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Oracle Internet of Things Cloud Service



Harish Gaur & Simon Nicholson

Senior Director
IOT Product Management
Oracle Cloud Platform

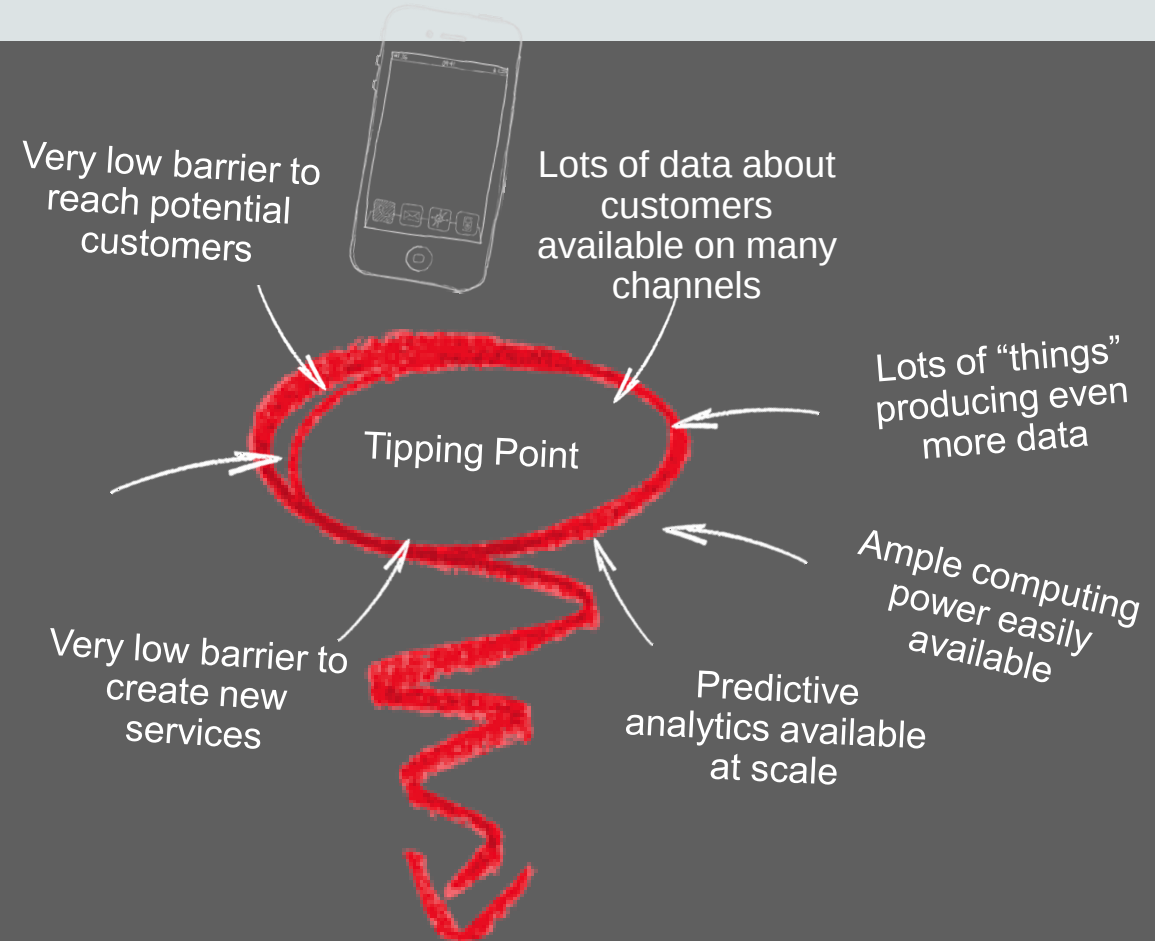
Raj Paul

VP of Automotive and Emerging Technologies
Lochbridge

AGENDA

- Oracle IoT Strategy & Focus
- IoT Cloud Service Overview
- Solution Demo
- Partner Solution Overview
- Next steps

Industries are being disrupted



Cost and
Time-to-Market for
new Services

Scale of
addressable
market



New competitors
are disrupting
traditional
companies at a
very fast pace

Internet of Things is Here (Everywhere)

Security



Utilities



Hospitality



Wearables



Retail



Logistics



Telematics



Manufacturing

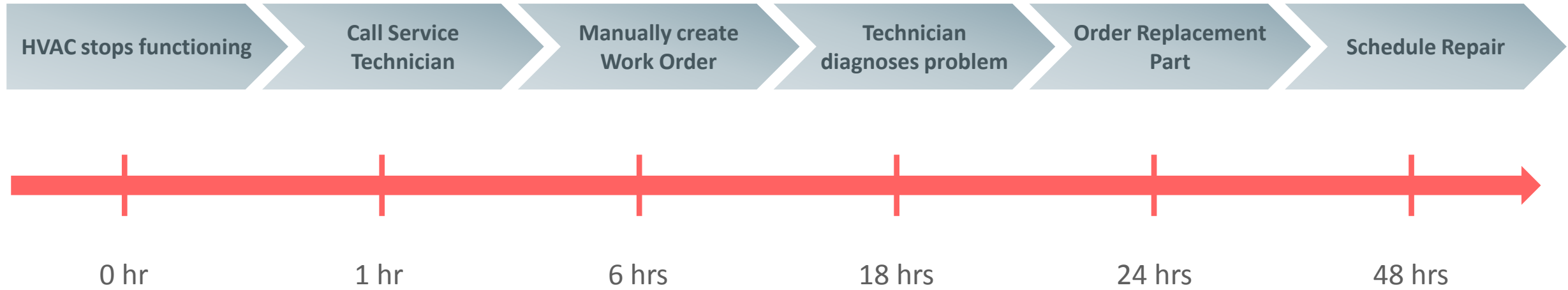


Insurance

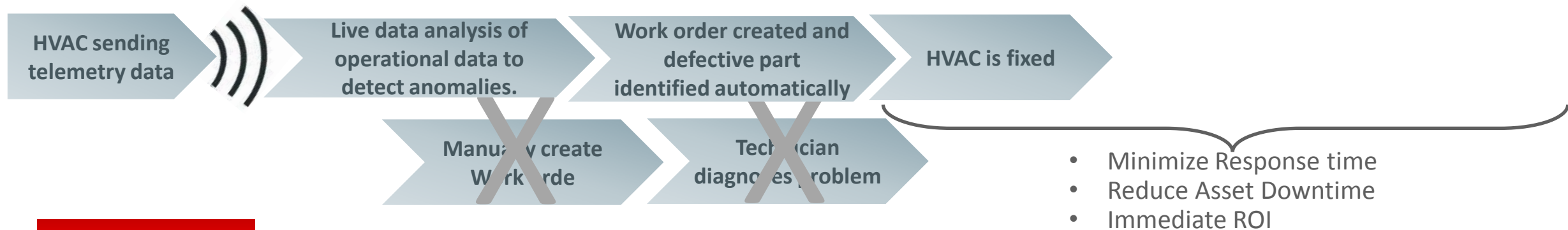


Connected Assets

Example: Broken HVAC



With HVAC connected to Condition-Based Maintenance Application



The OT-IT Disconnect

IoT Devices



Current processes



Today, many conditions are manually detected, and then manually entered in the business applications

Business Applications



Manufacturing, Supply Chain, Asset Mgmt



Customer Relationship Mgmt, Sales, Service



Vertical Apps – Utilities, Healthcare, Retail

Monitor and Maintain Use Case



Problem to be solved

- Product performance and uptime
- Effective utilization of service resources (Cost of reacting to product failure)
- Unclear where to invest next

Benefits



- Improved MTBF
- Reduce service costs
- Develop new service revenue channels
- Increased understanding of future product requirements



Asset Tracking Use Case



Problem to be solved

- Managing risk of service disruptions/delay from product failure
- Monetization not possible without product usage data
- Need to optimize route to ensure JIT delivery
- Reduce risk and costs of shipping high-value assets

