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Relion. Thinking beyond the box.

Designed to seamlessly consolidate functions, Relion relays are smarter, more flexible and more adaptable. Easy to integrate and with an extensive function library, the Relion family of protection and control delivers advanced functionality and improved performance.

ABB Protective Relay School Webinar Series

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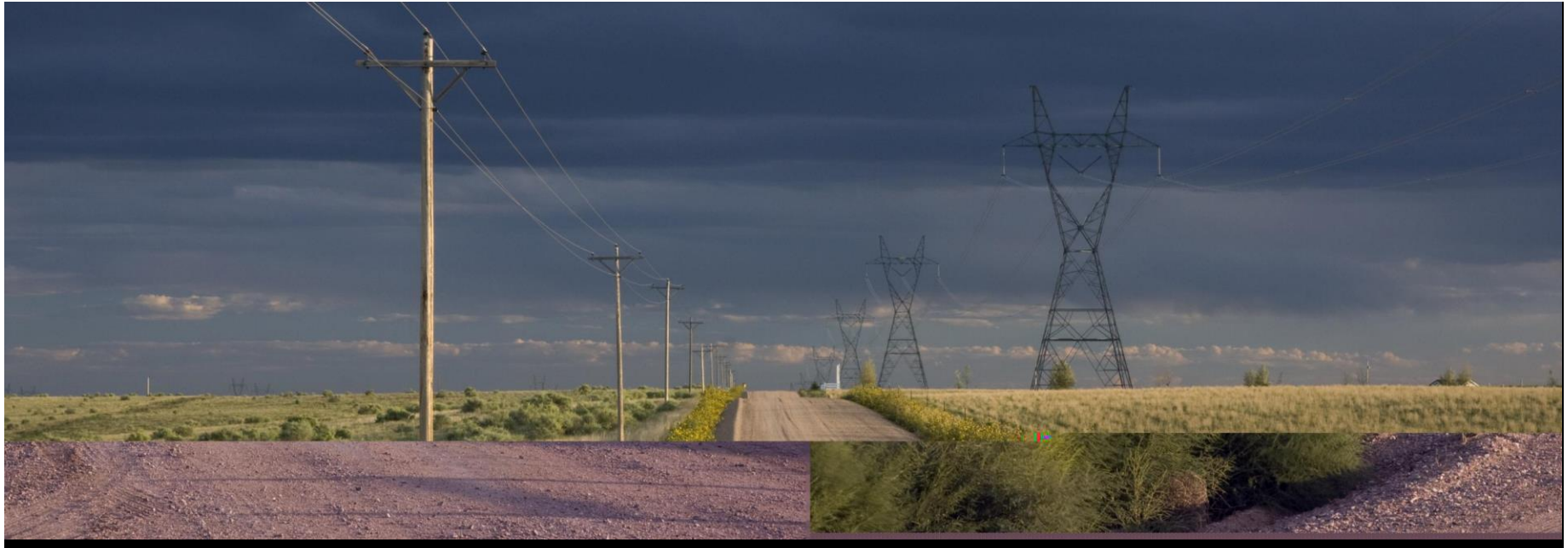

ABB Protective Relay School Webinar Series

RTU Fundamentals

Erik Brandstaedter

December 2nd, 2014

ABB

Power and productivity
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Presenter

- Erik Brandstaedter
- Erik joined ABB Germany in 2009 after receiving his diploma in Power Engineering and a masters degree in Business Administration. Erik is currently serving as the North America Business Development Manager for RTU products and is located in Los Angeles, CA
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Learning objectives

Remote Terminal Unit's (RTU's) are used in a wide variety of utility applications. This webinar will address the basic functions of RTU's and how they are applied in utility applications.

