SEL Blueframe®

Platform and Applications

Manage and operate specialized applications with a secure software platform for OT systems

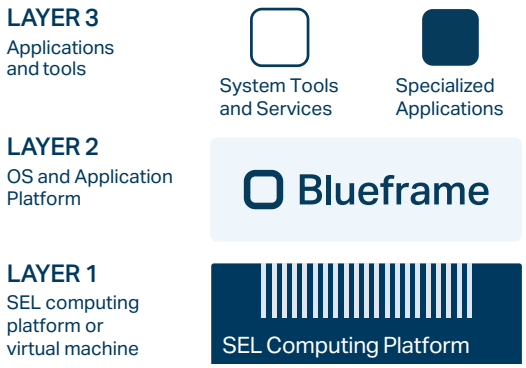
- Access platform applications securely with role-based user permissions.
- Reduce data entry errors while increasing efficiency with common configurations and secure data sharing between applications.
- Support systems of any size and function with this scalable and flexible platform.

Blueframe

The SEL Blueframe application platform is a secure, modular operational technology (OT) system for running SEL Blueframe-enabled applications and for managing and exchanging data seamlessly between these applications. With Blueframe, you can maximize the use of your system data and simplify the management of security vulnerability patches using a scalable and customizable solution that accommodates your system schemes today and in the future.

System Architecture

The Blueframe application platform is part of the SEL modular application environment. This system consists of the foundational hardware, which may be an SEL computing platform (SEL-3350, SEL-3355, or SEL-3360) or a virtual machine deployment; the Blueframe OS and platform that run applications and provide system tools to help you use and manage the environment; and the specialized applications you select to run.



Key Benefits

Secure

We designed the Blueframe platform to provide secure methods for sharing data between applications. The efficient and restricted data exchange allows each application to specialize and provide value-added services to the overall solution.

Scalable

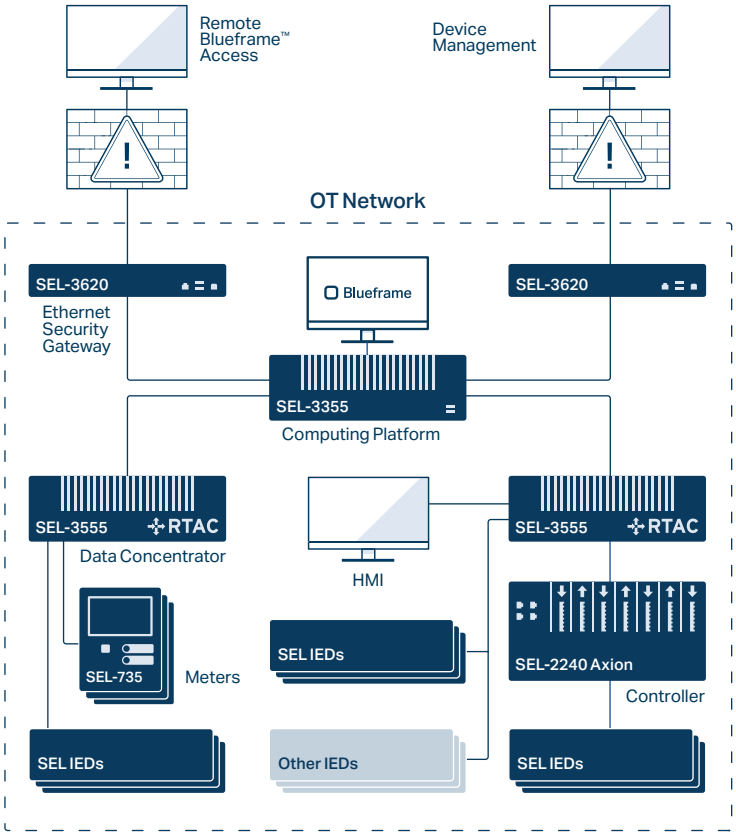
Blueframe supports systems of any size and is an economical solution for both small and large systems. You can change or expand the applications to customize system functionality and accommodate your evolving needs.

Flexible

Choose from SEL computing platforms to get the hardware that best fits your requirements and budget, or deploy Blueframe in a virtual environment with a contract agreement.

Versatile

Blueframe simplifies and centralizes user access permissions, security parameters, and IED data management with a single user-friendly, consolidated interface to perform different tasks based on the applications deployed.



Secure OT networks with the modular SEL Blueframe platform.

Hardware

Blueframe runs on powerful and reliable SEL computing platforms that ensure system availability in the most demanding applications and environments. Select the right hardware for your application by choosing from models that offer a variety of processing power options, drives, memory modules, expansion capabilities, and form factors. Blueframe and its specialized applications come embedded in your chosen computing platform.

Blueframe can also be deployed virtually on other server-grade hardware through a contract agreement. For more information about virtual deployments and minimum hardware requirements, contact your local support.

