



## Edge Computing: Meeting Healthcare's Need for Critical Data Access

**E**dge computing provides near real-time access to clinical data that is the foundation for patient care improvements — but does faster access to data mean increased risk?

In patient care, every second counts, and immediate access to clinical data or AI driven workflows can mean more correct healthcare diagnoses or procedures. The need to reduce information latency is what's driving hospitals and health systems to adopt edge computing.

"Edge computing allows hospitals and health systems to create and provide innovative solutions that are cloud enabled and can process large amounts of locally created datasets because they're closer to where they are captured. This allows data to be consumed very quickly without having to send it all the way back to a traditional cloud or an enterprise data center," said Sibito Morley, Chief Data Officer for Lumen Technologies.

Edge computing's key benefit is the ability to compute, process, and analyze data with the same level of quality as data analyzed in the cloud, without the latency. Edge computing provides the speed of delivery and speed of insight that healthcare providers ultimately want, allowing them to serve their patients during hospital or clinic visits, rather than waiting for analytics to come back in days or weeks, according to Morley.

### Driving innovation while managing security

The expansive adoption of the Internet of Things (IoT), big data, and the proliferation of cloud services is generating large volumes of data. An edge application makes effective use of IoT devices' processing power to aggregate, score, and filter the IoT data. At the same time, it brings the cloud-like flexibility and muscle to execute complex analysis of the data to contribute to the clinical decision-making process.



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**Sibito Morley** | Chief Data Officer | Lumen Technologies

"If you think about IoT applications and collecting information from medical equipment or devices, the ability to perform real-time analytics becomes more and more valuable. However, the infrastructure and time required to send that data for processing and analysis in a regional or enterprise data center further away can diminish that value," said Morley. "A lot of organizations have started building out data center infrastructure inside their clinics because their clinical processes can't tolerate the latency."

In addition to speed, placing data processing and analysis activities closer to the location of data capture delivers these advantages:

- Decreased network traffic
- Reduced bandwidth costs
- Increased patient satisfaction
- Enhanced provider possibilities
- Stronger operational efficiencies

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But as with all new technologies, healthcare cybersecurity and IT leaders have risk associated with protecting patient health information (PHI) on their minds. Morley explains how edge computing can address those issues.

“Edge computing has the ability to offer higher security measures than many of the clinical solutions that are available right now,” he said. “The reality is this: Companies that provide edge-computing solutions understand the need to be very focused on providing a secure solution that complies not only with regulatory frameworks, but also with the contracts that they are supporting. Typically, the security offered by these providers is very robust because it’s a key aspect of a multi-tenant computing environment. This security will in fact be higher than a clinical setting, which too often depends upon a facility or local IT administrator to implement protocols, verify the clinical staff are following them, and then provide the physical security needed for that local infrastructure.”

## Choosing a secure platform

Morley recommends choosing an edge-computing platform that is vetted and has the established protocols and capabilities necessary to secure patient data. By adopting an edge-compute scenario, he points out, you’ll have the advantages of managed services that focus on physical security, the processes to audit and validate the premises, and protocols on how ports are enabled or disabled.

You’ll also be able to provide better guidance and structure around updates and firmware capabilities that are often aligned with a traditional cloud compute or a traditional managed hosted services vendor, according to Morley.

“Edge computing is similar to cloud computing related to security,” he noted. “I think the security risks are similar. I think the security solutions are also very similar. And ultimately, from an industry perspective we see hosting companies getting better at managing security at scale.”

Morley emphasized that security challenges that most organizations are trying to solve aren’t necessarily increasing with an edge-compute strategy. Indeed, “with an edge-computing strategy, you get the benefits of that scale without necessarily paying the cost of those large transports and or maintaining those facilities yourself,” he said.

Looking ahead at the lightning speed 5G networks promise, Morley said 5G will meet different needs than those of edge computing, but they will complement each other. “The ability to provide consistent and reliable wireless services to clinical organizations is incredibly valuable, and it can drive the critical redundancy that reduces downtime when physical infrastructure issues arise — especially for mobile applications. However, as solutions such as 3D mammography create larger file sizes and richer data sets, this will demand low latency network connectivity with highly reliable capacity. There’s always going to be need for both wireless and fiber networks,” he concluded.

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We integrate network assets, cloud connectivity, security solutions and voice and collaboration tools into one platform that enables businesses to leverage their data and adopt next-generation technologies.

Lumen Technologies brings together the talent, experience, infrastructure and capabilities of Lumen Technologies, Level 3 and 25+ other technology companies to create a new kind of company—one designed specifically to address the dynamic data and application needs of the 4th Industrial Revolution.