RTU Fundamentals
Agenda

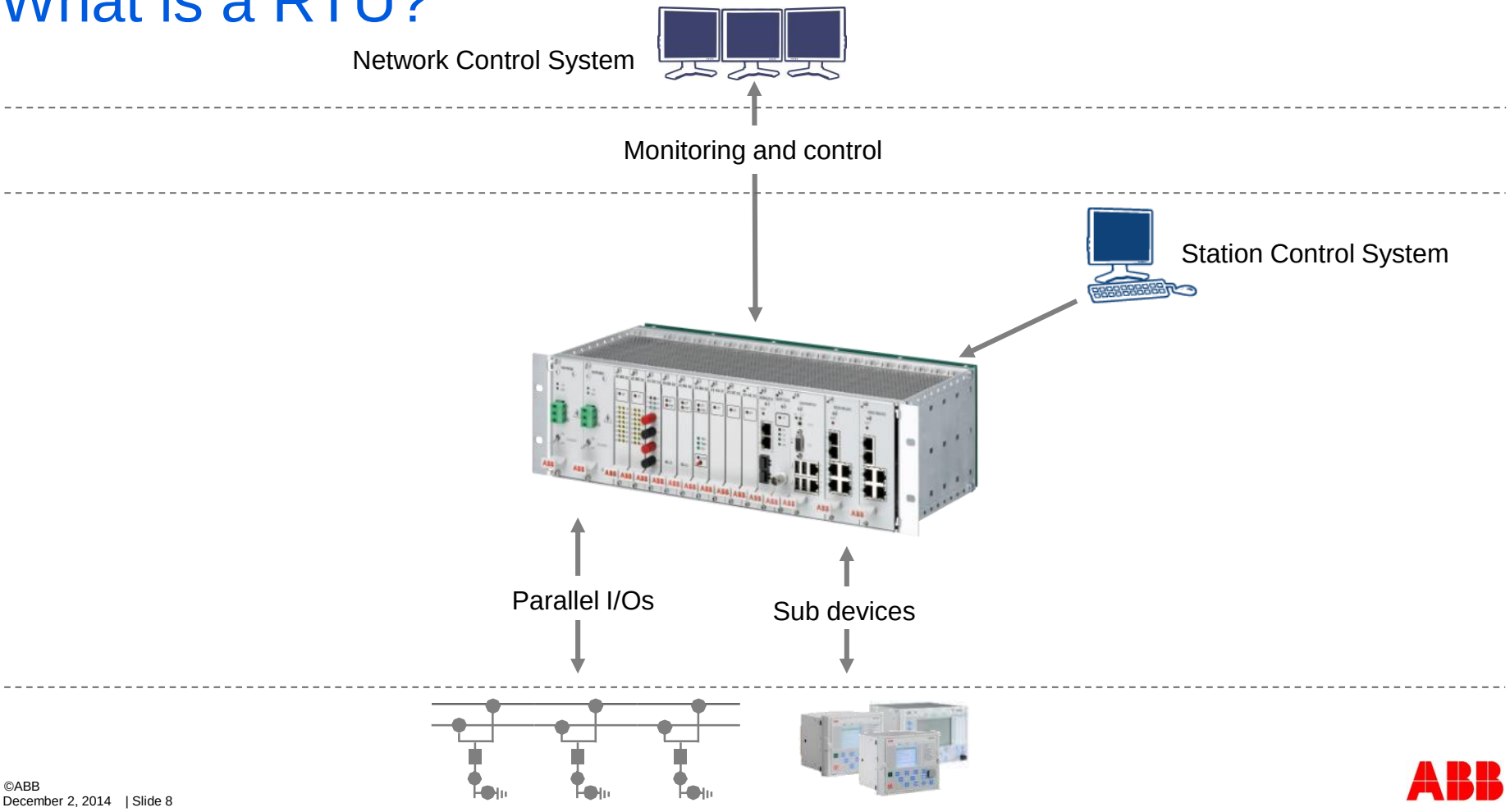
- What is a RTU?
- Challenges in the market
- Requirements for modern RTUs
- Typical applications
- Application examples
- Questions and answers

RTU Fundamentals
What is a RTU?

- Remote Terminal Unit including
  - Remote monitoring and control functions
  - Process monitor for collection and visualization of data signals (hard-wired, serial, Ethernet)
  - Communication gateway communicating via several protocols at the same time (e.g. Modbus, DNP3.0, IEC 61850, etc.)
  - Programmable Logic Controller (PLC), able to control industry processes automatically
  - Human Machine Interface (HMI) provides overview similar to a small SCADA system (Supervisory Control And Data Acquisition)

RTU Fundamentals

What is a RTU?



