

ORACLE ASSET VISIBILITY INTEGRATION TOOLKIT

KEY FEATURES AND BENEFITS

"RUBEE IS NOT RFID!"

FEATURES

- Decouples the management of the technology devices from the application
- Transform the event data for consumption by 3rd party applications
- Stores and manages data for common Business Intelligence Tools
- A GUI-based real time event routing and setting business rules using BPEL
- Supports multiple edge server middleware
- Supports Open Standards: Web Services, PLSQL, TCP/IP
- Supports out of the box integration with Oracle eBusiness Suite

BENEFITS

- Shorten the development cycle in building an end to end visibility system
- Minimizes the need for a diverse set of skilled technical resources
- Easily leverages existing packaged applications to develop a comprehensive visibility solution
- Leverages standard Business Intelligence products for analysis
- Prebuilt components for out of the box integration

This document provides an overview of OARDC's (Oracle Asia Pacific Research & Development Center's) Asset Visibility Integration Toolkit as a platform for managing RuBee (IEEE 1902.1) visibility networks.

AN INTRODUCTION TO RUBEE "VISIBILITY" TECHNOLOGY

In January 2009, the IEEE announced a new wireless standard, "RuBee" (IEEE 1902.1). RuBee wireless solutions deliver on the promises that were made, but not kept, by other wireless technologies such as RFID (Radio Frequency Identification). RuBee networks consist of wireless tags, readers, and routers - but RuBee is not RFID. RuBee technology is a bidirectional, on-demand, peer-to-peer, radiating, and transceiver protocol system that has a number of key capabilities:

- 100% reliable operation around and through metal, water, and people
- Controllable volumetric reading area, from 1 inch to 100 feet
- Virtually eliminates tempest, target and eavesdropping risks
- Human Safe (C95.1, OSHA, EMI)
- Safe for use in explosive environments (HERO, ATEX)

RuBee operates at a wavelength well below 450 kHz and typically at 131 kHz. At this frequency, the signals are almost entirely magnetic and there is almost no detectable radio frequency (RF). RuBee signals are not affected by the presence of metal, water, or people – in fact, you can embed a RuBee tag in a metal object and place the object under water, and it operates flawlessly. RuBee was developed by Visible Assets, who produce and market RuBee-based Visibility systems worldwide through the Oracle Partner Network.

Because RuBee signals are not blocked by metal, water, or people, the systems work with no special effort required from users. We refer to this as requiring "no change in process." With RF-based systems such as RFID, users have to do something different for the system to work: for example, either point the wireless tag at the reader, or point the reader at the tag, to ensure that the tag is read. The reason this difference is significant is that with RuBee there's no change in process, and therefore customers achieve large ROIs over manual solutions or barcodes. With metal, water, or people in the environment, RFID offers no ROI over barcodes because the system requires a change in process in order to work.

RuBee enabled Visibility systems will forever alter the manner, in which information is collected, integrated, accessed and reported. All too often, enterprises rely on manual processes and a significant amount of time and effort to describe,

verify and document information about the status and quantity of their assets on-hand. The application and deployment of RuBee Technology virtually eliminates the need for endless and redundant manual documentation we observe today. RuBee is synonymous with “no human intervention” and “no change in business processes”.

RuBee Technology can also provide real-time visibility of conditions for all tagged assets. Integrity variables such as vibration, water, temperature and humidity can also be monitored continuously without interruption.

CUSTOMER SYSTEMS IMPLEMENTATION PAIN POINTS

RF-based tracking systems based on RFID and Wi-Fi has not seen large-scale implementations. The first reason for this is because RF-based networks do not work reliably in serious, industrial settings. This is described above and, in contrast, we present RuBee as an underlying technology well suited for the toughest environments.

In addition, the software systems associated with RF tracking are very complicated. At the source, they are complicated because the data is not 100% accurate, so the software has to interpret the data and present information based on that interpretation. RuBee software systems are much simpler because the data is always 100% accurate. In effect you have a virtualized copy in the database of the information from the real world (weapons in an armory, hazardous materials in a store room, etc.).

Furthermore, most RF-based tracking systems deployed today are closed, proprietary implementations. Developers utilize basic infrastructure components like device readers, edge server middleware, database, and management tools to develop specific visibility event data logic as well as business application workflow. Due to the complexity of integrating various technologies components, enterprises have to invest a huge amount of resources with various skills to develop the application solutions from ground zero.

