Oracle IoT Applications

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Oracle Cloud: Bringing Cloud Agility to Enterprises

Integrated SaaS, PaaS and IaaS with deployment choice

SaaS

PaaS

IaaS

On-Premises

Off-Premises
Choice for Oracle IaaS & PaaS

Oracle Data Center
Oracle Cloud

Your Data Center
Oracle Cloud Machine

IaaS
Network
Storage
Compute

PaaS
Data Management
Identity
Content & Experience
Application Development
Enterprise Integration, Data Integration
Business Analytics

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Why Did we pick the Industries we did?

EBS and JDE in 70% of Discrete Manufacturing, Logistics/Transportation

- $3 Trillion Market
  - By 2020

- 50 Billion Devices
  - By 2018

- 8 Zeta bytes of data
  - Today

*BI INTELLIGENCE*

By 2020:
- Manufacturing
- Transportation And Warehousing
- Information
- Wholesale Trade
- Health Care And Social Assistance
- Retail Trade
- Finance and Insurance
- Utilities
- Mining
- Real Estate And Rental And Leasing
- Construction
- Professional, Scientific, And Technical Services
- Forestry, Fishing, And Agricultural Services
- Administrative And Support And Waste
- Accommodation And Food Services
- Other Services (Except Public Administration)
- Educational Services
- Arts, Entertainment, And Recreation
- Management Of Companies And Enterprises
- Structure and Equipment Expenditures Serving

By 2018:
- Manufacturing
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Oracle’s IoT Journey

Devices -> Gateways -> Backend Integrations -> PaaS Platform -> SaaS applications

Lots of activity and time spent here

This is what customers are asking for

IoT Applications

IoT Platform

Devices / Sensors
The OT-IT Chasm

IoT Devices

Current processes

Business Applications

Today, many conditions are manually detected, and then manually entered in the business applications
Oracle Internet of Things Platform
Oracle IoT Cloud Applications & Platform

**Asset Monitoring**
Monitor assets, their utilization, availability

**Production Monitoring**
Manufacturing equipment Monitoring & prognostics

**Fleet Management**
Monitor fleet vehicles, driver behavior and costs

**Connected Worker**
Enhance worker safety through monitoring of workers and environment

**Internet of Things Cloud Enterprise (Platform)**
Connect

**Analysis**
Analyze

**Integrate**
Integrate
Product Overview
IoT Asset Monitoring Cloud

For monitoring assets, their utilization, availability, and data from connected sensors

Location Tracking

Asset Health

Asset Performance

Utilization

95% Asset Availability

1 Open Incidents
IoT Asset Monitoring Cloud

For monitoring assets, their utilization, availability, and data from connected sensors

- **Location Tracking**
  - Tracking of indoor and outdoor location using BLE beacons, RFID readers
  - Where is the nearest available asset?

- **Asset Health**
  - Are my assets working?
  - Are any alerts and incidents open against my assets?

- **Asset Performance**
  - Are my assets connected and online?
  - Geo-fence based business rules
  - Are my assets being misused?

- **Utilization**
  - Are my assets available?
  - Are my assets utilized?

95% Asset Availability

1 Open Incidents
Gain Real Time Operational Visibility

Designed for business users with responsive UI and multi dimensional search

Monitor real time performance and derive KPIs of factory, product and machines.

Navigate using the map view, and drill into a specific work site/campus.
Intuitive Views of Asset Relationships

Search for assets by name and metadata

Quickly identify Asset locations, Geofence violations, and Incidents requiring attention

Only see the relevant assets
Integrates with Asset Management Solution

Connects seamlessly with other Oracle Products and Services

Integrate sensors to report operational data

Integrate metadata from your Asset Management system

Track current and historical asset location information
View and Compare Asset Performance

Operational data displayed in near real-time

Quickly identify abnormalities in data streams
IoT Production Monitoring Cloud

Manufacturing factory floor equipment monitoring and prognostics

Factory Monitoring

Production Line View

Predictive Algorithms

Maintenance
IoT Production Monitoring Cloud
Manufacturing factory floor equipment monitoring and prognostics

**Factory Monitoring**
- Monitoring of the factory floor
- Track the number of reporting assets, in use and down

**Production Line View**
- Visualize and monitor a production line
- Track actual production output versus the production plan

**Predictive Algorithms**
- Can you predict potential problems with my equipment?
- What is the effect of that on my production plan?

**Maintenance**
- What are the maintenance needs for my equipment?
- What is the best maintenance schedule w.r.t. production plan?
Gain Real Time Operational Visibility

Designed for factory manager and business user with responsive UI and multi dimensional search

Monitor real time performance and derive KPIs of factory, product and machines

Navigate using the map view, and drill into a specific factory/plant
Gain Real Time Operational Visibility

Designed for factory manager and business user with responsive UI and multi dimensional search

Deep dive into production lines, and machines to gain operational insights
Identify Factory, Product, Machine for Improvement

Identify root cause of sub-par performance using deep dive on specific KPIs and sensor data.