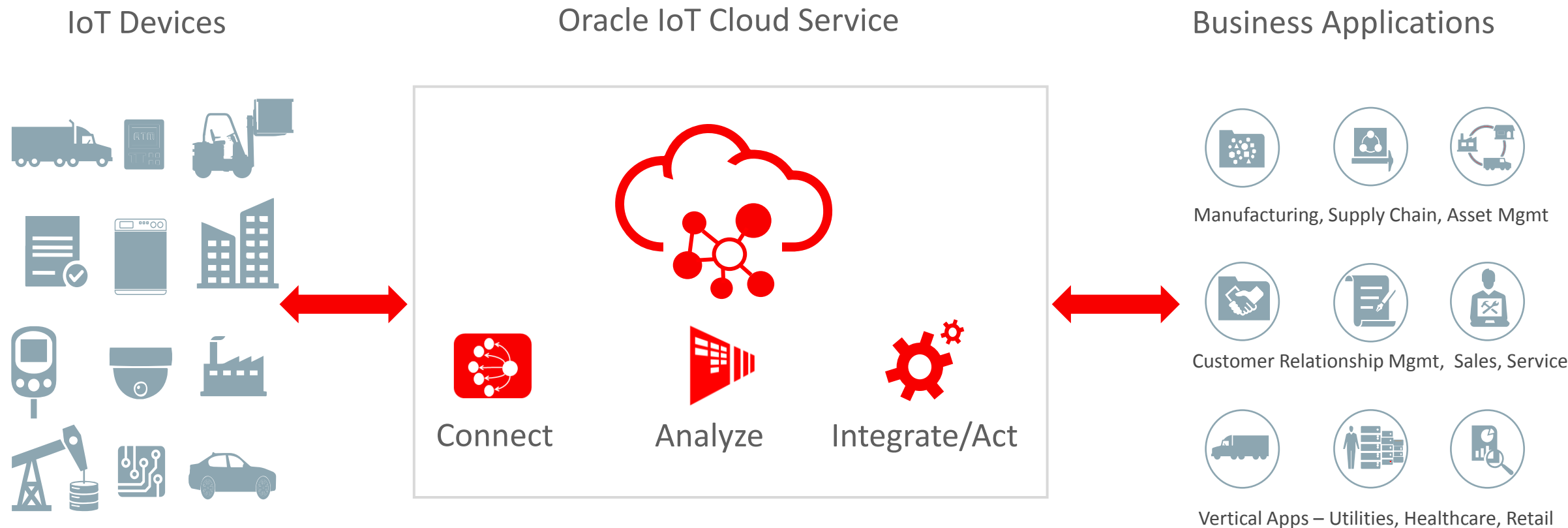


Benefits

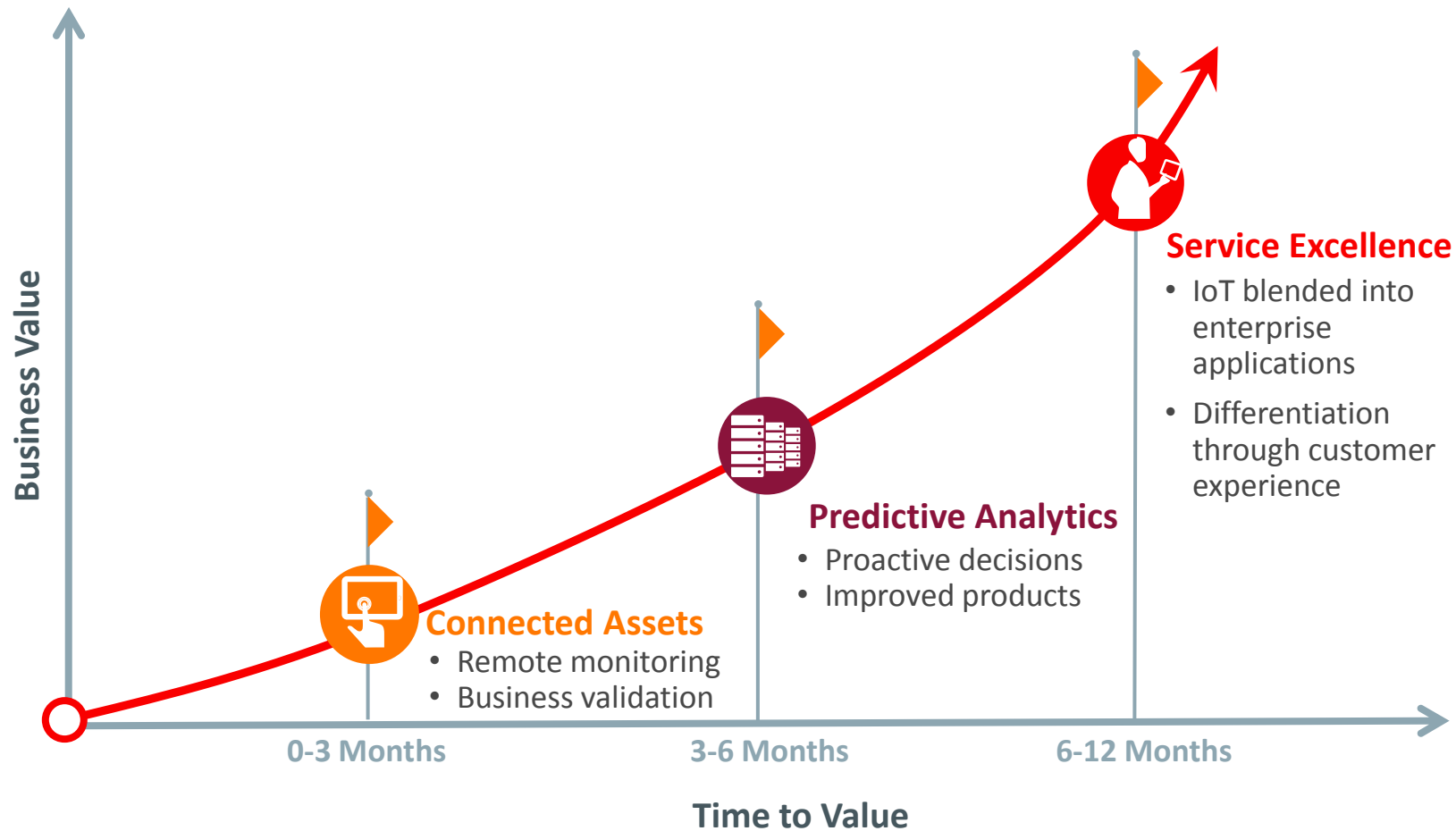
- Know what, where, when: real-time issue resolution
- Live usage data to enable service billing and charging
- Preventative maintenance to reduce down-time
- Optimize field service and fleet management operations



Oracle Internet of Things Cloud Service



IoT Deployment Phases



IOT Cloud Service Features

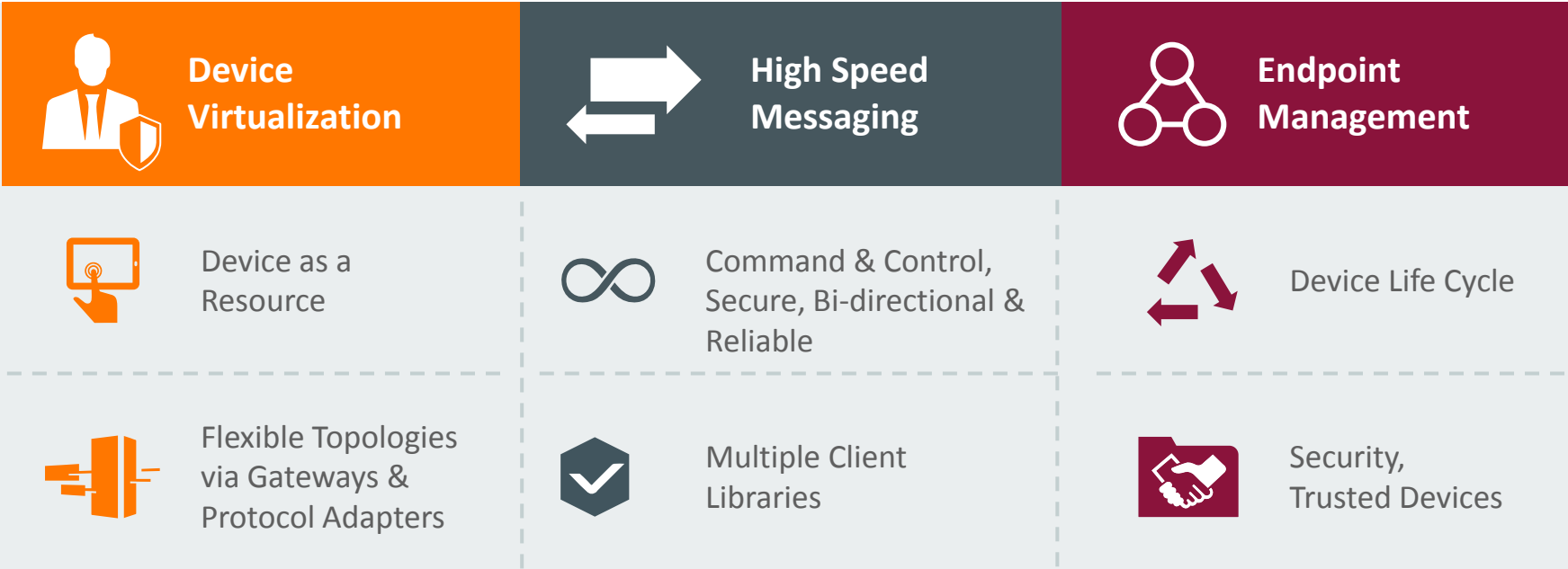
Connect

Devices



IoT Cloud Service

Connect and Control IoT Devices



Business Applications

ORACLE
E-BUSINESS SUITE

ORACLE
JD EDWARDS ENTERPRISEONE

ORACLE
FUSION APPLICATIONS

IOT Cloud Service Features

Analyze

Devices



IoT Cloud Service



BI Cloud Service

Business Applications

ORACLE®
E-BUSINESS SUITE

ORACLE®
JD EDWARDS ENTERPRISEONE

ORACLE®
FUSION APPLICATIONS

Enable rapid development of preventive and predictive analytics

 Device Stream Management	 Real-time Processing	 Predictive Analytics
 Message Historian, Time series store	 Event Analysis, Stream Explorer	 Business Intelligence, Big Data Discovery
 Flexible queries, device metadata and events	 Condition detection and Alerts Edge Processing	 Composite events, Contextualization

IOT Cloud Service Features

Integrate & Act

Devices



IoT Cloud Service



Mobile Cloud Service



Integration Cloud Service

Business Applications

ORACLE
E-BUSINESS SUITE

ORACLE
SALES CLOUD

ORACLE
JD EDWARDS ENTERPRISEONE

ORACLE
SERVICE CLOUD

ORACLE
FUSION APPLICATIONS

Unleash the Value Through Optimized Business Processes

 Better Customer Experience	 Process Automation	 Pre-built App Integration
 Mobile Cloud Service, Multi-Channel Support	 Flexible Connector framework, Message enrichment	 EBS Asset Management, JD Edwards Condition based Maintenance, Rental mgmt
 Integration with Sales and Service Cloud	 Enterprise app integration using ICS	 Asset tracking & Logistics

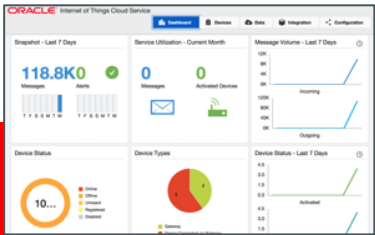
Remote Asset Monitoring Demo



Stacy
(Customer)



