



Grid Dynamics Solutions



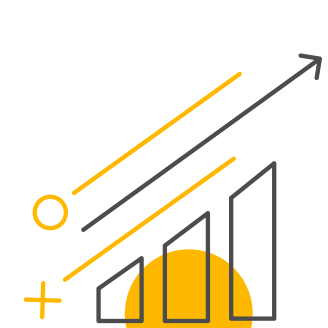
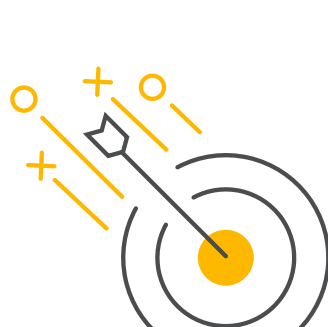
# Smart Manufacturing and IoT Platforms in AWS

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# Thought Starters: Smart Manufacturing


-  Monitor manufacturing processes in real-time
-  Reduce operational and maintenance costs
-  Reduce cost of quality control through automation
-  Control compliance across your suppliers by analyzing IoT data


## Some of our clients in the area of smart manufacturing and IoT















# Solutions: Smart Manufacturing and IoT

We use cloud-native services and machine learning technologies to build smart manufacturing and IoT analytics platforms for industry leaders.

## Edge Platforms

We build edge platforms using cloud-native IoT services and Kubernetes that can be used to deploy data collection, and decision-making and quality control services and models.

## Data Collection

We help to implement scalable data pipelines to collect IoT metrics, images and videos from thousands of machines, hundreds of locations, and multiple suppliers.

## Data Quality and Governance

We provide data quality control services that use machine learning and rule-based checks to ensure quality and consistency of data.

## Anomaly Detection

We create anomaly detection solutions using cloud-native services and custom ML models to reliably detect incidents in complex environments with thousands of metrics.

