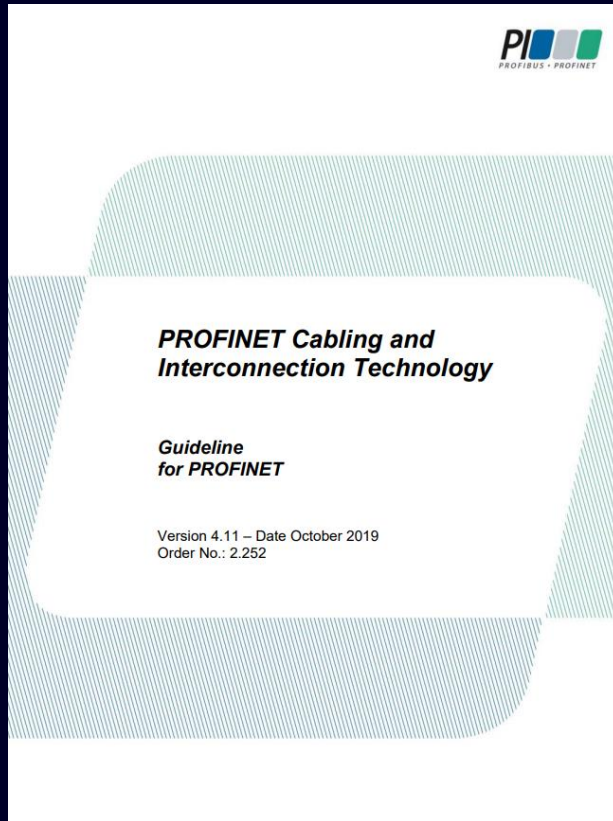
- Segmentering
- Layer 2 kommunikation
- Diagnose
- IEC62443
- TSN / 5G

Kabler og stik



- 1 system til kobber og optisk kabling
- FastConnect
- Værktøj, kabler og stik
- Overholder PROFINET cabling guidelines

Fysisk samling af netværk



- 80 % af alle fejl ligger i kabel og stik
- Udligningsforbindelser
- Jording
- Det er en del af en standard

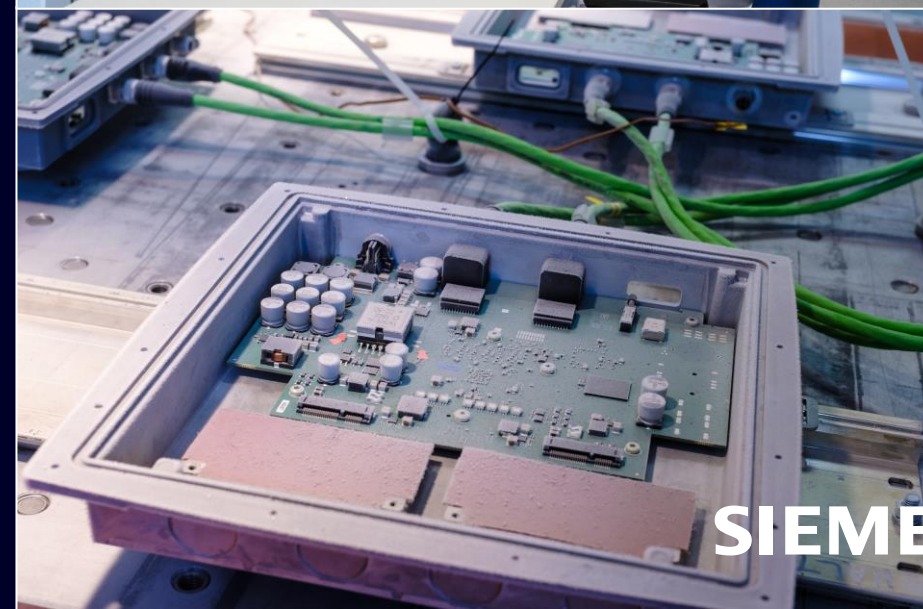
<https://www.profibus.com/download/profinet-installation-guidelines>

Netværkskomponenter



Unmanaged eller Managed?

