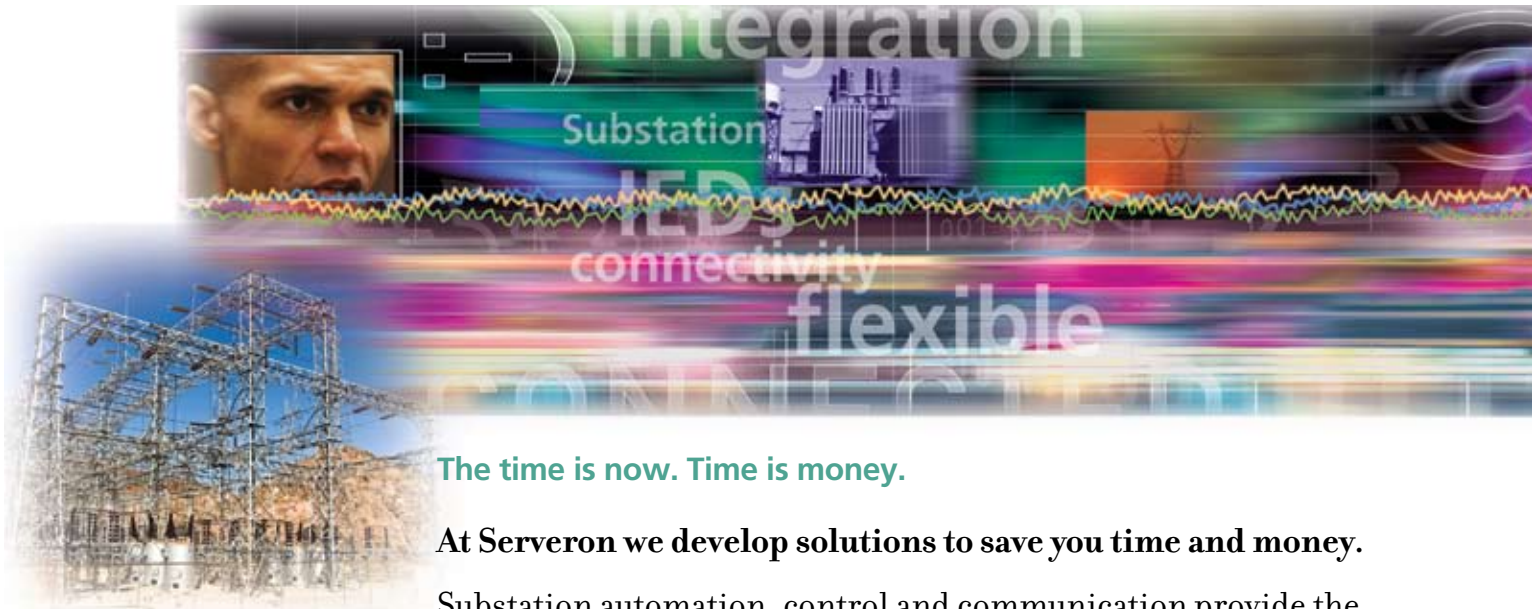


Leverage Substation Integration to Improve Reliability.



The time is now. Time is money.

At Serveron we develop solutions to save you time and money.

Substation automation, control and communication provide the information you require in real time. Typically, the intelligent electronic devices (IEDs) that protect, sense and generate data on substation equipment operate independently. Device independence makes it difficult to compile a comprehensive snapshot of substation conditions.

Our Substation Automation (SA) provides an integrated communications environment; collecting data from various substation IEDs, processing the data and storing it in a secure open database. SCADA, local, as well as remote users may access real-time and historical data directly via the system's optional HMI. Expanded access to a broader range of measurement data can speed management decision-making on preventive or remedial action needed to avert or minimize outages.

The integration of substation data is a cost effective means to:

- Improve substation reliability
- Enhance Customer satisfaction
- Reduce O & M costs
- Control operating expense

SUBSTATION AUTOMATION ENABLES UTILITIES TO:

- EXPAND ACCESS TO
SUBSTATION DATA
- SPEED DECISION-MAKING
WITH ACTIONABLE
INFORMATION
- REDUCE TIME TO RESTORE
POWER
- MINIMIZE CUSTOMER
OUTAGES
- REDUCE OPERATING COSTS