Below are some of the typical “pain points” that customers have encountered in adopting visibility solutions:

- Limited choice on application solutions;
- No comprehensive function and feature compared to traditional commercial package apps;
- Return on Investment is low or difficult to protect the investment;
- Long development cycle and deployment time; and,
- Legacy and existing system integration.

RELATED PRODUCT & OARDC SERVICES

RELATED PRODUCTS

The Oracle Asset Visibility Integration Toolkit requires the following products:

- Oracle Database Enterprise Edition
- Oracle Weblogic Server Enterprise Edition

The following products may be used to build an end to end visibility solution (Optional):

- Oracle Database Spatial
- Oracle Business Intelligence Suite, Enterprise Edition Plus
- Oracle BPEL Process Manager
- Oracle JDeveloper
- Oracle Enterprise Asset Management
- Oracle Human Resources
- Oracle Inventory Management

OARDC SERVICES

OARDC can offer specific services, which are designed to navigate the integration toolkit, customize it for particular needs or integrate it with other Oracle solutions and products.

The following services are available from OARDC:

- Installation
- Training
- Implementation Services
 - Driver Integration
 - API integration
 - Configuration and Extension Services

ORACLE ASSET VISIBILITY INTEGRATION TOOLKIT OVERVIEW

The systems foundation of RuBee Visibility Networks, the Oracle “Dot Tag Server”, is now based on Oracle’s core technology (Oracle Database Server & Oracle Weblogic Server). As a result, OARDC can now make available an “out of the box” integration platform between RuBee and Oracle’s Fusion Middleware as well as Oracle’s eBusiness Applications and other third party applications. The toolkit is designed to collect real-time data from “visibility technology” devices. Subsequently, the data can be transformed, managed, and directed to commercially packaged applications. The integration is based upon open standard APIs such as Web Services.

The implications are enormous for processing RuBee transactions through Oracle Fusion Middleware & E-Business Applications. To illustrate, Visible Assets 20/20 Weapons Healthcare Solution conducts automated inventory, authenticated issuance and return, predictive maintenance through “shot counting”, and weapons healthcare.

Potential Oracle solutions to position:

- Oracle Enterprise Asset Management (EAM) to optimize the asset management lifecycle costs and asset utilization through proactive and predictive maintenance. EAM can trigger maintenance alerts and automated order of weapons spare parts from manufacturers.
- Oracle Human Resources to associate authorized personnel to high-level assets/weapons before they leave the facility or missing weapons associated with the last authorized employee.
- Oracle Inventory Management to facilitate the labor-intensive muster process to ensure item count, as well as the weapon’s make, model, serial number and location are 100% accurate with no human intervention.
- Oracle Spatial to display the locations of all weapons within a given facility/armory through the GIS mapviewer.
- Oracle Business Intelligence Suite, Enterprise Edition Plus to provide user-defined reporting, KPI’s, statistics, and graphics of weapons as they require maintenance or are checked in and out of the armory.
- Oracle BPEL Process Manager to build end-to-end “visibility” business processes spanning applications, systems and people with respect to exception handling and out-of-band events (e.g. Weapons removed from the armory between 6pm and 8am or anytime during weekends).

About OARDC (Oracle Asia Pacific Research & Development Center)

Oracle Asia Pacific Research and Development Center (OARDC) has locations in China, Singapore and India with the aim of addressing unique requirements for Asia Pacific's customers and partners. OARDC engages in research, requirements analysis, prototyping, and architecture design with the objective of solving a specific problem through the delivery of a product. OARDC has the infrastructure in place today to release new products, new features or enhancements to existing products, which are sold either globally or regionally. OARDC's main focus areas are: product development, solution development, strategic projects, and partner enablement.

About Visible Assets

Visible Assets Inc. (VAI) is a private company created to serve companies needing full knowledge on their products' location and physical status at all times, from manufacturer to DC to end user. The VAI technology group has worked together for over 20 years on developing RuBee, holds over a hundred patents, has designed and built dozens of industrial products and has won a number of design awards. The group is now applying the unique knowledge it has accumulated about wireless technology and magnetic induction to produce visibility hardware and software systems for weapons, hazardous materials, oil & gas exploration, healthcare & other sectors with high value assets.

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Oracle Asia Research and Development Center



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