Cracks in the cloud

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Abstract: On the surface, cloud based building management systems (BMS) seem to offer an ideal solution for facilities management. Their purpose is to allow users to collect, process and analyse data on a range of services including HVAC systems, energy usage and lighting controls. However, a lot of cloud based BMSs do not provide seamless access to all the installed building and lighting controls device level data. On closer inspection, it seems that cloud based BMSs raise more questions than they answer and are definitely not the utopian, analytical guiding light that many profess they are.

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On the surface, cloud based building management systems (BMS) seem to offer an ideal solution for facilities management. Their purpose is to allow users to collect, process and analyse data on a range of services including HVAC systems, energy usage and lighting controls. However, inspecting the finer details can uncover some fundamental issues surrounding ownership, autonomy, security and interoperability, creating an uncertainty that darkens the hue of these cloud based BMSs.

First of all, whose cloud is it? Or more importantly who owns the data held in the cloud? This is a topic that is fraught with ambiguity. Generally, ownership rights fall into three distinct categories of the law – copyright, confidentiality and contract, all of which vary depending on the country. If data is created in one country and then stored in another, the jurisdiction to which it belongs becomes blurred.

Additionally, if for example, data is created and then stored on a cloud, one could assume, due to copyright law, that the original creator of the data is the owner. However, we again enter the realm of uncertainty when we contemplate who owns the data if it is created within the cloud. Here, deciding ownership can become a legal minefield.

An assumption surrounding cloud based BMSs is that they help conserve and streamline energy output and are an environmentally friendly option but cloud platforms are not some fluffy, floating, intangibly infinite data resource. They require maintenance, staffing and a host of technological and physical resources.

By outsourcing to a cloud facility, businesses may not be reducing energy consumption but merely moving it offsite. Using a cloud based BMS can help increase the energy efficiency functions of a facility such as the lighting controls and HVAC system, but how do we quantify this against the exponential amount of power, energy and pollution created in the construction and upkeep of cloud data centres?

A further issue companies should consider when choosing BMS systems is access and security. Large commercial enterprises by their nature hold sensitive and valuable data about their business operations. They might not want this information to fall into the hands of the media, public, or competitors. Cloud data centres hold such a vast amount of information that they are attractive targets for hackers.

Additionally, companies sometimes use cloud services to store data they do not immediately have use for but will have in the future. A study from Queen Mary University of London found that the fine print in some cloud contracts means that providers can waive responsibility for data storage or delete data if it is not used within a given time period.

Moreover, a lot of cloud based BMS systems do not provide seamless access to all the installed building and lighting controls device level data. This issue could arise if, for example, a facility manager changes the lighting controls solution provider. Depending on the new system installed, it may not be compliant with the cloud based BMS. This lack of interoperability means that analytics gathered via the cloud are of limited use in informing how the end user can improve their building's services.

On closer inspection, it seems that cloud based BMSs raise more questions than they answer and are definitely not the utopian, analytical guiding light that many profess they are. Instead, the latest generation of control network solution providers can ensure a level of flexibility and data access that cloud based BMSs cannot match. In addition, they are designed to reduce energy consumption whilst passing on all the benefits provided by the control system to the building owner.

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