Why an Electrical SCADA?

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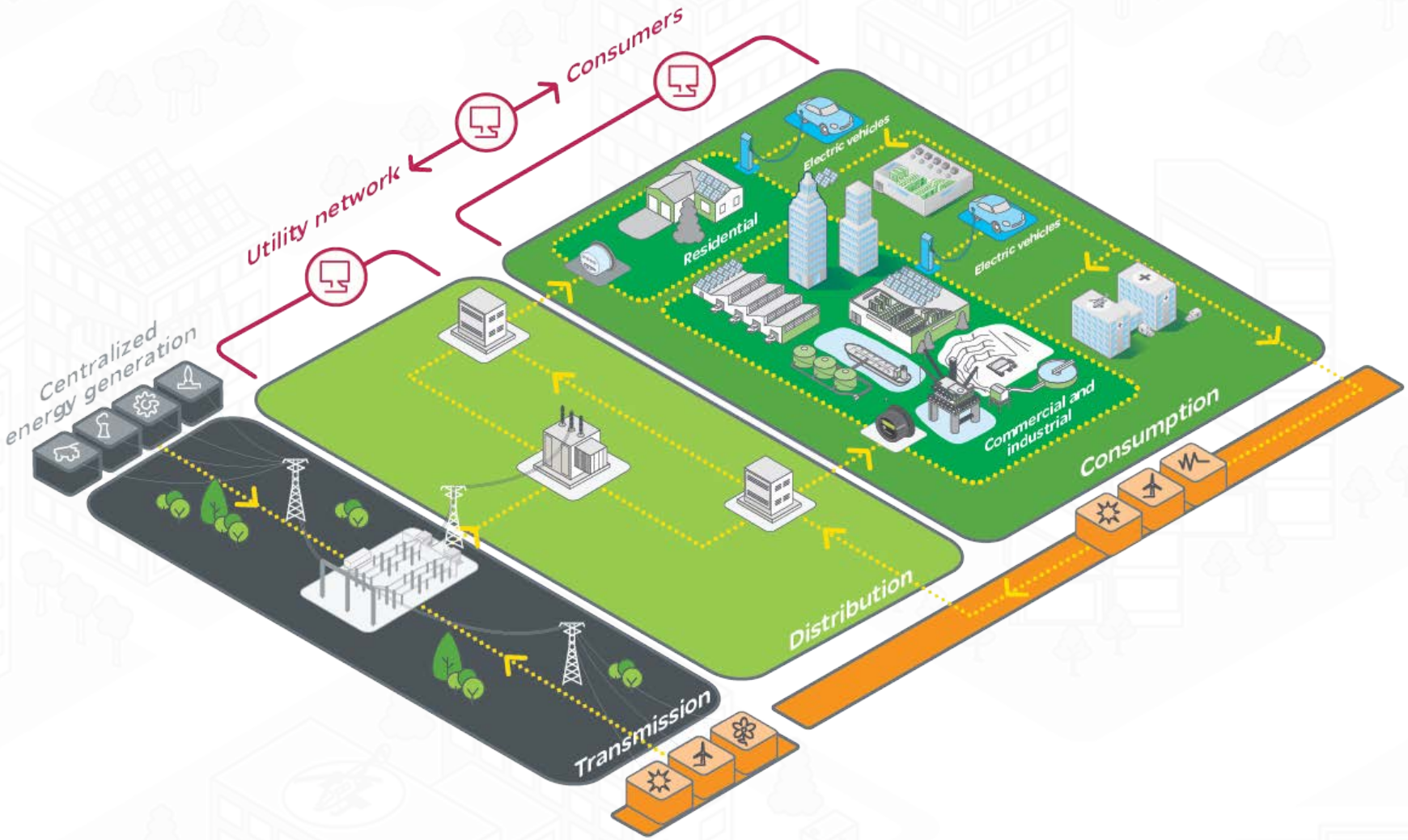
Solution Sales Engineering
Energy and Sustainability

PLUG 2014

Schneider Electric

Introduction:
Management Systems Across the Power Grid



Value to the End-user

- Helps engineering and plant operations personnel meet **power operational goals**
- Increases **uptime** of power systems
- Provides accurate and actionable information in **real-time**
- Highlights **issues**, **remediation**, and their **impacts**

Operational Needs For Power Critical Facilities

Reliability
- Fault identification
- State of ED network context
- Redundancy
- Scalability

→ Redundant server architecture

Power Monitoring
- Real-time data (ms accuracy)
- Time stamped SER
- Live view of real-time data

