

A photograph of several server racks in a data center, with a blue sky and white clouds in the background.

# THE CLOUD BEYOND THE NETWORK

**As more software and computer services move off-site, a look around suggests that the collaborative power of cloud computing has already begun to reign for those looking to harness real-time building information most efficiently.**

BY KEN SINCLAIR

Just when we start to truly understand the power of networks, we are rapidly being introduced to powerful low-cost Web services that live in the cloud beyond the network. When we originally started our online magazine, AutomatedBuildings.com, we joked that our purpose was to “join the dots” of the building automation industry: the dotcoms, the dotorgs, etc. Eleven years later, all these connected dots to our website have led to the new focus of building cloud connections beyond the network.

The cloud contains software as a service (SaaS, typically pronounced ‘sass’). This article’s mission is to expose how the dotcom and dotorg are using the cloud to provide their products and services. The identification and use of these valuable industry cloud connectors is essential to propel our industry forward at warp speed so it can radically change to survive.

Gordon Holness, in the conclusion of his presidential address to ASHRAE members titled, “Sustaining Our Future by Rebuilding Our Past,” which focuses on energy efficiency in existing buildings, states, “We need to remind ourselves that today we are in a virtual world. We are in the era of iPhones and Yahoo, of Google Earth and Wikipedia, of Facebook, MySpace, and Twitter. If we want to continue to be leaders in this industry, we must deliver the goods today, tomorrow is not good enough.”

Holness’ background in building information modeling (BIM)

and interoperability has provided him great insight into the power of the future to solve the problems of the past. Change is everywhere, and tomorrow is not soon enough to achieve it.

## **BIM AND BIMSTORM®**

Have you ever seen a BIMStorm®? Take the opportunity if you have the chance. This is the quickest way to see our industry in the clouds, and it will set your mind reeling with all the possibilities. This article, which appeared on the AutomatedBuildings.com website and titled, “BIMStorm® Brings Cloud Computing to ConnectivityWeek,” written by Kimon Onuma, FAIA, ONUMA, Inc., and Michael Bordenaro, BIM Education Co-op, provides insight.

*“Real-time visualization of sensor data in Excel-generated BIM on Google Earth is a world premier.*

*“Building information model (BIM) software and processes leverage the power of visual relational databases to improve decision making and business processes to revolutionize the building industry.*

*“BIMStorm® is a Cloud Computing collaborative process that leverages web-based BIM capabilities of the ONUMA Planning System® to enable data sharing among multiple software programs including BIM*

software, GIS systems, Google Earth, Excel, and other sources, even hand drawings. These online “brainstorms” allow surprisingly vast amounts of business processes to be reduced from months to hours while improving accuracy by not recreating data in each step of a project.

*“In a very short amount of time, significant improvements in real-time business process productivity supported by existing technology are demonstrated. Early planning decisions can be made quickly based on expert knowledge brought in from a distance, with decisions captured and used in more detailed designs and passed on to building operators with minimal loss of data.”*

Onuma is an architect and a software architect who has been a leading proponent of open standards to improve productivity and reduce waste in the building and energy industries.

## BUILDING AUTOMATION AND THE CLOUD

So how do we easily get vast amount of data? In an e-mail interview with Rick Huijbregts, vice president of Vertical Industries with Cisco Canada, which appeared on the AutomatedBuildings.com website, I ask him.

**Sinclair:** Rick, in the past we all joked in the industry about a “sky hook” as the whimsical structural bracing point for building construction objects. Cisco’s new building automation “Cloud Connector” provides a real solution to connect our industry’s real-time data to the enterprise. Tell us your vision of how significant this “new age sky hook” is and how it transforms our industry from integrated islands to connected real estate.

**Huijbregts:** Ken, it is happening already, and Cisco is gearing up to take this market by storm. With the acquisition of Richards-Zeta, we are re-living the mid-’80s — history is repeating itself. Back then, Cisco started with the creation of the first multi-protocol router that made interoperability between disparate and proprietary computer systems possible. The network was born and has proven to become the universal platform for business and technology transformation. Truly, it has changed the way we work, live, play, and learn.

