



# Data & Network Management Task Team

June 12<sup>th</sup>, 2008  
Seattle, WA





# D&NMTT Charter

- **Data & Network Management Task Team**
  - The scope of the Data and Network Management Task Team includes the development of the hardware and software requirements to collect and store the PMU data at a master storage site(s). The group is also responsible for defining the communications requirements from the PMU(s) or local storage site(s) to the master storage site(s), and development of future network **architecture** options.



# Seattle Team Composition

Dave Anderson	Washington St. University
Dave Bakken	Washington St. University
Dave Chassin	PNNL
J. Ritchie Carroll	TVA
Veselin Skendzic	SEL
Yuchen Lu	Siemens
Ankit Mishra	PJM
Lynn Constantini	NERC

*Task team leadership:*

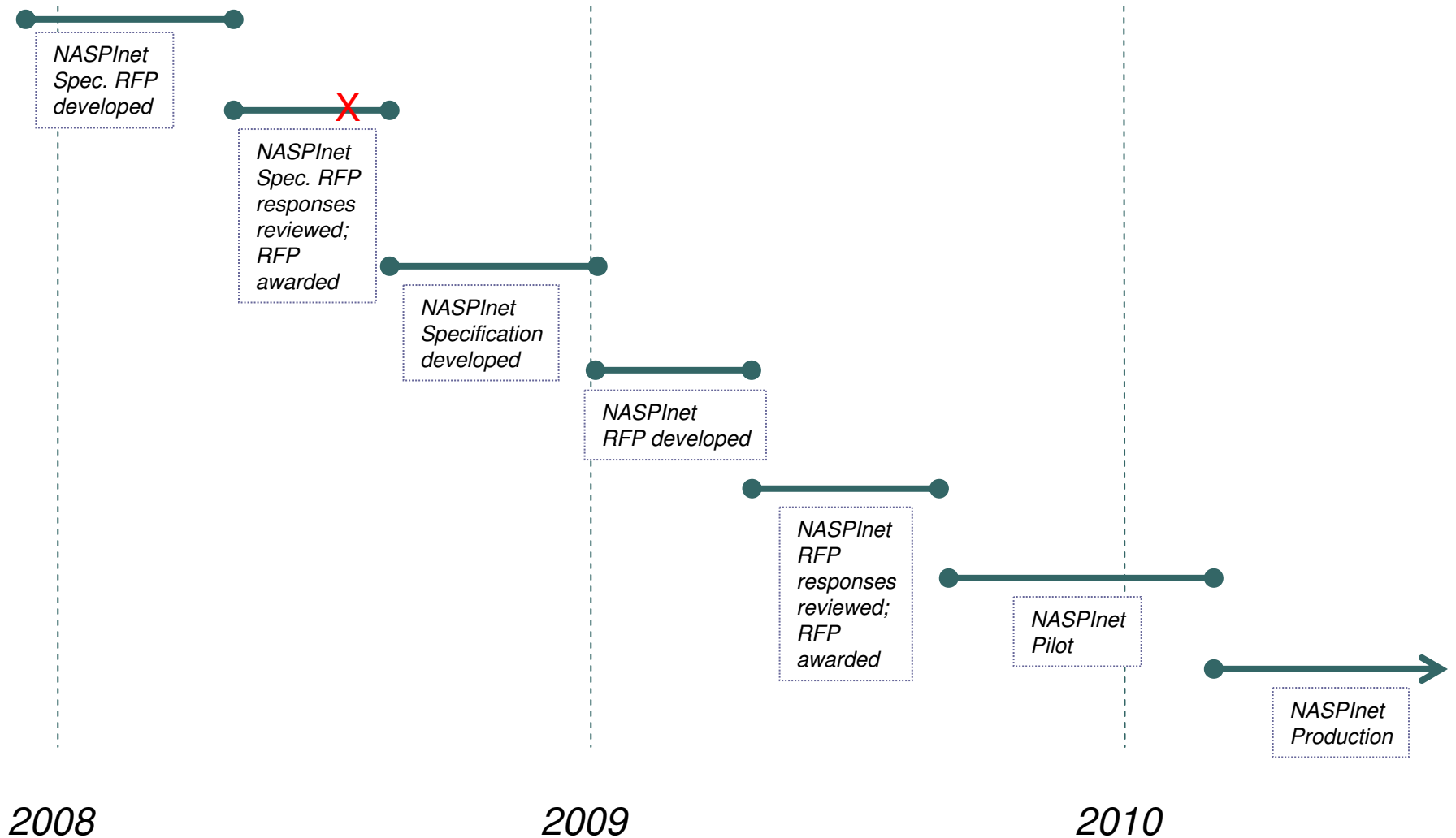
Paul Myrda	EPRI	<a href="mailto:pmyrda@epri.com">pmyrda@epri.com</a>
Kris Koellner	SRP	<a href="mailto:kmkoelln@srpnet.com">kmkoelln@srpnet.com</a>



