

Oracle® Retail Workforce Management
System Architecture
Release 1.62

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Oracle Retail Workforce Management, System Architecture, Release 1.62

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Send your comments to us using the electronic mail address: retail-doc_us@oracle.com

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Preface

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Related Documents

For more information, see the following documents in the Oracle Retail Workforce Management Release 1.62 documentation set:

- Oracle Retail Workforce Management Installation Guide
- Oracle Retail Workforce Management User Guide

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- Product version and program/module name
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- Exact error message received
- Screen shots of each step you take

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When you install the application for the first time, you install either a base release (for example, 13.3) or a later patch release (for example, 13.3.1). If you are installing the base release or additional patch releases, read the documentation for all releases that have occurred since the base release before you begin installation. Documentation for patch releases can contain critical information related to the base release, as well as information about code changes since the base release.

Improved Process for Oracle Retail Documentation Corrections

To more quickly address critical corrections to Oracle Retail documentation content, Oracle Retail documentation may be republished whenever a critical correction is needed. For critical corrections, the republication of an Oracle Retail document may at times **not** be attached to a numbered software release; instead, the Oracle Retail document will simply be replaced on the Oracle Technology Network Web site, or, in the

case of Data Models, to the applicable My Oracle Support Documentation container where they reside.

This process will prevent delays in making critical corrections available to customers. For the customer, it means that before you begin installation, you must verify that you have the most recent version of the Oracle Retail documentation set. Oracle Retail documentation is available on the Oracle Technology Network at the following URL:

<http://www.oracle.com/technetwork/documentation/oracle-retail-100266.html>

An updated version of the applicable Oracle Retail document is indicated by Oracle part number, as well as print date (month and year). An updated version uses the same part number, with a higher-numbered suffix. For example, part number E123456-02 is an updated version of a document with part number E123456-01.

If a more recent version of a document is available, that version supersedes all previous versions.

Oracle Retail Documentation on the Oracle Technology Network

Oracle Retail product documentation is available on the following web site:

<http://www.oracle.com/technetwork/documentation/oracle-retail-100266.html>

(Data Model documents are not available through Oracle Technology Network. You can obtain them through My Oracle Support.)

Conventions

Navigate: This is a navigate statement. It tells you how to get to the start of the procedure and ends with a screen shot of the starting point and the statement “the Window Name window opens.”

This is a code sample

It is used to display examples of code

Introduction

This document outlines **example** component and server architecture for the ePerformance environment.

Component Outline

High-level component infrastructure containing key business functionality.

Tiered Approach

Presentation Layer

Presentation of data is provided by Servlets and Java Server Pages technologies. User Interface is pure HTML and use of ActiveX/Flash/Applets is avoided to minimize network bandwidth usage.

Business Objects Layer

Business objects are JavaBeans. ePerformance is web-centric (Enterprise JavaBeans (EJBs) are not employed).

Database Layer

Type 4 JDBC is used to allow connections to SQL databases. Syntax support is currently supplied for Oracle 9.2i, 10g, and Microsoft SQL Server 2000, 2005.

External Components

Components and interfaces of the proposed solution provided by systems outside ePerformance.

Store Execution Management

Information on irregular store activities to be fed into ePerformance to control hours generated for work in stores.

Data Warehouse

Generic term to describe all other information regarding store-specific work information. To include:

- Store parameter information
- Store trading profile patterns
- Store EPOS information (sales, transactions, etc)

T&A Capture

Capture of actual shift information using hardware ("T&A clocks") or software (HTML/browser).

HR/Payroll

SAP HR system, containing HR information (employee details, contract information, etc) and receiving employee payment information (currency = hours).

Web Services

Allows additional standard XML data transport for key services.

Internal Components

HR/Absence

Database of employee records including contract information and contracted shift patterns. Absences information maintained for paid/unpaid absence types by employee.

Forecasting/Central Budgeting

Contains store forecasting information. Forecasting engine takes pre-built Forecast Models and combines with store-specific parameters at store level to create forecasted hours requirement. Central Budgeting allows the centre to control this for all stores at defined periods. Workloads are generated from forecasted hours and store specific trade patterns.

Scheduling

Algorithms combining employee HR details (contract and absences) and workloads by store to create employee schedules where employee availability best matches required workload.

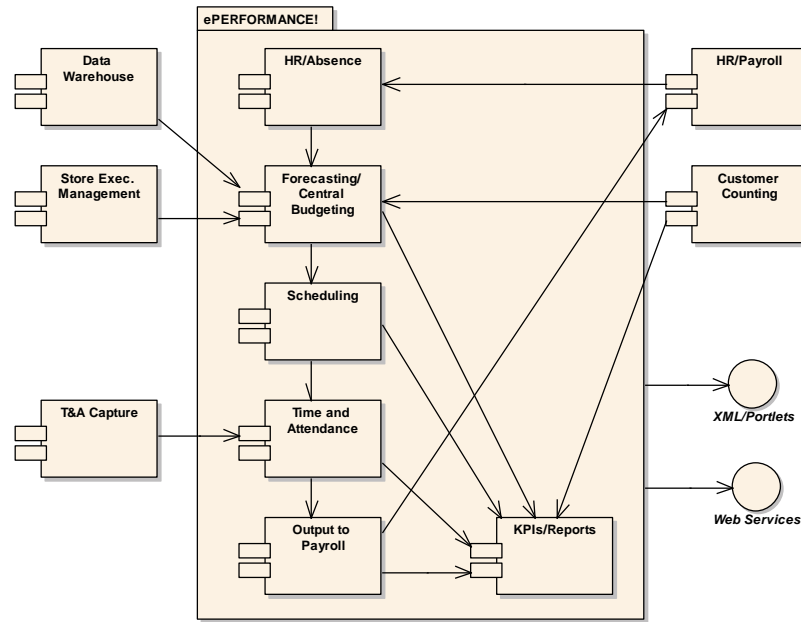
Time and Attendance

Storage of captured T&A actual data or “inferred” actual data from schedules/contract information. Rules and in-store processes are applied to this data to create Paid Hours which are then considered for Output to Payroll.

