

Modernizing the operations-intensive enterprise: Data is the new oil



Enterprises of all kinds have many moving parts. Manufacturing firms or traditional logistics and delivery companies are the archetypes of this operations-intensive business model.

However, many other firms have similar logistical concerns today, getting the right thing to the right place at the right time. Consider the healthcare industry and the many people and items in motion to treat patients. Think of the food supply chain from the field to the fork. Operations-intensive companies exist in many different industries even if they don't define themselves as traditional manufacturing or logistics companies.

All of these enterprises produce tremendous amounts of operational data that when processed and acted upon could lead to greater efficiencies, lower costs and better customer outcomes. Many enterprises are upgrading established operations with the Internet of Things (IoT) to capture that data with its sensors. That data capture, however, is just one part of a much more complex architectural solution.

The IoT device can **acquire** data, it must still be **analyzed** and the insights gleaned from that data deployed back into the field so the enterprise can **act** on that business logic.

The Acquire, Analyze, Act model creates a continuous improvement cycle that sharpens operations through increasing amounts of actionable data and analysis.

Challenge: Acquire, Analyze and Act in the most efficient way possible

In many cases, enterprises will be adding the IoT and advanced analytics, including artificial intelligence (AI), to existing operational infrastructure. In manufacturing, new generations of equipment enter the factory with the IoT modules embedded. Inventory can be tracked with RFID tags. Similar sensors need to be deployed in other kinds of operations.

This operational data can be produced in huge volumes. Some of that data might be critical to refining operations. However, some of it might be background noise. These data volumes might also come in bursts, with long periods of very little activity. Managing this data flow and making the proper discriminations of important bits must be done in real time.

Analyzing this incredible and potentially inconsistent volume of data is generally understood to be done in the cloud where AI and machine learning (ML) can be applied. Those cloud datacenters, however, may well be located thousands of miles away from wherever this data is being captured. Transporting every bit of data - the background noise along with the important bits - can be costly.

When algorithms are built to enhance operations through precision control of local resources, running that business logic in cloud data centers introduces latency in the control functions.

Consider robots moving about a factory floor in California. Controlling them from a cloud data center in Virginia introduces latency potentially compromising precision and the safety of any workers sharing the factory floor. Milliseconds matter.

Solution: Edge computing provides the heart of Acquire, Analyze, Act virtuous cycle

Intelligent Solutions from Lumen Edge Computing integrates the consulting services, network and management services, hardware and software to architect and build an Edge Computing solution that powers these Acquire, Analyze, Act use cases. The majority of the cloud data centers most enterprises use for advanced analytics and AI processing are already on Lumen fiber networks. This allows Lumen to expand data center functionality out into the network to put key resources where they need to be to optimize this virtuous cycle.

Storage as a Service can be built into the network for edge resources on or off-premises depending on the needs. This creates a data “base camp” where the IoT-collected data can be stored as it is acquired. This alleviates constantly streaming data to the cloud over the network. This base camp can then provide some level of processing to separate the data that needs to be passed up to the cloud, optimizing the expensive analytics processing in the cloud.

The cloud engines then build algorithms and business logic in the analyze phase. Running them from the cloud introduces latency that can reach into the hundreds of milliseconds. In many cases, this latency creates a sub-optimal Act phase. Edge computing in localized data centers can deliver real-time control of business assets in motion, whether that’s robots, inventory or fleets of vehicles.

This logic can then be put into practice over local networks such as Wi-Fi or LTE on the factory floor.

Lumen experts can design the entire solution and in most instances any equipment purchases can be incorporated into the same bill.

Results: Efficiency, security, lower costs

These architectures composed of Lumen Intelligent Solution components, expertise and managed services can modernize operations-intensive enterprises. Consider just a few effects of this edge computing infrastructure for different types of firms:

- Reduced latency for control applications in manufacturing facilities
- Cost-effective cold chain control for food transportation
- Lower network costs from transporting only relevant data to the cloud

Edge computing complements both cloud computing and the IoT, creating a seamless, low latency virtuous cycle.

Visit [Lumen](#) today for more information or contact a Lumen Expert for consultation to get started.

Edge computing puts data processing and storage closer to the network edge — where people, processes and items in motion reside.

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