# Recent Progress - RFP

- NASPInet specification RFP underway with DOE/NETL
- Statement of Work distributed 5/13
- Proposals due back 7/8
- Review in mid-late July
- Award/contract by late summer:
- Contractor status briefings slated for:
  - Charlotte meeting (Oct 08)
  - Phoenix meeting (Feb 09)
- <http://e-center.doe.gov/iips/busopor.nsf/1be0f2271893ba198525644b006bc0be/9e37759eefc5550b85257428005ea3ef?OpenDocument>

# NASPInet Longer Term View





























# Architecture Features





- [Massively] De-centralized
  - More onus on asset owner, less on a centralized host
  - Current system is not scalable
- Based on publish-subscribe model
- Multicast capability
- Differentiated classes for different application types
  - Not all PMU installations are considered equal
- Phasor Gateway concept introduced
  - “Internet routers on steroids for PMUs” – D. Bakken
- Access-control lists for each data set
- Latitude-longitude as a PMU descriptor
- Self-describing, common naming convention



# Service Class Concept

	<b>Class A</b> 	<b>Class B</b> 	<b>Class C</b> 	<b>Class D</b> 
<b>Low Latency</b>				
<b>Reliability Availability</b>				
<b>Accuracy</b>				
<b>Time Align</b>				
<b>Message Rate</b>				

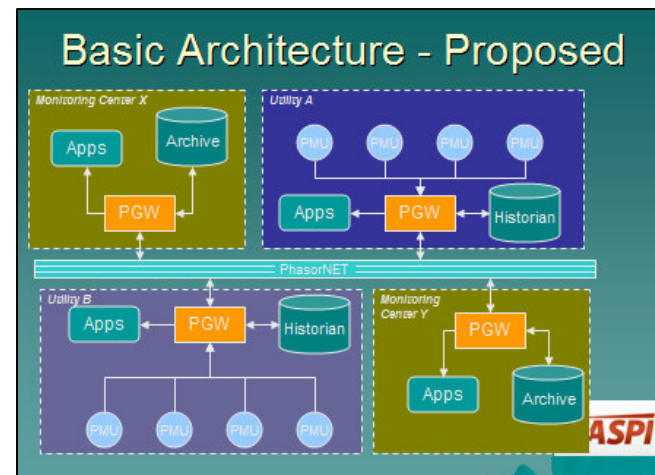
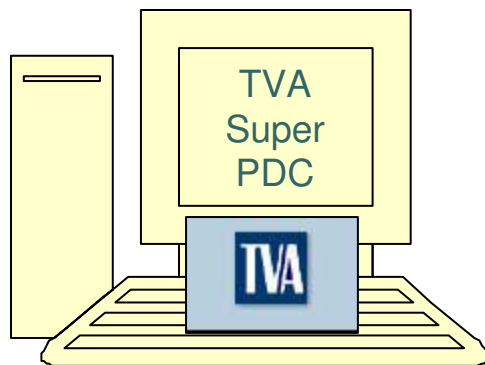
Legend:

-  Not very important
-  Somewhat important
-  Fairly important
-  Critically important

