



Web service

Madeleine Bath asks are any bems truly interoperable?

Despite a great deal of research I have still not yet identified one building energy management system in Europe or the US that is fully 'web services enabled'. Some have claimed to be but when I telephoned and worked my way through to a person who really did understand the system, questioning exposed the truth. To find out if the bems you are considering is openly interoperable, ask the killer question, "Can your system integrate with other manufacturers' devices and systems without any translation device or program between the two?" Many companies, seeing the potential market, have produced a system operating on proprietary protocols. You can buy a bems with a capacity for remote monitoring. It may come with literature that claims the system is a 'web system' and the sales people may genuinely think this is a correct phrase. Do not be misled! It may offer all sorts of bells and whistles but the parts and functions are supplied from one manufacturer. Without clever (and expensive) bespoke interfacing this bems will not interoperate with other manufacturer's equipment.

A real web service

Web services enable machines to communicate with each other without the need for a human operator transferring data from one computer program to another. Web browsers (eg Netscape Navigator or Explorer) allow a computer to connect to the internet but are not 'web services'. Browser control, which is what current bems offer users, is human to machine communication. HTML browsers instruct the machine how to display data received on

screen for the human to understand.

XML is the underpinning of web services. To integrate different digital devices requires an agnostic system that all machines can understand and use to pass data. This requirement led to the creation of eXtensible Markup Language (XML). XML is for computer to computer communication. XML is easy for humans to read and because it is extensible, the language can be adapted for use by any industry including building automation. For example an alarm notification could be represented by `<alarm time="12:45" location="rear loading bay"/>`. This simple message is easy to send over a network or as an SMS message to a mobile phone. Both operator and computer can understand and act on it.

The advantage of using natural language for XML also brings with it a problem: how do we define what each word means? The meaning of words varies according to context but computers require rigorously defined terms. Different XML 'schemas' have been developed to address this problem. A schema is simply a structured set of words that can be used for an XML conversation between two digital devices. If they both use the same schema there is no ambiguity about what is meant. Schemas have been developed for many types of interaction within and between different industry segments, particularly in supply chain management.

Discussions for all elements of building automation are currently under way on the CABA sponsored oBIX web site, (www.oBIX.org for Open Building Information eXchange).

Buildings are full of systems: lighting, heating, ventilation, security and so on. If a web service wraps each system, messages can pass between them seamlessly and different manufacturers' systems will interoperate. For example, the intrusion motion detectors on the

security systems signal the lighting system to ensure illumination only when motion is detected. Because the IT industry has wholeheartedly committed to web services, control software and technical support will be easy to obtain. The standard protocols allow easy integration of any function so specific requirements of any facility can be catered for without great cost. All elements of the system will obey a standard, so buyers can choose best of breed products on a commercially level playing field: safe in the knowledge that they have not been locked-in to technology from one manufacturer.

To go to the next level of efficient building operation, the purchasing decision should encompass more strategic thought about the future and how digital technology is developing. Only then can purchasers be satisfied that they are getting value for money and their system will have the flexibility and potential to meet future demands. Furthermore, digital technology is the route to fully interoperating building systems incorporating a variety of bespoke features designed to meet a client's needs. XML messaging as the means of communication through the network, will deliver a central control room that can co-ordinate hvac, lighting, access, fire, intruder and cctv using products from a variety of manufacturers.

Overcoming industry inertia

People and organisations only change for two reasons: it is in their interest or they are forced to. Suppliers of bems are not going to abandon their proprietary protocols voluntarily. To do so releases their grip on the market which constrains buyers to using their products. That leaves market legislation and market forces to do the job. Changes in the law are coming but very slowly. Politicians and bureaucrats know from their own research that current levels of energy consumption are unsustainable however moving whole economies and public opinion are delicate political matters. Initiatives such as oBIX will continue to advance but real support and usage will not happen until the end-user community embraces the new technology and starts to include it in specifications. This is the key area. Engineers and specifiers will have to get out of their mental rut. A 'same spec as last time with a few tweaks' approach will no longer do. If system installers and integrators really care about the long-term economic well-being of their clients, they will abandon limiting, proprietary protocols. At first glance, web services look very different and a little bit scary. In reality, they are much easier to integrate and use than current offerings. Will the industry embrace and adopt the inevitable or will it cling desperately to its old-fashioned, inefficient ways? Only time will tell. ■

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