AA Power – Connected HVAC systems



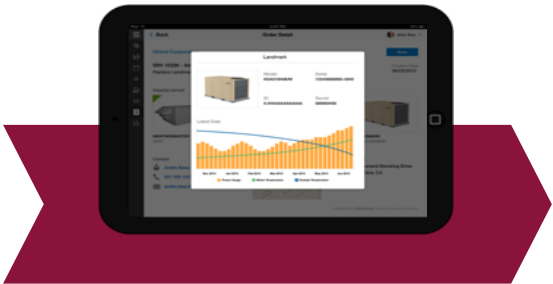
Remote Monitoring Application using
Oracle IOT Cloud Service



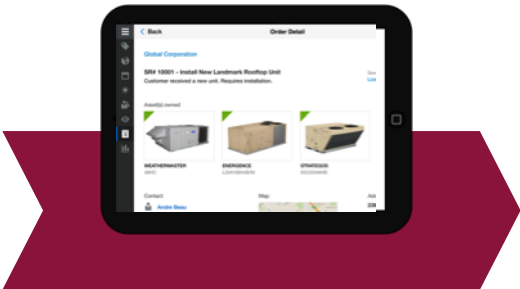
Outage and anomaly detection



Bill
(AA Power Service Dept)



Mobile App to remotely monitor and
control equipment



Service Tickets and Customer History from
Service Cloud



Ken
(Field Service agent)

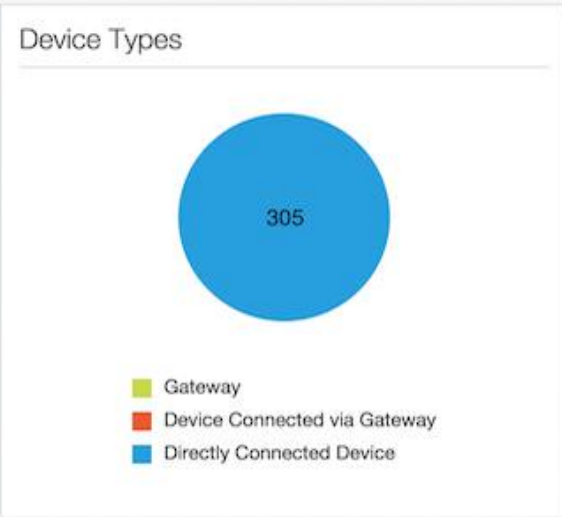
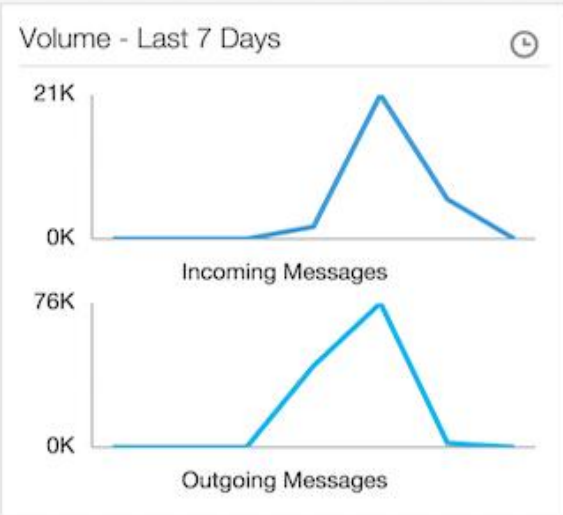
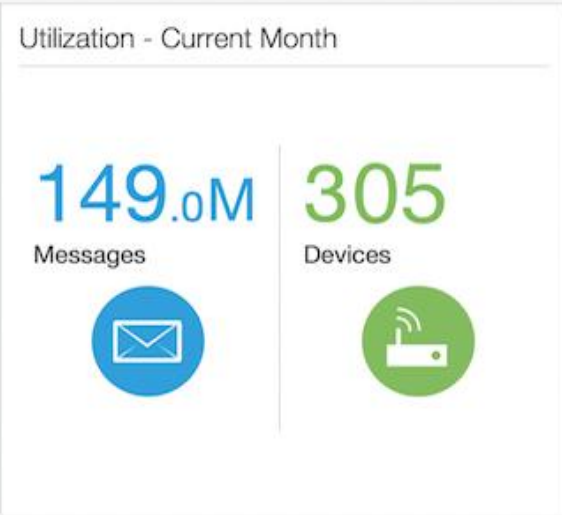
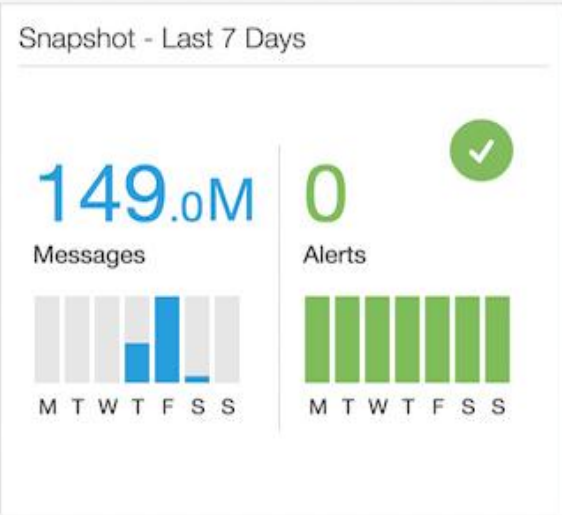


Business Intelligence and Data Analysis



Improved product quality and better
customer satisfaction

- Customer
- AA Power Service Dept (using Oracle IOT)
- Field Service



- Registration
- Management
- Device Software

Register Device

Choose the appropriate option below to register a single device or to register multiple devices.

- Single Registration
- Batch Registration



- Registration
- Management
- Device Software

Register Device

Cancel

<

Device Type

Properties

Confirmation

Next >

Please choose the type of device you would like to register

	Gateway Device running the gateway software.	☐
	Directly Connected Device Devices that are capable of connecting directly to IoT Cloud Service.	☐

- Registration
- Management
- Device Software

Register Device

Cancel

<

Next >

Device Type

Properties

Confirmation

NameLandmark HVAC Rooftop Unit

DescriptionRooftop unit in building 4 at Global Corporation

TypeDirectly Connected Device

Security

Shared Secret

589965H56

Manufacturer Details

* ManufacturerAcme Corp

* Model NumberKGA210H4B/M

* Serial Number123456889885-45H2

Details

ClassificationHVAC

Location3291 Leonard Stocking Drive Santa Clara CA 95054

Longitude-122.288832

Latitude37.78123



Registration

Management

Device Software

Register Device

Cancel



Device Type

Properties

Confirmation

Finish

The device has been registered. Save the following information, which you'll need to activate your device.

Device ID 0-YEFQ

Shared Secret 589965H56

View/Edit

To activate the device you registered, use the Device ID and Share Secret information above to establish a secure connection between the device and Oracle IoT Cloud Service. See ZZZ for more information about device registration and activation.





SIGN IN TO **ACME CORP**



SIGN IN

[Can't access your account?](#)





ACME Corp.

Orders



John Doe ▾



ORDERS

SR NUMBER	CUSTOMER	TYPE	STATUS	
100011	Global Corporation	Order	Install	>
10000	Stanford Hospital & Clinics	Order	Service	>
9999	El Camino Hospital	Order	Service	>
9998	Sunnyvale Public Library	Order	Service	>
9997	St. Francis Hospital	Order	Service	>

[Back](#)

Order Detail



John Doe

Global Corporation

Done

SR# 10001 - Install New Landmark Rooftop Unit

Customer received a new unit. Requires installation.

Severity
LowCreation Date
02/23/2015

Asset(s) owned

WEATHERMASTER
48HCENERGENCE
LGH156H4B/MSTRATEGOS
SGC0346HBLANDMARK
KGA210H4B/M **NEW**

Contact



Andre Beau

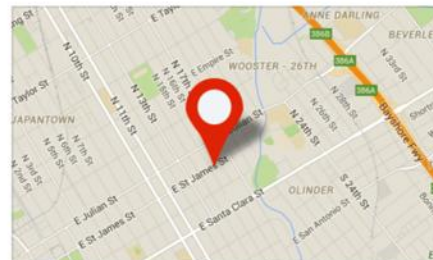


507 555 1212



andre.beau@globalcor.com

Map



Address

2391 Leonard Stocking Drive
Santa Clara, CA
95054

[Back](#)

Order Detail



John Doe

Global Corporation

Done

SR# 10001 - Install New Landmark Rooftop Unit

Customer received a new unit. Requires installation.

Severity
LowCreation Date
02/23/2015

Asset(s) owned

WEATHERMASTER
48HC

Landmark

Model
KGA210H4B/MSerial
123456889885-45H2ID
0-AYAAAAAAAAAAAASecret
589965H56DMARK
KGA210H4B/M **NEW**

Contact



Andre Beau

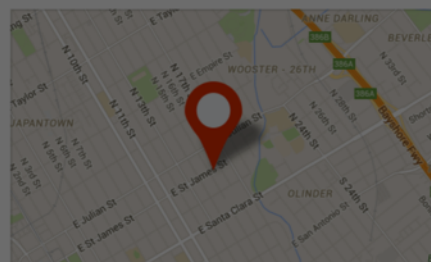


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Map



Address

2391 Leonard Stocking Drive
Santa Clara, CA
95054

[Back](#)

Order Detail



John Doe



✓ HVAC KGA210H4B/M successfully authenticated and connected.

Global Corporation

Done

SR# 10001 - Install New Landmark Rooftop Unit

Customer received a new unit. Requires installation.

