



**IEEE SA**  
STANDARDS  
ASSOCIATION

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## GETTING INVOLVED IN IEEE STANDARDIZATION

### INTRODUCING IEEE COM/NETSOFT STANDARDS COMMITTEE

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**MEHMET ULEMA**  
Chair, COM/Netsoft Standards Committee  
Chair, IEEE Next Generation Service Overlay Networks Working Group  
Member, IEEE Standard Association Standard Development Board  
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IEEE Communications Society  
CommSoft TC Webinar  
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1

## OUTLINE

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- Standardization Drivers
- IEEE Standards Activities Governance Structure
- IEEE Standards Strategy
- IEEE Standards Development Process
- IEEE Ecosystem for Innovation and Standardization
- IEEE ComSoc Standards Activities
- IEEE ComSoc Network Softwarization and Virtualization Standard Committee (COM/NetSoft SC)
- Call for Volunteers

**IEEE SA** STANDARDS  
ASSOCIATION

 2

2

## STANDARDIZATION DRIVERS

### • Why Standards

- Governmental organizations need **agreements** to establish International markets
- Industry needs standards to **enable markets for products** and services
- Scientific and technical research communities need to establish **common frameworks** for technology research

### • Why contribute to Standards Development

- R&D organizations **position their Intellectual Property** in standards
- Technology suppliers **position their technical solutions** in standards
- Industrial suppliers need for **timely market entry**
- Industry alliances and professional organizations **provide a service to their members** and their industry segments
- Academic researchers receive **research grants with standardization** components and **position their work** in high impact activities
- Non-profit organizations (e.g., IEEE, IETF, W3C) **serve humanity**

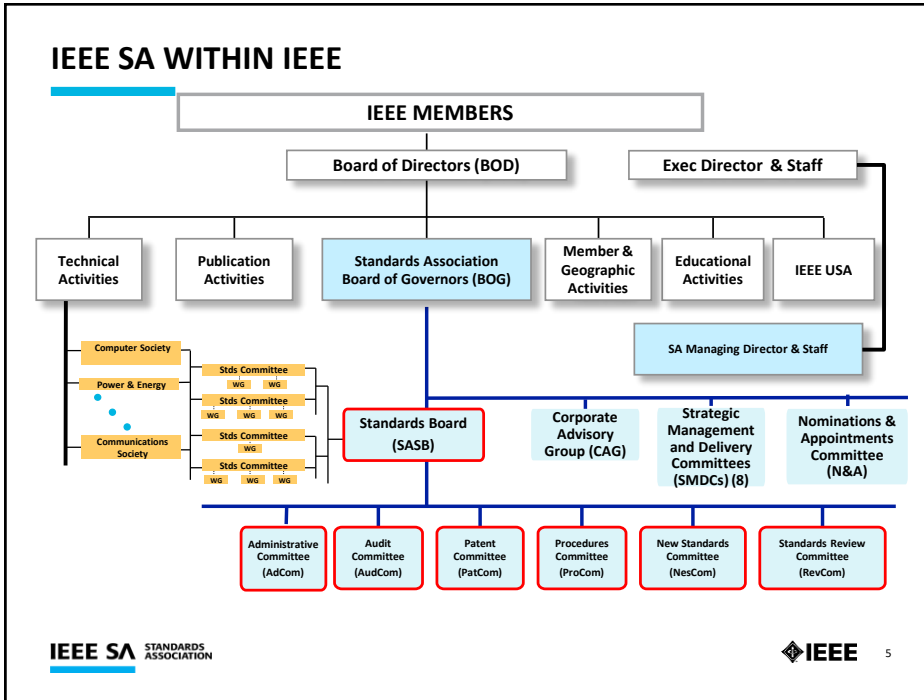
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## IEEE STANDARDS ASSOCIATION (IEEE-SA)

