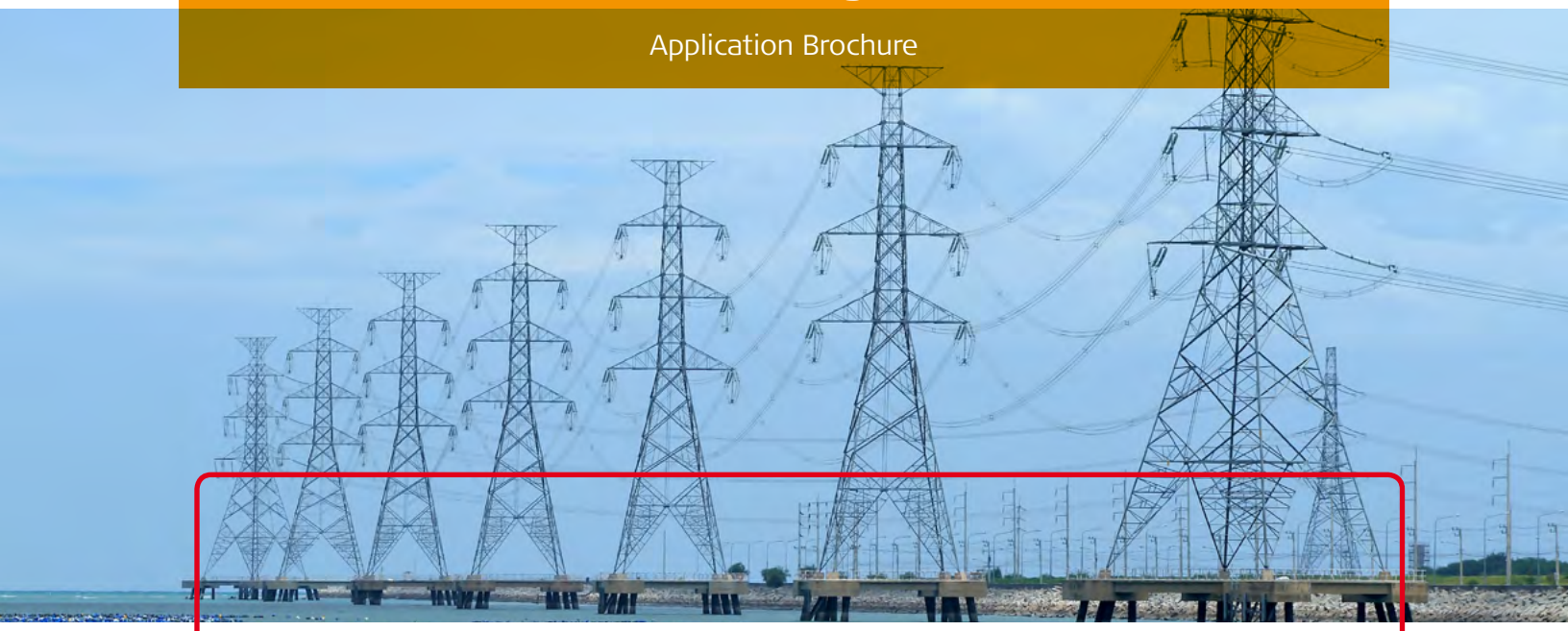
Service Assured Networking for Power Utilities

Application Brochure



Teleprotection Connectivity

for Differential and Distance Relays

Typical users: Transmission & distribution power utilities

For more than 30 years, RAD has worked closely with its worldwide energy utility customers to provide field-proven communications solutions that address the automation, Teleprotection and operational core network needs of their transmission and distribution (T&D) grids.

Service Assured Networking: RAD offers secure, reliable, scalable, managed, and performance guaranteed solutions for automation, protection, security, and ICT networking that support multiple deployment scenarios over SDH/SONET and carrier-grade Ethernet networks. A vast array of capabilities include service provisioning, traffic management, timing synchronization, TDM pseudowire, ongoing performance monitoring, fault management, and various resiliency mechanisms.

RAD

Teleprotection Communications

Teleprotection is the most critical application for any utility communications network. Distance protection relays need to exchange information and Differential Teleprotection systems require a reliable and secure communications network to ensure reaction times within milliseconds to respond to faults on the power line.

For decades now, power utilities have relied on telecom technologies, such as SDH/SONET, to provide the right levels of performance and security required for Teleprotection and other critical applications.

With the growing deployment of packet switched networks (PSN) as the operational core communications network, utilities now face new challenges concerning their critical Teleprotection and SCADA applications.

