Monitoring of electrical grids by system operators is a very critical task. System operators use the monitored data to ensure a safe, reliable and dependable operation. Currently, SCADA provides the data for such monitoring. But as we know, SCADA has a very high latency and this forces system operators to make several assumptions in their analysis and calculations. This is changing with the advent of synchrophasor technology, which transmits data at an extremely fast rate.

The wide area monitoring based on synchrophasor technology uses PMUs/PDCs and associated communication to transmit information at a very high rate. Hence, PMUs and PDCs are becoming a very important asset in any electrical utility around the world. However, like any system, we have to make sure that the PMUs and PDCs perform correctly and the best way to do this is to test these for assurance. Quanta Technology’s simulation and testing capabilities in the area of Synchrophasor/WAMPAC is available to all clients who wish to move into this new era of wide area monitoring.

**Test your PMUs to ensure compliance with C37-118-1 and -2.**

**You can also test your PMUs for compliance with IEC 61850-90-5 (under development).**

**Test Bench uses state-of-the-art equipment and procedure.**

**Test your PDC/APPS/SYSTEM for the following:**

- What is the throughput?
- How is CRC handled?
- Capability to handle lost/late packets?
- What is the response time?
- Etc.

Quanta Technology’s PMU/PDC Simulation is intended to test the capability of PDC, synchrophasor applications and synchrophasor/WAMPAC systems to properly handle the synchrophasor data as called for in NERC PRC-002-2 (draft) standard and by application/system requirement.
Test Applications
Will test the effectiveness of applying PDC data to run applications such as:
- Out-of-step protection
- Voltage instability
- Breaker failure
- Detection of slow oscillatory load swings
- Synchronization of systems, etc.

Training
Will create scenarios which require system operators to take specific actions and, hence, use as a training tool.

Interactive Real Time Hardware/Software In-Loop Simulation using RTDS®

- Test your PMUs and PDCs in real time using real time simulator.
- Evaluate the capability of your PMUs and PDCs.
- Software models of PMUs can be utilized. If desirable, real PMUs can also be used in the simulations.
- It does not get any closer to real time than these simulations.
- Create and simulate whatever scenario you wish to study and observe.
- Import your PSS/E file and run simulations to evaluate the performance of PMUs and PDCs.

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