SEL Cybersecurity Solutions

Defense-in-depth cybersecurity that mitigates threats with sustainable, proactive solutions.

- Security controls and encryption maximize confidentiality, integrity, and availability of critical communications data.
- Integrated user access controls support centralized single or multifactor authentication to intelligent electronic devices (IEDs).
- Logs and alerts provide detailed audit trails that identify all activity on electrical systems.
- SEL cybersecurity experts help design, engineer, and maintain effective cybersecurity systems.

Sensible, Manageable, Scalable

Cybersecurity isn't something that can be achieved by one person, product, or technology. Real system-wide protection starts with the understanding that it takes teamwork to achieve success. SEL believes that combining layered security protection with the efforts of protection engineers, information technology personnel, and compliance managers leads to a secure and compliant solution.

Power System Protection

Power engineers demand the most reliable systems and services for their control and protection systems. Settings cannot be disturbed, cables cannot be switched, and significant latency cannot be tolerated. Engineers must have full control of their critical systems and maintain full access control to their equipment 24 hours a day, 365 days a year. Cybersecurity must protect these assets and enable power engineers to accomplish their work efficiently.

Information Technology (IT)

IT personnel understand how to work in large, dynamic network environments. They know what it takes to monitor their environment, protect their servers and clients, and provide the best possible technological services to their organization. IT personnel need solutions that are compatible with their infrastructure and will enhance their capabilities by simplifying their jobs.

Regulatory Compliance

Compliance managers need devices that assist in NERC CIP compliance, both now and in the future. This demands scalable solutions that are managed centrally. Keeping up with regulations is a demanding and necessary job. Technology must collect and report the correct data to enable easier compliance in addition to providing the appropriate functionality.

SEL Professional Security Services

Choose outstanding substation security with experience, expertise, and resources from SEL Engineering Services. Our team will:

- Assess regulatory requirements to document and resolve security risks and gaps in power system infrastructure.
- Identify and analyze cyber threats to minimize the impact on substation operations.
- Review cybersecurity substation operations, providing sensible security solutions by independent and certified experts.

Key Advantages of SEL Cybersecurity

- Minimize costs by leveraging the capabilities of existing and trusted substation technologies.
- Keep the IED directly involved in its own security rather than relying exclusively on a corporate-level solution that may not reach the IED.
- Create layers of defense outwardly from each IED while maintaining secure and efficient access for engineering and operations.
- Improve operational efficiency using IEDs and software tools to authorize, authenticate, and report user activity.
- Simplify compliance reporting through automated access of IED alarms and event records.

Assessing Power System Behavior While Under a Simulated Cyber Attack

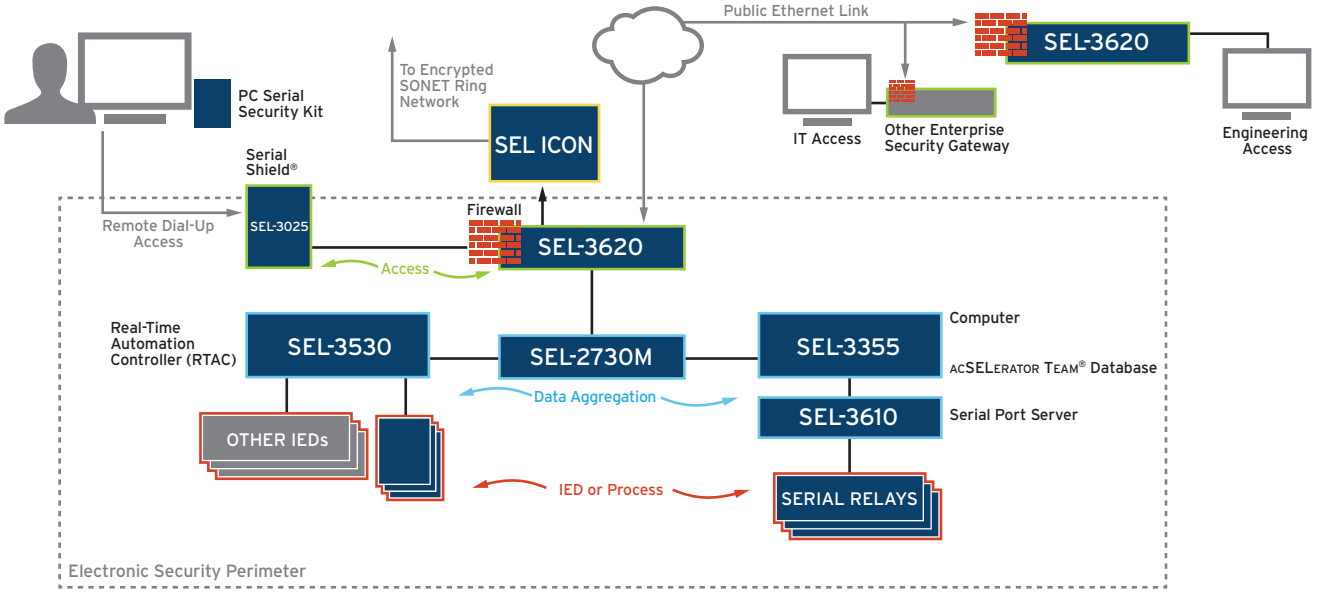
SEL is the only company able to conduct intensive, real-time assessments of transmission and distribution system behavior while under a simulated cyber attack. We use a Real Time Digital Simulator (RTDS®) to simulate faults while burdening the network with large amounts of traffic or other forms of cyber attacks. This allows our engineers and customers to document how intelligent electronic devices (IEDs) and network devices respond in a safe, nonoperational environment. SEL safely simulates breaking network links, network devices, or other network failures, and measures how fast the network responds and heals. Customers get a detailed report of the tests and results, allowing them to make informed decisions based on technical data that detail what would happen if they underwent a cyber attack.

