Agenda

TC 7.5 Enabling Technologies Subcommittee

3:15-4:00 pm, Sunday, 26 January 2016

Prepared by Nick Gayeski

Objective for this Meeting: Generate ideas for research and program related to Enabling Technologies and assign owners.

Subcommittee Scope: The Enabling Technologies Subcommittee of TC 7.5: Smart Building Systems aims at exploring and developing technologies which will enable the development, implementation and commercialization of smart building applications such as fault detection and diagnostics, model-predictive control and optimization, and smart grid applications such as automated demand response. Three focal points of this subcommittee are i) smart transducers, such as sensors and actuators which provide diagnostic information, ii) communications, such as wireless devices and protocols enabling greater data exchange, and iii) embedded metadata, such as embedded equipment and system information to enable smart building applications. On these topics, the scope of this subcommittee includes identifying and sponsoring research projects, evaluating existing technologies, providing recommendations to building operators and practicing engineers, developing supporting tools for researchers in these areas, and organizing programs to disseminate research findings and advancements among ASHRAE members.

Related Committee activities: BACnet committee AP data modeling working group, Facility Smart Grid Information Model, Computer Applications, Emerging Technologies, SGPC20 HVAC process data exchange requirements and SPC 205 Standard Representation of packaged unit models.

3:15 Introductions / Agenda Revisions / Announcements

3:20 Existing RTARs and research ideas

i. RTAR 1783: Procedural criteria to evaluate the effectiveness of virtual sensors
   1. Accepted with comments. Li to revise it and get research liasion input for WS

ii. A Review of Metadata and Taxonomies to support FDD. No update.
   1. Negative feedback from RAC, including that it failed to explain the need, benefits or specific work to be done and therefore value to ASHRAE.
   2. Volunteers to revise include Bing Dong, James Sweeney, Kyle Hasenkox, Andrew ? from Appalachian State.
   3. Solicit the support of other committees, including BACnet DMG, TC1.5/BIM.
   4. Refer to RP on Utility/EMCS data representation from 1998
   5. Ask Phil Haves for guidance to make it of interest to RAC, frame it in BACnet context?

iii. Parked ideas:
   1. Embedded metadata/diagnostics: A Review of Metadata and Taxonomies to support Model-Predictive Control. To be drafted after similar FDD RTAR.
   2. Resolving the issues with wireless cybersecurity and reliability
   3. The potential for low power wide area networks to support smart building systems. E.g. LoRA Alliance, www.lora-alliance.org. Purported 15km range, penetrates building materials. More extensively available in Europe.

3:35 Existing Program

i. Programs in St. Louis?

a. Joe Zhou: Open source platforms for HVAC. Srinivas Katipamula, Jin Wen

ii. Parked ideas waiting for the right conference track. Are any upcoming conference tracks right for these?
   a. Nick Gayeski: Edge computing, Cloud Analytics, and On-Premise Systems – Architectures for Smart Building Systems. Examples of embedding analytics/smart building applications in devices/transducers, on-premise controllers and servers, or cloud platforms.
   b. Nick Gayeski: "Smart Transducers with Embedded Diagnostics". Speakers from Armstrong, Schneider Electric interested.
   c. Carlos: Potential program was discussed on the role of cloud-based communication on smart meter technology.
   d. Bill Healey: "Sensing Technologies to Enable Smart Homes" for New York. PNNL and EPRI speakers.

3:45 **New research and program ideas discussion**