Oracle Fusion Middleware for Internet of Things

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Managing Complexity

By 2020 50 Billion Devices will Create an Endless Amount of Data

The Data, Insights, Actions at the Right Time
THE MACHINE TO MACHINE ERA
THE INTERNET OF THINGS
Agenda

- IoT Market Potential
- Internet of Things Value Chain
- Oracle’s IoT Platform
- Fusion Middleware Product Walkthrough
  - IoT Infrastructure Platform
  - Real-time Event Processing
  - Integration and Process Orchestration
  - Turning Data into Information
  - Securing IoT
Total economic value add estimated at **$1.9 Trillion**, Source: Gartner
IoT/M2M Market Potential

M2M Connections driven by developed markets will double in 2 years

Source: IDC’s Worldwide M2M Connection Forecast, 2013

Primary drivers in Implementing M2M Projects

Source: Beecham Research
Internet of Things: Challenges

Challenges

- Complex value chain
- Lack of standardization to build, deploy & manage IoT applications
- Need to analyze *Fast* data in real time
- No consistency in managing security of data and identity of devices
- No integration platform to convert data into business automation
Oracle offers a **complete** ‘Internet of Things’ platform

- **Standardized** Java platform to develop & deploy applications across devices and applications
- **Scalable analytics** with Big Data, event processing and Business Intelligence
- **Integrate** processes between people, applications and devices
- **Enable security**, compliance and data protection across devices and enterprise data center
Internet of Things Value Chain

Supporting Applications

Infrastructure Platform

Network

Concentrator & Gateway

Sensing Device

Value-Add Services

External Systems

Industry Specific core solutions

Infrastructure Platform

Analysis, Integration, Big Data Management, Event Processing, Security

Network Cloud

Concentrator & Gateway

Sensing Device
Driving Value through the Supply Chain

- CPU Designer
- System on Chip Vendor (SOC)
- OEM/ODM
- Solution Partner
- Service Provider
- Enterprise
- System Integrator
- Application Platform Providers

- Whitepaper
- Blog
- Customer Use Case
- Press Release
- Announcements

Logos and icons representing various companies and platforms are also shown, including ARM, Freescale, Qualcomm, Eurotech, Hitachi, Sensinode, and others.
Internet of Things Platform: Oracle View

Oracle WebLogic Server, Coherence, Database & EM
Powered by Engineered Systems

Oracle Event Processor on Java Embedded Suite
Java Card, Embedded Java
Why Oracle Fusion Middleware matters for IoT?

- **Why:** Analyze device data streams at real-time
  - **How:** Oracle Event Processing with Coherence on Exalogic

- **Why:** Manage identity of devices accessing applications
  - **How:** Oracle Identity Management

- **Why:** Integrate device data with enterprise apps; Virtualize IoT Services
  - **How:** Oracle SOA Suite, Oracle Service Bus & BPM Suite

- **Why:** Monitor & manage device network through centralized portal
  - **How:** Oracle WebCenter Portal, Oracle ADF Mobile

Real-time Analysis

Integration

Security

Monitoring
Customers
Java Embedded Real-world Device Deployments

Selected devices powered by Oracle Java Embedded

- RFID Readers
- Parking Meters
- Intelligent Power Module
- Wireless Modules
- Routers & Switches
- Storage Appliances
- Network Management Systems
- Factory Automation Systems
- Security Systems
- Smart Meters
- Multi Function Printers
- ATMs
- POS Systems
- In-Flight Entertainment Systems
- Electronic Voting Systems
- Medical Imaging Systems
Oracle WebLogic, Exalogic, Partner Adaptors

- **Oracle WebLogic Server** provides reliable J2EE platform to deploy IoT Infrastructure Services (Connectivity, Management, Communication)

- **Oracle Exalogic** offers scalability & performance for large IoT deployments (1M+ devices)

- **Oracle Engineered Systems** are pre-tested, pre-configured, pre-certified hardware systems to address changing business demands.
Smart Automation: Remote Device Management

- Recognized global leader in mobile device management
- 50+ operator customers
- 500+ million mobile devices managed
- 10,000+ device types supported
- 24/7 global support
Real-time Event Processing

Oracle Event Processing (OEP), Coherence, Oracle Spatial & MapViewer

Oracle Event Processing (OEP) is a complete solution for building applications to filter, correlate, and process events in real-time.

Oracle Coherence is used to enrich Data for More Accurate Decisions.

Oracle Spatial includes spatial data and analysis and is a foundation to help location-enabled business applications.
Increasing efficiencies, reducing costs and maintaining availability are top priorities for today’s data center administrators.

Smart Data Center Infrastructure Management Platform (DCIM)

DCIM is the ability to bridge the gap between critical IT assets and Facilities infrastructure.
Integration and Process Orchestration
Connect device data with enterprise: SOA, BPM, Service Bus

- Oracle SOA Suite & Oracle BPM Suite acts on business events to drive key business processes
- Integrate device data into enterprise applications
- Oracle Service Bus delineates devices from enterprise applications
Lifetech

Healthcare

- Biotechnology company based in the US, provides products and services for scientific research, genetic analysis and applied sciences
- Presence in approximately 160 countries, and holds more than 3,100 patents and exclusive licenses
- Lifetech’s My Life Service portal is the first of its kind in the biotechnology instrument services industry
Turning Data into Information
Enable Mobility & Analytics of Device Data: OBIEE, RTD

- Oracle BIEE dashboards with Oracle RTD turn device data into information with historic & predictive visibility
- Expose IoT information via cross-platform mobile applications built using ADF Mobile & WebCenter
SF Park

Smart City: Parking Management

- The global first implementation of a city wide “smart” parking management system and technology to manage parking supply and demand more intelligently.
- Sensors at 8,200 of the city’s 27,000 metered parking spaces, to get information from the gate arms at the city’s 14 garages, which among them have about 13,000 spaces.
Securing Internet of Things
Manage user and device identities: OAM, Oracle API Gateway

- Mobile & Social Single Sign-on with Oracle Access Manager
- Oracle API Gateway secures & manages APIs to enable integration of devices with enterprise systems
Leverage Mobility/Web technologies to provide advanced Infotainment and Safety Services like:
- Remote operations
- Vehicle diagnostic / info
- Social check-in
- Safe driver discount based on driving patterns
More Information

- Oracle.com/iot
- Oracle IoT Business Whitepaper (PDF)
- Brochure: Oracle's Internet of Things (PDF)
- Internet of Things at Oracle Open World 2013 (Link)
- Inside Oracle Interview: Navigate the Internet of Things (podcast)
- Oracle IoT Platform for Smart City, Telecommunication, Home Automation & Industrial Automation - [PPT] [Webcast]
- FMW Assets

Fusion Middleware for IoT Demo
Fusion Middleware for IoT Whitepaper