Generation II Update

NASPI
Working Group Meeting
## February 4th, 2009

The Generation I System

- **To help promote phasor usage in the industry, TVA created the SuperPDC which is used to provide long-term archival of high-resolution phasor data and a data concentration point for third party applications such as EPG's RTDMS.**

- **Additionally, TVA provides data retrieval and connection management services to PMU owners which includes a configuration web site and a freely available PMU connection tester.**

TVA – Power System Operations

Generation I System Status

- **TVA continues to operate and maintain the Generation 1 System**
  - 105 connected PMUs (10 added since the last NASPI meeting)
  - Around 34 Gigabytes of data are collected daily, roughly 1 Terabyte per month
- **Discussions are going well with a contract with NERC for continuing operation of the Generation 1 system**
- **PJM has successfully deployed a version of the Generation I system for testing and are planning for production deployment**

Disk Space Growth...

Current dedicated highly-available (i.e., SAN) phasor data storage of 15 TB will be full on approximately February 23, we are in the process of adding more storage to accommodate continued system growth.

Available
Used

15 Terabytes of total disk space
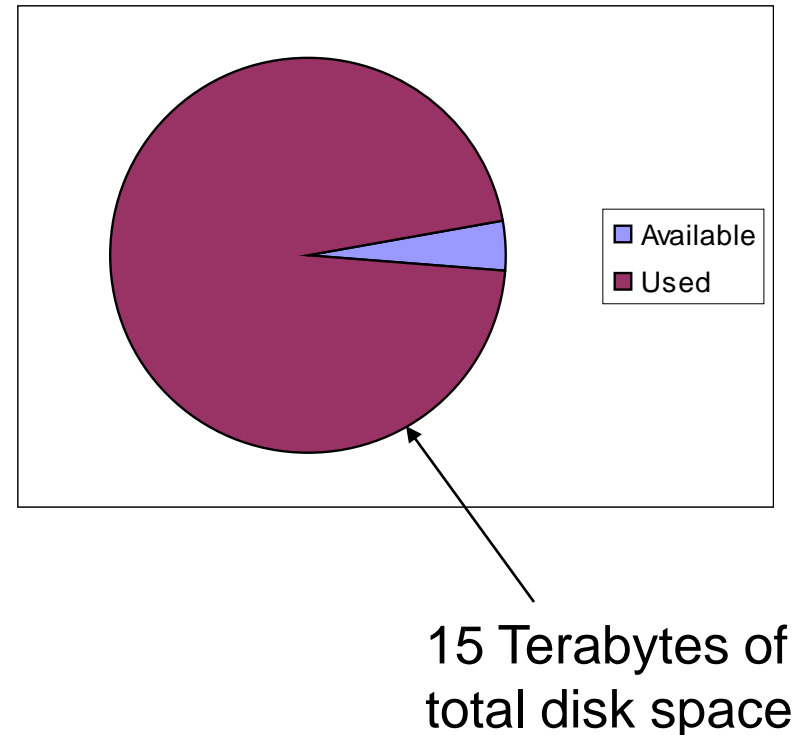
Generation II System
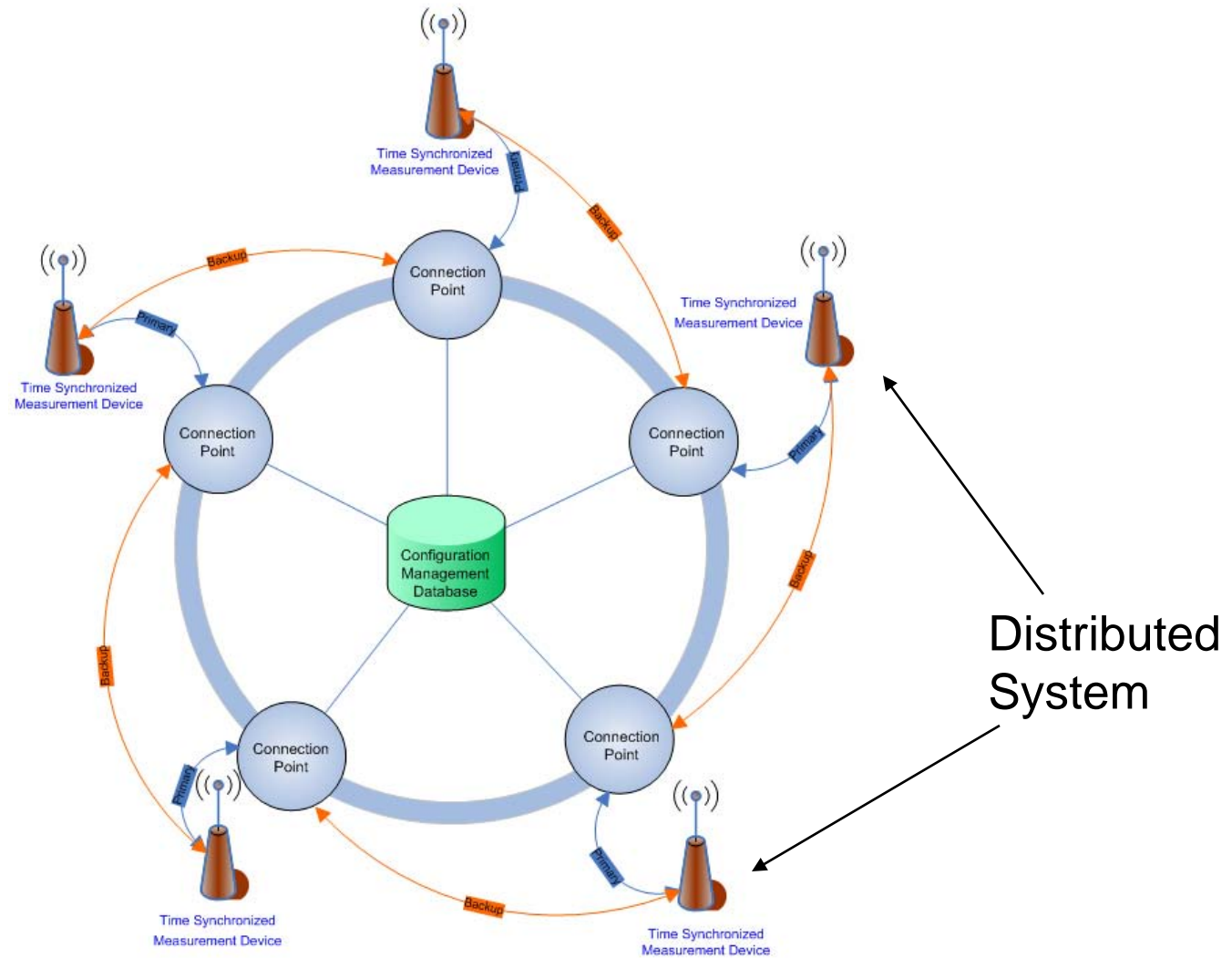
Generation II Objectives