Identify anomalies in machine performance and its effect on production.
IoT Fleet Monitoring Cloud

For medium sized business who have fleets of vehicles (trucks, buses, maintenance vehicles, delivery vehicles)
IoT Fleet Monitoring Cloud

For medium sized business who have fleets of vehicles (trucks, buses, maintenance vehicles, delivery vehicles)

- **Connected Fleet**
  - Monitor and visualize entire fleet
  - Driver compliance (electronic logging, odd hour driving)

- **Location Tracking**
  - Tracking of each vehicle round the clock
  - Analyze stops, speed
  - Geo-fencing

- **Utilization**
  - Are my vehicles utilized?
  - What are the most and least utilized vehicles?

- **Fleet Performance**
  - How is my fleet performing?
  - What maintenance do I need to perform?
  - Are my vehicles abused?

For medium sized business who have fleets of vehicles (trucks, buses, maintenance vehicles, delivery vehicles)
IoT Connected Worker Cloud

For tracking employees in Mining industry, Engineering and Construction industry

Connected Workers

Employee Safety

Location Tracking

Performance
IoT Tech Stack
Oracle IoT – A Complete Solution

IoT Cloud Service

Devices

IoT Apps

Track & Detect

Visualize & Predict

Integrate & Act

Platform

Connect

Analyze

Integrate

Business Applications

Manufacturing, Supply Chain, Asset Mgmt

Customer Relationship Mgmt, Sales, Service

Vertical Apps – Utilities, Healthcare, Retail
Oracle IoT – Applications

**Devices**
- Track and Locate
  Track & locate assets, equipment, fleets, workers - indoors or outdoors
- Digital Twin
  Device virtualization, simulation & secure bi-directional connectivity
- Remote Monitoring
  Metrics, KPIs
- Business Rules
  Detect based on Geo-Fence or condition based business rules

**Business Applications**
- Manufacturing, Supply Chain, Asset Mgmt
- Customer Relationship Mgmt, Sales, Service
- Vertical Apps – Utilities, Healthcare, Retail

**Client Libraries and Gateway Software**
- Connect
- Analyze
- Integrate

**Platform**
- Visualize & Predict
- Integrate & Act
Oracle IoT – Applications

Interactive Dashboards
Actionable dashboards with Domain specific visualization

Predict Maintenance needs, Anomalies, Faults

Big data meets Streaming Analytics
Combine real time data with relational and big data

Contextual data
Leverage context from business apps for holistic predictions

Track & Detect

Connect

Visualize & PREDICT

Analyze

Integrate & Act

Integrate

Business Applications

Manufacturing, Supply Chain, Asset Mgmt

Customer Relationship Mgmt, Sales, Service

Vertical Apps – Utilities, Healthcare, Retail
Oracle IoT – Applications

- **Automated Workflows**: Smart Inventory, automated service, work-order generation
- **Synchronize IoT and ERP/SCM data**: Asset Models, Production Plans, Trips and Routes
- **Digital thread**: Project IoT insights onto business applications
- **Pre-Integrated Apps**: Pre-built integrations with CX Cloud, SCM Cloud and Logistics Cloud

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**Connect**

**Analyze**

**Integrate**

**Track & Detect**

**Visualize & Predict**

**Integrate & ACT**

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**Devices**

**Business Applications**

- Manufacturing, Supply Chain, Asset Mgmt
- Customer Relationship Mgmt, Sales, Service
- Vertical Apps – Utilities, Healthcare, Retail

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### Oracle IoT Cloud Partner Ecosystem

<table>
<thead>
<tr>
<th>SI Partners</th>
<th>Connected Worker</th>
<th>Fleet Management</th>
<th>Connected Car</th>
<th>Digital Field Service</th>
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<tbody>
<tr>
<td>accneture</td>
<td>Smart Factory, Facilities Mgmt.</td>
<td>Smart Service Utilities</td>
<td>Asset Management</td>
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<td>KPIT</td>
<td>Cognizant</td>
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#### Partner Ecosystem Details:

- **Real-time OS & Device Management**
  - Wind
  - Intel

- **OPC UA Industrial Connectivity**
  - MatrikonOPC
  - Honeywell

- **Building / Industrial Connectivity**
  - TRIDIUM
  - Siemens

- **Asset Tracking**
  - estime
  - kontakt.io

- **Industrial Gateways**
  - janztec
  - EUROTECH

- **Industrial Gateways and Sensors**
  - ADVANTECH
  - moisic

- **Industrial Automation**
  - Rexroth Bosch Group
  - ABB

- **Telematics**
  - Hitachi Consulting

- **IoT OS & Device Management**
  - ZENTRI
  - gemalto

- **IoT Security**
  - Aricent

- **Smart City Gateway**
  - Cisco

- **Wireless Connectivity**
  - Jasper

- **Telematics**
  - Freematics

#### Device & Technology Partners

- LOCHBRIDGE
- NEC

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Summary

We make IoT **Easy** to drive **Business Outcomes**

**Our Goal**

**Business Outcomes**:
- **Product Design & Planning (PLM)**
- **Procurement & Order Management**
- **Manufacturing**
- **Logistics**
- **Service & Maintenance**

**Processes**:
- Asset Monitoring
- Production Monitoring
- Fleet Monitoring
- Connected Worker