



Designed for Change. Built for You.

Welcome to a Modern Utility

Designed for a safe and secure future

March 12–14, 2023

ORACLE

Designed For Change. Built For You.

Delivering Modern Capabilities Reliably, Affordably and Safely

Charlie Govern

Master Principal Solution Engineer

Pete St. Pierre

Director of Product Management

March 14, 2023



Safe harbor statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, timing, and pricing of any features or functionality described for Oracle's products may change and remains at the sole discretion of Oracle Corporation.



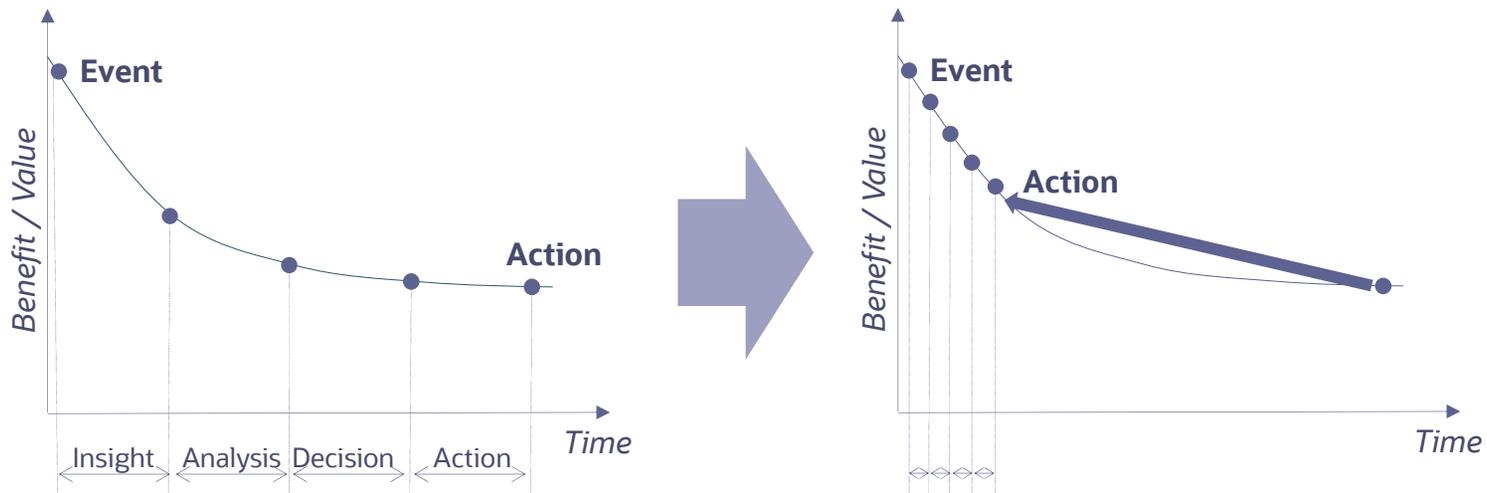
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Oracle Internet of Things Cloud Service: An Overview

Click on the video thumbnail to watch the video



“The greater the use of real-time information, the greater the speed of the strategic decision process”*

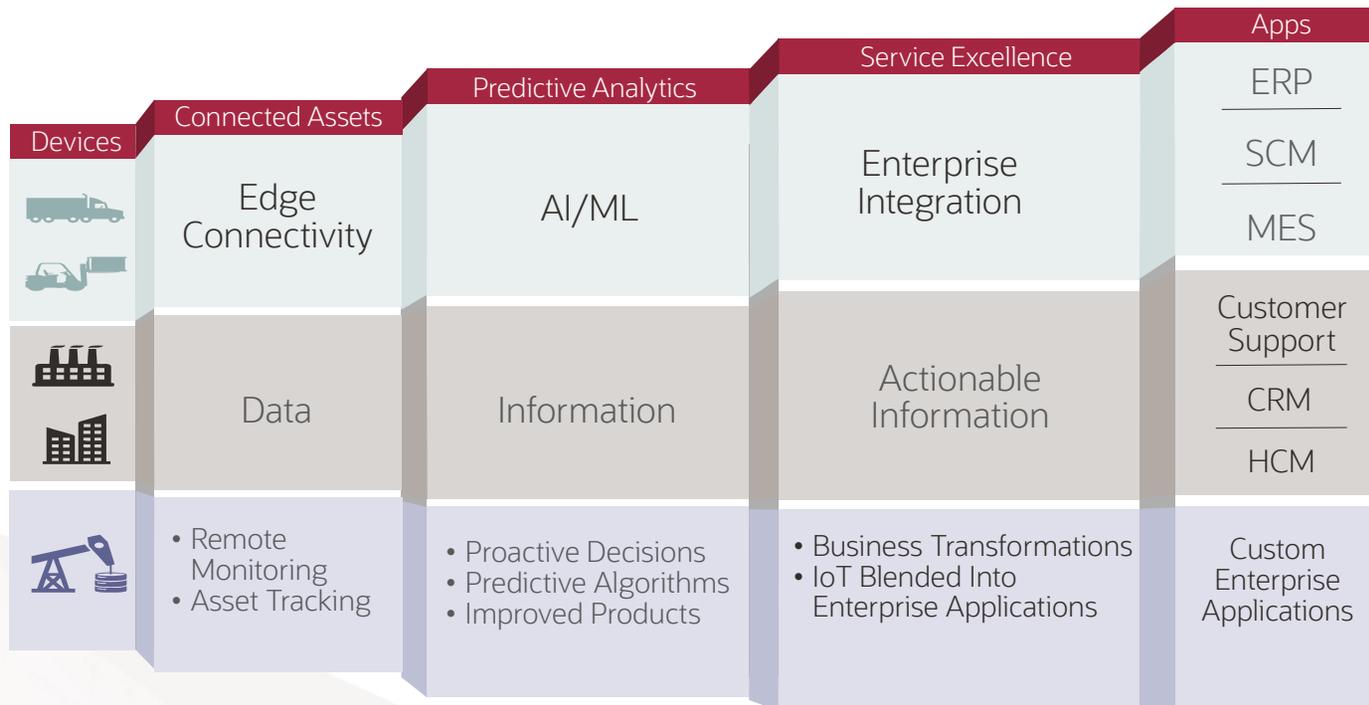


“The greater the speed of the strategic decision process, the greater the speed in high velocity environments”

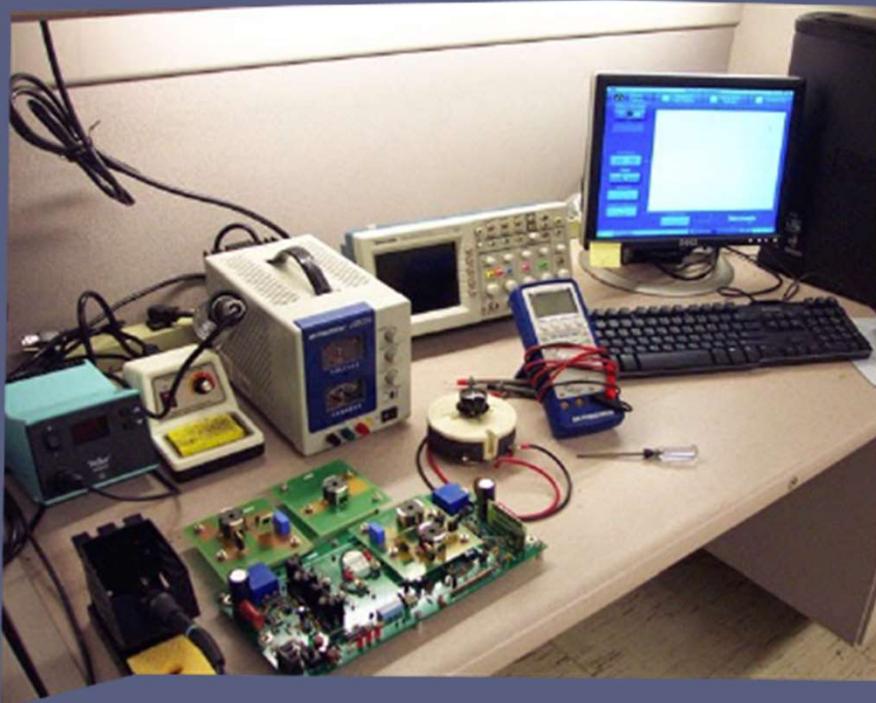
* Kathleen Eisenhardt, 1989 – Proposition 1 from “Making Fast Strategic Decisions in High-Velocity Environments”
The Academy of Management Journal Vol 32, No 3 (Sept 1989)



Data drives decision making



Internet of Things (IoT)



