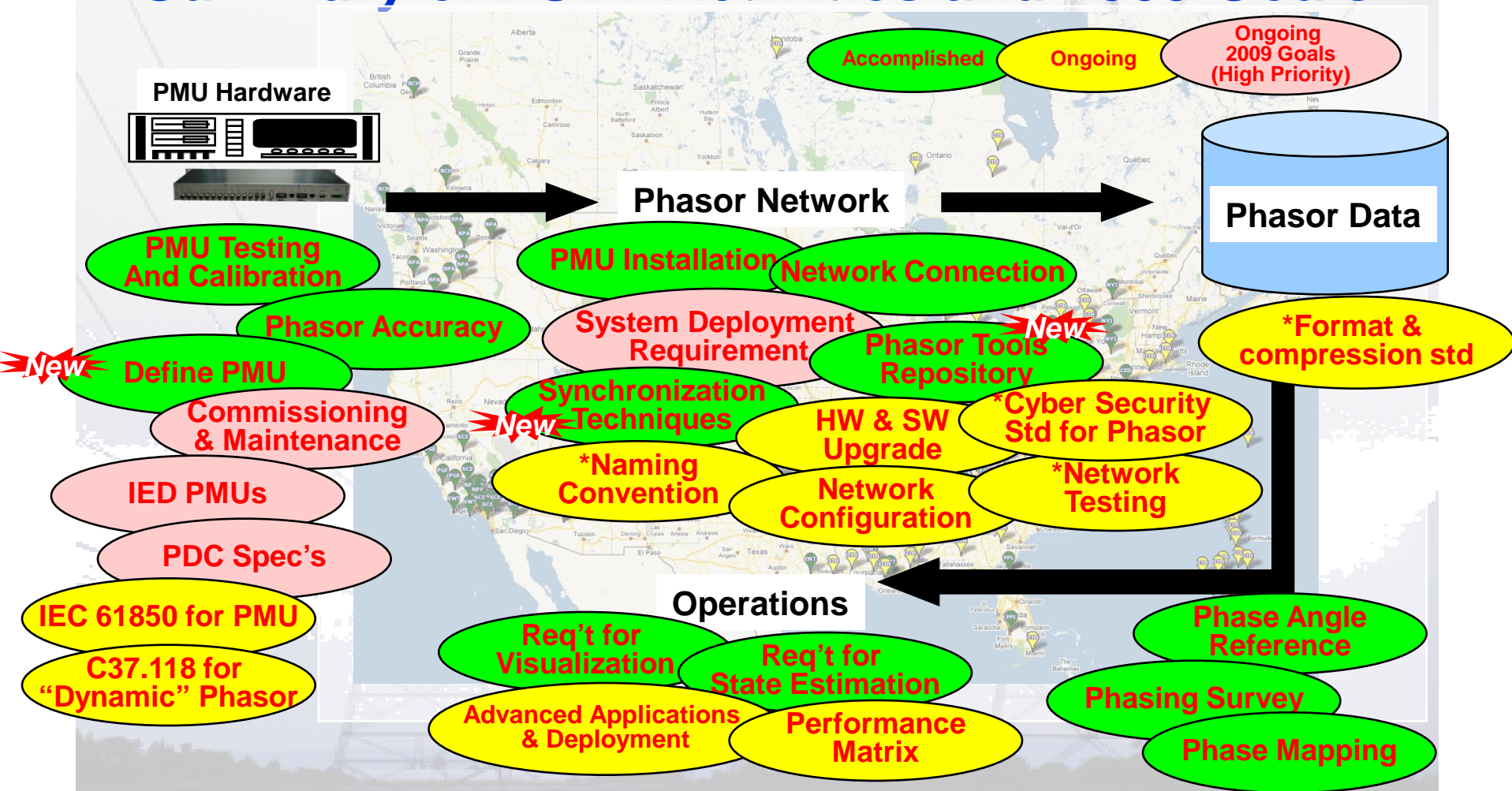


Performance and Standards Task Team

- **Task Team Leader:** Vahid Madani/PG&E
- **Task Team Co-Leader:** Damir Novosel/Quanta Technology
- **Task Team Support:** Henry Huang/PNNL
- This task team comprises more than 100 members

Summary of PSTT Activities and 2009 Goals



* Coordination with DNMTT

PSTT 2009 Goals and Priorities

Focus Area 1: PMU and PDC

- Define standard PMU:
- Commissioning/maintenance guide:
- Expand guidelines for IED PMUs:
- PDC functional requirements:
- Dynamic phasors:
- COMTRADE extension for phasors:
- Standardizing PMU configuration for IEC 61850:

Priority Amount of Work

(Completed)

High

Medium

High

Medium

High

High

(Collaboration w/ IEEE)

(Collaboration w/ PSRC)

(Collaboration w/ IEC)

