
AWS
re:Invent
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MFG304-R

Connecting VW plants to the AWS Cloud at scale

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Agenda

- Who is Volkswagen and what is DPP?
- Basic connectivity
- Enhanced connectivity
- Lessons learned
- Building a culture for innovation

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Volkswagen at a glance

1 group

12 brands

120+ factories



667,748
employees (2019)

10.974 million
vehicles (2019)

€252.6 billion
revenue (2019)

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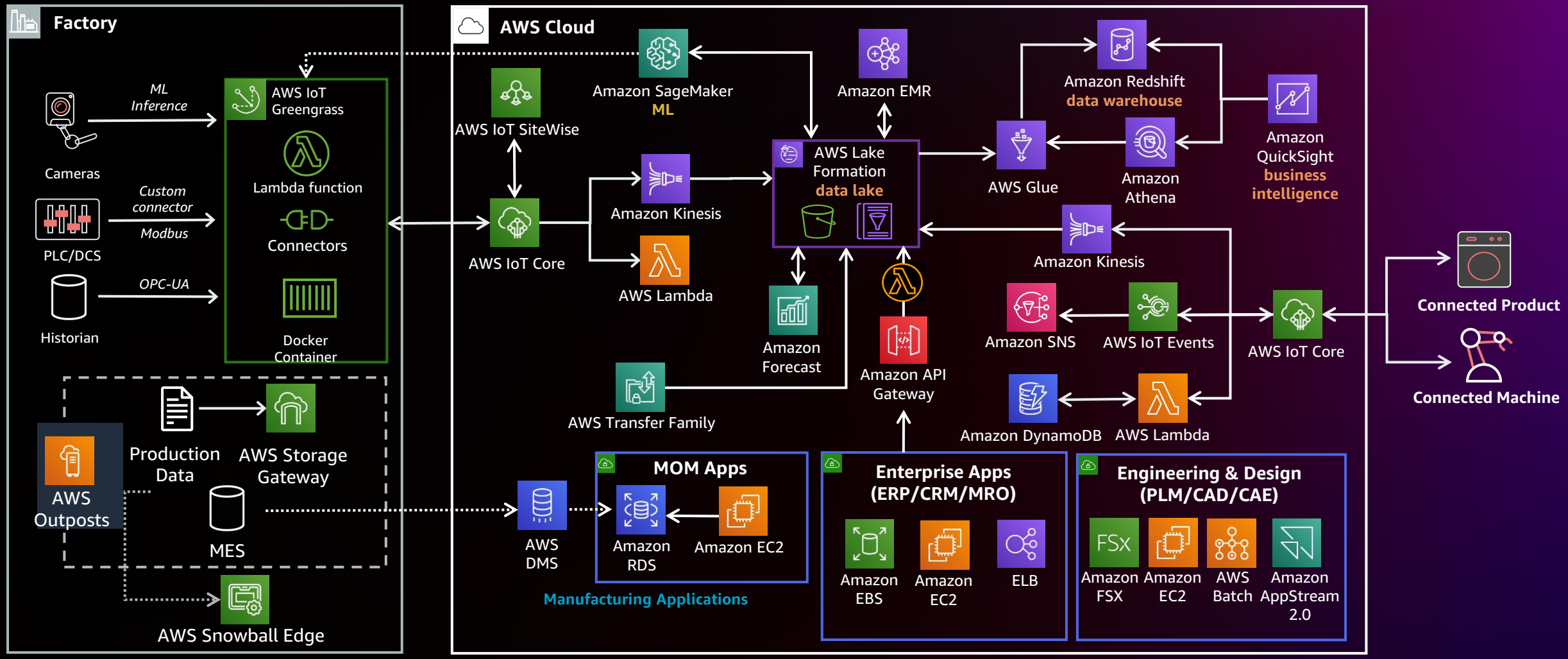
Digital Production Platform (DPP) at a glance

The DPP is a collaboration between AWS and Volkswagen AG established to improve the operating efficiency of manufacturing through the use of cloud technology

- The DPP is a $200 million cofunded program established in 2019
- There are 125 manufacturing facilities across 12 brands in scope for the DPP
- AWS Professional Services works directly with VW and partners to build plant solutions