Severity
LowCreation Date
02/23/2015

Asset(s) owned

WEATHERMASTER
48HCENERGENCE
LGH156H4B/MSTRATEGOS
SGC0346HBLANDMARK
KGA210H4B/M

Contact



Andre Beau

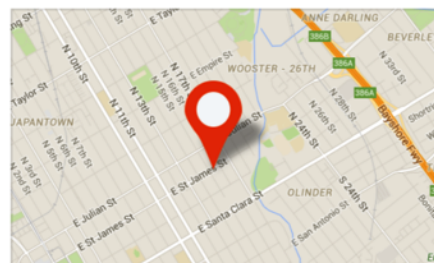


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andre.beau@globalcor.com

Map



Address

2391 Leonard Stocking Drive
Santa Clara, CA
95054

Snapshot - Last 7 Days

212.0M

Messages



0

Alerts



Utilization - Current Month

212.0M

Messages

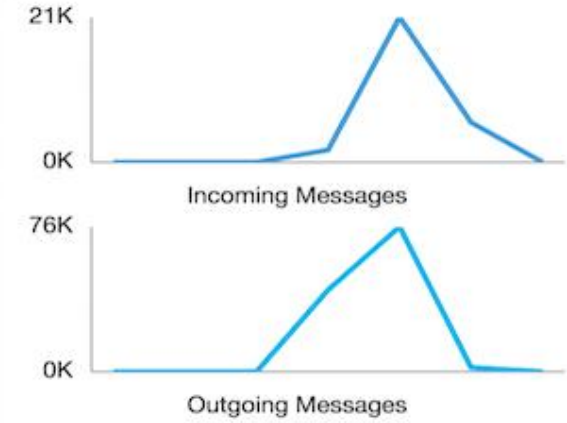


521

Devices



Volume - Last 7 Days

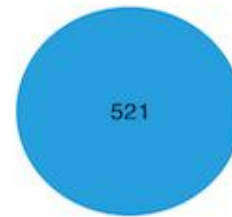


Device Status



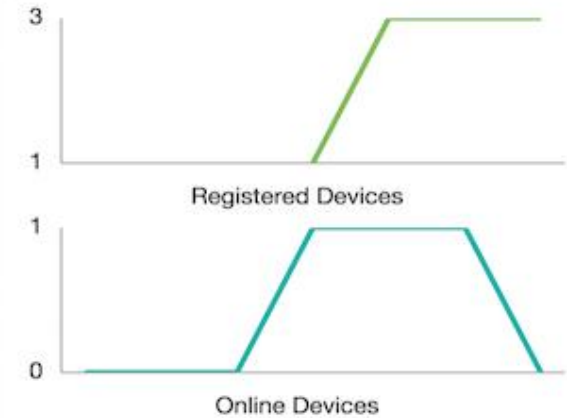
- Online
- Offline
- Unheard
- Registered
- Disabled

Device Types



- Gateway
- Device Connected via Gateway
- Directly Connected Device

Trend - Last 7 Days



Return To Catalog

Configure a Target

Actions



Landmark HVAC Air Filter Replacement Event Draft

Sources Landmark HVA...

Summaries

MAX of data_outsideTemp
 AVG of data_motorTemp
 AVG of data_fanSpeed
 AVG of data_motorAmperage

➔ Group by **msg_source** and **data_fanSpeed** and **data_motorAmperage** and **data_motorTemp** and **data_outsideTemp**

Filters

☒ Match All of the following
 ☐ Match Any of the following

AVG of data_fanSpeed greater than or equals 80
 AVG of data_motorAmperage greater than or equals 20
 AVG of data_motorTemp greater than or equals 200

MAX of dat...

equals

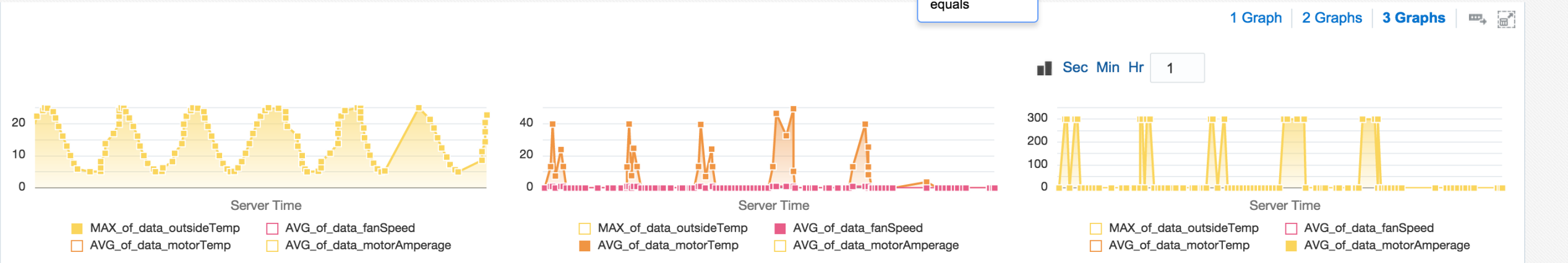
60

+ Add a Filter

equals
 not equals
 lower than
 lower than or equals
 greater than
 greater than or equals

Live Output Stream

Charts



2:00

Monday, June 22



ACME Corp. now

A work order #15326 has been created.

slide to view

> slide to unlock



[Back](#)

Order Detail



John Doe ▾

Global Corporation

[Done](#)

SR# 15326 - Air Filter Replacement

Replace Landmark's air filter.

Severity
HighCreation Date
06/22/2015

Asset(s) owned

WEATHERMASTER
48HCENERGENCE
LGH156H4B/MSTRATEGOS
SGC0346HBLANDMARK
KGA210H4B/M

Contact



Andre Beau

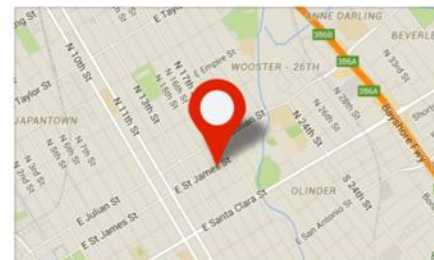


507 555 1212



andre.beau@globalcor.com

Map



Address

2391 Leonard Stocking Drive
Santa Clara, CA
95054

[Back](#)

Order Detail



John Doe



Global Corporation

SR# 15326 - Air

Replace Landmar

Asset(s) owned

WEATHERMASTER
48HC

Contact



Andre Beau



507 555 121



andre.beau@

Done

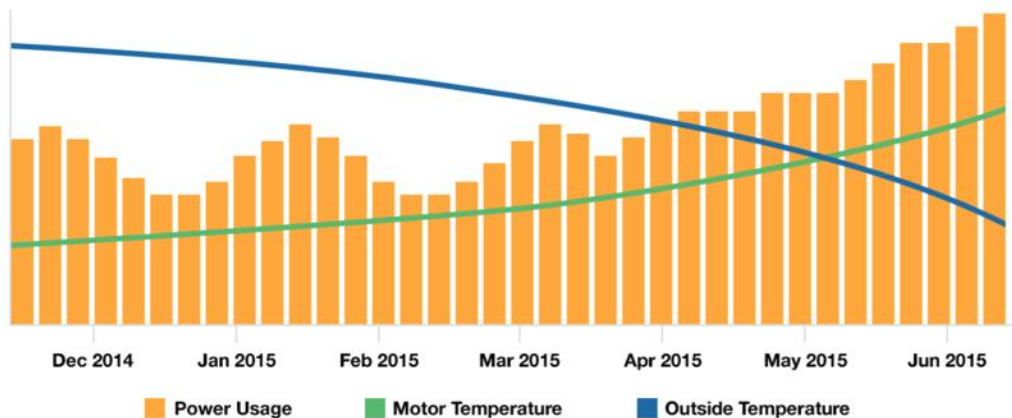
Creation Date

06/22/2015

Landmark

Model
KGA210H4B/MSerial
123456889885-45H2ID
0-AYAAAAAAAAAAAASecret
589965H56

Latest Data

DMARK
K210H4B/MLeonard Stocking Drive
Clara, CA

[< Back](#)

Order Detail



John Doe ▾

Global Corporation

Done

SR# 15326 - Air Filter Replacement

Replace Landmark's air filter.

