

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.

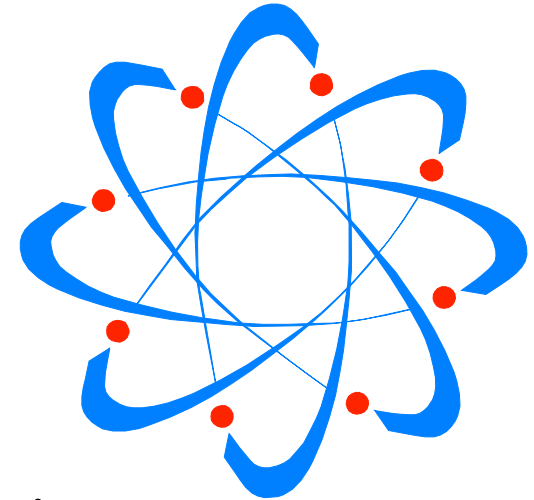
I lead the BACnet Lighting Applications Working Group.

I write the firmware for the Synergy Lighting Controllers.

I write code and scripts for the BACnet Visual Test Shell.

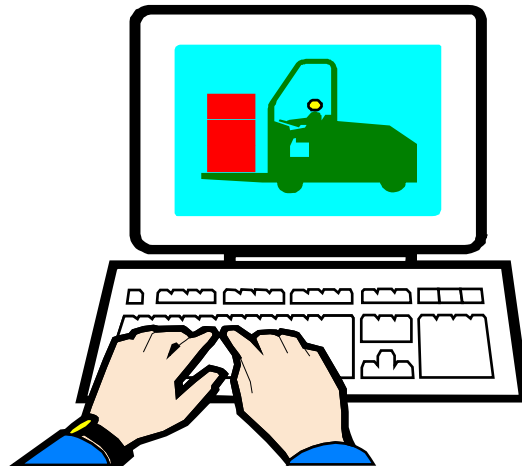
Why a Standard Protocol?