The Perception



The Reality

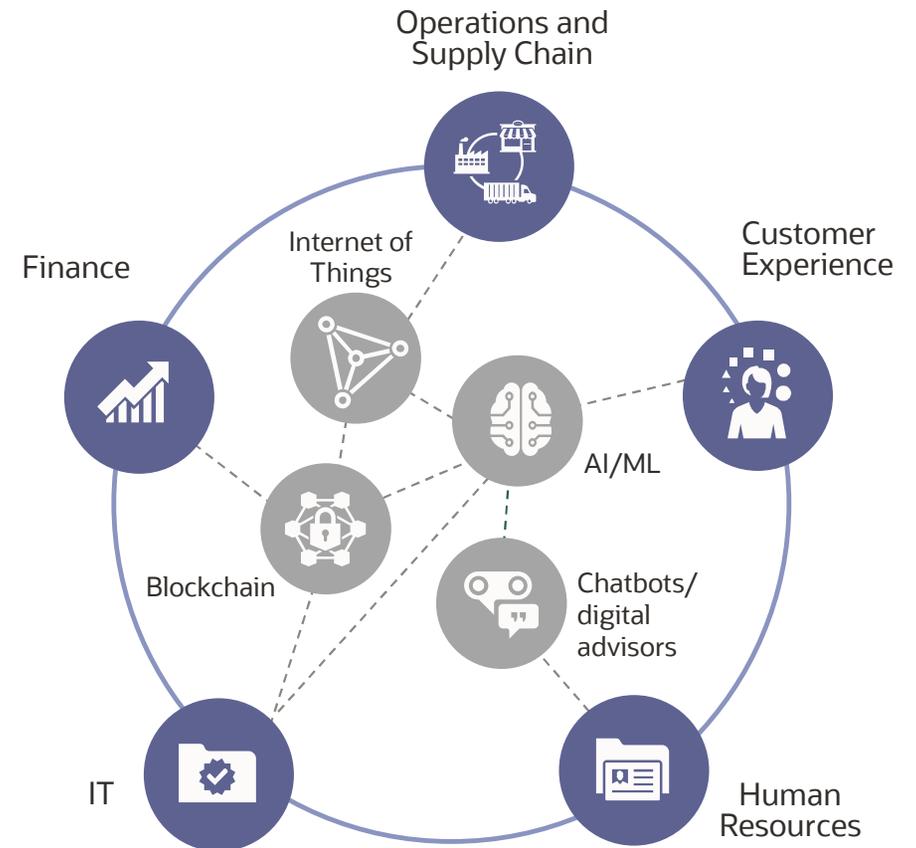


One Data Source

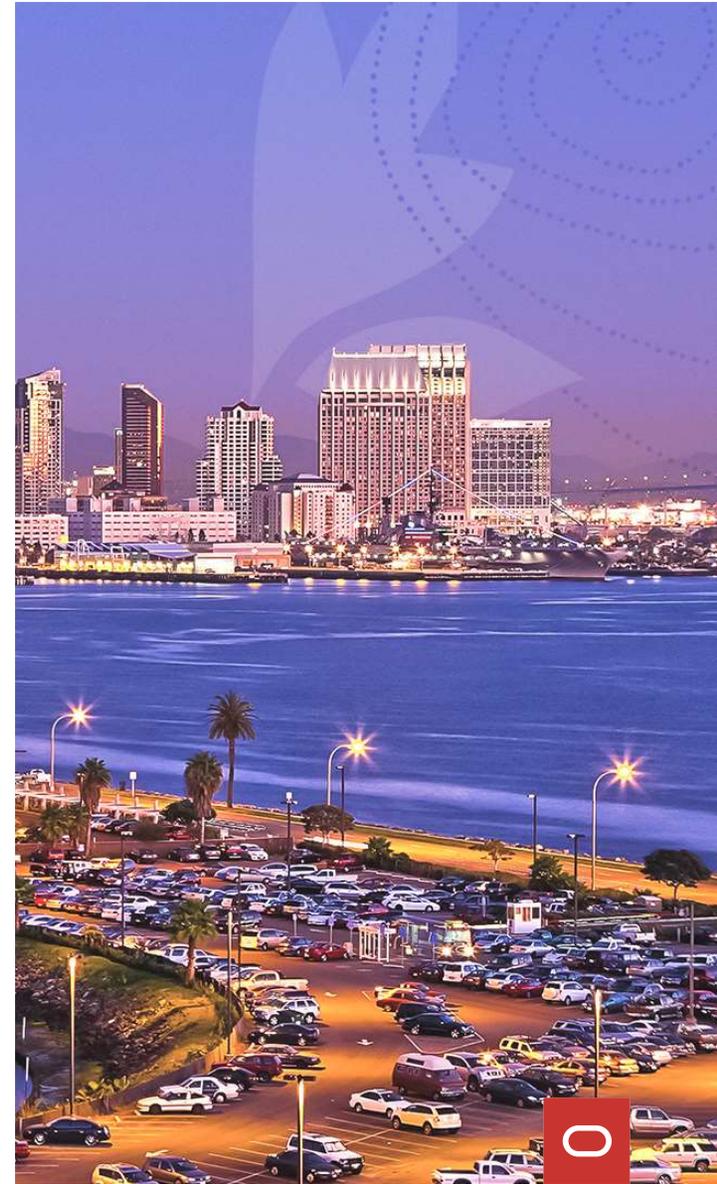
Working together with agility

- Fully integrated suite of applications
- Advanced technologies embedded
- Common data model and platform
- Continuous innovation

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Embracing Intelligent Applications



IoT Evolution vs. Revolution

History of IoT within Utility Industry

Grid Management



Visibility into generation and transmission operations

Asset Monitoring & Field Operations



Monitor any connected Asset Provide corrective and preventative solutions

Supply Chain & Back Office

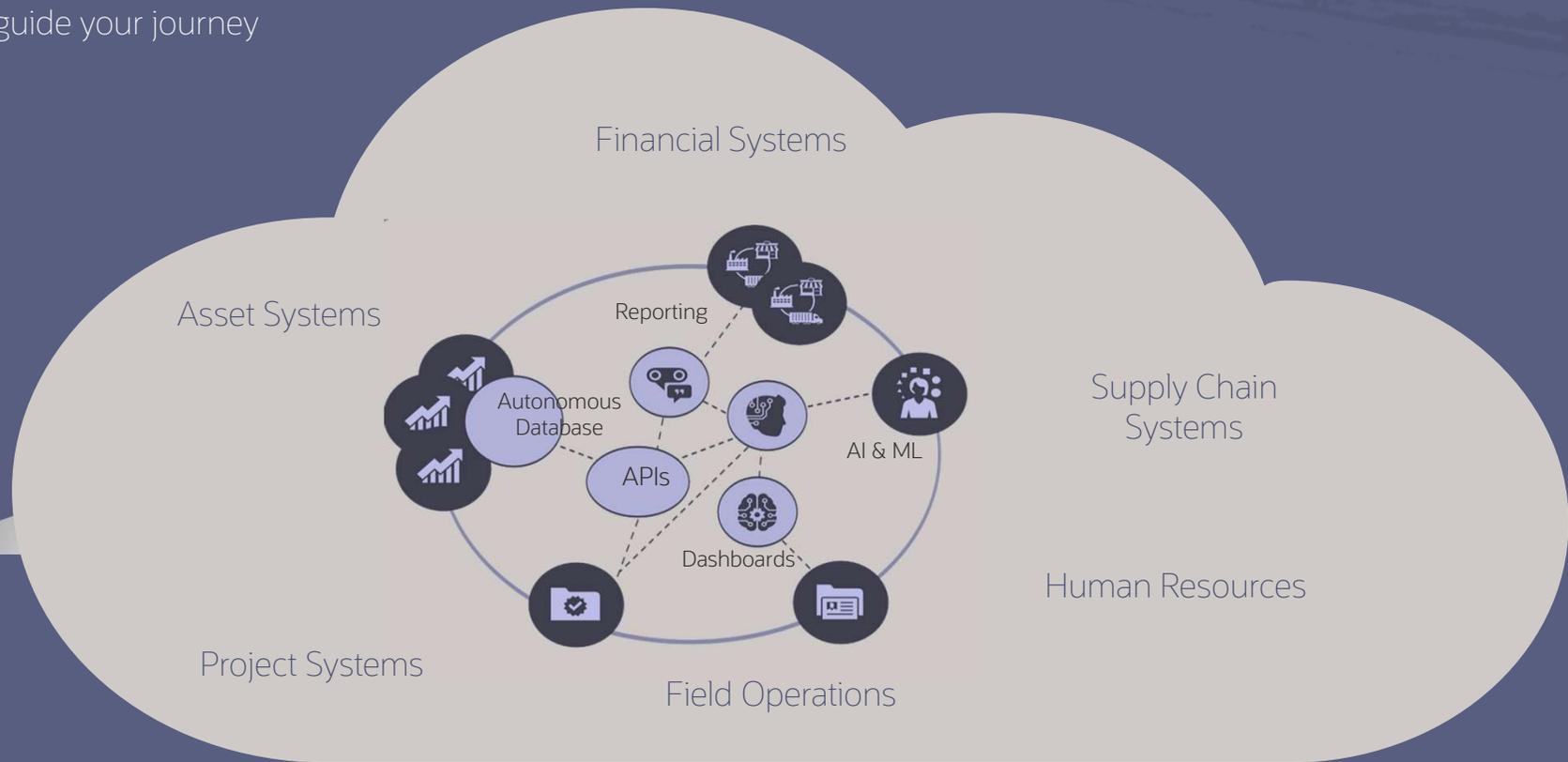


Integrate to all areas of the business HCM, Field Operations, Asset Management & SCM



How do we get all this to the Cloud?

A realistic path to guide your journey



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Connected Workforce





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IoT Connected Worker Cloud Service

150

Work-related accidents
occur every 15 seconds

321,000

Fatal, occupational
accidents every year

317M

Non-fatal, work
related injuries

\$220B

Cost to US businesses due
to injuries and illness

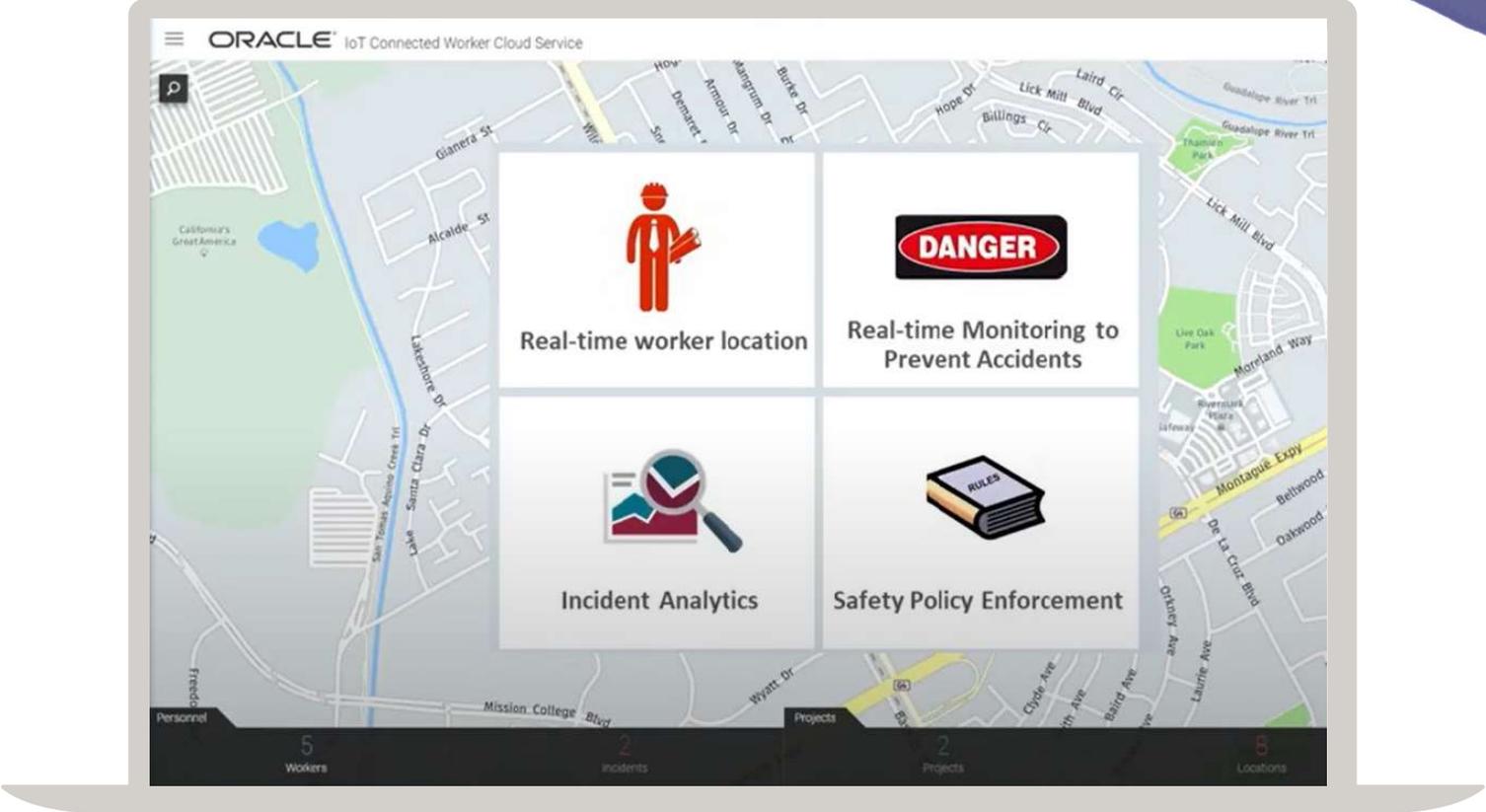
Difficult to prevent unsafe acts and reduce near-misses

