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UCA International Users Group

IEC 61850 Interoperability Demonstration

August 26-31, 2018
CIGRÉ Session 47
Stand #335

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 26-31 August 2018, Stand #335. This is the 7th 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.
- **In-Booth Presentations** from Platinum and Gold sponsors on the latest in IEC 61850 technical advancements and applications.

August 26-31, 2018 — Stand #355

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 tens of thousands of substations world-wide. Outside of Europe, thousands of companies are reaping the benefits of IEC 61850 solutions. 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 2018 in Stand #335 is a demonstration of the results of that cooperation that is leading towards improving interoperability of IEC 61850 based multi-vendor systems.

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Breaker Failure Demonstration

1. Devices and applications are configured via a Substation Configuration Description (SCD) file generated using a System Configuration Tool (SCT) and IED Configuration Tools (ICT) supporting the IEC 61850-6 SCL standard.
2. An intelligent merging unit with protection functions (IMU) and two 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. 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.
6. The signal exchange service level is verified and displayed via process bus and station bus message subscription statistics

IEC 61850 Interoperability Demo Architecture