- 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

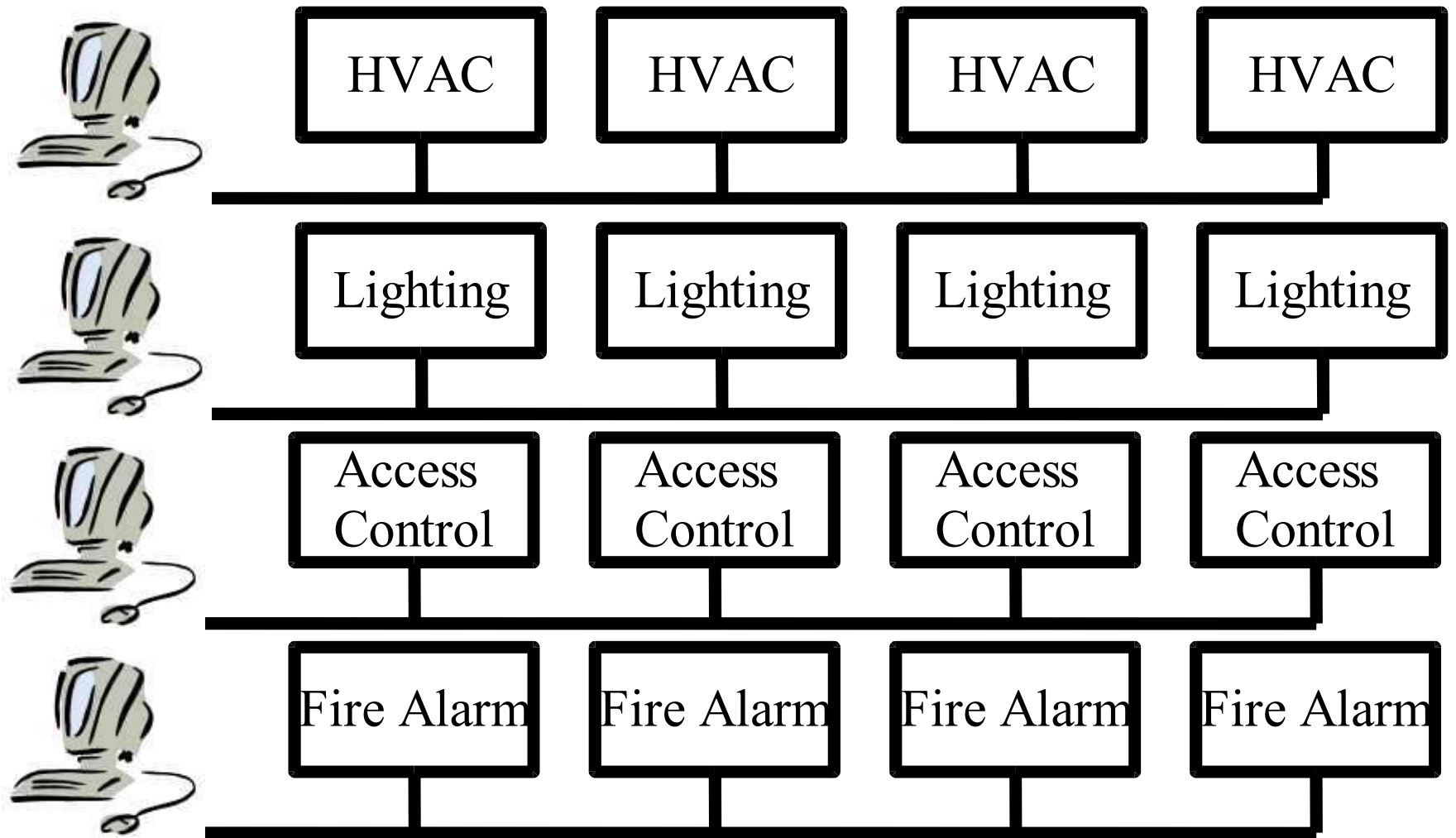


Why a Standard Protocol?

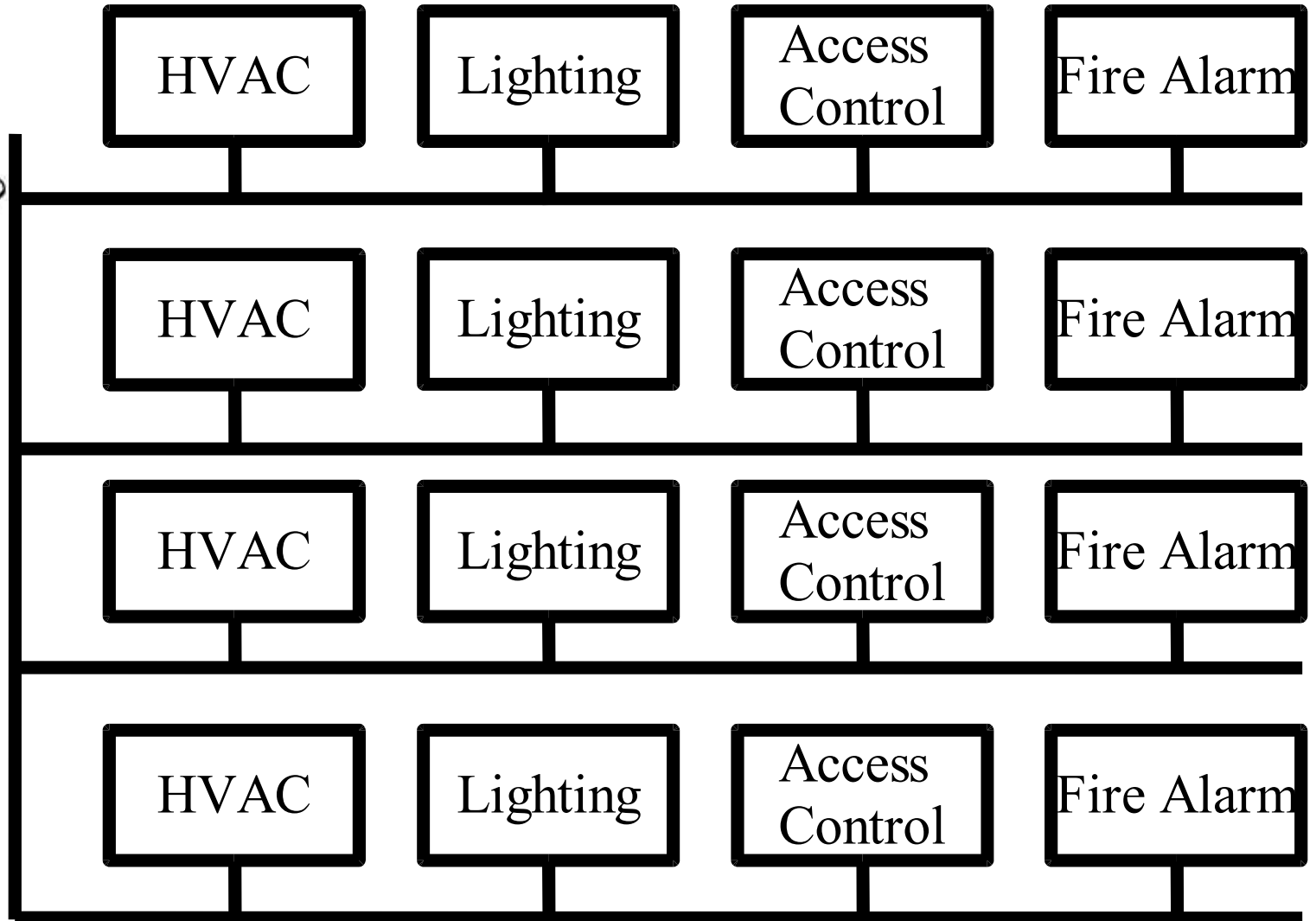
- Share data among different vendor's systems for a more sensible and integrated approach to facilities management
- Access all systems from a common interface to permit common graphics, event and alarm annunciation, and data logging.