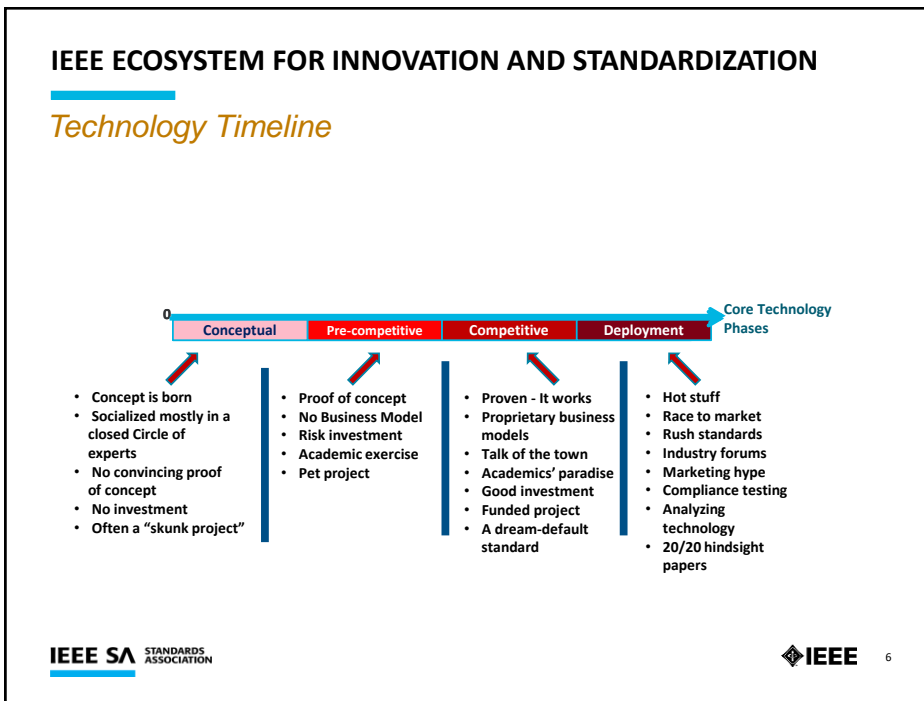
### A world-class Standards Development Organization (SDO)

- Provides a **high quality, market-relevant** standardization environment, respected **worldwide**
- Have **access to** the most visionary and **skillful experts** in the World
- Engage **Industrial and Academic** Researchers and **Practitioners** in the Emerging Technology Initiatives and Pre-standardization Activities
- IEEE-SA offers an **open** and most **inclusive** Standards Development Platform
- **IEEE-SA Quick Facts**
  - IEEE Standards on a broad spectrum of technologies,
  - 1,160 IEEE standards are active,
  - Among the 586 standards projects (PARs) under development,
  - 6,880 IEEE-SA Individual Members and about 200 IEEE-SA Entity Members.