KPIs/Reports

Standard reporting mechanisms for key performance data. Includes schedule reports detailing employee expected and actual times, and KPI data from EPOS, customer counting, and total hours values.

Component Overview Diagram



Component Overview

Deployment Infrastructure

Component Outline

Web Browser

Required: IE 6.0 or later. Only HTML is transmitted to the client, and transmission is stateless. The application relies on cookies to manage sessions, and some user options.

Note: Flash, Applets and ActiveX controls are not used to minimize bandwidth usage and reduce complexity of client requirements.

Web Server / Security layer

Choice of Web Server is at the Customer's discretion, provided integration with Application Server is fully supported. Typically Apache-based systems are used.

Alternatively is Network Load Balancer (NLB) solution may be used.

ePerformance does not encrypt its content or responses, if this is a requirement we recommend implementing SSL at the web server or NLB, and encrypting the database.

Application Server Cluster

ePerformance can be load-balanced, either in a fail-over or standard load balancing scenario. Each instance of ePerformance communicates over IP multicast.

Each ePerformance instance can be tuned specific hardware and service requirements. Tuning currently requires the application to be restarted, so a typical configuration will have designated instance roles that change infrequently.

General Purpose Mode

The application is configured to provide both presentation and batch processing.

Presentation Mode

The application is configured to provide the user interface, but no batch processing.

Process Mode

The application is configured to provide only batch processing.

ePERFORMANCE Web Application

One instance of ePerformance runs in each instance of the chosen web container.

Application Server

ePerformance is a web-centric J2EE application. Supported options include Apache TOMCAT and IBM WebSphere (community and standard editions supported). Platform choice is at the Customer's discretion provided that a Java Virtual Machine is available.

Java

The choice of Java may be predetermined by the application server, however, we support only JSE5 or above.

Note: In AIX environments IBM's 32bit JSE5 demonstrated severe memory leaks, which are not present in the 64bit version. Therefore we recommend 64bit Java in AIX environments.

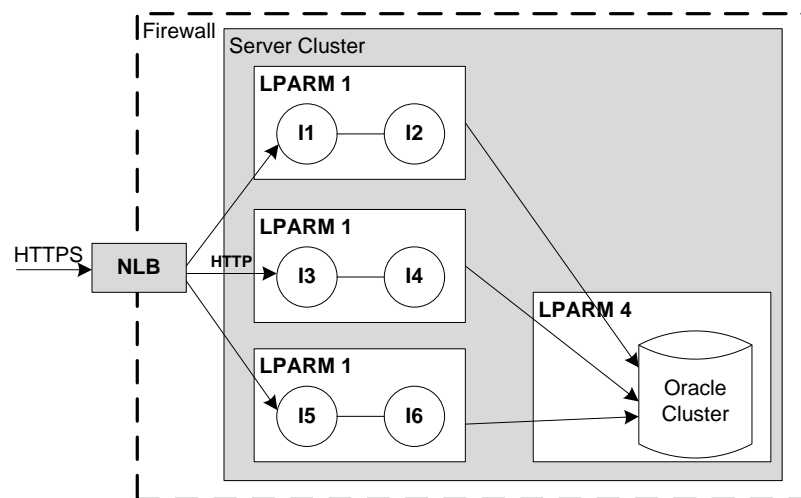
Database Server

Database is accessed via Type 4 JDBC libraries. Current syntax support is provided for Oracle 9.2i, 10g, and Microsoft SQL Server 2000, 2005.

Example Topology

Large Scale Deployment

The large scale deployment shows how the application can be scaled to multiple instances offering better performance and resilience.



Example deployment diagram for ePERFORMANCE application

Network Load Balancer

The Network Load Balancer (NLB) receives client requests and balances them across three instances of the application using appropriate load balancing algorithm, for example round-robin. The NLB needs to support session affinity.

In addition to providing load balancing support the NLB secures incoming traffic, via SSL, translating to HTTP within the firewall.

Server Cluster

In this example the server cluster is a large multi-CPU server that has been divided into logical partitions. Alternative configurations could use a blade centre for example.

LPARM1 – LPARM3

The three partitions host two instances of the application each, a total of 6 instances. Each LPARM has 4x 1.65Ghz PPC CPUs and 4GB memory.

I1, I3, and I5

These three instances of ePerformance are running in [Presentation Mode](#), and are balanced by the NLB.

I2, I4, and I6

These three instances of ePerformance are running in [Process Mode](#), and are not accessible via the NBL.

Oracle Cluster

An Oracle Instance providing the RDBMS component.