RESEARCH FOUNDATION

RESEARCH FOR THE NFPA MISSION

POWER OVER ETHERNET (POE) SUMMIT: NEXT STEPS

2018 NFPA Conference & Expo, Mandalay Bay Conference Center (Mariners AB), Las Vegas, NV

Sunday, June 10, 2018, 11 am – 5 pm

(Last Updated: 14 May 2018; *subject to updates*)

Background: Power Over Ethernet (PoE) and the Internet of Things (IoT) is a sweeping concept with widespread implications for codes and standards and associated organizations. At its most basic level, this involves the mixing of power and communications over the same transmission means (e.g., cabling). As these concepts proceed and are implemented, the clearly established levels of safety that have evolved in the built infrastructure should be maintained. This includes addressing electrical hazards such as arcing, shock, and surge, and fire protection hazards such as ignition propensity, fuel load, flame spread, and products of combustion. While these concepts evolve and are embraced, we need to balance safety with optimum performance of important new emerging technologies. This considers key attributes (e.g., availability, durability, maintainability, operability, reliability, stability, interoperability, compatibility, etc.), which in some cases directly affect safety. Using information from previous meetings, this Summit is intended to clarify specific and actionable next steps. Results from this Summit will be discussed at a subsequent Las Vegas C&E session on Tuesday 12/June 3:30 pm (note: NFPA C&E registration req'd).

Summit Goal and Objectives: The goal of this Summit is to leverage information gathered at previous meetings to clarify specific and actionable steps to facilitate full consideration of PoE cabling in modern infrastructure while maintaining established levels of safety. Objectives include:

1) Vision Statement: Establish clear direction based on collective vision of where we expect to be in the future.
2) Training, Education and Awareness: Continue to elevate overall awareness and common understanding, with focus toward training and education.
3) Regulatory Coordination: Identify a proposed structure for NFPA-internal and NFPA-external regulatory coordination. Specifically, consider methods to coordinate PoE cabling requirements within NFPA and outside NFPA; establishing NFPA coordinating group objectives (defining PoE, terminology, coordinating between docs); clarifying jurisdictional scope of SDOs, product safety evaluation, certification & others; identifying impacted stakeholders (e.g., role of stakeholders, etc.).
4) Research and Data: Determine if other support/coordinating groups or projects necessary (FPRF projects, simulation team, etc.), and clarify data needs and perceived obstacles.

TIME	Sunday, June 10, 2018		
11:00 – 11:15 am	Call to Order, and Meeting Preliminaries Workshop Objectives & Deliverables	Casey Grant	15
11:15 – 11:30 pm	Key Findings from Previous Meetings (e.g., Durham & ESRAC)	Casey Grant	15
11:30 –12:30 pm	Panel Discussion: Addressing the Vision of PoE (Panelists: Ernie Gallo, Mark Hilbert, Chad Jones, Alan Manche, Denise Pappas, George Zimmerman)	Panel Members	60
12:30 – 1:00 pm	Networking Deli Lunch	All Attendees	30
1:00 – 1:45 pm	Panel Discussion: Coordination across Codes and SDOs – Barriers & Opportunities (Panelists: Shane Clary, Mike Johnston, John Kovacik, Wayne Moore)	Panel Members	45
1:45 – 2:30 pm	Panel Discussion: Next Steps & Future Actionable Items (Panelists: Donny Cook, Joel Goergen, Randy Ivans, Tom Parrish)	Panel Members	45
2:30 – 2:45 pm	Break-Out Group Assignments and Break	All Attendees	15
2:45 – 3:45 pm	Break-Out Groups Complete Questionnaire	All Attendees	60
3:45 – 4:45 pm	Break-Out Group Reports	All Attendees	60
4:45 – 5:00 pm	Workshop Closing Remarks and Adjournment	Casey Grant	15

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WHO SHOULD ATTEND?

Anyone interested in PoE and IoT, interoperability between codes, those impacted by these emerging technologies in the codes and standards, of NFPA and other organizations (e.g., installation documents like NEC®, NFPA 3/4, NFPA 72®, NFPA 79 & NFPA 730/731; occupancy documents like NFPA 75, NFPA 76, NFPA 99 & NFPA 101; and process documents like NFPA 85 & NFPA 86). This Summit is of high interest to facility managers, designers and engineers, information technology managers, codes and standards writers, PoE/IoT subject matter experts, and others dedicated to a safe infrastructure.