SEL Solutions

- Lightweight Directory Access Protocol (LDAP)-compliant or RADIUS access control
- Deny-by-default firewall configuration
- Internet Protocol Security (IPsec) virtual private networks (VPNs) for site-to-site security
- Centralized two-factor user authentication
- Strong password enforcement
- Detailed activity logs to the command level
- Secure serial and Ethernet designs
- Proxied command line interface to IEDs
- Baseline IED configuration and firmware revision
- Serial security solutions for SCADA and real-time protection

Certified Security Professionals

Our certified security professionals support your efforts in developing sustainable security plans, policies, and procedures.



Related Security Services

The SEL Engineering Services team provides setup, documentation, and customer training on SEL security layers, including:

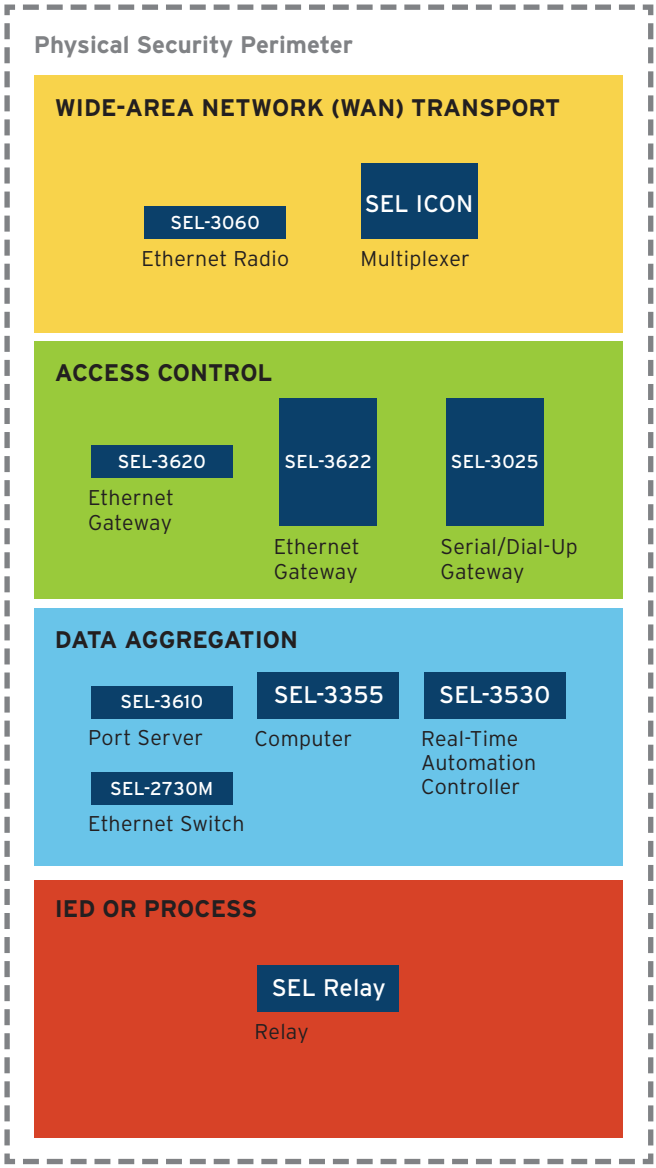
- User accounts
- Baseline IED firmware
- Proxy services
- Access controls
- Logging
- Firewall rules
- Password management
- VPNs

Our services include comprehensive analyses of existing security measures. We review security plans, policies, and procedures as they relate to personnel, technology, and operations, including:

- Onsite inspection of control system communications and security hardware/software
- Evaluation of electronic and physical perimeters
- Assessment and documentation of open ports and/or services
- Onsite interviews of operations personnel regarding security procedures

SEL cybersecurity analyses include detailed reports, complete with findings and actionable suggestions for improvement.

SEL security products are designed to support everyone who works to make power reliable, while enhancing the usability and simplicity of overall system operations. We understand the need for high availability and real-time access to critical operations. Our devices are scalable and interact with IT infrastructure.