- Ingen diagnose eller fuld diagnose på netværk
- VLAN-segentering
- Ingen topologi eller topologi i TIA HW-Konfig
- Quality of Service
- Designet til industrien – temperaturer, rystelser m.m



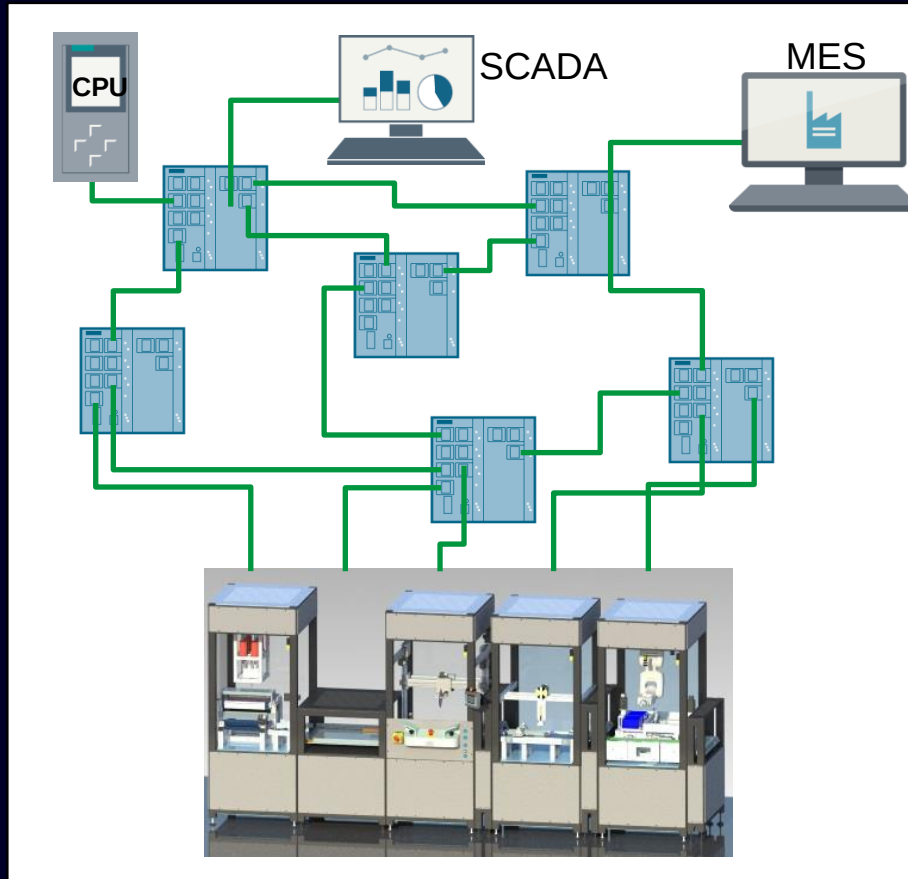
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Power over Ethernet



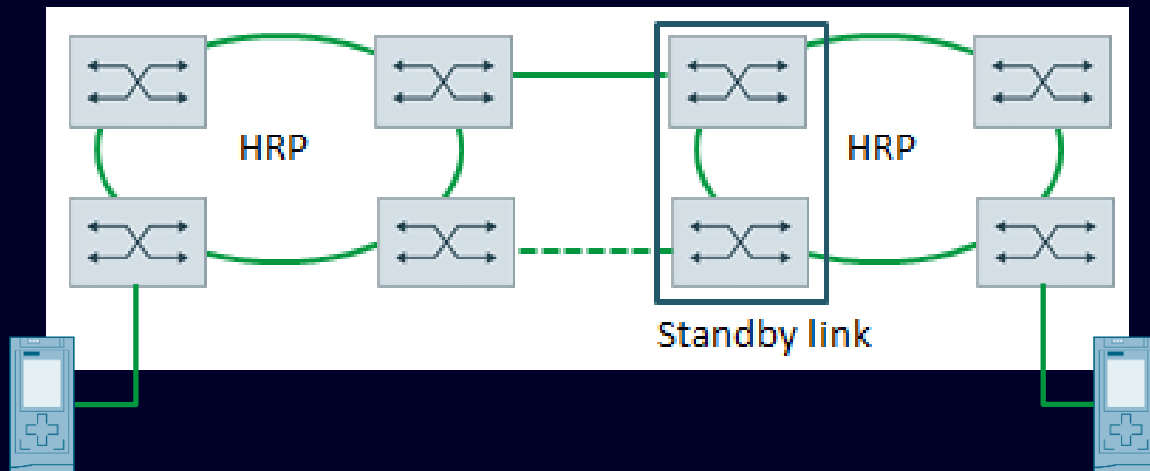
- 1 kabel = data og strøm
- Indbygget strømovervågning i XC200 PoE / XM400
- 802.3bt i en industriel switch

