Cloud with the Intelligent Edge

Thought **Leadership**

COVID-19, the largest health and economic crisis in recent times, confronts businesses across sectors and pushes them into extraordinary measures to safeguard their people and sustain operations. Industry 4.0 is no exception!

Industry 4.0, which involves advanced analytics, automation, connectivity, and advanced manufacturing technologies, was starting to impact the transformation of manufacturers worldwide before disaster struck.

Industry 4.0 refers to the current Industrial Revolution phase that centers heavily around automation, ML, and real-time data. Industry 4.0 or smart manufacturing couples physical production and operations with intelligent digital technology and big data to build a holistic and connected ecosystem for organizations focusing on manufacturing and supply chain management.

The Fourth Industrial Revolution is flagging a shift in the conventional manufacturing landscape. It incorporates three technological trends pushing this change: connectivity, data analytics, and resilient automation.

The manufacturing sector today is in the midst of a historic time in development. With the acceleration in IoT, AI, and 5G, data-centric and interconnected smart factories are swiftly becoming the norm. For Industry 4.0 to uncover its complete potential, however, manufacturers will have to implement Intelligent Edge.

The "What and Why" of Intelligent Edge!

The potential of cloud computing today has grown from data centers to the Edge of networks. This Edge is a growing imperative as businesses across all industries deal with vast amounts of data, complex operations, and competitive markets. IT firms, hyperscale cloud providers, and connectivity providers turn to edge intelligence to meet these business demands.

Intelligent Edge is the concept of running computing processes as close to the origin of data as possible. In other words, it the analysis of data and improvement of solutions at the place where the data gets generated.

Intelligent Edge decreases latency, costs, and security risks making the associated business more productive.

Industry 4.0 is entering a new age, with the enhanced use of IoT tools and increased data volumes that follow. The final goal is to build smarter factories to make informed decisions based on automated means and influence productivity, performance, and cost targets.

Manufacturers worldwide are under tremendous stress to sustain a competitive edge. Early interest in the Internet of Things and AI technology is developing into ongoing digital transformation programs. Leveraging industrial IoT to optimize operations has become so entrenched, it has been dubbed ‘Industry 4.0’.

Real-time processing is decisive to today’s manufacturing and industrial automation industries. However, the cloud alone is not enough to take them through. To succeed, manufacturers must capitalize on the intelligent edge.

For the term intelligent edge to fit, the following elements need to exist in the device:

- Autonomy
- Connectivity
- Computing
- Controllability

How is Edge any different from Cloud?

Edge is becoming more viable since the cost of IoT hardware and sensors is decreasing, and devices are getting smarter. With new connectivity technologies like 5G on their way, edge architectures will set the framework for an agile, more productive IoT.

- Low latency is vital for an interconnected system. The character of conventional cloud computing restricts itself in this regard. Edge, however, has the potential to reduce latency drastically.
- The centralized nature of conventional cloud computing makes it vulnerable to cyber-attacks. With Edge, computing occurs closer to the data source, and so less data is at risk.
- Analyzing data demands a substantial amount of storage, bandwidth, and computing power. Edge computing mitigates it by processing its data, so no single system has to manage everything. It reduces the stress on specific systems and improves the process.
- Interoperability concerns are one of the chief barriers to IoT adoption since there's no standard protocol. Moving computing functions to the Edge reduces some of the need for a common standard.
- Smart manufacturing requires a large amount of data that demands ample storage. Conventional storage options can be inconvenient, and cloud services are costly. Storing data at the Edge is a perfect middle ground.

The Future of Industry 4.0 - "Cloud gets Edged Out!"

If the IoT was the computing move after the Cloud, the Edge is the subsequent relevant step. Without embracing this technology, Industry 4.0 will not be able to advance to its full capabilities.

Successfully balancing the online growth induced by the increase of connected devices while providing the production IoT demands a large, distributed technology stack. It includes security, messaging, and processing as close to the devices and data as possible. Intelligent Edge delivers the scale, resiliency, and security to support you satisfy your IoT cloud infrastructure obligations.

This shift cannot happen overnight, but it is unavoidable. How quickly the manufacturing sector can move to the next age of industry depends on how fast it can execute the Edge.

For more information, contact@criticalriver.com

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