Focus Area 2: Phasor Network/Architecture

- Phasor tools repository:
- Guidelines for synchronization techniques:
- Requirements for HW/SW upgrades:

(Completed)

(Completed)

Low

Medium

Focus Area 3: Application Requirements

- Requirements for combined applications:
- Requirements for protection and control:

High

High

Low

High

Focus Area 4: Interoperability

- Identify standards to be developed

High

Medium

Highlights

- The scope of the Performance and Standards Task Team includes coordinating and acting as liaison to standards efforts and determining consistent and satisfactory performance of synchronized measurement devices and systems by creating guidelines and reports in accordance with best practices.
- PSTT (formerly PRTT) has been active in developing guidelines and requirements documents to serve NASPI needs. The scope of the documents covers a wide spectrum from PMU testing to phasor network deployment to phasor applications.

Highlights

- Completed documents (with the document leads) are:
 - Guidelines for synchronization techniques - Accuracy and Availability, Alfredo Vaccaro (University of Sannio, Italy)
 - NASPI Phasor Tool Repository, Teresa Carlon (PNNL)
 - Standard PMU Definition / Basic Specification, Ken Martin (Quanta Technology)
 - PMU System Testing and Calibration Guide, Jerry Stenbakken (NIST)
 - SynchroPhasor Accuracy Characterization, Sakis Meliopoulos (Georgia Tech)
 - IEDs with Integrated PMU Functionality, Damir Novosel/Yi Hu (Quanta Technology)

Highlights

- Completed documents (*cont'd*):
 - PMU Installation/Commissioning/Maintenance Guide
 - Part I: Acceptance Checklist for Connecting to SuperPDC, Ritchie Carroll (TVA)
 - Part II: Installation Procedures, Ken Martin (BPA)
 - Installation/Commissioning/Maintenance Survey & Summary, Virgilio Centeno (Virginia Tech)
 - Eastern Interconnection Phase Angle Reference, Henry Huang (PNNL)/Ritchie Carroll (TVA)
 - Phasing Inconsistency with Mapping Examples, Virgilio Centeno (Virginia Tech)/Henry Huang (PNNL)
 - Phasor Requirements for State Estimation, Lucy Wu (Areva)
 - Phasor Requirements for Raw Data Utilization, Sakis Meliopoulos (Georgia Tech)
- In Progress - Standardizing PMU Configuration for IEC 61850 Applications for interoperability.

Accomplishments Since Last Meeting

- Initiated a survey on new phasor-related standards.
- Developed a “List of PSTT Topics for Consideration in Developing Phasor Interoperability in the context of Smart Grid Interoperability”. This list includes both completed PSTT documents and proposed future efforts.
- Develop proposals to expedite work on specifications and technical standards. List of Standards that PSTT needs to address on Fast Track are as follows:
 - Phasor Data Concentrator Requirements
 - Requirements for Combined Applications using Synchronized Measurement Data
 - NASPInet interfaces (APIs) between Data Bus and Phasor Gateways, and between Phasor Gateways and PMUs/PDCs/Applications
- Developed the detailed scope for the “PDC Functional Requirements” for NERC/DOE NASPI funding support.

Accomplishments Since Last Meeting

Cont'd

- Delivered “mapping rules” for phasor data – mapping of C37.118 to 61850 model. Coordinate with the IEC standards, what is the best way to stream phasor data over 61850 (sampled values, GOOSE, ...), etc.
- Ongoing collaborative activities with the IEEE 37-118 SynchroPhasor Standard group to include “dynamic phasors” into the standard.
- Ongoing collaborative activities with the IEEE PSRC H10 WG (Naming Installed Intelligent Electronic Devices, and the IEEE PSRC HTF1 WG to develop add-on modules for phasor representation in COMTRADE format; i.e: create a profile for recording phasor data in the COMTRADE file format. This topic will be presented at the June PSTT meeting.

Standards and guidelines related to PSTT Activity on Fast Track:

1. Interoperability

- a) IEC 61850 and IEEE C 37.118 Coordination and Harmonization
- b) NASPI approval process for IEC Technical Report 61850-90-1 specifying protocols and technical requirements for communications between substations.

2. Phasor Data Concentrator Requirements

3. NASPInet interfaces (APIs)

- a) *Between Data Bus and Phasor Gateways*
- b) *Between Phasor Gateways and PMUs / PDCs /APPS*

4. Requirements for Combined Applications using Synchronized Measurement Data

Plans for Next 3 Months

Cont'd

- IEDs Guidelines for Using Devices with Integrated PMU Functionality
- Develop format and optimization standards for data storage, in order to minimize the storage requirements (coordination with DNMTT)
- Discuss / define limits for “interoperability” and determine whether inter-operability definition should encompass beyond data communication issues particularly associated with multi-function devices and when data is used for automatic analysis.