	SEL-3350	SEL-3355	SEL-3360S	SEL-3360E
Processor	Intel Atom x5-E3940 quad-core, 1.6 GHz	Intel Xeon quad-core, 2.0 or 2.8 GHz	Intel Xeon quad-core, 2.0 or 2.8 GHz	Intel Xeon quad-core, 2.0 GHz
Memory	8 GB DDR3L RAM with error-correcting code (ECC)	Up to 64 GB DDR4 RAM with ECC	Up to 64 GB DDR4 RAM with ECC	Up to 64 GB DDR4 RAM with ECC
Storage[1]	Up to 2 SSDs, 2 TB each, 2.5" SATA III (6.0 GB/s)	Up to 4 SSDs, 2 TB each, 2.5" SATA II (3.0 GB/s)	Up to 2 SSDs, 2 TB each, 2.5" SATA II (3.0 GB/s)	Up to 2 SSDs, 2 TB each, 2.5" SATA II (3.0 GB/s)
Chassis	19" rack or panel mount, 1U or 3U	19" rack or panel mount, 3U	Conductive panel-mount or standard wall-mount cooling	Conductive panel-mount or standard wall-mount cooling

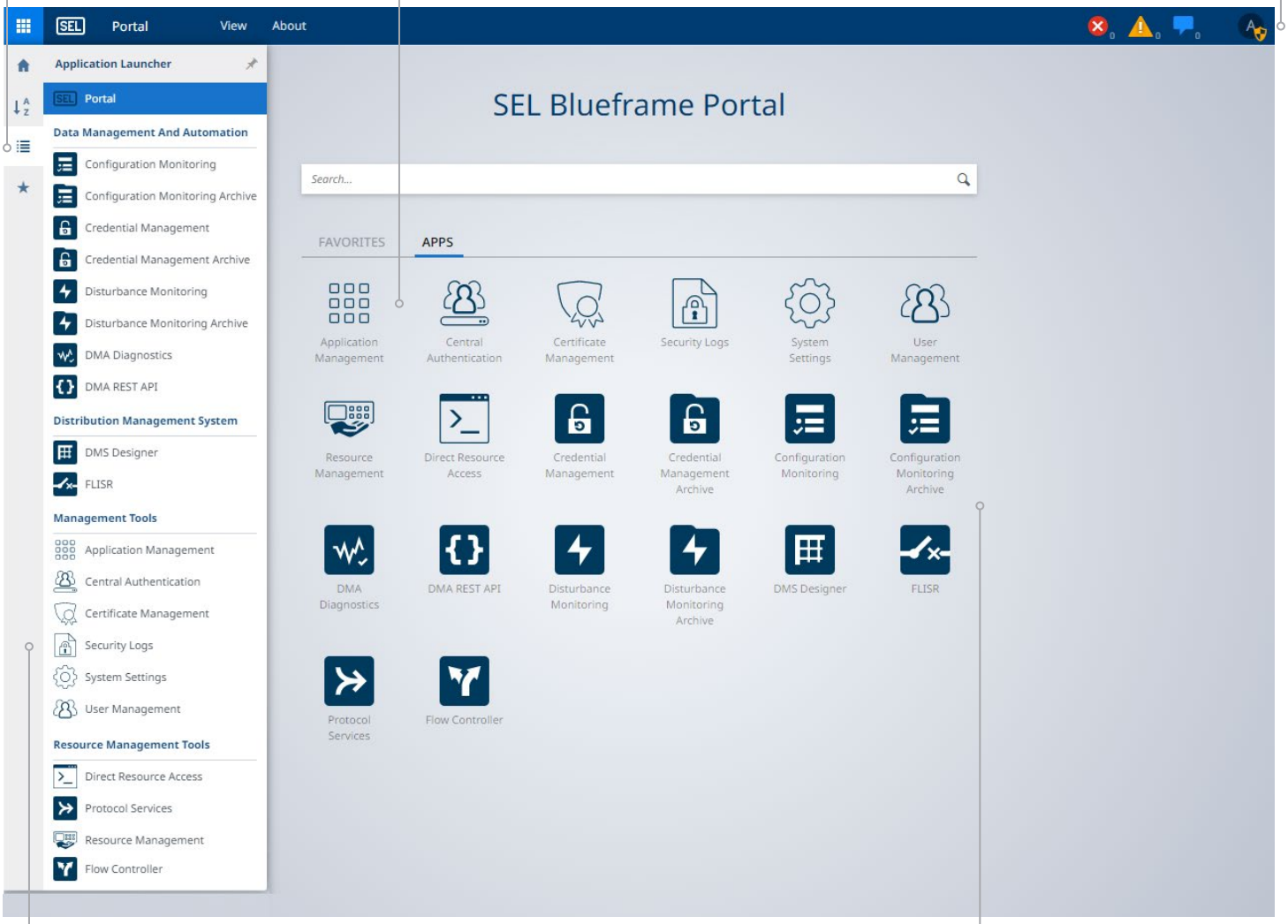
[1]Blueframe only supports a single drive at this time.