Severity

High

Creation Date

06/22/2015

Asset(s) owned

WEATHERMASTER
48HCENERGENCE
LGH156H4B/MSTRATEGOS
SGC0346HBLANDMARK
KGA210H4B/M

Contact



Andre Beau

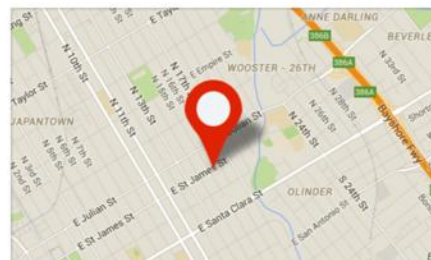


507 555 1212



andre.beau@globalcor.com

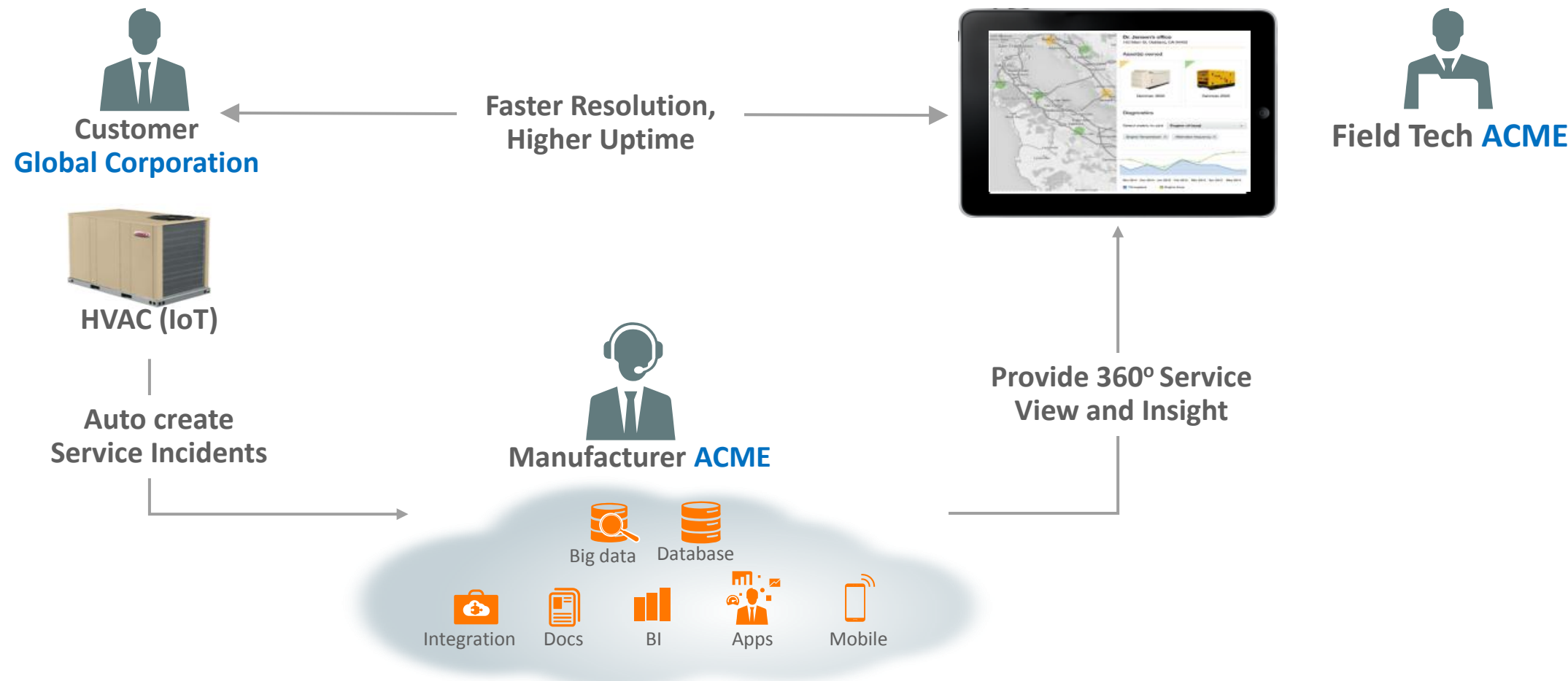
Map



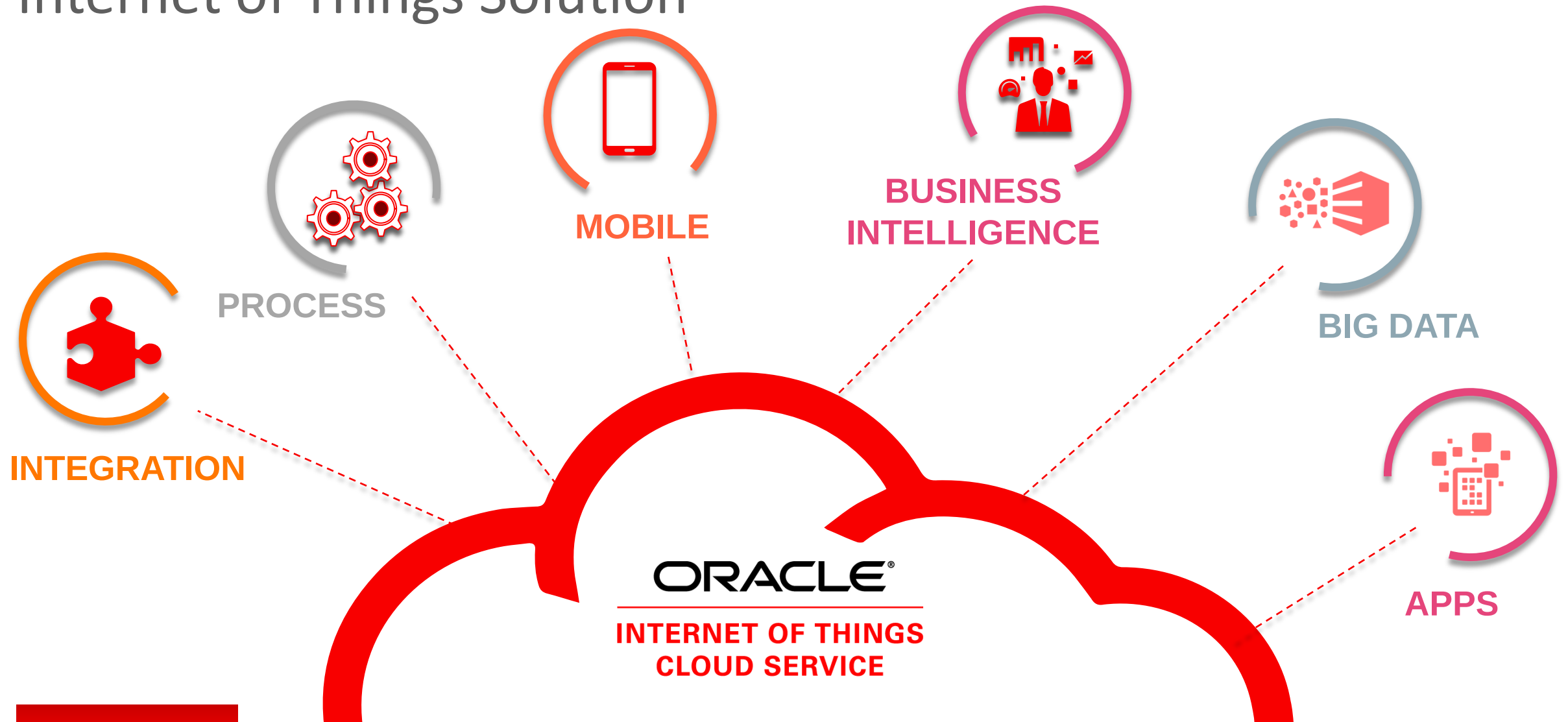
Address

2391 Leonard Stocking Drive
Santa Clara, CA
95054

Demo Summary



Internet of Things Solution





Oracle IoT Partners: Example IoT Solutions



Connected Worker

for
Hospitality Industry

Remote Tank monitoring

for
Oil & Gas Industry

Preventative Maintenance

for
Manufacturing

Fleet Management

for
Automotive/Transportation

Service Excellence

for
Manufacturing

“Diagnostics as a Service”

for Manufacturing/Auto/
Manufacturing

Opportunity for the IoT Ecosystem



DEVICE OEM



SOLUTION
PROVIDER



ISV



SYSTEM
INTEGRATOR



SERVICE
PROVIDER



CUSTOMER

Call to Action

- Identify target prospects; engage LoB owners; leverage the **apps**

Use Case	Remote Equipment Monitoring	Asset Tracking
Industry	Manufacturing, Construction, Utilities, Agriculture	Transportation, Logistics, Usage based charging
Install Base	ERP, Supply Chain, Enterprise Asset Mgt, Project Mgt, Service Mgt	Transportation Mgt, Asset Management, Service Mgt
Benefits	Reduce service costs	Know what, where, when: real-time issue resolution

- Schedule **IoT Strategy briefings** for qualified prospects
- Contact Nalin Sardana [nalin.sardana@oracle.com] for IoT briefings
- Product Management: harish.gaur@oracle.com or simon.nicholson@oracle.com

Summary

- IoT is quickly moving from potential to realization
- Monitor & Maintain, Asset Tracking, applications already delivering real business value
- Oracle Internet of Things Cloud Service
 - Connect, Analyze, Integrate
- More information
 - Web: cloud.oracle.com/iot
 - Twitter: @OracleIoT



OPN Cloud Platform Resources Oracle Cloud Platform Partner Community EMEA SOA Partner Community

Carmen Dumitrascu
Sr. Project Manager, Global Partner Enablement

OPN Cloud Platform Resources



Oracle Cloud Platform as a Service (PaaS) Knowledge Zone

Check out the latest
resources!



Oracle Cloud Platform Partner Community

Become a member
today!



Resale Program

Apply to Resell
Cloud Platform
Services!



Cloud Platform Partner Webcast Series 2015

Coming up next: Enabling
Oracle Partners with Data
Management Cloud Services
December 9th, 2015

Oracle Cloud Platform Partner Community is a collaborative communication channel for Oracle Partners and employees to exchange sales information on Oracle's PaaS offerings.

What's in it for you?

- Access to Oracle Cloud Platform Services content (sales and marketing)
 - ✓ Cloud Services Customer Success Stories
- Partners interactions with Oracle Experts

JOIN TODAY!



Cloud Platform Partner Community

Following in ~ 1 stream

Leave this group

Overview

Activity

Content

People

Reports

Calendar

Actions

About

Manage

About this Group

The Oracle Cloud Platform Partner Community is a collaborative communication channel for Oracle employees and partners to exchange sales information for Oracle's PaaS offerings.

Featured Expert



Christine Kungl-Oracle
Joined on Apr 12, 2010



Welcome to Oracle Cloud Platform Partner Community
Your one-stop shop for information on Oracle's Cloud Platform Services.

Ask a question to the Oracle Cloud Platform Partner Community

Type your question

ASK IT

Recent Ideas



Create an idea »
Create an idea for others to see and vote on

Beehive Space



community.oracle.com/groups/cloud-platform-partner-community

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How to join?



