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In-building Internet of Things Opportunities for Businesses and Telcos' Great Promise for Facilities Management

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Summary

Issue

The majority of today's industrial IoT deployments take place within the four walls of a factory, warehouse, or office building. While a lot of attention is paid to wide-area applications that collect and analyze data from far-flung sensors, mobile devices, cars/fleets, and remote machines, the opportunities for businesses and their service providers when leveraging IoT inside a building are equally significant, if different, from these wide area examples.

According to a GlobalData survey of 1,000 U.S. and global enterprises conducted in the spring of 2016, approximately 35% of respondents are deploying IoT within their building. They use a mixture of short-range access technologies to connect in-building systems and machines, ranging from wireline to WiFi, Bluetooth, Zigbee and RFID, to distributed antenna systems (DAS) and small cells to boost performance of wireless connections. Applications are not all about factory automation in fact, smart office buildings, connected security and surveillance systems, and warehouse management are among the most widely deployed use cases. Other growing applications, already in progress, include smart multi-tenant office buildings, where facilities managers are working with integrators to connect systems such as HVAC/energy management, security, data communications and other IT equipment, elevators, and people-movers from different companies. This kind of shared facilities monitoring and management model including data analytics, may drive significant efficiency enhancement and incremental revenues for building owners, their tenants, and their service providers.

Key Takeways

According to a recent GlobalData survey, 35% of enterprises are deploying IoT within their buildings, using a wide range of in-building connectivity options.

While In-building IoT deployments may be dominated by ìdo-it-yourselfî access techno logies such as existing WiFi, Bluetooth, and wireline connections, there is a significant opportunity for CSPs and other service providers to add value.

While 'smart' corporate office buildings, and factory and warehouse management dominate in-building IoT deployments today, future opportunities will include multitenant IoT servi-ces offered by facilities managers and building owners.

Perspective

Current Perspective

Cellular and LPWAN networks get a lot of attention in the industrial IoT market, as they facilitate remote monitoring and control of far-flung devices as well as connectivity for truly mobile assets, such as cargo ships and connected cars and fleets. However, the majority of IoT deployments are actually more local, whether connecting fixed machines and sensors inside a factory, or enabling useful data to be collected from machines, sensors and other devices in the warehouse, hospital, retail establishment, or office building. These in-building deployments often leverage a different set of access technologies than remote or mobile IoT deployments, but represent a diverse set of use cases; for example they may include smart buildings with connected

thermostats, security systems, and elevators; factory floor machines of all kinds requiring automation and environmental monitoring; location monitoring of warehouse assets and building employees; connected medical devices in hospitals, and many others. In-building IoT holds many potential benefits for enterprises from process automation and productivity enhancements, to proactive machine troubleshooting, to new revenues from new or improved products, to new services for maintenance and support. The following represent relevant issues to consider when gauging the benefits of in-building IoT to businesses, as well as the opportunity for their vendors and service providers.

In-Building Assets Require Outside Connectivity.

Few in-building IoT deployments are entirely isolated from a WAN connection. Although machines inside a building may leverage WiFi and wireline connections, there is still likely to be a wide area connection from the building to a processing center. For example, remote monitoring of machines and of environmental parameters affecting their performance is often done from a remote location leveraging cellular or LPWAN technology; data from machines on the factory floor may be collected and aggregated locally but is often then sent to a remote cloud or a company data center running

other applications that provide visibility into the data or further processing and analysis. However, edge computing models are starting to offer alternative methods to cost-effectively collect, process and analyze data locally prior or in lieu of sending it to the cloud. Clearly there is an opportunity for edge computing vendors and CSPs in in-building IoT. In addition IT service providers may offer a one-stop shop for in-building and WAN connectivity, adding value to IoT hardware and software elements to offer a complete solution.

Wide-ranging Access Options

The GlobalData survey showed use of diverse access technologies for IoT deployments. The most relevant ones for in-building applications included wireline (used by 35%); short range-wireless (including RFID, Bluetooth, WiFi, z-wave and Zigbee) which were used by 37% of respondents); and short-range wireless unlicensed access including DAS and small cells (used by 31%). Few

respondents used only one access option. For example, among short-range wireless users, the break-out of DAS vs. small cells was 61% to 37% suggesting use of both technologies. Many telcos already offer Ethernet and broadband access to large manufacturers and office building owners but the opportunity to offer multi-access solutions for IoT is high.

Common In-Building Use Cases.

Connections to security systems was the number one use case in the GlobalData survey, cited by over 20% of respondents as their primary IoT application. But physical security is just one key element in the smart building typically HVAC/energy management, and occupant and asset location are also common applications. Building automation systems of the past, which integrate monitoring and management of multiple systems such as these, has been prohibitively expensive but IoT app enablement platforms and mobile access by building managers are bringing costs down. While typically smart buildings are owned by a single company, the opportunity to offer multitenant IoT services in office buildings holds promise and can generate revenues for facilities managers/owners as well as their hardware and software vendors, CSPs, and systems integrators.

Factory Automation.

Manufacturers are investing in IoT both for remote monitoring of their goods in the field and for monitoring, managing and providing process automation for their machines on the factory floor. Companies like GE, Bosch, and PTC are specializing in providing IoT solutions for this key market segment. The ability to keep track of environmental parameters such as temperature and moisture, track and improve manufacturing processes, and do proactive troubleshooting of production machines and products is a huge advantage for manufacturers.

While in-building IoT has significant upside potential, the IoT industry is still at the beginning of a long growth curve when it comes to monetizing solutions. New areas such as centralized/aggregated data collection and analysis for smart buildings will provide cost-effective building management as well as incremental revenues for a large supplier ecosystem.

Recommended Actions

Vendor Actions

Small businesses that have rejected expensive investments in building automation systems may find that IoT solutions, whether for a single company or group of companies within a single office building, may bring down the costs significantly. Since reducing energy costs are top priorities for Australian facilities managers, IoT is an important consideration.

Manufacturing companies should consider IoT platforms from experts such as PTC, Bosch and GE Digital as they can make application design and deployments relatively straightforward and cost-effective to deploy with meaningful and relatively rapid ROIs.

Facilities managers/owners in multitenant office buildings or complexes may find that centralized IoT solutions for tenants, connecting security, energy management, and other systems, will provide a highly significant new revenue opportunity.

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