Registration: The cut-off date to register is Tuesday 5/June/2018. Summit attendance is limited to the first 100 attendees. **Confirm your attendance at https://www.surveymonkey.com/r/POESummit. Please contact foundation@nfpa.org with any questions.**

Key Findings from "Workshop Proceedings: Power Over the Ethernet"

This information was gathered from the October 2017 PoE Research Planning Workshop in Durham, NH and further reviewed at the Electrical Safety Research Advisory Committee (ESRAC) meeting held in conjunction with the NEC revision meetings January 2018 in Hilton Head, SC.

SUMMARY OBSERVATIONS

1. Regulatory Coordination

1.1. Terminology: Define and promote a universal understanding of key terminology (e.g., PoE, Power, Communication, Wire, Cable, Intelligent Coordinated Power, etc.).

1.2. Goals and Objectives: Declare clear goals and objectives for all transmission applications (e.g., minimize fire and electrical hazards, maintain data integrity, etc.).

1.3. Occupancies and Applications: Clarify and define occupancy requirements for applications involving PoE concepts, and categorize applications based on their criticality (e.g., COPS Critical Operations Power System, fire alarm, security, etc.).

1.4. Key Attributes: Establish the performance parameters that all devices, components and associated systems need in terms of key attributes (e.g., availability, durability, maintainability, operability, reliability, stability, interoperability, compatibility, etc.)

1.5. Enforcement: Indicate essential details for inspection and re-inspection, in the form of relevant and useable checklist information.

1.6. Products: Facilitate the focus on "listed" products through standards that provide assurance of the products functioning as expected for their intended purpose and in support of scalable installations.

1.7. Document Coordination: Generate a clear and simplified overview of the entire regulatory landscape relating to this topic. Establish an advisory council (or equivalent) to coordinate technical requirements between the codes and standards of all involved organizations.

2. Key Technical Issues

2.1. Power versus Communication: Define, categorize and clarify requirements for the multiple options of transmitting power and communications, over one or multiple conductors (e.g., power only, communication only, communication/data/power in some combination, etc.), in coordination with defined occupancy and applications, as well as existing versus new installations.

2.2. Intelligent Coordinated Power: Clarify, summarize, categorize, and address all applicable technical details for Intelligent Coordinated Power (ICP) to assure safe and effective implementation.

2.3. Risk Analysis: Outline an approach for conducting a comprehensive risk analysis for each applicable application, to determine the appropriate factors of safety and other key factors. Clarify the factors of safety for existing systems and approaches for purposes of a baseline.

2.4. Data Integrity: Address new requirements for the objective of maintaining data security and integrity (e.g., software, systems, etc.), especially in support of critical systems like COPS, fire alarm, security, etc.

2.5. Power Supplies: Clarify requirements for primary and back-up power supplies, contingent on occupancies, applications and other factors.

3. Research and Data

3.1. Predictive Data Analytics: Identify and clarify data needs and prospectively collect essential data for use with predictive data analytics. Establish a centralized national data collection, to support policy and regulatory revisions.

3.2. Fundamental Baseline: Conduct research in support of validated modeling and establishing theoretical fundamentals for PoE systems.

3.3. Knowledge Gaps: Conduct research projects in support of all knowledge gaps identified by this workshop, including regulatory issues, technical issues, and other issues such as training, education and awareness.

4. Training, Education and Awareness

4.1. Training and Education: Implement training and education in support of all aspects of PoE, with a special focus on supporting inspection, enforcement and commissioning.

4.2. Format Delivery: Consider the use of a straight-forward yet relevant checklists and/or punch lists to facilitate third party support and enforcement.

4.3. Awareness Outreach: Facilitate outreach addressing the overall virtues of emerging technologies like PoE.

4.4. Stakeholder Engagement: Promote and facilitate dialogue and networking, and involve all impacted stakeholders. Address the needs of the entire ecosystem of stakeholders (e.g., designers, developers, vendors, installers, inspectors, end-users, etc.).