IBM

IBM WebSphere RFID Premises Server

A robust, scalable platform for implementation of RFID-enabled applications

Highlights

■ *Enables interpretation and correlation of RFID events*

■ *Executes business logic specific to given premises*

■ *Creates and maintains a "system of record" for all RFID events that occur on given premises*

■ *Enabled for remote systems management*

Radio frequency identification (RFID) is an enabling technology with the potential to streamline, automate and transform the way business is done in many different industries. For example, manufacturers are using RFID tags to monitor the movement of products during shipment. Retailers are using RFID tags to track merchandise in their supply chains. Tags can be attached to cartons and pallets and affixed to

products such as food, drugs, parts and equipment, allowing retailers and manufacturers to replenish inventory in real time, rather than relying on forecasts from previous years.

The U.S. Department of Defense is developing plans to deploy the technology to track the movement of material throughout its chain of 43,000 suppliers. An overall objective of these projects is visibility across the value chain, providing insight within and among processes involving suppliers, partners, employees and customers.

IBM RFID solutions offer an incremental approach for the adoption of the technology into a business environment with components that are designed for scalability and future growth. IBM's RFID middleware technologies include a complete and scalable infrastructure for "smart" edge devices as well as an open standards RFID server that can filter, correlate and integrate information obtained from multiple edge readers and controllers.

The IBM WebSphere® RFID Premises Server provides a scalable system for remote locations, such as stores, distribution centers and manufacturing sites faced with the need to manage

Table 1: IBM WebSphere RFID Device Infrastructure

Readers, scanners, printers	• *Gather product data on the facility floor, print data to tags for shipping.*
Edge domain	• *OEM-embedded software installed on RFID controllers, readers, printers.*
IBM WebSphere RFID Premises Server	• *Premises domain: Platform for RFID-enabled applications aggregates and analyzes data from the devices.*
IBM WebSphere Business Integration	• *Business process integration: Integrates RFID-enabled business processes with line-of-business applications.*
Enterprise and business application domain	• *Line-of-business applications and functions that integrate with IBM WebSphere Business Integration products.*

data from multiple RFID devices. The Premises Server provides assured message delivery, scalable and robust data management and reconciliation technologies, industry-leading enterprise application integration, and pre-built process automation templates and tools for clients implementing RFID in their businesses.

IBM RFID Solution Architecture

The IBM RFID Solution Domain Architecture provides flexibility and scalability to maximize business value capture, grouping logically related technology components, supporting evolving standards such as EPCglobal and ISO, and insulating layers of technology advancements through loose coupling, and flexible and clean interfaces between domains.

The IBM RFID Solution Domain Architecture includes five main tiers:

• *Reader*
• *Edge*
• *Premises*
• *Business Integration*
• *Enterprise Applications*

IBM WebSphere RFID Premises Server

The IBM WebSphere RFID Premises Server implements the Premises tier of the architecture. It is a robust and scalable WebSphere platform for implementing J2EE® RFID-enabled applications at distributed facilities. The Premises Server integrates RFID information and events from the Edge tier of RFID readers, controllers and automation equipment. It also provides the platform for integrating RFID-enabled business processes into back-end systems running line-of-business applications such as ERP, warehouse management and supply chain management. The Premises Server:

• *Enables interpretation and correlation of RFID events*
• *Executes business logic specific to given premises*
• *Creates and maintains the "system of record" for all RFID events that occur on given premises*
• *Enables administration and management of systems in remote locations*
• *Supports communication with external applications through standard protocols and interfaces*
• *Provides starter kits to assist customers with commonly needed use cases*

Detailed description

1. Premises-specific execution
The Premises Server provides a robust J2EE environment for the implementation of applications supporting RFID-enabled business processes required at a specific facility. Users may develop multiple RFID-enabled applications with unique business logic for a specific location or type of business. As an example, a distribution center for food might have business logic different from a distribution center for hardware, although they belong to the same retail chain.

2. Data persistence
All RFID events that have been observed on the premises are stored in a relational data repository. Data can be routed by configuration of the topology to be delivered to enterprise applications and backend systems. Standard tools for manipulating relational data sources, such as IBM WebSphere Studio, are separately available – replication, ETL and various reporting tools.

3. Integration with enterprise applications
The Premises Server includes an adapter to support data flow between the Premises tier and the business integration tier, ensuring secure interaction and delivery of data, once and only once. This adapter is designed to support integration of the RFID event data with enterprise applications in backend systems. Interfaces based on standard techniques and protocols (e.g., Web Services, RMI/IIOP, JMS, JDBC) are provided so that external applications can communicate with the Premises Server.

4. Systems Management
Systems management capabilities in the Premises Server include management, monitoring, system management event handling and control functions that can remotely install, manage and monitor hardware, middleware and applications at hundreds of locations.

Table 2: Operating environment: Hardware and software requirements

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Minimum hardware configuration

Processor	3GHz Pentium® 4, 2GB of RAM
Free disk space	8GB
Temporary disk space during installation	500MB

Software
The IBM WebSphere RFID Premises Server runs on Microsoft® Windows® 2000 Server or Advanced Server with Service Pack 4, Windows 2003 with Service Pack 1, or Linux® SuSE 8 with Fix Pack 3. Additional software* provided as part of the RFID Premises Server product includes:
- WebSphere Application Server, Network Deployment 5.1.1.3
- IBM DB2® Universal Database,™ Workgroup Server 8.2.0.1
- IBM WebSphere MQ 5.3.0.8
- IBM Tivoli® Management Agent 4.1.1
- IBM Tivoli Configuration Manager 4.2.1
- IBM Tivoli Enterprise Console 3.9.0.2
- IBM Tivoli Monitoring 5.1.2
- ITM for Web Infrastructure 5.1.2
- ITM for Database Servers 5.1.0
- ITM for Business Integration 5.1.1
- IBM WebSphere Everyplace Device Manager 5.0

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* These software products and components are for use only with the IBM WebSphere RFID Premises Server. A separate license must be acquired for any of these products if used outside of the Premises Server.

Summary

The IBM WebSphere RFID Premises Server is a robust, scalable platform for growth, based on IBM's proven, scalable middleware products. These middleware products have been used in high-volume environments and provide fault tolerance and load balancing. Combined with the IBM WebSphere RFID Device Infrastructure offering, which device manufacturers embed on their RFID devices, scalability is ensured by early data filtering capability of the Edge tier thereby avoiding network overload. The IBM WebSphere RFID Premises Server provides an application platform to enable integration of RFID event data with enterprise applications. The multi-tiered IBM RFID Solution Domain architecture provides flexibility and scalability to maximize business value capture.

For more information

To learn more about IBM Sensor and Actuator Solutions, visit **ibm.com**/ solutions/sensors.