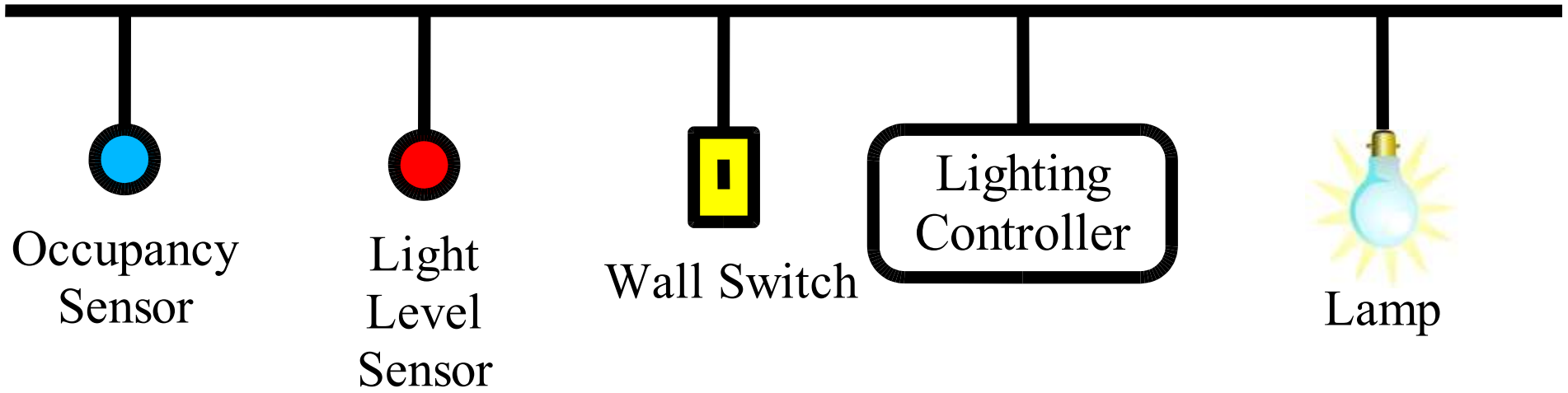
Independent Building Automation



Integrated Building Automation

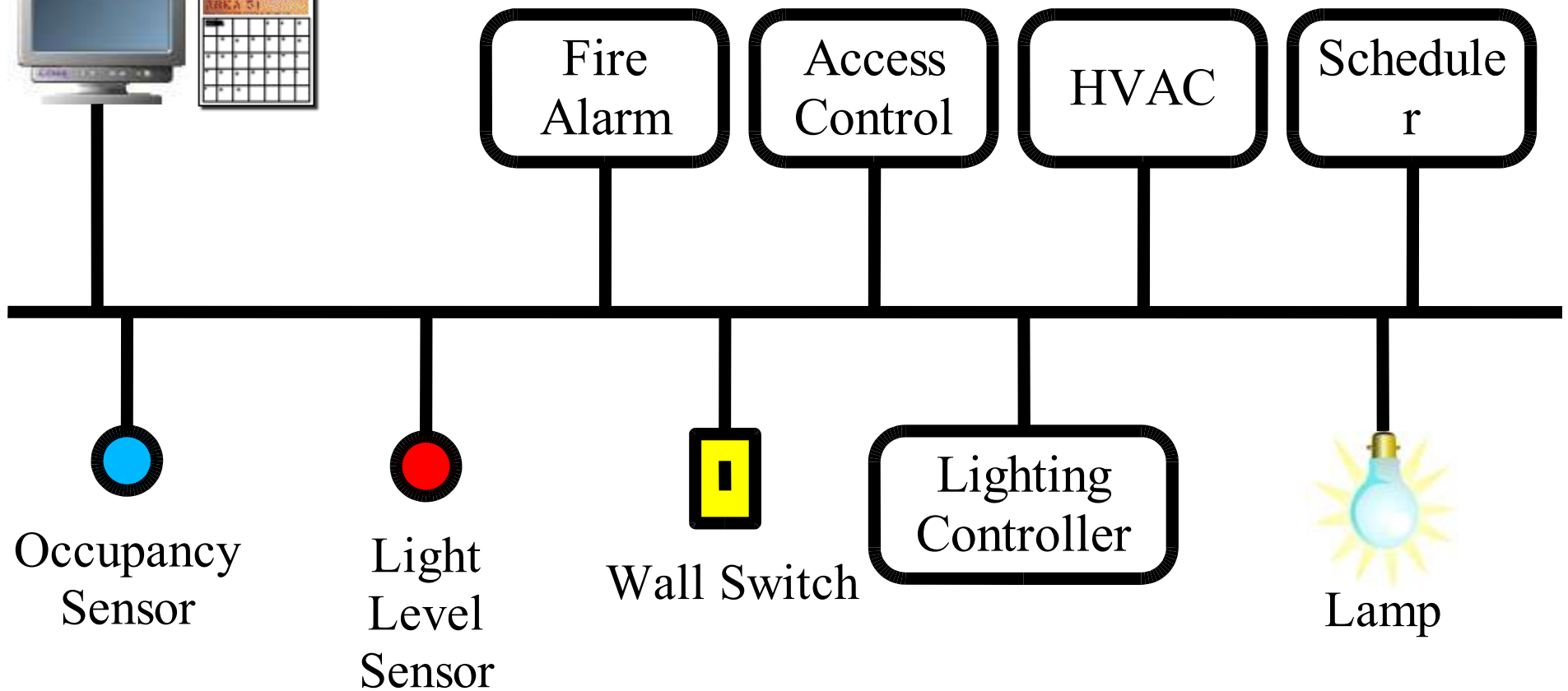


Local Control



Integrated Control

Monitor, Control,
and Schedule



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

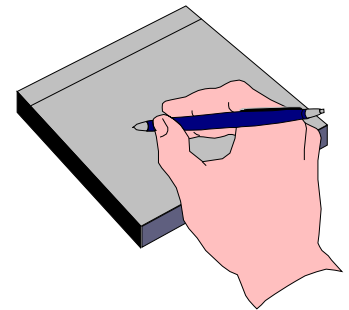


BACnet Doesn't Do Everything!

- 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

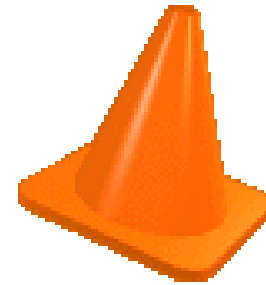