Oracle PartnerNetwork
Cloud Platform Partner Community

1. Must be an Oracle PartnerNetwork member
2. Go to www.oracle.com/cloudconnection
3. Click on LOGIN in the top right corner
4. Login using Oracle Single Sign On
5. Visit the group here
<https://community.oracle.com/groups/cloud-platform-partner-community>
6. Submit your request to join the group
7. Wait for your approval email
8. Learn how to edit your Profile [here](#)

SOA Partner Community includes: SOA & BPM & IoT & PaaS

register www.oracle.com/goto/emea/soa



Community

Focused & regular
communication &
networking



Marketing

Campaign Kits
and marketing
service



Sales

Sales kits and
sales alignment &
OMM



Pre-Sales

Demo Service
and workshop kits

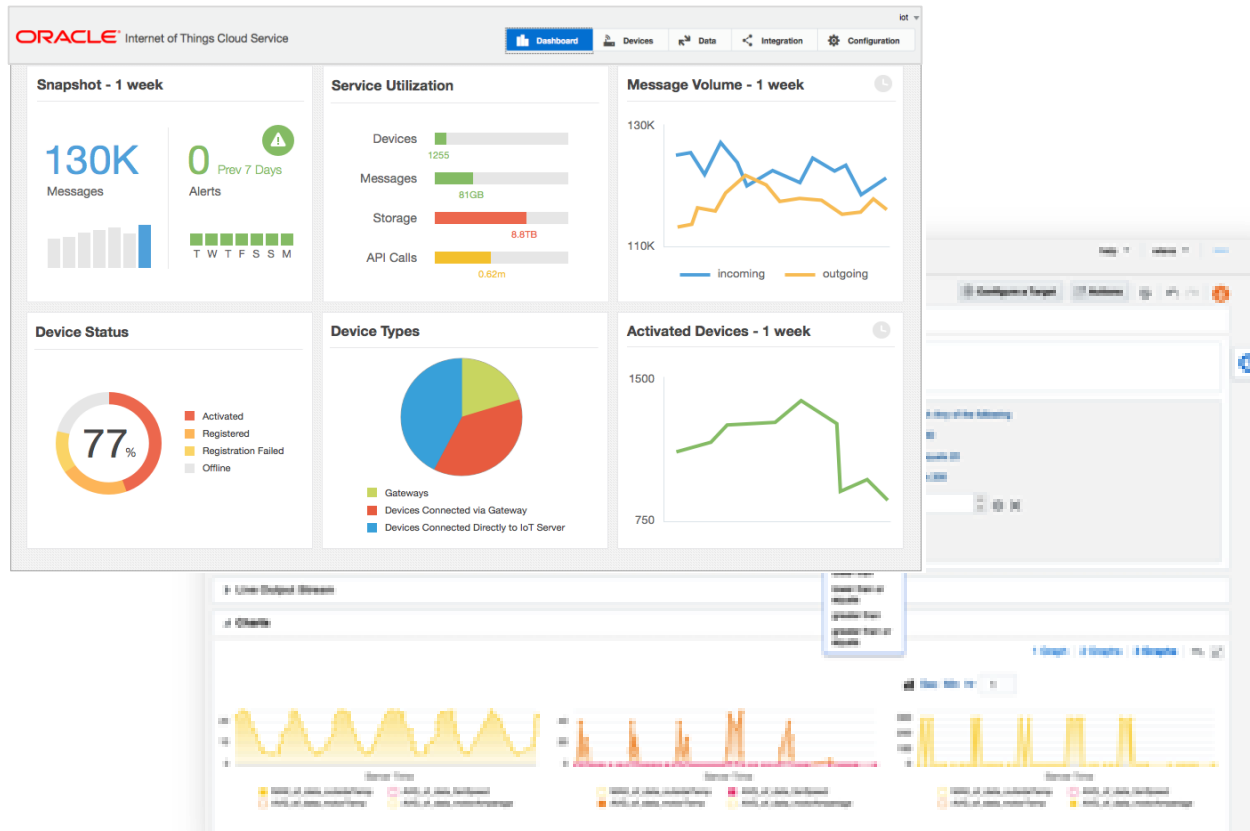


Enablement & Specialization

Trainings and
Certification

Predictive Maintenance

Reduce operations cost and asset downtime



Prevent asset failure

- Acquire data from a wide variety of devices over a range of different network protocols
- Constantly aggregate, correlate and filter data to get insights into device operations and predict potential failures
- React instantly by automatically generating alerts and maintenance service tickets with appropriate diagnostic info

Proactive Maintenance

- Analyze sensor data using prediction rules to reduce unplanned outages, reduce risks and increase equipment life
- Remotely control devices

Q & A



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Oracle IoT Cloud Service

Driving Value in the Connected World

11/18/15

Data never sleeps. But the power lies in mining

50B

Connected devices estimated by 2020



digital



vehicles



homes



wearables



restaurants



Physical & Digital
world are converging

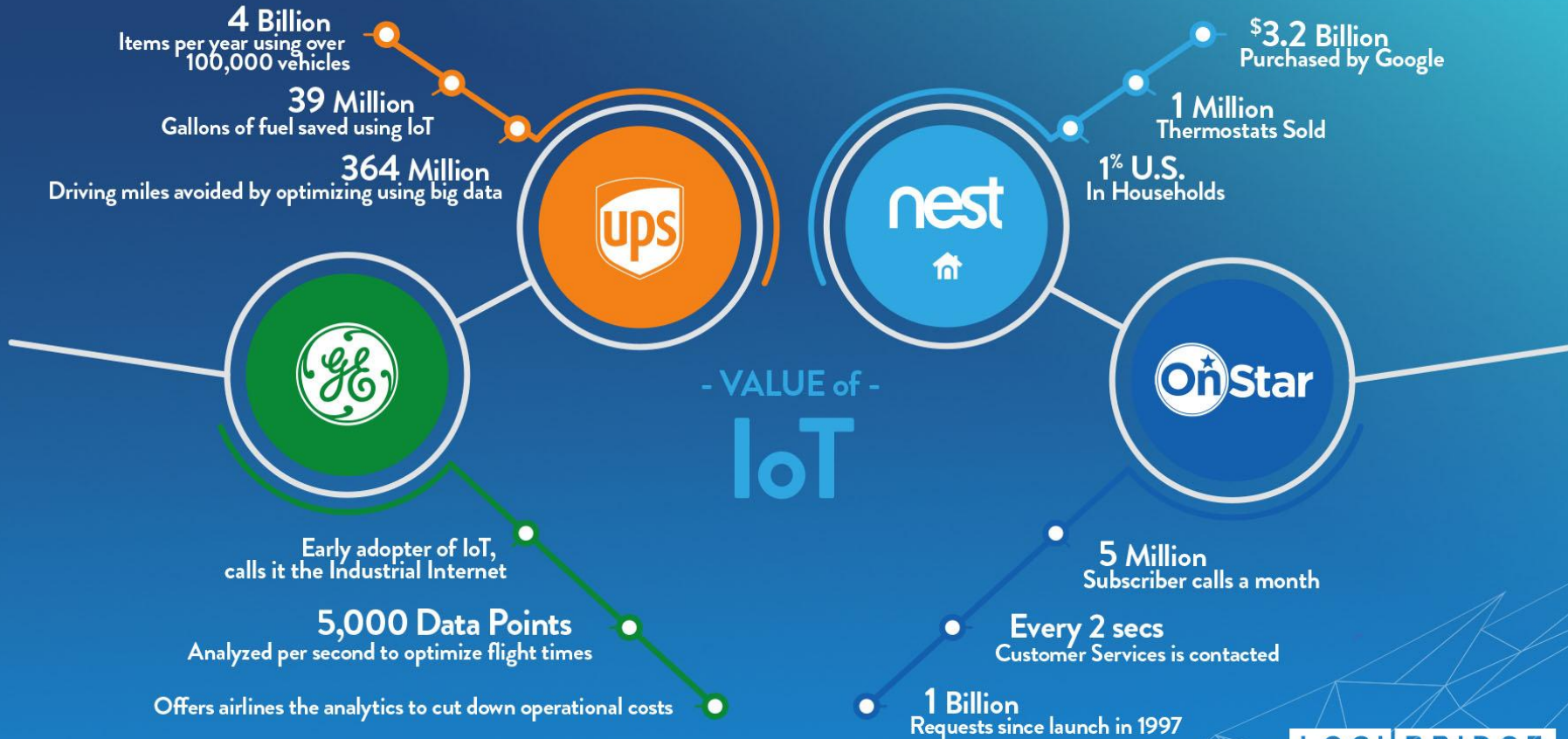


Not just people; machines
and everyday 'things'
are getting connected



Connectivity opens
limitless possibilities

LOCHBRIDGE



Transforming Manufacturers Into Connected Service Leaders

**DELIVERING A REVOLUTIONARY NEW AUTOMOTIVE
BUSINESS MODEL THAT EXTENDS FROM THE CAR TO
THE CONSUMER TO THE ENTERPRISE**

5x

Margin Vs.
Vehicles

\$1.5B

Annual
Revenue

1B

Interactions
To Date

LOCHBRIDGE





Better products and design improvements require insight into the data and its usage after it leaves the factory

Help the OEMs to reduce the warranty costs by improving the quality

Warranty cost is around \$500 per vehicle in US and over \$1000 per vehicle in EU

60 ECUs such as audio systems, brake, engine, transmission and so on that can be easily instrumented

Early warnings and service maintenance reminders prevent downtimes, enhance customer experience and optimize service delivery

Handling massive amount of data and retaining for a longer duration requires huge IT infrastructure costs

Warranty cost reduction, operational efficiency and IT costs directly translates to the bottom line

5%

warranty
cost
reduction

2

Million
vehicles
per annum

\$50

million
per annum
of Savings

Build better
product, brand
loyalty and sticky
customer
relationship

10

on-site
service calls
per field technician
per week

25%

savings with
remote service
management

10

hours per week
savings times
\$60 per hour

\$15

Million savings
(with 500 service
technical across NA)

- Integrate “things” to the enterprise
- Transform enterprise to harvest business processes as services/APIs
- Lack of standards around device integration
- “Islands” of data in the enterprise – where does IoT data reside ?
- Scalable infrastructure to store massive data-sets
- Challenge gaining insights from massive amounts of “thing” data
- Privacy and Security
- Create an IoT implementation strategy

