

ABB Automation & Power World: April 18-21, 2011

WPO-110-1

Distribution Automation Service Upgrades for a Smarter Grid

WCS-110-1

Distribution Automation Service Upgrades for a Smarter Grid

- Speaker name: Richard Lindo
- Speaker title: PPMV Field Service Business Manager
- Company name: ABB
- Location: Florence , SC

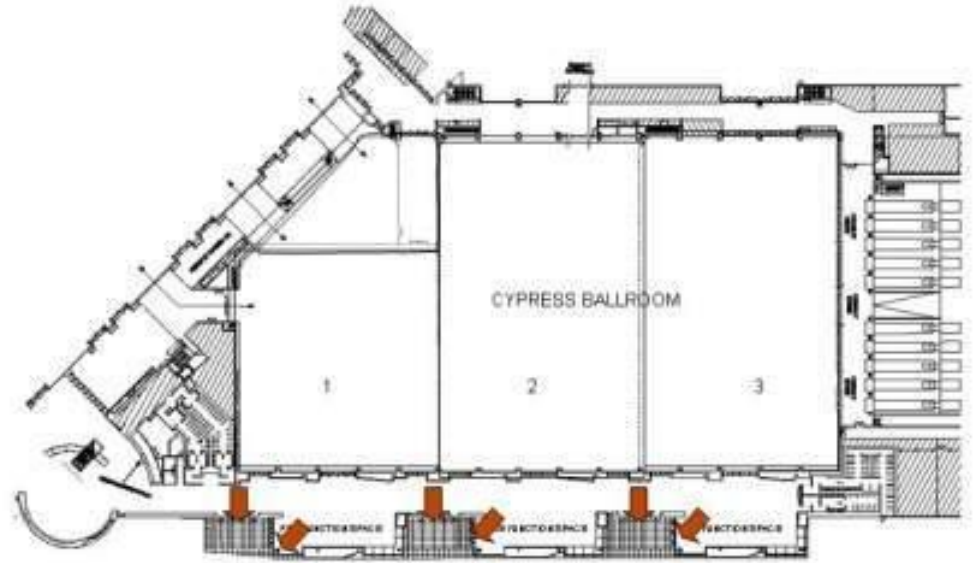
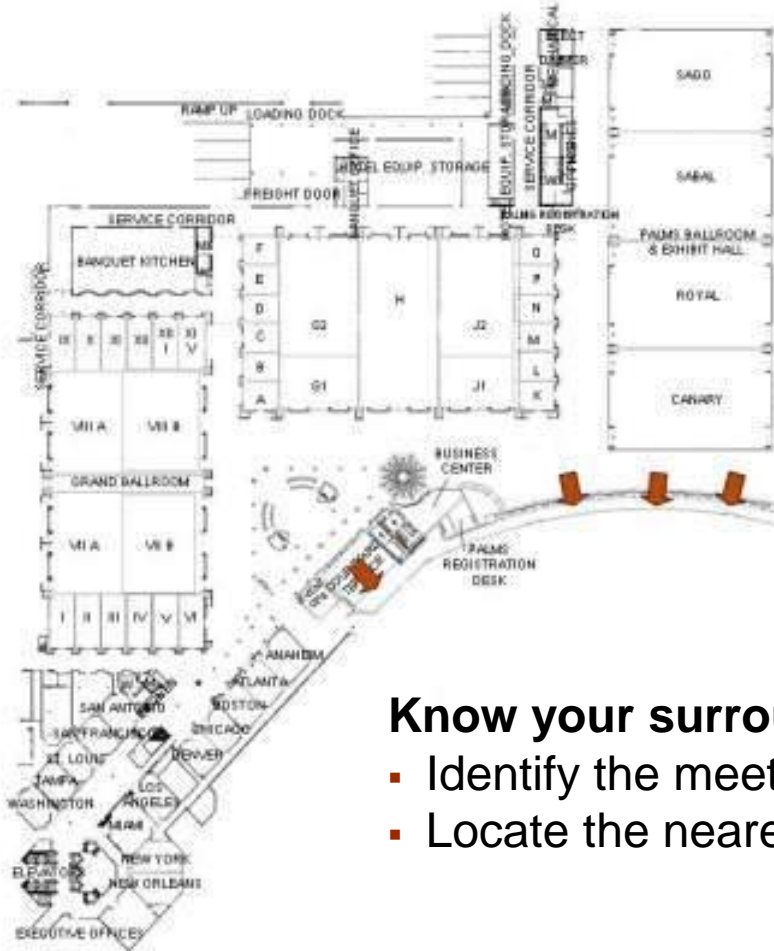
Your safety is important to us