Redundans - ekstra “oppetid”



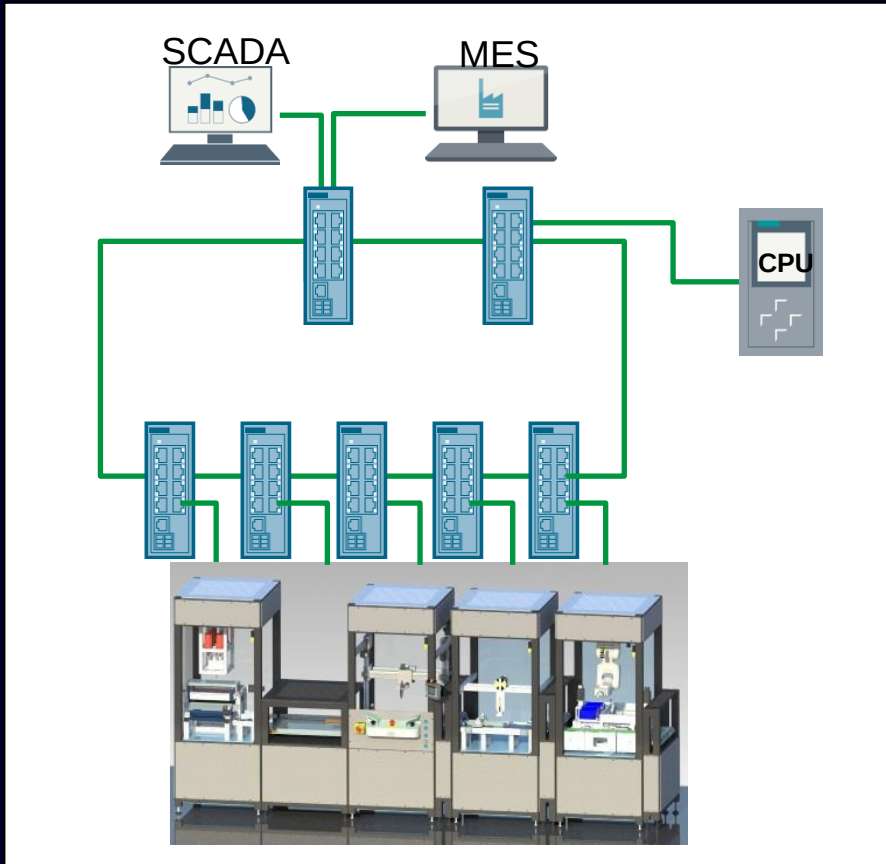
- Rapid Spanning Tree Protocol (IT)
- Highspeed Redundancy Protocol (Siemens)
- Media Redundancy Protocol (PROFINET)
- Multiple MRP rings with MRP-Interconnect

Redundans - ekstra “oppetid”