BACnet Doesn't Do Everything!

- 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



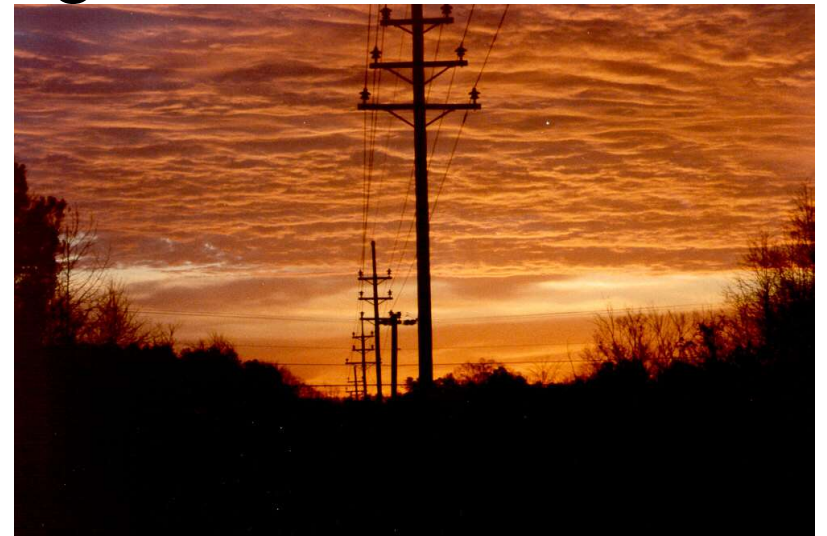
Lighting Application Requirements

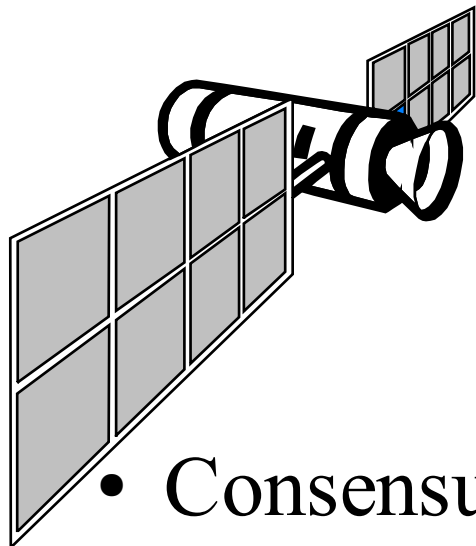
- Interoperable Methods For:
 - Blink Warn
 - Fade or Step to Level
 - Group or Zone Actions
 - Automatic Timeouts
 - Scenes and Preset Levels
 - Dawn / Dusk Schedules
- Network Speed
- Standard Practices



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