→ Animated SLD with real-time data

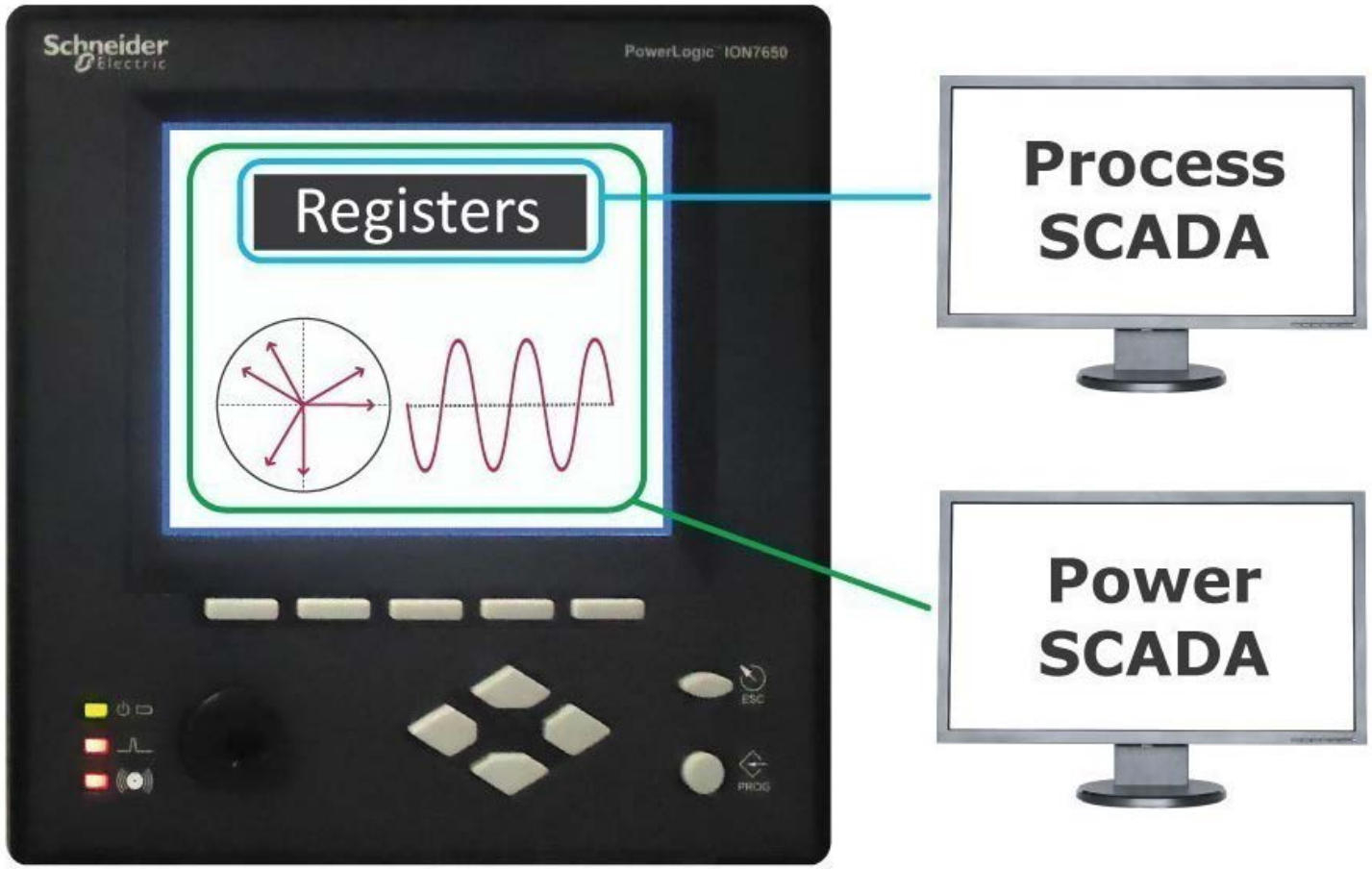
Power Quality
- Rich power data from devices
- Waveforms
- Phasor diagrams
- Power quality reports