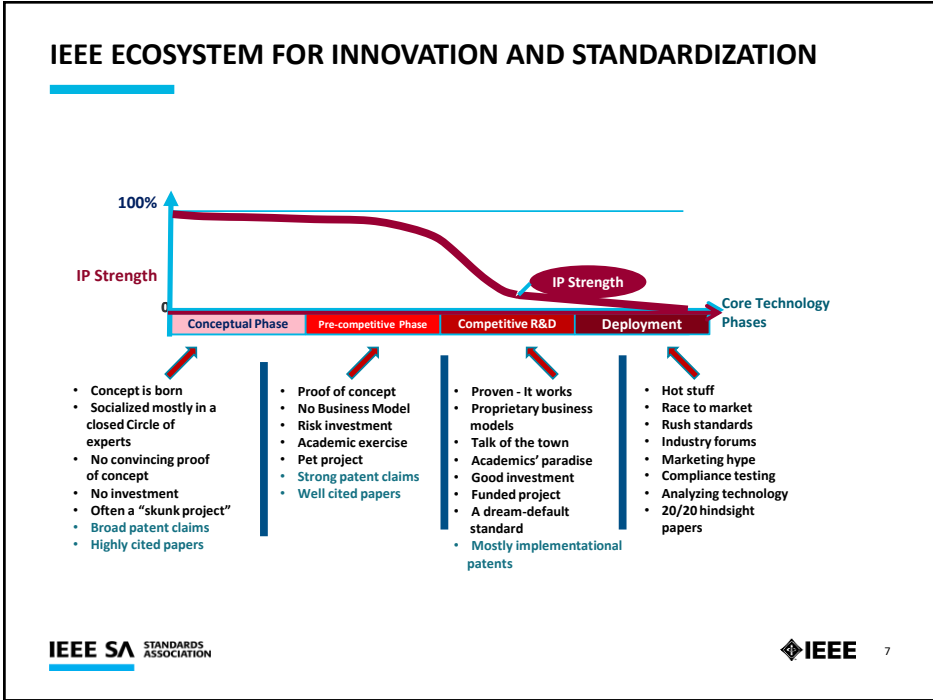
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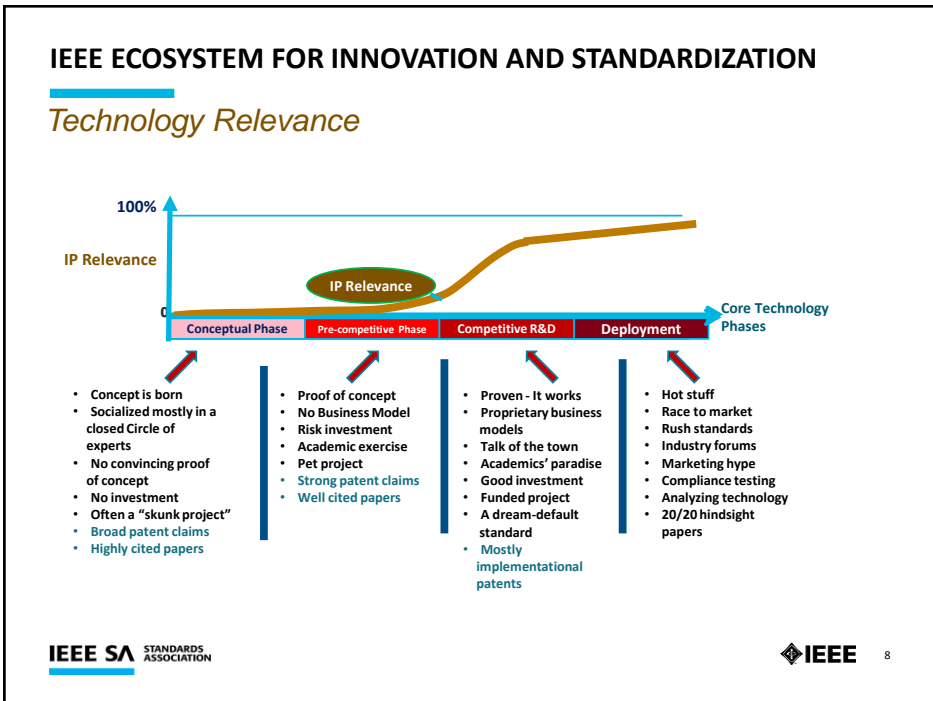
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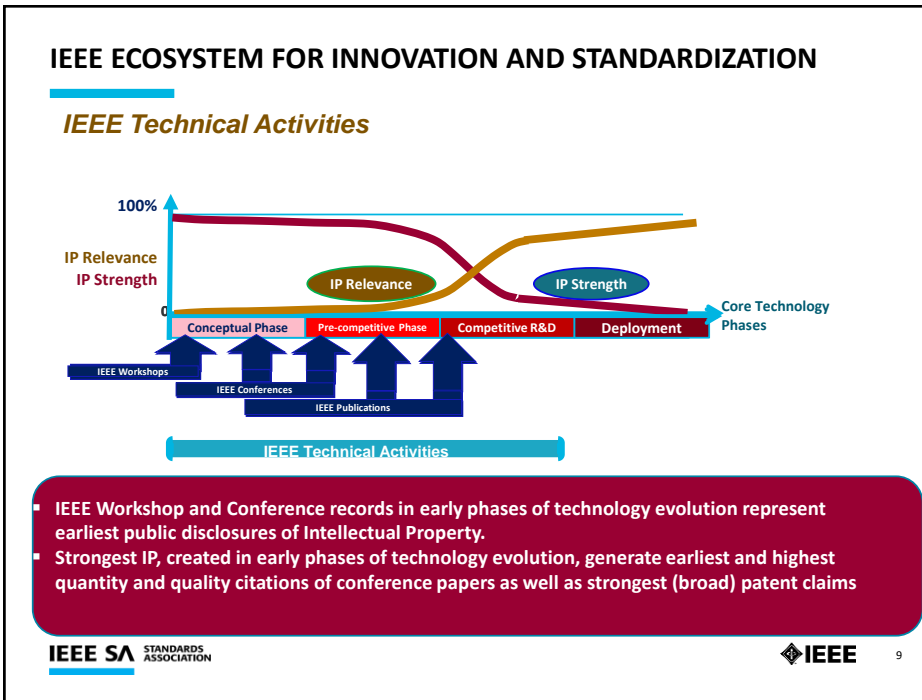
