

PhasorNET Requirements Input

Prof. Dave Bakken

**School of Electrical Engineering and Computer Science
Washington State University
Pullman, Washington USA**

**NASPI D&NMTT Teleconference
November 29, 2007**

Proposed Requirements (1/4)

- **Note: these were sent by email to the list on 11/1/07 but have not yet been discussed (or any requirements for the NASPI Bus AKA PhasorNET), except the first one below (“Open Architecture”).**
- Open Architecture that can interoperate across a diversity (hid behind PhasorGWs) of
 - Vendor software and hardware
 - Different kinds of CPU, network technology, programming languages
 - Utility standards (C37.118, IEC 61850 GOOSE, etc)

Proposed Requirements (2/4)

- Deliver a range of Quality of Service (QoS) per-variable-per-subscriber
 - Latency
 - Rate
 - Availability (redundant paths)
- Be extensible to exploit new kinds of network and computing technologies as they evolve over its many-decades lifetime
- Efficiently support multicast: 1 → many delivery of a data update

Proposed Requirements (3/4)

- Support a wide range of communication structure/topology, QoS settings, etc. for the wide range of power applications that NB must support.
 - Includes **rate filtering**: some (close) subscribers can get high rate (and lower latency), other (distant) ones can track at much lower rate (and higher latency)
 - Rate filtering has to support *temporal synchronism*, passing through the same time-aligned samples of PMU data to provide a consistent global snapshot

Proposed Requirements (4/4)

- Manageability/controllability: track all data delivery requirements on a per-variable-per-subscriber basis
 - Admission control on subscriptions
 - Be able to throttle them back in a crisis
- No single point of failure and congestion for a given data variable: multiple independent delivery paths supported and handled transparently to subscriber
 - (Floyd Galvan likes to describe this as a “mesh network”, and I think this is a very good and focused way to think about it).