→ Interactive waveforms and phase diagram

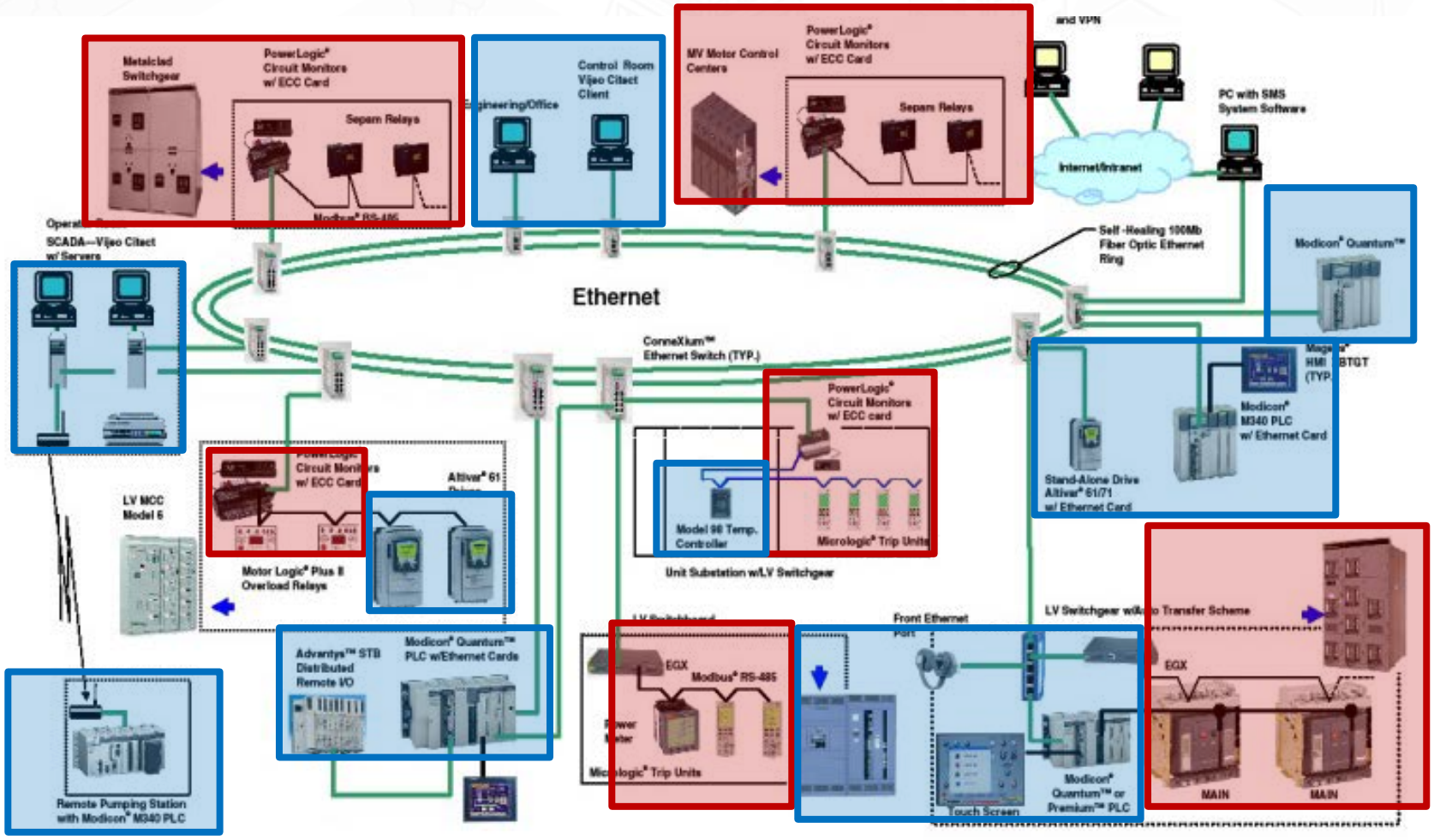
Safety & Security
- Cyber security

→ Whitelisting & active directory compatible

Process vs Power SCADA

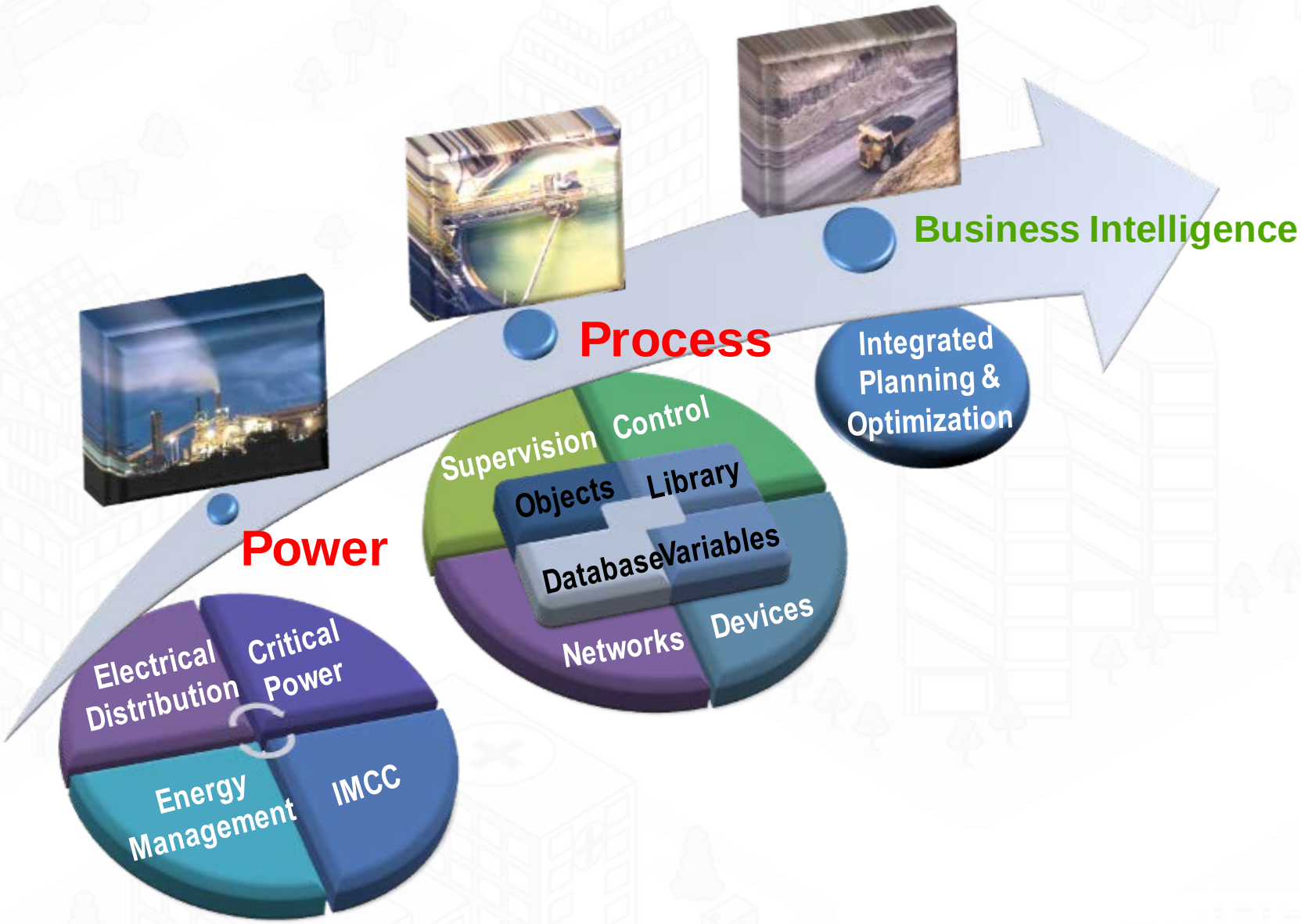


It’s a full SCADA

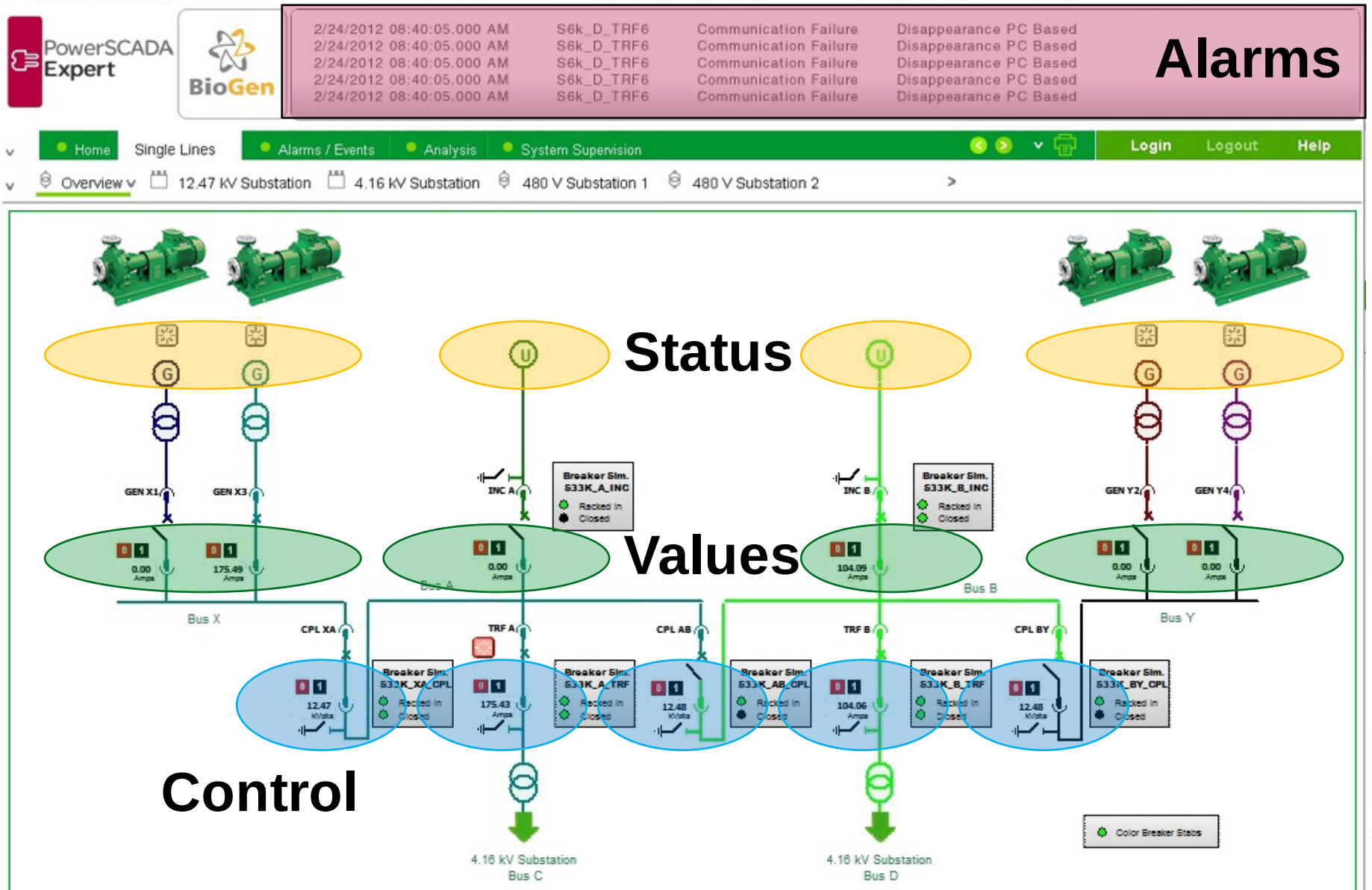


POWER **PROCESS**

Integrated solutions for Electrical Assets



Real time information

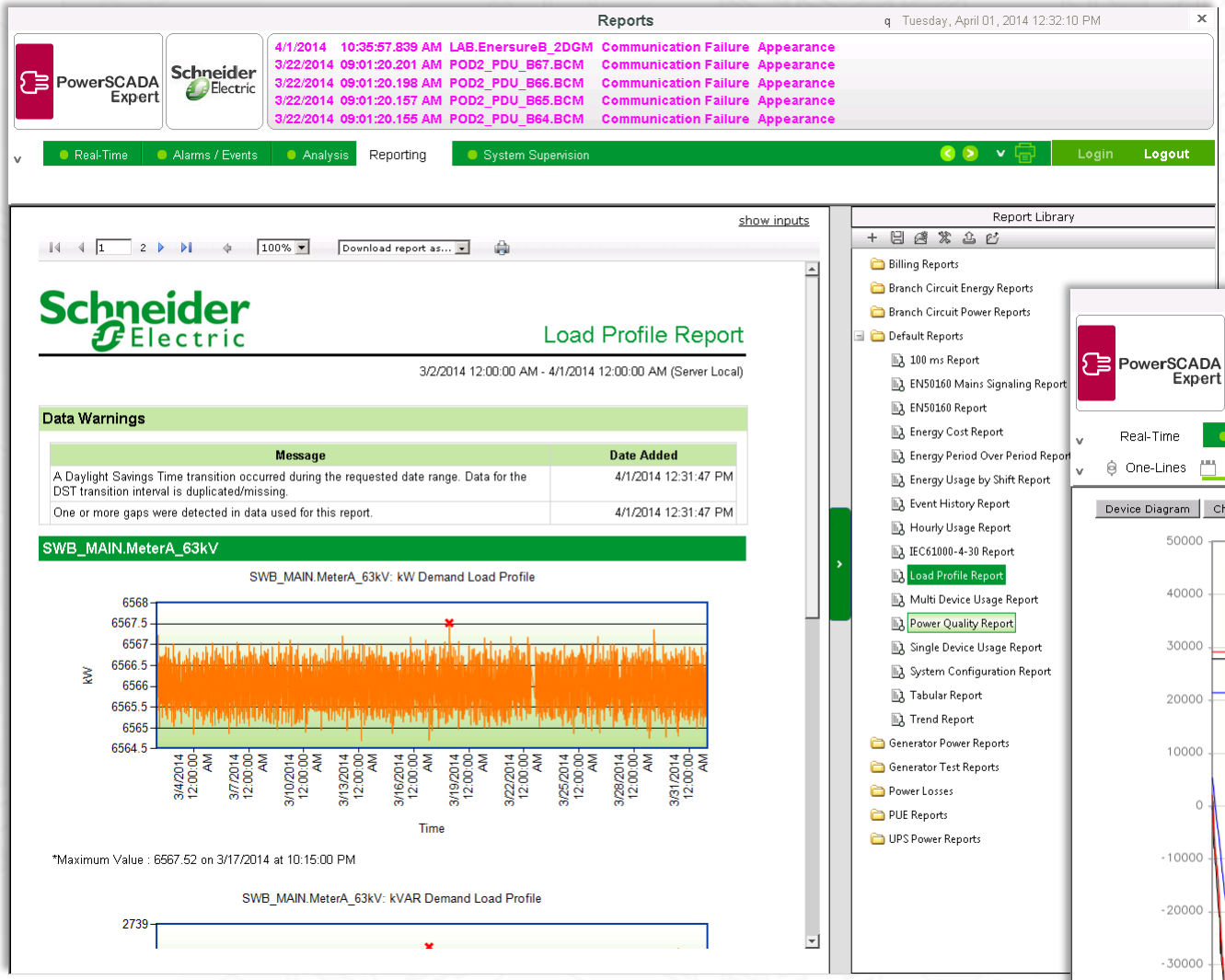


Redundant architecture

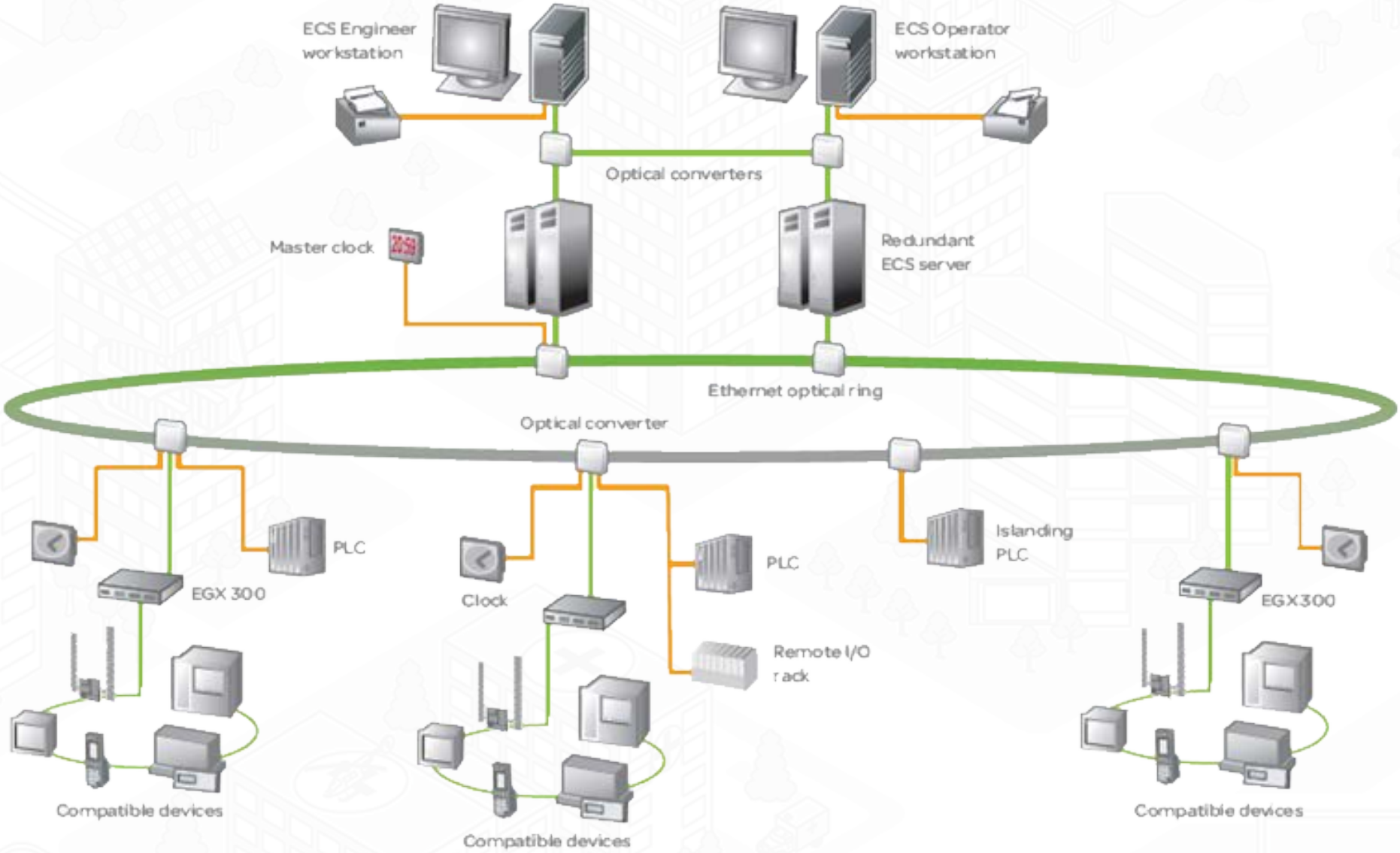