Expensive regulatory compliance processes

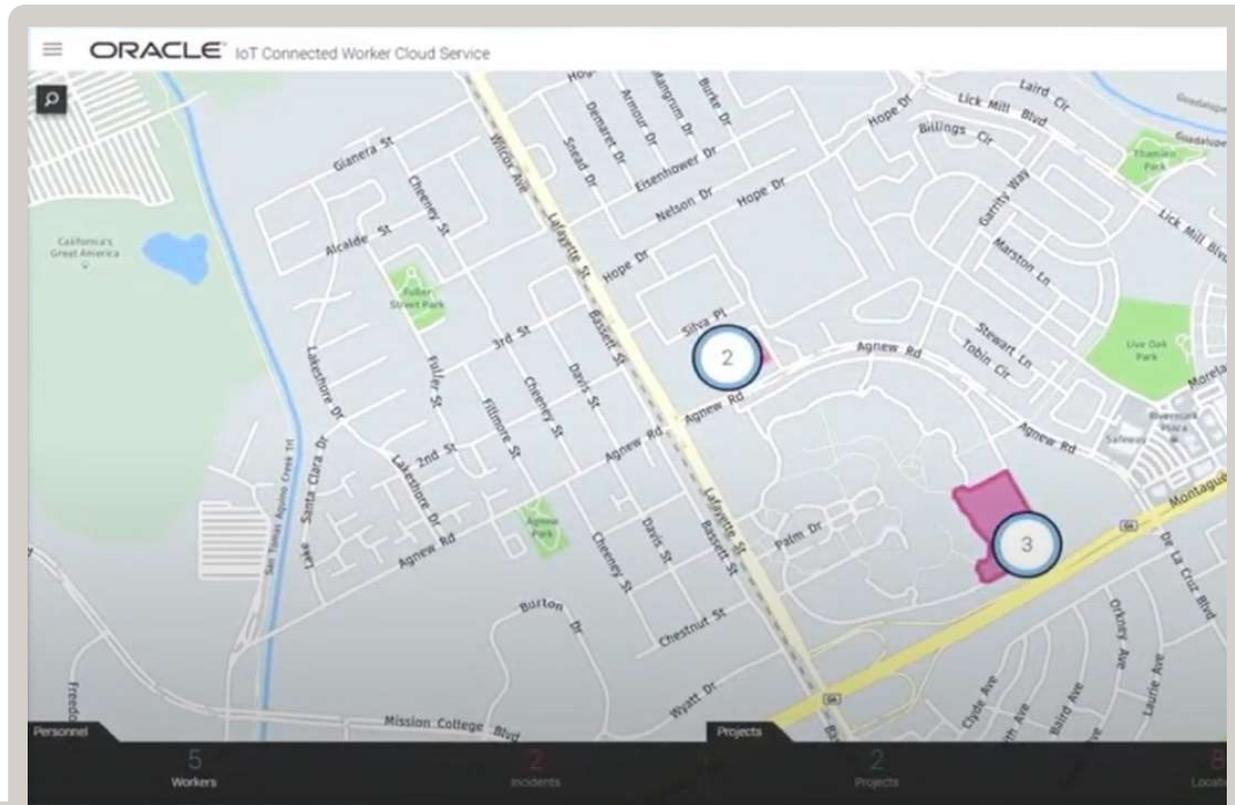
Lack of timely insights



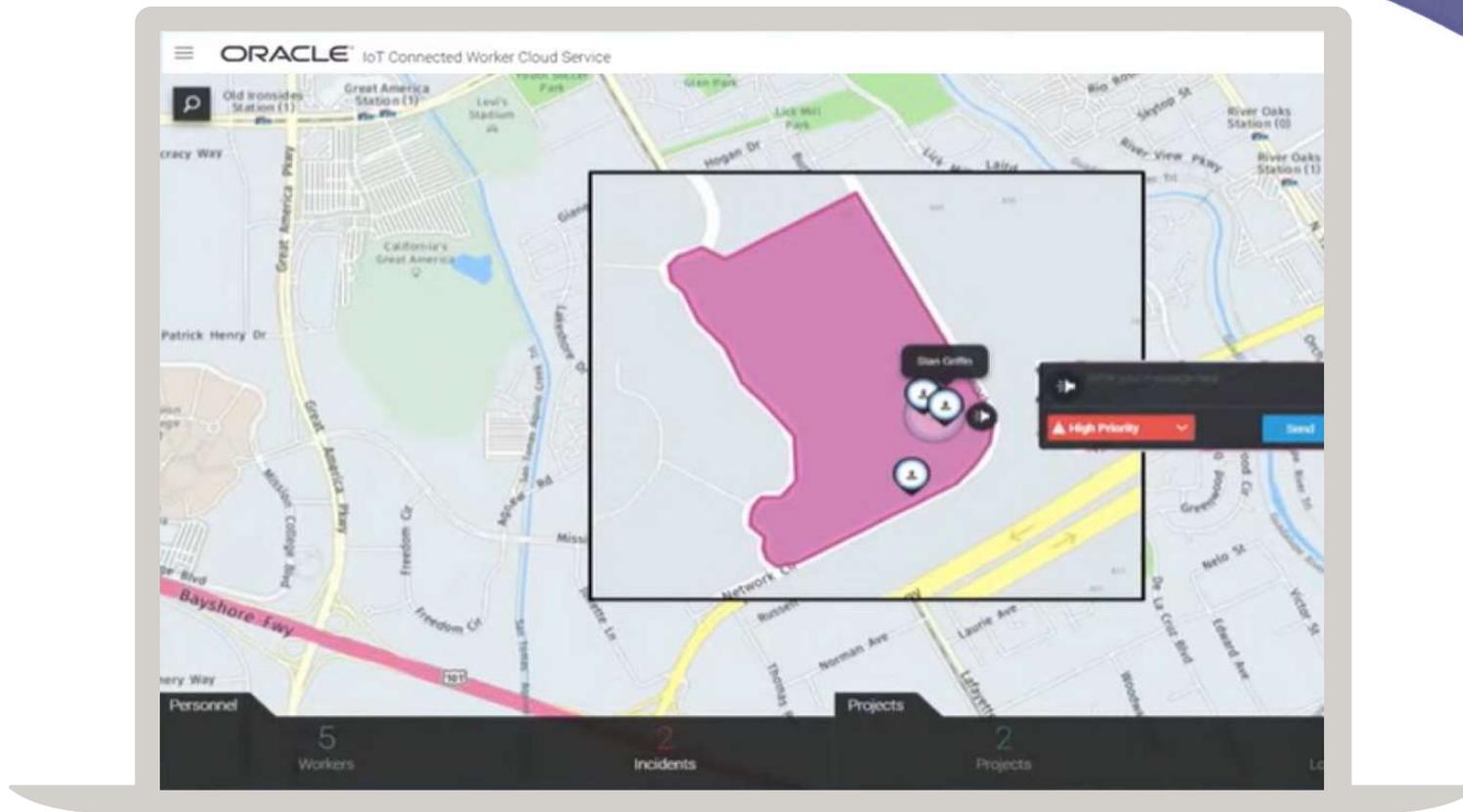
Oracle IoT Connected Workers



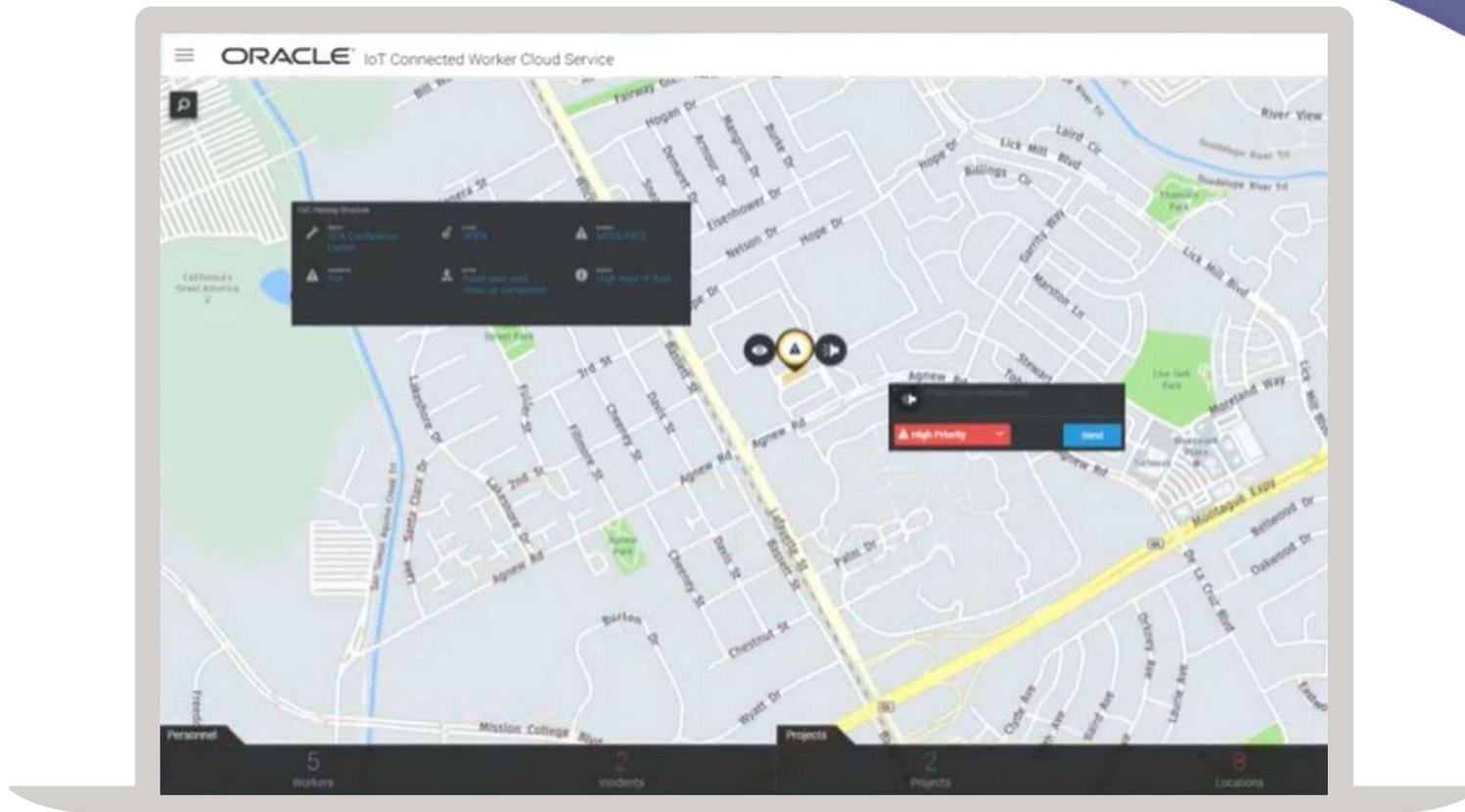
Where are your connected workers?



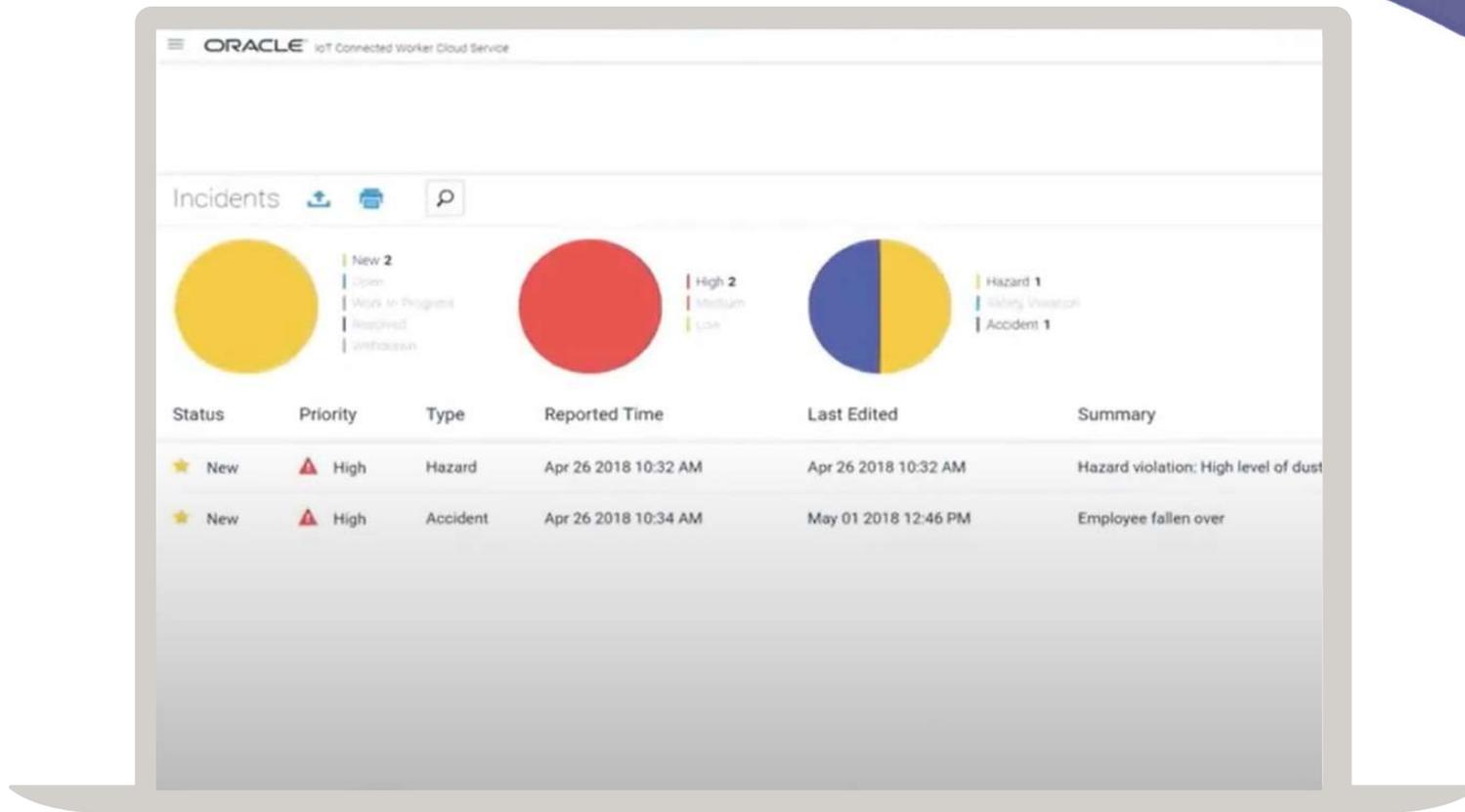
Who are those workers?