- Leverage Oracle IoT Cloud Service to implement simple quick-to-market use cases
- Leverage built-in connectors in Oracle IoT Cloud Service to integrate “things” to the enterprise
- Focus on gaining insight from data generated by “things” using Oracle IoT Cloud Service
 - Leverage built-in Stream Analytics and Big Data Cloud Service capability
 - Leverage built-in storage capability
 - Leverage the Cloud for scale
- Avoid a big-bang approach but leverage IoT Cloud Service for a smaller but scalable implementation
- Create an IoT implementation strategy from learnings

The Gateway

Create a sustainable interface to your devices



EDGE



IoT
Gateway

The Engines

Data management
Pattern recognition



Acquisition
Engine



Analytics
Engine



Enterprise



External
Data Feeds

The Actions & Experiences

- Triggers from real-time data
- Services customized to your business
- Intelligence that drives action across your enterprise
- Differentiated end-customer experiences



BI & Data
Visualization



APIs/Event
Handler



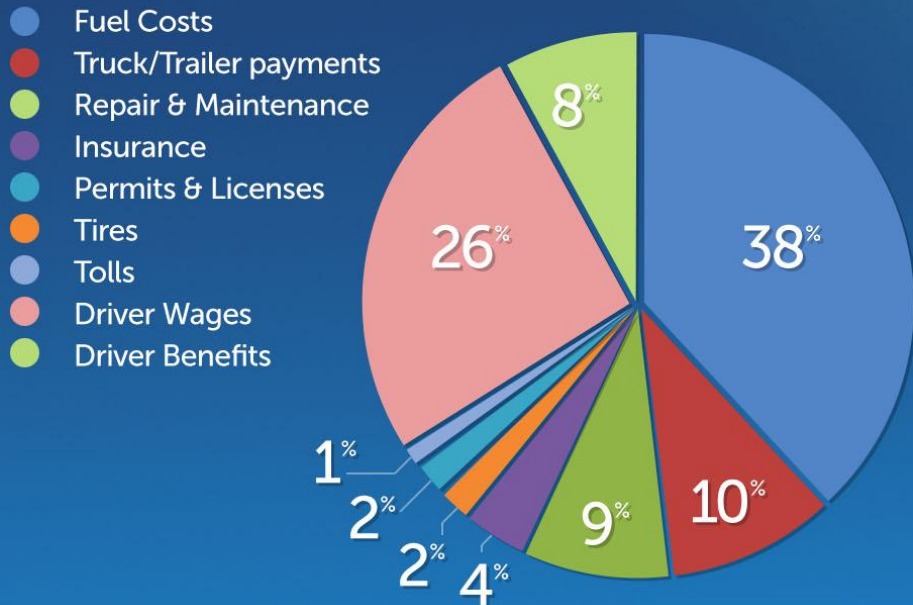
Offerings

Lochbridge IoT Offerings based on Oracle IoT CS



FLEET MANAGEMENT DEMO

Share of Total Average Marginal Cost



Lower fuel costs

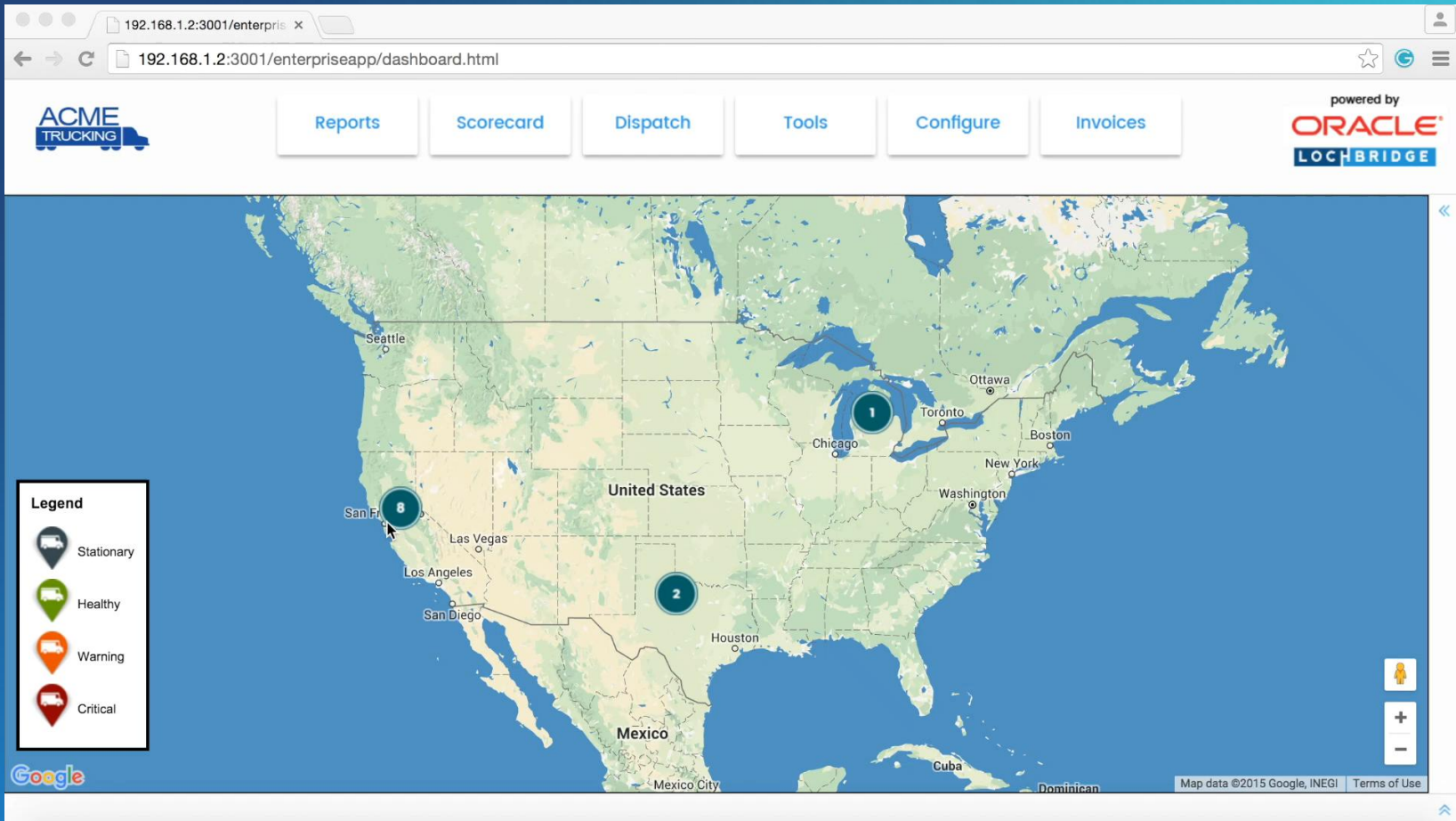
- Detailed fuel usage and mileage reports illustrate fuel consumption patterns and identify areas for improvement. Speeding and idling alerts help reduce inefficient driving behaviors that impact fuel efficiency

Streamline preventive maintenance

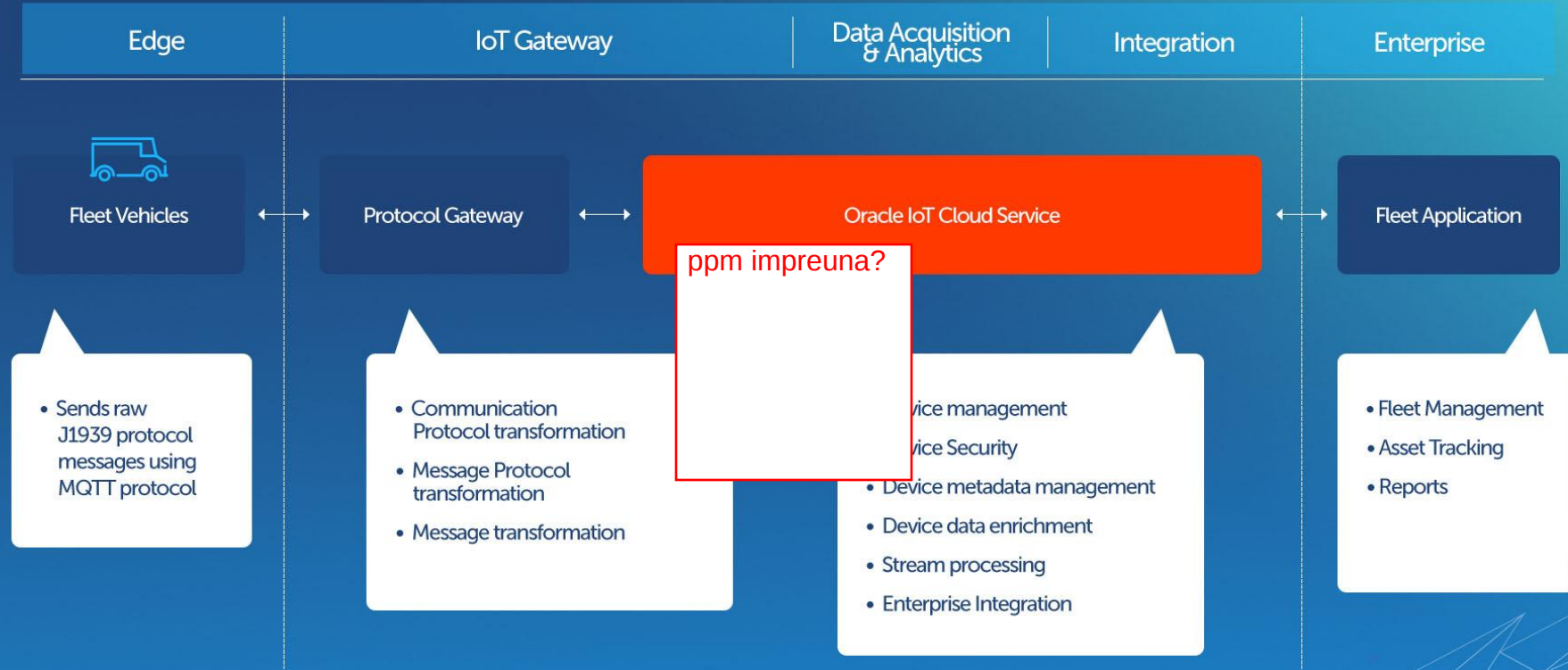
- By automatically tracking mileage, emission levels and other engine data, makes it easy to schedule and perform maintenance to reduce repair and maintenance costs