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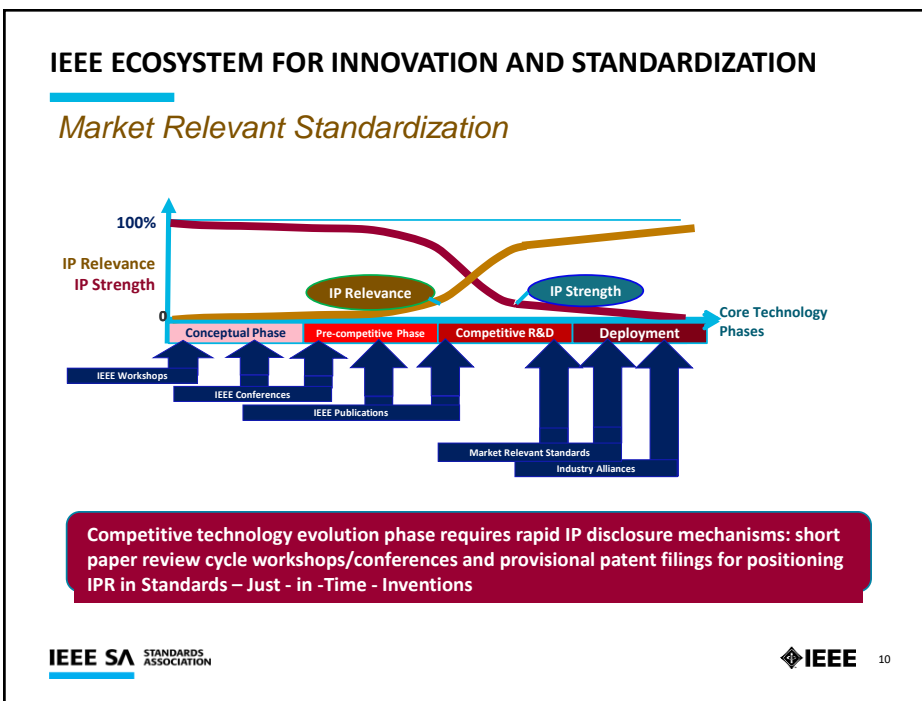
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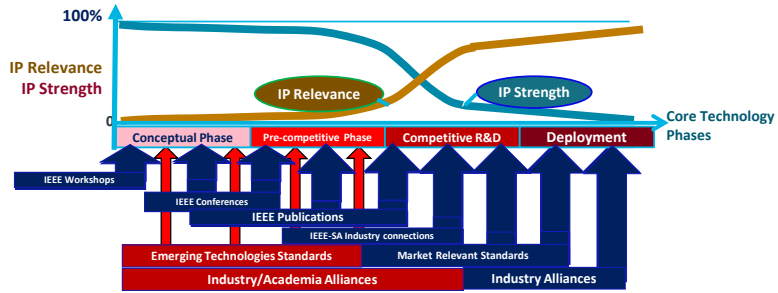