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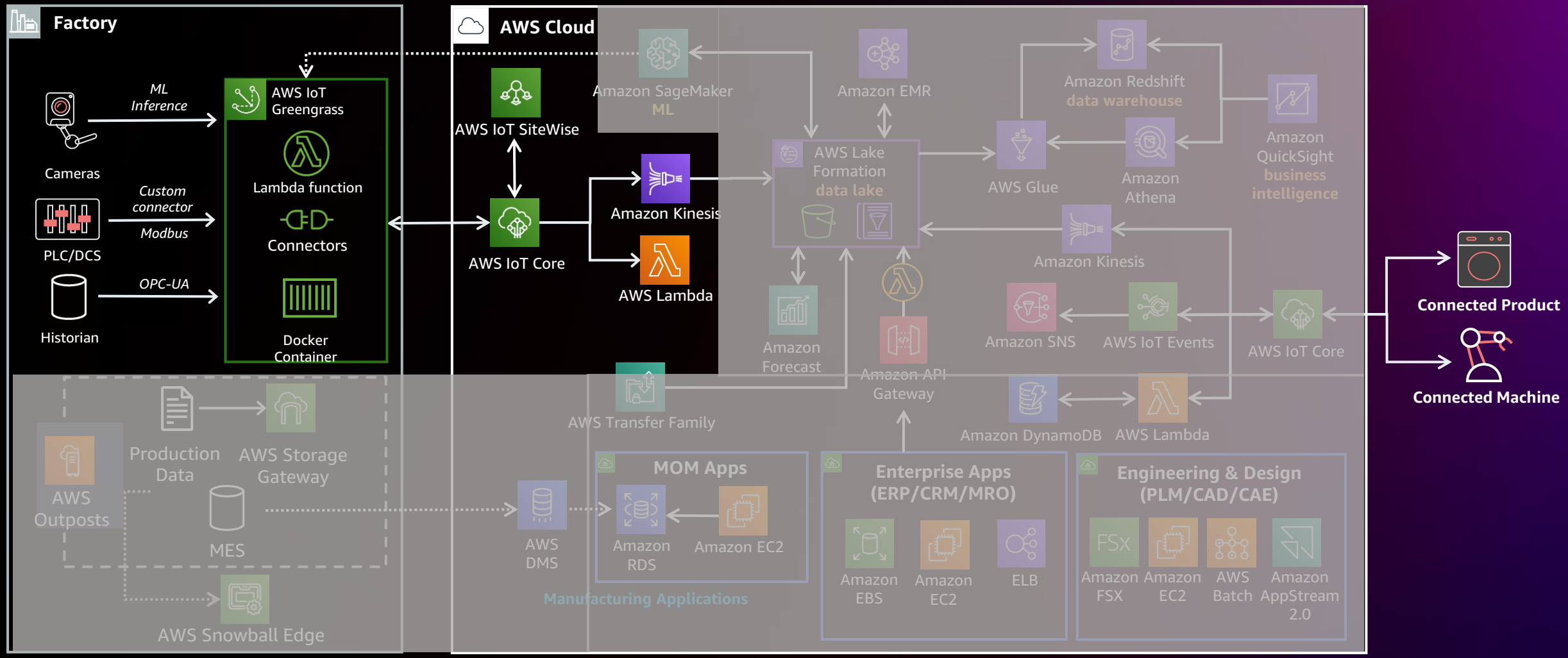
AWS Manufacturing Reference Architecture



