

NEW - PROTECTION TOPICS!

PROTECTION TOPICS ARE ON THE AGENDA AT THE UPCOMING DOBLE CLIENT CONFERENCE!!!

2007 International Conference of Doble Clients
March 25 - 20, 2007
Westin Hotel Copley Place
Boston, MA USA

We strongly encourage you to consider attending the Wednesday, March 28th sessions of the new Protection, Automation, Controls and Communications (PACC) Committee. On Wednesday morning, we are offering seven technical presentations, including an End-to-End testing demonstration. A detailed listing is included below. All Doble Protection (Fseries instruments and ProTesT software) users are welcome and invited to attend these presentations!

On Weds. afternoon, a PACC Committee Meeting will be held for Utility & Testing company delegates, to discuss future plans and projects.

In addition, on Thursday there will be a Training Workshop on "Basic Protective Relaying " This course is geared towards entry level engineers making their way into the field of relay protection and for technicians who would like to obtain the theory and practices of protective relaying. It would also be of interest to upper level managers looking for some basic understanding of power system protection. The course is intended to provide a conceptual level of knowledge without the vigorous mathematical details.

To register for the Doble Client Conference, fill out this form:

<https://www.seeuthere.com/register/m2625a39-944167951116>

For more details on the 2007 Doble Client Conference and schedule of events for the entire week, go to:

http://www.doble.com/events/technical_conferences.html/view/16

Here is a listing of the technical presentations to be given at the Wednesday PACC session:

PROTECTION, AUTOMATION, CONTROLS AND COMMUNICATIONS

1. Substation Cyber Security—Are Your Systems Protected, Jay Abshier, KEMA, Inc.

This presentation will discuss the NERC Critical Infrastructure Protection (CIP) requirements, focussing on major impacts on utilities and substations in particular. The presentation will also discuss the FERC Request for Comments and how this may, if fully embraced, impact the CIP requirements. After examining what is required by CIP, the presentation we will also examine what is prudent that goes beyond CIP. For example, CIP requires that access points into Electronic Security Perimeters be documented, along with the access control methods. But, it does not address the types of access control for data exchange and remote access that are possible and which is most prudent. The presentation will cover these areas as well.

2. The Challenges of Testing Phasor Measurement Unit (PMU) With Tesla Disturbance Recorder, Krish Narendra, Zhiying Zhang, John Lane, NxtPhase T&D Corporation, Ed Khan, Jim Wood Doble Engineering

With the recent blackouts that have occurred in the US, the concept of wide area protection using synchrophasor measurements is gaining considerable momentum. One of the key components in implementing a wide area protection is the Power Measurements Units (PMUs). The PMUs

are precision level measurement units installed at various substations within an area to implement an area of wider protection.

This paper will provide a background of wide area protection and the role of PMUs in this scheme. The recent synchrophasor standard C37.118 mandates compliance levels (level 0 and / or level 1) for Phasor Measurement Unit (PMU) under steady state conditions. This paper also discusses the challenges of testing Phasor Measurement Unit – a software module available with the TESLA Disturbance Recorder Model 3000. The possible sources of errors and the current state of the art of the testing equipment which qualifies for PMU testing will be discussed.

3. A Demonstration of Testing a PMU Using Doble F1650 Instrument will be Part of this Paper Presentation.

Krish Narendra, Zhiying Zhang, John Lane, NxtPhase T&D Corporation, Ed Khan, Jim Wood
Doble Engineering

4. End-To-End Testing – Complete Demonstration Using the Doble F6150/F6050
Doble Engineering Company

End-to-End Testing is becoming very popular and more and more utilities are using this mode of protection testing. This type of testing is used to test the entire protection scheme as opposed to steady state tests where individual elements are tested. The performance of a protection system is much more critical than each individual element. During the test engineers/technicians evaluate the event reports including sequence of events, oscillographs, and status of various digital signals generated by the test. This evaluation provides a complete picture of abnormal events and response of the protection system.

The demonstration will walk you through all the steps and will provide a good introduction to those who have not been exposed to such tests enabling them to start working on such tests. Engineers and technicians who have been involved with such test will also benefit greatly since all aspects including the synchronization of time via satellite will be presented by experienced Doble staff in a very systematic manner. The presenters will point out common issues that arise during such testing resulting in hours lost in troubleshooting.

5. Using Killer Applications to Test Relays

Tony Giuliante, ATG Consulting

The capability of collecting fault records of questionable relay operations is now possible. These “Killer Applications” can be replayed to relays to determine if the problem occurs in other relay applications and other relay designs. The advantage of the test method is to isolate potential problems before they become real problems that result in system shutdowns. The approach could be monitored by a task force within PACC whose assignment would be to collect the information from member utilities, explain the event, provide the solution and show how to test it.

The presentation will describe two case studies – a breaker failure misoperation caused by ct saturation and the overreach of a zone 1 ground distance relay due to load flow and fault resistance.

6. Applications of Artificial Intelligence Techniques for Managing the Massive Amounts of Data Obtained from Digital Relays

Amir Makki, Softstuf

Clearly, the data overload problem with modern protection and measurement equipment is a visible downside of the automation experiment. It is impossible to manually examine every byte trying to discover where the trouble spots are. The object of this presentation is to show how artificial intelligence (AI) can be used to help users manage these massive amounts of data

(discern, sort, analyze, save, visualize, etc.) in order to quickly locate the trouble spots. In WWII the British Royal Navy declared: “we can’t be everywhere all of the time, but we can be anywhere at anytime”. Same thing here: we can’t analyze all of the data, but we can use AI techniques to quickly point out where the potential trouble spots are.

7. Making Electromechanical Relays Smarter

Sanjay Bose – Consolidate Edison of New York

Many Utilities still have a large percentage of Electro-Mechanical (EM) Relays in service mainly because of their relatively long life (30 to 40 years service). The advantages of these relays are that they are easy to understand, maintain and troubleshoot. However, one major disadvantage is that diagnostic root-cause analysis is difficult to determine. On average, target acquisition time is 50 minutes. Defective targets and multiple relay operations can result in flawed event analysis that can cause restoration delays. Con Edison’s solution is to employ a Target Information System (TIS). The presentation will describe this system and show how it makes EM relays smarter.

We hope to see you there!

Submitted on behalf of Ed Khan, PACC Committee Secretary

If you have any questions, please email to events@double.com