4.16 kV Substation
Bus C

4.16 kV Substation
Bus D

Reporting


Reports
Tuesday, April 01, 2014 12:32:10 PM
PowerSCADA Expert
Schneider Electric
4/1/2014 10:35:57.839 AM LAB.EnersureB_2DGM Communication Failure Appearance
3/22/2014 09:01:20.201 AM POD2_PDU_B67.BCM Communication Failure Appearance
3/22/2014 09:01:20.198 AM POD2_PDU_B66.BCM Communication Failure Appearance
3/22/2014 09:01:20.157 AM POD2_PDU_B65.BCM Communication Failure Appearance
3/22/2014 09:01:20.155 AM POD2_PDU_B64.BCM Communication Failure Appearance
Real-Time
Alarms / Events
Analysis
Reporting
System Supervision
Login
Logout
show inputs
Load Profile Report
3/2/2014 12:00:00 AM - 4/1/2014 12:00:00 AM (Server Local)
Data Warnings
Message
Date Added
A Daylight Savings Time transition occurred during the requested date range. Data for the DST transition interval is duplicated/missing.
4/1/2014 12:31:47 PM
One or more gaps were detected in data used for this report.
4/1/2014 12:31:47 PM
SWB_MAIN.MeterA_63kV
SWB_MAIN.MeterA_63kV: kW Demand Load Profile
kW
Time
*Maximum Value : 6567.52 on 3/17/2014 at 10:15:00 PM
SWB_MAIN.MeterA_63kV: kVAR Demand Load Profile
Report Library
Billing Reports
Branch Circuit Energy Reports
Branch Circuit Power Reports
Default Reports
100 ms Report
EN50160 Mains Signaling Report
EN50160 Report
Energy Cost Report
Energy Period Over Period Report
Energy Usage by Shift Report
Event History Report
Hourly Usage Report
IEC61000-4-30 Report
Load Profile Report
Multi Device Usage Report
Power Quality Report
Single Device Usage Report
System Configuration Report
Tabular Report
Trend Report
Generator Power Reports
Generator Test Reports
Power Losses
PUE Reports
UPS Power Reports
WebReach
PowerSCADA Expert
Schneider Electric
Real-Time
Alarms / Events
Analysis
Reporting
System Supervision
One-Lines
Equipment
Floor Plans
Status Panel
Device Diagram
Change Date Range
Show Table
SWB_MAIN.Meter