RTU Fundamentals
Challenges in the market

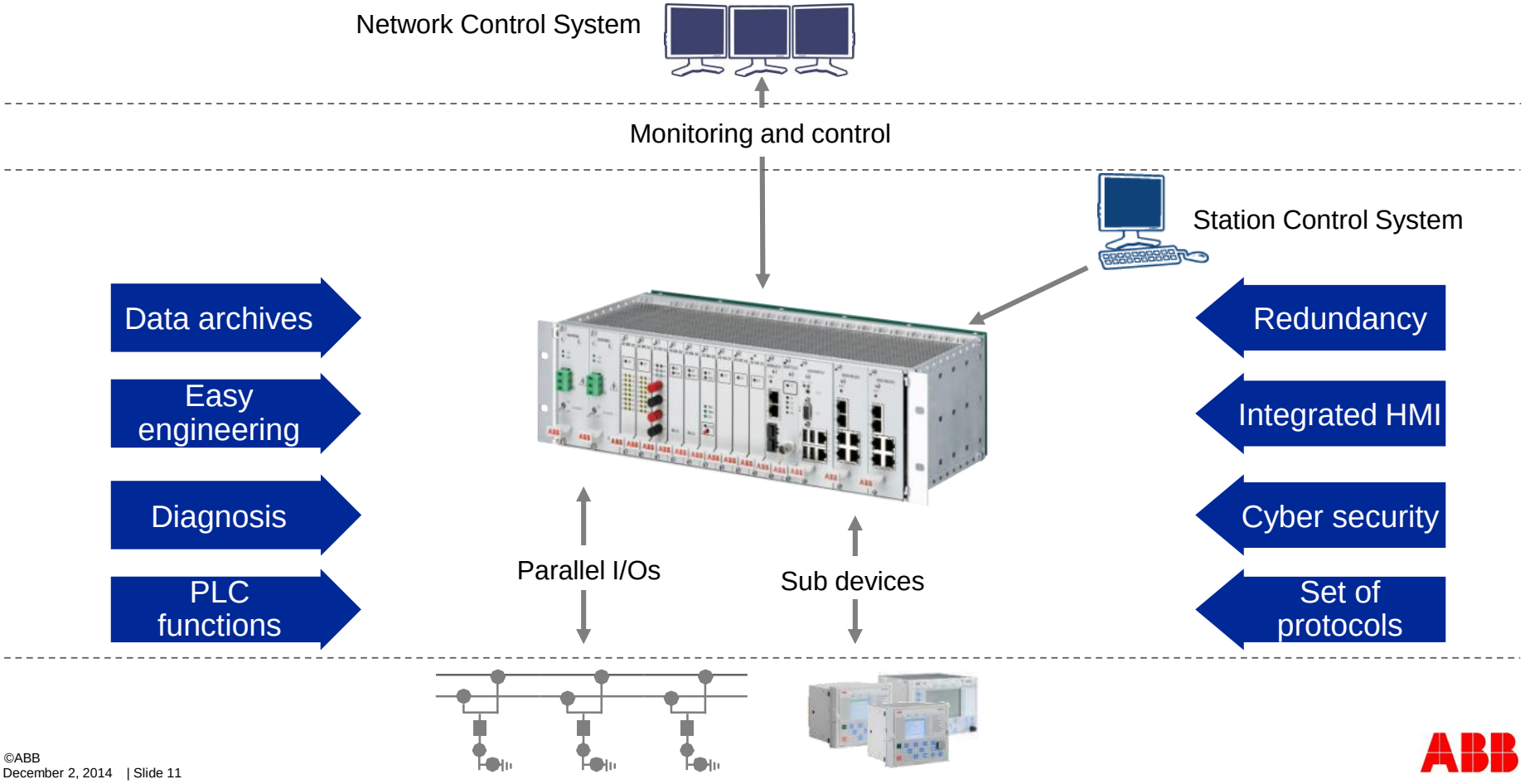
- Retrofit of existing switchgear and control panels
- Need for cost-effective and extensible access to devices in the substation
- Need for reliable monitoring and control
- Request for standard-based, open protocol solution such as DNP3.0 and IEC 61850
- Mix of several interfaces and devices, addition of new devices
- Need for centralized system diagnosis and management, logging, trending, alarms, web-based HMI, time stamping
- Challenge to manage the data that comes with increased monitoring and turn it into knowledge
- Ensure Cyber Security implementation across the entire solution supporting our customers to meet NERC-CIP requirements and more