After enabling data to flow more freely between remote and disparate computer systems, we converged voice (and have become the world leader in business telephony) and then video. With the new Cisco® Network Building Mediator, we are taking it to the next level to enable the “Internet of Things.” Now, billions of sensors, controllers, actuators etc. can be added to the Network as the platform for the transformation of life experiences. Sound big? It is. Cisco recently announced its Smart + Connected Communities vision of which our Smart Connected Building technologies (including Cisco Network Building Mediator) are a key component. Read more on our Smart + Connected Communities at: [http://newsroom.cisco.com/dlls/2009/prod\\_070109b.html?sid=BAC-JsSynd](http://newsroom.cisco.com/dlls/2009/prod_070109b.html?sid=BAC-JsSynd).

Adding the Cisco Network Building Mediator to a Cisco network provides an instant opportunity for open access and communication to all the building, security and IT systems connected to the network. Having the Building Mediator be part of the network is a very powerful asset in our solution. It now shares the usual features of a Cisco network that is resilient, redundant, and highly secured. The whole principle behind this is to move shared functionality to a common platform as opposed to repeating it amongst siloed and proprietary networks. The Mediator is not a piece of middleware software sitting on a server, but is part of the technology infrastructure or fourth utility in your building. This makes our platform architecture very powerful: open, flexible, and

future-ready. It will help drive down costs and add business opportunities to the building world as never seen before.

Now, the Cloud for the real estate industry has become real. As we see applications and services move ‘off-site’ and offered and provided by hosted service providers (SaaS), you can start to imagine the opportunities for managing real estate, reducing energy and providing value-added applications to the users of buildings. Mind you, we never really built buildings for the sake of building them. We need buildings to live, learn, work, and play. And that should drive how our physical and virtual environments behave (not the other way around).

Converging the performance of our physical and virtual environments will allow us to match or organically and effectively start to address the real needs of users of these environments. The network and the Cloud will allow the building industry to become more services-oriented instead of product- or building-oriented. Your building and its capabilities have become like an iPhone, and there is an open invitation to provide applications and services that can be pushed out to every standing structure in the world. It is happening already: consider ADR (demand response), remote building services and operations, energy monitoring and modeling (e.g., carbon calculations, trading), data mining, and benchmarking.

Coming back to your question: how significant is this “new age sky hook?” We believe it is the beginning of the transformation of one of the last industries standing that has resisted the adaptation of technology to re-invent, innovate and improve itself. The network is, and has proven to be, the common platform to make this transformation happen.

## REAL-TIME DATA

What else can we do with easily attained vast amounts of real-time data?

This article from the AutomatedBuildings.com website titled, “Automated Continuous Commissioning: The Path to Optimized Operations & Energy Efficiency,” written by David Wolins, CEO, Scientific Conservation, Inc. (SCI) explains the concept.

*“This process of collecting and mining data is at the heart of automated continuous commissioning (ACC). ACC uses access to the existing BAS and data from traceable external sources (such NOAA weather data) for this new class of analysis. The data is then used to create performance models of each piece of equipment to track actual (vs. design) operation. New modeling techniques have emerged to create models that persistently predict actual performance within a two percent margin of error. By leveraging these models, building operators and facility managers have a powerful means to diagnose and control component and system faults and anomalies.”*

*“The level of granularity provided by an ACC system can identify anomalies that can be generally categorized into three basic groups: control, maintenance, and system performance degradation.”*

## EXPLOITING THE CLOUD

How can we leverage the cloud to provide powerful graphics to wow our clients?

This article, from the AutomatedBuildings.com website, written by Sarah Erdman of Quality Automation Graphics and titled, “Energy Dashboards Inform and Educate,” shows us how to wow our clients with pictures and powerful graphics.

“The Energy Efficiency Education Dashboard (EEED) is presented in a user-friendly format, similar to a website. The dashboard can be displayed stand-alone or simultaneously on the internet, intranet, or

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a hardware device (touch screen or kiosk). Every EEED is designed to include the information and/or live data that you wish to display, incorporating interactive elements and creative features, branding, and photo-realistic graphics.

“A variety of features can include:

- Home page component
- Resource use shown in real-time
- Historical comparison graphs
- Display building's green features
- Environmental information and tips
- Competition among multiple buildings
- LEED® checklist
- Current weather conditions
- Donor/sponsor/advertisement page
- Interactive quiz
- Company information
- Other custom options”

We are all ambassadors of the cloud, and our future depends on our ability to provide working examples of using the cloud to connect to sustainability, conservation, and real-time energy information. **GIB**

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*Sinclair is editor of **AutomatedBuildings.com**.*



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