Are those workers safe?



What safety issues am I facing?





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Oracle IoT Connected Worker App

Track, detect, and prevent potential unsafe actions

- Increase worker safety and decrease work incidences by preventing unsafe acts and reducing near-misses in real time

Automate incidents processing & management

- Notification and tracking of all incidents to manage corporate and regulatory compliance

Leverage analytics and real-time information

- Learn patterns and drive safety policies enforcement



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Connected Assets

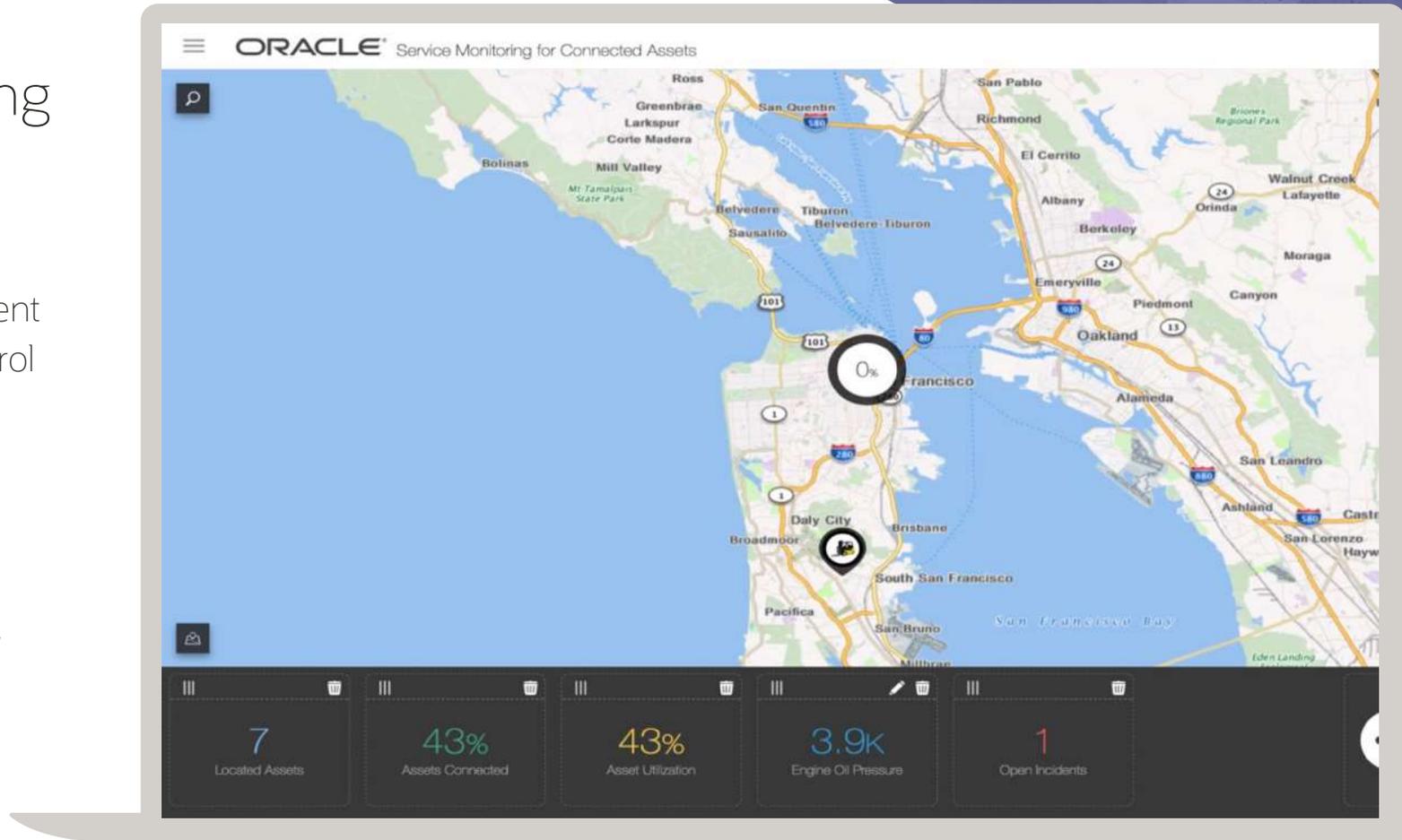


affiliates

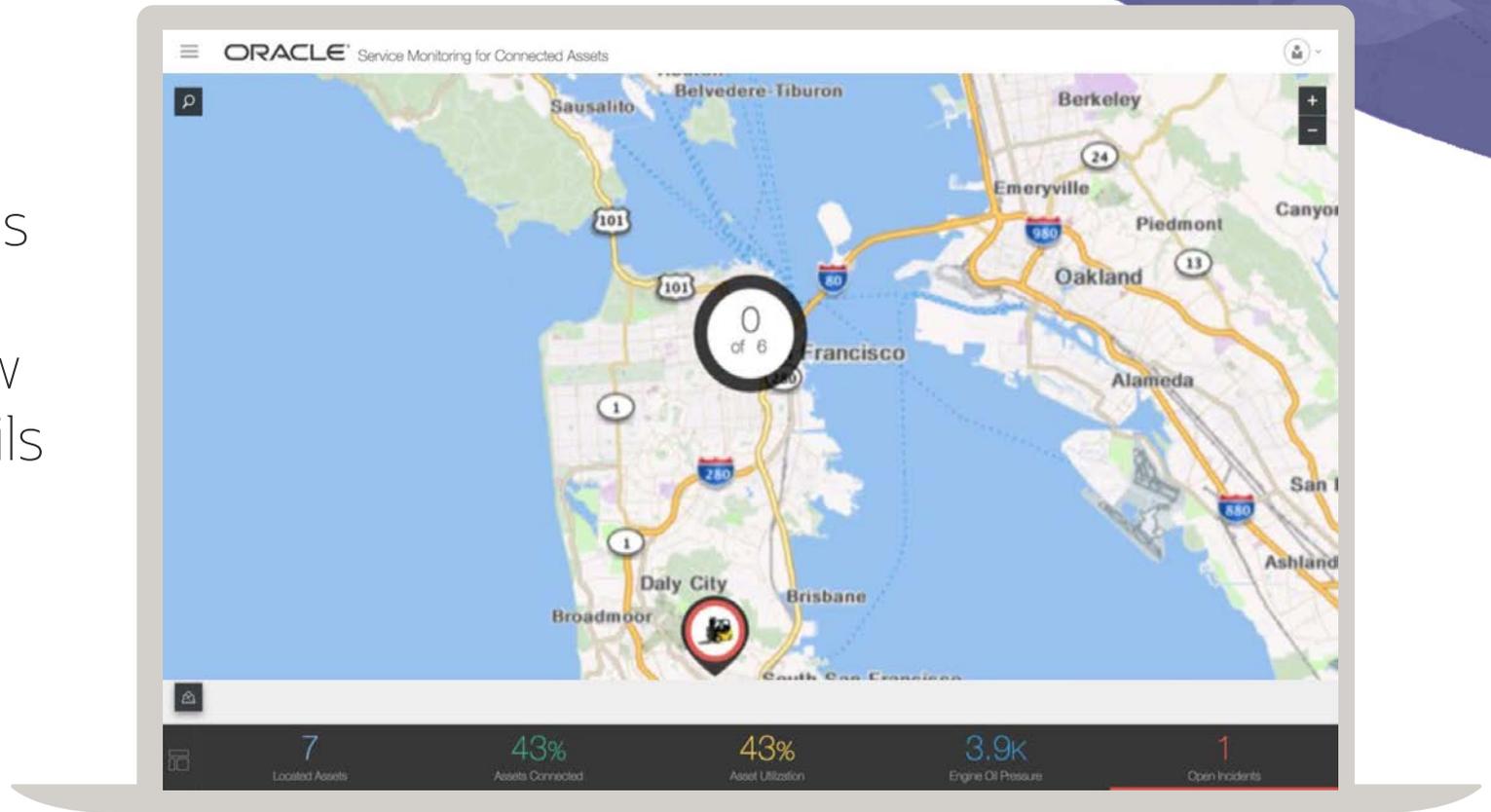
Asset Monitoring

- Remote Monitoring
- Incident Management
- Remote Asset Control
- Analytics

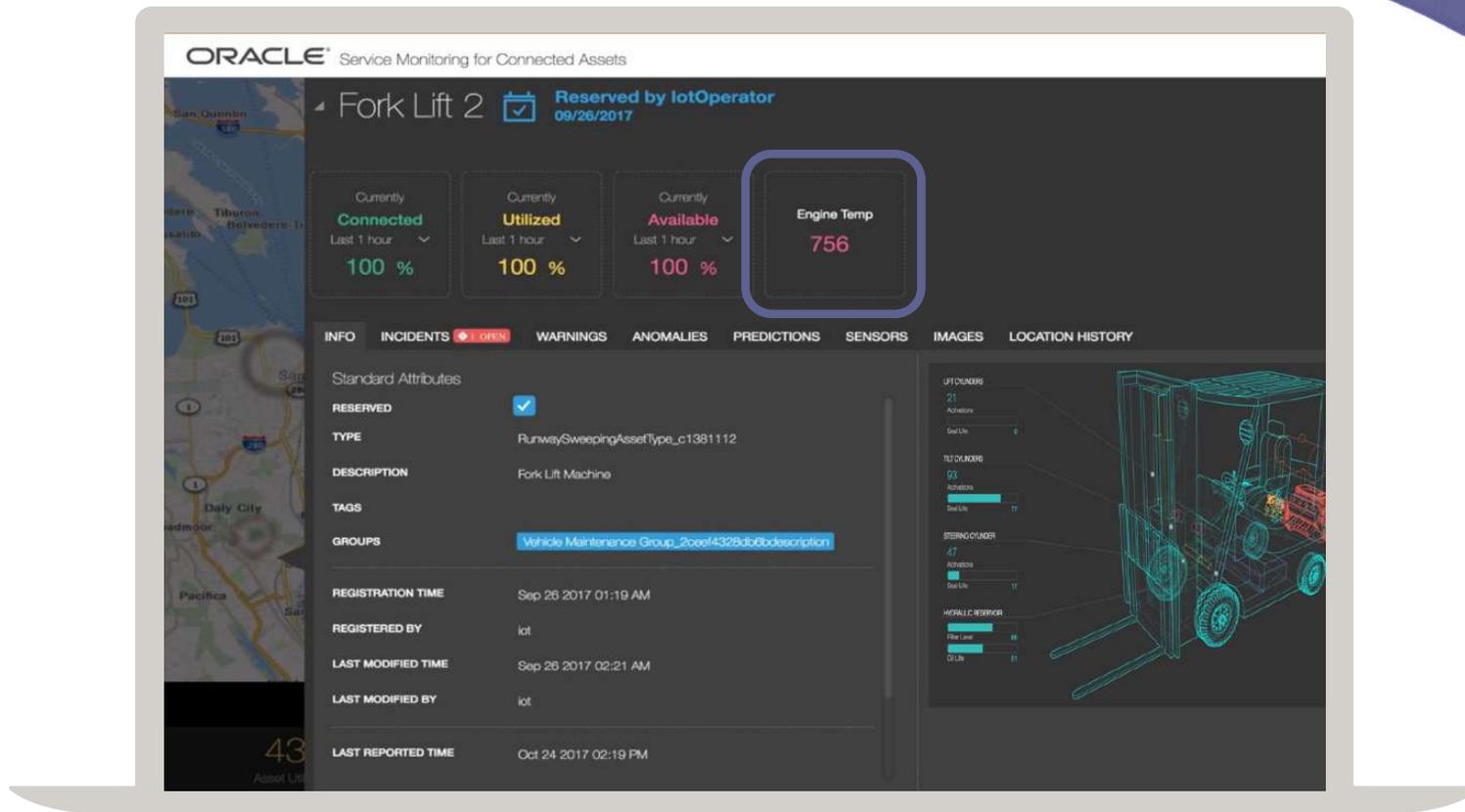
*“Where is my stuff?
What condition is it in?”*