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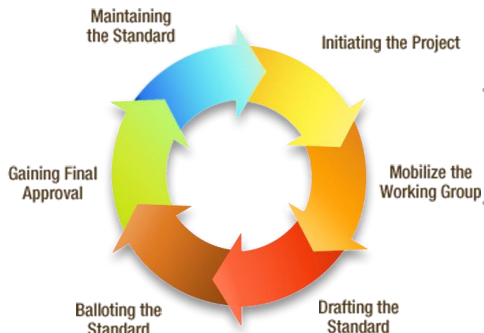
## IEEE CUISINE FOR INNOVATION AND STANDARDIZATION EMERGING TECHNOLOGIES AND STANDARDS



Standards-related scholarly conferences, RRSA, Industry Connection program events and FDC Initiatives' Industry Events are part of the ecosystem for discovery of standardization opportunities in emerging technologies, e.g. ideas for scholarly standards projects

11

## IEEE STANDARDS DEVELOPMENT



- **Project Initiation**
  - Make a proposal to a sponsor (SC)
  - Creation of a PAR (entity or individual)
  - Approval of the PAR by the sponsor and then NesCom/SASB
  - Publicity (Call for Participation, Press releases)
  - Create a WG (entity or individual) and a P&P
- **Draft Development**
  - Compliance with Governing Documents
  - Compliance with IEEE patent policy (e.g. LoA)
  - Meeting schedule and logistics – WG decisions
- **IEEE SA Ballot**
  - IEEE Editorial review and editing of the draft by MEC
  - Formation of a Balloting Group
  - Comment resolution by WG
  - Recirculation of ballot (if needed)
- **Approval Process**
  - Approval of the final document by RevCom/SASB
- **Publication**

12

## PROJECT AUTHORIZATION REQUEST (PAR) DOCUMENT

- **A short, brief, document (1-2 pages) describing the project**
- **Entered through myProject software tool**
- **Needs to be authorized by the Standards Committee and NesCom**
- **Three (3) important areas:**
  - **Scope:** What will be covered in the document?
  - **Purpose:** What will it be used for?
  - **Need:** Why is it needed?
- **Some other areas:**
  - Stakeholders
  - Entity vs Individual
  - Guide vs Recommendation vs Standard
  - Title

13

## INDIVIDUAL METHOD VS ENTITY METHOD

### Individual Method

- Requires Individual membership in IEEE-SA for WG officers
- Voting within Working Group
  - **One individual - one vote** (No block-voting)
- Sponsor Ballot
  - Any interested party can sign up
  - Free for IEEE-SA members
  - A fee for non-members



### Entity Method

- Designed to facilitate and expedite consensus, (an efficient way for participating entities to develop standards)
- Requires Corporate membership in IEEE-SA
- Requires WG chair to be individual member of IEEE-SA
- Voting within Working Group
  - **One entity - One vote**
  - Voting by designated representative
- Sponsor Ballot
  - IEEE-SA member entities can sign up
  - Balloting by designated representatives



14

## STANDARDIZATION ACTIVITIES IN COMSOC

### • Structure

#### • Standards Development Board (SDB)

- Standards Development Governance
- New projects incubation, New SCs set up,
- Liaison to IEEE-SASB

#### • Standards Programs Development Board (SPDB)

- Standards-Related Activities,
- Standards-Related TA products,
- Engagement of Industry & Academia,
- Liaison to IEEE-SA ICom

### • Scope

- Covering all aspects of Communications and Networking and related areas under ComSoc's scope

15

### • Standards Development Board (SDB)

### • Standards Committees (SCs), a.k.a., Sponsors,

- COM/SDB: Standards Development Board
- COM/MobiNet-SC: Wireless Mobile Networks
- COM/NetSoft-SC: Network and Service Softwarization, Virtualization, and Operations
- COM/GreenICT-SC: Green Information and Communication Technology
- COM/EdgeCloud-SC: Edge, Fog, and Cloud Communications with IOT and Big Data
- COM/AccessCore-SC: Access and Core Networks
- COM/DySPAN-SC: Dynamic Spectrum Access Networks
- COM/PLC-SC: Power Line Communications