RTU Fundamentals
Requirements for modern RTUs

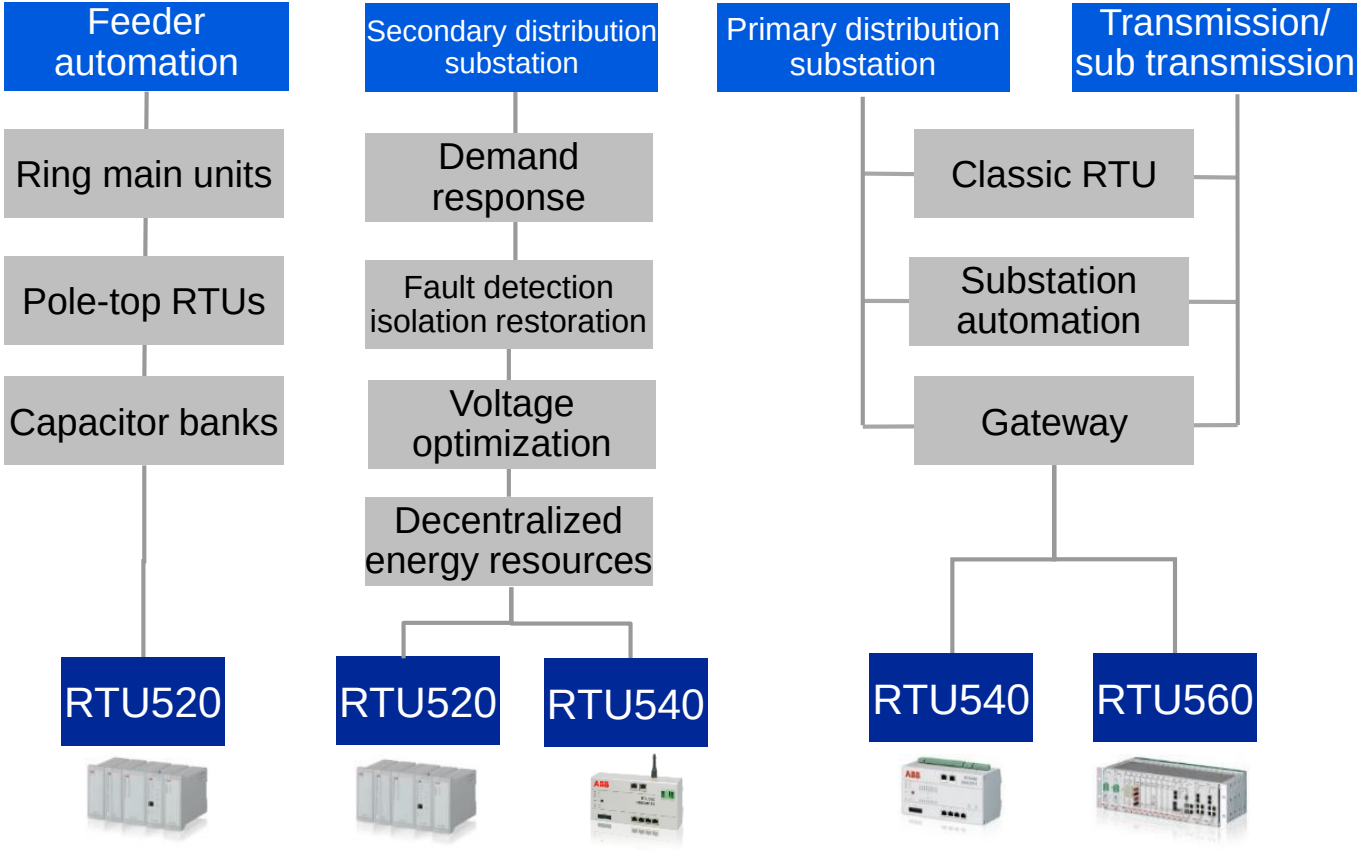
- Flexible and scalable hardware concepts
- Migration to existing solutions
- Security of investment
- Enhanced communication capabilities
- Flexible communication to IEDs
- Ability to perform complex PLC functions (IEC 61131-3)
- Integrated HMI for station monitoring
- Modern engineering tools with data exchange interface
- Archive functionality
- Diagnosis and maintenance functionalities
- Highest reliability (redundant solutions)
- Robustness against cyber security attacks (NERC-CIP, IEEE 1686)
- Effective and reliable service and support