Please be aware of these emergency procedures

- In the event of an emergency please dial ext. 55555 from any house phone. Do not dial 9-1-1.
- In the event of an alarm, please proceed carefully to the nearest exit. Emergency exits are clearly marked throughout the hotel and convention center.
- Use the stairwells to evacuate the building and do not attempt to use the elevators.
- Hotel associates will be located throughout the public space to assist in directing guests toward the closest exit.
- Any guest requiring assistance during an evacuation should dial “0” from any house phone and notify the operator of their location.
- Do not re-enter the building until advised by hotel personnel or an “all clear” announcement is made.

Your safety is important to us

Convention Center exits in case of an emergency



Know your surroundings:

- Identify the meeting room your workshop is being held in
- Locate the nearest exit

A Smarter Grid

Service Activities to achieve Grid Optimization

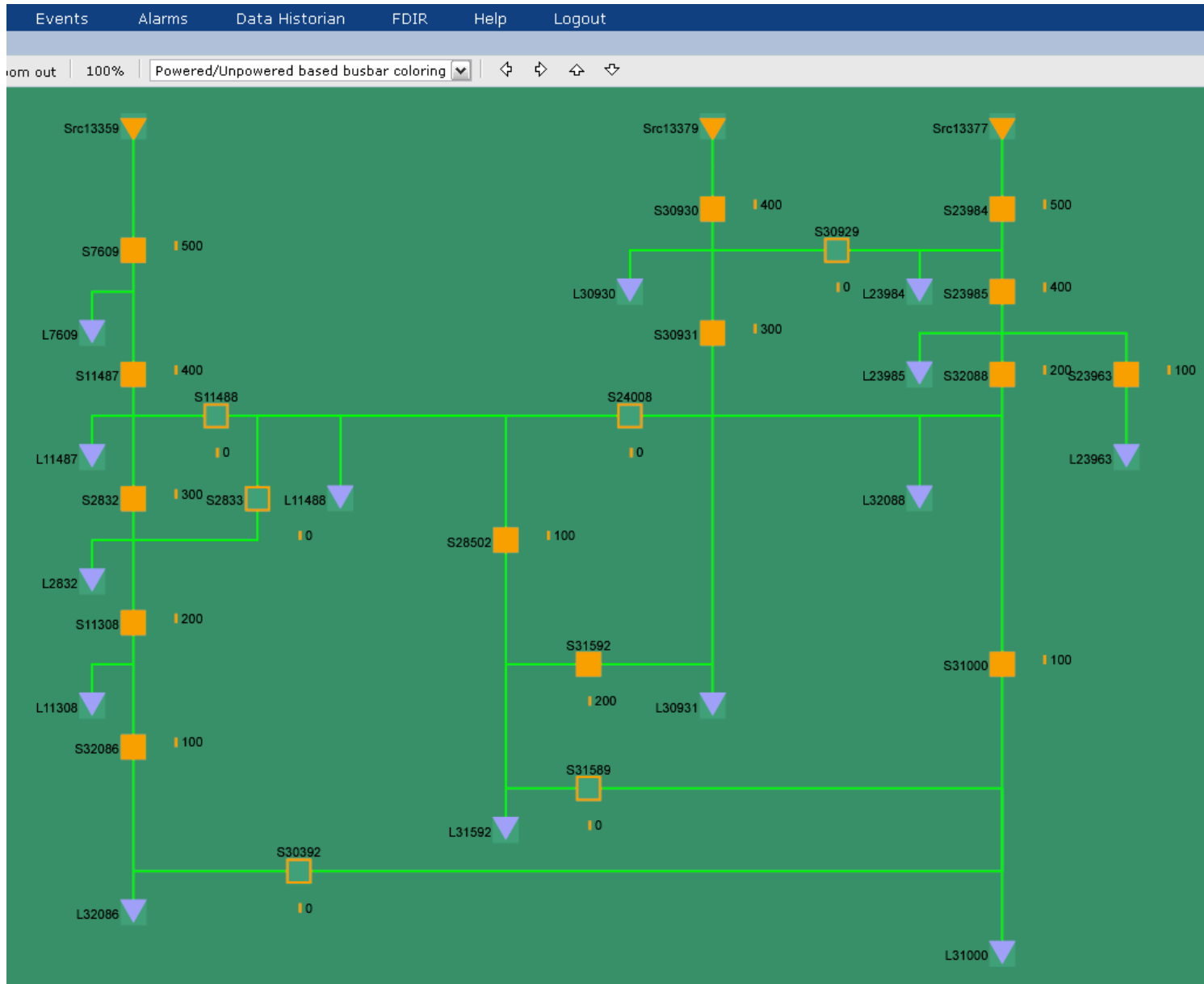
- Review of Customer Circuit diagrams
 - Engineering review to determine automation and communication requirements
- Establish Topography requirements
 - Type and location of wireless equipment
- Installation and Commissioning
- Training
- Performance verification
- Details for consideration of Asset Monitoring