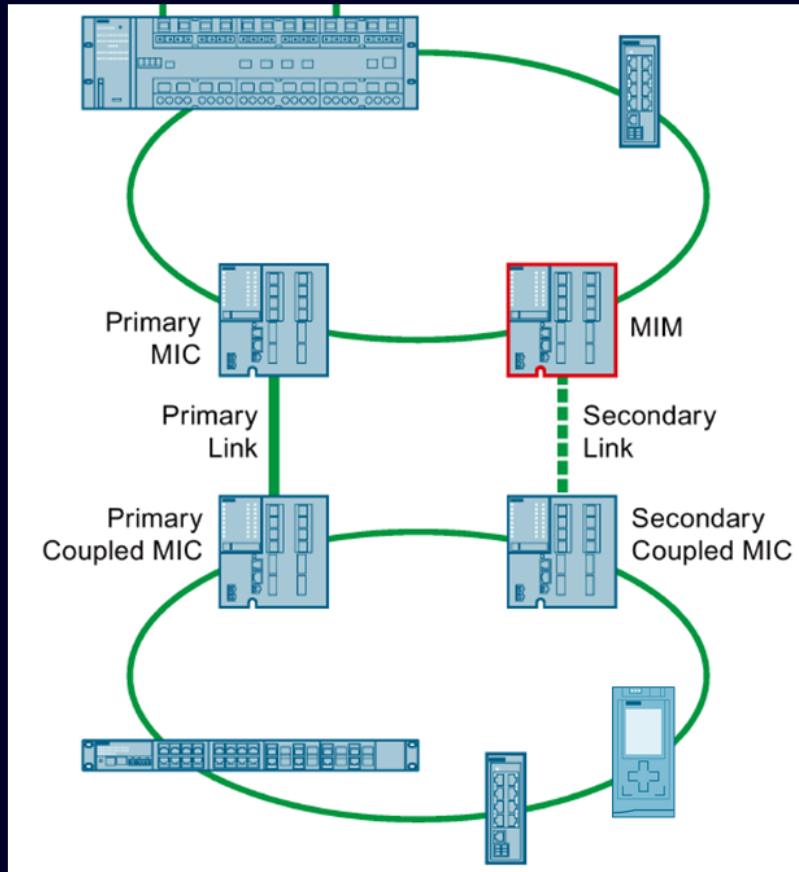
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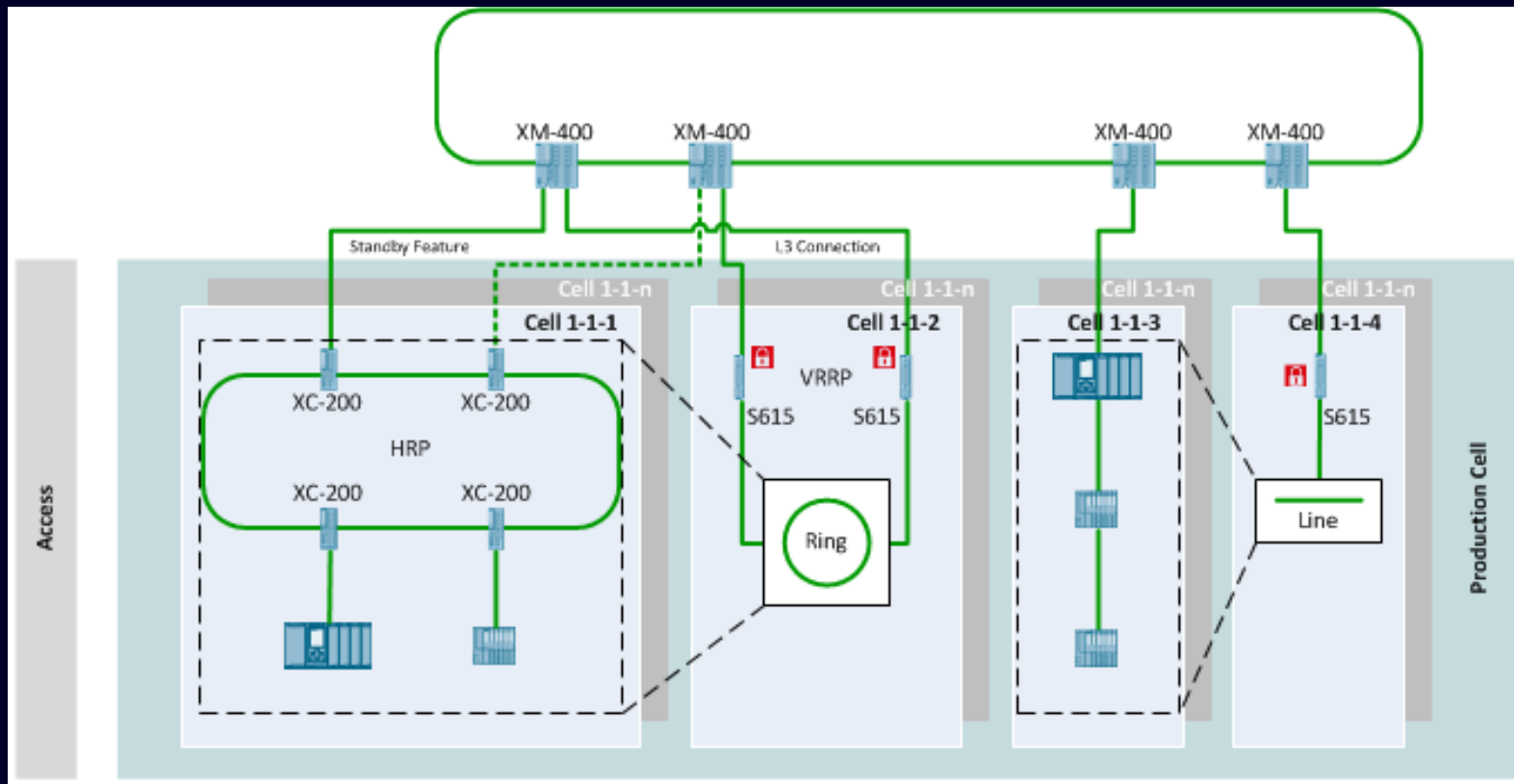
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Gør brug af indbygget funktionalitet



