

Protocol Translation



A Machfu Solution for Legacy Assets

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MACHFU

Current Landscape for Industrial Machinery

In 2017, new order of capital goods topped \$872 billion in the U.S.

This includes machinery and equipment that drives growth in manufacturing and keeps our critical infrastructure secure. Although they are vital to the economy, most of those new machines communicate through legacy protocols that are not particularly well-suited to networking or best practices of modern security.

For example, while cost-effective and ubiquitous LTE cellular communication comes of age, only 14 percent of the North American power grid is connected to cellular systems. A recent paper from the U.S. Department of Energy identifies a number of different ways that the Smart Grid will greatly benefit from an augmented cellular communication strategy, including fewer and shorter outages, improved resilience to extreme weather events, and more effective equipment monitoring and preventive maintenance.

In the oil and gas sector, companies use traditional SCADA systems to gather information from remote devices using polled architectures developed before the advent of the internet and high-performance processing. These older polled systems have a number of inherent shortcomings including limits on the amount of data that can be collected, higher communication costs, and architectural limits on scaling.

An illustration of a typical system is shown in the figure on page 3.

Connecting Legacy Assets to the Cloud

Cloud computing has revolutionized the consumer marketplace but has not made a strong headway in industrial sectors. One reason for this is that the modern cloud speaks a different language from most industrial legacy devices. To enjoy the benefits of modern web services and best practices of security, legacy devices need a way to translate legacy industrial systems to the cloud, as well as communicate with existing head end systems without disrupting existing operations.

Existing Head-end Investments aren't Necessarily Obsolete

Utilities have been slow to adopt cloud-based approaches and prefer to transfer data from devices to their legacy head-end systems for operations. However, there are many sensors emerging in distribution automation space such as line sensors (current sensors, voltage sensors, fault indicators, etc.) that are built to go to the cloud. Even though utilities prefer that these devices connect to legacy head-end systems, Machfu can translate the modern devices to talk to existing head-end systems. This greatly improves utility operations due to all the additional data available for decision making. Protocol translation allows utilities to keep their preferred head-end systems while taking advantage of new data sensors.

A Graceful Transition from Old to New

Machfu's platform is a solution that enable the collection of more data from industrial assets without interrupting legacy communication. We make it easy for your capital investments to connect with the cloud. Once connected, data can be shared across an industrial enterprise, giving companies the ability to:

- Make better decisions
- Better anticipate problems
- Use new and innovative applications to run previously impossible business analytics
- Connect a mobile workforce to devices in the field
- Manage and configure devices remotely

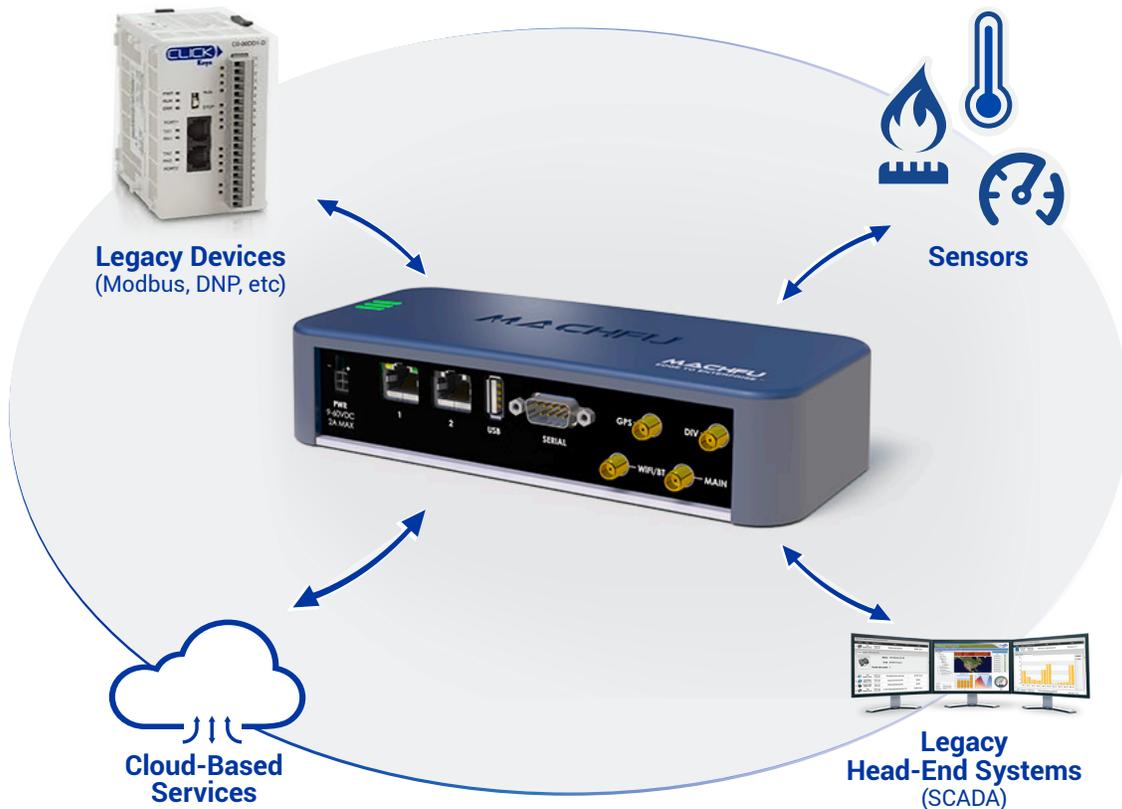


Figure 1: Taking legacy devices to the cloud and modern sensors to legacy head-end applications.

The Future of Industrial Machinery

The first smart phones were introduced just a decade ago, transforming the consumer communications landscape and achieving near ubiquity in a very compressed timeframe. That same revolution will transform industrial operations in the coming years, despite the fact that most industrial machinery continues to communicate through legacy protocols.

From edge-to-enterprise, Machfu can help you transition from legacy platforms to the cloud.

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Prakash Chakravarthi is the CEO of Machfu and provides the vision and leadership for the development of Industrial Internet of Things solutions. Machfu's mission is simplifying connectivity from edge to enterprise. Prior to founding Machfu, Prakash founded multiple IoT and M2M businesses including Eka Systems a Smart Grid connectivity company that was acquired by Cooper Industries. His strong business and technical background enable him to uniquely build technically diverse and execution oriented teams with deep expertise to rapidly and effectively define, create and deliver solutions and products in the evolving IoT space. Prakash has a Ph.D. in Communication Systems from Syracuse University and an Executive MBA from MIT.

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John has 20 years of experience and subject-matter expertise in developing innovative solutions for Utility, Oil & Gas, Water/Waste Water, Traffic, Rail, Heavy Industrial and Commercial markets. He is credited multiple patents associated with the application of communication technologies in the industrial scape and actively participates in the SGIP and IEEE802. Previous positions include Wireless Center of Excellence Leader for GE Digital Energy and VP of Engineering for MDS.



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