Hardware

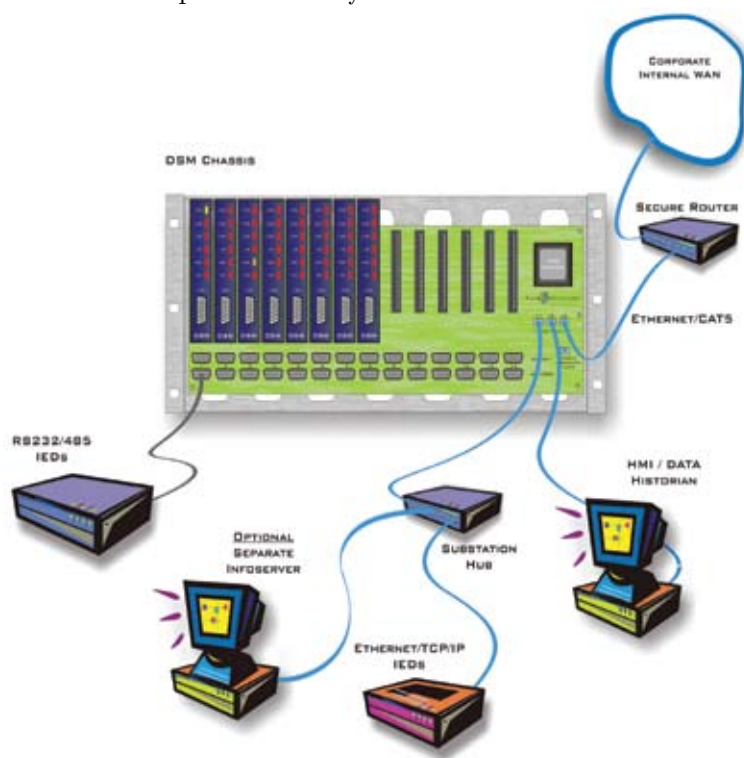
Configure dozens of substation IEDs in one DSR chassis! Plug in up to 12 Data Source Modules (DSM), each with its own processor for incredible throughput. Each DSM is capable of communicating with multiple IEDs to gain the flexibility and scalability to integrate all of a substation's IEDs. Connect IEDs via ethernet, serial ports, or directly.



DSM MODULE



DSM MODULES IN CHASSIS



HARDWARE/SOFTWARE FEATURES

- DISTRIBUTED PROCESSING
- ETHERNET BACKBONE
- OPEN ARCHITECTURE
- MULTIPLE SCADA CHANNELS
- MULTIPLE PROTOCOLS IN ONE CHASSIS
- EXCEPTION REPORTING DESIGN

EXTENDED SYSTEM FEATURES

- LOCAL REAL-TIME MONITORING & CONTROL
- HISTORICAL EVENT / FAULT DATA
- INTEGRATED METERING
- DATABASE LOGGING OF ALARMS, ACTIONS, STATION NOTES AND PROCEDURES
- LOCAL ACCESS TO SYSTEM DATA FOR TROUBLESHOOTING
- REMOTE ACCESS TO INDIVIDUAL DEVICES, FILES OR REPORTS
- AUTOMATED CONTROL
- LOAD MANAGEMENT SYSTEMS AND CONTROLS INTERFACE
- EXTENDED WAN SUPPORT
- SMART GRID DATA INTEGRATION