### • Working Groups (WGs)

- 30+ WGs, 50+ Standards Projects, 20+ active standards

16



## COMSOC ECOSYSTEM FOR STANDARDIZATION (SPDB)

- **Meetings and Conferences**

- IEEE-CSCN, 5G Summits, Industry Communities

- **Publications**

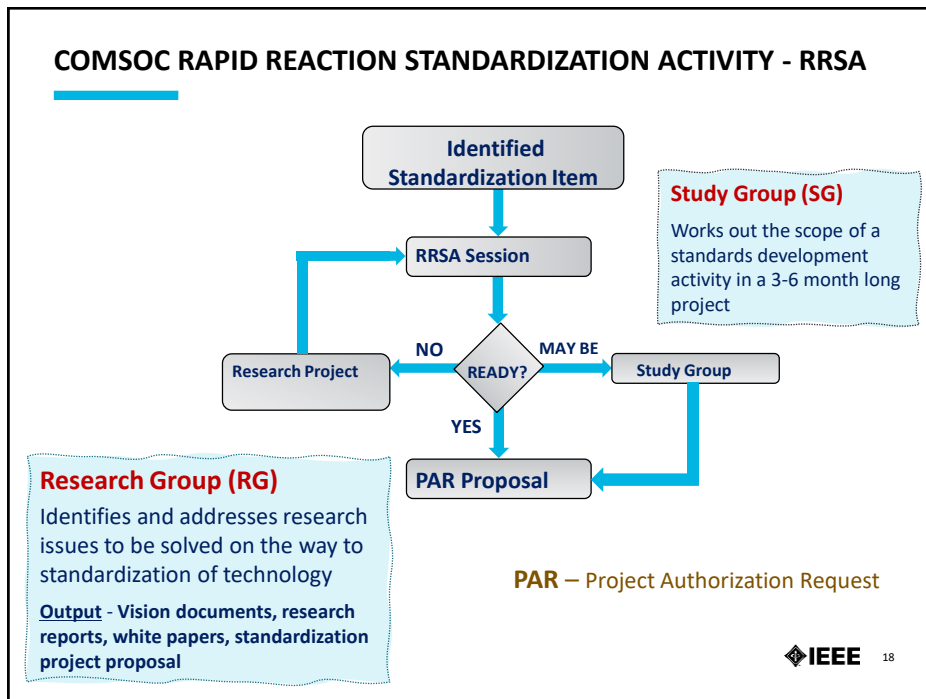
- IEEE Communications Standards magazine. JSAC Special Issues related to 5G and Beyond standards

- **Rapid Reaction Standardization Activity (RRSA)**

- Brings together industrial and academic researchers and industry practitioners in **brainstorming** of ideas and proposals for standardization
- Individuals with strictly professed interest supported for attendance of the RRSA session
- Wide solicitation (e.g., among relevant ComSoc TCs) of participation bids with a contribution requirement (**position statements**, standardization project **ideas**, specific **proposals**)
- Selection of limited number of participants based on position statements

17

## COMSOC RAPID REACTION STANDARDIZATION ACTIVITY - RRSA



18

## INTRODUCING COM/NETSOFT SC

- **Full Name:**
  - Network and Service Softwarization, Virtualization, and Operations Standards Committee
- **Scope:** to develop and maintain standards related to:
  - services offered over communication networks;
  - operations, administration, and management of communication networks and services
  - softwarization of communication networks and services
  - virtualization of communication networks and services
  - other related areas
- **Chair:**
  - Mehmet Ulema
- **Web Site:**
  - <https://sagroups.ieee.org/netsoft/>

19

## LIST OF COM/NETSOFT SC WORKING GROUPS

- P1903 Next-Generation Service Overlay Networks (NGSON)
- P1913 Software-Defined Quantum Communication
- P1916.1 Performance for Virtualized Environments
- P1917.1 Reliability for Virtualized Environments
- P1921.1 Software-Defined Networking Bootstrapping Procedures
- P1930.1 SDN based Middleware for Control and Management of Networks
- P1938.1 Standard for Software Defined Protocol and Functional Requirements for Improvement of the Signal-to-Noise Ratio (SNR) in Communications Channels
- P2784 Guide for the Technology and Process Framework for Planning a Smart City
- P1950.1 Standard for Architectural Functional Framework for Smart Cities
- P1951.1 Standard for Discovering and Intent Sharing between Smart City Component Systems