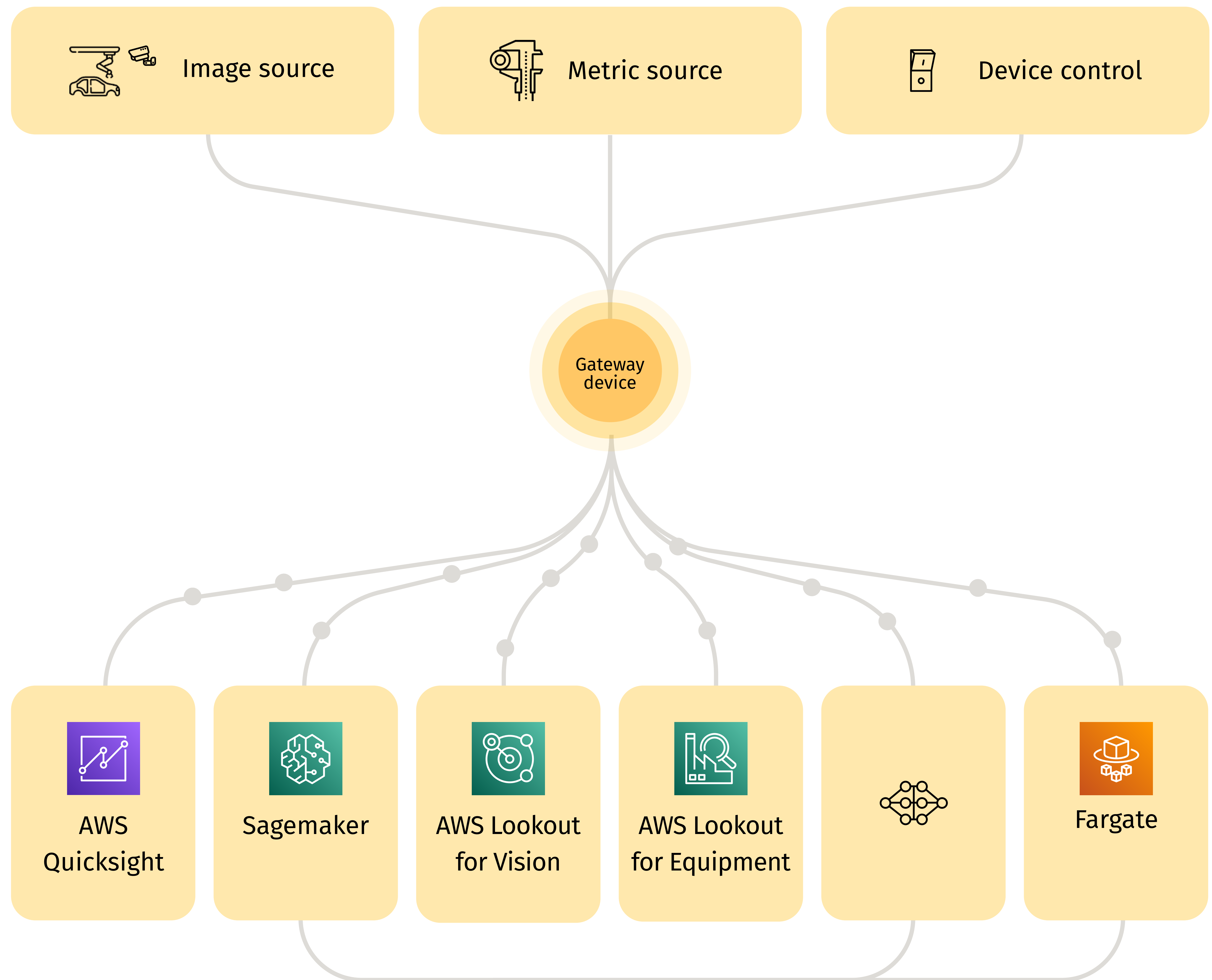
## Predictive Maintenance

We help clients to reduce asset downtime, prevent failure propagation, and mitigate the risk of major losses and liabilities.

## Visual Quality Control

We develop models for detecting defects in video streams, infrared and X-ray imagery, and automate model deployment and management on edge services and devices.

# IoT Platform in AWS: Reference Architecture



Our IoT Analytics Platform Starter Kit for AWS helps manufacturers transform their traditional production ecosystems into smart factories of the future — ones that can predict equipment failures, detect inefficiencies or defects, perform root cause analysis, and respond to real-time changes across the production chain without human intervention.





# IoT anomaly detection for a fuel distribution company

A leading supplier of fuel dispensers and fuel delivery services collects sensor and maintenance data from its storage tanks, gas trucks, and gas stations. Grid Dynamics was engaged to design and implement an anomaly detection and predictive fuel consumption solution that automates the process and ensures near-real-time issue detection.

**5000+**  
IoT devices

**17**  
types of  
anomalies

**2000+**  
customer  
locations

## Outcomes

**50%**  
reduced analysis  
time

**6 months**  
from the initial  
analysis to  
pre-production

- The solution drastically decreased anomaly identification time.
- Anomaly root cause analysis was simplified.
- Product scalability increased significantly.
- Grid Dynamics helped the client migrate from on-premise to AWS.



# IoT Analytics Platform for a leading electronics manufacturer

A leading electronics manufacturer works with multiple suppliers in the APAC region, each with different production, equipment, and quality control processes. Grid Dynamics was engaged to design and implement a global IoT analytics platform to collect data from all suppliers, provide business users with comprehensive insights into the production process, and enable fast quality and productivity issue detection and resolution.

