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UCA International Users Group

IEC 61850 Interoperability Demonstration

August 22-26, 2016
CIGRÉ Session 43
Stand #229
Palais des Congrès, Paris, France

The UCA International Users Group (UCAIug) is once again sponsoring an IEC 61850 interoperability demonstration at the CIGRÉ Session in Paris, France on 22-26 August 2016, Stand #229. This is the 6th consecutive CIGRÉ Session that members of the UCAIug and the IEC 61850 Users Group have gathered together to present the power and flexibility of the IEC 61850 standard including:

- **Live IEC 61850 Multi-vendor Interoperability Demonstration** of products from Platinum sponsors including relay test/simulation systems, protection relays, simulated servers, HMI/ clients and a proxy server.

- **Fully Simulated Faults** using multi-vendor process bus merging units and protection relays with GOOSE and client/server communications.

- **Secure Substation Communication** using firewalls and IEC 62351 for client and server encryption and authentication.

- **In-Booth Presentations** from Platinum and Gold sponsors on the latest in IEC 61850 technical advancements and applications and featuring an ENTSO-E status update on their IEC 61850 initiative.

August 22-26, 2016 — Stand #229   **Visit our website at www.ucaiug.org**

Interoperability Demonstration - Breaker Failure application using IEC 61850 GOOSE
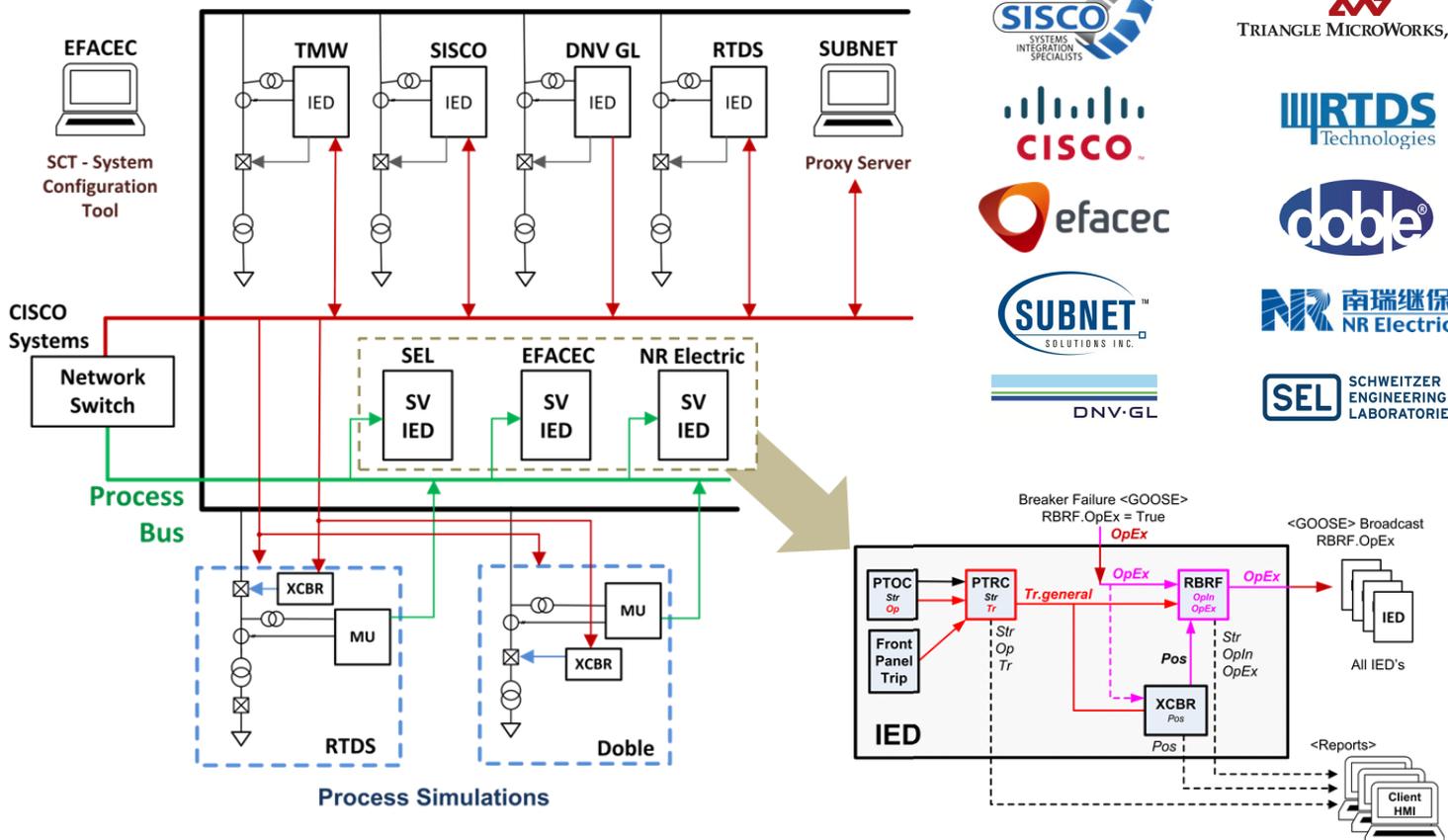

Background

The IEC 61850 standards define a new approach for communications that promises to deliver increased productivity, better performance, new capabilities and interoperability for multi-vendor power system automation systems. IEC 61850 is field proven in many thousands of substations world-wide. ENTSO-E members have acknowledged the benefits of IEC 61850 while identifying gaps in the specifications that make implementation of multi-vendor systems more challenging than they should be. The IEC 61850 Users Group of UCAIug, the IEC working groups and the ENTSO-E IEC 61850 Task Force have been working together to identify and fill these gaps. The IEC 61850 Breaker Failure Demonstration at the CIGRÉ Session 2016 in Stand #229 is a demonstration of the results of that cooperation that is leading towards improving interoperability of IEC 61850 based multi-vendor systems.

Breaker Failure Demonstration

1. There are 10 devices and applications configured via a Substation Configuration Description (SCD) file generated using a System Configuration Tool (SCT) supporting the IEC 61850-6 SCL standard.

2. 2 relay test sets acting as merging units are programmed to simulate a current fault by publishing sampled value signals over a VLAN segregated process bus.

3. 3 protection relays are subscribed to the process bus signals and will detect the fault conditions and initiate an internal breaker operation to protect the system.

4. When the programmed breaker operation fails the IED will send a GOOSE message with the breaker failure status (RBRF.OpEx) that is subscribed to by all the other IEDs, both simulated and real, in the system.

5. When the other IEDs receive that breaker failure status they will all open their breakers showing multi-vendor interoperability using GOOSE over a switched VLAN Ethernet network.

IEC 61850 Interoperability Demo Architecture

Process Simulations