20

## P1903 Next-Generation Service Overlay Networks (NGSON)

**Scope:** To describe a framework of IP-based service overlay networks that have context-aware, dynamically adaptive, and self-organizing capabilities including advanced routing and forwarding schemes, and that are independent of underlying networks.

**Purpose:** To enable network operators, service/content providers, and end-users to provide and consume composite services

**Need:** To provide a better, more efficient way of providing these services and applications

### Standards Published:

- 1903.1-2017 - IEEE Standard for Content Delivery Protocols of Next Generation Service Overlay Network
- 1903.2-2017 - IEEE Standard for Service Composition Protocols of Next Generation Service Overlay Network
- IEEE 1903.3-2017 - IEEE Standard for Self-Organizing Management Protocols of Next Generation Service Overlay Networks
- IEEE 1903-2011 - IEEE Standard for the Functional Architecture of Next Generation Service Overlay Networks,

**WG Chair:** Mehmet Ulema, Manhattan College

## P1913 Software-Defined Quantum Communication

**Scope:** To enable classical control of quantum endpoints in a communication network to dynamically create, modify, or remove quantum protocols or applications.

**Purpose:** To define a classical interface to quantum communication devices that permits these devices to be reconfigured to implement a variety of protocols and measurements.

**Need:** A defined interface with quantum communication devices to greatly simplify integration efforts and can enable the development of higher-level programming tools

**WG Chair:** Steve Bush, GE Labs

## P1916.1 Performance for Virtualized Environments

**Scope:** To specify performance framework including characteristics, metrics, requirements, models, and use-cases for Software Defined Networking and Network Function Virtualization (SDN/NFV ).

**Purpose:** To provide a framework to build and operate SDN/NFV service delivery infrastructure that satisfies performance expectations of network operators, service/content providers, and end users.

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

**WG Chair:** Mohammad Asad Rehman Chaudhry, Soptimizer

23

## P1917.1 Reliability for Virtualized Environments

**Scope:** To specify a reliability framework, models, analytics, and requirements for Software Defined Networking and Network Function Virtualization (SDN/NFV )

**Purpose:** To provide 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:** To address reliability models, terminology, and analytics to enable optimized system operations and service delivery in SDN/NFV infrastructures.

**WG Chair:** Kong Eng Cheng, Perspecta Labs,

24

### P1921.1 Software-Defined Networking Bootstrapping Procedures

**Scope:** To specify a bootstrapping mechanism for Software-Defined Networking (SDN) architectures.

**Purpose:** To introduce more automation in networking by means of an SDN bootstrapping procedure that can be used regardless of the networking and connectivity service environments for the sakes of proper interoperability between SDN computation logic instance(s) and the managed resources(networking, storage, CPU), virtualized or not, that will be involved (i.e., computed, selected, allocated and maintained) in the delivery, operation, and management of connectivity service.

**Need:** For an SDN controller to dynamically acquire the information that pertains to the network, its topology, its functional capabilities, inputs from other controllers (if present), and the service functions they support, as well as the status of such functions upon bootstrap

**WG Chair:** Christian JACQUENET, Orange

25

### P1930.1 SDN based Middleware for Control and Management of Networks

**Scope:** To specify a middleware for management and control of wireless networks, specifically, management & control of 802.11 Access Points and 802.22 Base in accordance with the Software Defined Networking (SDN) paradigm.