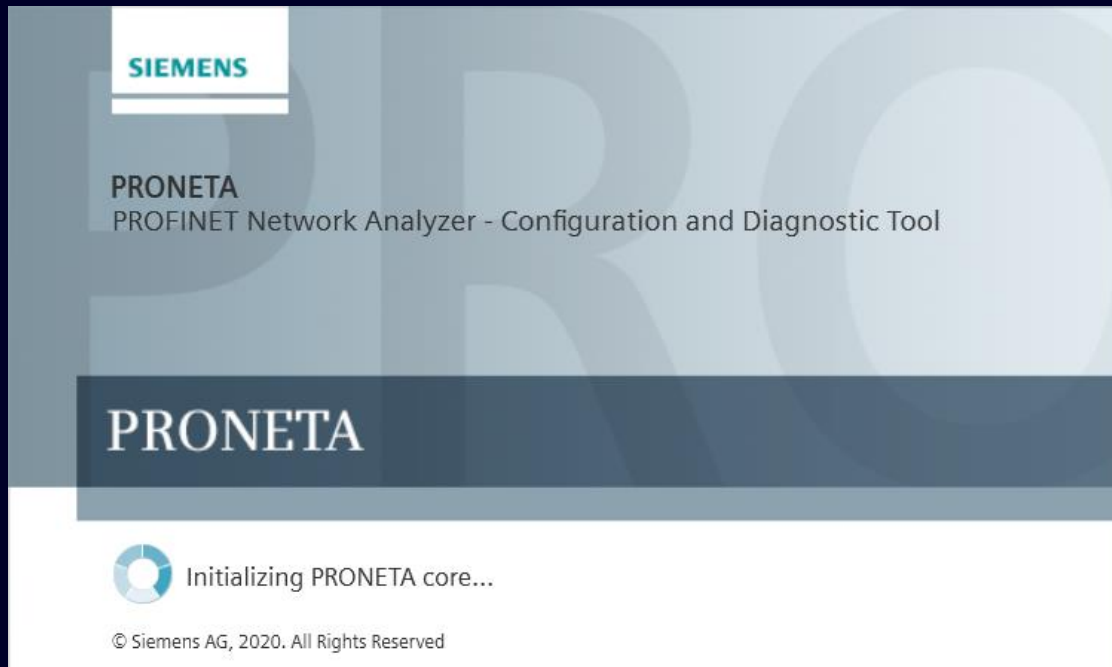
- Kabeldiagnose: kobber og fiber
- Loop detection
- SNMP & SNMP Traps
- Redundans protokoller
- VLAN