MV Service Portfolio

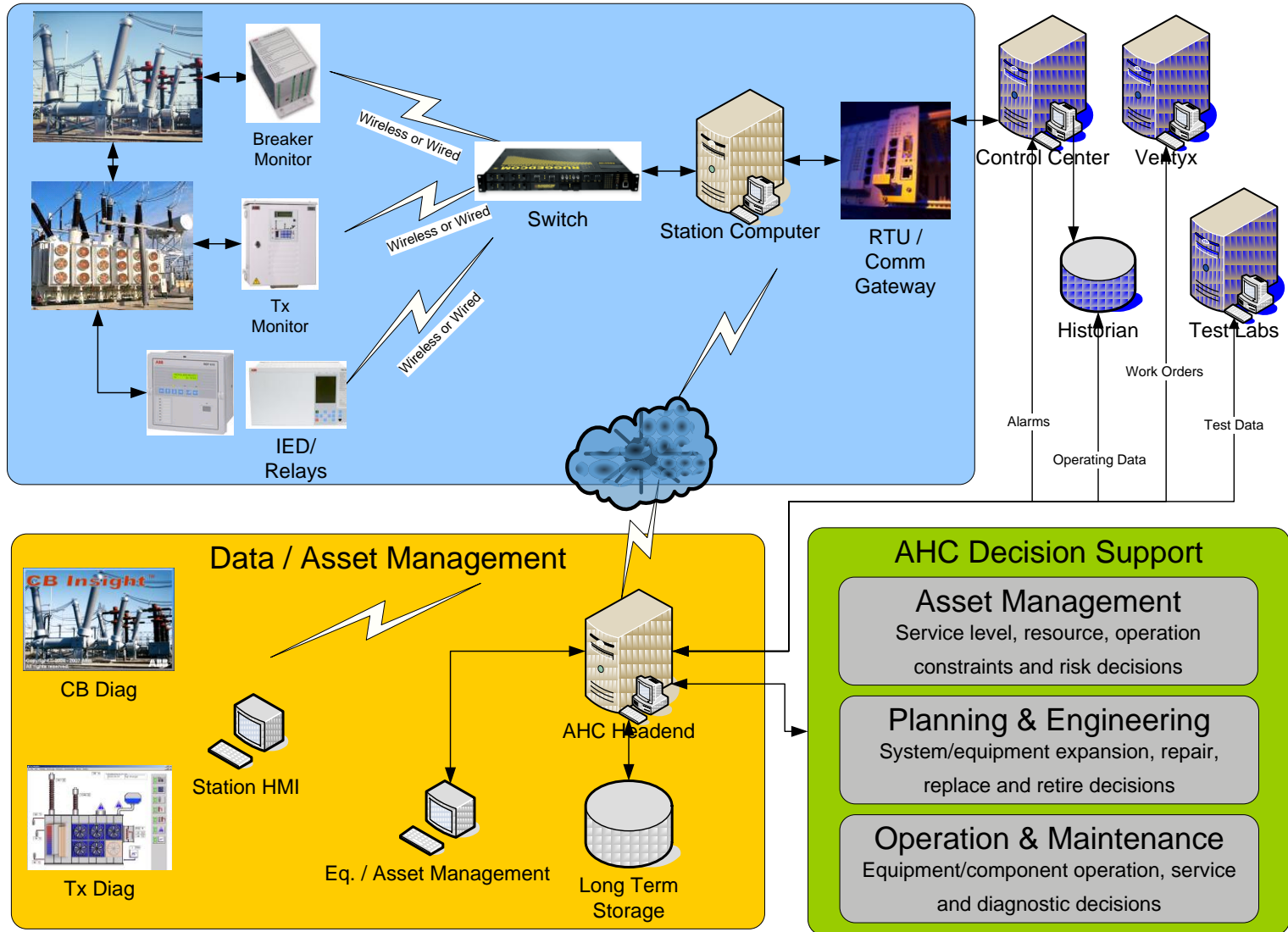
- **Field Service**
 - Installation & Commissioning
 - Maintenance
 - Turnkey Projects
 - Disaster Mitigation
- **Aftermarket components (nuclear)**
- **Breaker Refurbishment**
- **Replacement breakers**
 - RiR, Retrofits, Legacy breakers
- **Match in line switchgear**
 - HK & KLine
- **Protection & Control Service & Upgrades**
- **Engineering Studies, Assessments, Training**
- **Safety Upgrades**
 - Arc Flash mitigation
 - Remote Racking