**Class E: Test/Research**



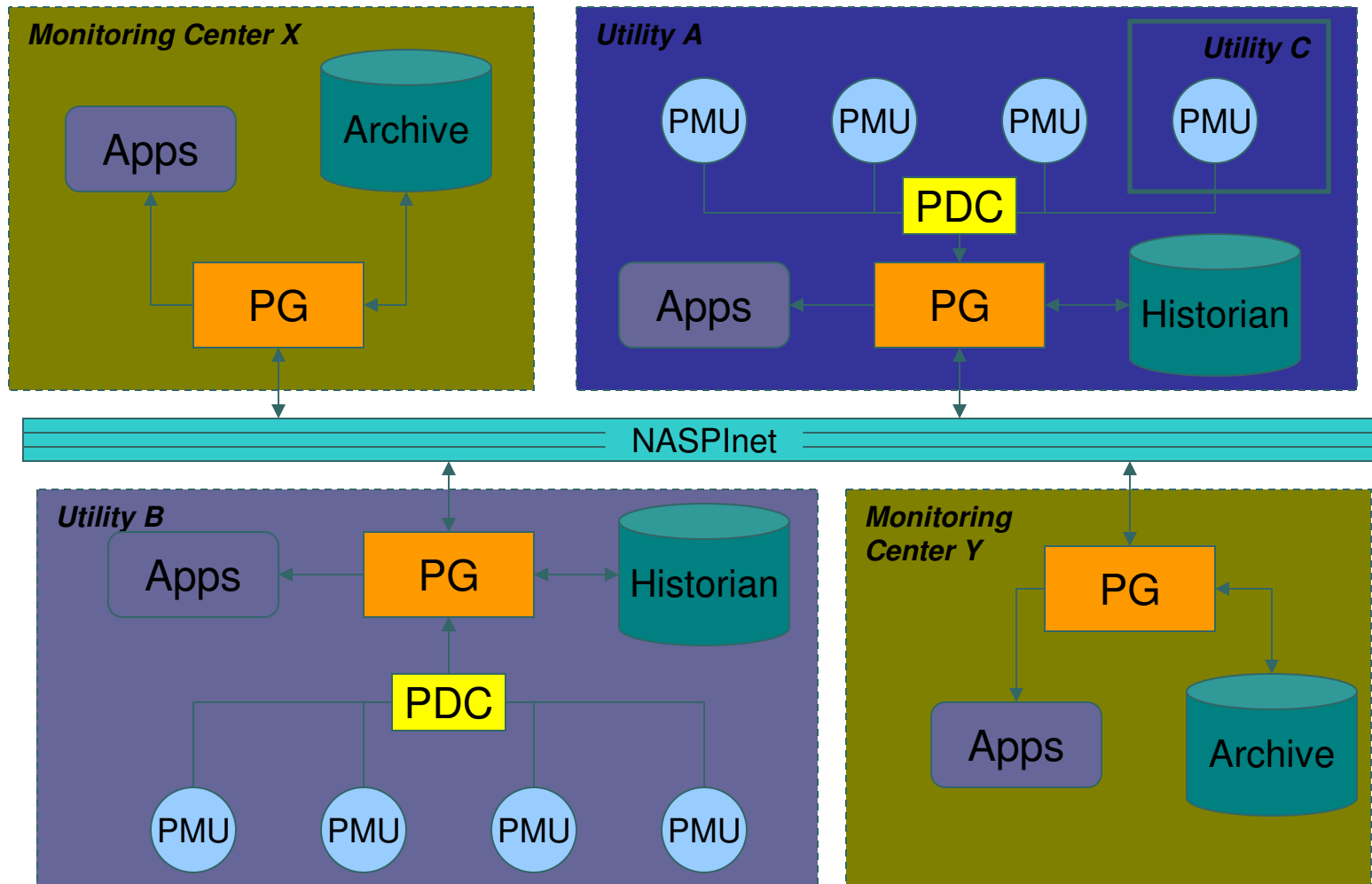
# Internet analogy



First web server at CERN;  
Centralized,  
Specialized,  
Home grown

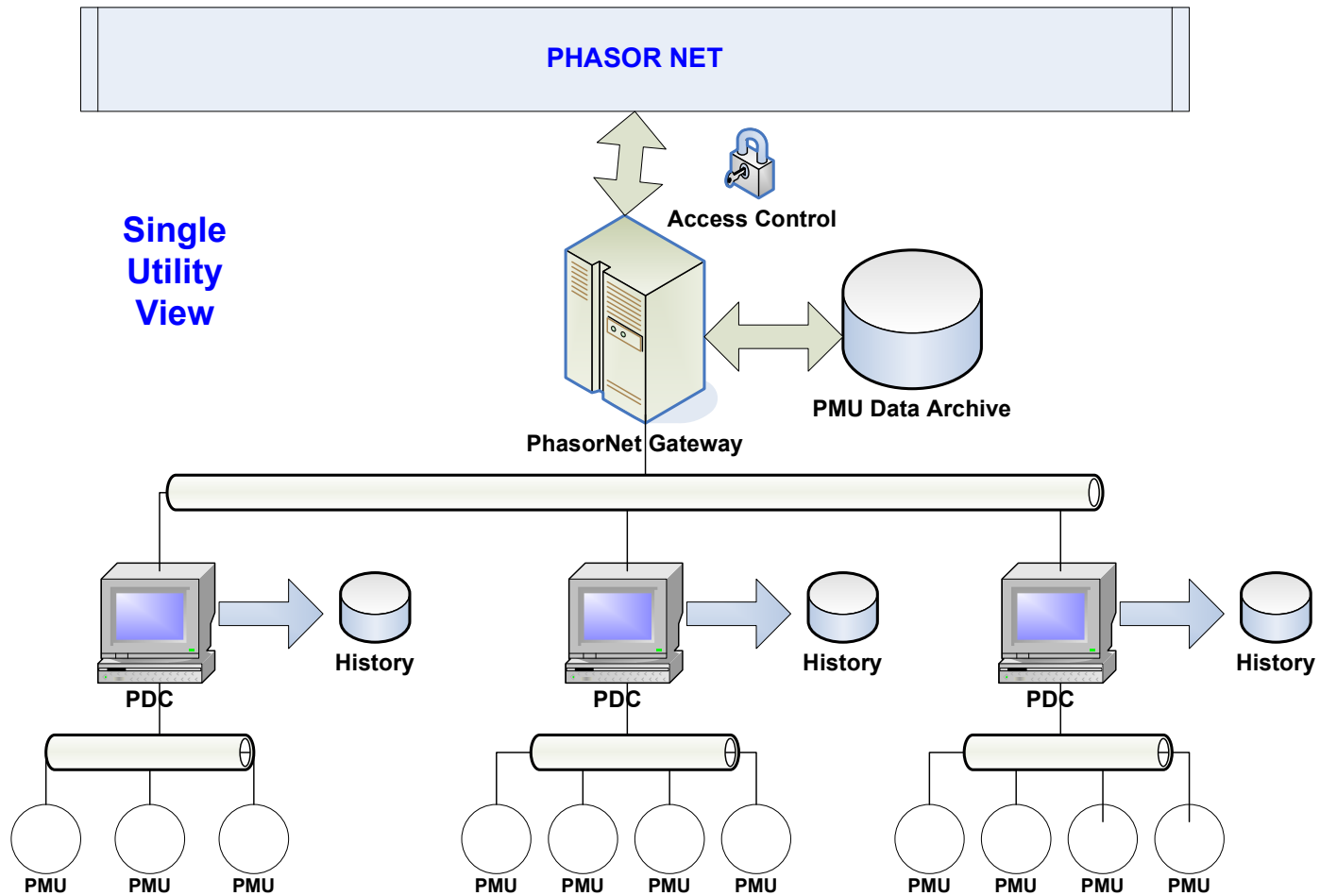
Today web servers are ubiquitous;  
De-centralized  
Standardized interfaces/protocols,  
Vendor supported, outsourced

# NASPInet Basic Architecture





# Single Utility View





# Phasor Gateway Role

- Principal access point for inter-organizational phasor traffic
- Access/admin rights enforcement
- Disseminates access rights
- Maintains data integrity
- Handles format compatibility issues
- Manages traffic class priority



# Ongoing action items



<u>Task</u>	<u>Lead</u>
1. NASPInet specification RFP	NETL/RFP Team
2. NASPInet promotional article <ul style="list-style-type: none"><li>○ What it is, why needed</li></ul>	Koellner
3. Next generation PMU features <ul style="list-style-type: none"><li>○ To feed into standards cycle</li></ul>	Khurana
4. System conventions and utilities <ul style="list-style-type: none"><li>○ Naming convention for example</li></ul>	Bakken
5. System failure modes & effects analysis <ul style="list-style-type: none"><li>○ What fails, why, and how to handle</li></ul>	Cherian
6. Role of PDC in NASPInet <ul style="list-style-type: none"><li>○ Compare/contrast with PG function</li></ul>	Chassin
<ul style="list-style-type: none"><li>○ DNMTT will be meeting via conference call to deliver these items by Charlotte (October 2008) - <b>join us!</b></li><li>○ <a href="http://www.naspi.org/meetings/dnmtt/dnmttmeetings.stm">http://www.naspi.org/meetings/dnmtt/dnmttmeetings.stm</a></li></ul>	