

## North American SynchroPhasor Initiative (NASPI)

Data and Network Management Task Team (DNMTT)

### Meeting Minutes

July 19, 2007

PNNL Architecture Visit

A meeting with PNNL and the NASPI Data and Network Management Task Team leads Paul Myrda and Kris Koellner was held on July 19, 2007 in Richland, Washington. 10 participants were in attendance. The attendance list can be found in Appendix A.

The following action items and agreements resulted from the meeting.

#### ACTION ITEMS AND AGREEMENTS

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1. **Allen Millard**: Look at pros & cons (and issues) of UDP versus TCP and other protocols. Maybe there is another transport protocol out there that is really well suited for this type of traffic.
2. **Paul Myrda**: Need to assign someone to look at 61850 and whether it will work with phasor data.
3. **Allen Millard**: Look at network options (e.g., MPLS, SONET, ATM, etc.) and determine a rough order of magnitude cost estimate as a function of bandwidth requirements.
4. **David Chassin**: Develop a rough order of magnitude cost estimate for servers and would be needed for the maximum centralized architecture option (e.g., what would be the maximum cost to NERC if they decided to host everything themselves). Note: this is not what we recommend, but provides an upper bound for the cost impact to NERC.
5. **Henry Huang**: Map the pre-existing applications taxonomy document to the category levels A, B, C, D that we defined during the meeting.
6. **Ranata Johnson**: Take the first cut at putting the notes together in PowerPoint so we can build a presentation for NASPI.

#### CONTACT INFORMATION

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- Data Network and Management Task Team chair – Paul Myrda, EPRI, [pmyrda@epri.com](mailto:pmyrda@epri.com).
- DMTT Resources Website: <http://www.naspi.org/resources/dnmtt/dnmttresources.stm> . Contact: Ranata Johnson, PNNL, (509) 375-6311, [ranata.johnson@pnl.gov](mailto:ranata.johnson@pnl.gov).

#### MINUTES

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Notes from the NASPI Architecture meeting are as follows.

- 1. EIOC Tour and Welcome:** Jeff Dagle provided both Kris and Paul a tour and overview of PNNL's Electricity Infrastructure Operations Center (EIOC) and welcomed them to PNNL. The EIOCC is a user based facility dedicated to energy and hydro power research, operations training and back-up resources for energy utilities and industry groups.
- 2. DMTT Status/Update:** Paul Myrda provided a status and update to the group on the DNMTT's challenges, and objectives. The infrastructure to make an architectural concept work will be critical. This concept is starting to become real so we need to determine the next steps.
- 3. Data Intensive Initiative:** Ian Gorton provided a brief overview of the Data Intensive Computing Initiative. This initiative at PNNL is researching and developing scalable solutions for data-intensive problems. It is concerned with capturing, managing, analyzing, and visualizing multi-terabyte and peta-byte data volumes. Such data stores exist in a diverse range of application domains, including scientific research (e.g., bioinformatics and astronomy), commerce (e.g., monitoring electrical power grids or ports-of-entry), and cyber security.
- 4. SPDC Network Project:** David Chassin and Jorge Reyes-Spindola provided an overview of their work on the SPDC Network Project which includes the development of a kernel module that can receive and parse the PDC stream coming into the EIOC from BPA in order to provide the messages and channels through a file interface. A handful of small tools have been written to assist in reading the stream or the various files. The next goals include writing additional tools including diagnostics on the validity and integrity of the stream, a historian that can deliver five minutes of messages when prompted, an Archiver that records messages into files for future use, and a subscription service daemon that works with a user interface to specify what specific channels to send where, with the ability to resend lost or corrupted packets.
- 5. Architecture Process Discussion:** Ian Gorton led the team in a facilitated session to brainstorm architecture design solutions. This process included walking through various architecture use cases, defining and prioritizing architecture requirements and constraints, turning that into proposed possible architecture solutions, and then validating those solutions against requirements. Details of the process used can be found at: [http://www.naspi.org/meetings/dnmtt/naspi\\_architecture\\_process.doc](http://www.naspi.org/meetings/dnmtt/naspi_architecture_process.doc) .

The notes taken during the process above have been included in the presentation for the NASPI team, located at:

[http://www.naspi.org/meetings/dnmtt/naspi\\_architecture\\_meetingrev3.ppt](http://www.naspi.org/meetings/dnmtt/naspi_architecture_meetingrev3.ppt)

After wrap up and actions were discussed the meeting was then adjourned.

**Appendix A:**

<b>Attendees</b>		
<b>Last Name</b>	<b>First Name</b>	<b>Affiliation</b>
<b>Allen</b>	<b>Millard</b>	<b>PNNL</b>
<b>Chassin</b>	<b>David</b>	<b>PNNL</b>
<b>Dagle</b>	<b>Jeff</b>	<b>PNNL</b>
<b>Gorton</b>	<b>Ian</b>	<b>PNNL</b>
<b>Hadley</b>	<b>Mark</b>	<b>PNNL</b>
<b>Huang</b>	<b>Henry</b>	<b>PNNL</b>
<b>Koellner</b>	<b>Kris</b>	<b>Salt River Project</b>
<b>Johnson</b>	<b>Ranata</b>	<b>PNNL</b>
<b>Myrda</b>	<b>Paul</b>	<b>EPRI</b>
<b>Reyes-Spindola</b>	<b>Jorge</b>	<b>PNNL</b>