Version 4.0

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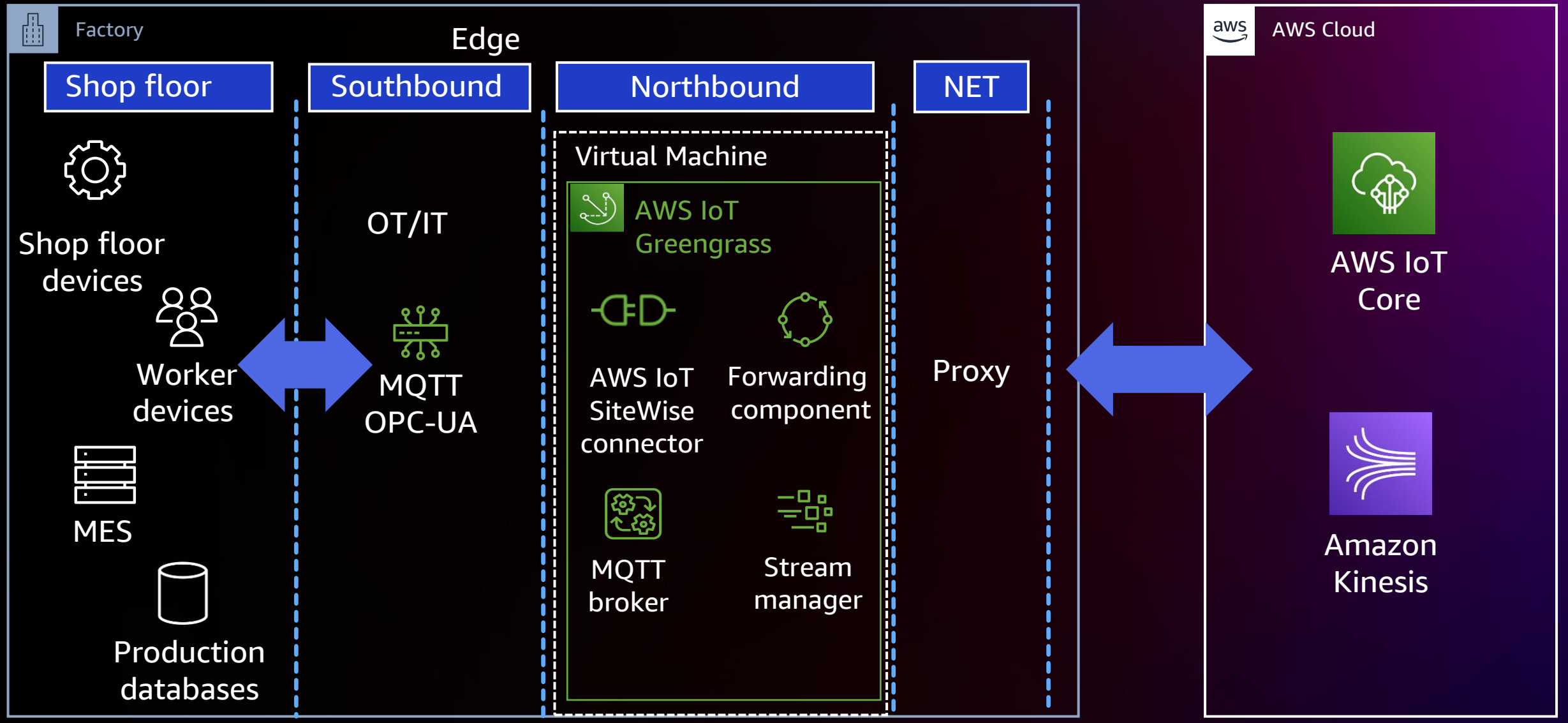
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