Commentary

Past & Future of BACnet®

By Bill Swan, Member ASHRAE, SSPC 135 Chairman

It seems an appropriate time to contemplate the road BACnet® is on, from its genesis as one man acting on an idea to where it seems to be going. Since I was not involved in the original development of the BACnet standard, I have to rely on BACnet's "folklore," handed down by the old-timers to newcomers.

To "BACneteers" this is how the story begins: how Cornell University's H. Michael Newman, Fellow ASHRAE, became frustrated with the plethora of incompatible protocols offered for building systems, and how he formed and led a committee that would write a standard communications protocol for energy management and control systems (EMCS).

In Nashville, Tenn., on June 27, 1987, his committee met for the first time to work out the needs, requirements and goals for developing an EMCS protocol. He said some thought it could all be done in a year but that others predicted failure, derailed by manufacturers with vested interests in their proprietary protocols.

Some directions were established in that meeting. In reading the minutes, it is almost eerie to see the form of today's protocol so quickly taking shape.

Many questions went unanswered in that meeting, including: "Non-EMCS capabilities—should the protocol be designed to facilitate communication with other types of systems such as fire and security?" Today, we know the choices they made. But, these questions hinted at the scope of the task ahead.

It took three public reviews, responses to hundreds of public review comments, and eight-and-a-half years before this draft standard was accepted as an ASHRAE standard in June 1995. It became an ANSI standard later that year. Devices using the protocol were displayed at the 1996 AHR Expo. ANSI/ASHRAE Standard 135-1995, better known as BACnet, had finally arrived!

The original BACnet committee (Standards Project Committee 135P) was disbanded because it had finished its work; it had produced a standard. In June 1996, a new BACnet committee (Standing Standards Project Committee 135), with a number of new participants, met for the first time to begin the never-ending work of maintaining and extending the BACnet protocol.

SSPC 135 went right to work. In that meeting the committee formed several working groups and began noisily debating methods to extend BACnet in various ways.

But there also was a problem. How do you verify that a device truly speaks BACnet? The committee assigned a working group

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the job of writing a standard to explicitly define how to test BACnet devices. Last year, they delivered ASHRAE Standard 135.1-2003, carrying the rather dry title of "Method of Test for Conformance to BACnet®."

Meanwhile, in early 1995 an ISO committee met to create an international standard communications protocol for building automation. Two years later, they accepted BACnet as the draft for that protocol. Three years after that, they learned that BACnet had been adopted as a Korean national standard. In October 2003, BACnet became ISO Standard 16464-5 with unanimous approval of the countries voting.

In June of this year, the BACnet committee returned to the place where it all began—in Nashville. This was a notable meeting, with many reflections on the 17 years that had passed since the work to develop BACnet first began.

This meeting was notable in another way. After this meeting, the committee would not be led by those who had been involved with BACnet from the beginning, but the founders have established the vision and direction for the continuing evolution of BACnet.

That naturally leads to the question, what's next? Prognostication can be risky, but some predictions are fairly safe to make regarding BACnet.

Looking at the activities of today's working groups, it's safe to say that we will see BACnet extended to implement much stronger and recently developed communications security. We will see more active support for lighting, security, and access control. We will see BACnet systems interact with energy utilities. BACnet increasingly will adopt and incorporate existing and new Internet technologies.

Internationally, we likely will see the formation of new regional BACnet Interest Groups (BIG), adding to BIG-EU (Europe), BIG-ME (Middle East), BIG-AA (AustralAsia) and BIG-NA (North America). The BACnet committee will probably establish more liaisons with international organizations, such as those that exist with Japan, Europe, and Russia. Because BACnet has been adopted as an ISO standard, we will see many countries adopt BACnet as their national standard.

Looking back, I see a long and sometimes difficult road from BACnet's genesis to where it is today. But looking up the road, it seems to me that the exciting times are just beginning.

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