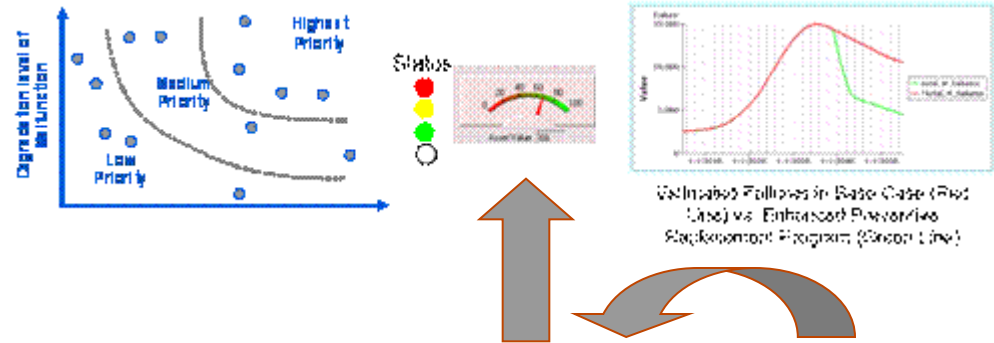
Davis Island – One line diagram from COM 600



Baseline System Configuration



Medium Voltage Services for Asset Performance



- ↓
- Breakers
 - Reclosers
 - Relays
 - Switchgear

- ↓
- Voltage
 - Current
 - Frequency
 - Time
 - Partial discharge
 - Others

