Outline

- IEEE Standardization Process - Overview
- Background Information (2014-2017)
- P1917.1 Working Group’s:
  - Project Authorization Request (PAR)
  - Leadership and Challenges
  - Mind Map of Potential Work and Liaisons
  - Goals, Approach
  - Hot Issues Debated: Example
  - Current and Other Proposed Efforts under Consideration
- Next Steps / Actions
Research Group (RG) - formed when *enough* interest has been identified in a particular area of study

Study Group (SG) - formed when *substantial* interest has been identified in a particular area of study

Working Group (WG) - formed when *mature* interests and key stakeholders’ interests have been identified

Background Information - 1

IEEE Communications Quality & Reliability (CQR)
Emerging Technology Reliability Roundtable*
(Tucson, Arizona – May 12, 2014)

Outcome:

- Unanimous agreement to issue a Call For Participation (CFP) for a new IEEE Study Group (a.k.a. the SRPSDVE Study Group)
- Maintain momentum on Emerging Technologies (SDN, NFV, etc.) by avoiding a protracted Standards effort

SRPSDVE: Security, Reliability, and Performance for Software Defined and Virtualized Ecosystems

* http://www.ieee-cqr.org/2014/ETR-RT.htm
The IEEE SRPSDVE Study Group (SG) was formed in August 2014* (Spilios Makris, Chair)

http://grouper.ieee.org/groups/srpsdv/meeting_information.html

Outcome:

• Used this SG’s contributions to achieve a consensus in issuing a Project Authorization Request - PAR (Sept. 2015) to the IEEE Communications Society Standards Development Board (COM/SDB) for the formation of three (3) new SDN/NFV Working Groups

• IEEE created 3 new Standards projects (P1915.1, P1916.1, and P1917.1 WGs) on SDN/NFV Security, Performance & Reliability
P1917.1 Project Authorization Request

- **Scope:** This standard specifies reliability framework, models, analytics, and requirements for Software Defined Networking and Network Functions Virtualization (SDN/NFV).

- **Purpose:** This standard provides a framework to build and operate SDN/NFV service delivery infrastructure that satisfies reliability expectations of network operators, service/content providers, and end users.

- **Need for the Project:** This standard addresses reliability models, terminology, and analytics to enable optimized system operations and service delivery in SDN/NFV infrastructures.

- **Additional Explanatory Notes:** Since SDN/NFV attracts a lot of attention, many Standards bodies and industry associations may undertake work in this area. Thus, a formal liaison with the ETSI NFV and others Standards Developing Organizations (SDOs) such as IETF, ITU-T, Open Network Forum (ONF) working on SDN/NFV issues may be needed to avoid any overlap or collisions.
P1917.1 WG: Leadership

- **Chair:** Jason W. Rupe (Tenica)
  
  jrupe@ieee.org

- **Vice Chair:** Peter Thermos (Palindrome Technologies)
  
  peter.thermosasadch@ipalindrometech.com
Challenges

- **Introduction of SDN/NFV in Service Providers Networks**
  - Arise questions concerning the network/system reliability, which can be particularly vexing because these technologies:
    - Are not simply an evolution of existing ones, but
    - Are an extensive replacement of the familiar with the unproven

- **Too many Standards Developing Organizations (SDOs) are involved regarding the SDN/NFV technologies**
  - Understand the many distributed and potentially complementary industry initiatives
  - Expect many overlaps
  - Avoid duplicate efforts

Is any coordination between the IEEE 1917.1 WG and other SDOs possible?
P1917.1 WG: Mindmap of Potential Work Areas and Liaisons

**FCAPS:** Fault, Configuration, Accounting, Performance, Security (ISO Telecom Management Network model & framework for network management)

**QuEST:** Quality Excellence for Suppliers of Telecommunications; **HA:** High Availability; **SA:** Standards Association

*Source: Jason W. Rupe, P1917.1 WG Chair*
P1917.1 WG: Approach

- Follow-up on liaisons among other SDOs to get the status on outstanding SDN/NFV reliability issues
- Perform a gap analysis of the worldwide work on SDN/NFV reliability with the goal to answer the question:

  “Which aspects of that work could be taken to the P1917.1 WG for standardization?”

- Demonstrate and document the steps necessary to establish an IEEE standardization presence in the SDN/NFV reliability topic
Hot Issues Debated: Example

- **Set of Definitions**
  - **Issue:** Review reference definitions that other SDOs have created and decide what are the right ones that IEEE P1917.1 WG could adopt or modify
    - Example definitions:
      - Virtual system
      - Virtual component
      - Virtual resource
      - Decoupled system
      - Decoupled component
      - Etc.
  - **Challenge:** These definitions have been defined in other SDOs after long debates and may be an overlap or collisions with definitions created at this WG
  - **Resolution:** Since service providers and suppliers already comply with the definitions of other SDOs, we should not pursue such efforts at this WG
P1917.1 WG: Current Efforts

- End-to-end view of reliability for virtualized systems
- Reliability allocation models for virtual systems to ensure services
- Comparison of reliability methods for decoupled systems replacing legacy-coupled systems
- Framework to ensure reliability of applications in an SDN/NFV environment
P1917.1 WG: Other Proposed Efforts under Consideration

1) Summarize, rationalize, and, where necessary, develop service reliability requirements for the services that a typical Service Provider offers using an SDN/NFV Service Delivery Infrastructure (SDI)

2) Develop generic methods to align Service Level Agreements (SLAs) with the service reliability/availability metrics
   - Current SLAs are rich in QoS attributes not in reliability/availability ones

3) Develop SLA templates focusing on service reliability/availability for an SDN/NFV SDI
   - A guide to help users and service providers prepare meaningful SLAs using service reliability/availability metrics

4) Develop models needed to connect the reliability of the physical and software assets in the SDN/NFV implementation with the reliability of typical Service Provider services provided on an SDN/NFV SDI
**Next Steps / Actions**

- Enhance P1917.1 WG participation by soliciting SMEs from telecom companies around the world (via networking or conference presentations)
- Pursue the WG “Mindmap” of potential work areas
- Have a dialogue about the other proposed efforts for the WG
- Agree on the reliability-related areas/issues that could be realistically addressed at this WG
- Liaise with other SDOs (e.g., ETSI, QuEST, etc.)

**Abbreviations**

SME: Subject Matter Expert
SDO: Standards Developing Organization
QuEST: Quality Excellence for Suppliers of Telecommunications