Segmentering



- Opdel i mindre celler
- VLAN / Firewall
- Reducer broadcast trafik

Etablering af diagnose



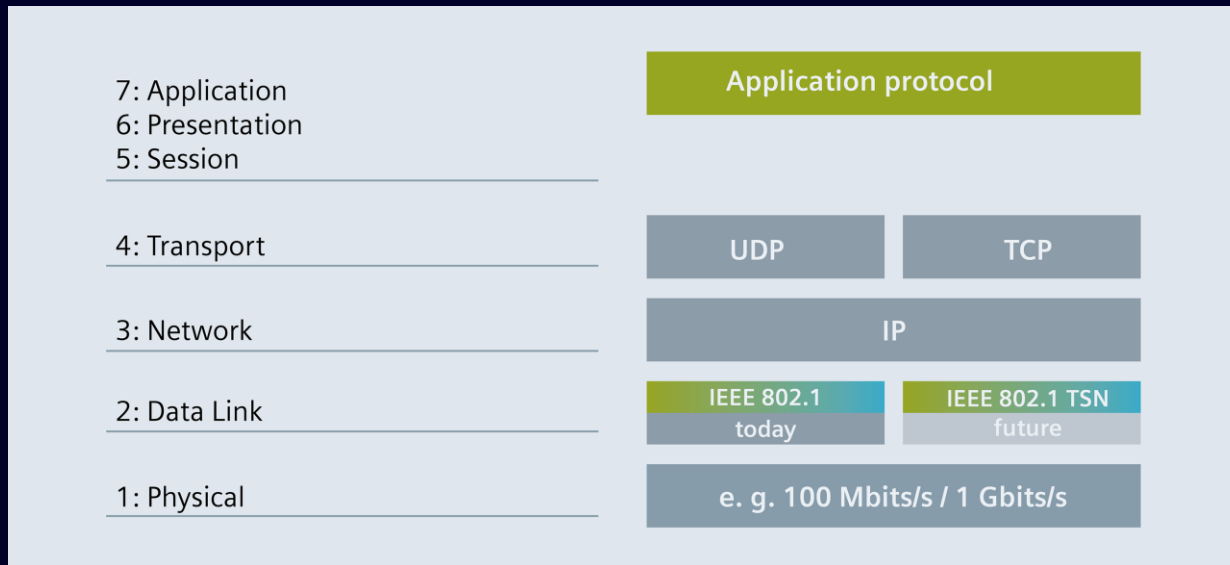
- **Hardware konfiguration**
 - Standard diagnose buffer
- **PRONETA**
 - Værktøj til opstarts diagnose
- **SINEC NMS / INS**
 - Udvidet netværks diagnose
 - Syslog, (S)NTP

Hurtig udskiftning



- C-Plug
- Webinterface
- STEP 7 / TIA HW-Config
- QR-Kode til hurtig identifikation af device – SIOS App