Features

User-Focused Interface
Intuitive interface that facilitates user preferences and enables you to quickly find and manage content.

User Roles
Roles are defined with access permissions so that a user only has access to exactly what they need.

Management Tools
Use the tools to configure security, users, communications, and system settings once to be used by the different applications across the platform. You can also manage resources, logs, and security certifications.



Secure User Interface
Blueframe runs on a secure Linux OS that employs containerized applications. All applications must be signed and verified to run in the platform.

Specialized Applications
Blueframe applications are designed to be modular to perform specific functions. They seamlessly and securely share common information throughout the platform using automation and smart data subscriptions to save you configuration time and effort.

Blueframe Application Suites

Data Management and Automation (DMA) Application Suite

The DMA suite includes the Disturbance Monitoring, Configuration Monitoring, Credential Management, Custom Monitoring, and Meter Monitoring application packages. These applications are designed to automatically collect and manage device-specific information to simplify day-to-day management of your system of devices and to support compliance. These applications streamline password rotation and the collection of oscillography, metering data, Sequence of Events (SOE) logs, and device settings and property information. The applications also simplify device audit tasks through custom summary reports to identify device changes.

Resource Management Tools

Resource management tools allow you to easily configure and manage devices, communications protocols, and network paths. This set of tools includes Resource Viewer, Resource Management, Protocol Services, Software-Defined Network Flow Controller, and Direct Resource Access. Resource Viewer presents device status information in an easy-to-read tabular format. Flow Controller is the central interface for the commissioning, configuration, and monitoring of the SEL OT software-defined networking (SDN) solution. Direct Resource Access provides a secure engineering access interface for connecting to devices locally or remotely.

Distribution Management System (DMS) Application Suite

The DMS suite includes three applications: Model Data Import (MDI), Power System Model (PSM), and FLISR (fault location, isolation, and service restoration). With MDI, you can import real-world geographic information system (GIS) data to automatically configure and update system models. You can also design and modify your system model using the PSM app, which offers a simple and intuitive graphical configuration interface. The FLISR application uses your system model to automate fault location, isolation, and service restoration, minimizing customer outages during permanent faults.

Featured Applications

Disturbance Monitoring

Define data collection plans for end-point devices with the Disturbance Monitoring application. This application enables automated collection of event oscillography and SOE data for supported resources in a common location. Visualize collected data and view past events with the included Disturbance Monitoring Archive and Synchrowave® Event Express applications.

Configuration Monitoring

Automate checks of active device settings, firmware versions, and device IDs with the Configuration Monitoring application. You can securely move collected settings to a settings management repository for comparison. Use Configuration Monitoring Archive to identify devices that may be out of compliance and require corrective action.

Credential Management

Automatically rotate IED passwords on custom-defined schedules, either directly or through SEL security gateways. View reports in Credential Management Archive to support compliance audit efforts and verify that scheduled resource passwords have changed.

Meter Monitoring

Streamline voltage sag, swell, and interruption (VSSI) and load data profile (LDP) data collection and centralize data storage with the DMA Meter Monitoring application. Use the Meter Monitoring Archive application to review data records from your fleet of devices.

Custom Monitoring

Schedule automated collection of files or command results from supported devices. Specify which files to collect from device file systems and store in an aggregated location. Additionally, automatically issue relay commands to configured data devices and save the relay responses to centrally accessible files.

FLISR

Continuously monitor the distribution system and provide fully automated fault location, isolation, and service restoration. Test configurations with an integrated simulator, and easily view the live system status and detailed reports about events and mitigation steps.

Power System Model

Easily configure a power system model for applications such as FLISR. Draw your system feeder by feeder using a simple graphical interface.

Model Data Import

Import real-world GIS data to automatically configure your power system model for applications such as FLISR. The MDI app makes it easy to scale to and update large systems with hundreds or thousands of feeders.

Protocol Services

Collect and concentrate data from IEDs and remote systems using common power system and industrial communications protocols. All collected data are made available for use in Blueframe applications and can be mapped to a server service for SCADA, HMI, or automation scheme integration.

Resource Viewer

Quickly review the state of deployed devices and identify any issues that require attention. Resource Viewer presents device status information in an easy-to-read tabular format.

Flow Controller

Manage and configure SEL-2740S and SEL-2742S switches and the allowed conversations on the network. The Flow Controller application provides detailed telemetry monitoring benefits after network configuration.

Direct Resource Access

Securely connect to individual field devices through permission-based access sessions with this Blueframe management tool. View device-specific data and settings, issue commands, download files, and more with a secure, remote engineering access interface.

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