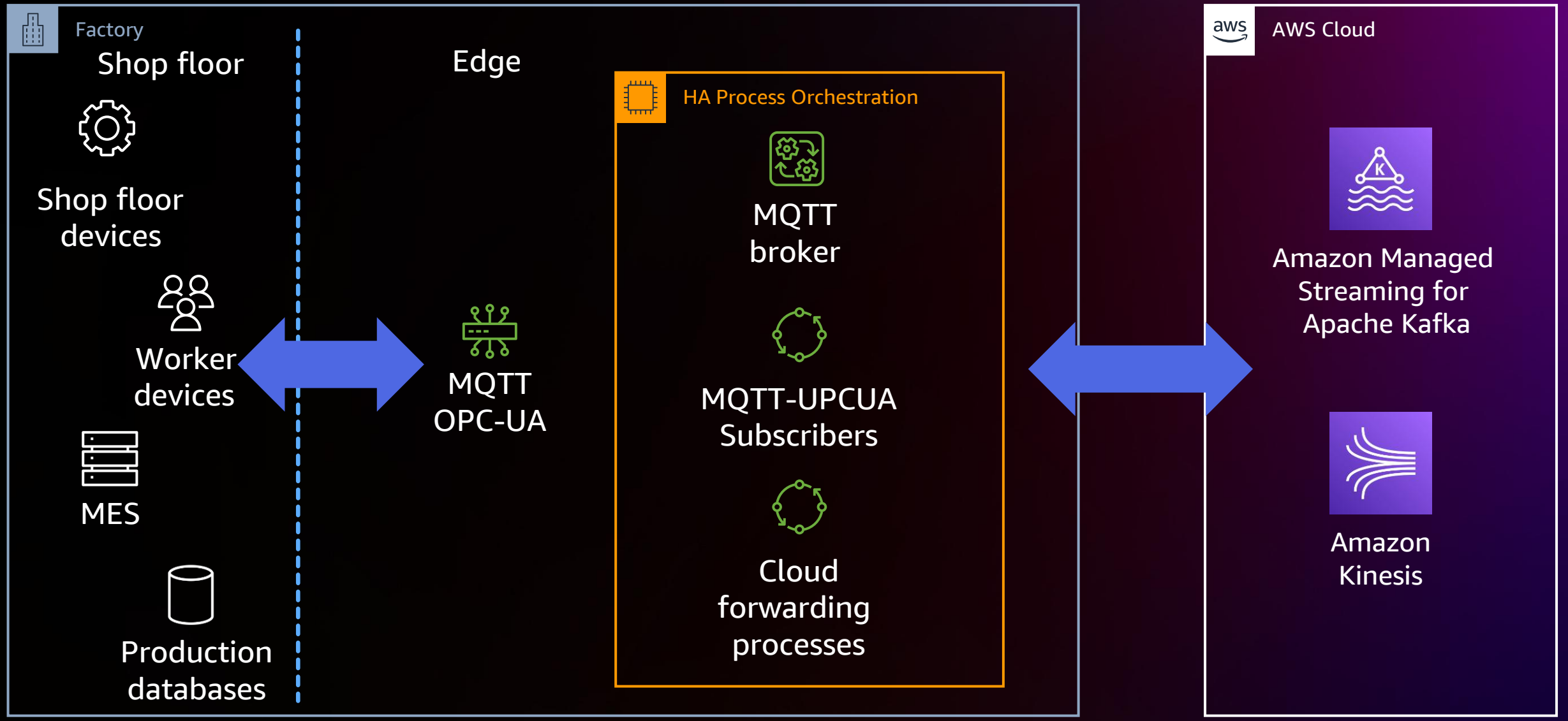
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Connectivity for ingest: Basic