- ↓
- Substation Automation
 - Data Concentration
 - Communications

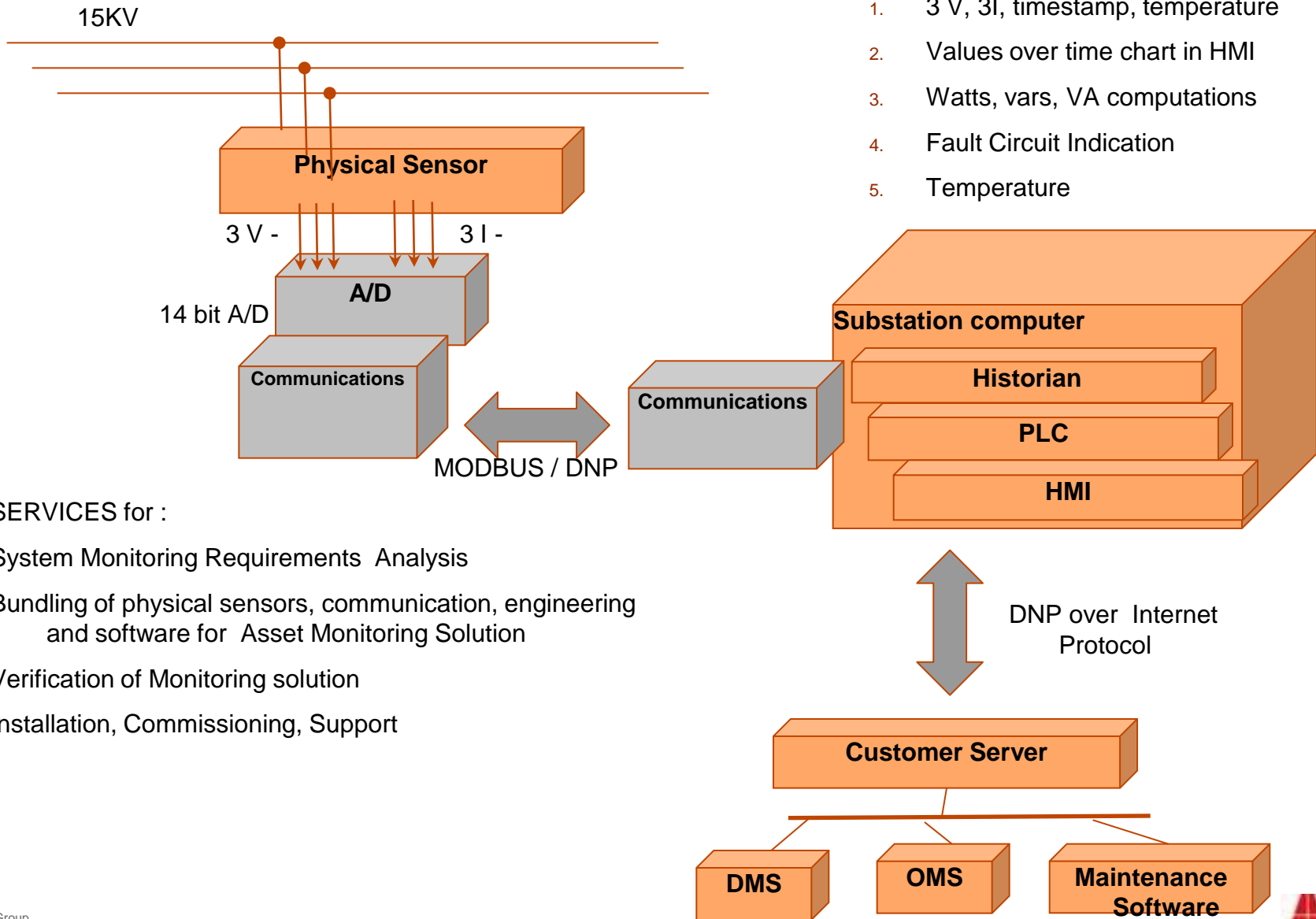
- ↓
- Equipment specs
 - Failure data
 - Test results
 - Service records

- ↓
- Performance Models
 - Trending
 - Operations Impact
 - Lifecycle Management
 - Optimized Maintenance

