

# the **EXTENSION**

A Technical Supplement to Control Network

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## Largest Multi-vendor BACnet System Runs on Contemporary Controls' Ethernet Equipment at the BACnet Conference & Expo 2005

Nearly 222 attendees, 85 of which were vendors, learned there is really no limit to the uses of BACnet as indicated by the various seminars at the BACnet Conference & Expo 2005, held October 23–25 in Nashville, TN. Everyone was working together for the sole purpose of successful open integrated systems using the BACnet protocol. “The conference showed that BACnet works,” exclaimed Jon Williamson, the Marketing Chairman of the BACnet Manufacturers Association (BMA).

In addition to the many speakers at the conference, an interoperability demonstration utilizing Ethernet equipment and cabling provided by Contemporary Controls played a significant role. Contemporary Controls has been designing networking hardware for more than 30 years and now offers a full line of Ethernet switch products supporting BACnet/IP.

“The interoperability demo put BACnet to the test,” said Williamson. “BACnet passed with flying colors. Never before could so many products from so many vendors, performed so much between each other with so little time for setup and configuration. We started with nothing and within a few hours, 14 vendors demonstrated the power of BACnet and its five interoperable areas in action (data sharing, scheduling, alarming, trending, and device management).”



The 75-minute live interoperability demo was conducted by Grant Wichenko, President of Appin Associates. Appin Associates is an engineering firm that does DDC system design, mechanical system design and different types of IAQ (Indoor Air Quality) investigations.

Six 42-inch plasma screens (with two computers at each screen) were lined up in the exhibit hall to display 12 BACnet front-end systems that were Ethernet connected using Contemporary Controls' managed Ethernet EICP8M switches to represent an Internet/Intranet environment. Each vendor controlled a building system (e.g. variable air volume boxes), and demonstrated all BIBBs (BACnet Interoperability Building Blocks).



**Grant Wichenko explains to the participants that each screen represents the vendors' assigned tasks. He said the demo went off without a hitch because BACnet support is getting better.**

There were between 25 to 33 BACnet devices from these vendors: ABB, Automated Logic, Alerton, American Auto-Matrix, Cimetrics, Delta Controls, Invensys, KMC, Lithonia, Reliable Controls, Siemens, TAC, Veris and Viconics. Each vendor was given an Ethernet connection to Contemporary Controls' switches. The switches were setup in a star configuration. Each vendor's booth was provided with an Ethernet drop. An additional switch was provided at each of the interoperability tables to allow the vendors to connect to their computers. The Contemporary Controls' Ethernet network included 26 connected nodes.

Thus, a single interoperating BACnet system was created. Williamson said the vendors connected directly to the Ethernet with their BACnet/IP devices or connected via a BACnet router to BACnet MS/TP or BACnet ARCNET® controllers. Each vendor was also given a range of IP address, BACnet network numbers, and BACnet device instance numbers. “As a result, there were no id conflicts on the network,” he explained.

Each vendor was asked to demonstrate BACnet functions including command priorities, setpoint changes, enabling and disabling points, BACnet loops (PID control), device management, object creation and deletion, integration of lighting control, and integration of peripheral devices.

Wichenko said the demo's goal was to show the best of BACnet. “We showed how different systems can communicate to each other. We also showed how devices like variable speed drives and meters are coming with BACnet smarts. Buildings will now be networks of devices instead of having the controls contractor hardwiring the devices together.”

Wichenko said he hopes future interoperability demos will have more vendors doing more BIBBs other than just data sharing. “We want to demonstrate support for ReadPropertyConditional—the most powerful service in BACnet,” he said.

“Finally, we want to have owners or local dealers doing the demo instead of the factory staff because this will reinforce the usability of BACnet.”

The main objective of the BACnet Conference & Expo 2005 was education. “Throughout the world, BACnet is well known,” Williamson explained. “However, the details of BACnet and how it works are not widely understood. The agenda combined the feedback from prior conferences and a general desire to provide better BACnet education for all levels of attendees.”

What does the future hold for users of the BACnet protocol? Eric Craton, President of the BACnet Manufacturers Association (BMA) summed it up this way: “BACnet will evolve as the needs of the industry evolve. In the last ten years since the publication of BACnet, it has already evolved to add support for the Internet Protocol. Work is currently underway to make BACnet more compatible with enterprise systems through the use of XML and web services. Because it is an open standard, every constituent has a say in its future direction.”

To conclude, much time and effort was given to this year’s conference and expo, making it a huge success. All the vendors and attendees owe much thanks to Jon Williamson and Eric Craton for coordinating the conference and Grant Wichenko for conducting the interoperability demonstration. This was Wichenko’s 10th demo in five years.

Credit must be given to Bennet Levine, R&D Manager and Joe Stasiek, Sales Manager, both from Contemporary Controls, who ran the cables, terminated the connections, and commissioned the Ethernet managed switches. Joe Stasiek remarked, “To come in on a Sunday afternoon and install cabling to equipment never seen before and to find out later that it all worked is impressive. The key is the use of open standards such as Ethernet and standardized wiring using RJ-45 connectors and CAT-5 cabling.” Stasiek continued by saying that the Auto-MDIX protocol helped. “There was no need to utilize crossover cables when linking cascaded switches.”

Having gone to several BACnet demonstrations in the past, Bennet Levine noticed that BACnet’s migration to Ethernet connectivity is going quickly. With BACnet/IP, the building automation community can now connect their controllers together with Ethernet. Is device-level Ethernet not far behind?

## New in 2006—BACnet International

The introduction of BACnet International sparked the interest of attendees at the BACnet Conference & Expo 2005. Eric Craton, President of the BACnet Manufacturers Association (BMA), spoke to attendees about the goals of the newly formed organization and what it means to the BACnet community.

The BMA has partnered with the BACnet Interest Group—North America (BIG—NA) to form this organization. Craton feels it was beneficial to join forces. “At the end of the day, end-users must realize some benefit from open systems. Manufacturers tend to focus on technical benefits, while end-users look for net results. Combining end-users with manufacturers in one organization will help keep everyone focused on adding value for the end-user.” Craton continues by saying that the bringing of these groups together will allow the acceleration of the development of tools and test processes that facilitate interoperable products and systems. “Testing and interoperability are important to everyone up and down the value chain. The creation of a larger organization will allow more resources to be brought to bear in this area. The involvement of end-users in the process will also help us focus on testing in the areas that are the most important to them.”

BACnet International will seek to provide support to all entities interested in the promotion of this open protocol in order to reach the ultimate goal, which is increased value for building owners through open systems according to Craton.

Others involved in this organization consider it an excellent forum for end-users and engineers to network and exchange ideas and to keep abreast of current technology and application issues.

BACnet International will accept memberships beginning after the first of 2006. Individuals or organizations interested in joining can **contact BMA at (617) 426-6956 or E-mail [info@bacnetassociation.org](mailto:info@bacnetassociation.org)**.

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