These new PSN transmission technologies raise the following questions:

- How to support different Teleprotection schemes?
- Which PSN infrastructure should be used to ensure Teleprotection scheme performance?
- How to deal with security threats?
- How to monitor the status of the Teleprotection scheme?

RAD's Service Assured Networking multiservice platform supports:

1. Typical Teleprotection legacy interfaces – Serial, E&M, 64K, G.703, and C37.94 facilitating communications for existing differential protection relays
2. Teleprotection interface for distance protection designed to comply with the very stringent constraints of IEC 60834 in terms of transfer time, security and reliability

RAD's solution addresses the requirements of both the telecommunications and protection departments at power utilities with its unmatched flexibility to transport differential protection or distance protection trip commands over a variety of infrastructures: dark fiber and SDH/SONET, as well as the PSN. RAD's Service Assured Networking ensures peace of mind for protection professionals because its low latency pseudowire technology has been implemented by leading power utilities with reliable and guaranteed performance.

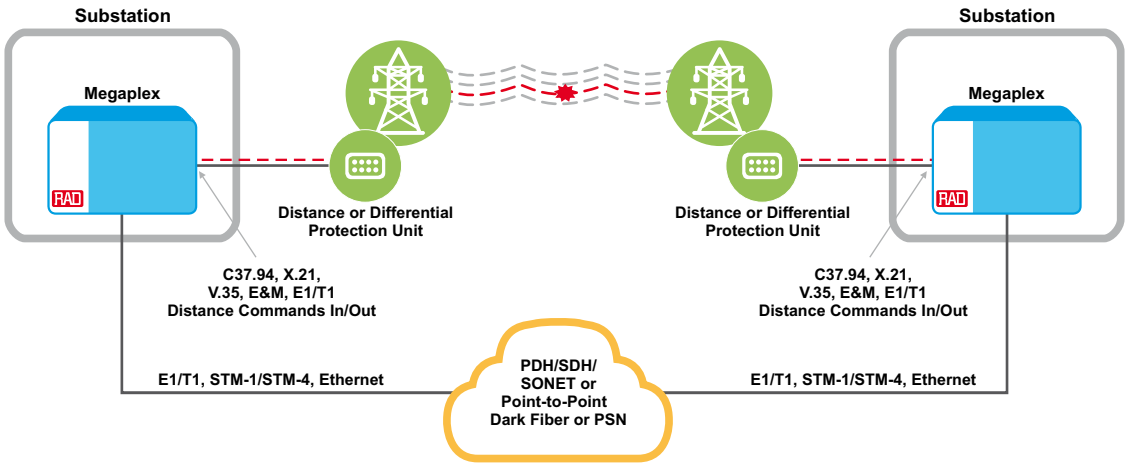
Traffic Duplication

To even further assure the successful migration of Teleprotection to PSN, RAD offers its unique Traffic duplication functionality, which enables simultaneous transport of the Teleprotection signals on both SDH/SONET and PSN networks.

Benefits of RAD's Service Assured Networking solution for Teleprotection communications:

- ✓ CapEx reduction – Avoid costly replacement of existing equipment
- ✓ OpEx reduction – Centralized monitoring of remote equipment reduces service calls
- ✓ Flexible solution – Supports any interface and Teleprotection scheme and reliably transports Teleprotection communication over any type of network: TDM, SDH/SONET, as well as ensuring smooth migration to the new PSN
- ✓ Hot swapable hardware – Redundancy to reduce risk of equipment failure, for both CPU card and power supply

Distance and Differential Teleprotection Scheme



- One product supports both distance protection trip command and Differential Teleprotection communication over TDM or IP network
- Wide range of Teleprotection interfaces — Serial, G.703 Co-Dir, E&M, C37.94 — to allow differential protection scheme over TDM and Ethernet networks
- Up to 40 input commands and 80 output commands in a single Teleprotection unit
- Reduce CapEx and OpEx by using a single-box solution for all substation communications services, including voice, data, automation and Teleprotection signals
- Redundancy hierarchy from the Teleprotection interface up to the communication link ensures 0 (Zero) msec hardware protection and sub-10 msec end-to-end delay over PSN
- Tested interoperability with most of the leading vendors of protection relays (Alstom, ABB, Siemens, SEL, Schneider)

Megaplex-4

Next-Generation Multiservice Access Nodes

Additional RAD Service Assured Networking Solutions for Power Utilities

www.pulsesupply.com