- ↓
- Work Management
 - Inventory
 - Project Management



Asset Health Monitoring Services



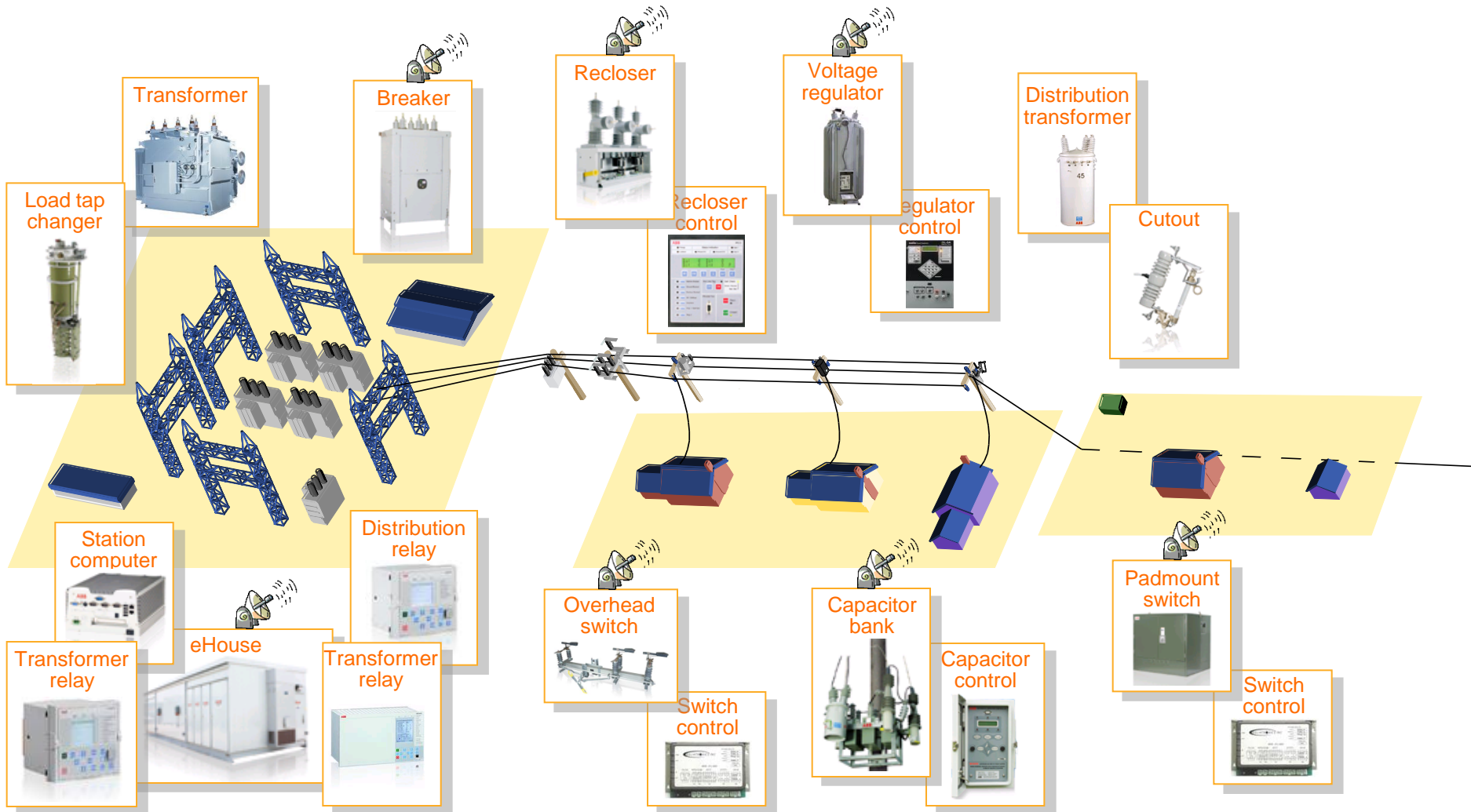
Example VVO Requirements

1. 3 V, 3I, timestamp, temperature
2. Values over time chart in HMI
3. Watts, vars, VA computations
4. Fault Circuit Indication
5. Temperature

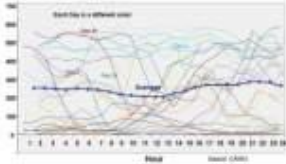
SERVICES for :