Typical architecture



Customer Examples

Schneider Electric

Amazon Data Center

Energy & Sustainability Services - US

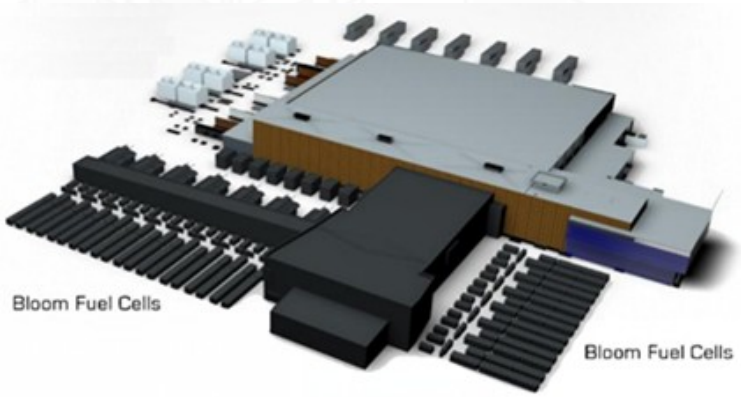
- Customer Profile
  - Amazon is one of the top eCommerce retailers in the world. The company employs nearly 90,000 people and has office, fulfillment centers, data centers and customer service centers around the globe
- Customer Objectives
  - Eliminate downtime when electrical issues occur
  - Displays information in an easy to understand method while depicting current system status
  - A single solution and service provide to design and install monitoring systems at more than 20 locations worldwide
- Customer Benefits
  - Real-time data and alarming for fast response when events are triggered
  - Graphics architecture that allows no more than 3 clicks to drill down from overview to devise for quick navigation
  - PUE monitoring for reporting data center efficiency
  - Sequence of events recording with millisecond accuracy
- The Solutions
  - Power Monitoring Expert, PowerSCADA Expert
  - Sequence of Events Recorder, Event Notification Module
- Why We Won
  - More reliable system than existing competitor (Siemens)
  - Customizable graphics, excellent reporting features
  - Fast, real-time data collection

amazon web services™

ebay Data Center with Fuel Cell System

Energy & Sustainability Services - US

- Customer Profile
  - The ebay Quicksilver site use 5 Bloom Energy Fuel Cells each capable of 1.2MW of generation for backup power. The system can back-feed to a substation shared with an adjoining enterprise datacenter.
- Customer Objectives
  - Green power for their datacenters and reduce demand on the utility
  - Real-time monitoring of electrical one-lines
- Customer Benefits
  - Live monitoring of meters and PLCs with refresh rate <1second and daisy chain devices <3seconds
  - Dynamic single line diagram to monitor and control multi-voltage level (138kV/15kV/480V/400V)
  - Sequence of event recording with millisecond accuracy
  - Redundant and scalable architecture
  - Modbus, TCP/IP and OPC communications
- Why We Won
  - Previous systems left their staff in the dark for several minutes before alerting to an event
  - PowerSCADA Expert beats the competition with scan times and state machine based one-line animations
  - Ability to integrate with many different 3rd party and Schneider Electric devices into a single solution using Modbus TCP/IP and OPC



Volkswagen Chattanooga Plant

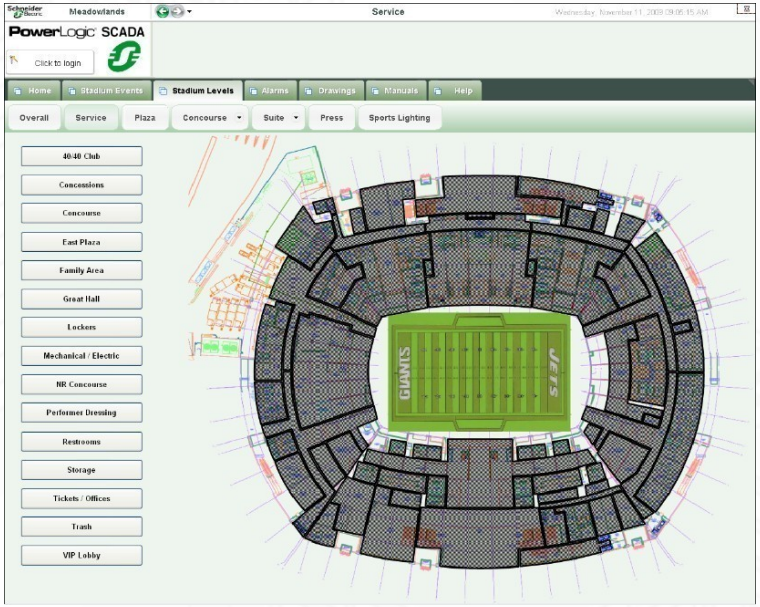
Customer Profile

- 9.6 MW 33-acre solar field
- 2,000 employees
- 597,000 cars per year

MetLife Football Stadium

Lighting, Electrical Distribution Monitoring & Control

MetLife STADIUM



Some of our Customers