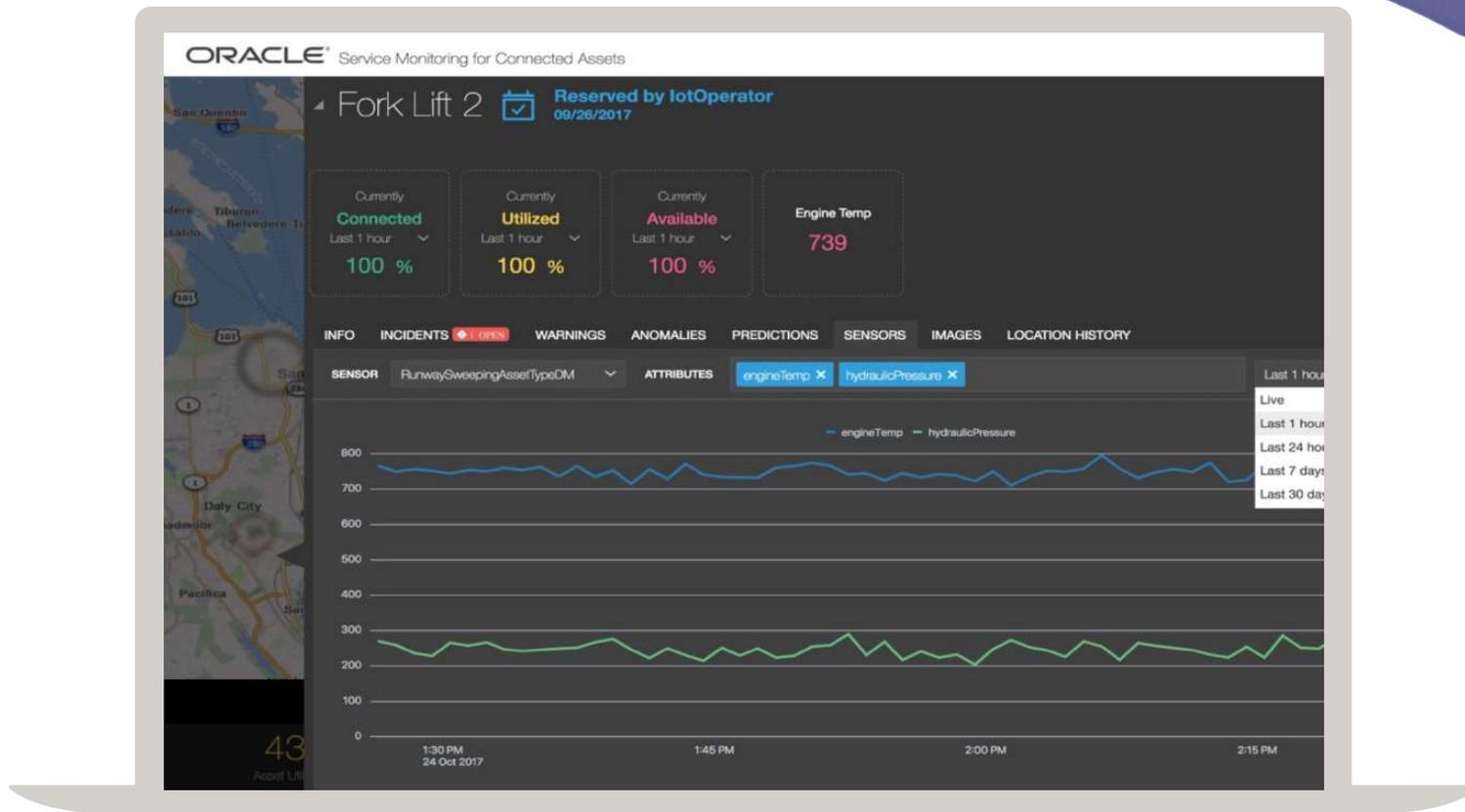
Map view locates your assets with drill down to view operational details



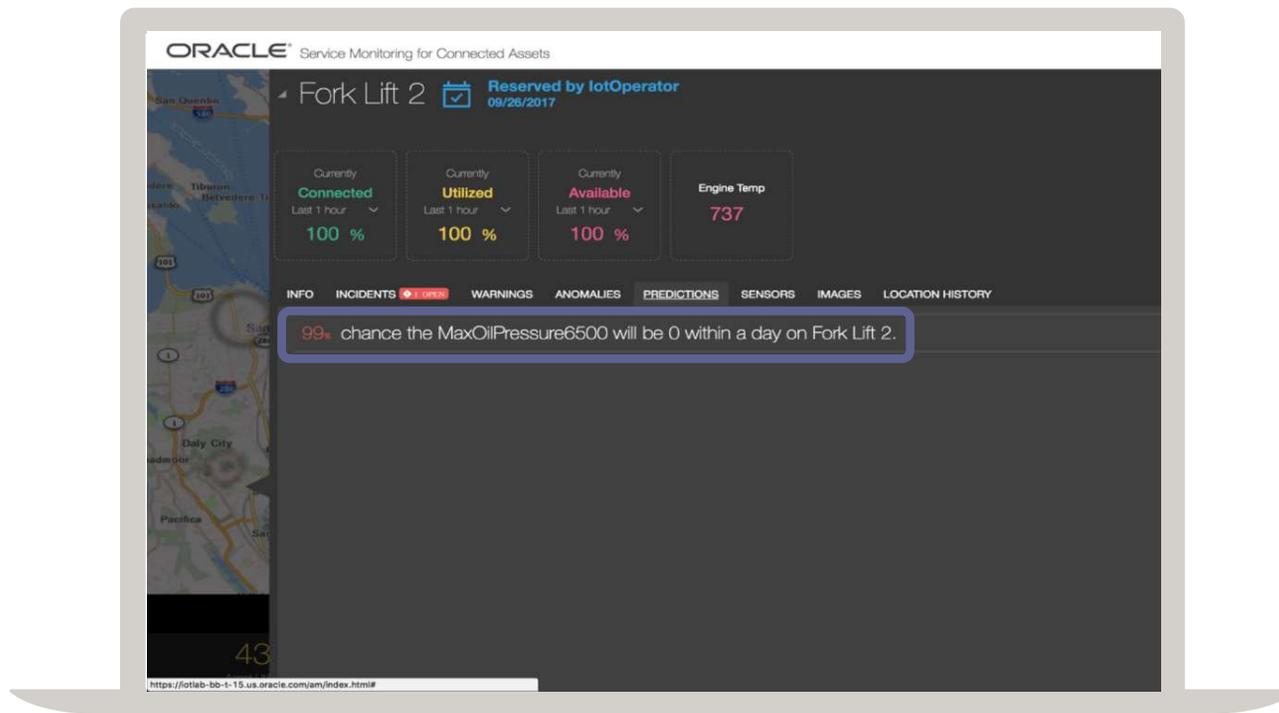
Condition monitoring of assets



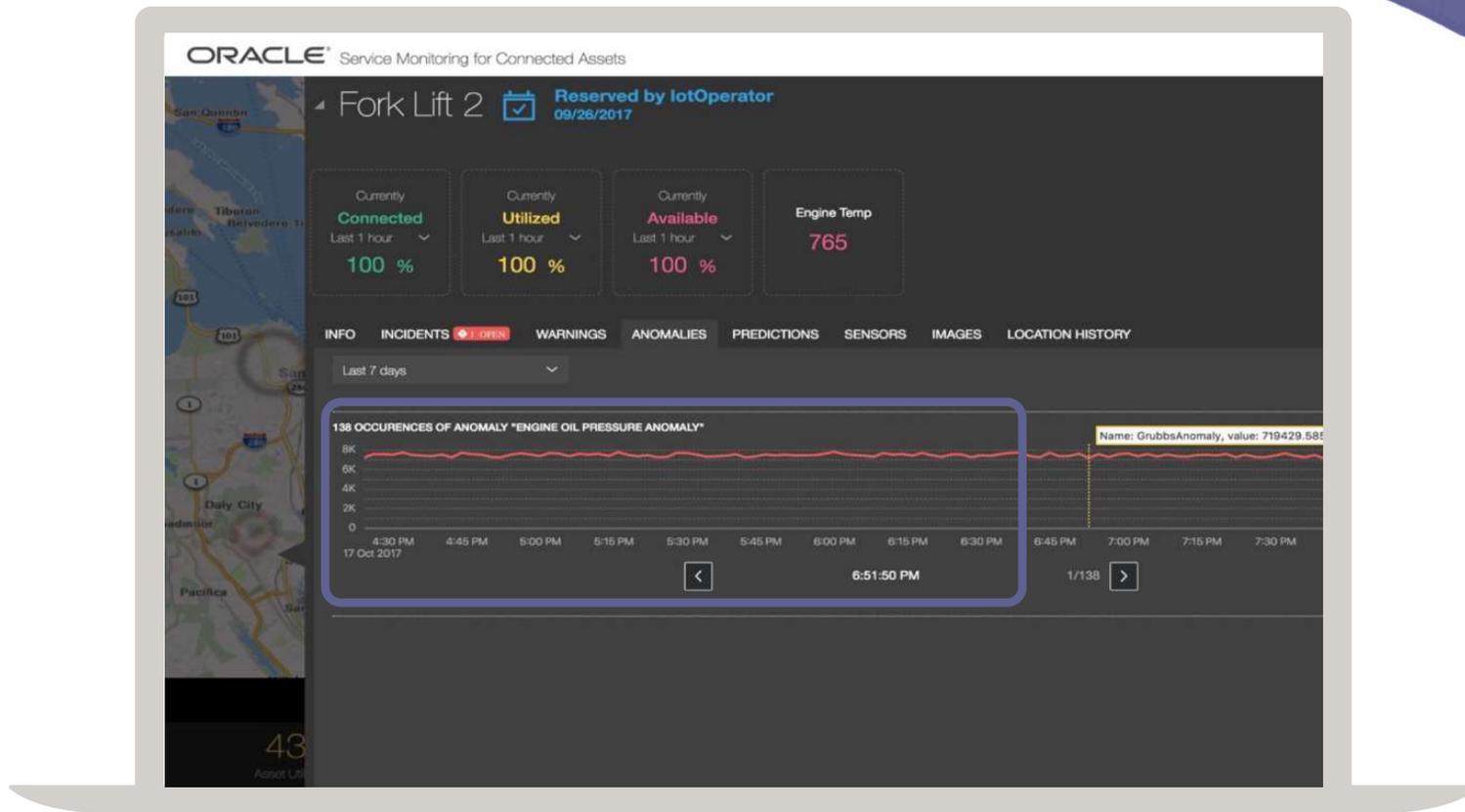
Real-time data analytics



Asset Monitoring Cloud applies machine learning algorithms to predict asset behavior



Rules based alerting



Incident prioritization visualized for this asset

The screenshot displays the Oracle Service Monitoring interface for an asset named 'Fork Lift 2', which is reserved by 'lotOperator' on 09/26/2017. The interface includes a map on the left and a main dashboard with several key metrics and a table of incidents.