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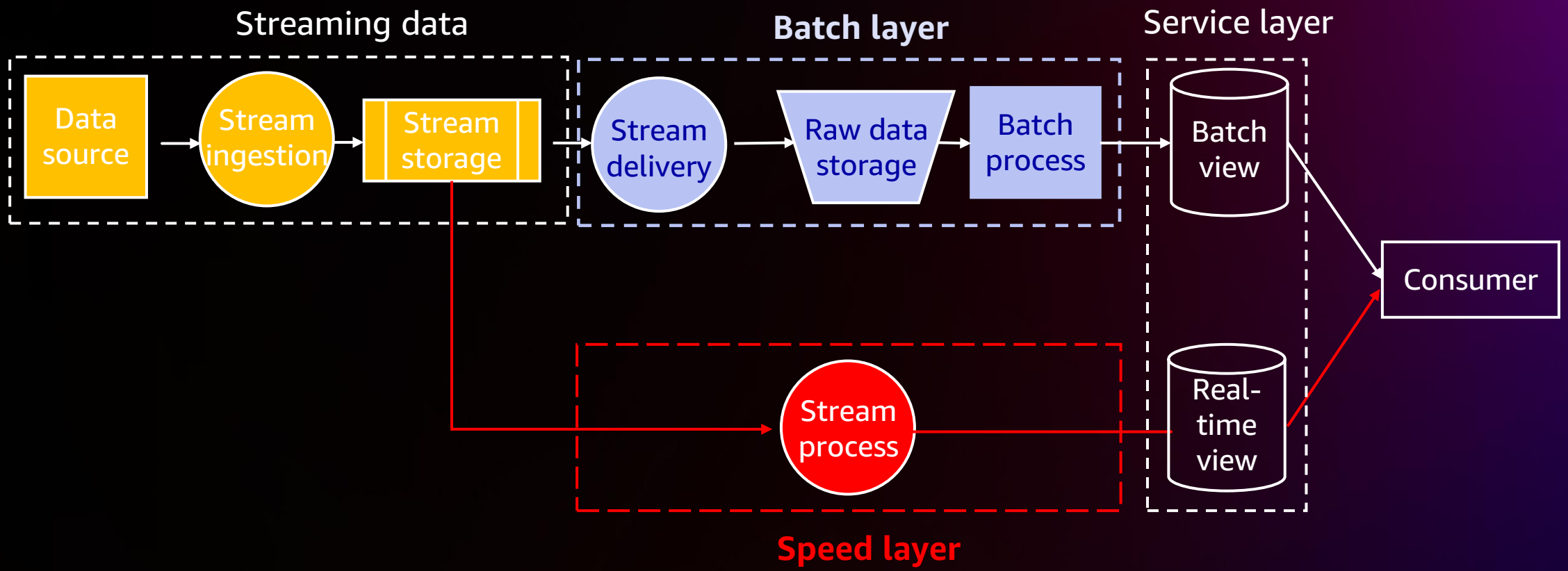
Connectivity for ingest: Enhanced



