

Common Infrastructure & Open Technologies The New Imperative for Smart Building Networks

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The real estate sector has been challenged to evolve to an ever-increasing networked world. Demographics are shifting toward tenants expecting lightning fast broadband and Wi-Fi everywhere to support streaming video and innovative applications. Today, businesses are becoming more data-driven and are looking for lease space that supports high-tech demands for their always connected workforce. For their part, smart building operations and management rely more and more on connected sensors and automation to drive significant cost savings and efficiencies.

Despite the pervasive demand, no clear blueprints exist for building owners to implement a cost-effective and future-proof smart building and network infrastructure. Currently, a building owner's only option is to invest in multiple overlapping networks that are expensive and barely meet current bandwidth demand. And, unfortunately, the carrier and cable company offerings are limited due to their outdated network architectures. At the same time, these carriers are benefiting from direct control over the cash flow and opportunities to sell value-added services directly to tenants.

Is there an intersection where costs and benefits meet current technology and tenant needs? The answer lies in proven open source technologies and processes deployed by leading data-center, cloud, and social media companies such as Facebook, Google, and Amazon. Data center architectures seamlessly integrate network and cloud (applications, data storage, analytics, security) into incredibly concentrated footprints. These new architectures can now be deployed in-building at small scale via edge computing.

Edge computing utilizes low cost commodity servers, switches, data storage and radio antenna arrays that are deployed in-building, enabling new capabilities and scaling via continuously upgradable, open source software releases. This model is akin to going to an App Store to select and implement new features,

functionality, and tenant services instantly, instead of the lengthy design, procure, and deploy process of legacy networks. The edge compute footprint can be as small as a refrigerator and deployed in the traditional telco closet environments.

In the edge computing architecture, network, cloud, content, and data analytics all converge into a single network platform

in an environment that evolves with the pace of technology. This approach guards against technological obsolescence, with a common infrastructure that is configured for high availability, resiliency, and scales on demand. Thus, the need for redundant physical networks that are used today have quickly



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become outdated and are now eliminated. Leveraging edge computing is imperative to meet the higher demand for both sustainably enabled smart/intelligent buildings and the ongoing demand from tenants for faster and more reliable network services.

Since edge computing architectures are so flexible, the solution can be applied to many industries to support a very wide range of applications. It enables new business models and revenues for owners that can host an edge computing solution. And, it gives the building owner or manager the opportunity to control their own environment and offer services to their tenants. For example, property owners and managers can deliver specific and targeted advertising, including coupons, video and interactive, directly to shoppers and customers on their premises. Also, next generation technologies, such as 8K and 360 video along with virtual and augmented reality require edge computing to be effectively delivered.

Large commercial buildings can exploit edge computing for a wide range of smart building applications and security, from HD video monitoring to power, HVAC control and locally secure IoT device gateways. For example, edge computing could be used to provide video stream analysis for license plate tracking security services, keeping the data private within the building.

Another untapped monetization and cost saving opportunity for developers lies in exploiting data analytics. Edge computing provides the ability to perform complex analytics where the data is being generated and consumed, as mining massive data in offsite cloud locations is not always possible or cost effective. Understanding local consumer behavior and preferences enables more targeted and effective advertising. And, monitoring large amounts of real-time sensor data allows owners and property managers to optimize building efficiency.

To date, the approach of using local networks as a specific revenue source has not been addressed, simply because networks were installed and operated exclusively by traditional telecommunications providers. The key value proposition for edge computing is that an open architecture services platform can now be deployed, owned, and operated by property owners and managers to provide and control the quality of new services and generate new revenue sources not previously available.

REITs, developers and property managers that choose to deploy this advancement with the right business partner in

network technology can benefit monetarily, satisfy tech-hungry tenants, and address smart building efficiencies that will continue to grow well into the future. The capability is now here to enable a single network that is controlled by you and is not subject to the restrictions or legacy thinking of the current telecom carriers or cable companies. As tenant expectations for new types of building features evolve into tenant demands, real estate developers that are open to new thinkin—and to open architecture—will be the ones to benefit in the long term.

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Mike Bonewitz is CTO of CrossLayer, Inc. and FTE Networks. He has over 20 years of senior management experience in communications network engineering and information technology industries developing cutting-edge capabilities via advanced IT automation and data analytics driving operational and financial performance. He has held previous technology and engineering leadership positions focused on NFV/SDN, network optimization and integration with Nexius, Ericsson, Zayo, and Level 3.




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