Key Metrics:

- Currently Connected (Last 1 hour): 100 %
- Currently Utilized (Last 1 hour): 100 %
- Currently Available (Last 1 hour): 100 %
- Engine Temp: 765

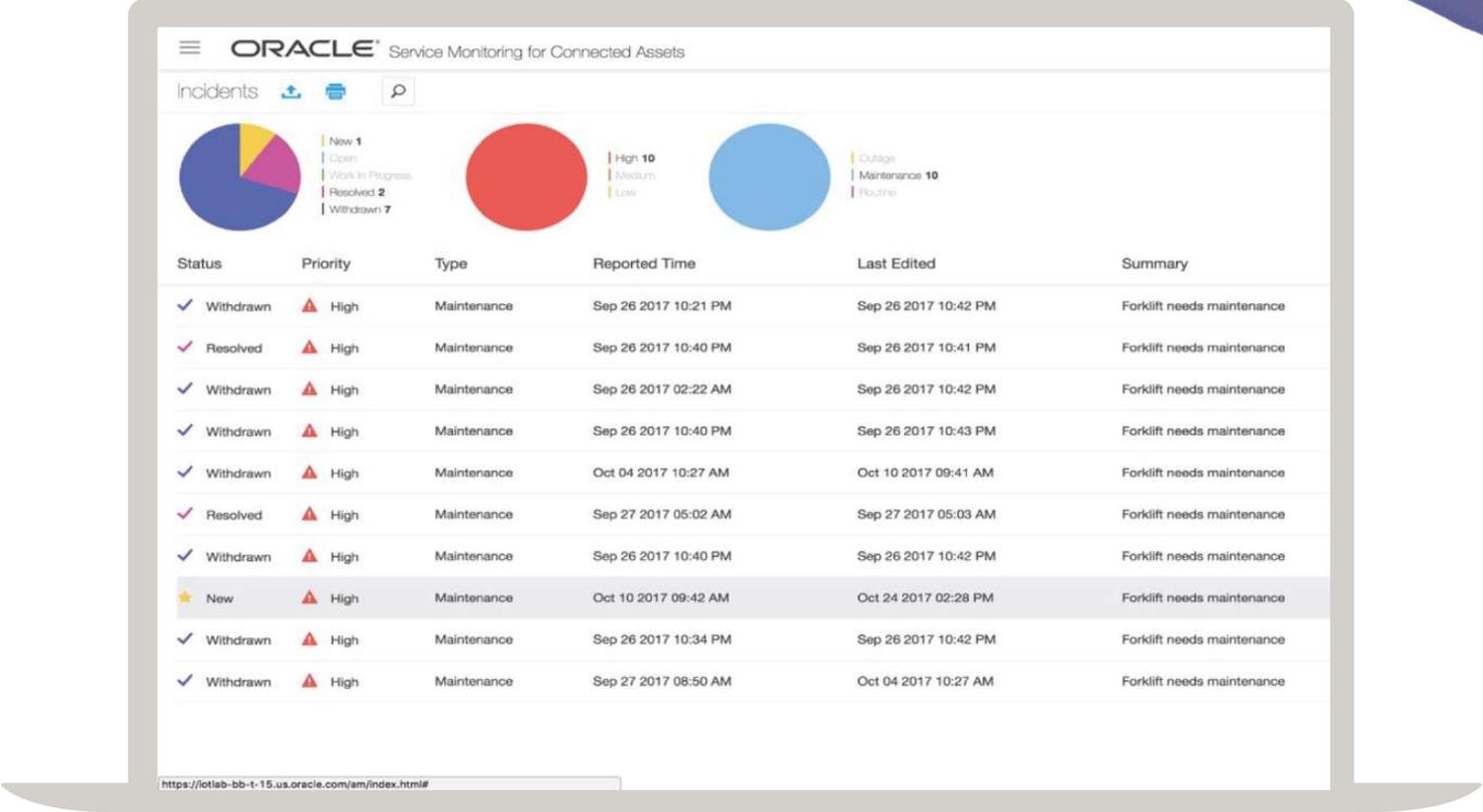
Incident Table:

Priority	Reported Time	Last Edited	Status	Type
High	Oct 10 2017 09:42 AM	Oct 24 2017 02:24 PM	New	Maintenance
High	Oct 04 2017 10:27 AM	Oct 10 2017 09:41 AM	Withdrawn	Maintenance
High	Sep 27 2017 08:50 AM	Oct 04 2017 10:27 AM	Withdrawn	Maintenance
High	Sep 26 2017 10:40 PM	Sep 26 2017 10:42 PM	Withdrawn	Maintenance
High	Sep 26 2017 10:34 PM	Sep 26 2017 10:42 PM	Withdrawn	Maintenance
High	Sep 26 2017 10:21 PM	Sep 26 2017 10:42 PM	Withdrawn	Maintenance

Trigger actions around the Asset



Oracle IoT Asset Monitoring Service Dashboard



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Connected Logistics



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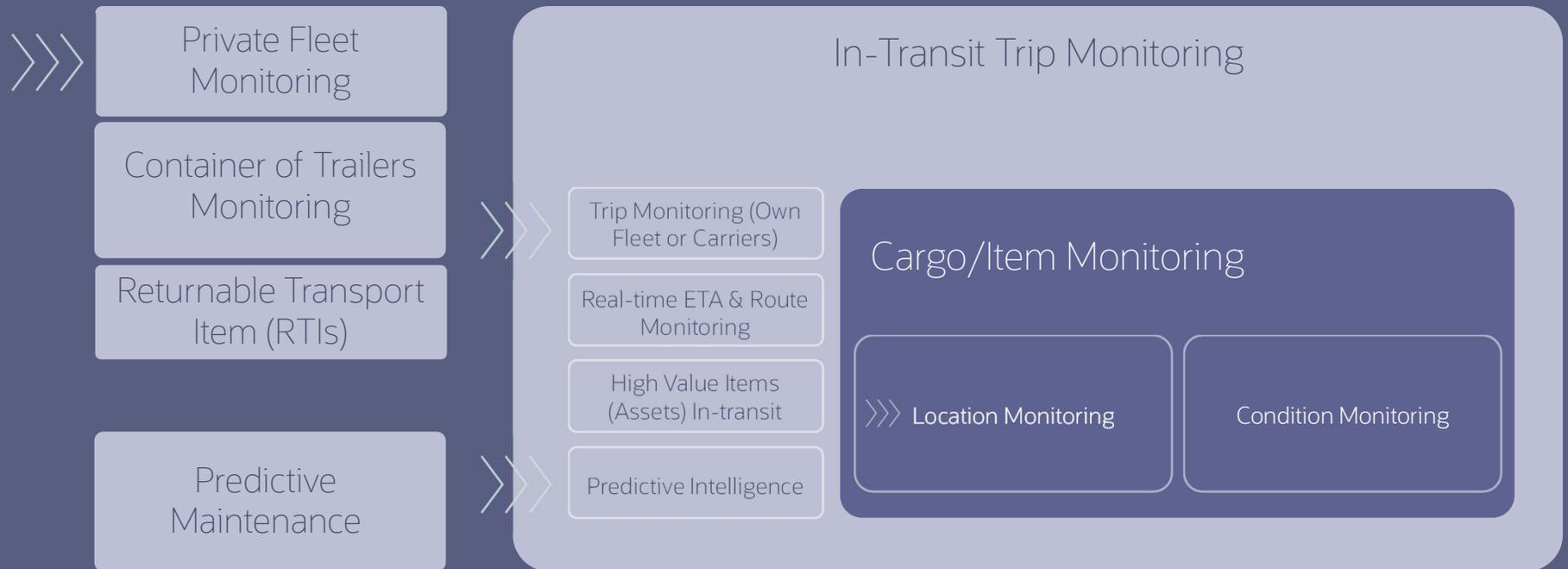
Connected Logistics Capabilities

- Shipment Management
- Schedule Management
- Integrated to Project Management and Warehouse Management



Transportation Asset Monitoring

Connected Logistics Capabilities



Oracle IoT Connected Logistics – Configuration & Integration Features

The image displays three overlapping screenshots of the Oracle IoT Fleet Monitoring Cloud Service interface, along with a diagram illustrating system integration.

Operation Center: Track and monitor vehicle drivers, trips, and their equipment, ship units, items.

Create Rules: ORACLE IoT Fleet Monitoring Cloud Service. Create Rule. Details: Name: High Temperature Freight Alert Rule. Target: Apply To: All Ship Items. Condition: Source: Sensor Attribute, Name: temperature, Comparator: Greater Than, Value: 25. Source: Attribute, Name: commodity, Comparator: Contains, Value: Temperature. Fulfillment: (empty).

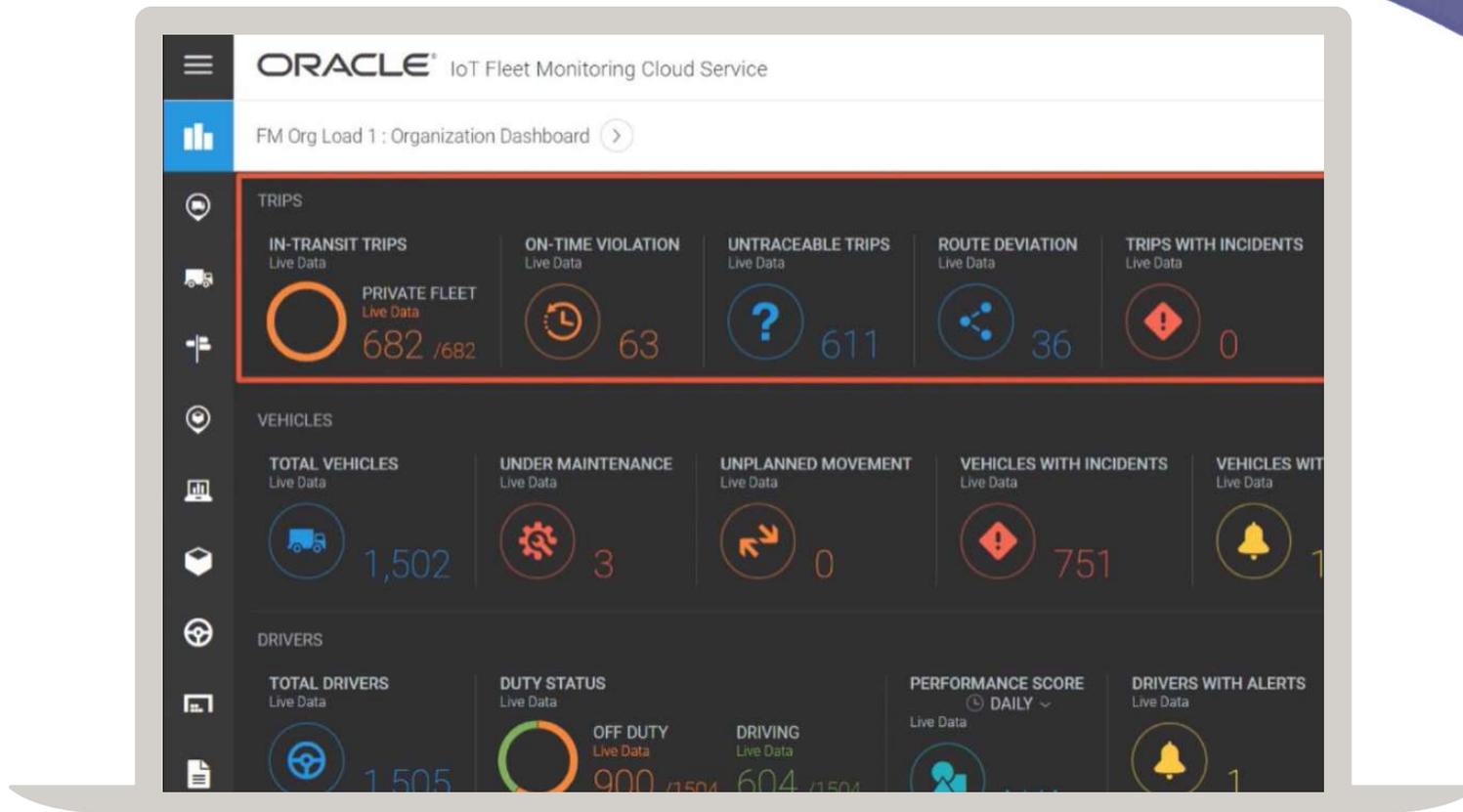
Create Metrics: ORACLE IoT Fleet Monitoring Cloud Service. Create Metric. Details: Name: MaxSpeedBoxTruck, Entry Type: BoxTruck_VC, Description: MaxSpeedBoxTruck, Metric Type: Formula Based, Keep Metrics Data For: (empty), Use Global Setting: (empty). Calculation Scheduling: (empty).