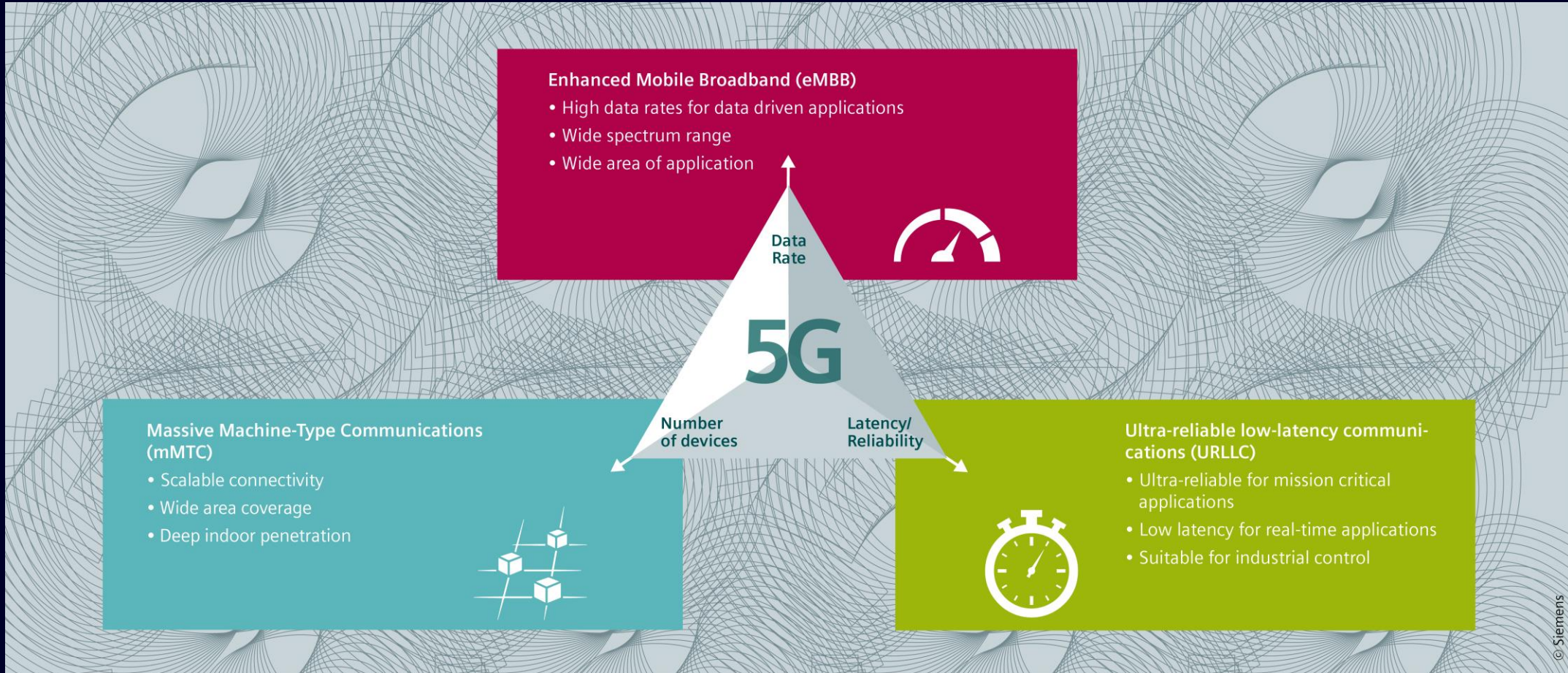
TSN / 5G



- Fremtid
- Time Sensitive Networking
- Tidsallokering

<https://new.siemens.com/global/en/products/automation/industrial-communication/industrial-ethernet/tsn.html>

TSN / 5G



Hvis du vil lære mere om netværk

	 Wired Networks	 Wireless Networks	 Security	 Network Management
Siemens Certified Expert for Industrial Networks (Siemens CEIN)	Diagnostics and Optimization of Industrial Networks with SCALANCE Advanced Switching and Routing in Industrial Networks with RUGGEDCOM	Diagnostics and Optimization of Industrial Wireless LAN	Remote Communication in Industrial Networks	
Siemens Certified Professional for Industrial Networks (Siemens CPIN)	Switching and Routing in Industrial Networks with SCALANCE Switching and Routing in Industrial Networks with RUGGEDCOM	Wireless LAN in Industrial Networks WiMAX in Industrial Networks	Security in Industrial Networks with SCALANCE Security in Industrial Networks with RUGGEDCOM	Network Monitoring and Configuration SINEC NMS with SCALANCE Network Monitoring and Configuration SINEC NMS with RUGGEDCOM
Siemens Initial Training for Industrial Networks (Siemens ITIN)	Ethernet Fundamentals in Industrial Networks (optional) Web-based Training: Data Communication with Industrial Ethernet (optional)			

<https://www.sitrain-learning.siemens.com/DE/en/rw37037/Siemens-Industrial-Networks-Education-Certification-Program>

<https://www.sitrain-learning.siemens.com/DK/da/rw71552/Certification-Workshops>

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| Kontakt

Per Krogh Christiansen

per.christiansen@siemens.com

Jesper Kristiansen

jesper.kristiansen@siemens.com

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