RTU Fundamentals

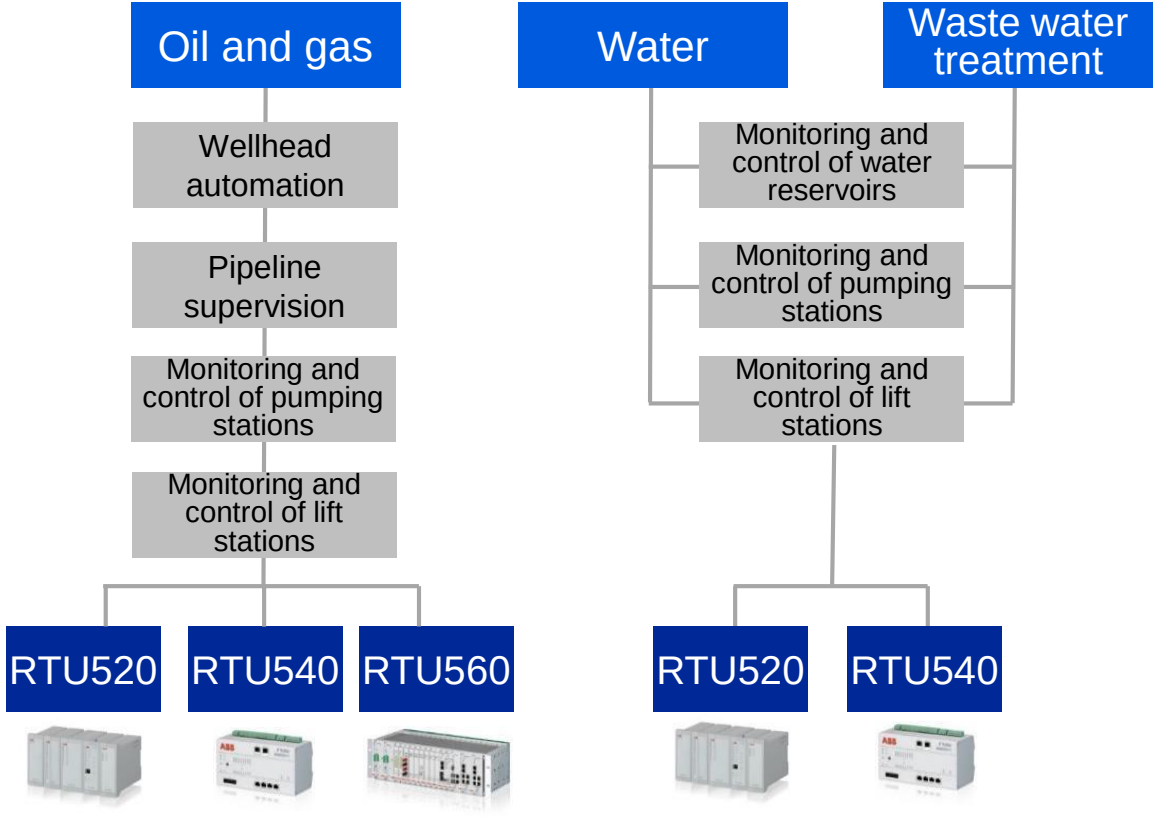
Requirements for modern RTUs



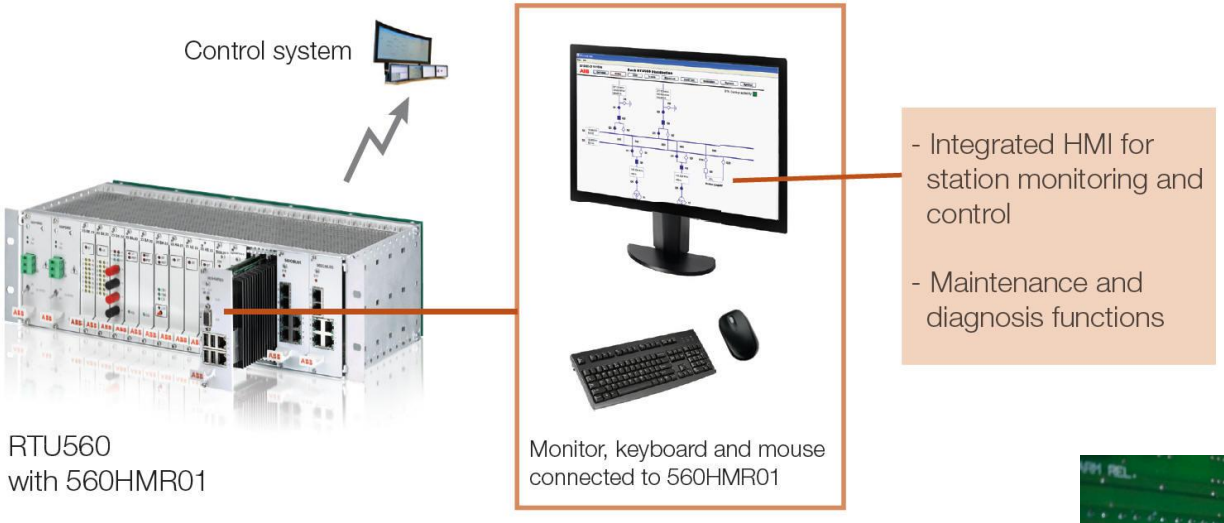
RTU Fundamentals
Typical applications – Electrical applications