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Connectivity for ingest: Streaming

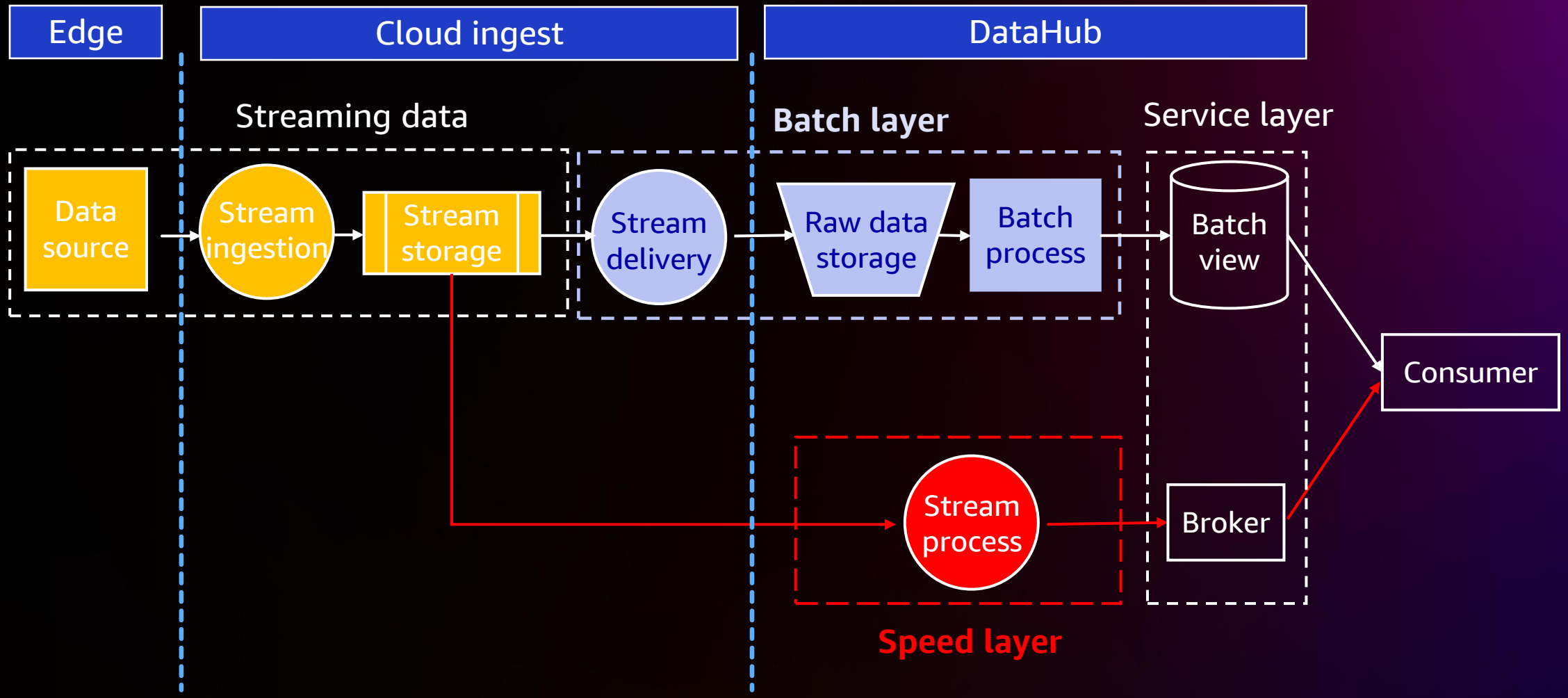
Lambda architecture



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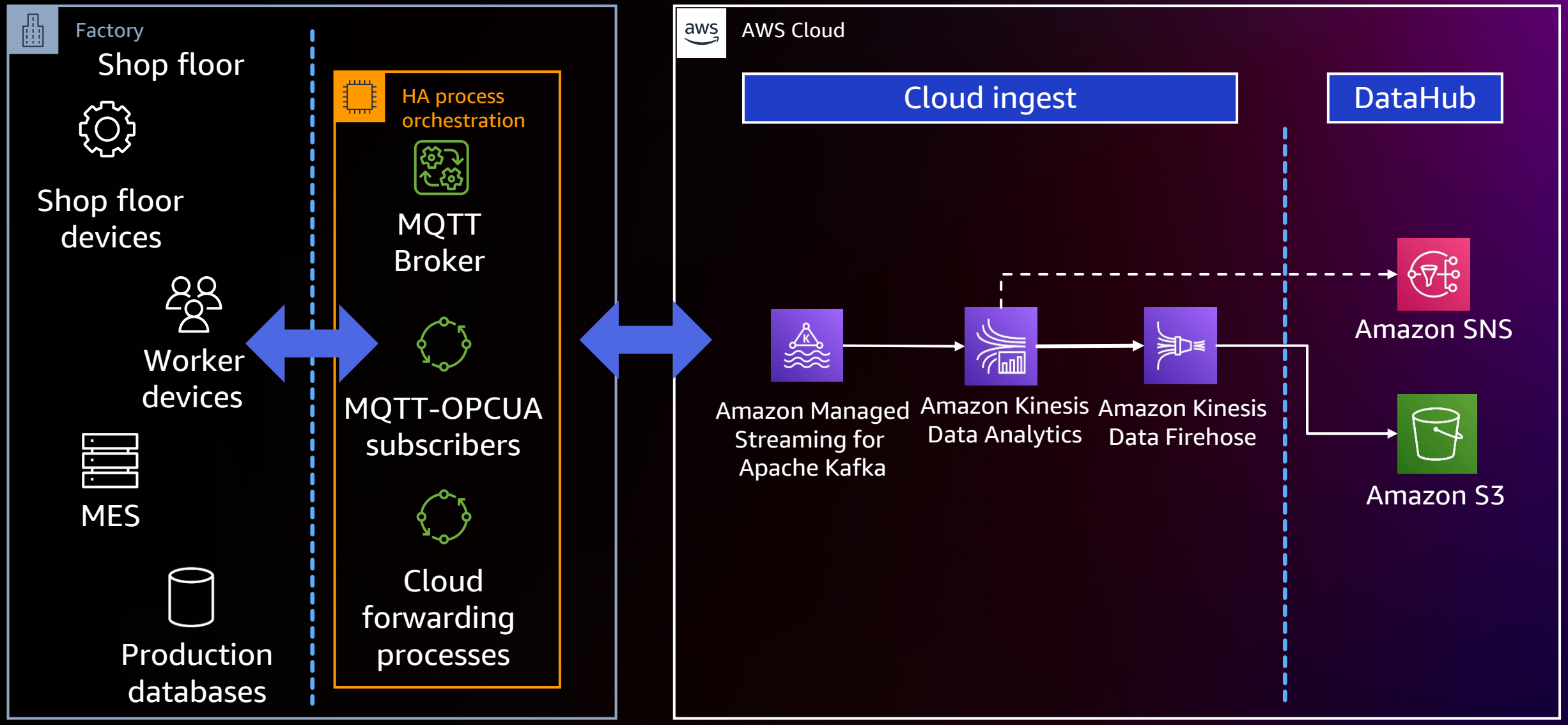
Connectivity for ingest: Streaming