- A production system for operational use

- Ownership and operating roles integrated with NERC/ERO functional model and reliability standards

- Continued support and coordination with NASPI

- Support of NASPInet as a data transmission protocol is finalized

How is the Generation II System Different?

- Multiple nodes will work together collaboratively to create a "distributed" system of data collection nodes, or "Connection Points"

- Only a minimal required amount of information will be exchanged between nodes to assure high data-availability

- Local nodes will only keep a short-term archive of data to limit hardware costs incurred by data storage requirements

- A key piece of the Gen II System is the long-term archive that collects critical data from all nodes

High Level Design Criteria

- Scalable to support many more PMU's
- Provide high assurance of data archival
- Provide an open interface for 3rd party vendors to provide real-time analysis and alarming tools, which will include NASPInet as it becomes available
- Provide fault tolerance for real-time analysis and alarming tools
- Be affordable and accommodate sharing of costs among those that receive value

Generation II System Status

- Requirements for the Generation II System status have been developed are in final review.

- An official name has been selected for the Gen II System:

The NERC Phasor Concentrator System or PCS

Phasor Concentration System Schedule

- **February 2009 – Complete NERC/TVA contract for PCS system**

- **March 2009 – TVA begins development of PCS system**

- **July 2009 – TVA releases vendor integration specifications for PCS system**

- **June 2010 – PCS system is completed**

- **July 2010 – TVA begins deployment of new PCS nodes**