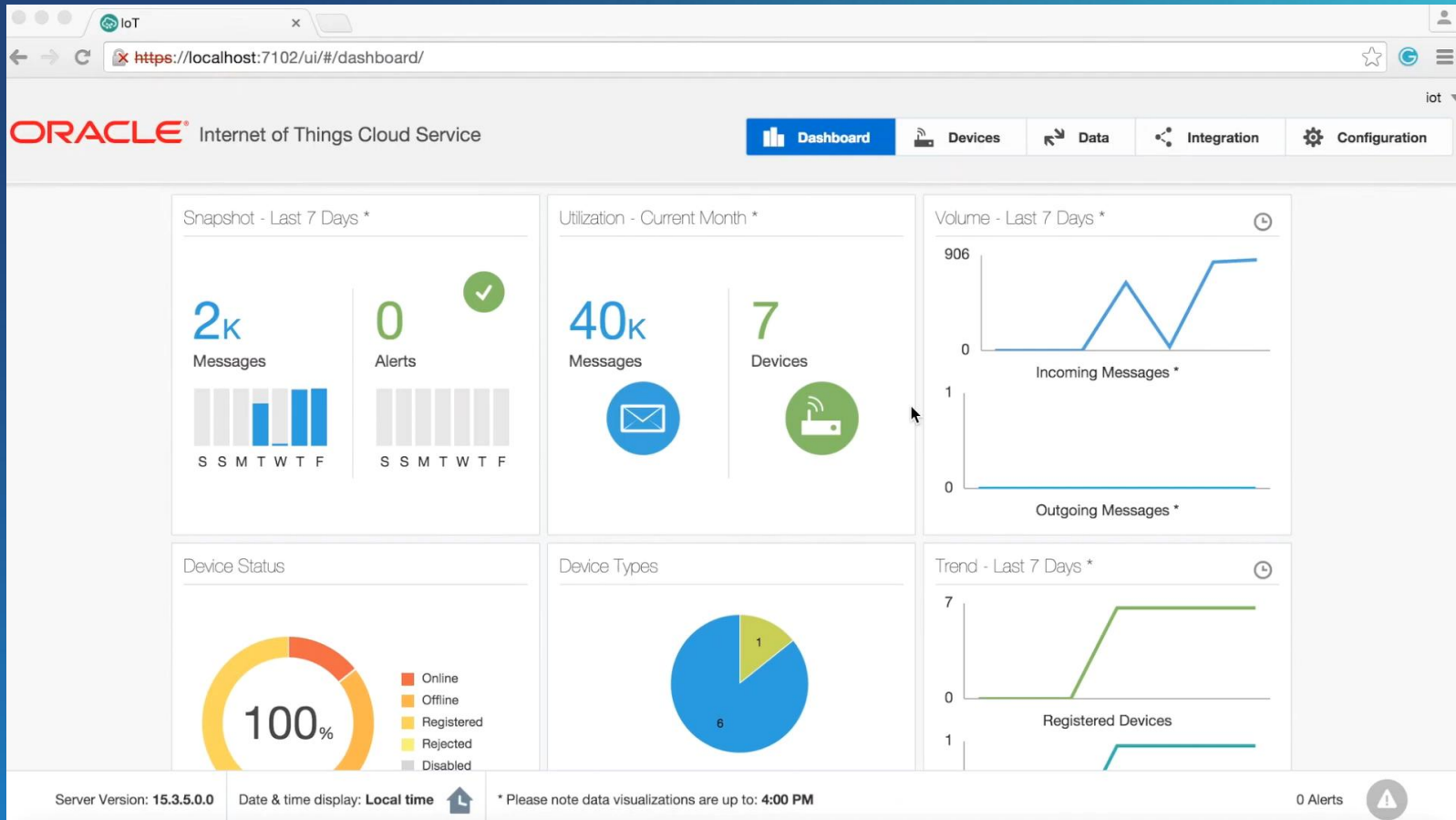
Avoid expensive roadside breakdowns

- Automatic vehicle alerts notify you of issues before they become problems, allowing you to take action to prevent vehicle breakdowns, reduce maintenance costs, and improve customer service



Fleet Management using Oracle IoT CS







LOCHBRIDGE

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**INTERNET OF THINGS
CLOUD SERVICE**

Oracle Partner Network webcast (Q&A)- Oracle Internet of Things Cloud Service (November 2015)

Q-I did not get the part, that how do we connect to devices?

A-Devices are connected in 3 different ways

- a) Use IoT Cloud Service client library on a 3rd party gateway device
- b) Use IoT Cloud Service gateway software on a 3rd party gateway device
- c) Directly using REST API

Q-Does the customer have to build the predictive analytics once devices are connected?

A-Yes - a customer uses the real-time analytics tools to define their solution specific analytics/processing.

Q-Does IoT cloud service have a work flow service?

A-The IoT Cloud Service can be integrated with other Oracle products to assist in managing work flows.

Q-Is this product available for use and where?

A-The IoT cloud service will be available within the next 30 days or so.

Q-What technology product are we using to do real time data analysis? Is it Complex Event Processing (CEP)?

A- Yes, the IoT Cloud Service includes support for real time stream exploration.

Q-How is the stream explorer is connected to cloud?

A-Stream explorer capabilities are part of IoT Cloud Service.

Q-Is there any license for using IoT cloud service? if yes, then what is the cost?

A-Pricing is based on type and # of devices connected to IoT Cloud Service the IoT Cloud Service is currently in PIAA (Pricing in advance of availability). We will be able to share it for qualified leads. Pricing will go public very soon.

Q-How do you differentiate IoT over Big Data? Such use cases are also discussed in Big Data session?

A-IoT Cloud Service provides the collection, near real-time processing and event generation where Big Data is for longer term data trend analytics.

Q-Is it possible to store historical data for the same device and batch manufactured earlier, in BICS or Somewhere in the Cloud , which can help us to do the Predictive analysis?

A-Yes, all device data can be stored in BICS or Big Data store. Data flowing through IoT Cloud Service is stored for a short term basis within the service. We provide out of box connector to BI Cloud Service to route and store entire data there.

Q-Does IoT cloud comes as a package of different products?

A-IoT Cloud Service is a single cloud service. It's not a package of different products.

Q-Is it available now?

A-IoT Cloud Service is will become available in the next 30 days.

Q-What are the different software/components IOT runs on?

A2- The IoT Cloud Service is built on top of Oracle technologies and provides a public set of interfaces. Being a cloud service, customers are not directly exposed to the underlying stack.

Q-To what type or kind of applications are the out of box connectors available? Does this include CRM applications like Siebel, RightNow etc?

A-In the initial release, there are specific for BICS and for any HTTPS based enterprise application. The HTTP connector can be used to connect to ICS and through that, many other Oracle solutions.

Q-What kind of sensors or devices are going to be used to send data across the IoT cloud services, which are connected to the intended devices. Are they going to be provided by Oracle or from the corresponding manufacturer?

A-Sensors/devices are not be offered by Oracle. We provide a number of options to enable any devices/gateway to talk to IoT Cloud Service.

Q-Can you elaborate of on the security aspect of the devices and communication with the Oracle IOT cloud.

A-The Oracle IoT Cloud Service is designed around a security-first model. All devices must be registered and activated in order to communicate with the IoT Cloud Service. Once activated, every device connection is authenticated and bi-directional data channel is encrypted.

Q-Can we integrate Oracle R Enterprise with IoT cloud service?

A-Yes you can with other cloud service using our REST APIs, but right now we only have out of the box integration with BI Cloud Service.

Q-what is the effort to enable the devices make IOT compatible, especially the existing ones

A-For programmable devices that utilize our client libraries, the effort is very straight forward. For devices running other protocols, the effort is very device dependent.

Q- What is the licensing policy of IoTCS?

A- A-Pricing is based on type and number of devices connected to IoT Cloud Service IoT Cloud Service is currently in PIAA (Pricing in advance of availability). We will be able to share it for qualified leads. Pricing will go public very soon.

Q-what product are you using for IAM of the devices?

A- Being a cloud service, customers are not directly exposed to the underlying stack.

Q-Is any interface needed between the actual sensor devices to send data to IoT? In what format it will be transported?

A-We provide client libraries and a gateway solution to interface between devices and the IoT Cloud Service. The libraries handle all data format and provide the data as JSON formatted data within IoT Cloud Service.

Q-Where can we find developers resources or examples of this IoT tech?

A-Samples will be made available via OTN in conjunction with the product's availability.

Q-What all technology expertise will be required to implement IoTCS

A-It depends on what elements are being used out of the box and which enterprise applications are being developed or integrated.

Q-Can we write our own libraries/gateways?

A-Yes, all of our clients, libraries and user interface are built on REST APIs that will be published at the time of service availability.

Q-Where do you post the presentation?

A-Here at; <https://eventreg.oracle.com/profile/web/index.cfm?PKwebID=0x2218647938&varPage=home>

Q-Is there any future possibility to integrate IoT with open-source applications ?

A-The IoT Cloud Service can integrate with open source applications today via the HTTPS based enterprise integration feature.

Q-Where do REST APIs come in picture?

A-REST APIs are the principal mechanism through which all service elements communicate.