Lambda architecture



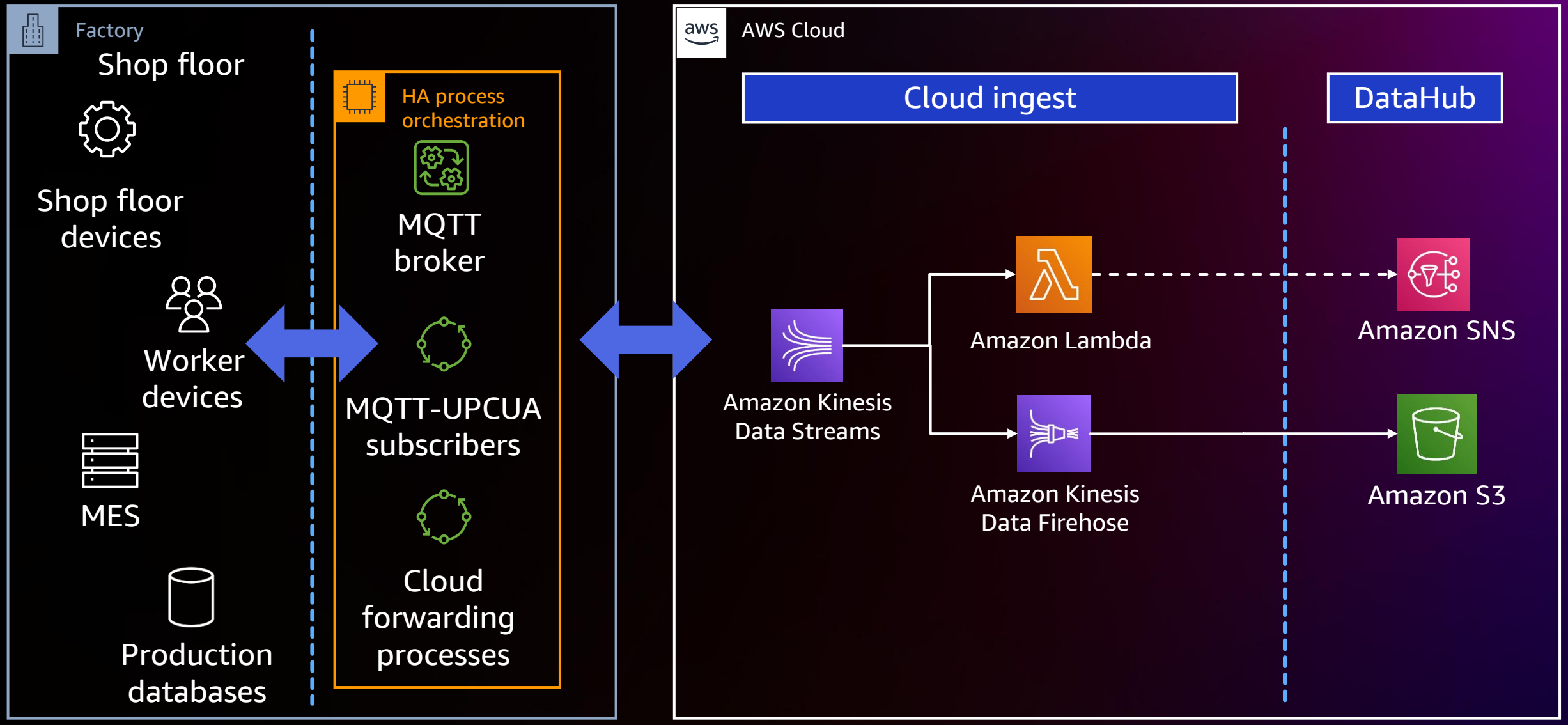
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Connectivity for ingest: Enhanced



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Lessons learned

Operational ownership:
Engage operational stakeholders early in the project development to ensure a smooth handover into production

Performance and reliability:
Outside of simple PoCs, ONLY consider architectures that are fit for production purposes, including performance, high availability, lifecycle management, and backup/DR

Automation and managed services:
Leverage automated CI/CD pipelines, security scanning and operational monitoring/notifications
Use AWS serverless capabilities to offload operational overhead (such as lifecycle management, scaling)

Decouple plant ingest solution from the use case/applications:
Deploying individual ingest solutions for each use case in the plant results in duplicated and poorly optimized resources
Scale data ingest in a holistic manner in the plant and leave the routing and distribution for each use case as part of a cloud-based data mesh

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Building a culture for innovation

Culture:
Customer obsession, hire builders, let them build, support them

Mechanisms:
Encoded behaviors that facilitate innovative thinking

Organization:
Small empowered teams that own what they create

Architecture:
Structure that supports growth and change

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