**100GB+**  
data daily

**1B+**  
events daily

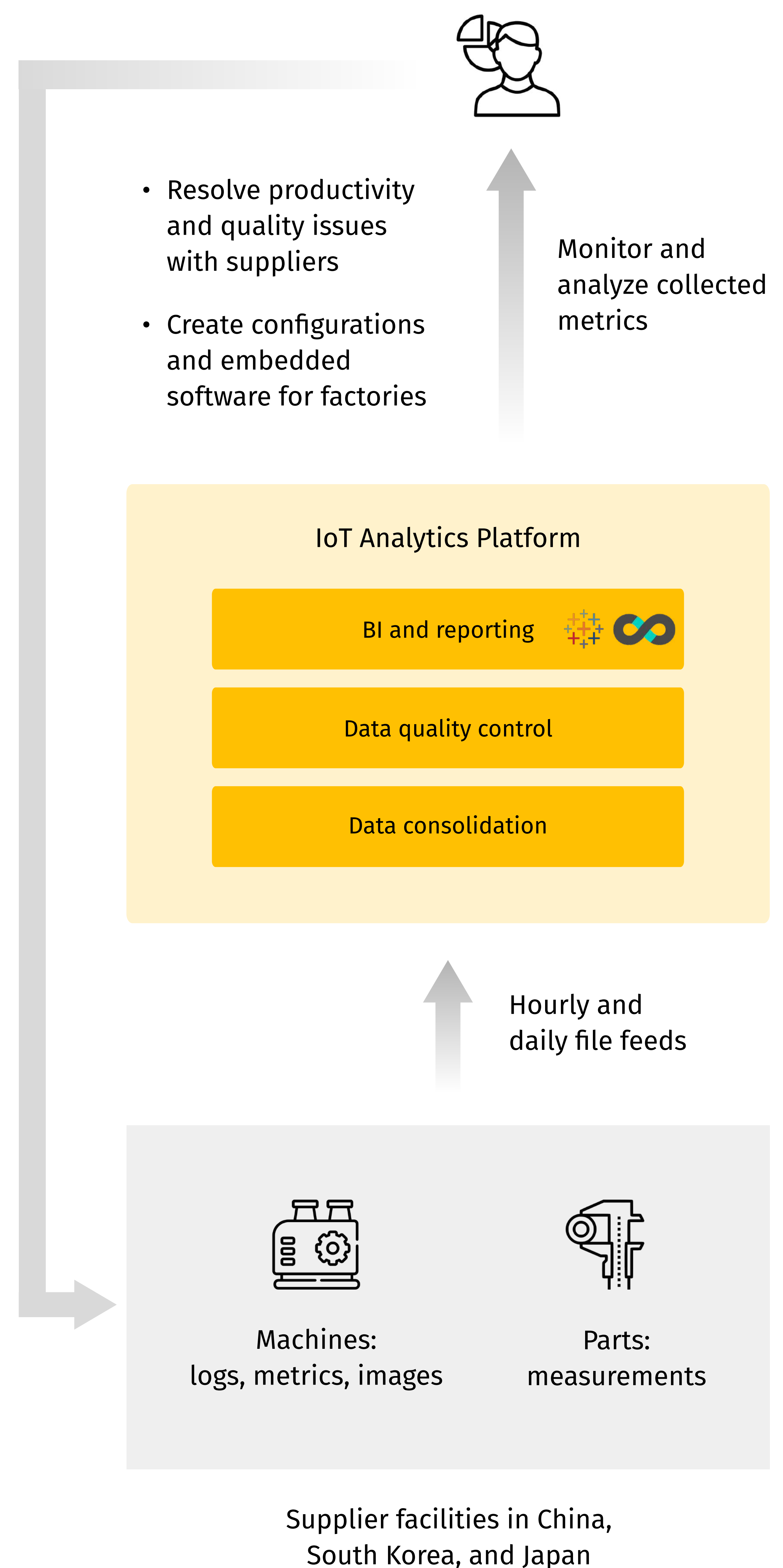
**1M+**  
files daily

## Outcomes

**global**  
data collection  
capabilities  
established

**compliance**  
control over  
suppliers  
implemented

- Grid Dynamics implemented advanced encryption and security control across the global data collection network.
- Advanced data quality control checks ensure data integrity and consistency.
- End-to-end productivity and quality control was implemented across the supplier network.





# Engage with Grid Dynamics

1

Our team of IoT experts work with you to **develop strategy and roadmaps** for smart manufacturing and IoT analytics.

2

We work with you to define an optimal **engagement model** that can include both your and Grid Dynamics teams. We leverage our **starter kits** built using open source and cloud-native components to accelerate the implementation.

3

We deploy **cross-functional teams** with proper domain/technology leadership to execute projects from the roadmaps and deliver solutions end-to-end. Our teams usually work with clients' stakeholders and product owners in a **co-innovation** model.

4

We focus on **iterative execution** of the roadmaps to deliver business value in short phases, but also continuously **refine the strategy** and come up with improvement proposals.

5

The co-innovation approach helps you to **establish a strong technology culture** in your organization, efficiently manage the roadmaps, and scale your smart manufacturing capabilities.



# About Grid Dynamics

Grid Dynamics is a global digital engineering company that co-innovates with the most respected brands in the world to solve complex problems, optimize business operations, and better serve customers. Driven by business impact and agility, we create innovative, end-to-end solutions in digital commerce, AI, data, and cloud to help clients grow.

Headquartered in Silicon Valley, with delivery centers located throughout the globe, Grid Dynamics is known for architecting revolutionary digital technology platforms for 7 of the 25 largest retailers in the US and 3 of the 10 largest consumer goods companies in the world, as well as leading brands in the digital commerce,

