

What and why - edge data pipelines

“Every company’s system management challenge is unique... surely, data management and connectivity problems must be unique? Intelligent data pipelines can provide the backbone to a **solution to all these problems**”

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Date of release 24/01/2025

When engineers are presented with a problem, they will find a solution. An engineer’s ability to find solutions to problems built our modern industrial world. However, a series of single problem solutions will lead to another; complexity.

The communications, data management, and system management infrastructure that arises out of this method of working is unwieldy, complex and unnecessary. We need to get the data into the cloud infrastructure to drive a myriad of applications, such as ML/AI, monitoring and optimisation, and safety and compliance. Unfortunately, all these problems appear difficult and disparate. So, how can we retro-fit infrastructure to work with existing solutions, and to future-proof and provide a platform for future expansion and next generation intelligent automation? Many existing approaches can force you into vendor lock-in, where you are stuck with all the products being supported by a single company, who may cease support, or increase prices without warning.

There are multiple ways to communicate between multiple devices, and almost all devices will have one or more communications options using one of several well established protocols. There are lots of different methods for data management, and many companies have security challenges that lead them to create their own system to ensure their needs are met.

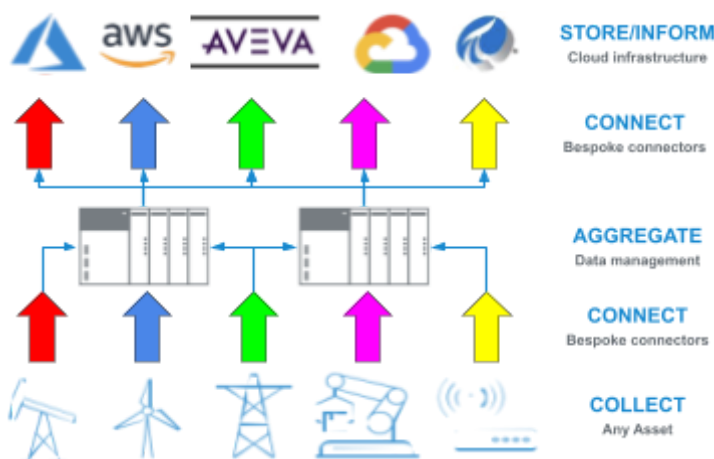


Figure 1: Sketch of a hypothetical architecture using previous methods

It is understandable perhaps, that presented with this list of challenges, people think the best thing to do is go it alone. Every company’s system management challenge is unique; all want to control different aspects of their production, each system is different and presents its own challenges. As such, surely, their data management and connectivity problems must be unique?

Intelligent data pipelines can provide the backbone to a solution to all these problems, and plenty more. These data pipelines, such as the FogLAMP suite from Dianomic, work using a plug-in microservices architecture, which allows users to create a bespoke configuration, on common hardware, which can connect to almost any device, and if it can’t the open source nature of the product allows new plug-ins to be written to connect into the system. As well as connectivity, FogLAMP leverages the power of edge computing to provide inference and analysis functionality, meaning only the best quality of data need be sent on, reducing the data management challenges.

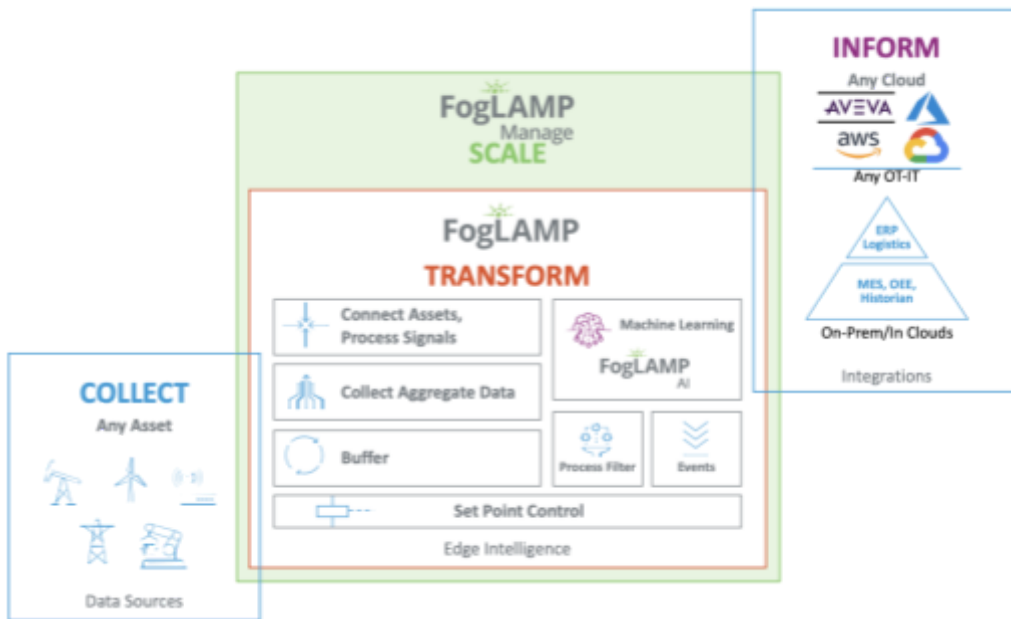


Figure 2: A sketch showing how the FogLAMP architecture works

In this series, we will attempt to describe some of the problems that arise from the traditional approach to system design. We discuss how and why these problems arise, and how they can develop from a minor inconvenience into a stumbling block preventing growth and expansion. Finally, we discuss how these issues can be addressed using intelligent data pipelines. In each case, we will use a real world example to show the power of data pipelines to drive digitised industry.