BACnet and Lighting Applications

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I earned a BSEE degree and an MSCIS degree.

I joined ASHRAE and IEEE as a member.

I vote on the SSPC 135 (BACnet) Committee.
I work hard on the BACnet Testing Laboratories Working Group.
I lead the BACnet Lighting Applications Working Group.

I write the firmware for the Synergy Lighting Controllers.
I write code and scripts for the BACnet Visual Test Shell.
Why a Standard Protocol?

- Interoperability
- Competitive system expansion
- End fear of being locked in
- Integrating building services requires communication standards
- Reduce training cost by using a single operator interface.
- Enable development of new technology
Why a Standard Protocol?

- Share data among different vendor's systems for a more sensible and integrated approach to facilities management
- Access all systems from a common interface to permit common graphics, event and alarm annunciation, and data logging.
Independent Building Automation
Integrated Building Automation

HVAC  Lighting  Access Control  Fire Alarm

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Unique BACnet Features

• Scalable from very small, price sensitive devices and networks, to large multi-building systems
• Wide range in cost/performance choices for LAN technologies
• Alarm processing
• Scheduling
Unique BACnet Features

- Prioritized command to control equipment
- Flexible, object oriented representation of information
- Does not impose a particular philosophy for distributing control functionality
BACnet Doesn't Do Everything!

- BACnet was designed to meet the needs of day-to-day operation
- BACnet is not plug-and-play
- There will still be a need for vendor-specific configuration software, programming languages, and system knowledge
- Engineering decisions will still have to be made to select the best physical and data link technology for a given application
BACnet Doesn't Do Everything!

- Troubleshooting network problems will be easier, but fixing them may require greater cooperation between vendors.
- There were some areas where SPC 135 could not reach agreement (e.g. File formats for trend data).
- Conformance testing and product certification procedures not included.
BACnet Implementation Roadblocks

- Writing or purchasing BACnet software
- Complexity of implementation
- Existing product
- Existing protocol
- No economic reason
- No need to interoperate
- BACnet not suitable for the task
Issues Addressed

- ASHRAE formed Standing Standards Project Committee 135 (SSPC 135) to address questions of interpretation and to develop appropriate addenda to the standard
- Conformance Testing by BACnet Manufacturers Association
- Working groups
BACnet Lighting Applications Working Group

• This group will research, draft, and propose additions to the BACnet standard to support the requirements of lighting control applications.

• The group will work in cooperation with the NEMA Lighting Control Council, and the Illumination Engineering Society Controls Committee.
BACnet Lighting Applications Working Group

• 35 members representing 30 organizations
  – 19 lighting organizations represented
  – 10 members are active in SSPC 135 (BACnet)
  – 4 members from government agencies
  – 2 members actively working on proposals

• Meet during SSPC or IES-NA meetings
Lighting Application Requirements

• Interoperable Methods For:
  – Blink Warn
  – Fade or Step to Level
  – Group or Zone Actions
  – Automatic Timeouts
  – Scenes and Preset Levels
  – Dawn / Dusk Schedules

• Network Speed

• Standard Practices
Where is LA-WG headed?

- Propose changes and additions to SSPC
- Produce standard practice information
- Monitor other BACnet working groups
  - BACnet conformance testing
  - Pulse Counter/Converter
  - Access Control
  - Load shedding
  - Security
Personal Vision

- Consensus among working group members
- Approval by SSPC of changes or additions
- Implement the changes into product
- Interoperate with other products
- Implement BACnet into small devices
- Create an open source BACnet stack