Secure networks for critical infrastructure

RADiflow addresses the emerging risk of cyber attacks on critical SCADA systems

• Advanced industrial Ethernet switching portfolio
• Integrated firewall - providing a distributed protection against cyber threats
• Encrypted tunneling - securing your traffic over public networks
• Flexible access options (Fiber, Cellular, xDSL and more)
• Serial interfaces with protocol gateway and tunneling
Service Aware Key Capabilities

**Application Aware Firewall**
- Easy deployment of distributed Intrusion Prevention System (IPS) using the integrated firewall
- Detailed service-aware inspection of leading SCADA protocols: ModBus, IEC 101/104, DNP-3, IEC 61850
- Inspection of SCADA flows for both IP-based and Serial-based devices
- Easy provisioning and monitoring of network-wide security deployment using the central iSIM system

**Multi-access VPN**
- Supporting variety of network access interfaces with resiliency mechanisms agnostic to the physical interface type
- IPSec VPN tunneling to secure the application traffic when using public network infrastructure
- Integrated Dual-SIM 2G/3G cellular modem and SHDSL modem
- Ethernet over SONET/SDH and PDH networks using RAD MiRic SFPs

**Protocol Gateway**
- Support for RS-232/RS-485 serial interfaces with an integrated protocol gateway for connection to an IP-based SCADA system
- Support for leading automation protocols: ModBus, IEC 101/104, DNP-3 and more
- Acting as a field device in the IP SCADA network, routing the messages to the serial devices
- Acting as a master on the serial links implementing initialization and arbitration of the serial bus

**Transparent Tunneling**
- Support for RS-232/RS-485 serial interfaces with transparent tunneling of data-streams between multiple devices
- Terminal server and Virtual COM-port models for direct connection of a computer to serial devices
- Optional activation of SCADA firewall and IPSec encryption for the serial tunnels
- Support for pseudo-wire tunneling for E1/T1 TDM devices using RAD MiTOP SFPs
Applications Case Studies

**Power Utility**
- WAN backbone connectivity using Ethernet VLANs or via MPLS PE router
- Secure connection between control-center and sub-station RTUs using distributed SCADA firewall
- Optional IPSec encryption of backbone traffic when using non-secure links (wireless, leased lines, etc.)
- Support for IEC61850 sub-station LAN traffic including GOOSE multicast messages and optional IP routing segmentation
- Integrated serial interfaces with protocol gateway functionality for smooth migration of legacy IEDs

**Smart Grid**
- Compact system with rich feature-set optimizing the secondary sub-station installation
- SCADA firewall deployed in every sub-station to validate the critical distributed automation (DA) commands
- Easy deployment using integrated cellular modem with IPSec DMVPN support and 2 SIM cards for mobile operator redundancy
- Serial interfaces with protocol gateway for connectivity of legacy IEDs
- Discrete relay I/O lines for remote monitoring and control of physical alarms

**Transportation**
- Integrated support for various user interfaces (Ethernet, Serial, TDM and Discrete) for remote connectivity to passengers interface systems and SCADA devices
- IEEE 802.1x access control for EN505159 compliance
- Distributed service-aware firewall for ModBus TCP and serial ModBus RTU flows
- Serial interfaces with ModBus protocol gateway and transparent tunneling for propriety protocols
- G.8032 ETH ring support for over native Ethernet, SHDSL copper links and SONET/SDH/PDH links
RADiFlow 3000 series
Secure networks for critical infrastructure

Key features:
• Ruggedized, industrial-grade hardware for extensive operating conditions
• Compact, DIN-rail mounted form factors
• EMI immunity acc. IEC61850-3, IEEE1613
• Ethernet 10/100/1000 fiber and copper interfaces
• Network-level protection protocols for star, mesh and ring topologies
• OSPF IP routing
• IEEE1588v2 clock synchronization
• RS-232 and RS-485 serial interfaces with SCADA protocol gateway and tunneling
• Cellular and SHDSL connectivity options
• Integrated per-port Service-Aware Firewall
• Inter-site IPSec tunneling
• Integrated SSH server for user traffic for secure remote access
• Secure management using SNMPv3, SSH and RADIUS
• CLI and Element Manager tools
• iSIM - Intelligent network management system

About us
RADiFlow is part of the RAD group, a family of companies which provide solutions for various communication networking segments. The RAD group has 4000 employees worldwide with annual revenues exceeding $1 billion. The sales and support of RADiFlow products are done via RAD Data Communication channels consisting of regional offices and 250 certified partners in 150 countries.

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