Create Geofences: Integration diagram showing IoT Fleet Monitoring connected to Oracle Transportation (OTM) and Transportation Management System. Data flows include: Import trip details, Update trip status, Fleet Monitoring, and REST APIs.





Will my materials arrive on time?



ORACLE IoT Fleet Monitoring Cloud Service

FM Org Load 1 : Vehicles

NAME	REGISTRATION NUM
Step Truck 202	1SPTR088
Step Truck 203	1SPTR098
Delivery Van 301	1DLVN331
Truck001_zz	1DLVN33144
Test_Vehicle	53ABC1DE-3329-4
Step Truck 201	1SPTR078
Mini Truck 101	1MNTR967
Delivery Van 302	2DLVN341
Mini Truck 102	2MNTR977
Mini Truck 103	3MNTR987

4WD-Mini-Truck MiniTruck N/A Idling ✓ ✗ 0





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The image displays two overlapping screenshots of the Oracle IoT Fleet Monitoring Cloud Service interface. The left screenshot shows a 'TRIP STATUS' summary for a vehicle with ID 'FRAGILE_B.7.19T12.39.35'. The status is 'Reached Destination'. Key data points include: START TIME: Jul 19 2022, 12:10; TOTAL INCIDENTS: 1; TOTAL ALERTS: 225 / 225; and ASSIGNED VEHICLE: BOX TRUCK 102 VC (1MNTR75VC) with status 'Stopped'. The right screenshot shows a map view of the same trip, titled 'Map'. The map displays a route through the San Francisco Bay Area, with five numbered stops: 1: DEPOT SANTA CLARA, 2: REDWOOD WAREHOUSE, 3: MARKET STREET WAREHOUSE, 4: OAKLAND DEPOT, and 5: VISI. Below the map, a table provides detailed trip information for each stop.

1 : DEPOT SANTA CLARA	2 : REDWOOD WAREHOUSE	3 : MARKET STREET WAREHOUSE	4 : OAKLAND DEPOT	5 : VISI
STATUS: ON TIME	STATUS: ON TIME	STATUS: ON TIME	STATUS: ON TIME	STATUS: PLANNED
PLANNED SEQUENCE: 1	PLANNED SEQUENCE: 2	PLANNED SEQUENCE: 3	PLANNED SEQUENCE: 4	PLANNED SEQUENCE: 5
ACTUAL ARRIVAL: JUL 19 2022 12:11 AM PDT	ACTUAL ARRIVAL: JUL 19 2022 12:38 AM PDT	ACTUAL ARRIVAL: JUL 19 2022 01:17 AM PDT	ACTUAL ARRIVAL: JUL 19 2022 01:43 AM PDT	ACTUAL ARRIVAL: ESTIMATED
ACTUAL DEPARTURE: JUL 19 2022 12:13 AM PDT	ACTUAL DEPARTURE: JUL 19 2022 12:40 AM PDT	ACTUAL DEPARTURE: JUL 19 2022 01:20 AM PDT	ACTUAL DEPARTURE: JUL 19 2022 01:45 AM PDT	ACTUAL DEPARTURE: ESTIMATED

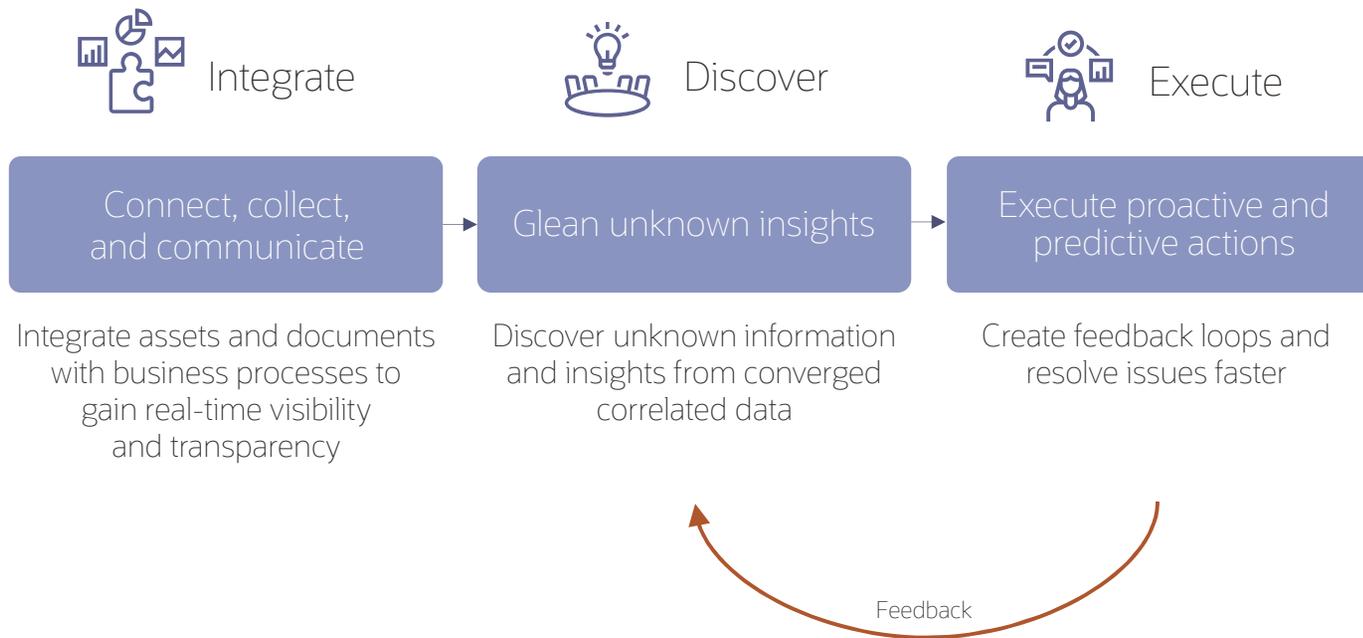


Leveraging Technology



IoT Intelligent Applications

Helping you break down boundaries





Connected Assets

Connected Maintenance
Asset Performance Monitoring
Connected Products



Smart Manufacturing

Work in Progress Monitoring
Product Quality Monitoring
Prevent Unplanned Downtime



Connected Logistics

Shipment Tracking
Cargo Condition Monitoring
Warehouse Yard Monitoring



Workplace Safety

Commercial
Industrial: manufacturing, utilities
construction, and engineering



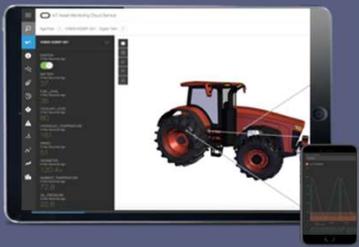
Oracle IoT
Intelligent
Applications



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Oracle IoT Intelligent Applications

Connected
Assets



Maintenance

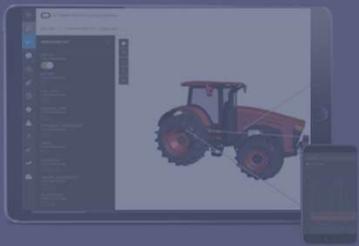
IoT Asset Monitoring

Asset Performance Monitoring
Predictive Maintenance
Usage Monitoring & Metering



Oracle IoT Intelligent Applications

Connected
Assets



Workplace
Safety



Maintenance

IoT Asset Monitoring

Asset Performance Monitoring
Predictive Maintenance
Usage Monitoring & Metering

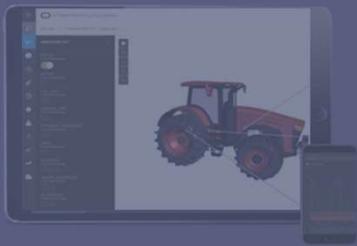
Human Resources

IoT Connected Worker

Worker Safety Monitoring
Worker Productivity Tracking
Remote Worker Alerting

Oracle IoT Intelligent Applications

Connected Assets

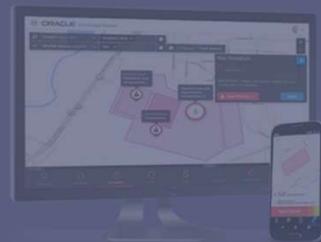


Maintenance

IoT Asset Monitoring

Asset Performance Monitoring
Predictive Maintenance
Usage Monitoring & Metering

Workplace Safety

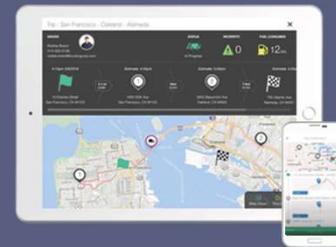


Human Resources

IoT Connected Worker

Worker Safety Monitoring
Worker Productivity Tracking
Remote Worker Alerting

Connected Logistics



Transportation, Warehouse

IoT Fleet Monitoring

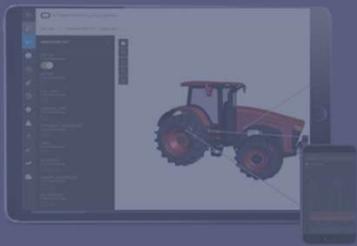
Freight Location & ETA Tracking
In-transit Condition Monitoring
Warehouse Yard Monitoring



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Oracle IoT Intelligent Applications

Connected Assets



Maintenance

IoT Asset Monitoring

Asset Performance Monitoring
Predictive Maintenance
Usage Monitoring & Metering

Workplace Safety

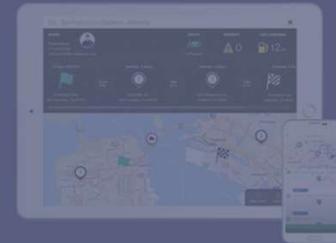


Human Resources

IoT Connected Worker

Worker Safety Monitoring
Worker Productivity Tracking
Remote Worker Alerting

Connected Logistics



Transportation, Warehouse

IoT Fleet Monitoring

Freight Location & ETA Tracking
In-transit Condition Monitoring
Warehouse Yard Monitoring

Smart Manufacturing



Maintenance, Manufacturing, Planning

IoT Production Monitoring

Work Order Progress Tracking
Smart Factory/Industry 4.0
Product Quality Monitoring



Oracle IoT Intelligent Applications

**DATA
SOURCES**

Connected
Assets

Smart
Manufacturing

Connected
Logistics

Workplace
Safety

Products

**SYSTEMS of
RECORD**

IoT EDGE

Acquisition &
Analytics

IoT DIGITAL THREAD

IoT FOUNDATION



Oracle IoT Intelligent Applications

DATA SOURCES

Industrial Gateways,
Industrial Sensors

SCADA,
OPC-UA, MODBUS

4G/LTE, LPWAN, WIFI,
Ethernet

On-prem Historians,
Proprietary

Connected
Assets

Asset
Performance

Smart
Manufacturing

Smart
Factory

Work Order
Tracking

Connected
Logistics

Intelligent
Warehouse

Workplace
Safety

Worker
Productivity

Products

Remote
Diagnostics

Product as a
Service

SYSTEMS of RECORD

Maintenance & Field
Service

Supply Chain Management

Manufacturing &
Operations

Enterprise Resource
Planning

Human Capital
Management

IoT DIGITAL THREAD (with AI/ML)

