CASE STUDY

Critical Infrastructure

The Client

The clients are a large multinational facilities management company who are working with large clients in Oman to reduce operational costs.

The Problem

The client manages many critical infrastructure buildings which form a vital part of their pipeline. These buildings can be very remote, and contain equipment and resources which are essential for continued success. There is in place a process to send an engineer to each site each week to ensure that all systems are functioning as expected and no issues have occurred. This is not only a time consuming process, but is resource intensive.

The primary requirement for the client was to have a real time view of the systems and environment within these buildings without having to visit them in person. Equipment failure can lead to shut downs or other problems which are very expensive for the end client. If buildings containing computers that control pumping rooms overheat due to an a/c unit failure, there is a risk that the pipeline stops and would not be noticed until the next planned maintenance visit.

A second requirement was to manage maintenance of assets in a more efficient way.

AT A GLANCE

Location	Muscat, Oman
Project Description	Monitoring critical infrastructure sites
atBOS Control Apps	Cooling, Monitoring
atBOS Cloud Apps	Analysis, Alerts, Responses
Mechanical systems	Split air conditioning

The Atamate Solution

The Atamate Building Operating System (atBOS)was installed in four different building types to trial the system. The main requirement is to monitor the key parameters in these buildings and issue alerts if any of the parameters went outside an acceptable window of operation. e.g. room temperature goes too high due to air conditioning unit failure.

The system was installed in:

- **A building controlling the power main intake to a large site**
- **A storeroom containing records on magnetic tapes dating back to 1930s**
- **A large archive store/warehouse**
- **Client Offices**

ASSET PROTECTION

Atamate installed sensor units in all buildings to monitor the internal environment of the building. The information gathered and reported on includes;

- **Temperature**
- **Air pressure**
- **Humidity**
- **Ambient light.**

Depending on the site one of these may be of more importance than another, and Atamate Analysis, the cloud data platform allows managers to see each of these in isolation or in relation to each other. This gives the client a very clear picture of the environment within each of the buildings allowing them to see when anomalies occur. Set points for the building can be managed centrally via a web based user interface and this allows site managers to ensure appropriate temperatures are maintained across a site or building.

Image 1.The archive store contains valuable documents that need to be kept at a constant temperature and humidity

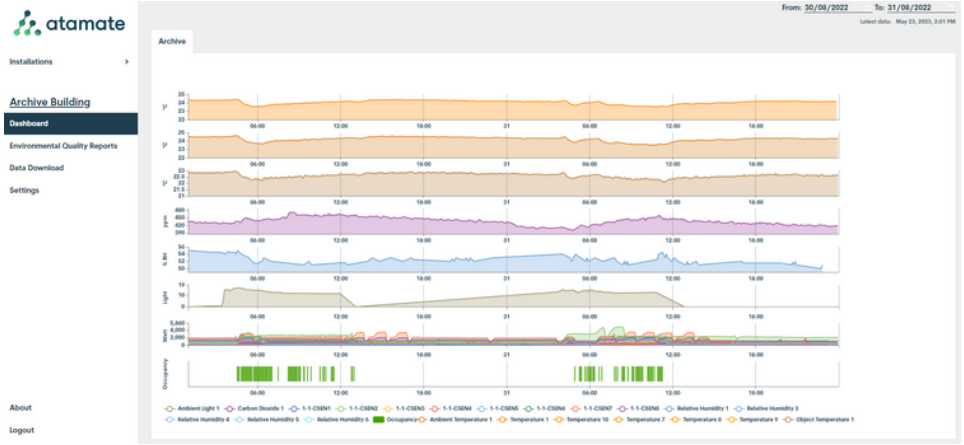

Figure 1. Data from all the sensors can be viewed on the dashboard. It is possible to spot anomolies from this information as well ensuring that the systems are working as expected

Atamate also monitors the power used by air conditioning units. This is particularly important in sites such as the main intake building where the air conditioning is keeping the temperature constant so as to protect the systems providing power to the whole site. This monitoring provides real time asset protection ensuring site visits are only carried out when required.

In addition to the client requirement that we not use their LAN for security reasons, these sites can be very remote and not have access to a wired internet connection which is needed by the local Atamate Hub in the building to upload data to the Atamate cloud. In this instance, the Atamate Hub is using client supplied 4G routers to allow the data transfer.

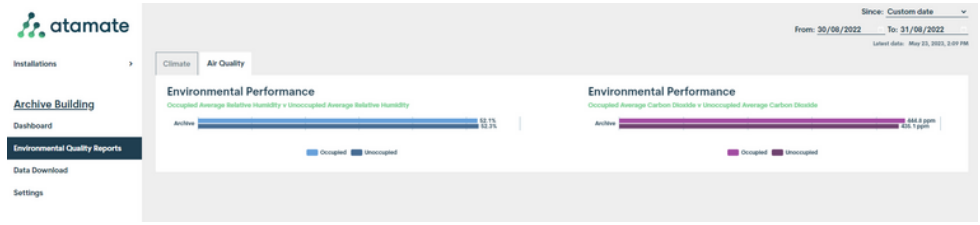

Figure 2. atBOS Metering gives granular usage data on individual circuits for an individual flat or across the whole building

REPORTING & ALERTS

Atamate Alerts are set up in responses to the data collected from these sites. If a device is detected to fail on site an alert will be sent to site operatives to facilitate better response times for repair. Alerts are sent via text or email.

The client has three levels of Alerts set up that are dependent on the seriousness of the issue. All these Alerts can be set up by the clients team and settings are all available for editing via the user interface.

Figure 3. atBOS provides Alerts to staff or building managers which provide instant feedback from the system.

ASSET MANAGEMENT

Once Atamate monitoring is installed it can not only be used to manage performance real time, but can be used to monitor equipment life times.

REDUCE ENERGY

Atamate controls the air conditioning in one of the client's offices. This includes the internal environmental monitoring as well as the control of air conditioning units based on occupancy. If zones are not occupied, the air conditioning is switched off. This prevents out of hours energy consumption which is a significant source of energy wastage.

The Result

Atamate now provide proactive information for the client that reduces operational expenditure. Atamate has set up Alerts for the client so they can investigate abnormal conditions. This reduces the amount of time that would have been spent on planned maintenance visits where plant is working as it should do.

FUTURE ENHANCEMENTS

Ongoing the client has a requirement to include additional sensors such as vibration for pump stations to provide further asset protection and reduce maintenance visits. We plan to mount temperature and vibration sensors on pumps and electric motors so that we can monitor their performance, show trends and raise alerts as required.

It is planned that the Atamate data will be uploaded into a CAFM system to streamline management of maintenance further.

Image 2. Split air conditioning units are monitored and can be controlled on occupancy, temperature or other environmental data to reduce energy use and improve comfort levels

For more information or to get in touch about this project, please call
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