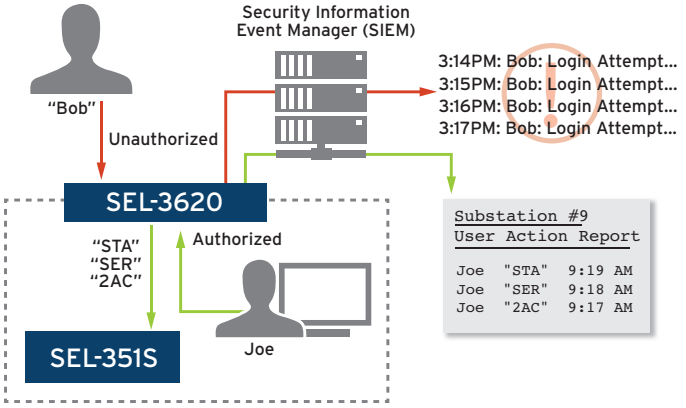


Scalability

SEL builds security from the system level. Whether you need to manage one substation or hundreds, we create manageable, scalable solutions that make your system easier to control.

Accountability and Compliance

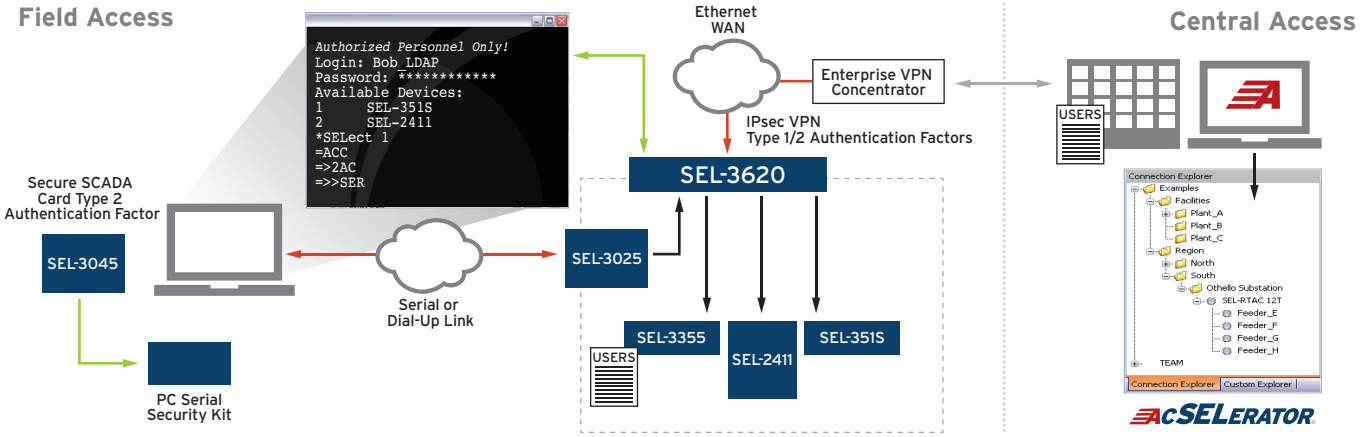
Integrate into existing log management systems using Syslog. Offsite log storage also means easier compliance with NERC CIP critical infrastructure event-logging rules and regulations. Use SEL-3620 Ethernet Security Gateway proxy services to generate user command reports, and trace all actions performed on IEDs back to individual users.



Central Authentication

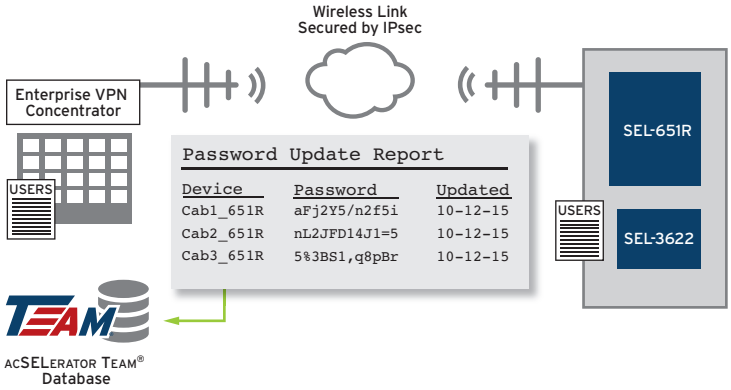
Gain interactive access via a secured electronic access point (EAP) to the remote electronic security perimeter (ESP) using centralized credentials with the SEL-3620 proxy services. Authorized users may access IEDs without needing to remember individual relay logins.

Whether on the road, in the office, or on location at the substation, use existing terminal applications for command line configurations, or ACSELERATOR QuickSet® SEL-5030 Software as a point-and-click graphical user interface (GUI) to make edits, view events, or check status information.



Distribution Automation Security

Add the SEL-3622 Security Gateway to each cabinet, and provide centralized authentication for field distribution controllers, such as the SEL-651R Advanced Recloser Control. The SEL-3622 ensures strong data confidentiality and integrity for engineering access and SCADA data on wired or wireless Ethernet links with IPsec VPN technology. Use ACSELERATOR TEAM® Security at the control center to manage multiple remote SEL-3622 Security Gateways, and synchronize password reports, audit logs, and critical device event reports (i.e., Sequential Events Records [SERs]) back to a central location.



SEL Making Electric Power Safer, More Reliable, and More Economical

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