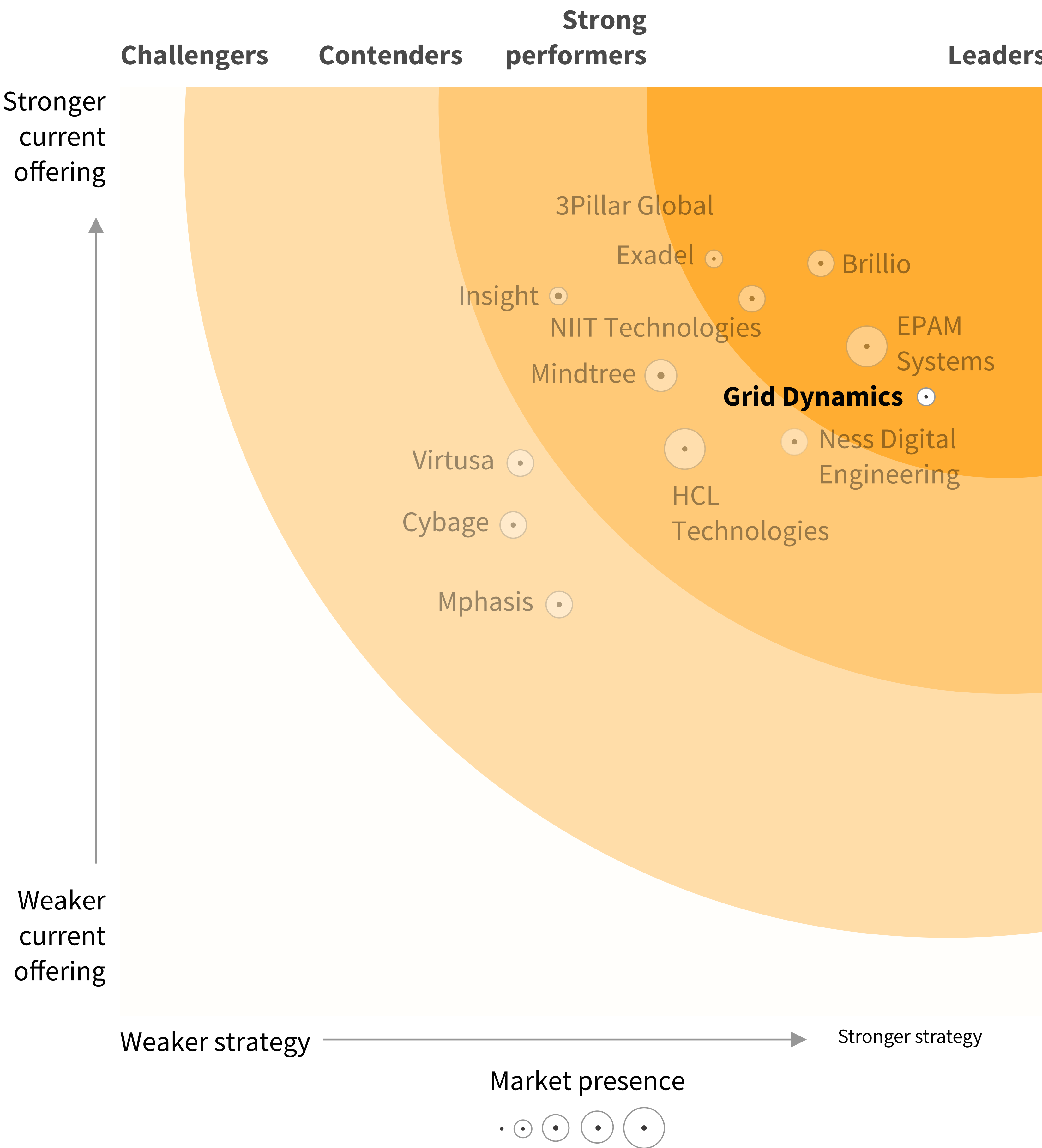
manufacturing, finance, healthcare, and high tech sectors.

Our secret sauce? We hire the top 10% of global engineering talent and employ our extensive expertise in emerging technology, lean software development practices, a high-performance product and agile delivery culture, and strategic partnerships with leading technology service providers like Google, Amazon, and Microsoft.

In 2019, Forrester named Grid Dynamics a leader among midsize agile development service providers. In 2020, Grid Dynamics went public and is trading on the NASDAQ under the GDYN ticker.

## The Forrester wave™

Midsize Agile Development Service Providers Q2 2019







# About Grid Dynamics













## Key facts

- 13 countries across North America, Europe, and Asia
- 3,800 employees in Q3 2022
- Forrester Leader Midsize Agile Software Development Service Provider Q2 2019
- Proprietary starter kits developed in collaboration with AWS other partners

## Areas of expertise

- **Experience engineering**  
Web | Mobile | AR/VR
- **Data Science and AI**  
Search | Personalization | Supply chain | IoT
- **Platform engineering**  
Microservices | MACH | Composable
- **Data engineering**  
Big data | Streaming | MLOps
- **Cloud and DevOps**  
CICD | AIOps | SRE | QE

## Clients





## **Grid Dynamics Holdings, Inc.**

5000 Executive Parkway,  
Suite 520 / San Ramon, CA  
650-523-5000  
[www.griddynamics.com](http://www.griddynamics.com)