**Need:** To define an open standard for SDN based middleware to control and manage the Access Point devices for WLANs & Base Station devices for WRANs. Such a standard shall facilitate the development of interoperable devices by different vendors, help in building carrier grade solution and foster rapid deployment of these networks

**WG Chair:** Pranav Jha, IIT Bangalore

26

### **P1938.1 Standard for Software Defined Protocol and Functional Requirements for Improvement of the Signal-to-Noise Ratio (SNR) in Communications Channels**

**Scope:** To define functional requirements for software defined digital signal processing to linearly improve the Signal-to-Noise Ratio (SNR) in communication channels. Also, it defines a software defined, downloadable protocol that improves performance of Device-to-Device communications by linearly improving the SNR in communication channels.

**Need:** To increase reception quality across devices connected to a network, alleviating the need for extensive infrastructure, as well as many other benefits, can be achieved with a software defined solution such as this.

**WG Chair:** Andrew Clasen, Andrewsonsolutions

27

### **P2784 Guide for the Technology and Process Framework for Planning a Smart City**

**Scope:** To provide a framework that outlines technologies and the processes for planning the evolution of a smart city. This framework provides a methodology for municipalities and technology integrators to use as a tool to plan for innovative and technology solutions for smart cities.

**Need:** To provide a process that allows for deployments to be reflective of the needs of constituents in each area and enable data to drive best practices decisions that use technology as a tool to improve outcomes for people.

**WG Chair:** Jim Frazer, ARC Advisory Group

28

### **P1950.1 Standard for Architectural Functional Framework for Smart Cities**

**Scope:** To specify the architectural and functional framework for Smart Cities. The framework addresses alignment of the Smart city ecosystems and key component of each ecosystem. These components include network access, service delivery, network and service management, and network extensions. The standard also include Smart City relevant terms and definitions.

**Purpose:** To provide a common view on smart city architectures and functionalities

**Need:** To have a structured, flexible, adaptable, and scalable framework as Smart Cities possess various levels of technological and financial capabilities and constraints. This framework helps the smart cities to adjust to the dynamics of service requirements.

**WG Chair:** Narendra Mangra, Globenet, LLC

### **P1951.1 Standard for Discovering and Intent Sharing between Smart City Component Systems**

**Scope:** To define a process to discover smart city component systems deployed in the city and proposes a classification mechanism to describe the component system based on the resources and data elements it exposes. To define a common identity scheme for entities and the data exchange format and interfaces for each class to be followed across similar component systems deployed in a city.

**Purpose:** To develop a common set of semantics to exchange the objectives (operational goal and constraints) between smart city component systems in a domain agnostic manner, so that solution providers /developers can implement methods in component systems to process the objective

**Need:** To integrate physical, digital and human systems effectively to deliver prosperous, sustainable and inclusive value to its citizens.

Cities are managed by a multitude of service providers and government organizations. Component systems are acquired by separate program offices and run by separate operation units. Smart city component systems are independently managed and evolve on their own. There is a need to discover component systems deployed in a city, identify the entities managed by component systems in a standard way and to communicate the intent (goal and constraint) across component systems in a standard data exchange format by invoking standard set of interfaces.

**WG Chair:** Subramanian Chidambaram, Intel

## HELPFUL INFORMATION

- **How to become an IEEE SA Member and contribute to IEEE Standards Development**
  - <http://standards.ieee.org/membership/>
- **How to get a myProject Account**
  - <https://development.standards.ieee.org/my-site/home>
- **User guide – walks through myProject and has instructions for all the process steps**
  - [https://mentor.ieee.org/etools\\_documentation/dcn/11/etools\\_documentation-11-0014-MYPR-myproject-user-guide.pdf](https://mentor.ieee.org/etools_documentation/dcn/11/etools_documentation-11-0014-MYPR-myproject-user-guide.pdf)
- **Complete myProject documentation**
  - [https://mentor.ieee.org/etools\\_documentation/bp/myProject](https://mentor.ieee.org/etools_documentation/bp/myProject)
- **FDC Future Networks Initiative’s Standards Working Group**
  - <https://futurenetworks.ieee.org/>
- **ComSoc Standardization Programs Development Board activities**
  - <https://www.comsoc.org/about/boards/standardization-programs-development-board>
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  - <https://standards.ieee.org/faqs/balloting.html>