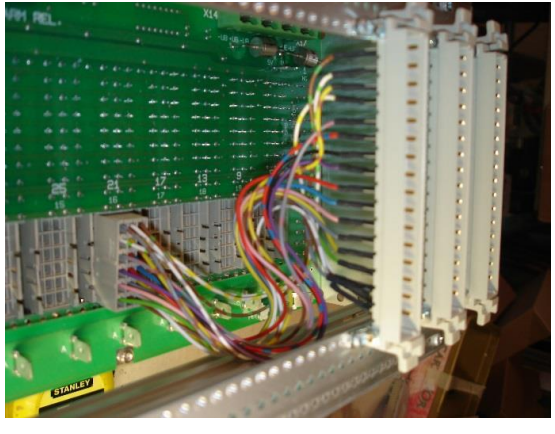
RTU Fundamentals
Typical applications – Process automation



RTU Fundamentals
Application examples – Successful migration solutions

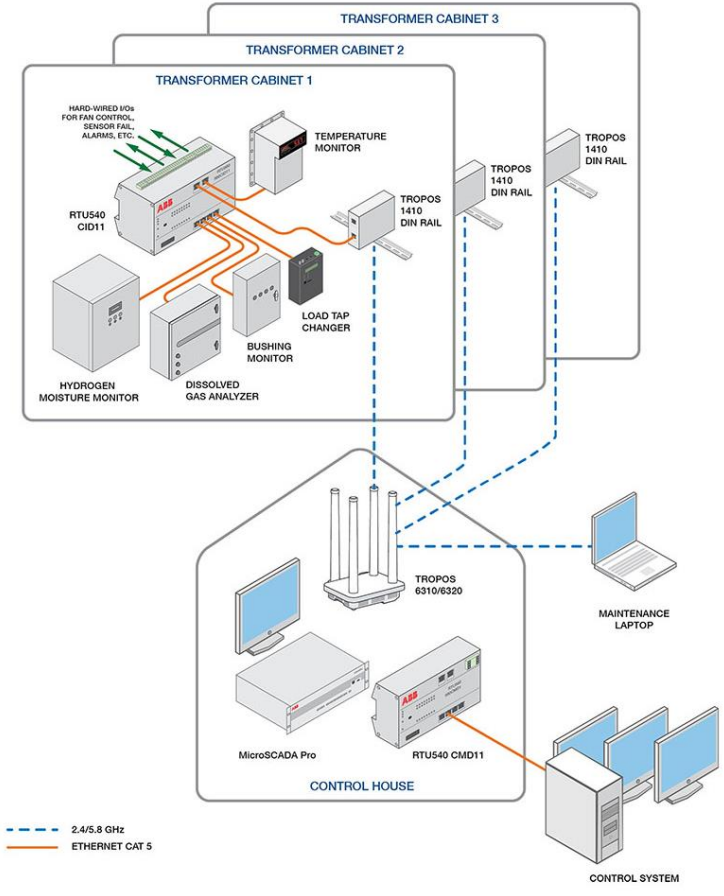


- Integrated solution – no separate PC necessary
- Plug-and-play solution for minimal installation- and engineering effort
- Maintenance-free – no rotating parts
- Security approved



RTU Fundamentals

Application examples – Remote automation solutions



- Remote data collection from transformer monitoring devices (e.g. temperature, hydrogen-moisture, tap position) via RTU540 (hard-wired / serial / Ethernet)
- Wireless communication back to the control room via Tropos 1410
- Reception of transformer data at control room via Tropos 6310 sitting outside
- Communication from the control room to network control center via RTU540
- Consolidated dashboard turns data into knowledge with MicroSCADA Pro
- Option to add physical security to remote substations

RTU Fundamentals
Questions and answers

- Please feel free to ask any questions you might have
- Also, if we run out of time, please feel free to contact me after the webinar
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ABB Power Systems Automation and Communication

- **Relion Series Relays** – Advanced flexible platform for protection and control
- **RTU 500 Series** – Proven, powerful and open architecture
- **MicroSCADA** - Advanced control and applications
- **Tropos** – Secure, robust, high speed wireless solutions

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Thank you for your participation

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To view a schedule of remaining webinars in this series, or for more information on ABB's protection and control solutions, visit:

http://new.abb.com/substation-automation/products/remote-terminal-units

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