Digital
Twins

Situational
Awareness

Trends & Anomaly
Detection

Predictions &
Forecasts

Recommended
Actions

Intelligent
Workflows

IoT FOUNDATION

Device
Connectivity

Real Time
Analytics

Machine Learning
Pipeline

Time Series Data
Management

Application
Integration

IoT EDGE
Connectors
Client libraries
Edge Gateway
Edge Database



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Oracle IoT Intelligent Applications

DATA SOURCES

Industrial Gateways,
Industrial Sensors

SCADA,
OPC-UA, MODBUS

4G/LTE, LPWAN, WIFI,
Ethernet

On-prem Historians,
Proprietary

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Asset
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Smart
Manufacturing

Smart
Factory

Work Order
Tracking

Connected
Logistics

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Warehouse

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Worker
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Remote
Diagnostics

Product as a
Service

SYSTEMS of RECORD

Maintenance & Field
Service

Supply Chain Management

Manufacturing &
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Enterprise Resource
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IoT DIGITAL THREAD (with AI/ML)

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Pipeline

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Management

Application
Integration



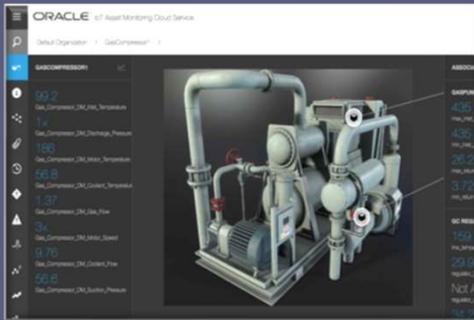
Oracle IoT Intelligent Applications

CONNECT

ANALYZE

PREDICT

ACT



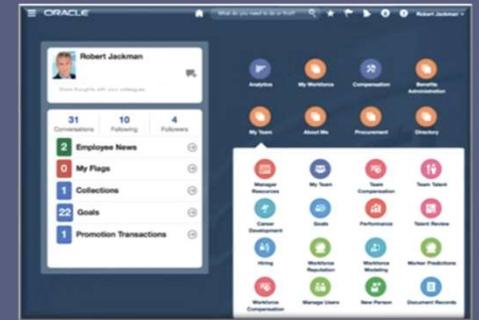
Digital Twin Modeling



Domain specific dashboards



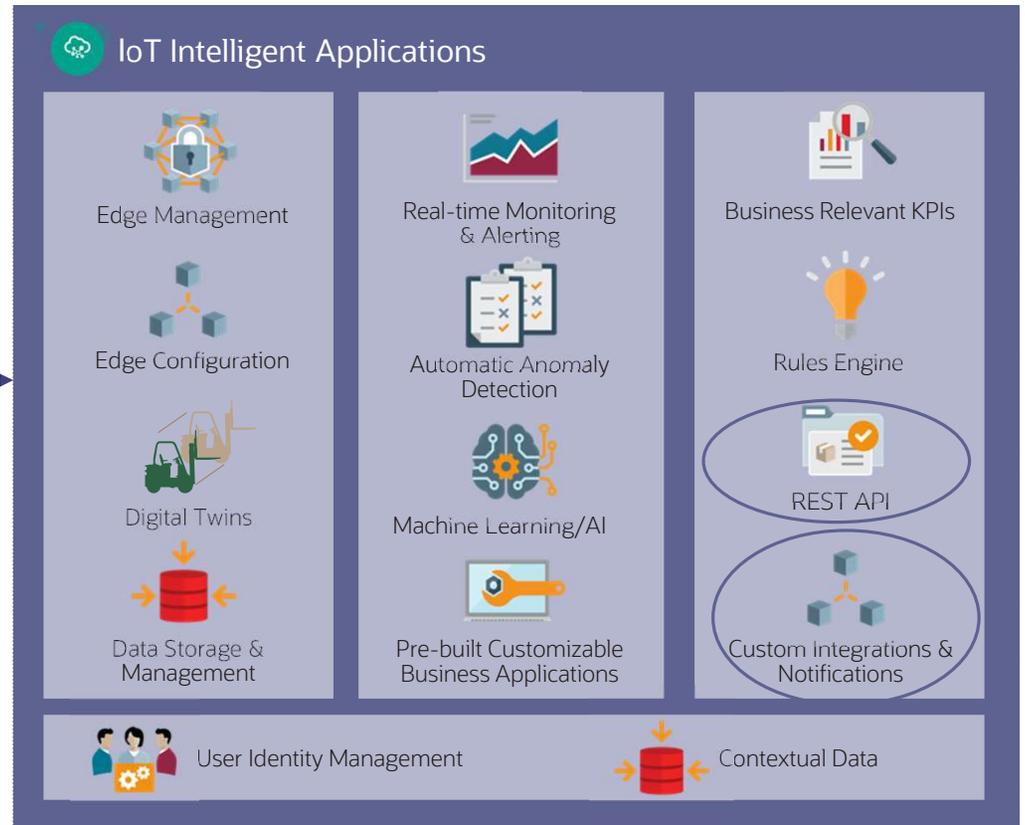
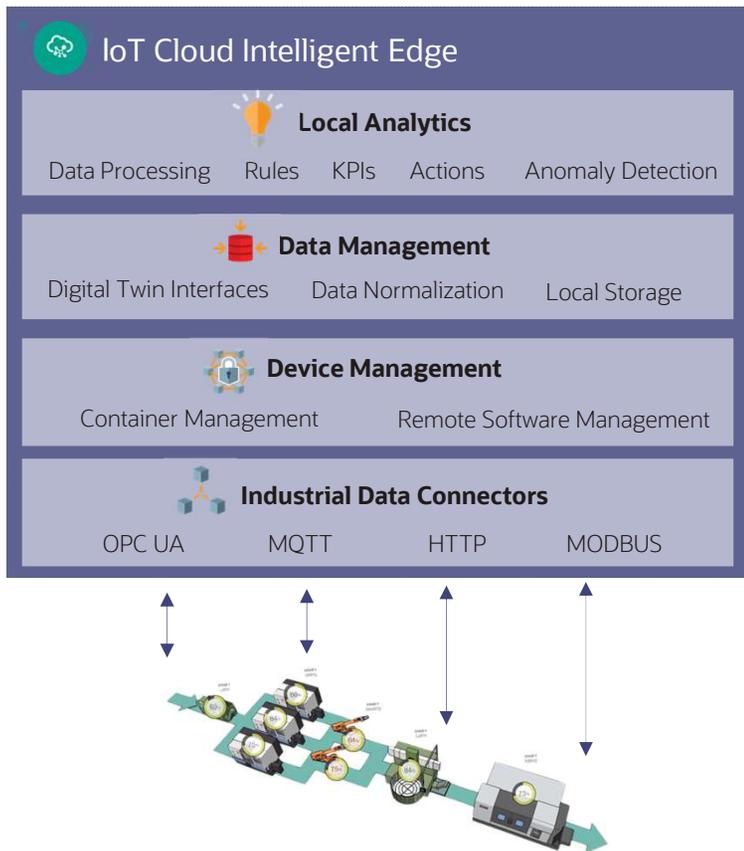
AI and Machine Learning



Business Insights



Oracle IoT Cloud Edge Architecture



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Oracle IoT Cloud Delivery Partners

accenture

L&T Infotech

KPIT

wipro

Deloitte.

Hitachi Consulting

Infosys

Cognizant

TATA
CONSULTANCY SERVICES

KOBACE
A Cognizant Company

Ephlux

pwc

CSS

KALYPSO

inspirage

Trinamix

ORACLE
CONSULTING

accelalpha

Evosys
Professional
Fundamental
Marketing

EMINENT
LOGISTICS

USTGlobal®

keste

Gaea

HCL

V2COM

NTT DATA

cec
core experts consulting

TransSys
enable. enhance. extract.

XORASOFT
INNOVATION BY EXCELLENCE

REPLY

IBM

KPMG

AppsPro
المحترفون

IT rizon®
HIGH IMPACT PROFESSIONAL SERVICES

Catalyst™



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Oracle IoT Cloud: End Point Technology Collaborations

IIoT Gateways:

Smart Manufacturing:

Remote Monitoring:

Connected Logistics:

OT Applications:

Asset Tracking:

Connected Worker: **Security:**

Computer Vision: **Device Integrators:**

LPWAN Connectivity:





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Archrock

Natural gas compression company radically changes its business operations

Apply predictive maintenance and service of remote gas compressors

- Leverage near-real-time unit monitoring and advanced analytics to radically change the way it runs its business and serves its customers
- Proactively detect faults and optimize field service for its remote assets
- Improve units to field service technician ratio
- Cut down on number of field service trips per job for issue resolution
- Optimize parts planning and procurement



Thank you

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For Change.

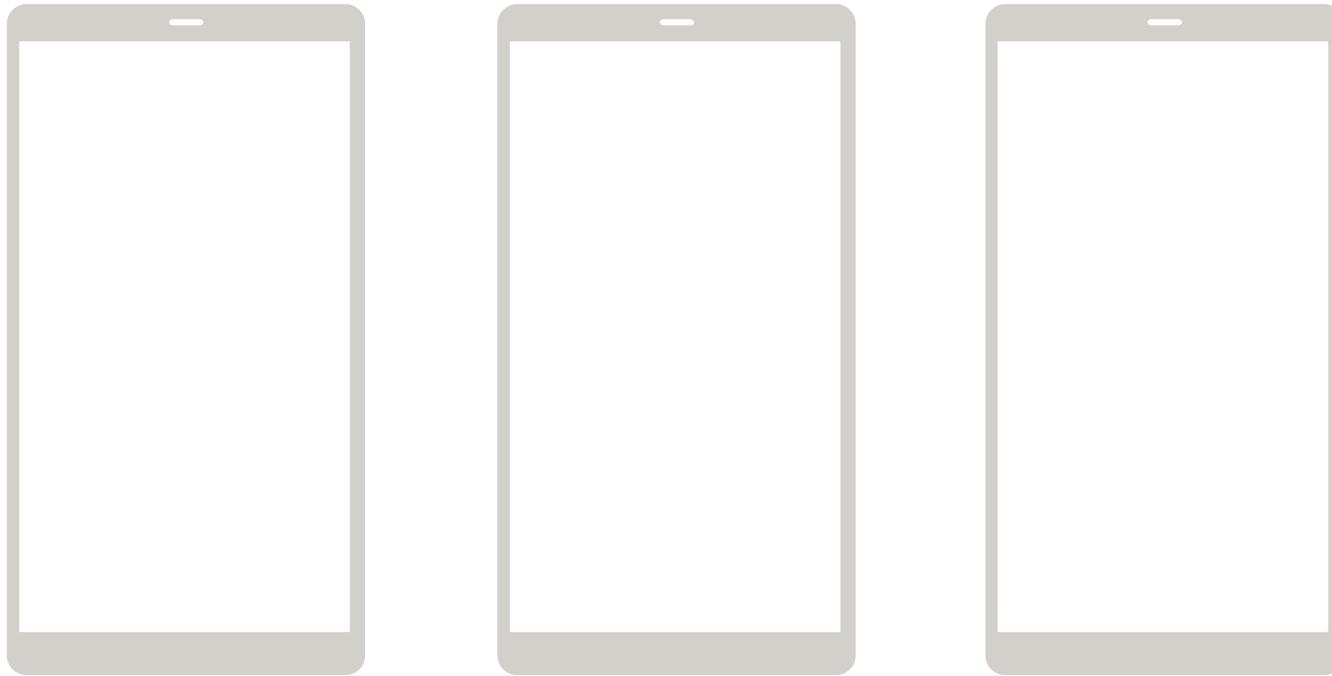
Built For You.



Title + Phone, Tablet picture insertion



Title + 3 Phones picture insertion



Title + Tablet, Monitor picture insertion



Device Shells

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Device Shells

Designed For Change. Built For You.



Icons

Computers



Date & Time



Communication



People