- System Monitoring Requirements Analysis
- Bundling of physical sensors, communication, engineering and software for Asset Monitoring Solution
- Verification of Monitoring solution
- Installation, Commissioning, Support

ABB Power Products Medium Voltage Smart Grid solutions distribution systems



Key Challenges



- Availability / Reliability
- Ease of Installation / Maintenance
- Safety
- Service/Support

Availability and reliability

Keep the power on – to all customers



Key challenges

- System reliability, aging assets
- Predictive maintenance
- Planned upgrades to minimize Outages

Availability and reliability

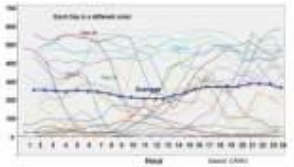
Asset Monitoring



- Monitoring of critical Assets
- Communication from monitored assets is key to maintaining reliable service. Having the right network structure, wireless Communication, and Automation to facilitate planned recovery from asset failure

Engineering review to determine type of communication and automation requirements

Service Success



- Availability / Reliability
- Ease of Installation / Maintenance
- Safety
- Service/Support

Ease of Installation/Maintenance

The challenges



Key challenges

- Retrofit to existing gear
- Downtime, costs
- Training in-house resources



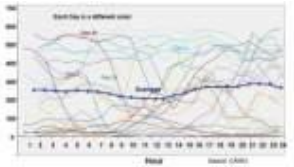
Ease of Installation/Maintenance Communication Integration



- Capability to develop integration plan, work with existing layout to develop effective solutions. Planned outages for retrofit and upgrades. Service performed according to need.

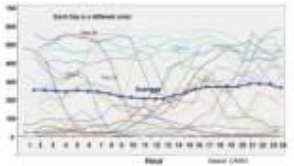
**Design, install, commission,
train**

Service Success



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Service Success



- Availability / Reliability
- Ease of Installation / Maintenance
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Safety Challenges



- The necessity to work around live equipment
- Functional limitations of PPE
- Education of employees to recognize unsafe conditions

Safety

Safety Solutions



- Arc Flash design and installation
- Remote racking of circuit breakers
- Newer technology in current products for faster clearing times

Commitment to safety

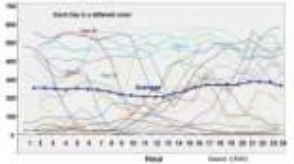
“Incidents are preventable and one is too many”



- A design for safety would include;
 - Arc Flash mitigation
 - Remote racking
 - Updated technology

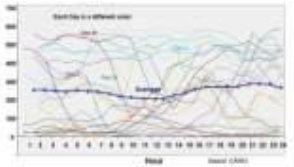
The goal is to increase distance and reduce time

Service Success



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- Ease of Installation / Maintenance
- Safety
- Service/Support

Service Success



- Availability / Reliability
- Ease of Installation / Maintenance
- Safety
- Service/Support

Support and service

Limiting your risk, driving down your financial exposure



- As the largest manufacturer of Electrical equipment in the world, we have the unique position of not just being able to provide service and engineering support, but actually own the technology from which those products were created

- **Complete turnkey deliverable**
 - **Design, install, train, support**

Summary

Providing products and support from concept to reality



- ABB has the unique ability to draw on a global technical base to affect complete solutions and has the ability to execute these solutions anywhere in the world.

- **As the concept of Grid Optimization is evolving and there is greater clarity on products and integration required, the advantage of having a Service group with that product knowledge and experience, will be the necessary for a successful outcome.**

Reminders

Automation & Power World 2011

- Please be sure to complete the workshop evaluation
- Professional Development Hours (PDHs) and Continuing Education Credits (CEUs):
 - You will receive a link via e-mail to print certificates for all the workshops you have attended during Automation & Power World 2011.
 - **BE SURE YOU HAVE YOUR BADGE SCANNED** for each workshop you attend. If you do not have your badge scanned you will not be able to obtain PDHs or CEUs.

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