

802.24 White paper on TSN

- Ethernet operation to provide time bounded or deterministic services.
- How can this be applied in utility applications?
 - Substation networks
 - Interconnection between LAN and WAN
- The requirement comes from specific applications:
 - Starting point was Audio/Video, and industrial automation
 - Now the TSN capability is application agnostic
 - Automotive is an emerging application – replace CAN, Flexray, etc.
 - There is also ring topology for redundancy
- Questions:
 - Is utility protection application considered for TSN?
 - Today there is some use of proprietary real-time Ethernet variants.
 - GOOSE protocols
 - Synchrophasor applications

TSN Development – July 2016 Initiation

- In July, 802.24 had a joint meeting with 802.1's TSN TG to explore application of Time Sensitive Networks for utility applications.
- Review Presentation to 802.1 in document 802.24-16-0022r0
 - Requested action was to Establish liaison with IEEE PES Power Systems Relay Committee (Communications Subcommittee) and the Substations Committee (SCADA Subcommittee)
- Joint liaison request developed with 802.1
 - Document [802.24-16-0023r0](#)
 - Sent to PES chairs

Update for November

- The PES PSRC and Substation SCC have been reorganized and will become the PSCC (Power Systems Communications and Cybersecurity) committee. (effective Jan 2017)
 - We should not expect to receive any official response to our Liaison Request letter until the new PSCC Committee meets in 2017.
- However, the PES leadership that was present at ISGT expressed interest in collaboration.
 - Chair: Mike Dood (Schweitzer Engineering Laboratories)
 - Vice Chair: Ken Fodero (Schweitzer Engineering Laboratories)
 - Secretary: Craig Preuss (Black and Veatch)
 - Past Chair: Dan Nordell (Xcel Energy)

Plans for TSN development in Nov

- TSN will be specified in 61850 through IEC.
 - IPV6 is also being adopted into 61850
 - OPC, ODBA are adopting TSN (and also use 61850)
- Key points the white paper
 - Describe how TSN works
 - Understand IEC 61850 activities and relationships
 - How standardized APIs are integrated into 61850
 - 802.1Qbu, 802.3br, 802.1Qbv, 802.1Qca.
 - 802.1Qca, Qcb, Qch, Qci, Qcn, Qcr,
 - Relationship to IETF DETNET
 - What is the opportunity for wireless standards to leverage? DETNET could take advantage.

Joint Session with 802.1 TSN

- Wednesday PM2 after 802.24 closing
- Actions
 - Start an email discussion on 802.24 reflector and 802.1 reflector (CC both)
 - Plan on another joint session in Jan 2017 (Atlanta)
 - Request Liaison response from PES PSRC committee