Software

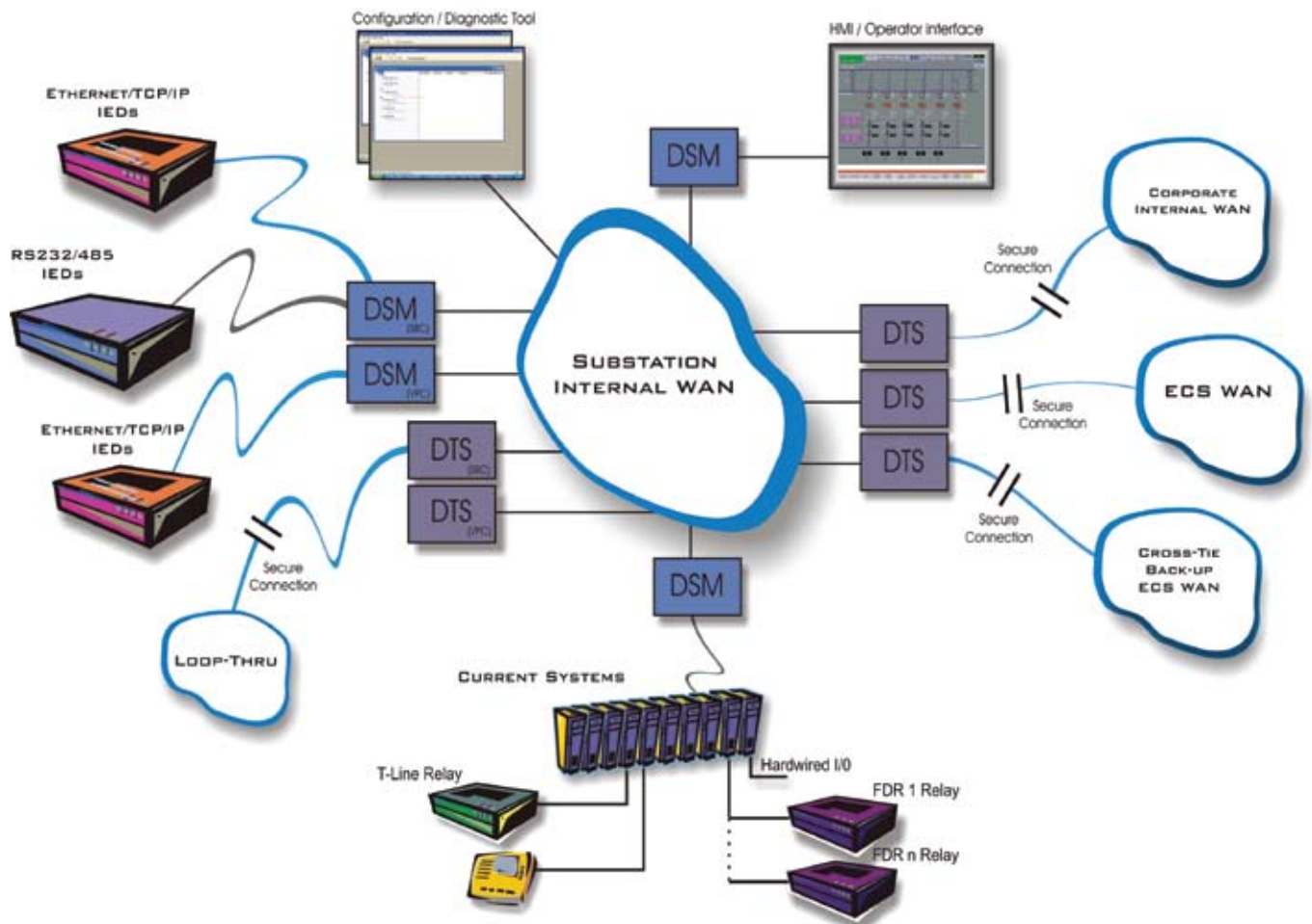
Distributed processing The DSR chassis supports up to 12 DSM modules. Each module has its own processor. Therefore, a fully configured system has 12 processors! Most alternatives are a “single box” solution with one processor for multiple ports, which is woefully inadequate for the volumes of data at the speeds required by large scale implementations.

Modularity Start with a backplane with one module (one port) and add more as required. Most alternatives are a fixed platform solution with one processor supporting many ports.

Scalability We can support RTU functionality with a chassis and X modules alone. A separate PC may be added to store historical data if desired, and another layer of functionality may be added in the form of an HMI (Human Machine Interface) for control and monitoring.

Protocol Our internal SPRITE protocol is designed specifically for power utility applications based on many years of utility industry experience. Unlike protocols that have been press-fit into products from other industries or applications, SPRITE provides data throughput previously unrealized.

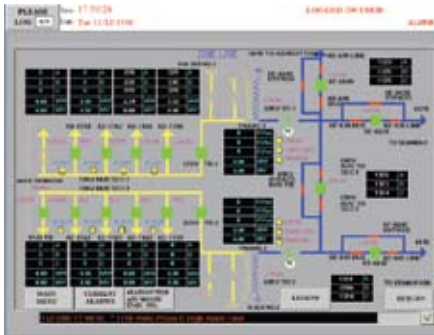
Bus-level Independence We provide a “product-independent solution;” not tethered to specific IEDs.



Key Benefits

- PROVIDE KEY INFORMATION TO SMART GRID SOLUTIONS
- REDUCE NETWORK WIRING AND PANEL COSTS
- REDUCE CAPITAL COSTS
- REDUCE OPERATING COSTS
- IMPROVE RELIABILITY

Typical HMI Screens



Technology

Substation Automation Service provides expertise in the following technologies and services:

- **SCADA PROTOCOL EXPERIENCE:** DNP, L&G, CONITEL, VALMET, CDC, IEC, OTHERS
- **IED PROTOCOL KNOWLEDGE:** GE, SEL, ARIVA, PML, SCHLUMBERGER, SIEMENS, BECKWITH, ABB, COOPER, JEM, GEC, PSI, OTHERS
- MULTIPLE PROCESSORS
- DISTRIBUTED PROCESSING
- MODULARITY
- INTEGRATED SPRITE PROTOCOL
- SCALABLE ARCHITECTURE

Resources

We assist clients in leveraging substation data to gain key business benefits:

- **SYSTEM/ENTERPRISE/SMART GRID INTEGRATION**
- **TRAINING**
- **DOCUMENTATION**
- **TESTING AND TESTING SUPPORT:** TEST PLANS, ACCEPTANCE TESTING
- **DATA AND APPLICATION INTEGRATION**
- **DATABASE DEVELOPMENT AND MANAGEMENT**
- **DATA CONSULTING**
- **REAL-TIME BUSINESS INTELLIGENCE TO SUPPORT ENTERPRISE ASSET MANAGEMENT**

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