**Legacy Bridge Replacement**

**High Level Architecture**

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# Introduction

## Purpose of the document

This document contains the high-level architecture for the implementation of a replacement bridge between the HRMS and the AS/400.

## Intended Audience

The audience for this document is everyone in Enterprise Holdings Inc. who manages, is responsible for, develops, or uses the existing PeopleSoft legacy bridge; including any third parties engaged to work on behalf of Enterprise whose remit includes management and/or associated services relating to the legacy bridge.

# Project Overview

The intention of this project is to provide infrastructure and services to decouple the current HRMS (PeopleSoft) and the legacy HR system (AS/400).

## Scope

### In Scope

The following items are in scope for this document:

* High-level system architecture for moving the legacy bridge off the current HRMS system and into a new Java Spring Boot application.
* High-level integration requirements suitable for business and development partners to allow initial high-level estimates to be produced.

### Out of Scope

The following sections in the requirements document have not been reviewed:

* Any changes to PeopleSoft not related to the legacy bridge move.
* Any changes to the AS/400 platform.

## Related documents

[LHRS High Level Architecture](https://confluence.ehi.com/display/ES/LHRS+High+Level+Architecture)

## Assumptions

The following assumptions are being made:

1. The existing system will continue to support employee, non-employee contingent, and multiple ID synchronization between the current HRMS and the AS/400 system.
2. For the duration of the remaining life of the AS/400 system it will receive updates from the new legacy bridge application.

## Dependencies

The following dependencies have been identified:

* + PS Oracle database
  + PeopleSoft Application
  + AS400

## Constraints

Development lifecycles for other systems – e.g. HR replacement project, AS400 migration, TempMast.

# ERD Current State Overview

## Functional capabilities

The existing legacy bridge moves data from the PeopleSoft for new/rehire events for employee/non-employee and is hosted inside the AS/400 platform. This EID is moved back to the HRMS system of record (PeopleSoft) before the employee/non-employee record is released to the ERD or other systems.

## Architectural overview

### High-level integration overview

Existing high level integrations are in place between PS and the AS/400 are shown below in Figure 1.



Figure 1 - Overview of current HRMS and AS/400 landscape

### Current Interface overview

* Interface methods
  + AS/400
    - REXEC RPG method execution for New Hire/Rehire
* Live interfaces cover the following types of data:
  + Employee HR data including PII, EID
  + TempMast
    - Contingent employee
    - Multiple ID non-person accounts

# Legacy Bridge Proposed State Overview

## High-level logical overview of new Legacy Bridge

Below is the high-level overview of the replacement system.



Figure 2: High-level overview of new Legacy Bridge

### Proposed architecture highlights

The proposed system consists of two new Java Spring SQL monitors that watch the Employee and Contingent Employee/Multiple ID accounts. The HRMS system (PeopleSoft) will update the existing trigger tables and the events will be monitored by the external Java application. When events are detected they will be sent to the existing RGP methods on the AS/400 system.

The system consists of two monitors;

* Employee monitor
* Contingent/Non-Person (multiple ID) monitor

As changes happen in these trigger tables the application will read the data from the trigger and the cross-reference tables to determine if there is any work to perform. If they determine that an event that needs to be transferred to the AS/400 system has occurred, they will notify the Data Importer which will pull data directly from the PeopleSoft (PS) Database for the event. The Data Importer (DI) will wrap the data with metadata about the source of the event and pass the payload to the Data Export Engine (DPE). Data from the AS/400 channel will be sent to the AS/400 export service which will call the RPG methods using REXEC calls.

## Legacy Bridge Logical System overview

Below is the proposed systems high-level logical overview



Figure 3: High-level logical overview of the Legacy Bridge

### High Level Logical highlights

The system is comprised of four logical components;

* + Event Monitor
  + Data Importer
  + Data Transformation
  + Data Exporter

Since the end goal of this framework design is to facilitate the replacement of the current HRMS system, PeopleSoft, with a new cloud version with minimum rework a Black Box System approach has been used. The design of the system focuses on using interface contracts to enforce the standalone nature desired. This allows for each component to be modified/replaced without impacting the rest of the framework.

#### Event Monitor

In the initial phase, each monitor uses SQL queries to look at existing trigger tables looking for events. Since an EID is required to process any record found, after a trigger event has been identified an additional query will be performed against the cross-reference tables associated with the trigger table. If an EID is found, the event can be processed, otherwise the event is skipped until the next monitor cycle. After a configurable number of times an event is skipped an email notice is sent to support and the event is marked as notified. Events that have reached this state will continue to be evaluated each pole cycle but will not generate additional emails.

Each event monitor will update the trigger table associated with the monitor when either the event has been sent to the client or when an error will prevent an event from ever being processed without outside intervention.

#### Data Importer

In the initial phase the data importer will be SQL in nature. The importer takes a notice message from the **Event Monitor** and will retrieve the data from the PeopleSoft DB per the export channel and other information contained in the notice metadata.

#### Data Transformation

The data transformation layer is a sub layer of the Data Importer and converts the incoming data from an HRMS system into the internal data model.

#### Data Exporter

The data export layer consists of a processor that consumes the meta data provided by the event monitor to route the message to the correct exporter. In this phase the exporters are for;

* Employee Events
  + HRZ101A – New Hire/Rehire
  + HRZ102A – Terminate
  + HRZ104A – Job Profile Changes
  + HRZ105A – Demographic Changes
  + HRZ107A – Date Changes
  + HRZ109A – Group Transfers
* Contingent Employee and Multiple EID Events
  + HRZ201A – New Hire/Rehire
  + HRZ202A – Terminate
  + HRZ205A – Demographic Changes

The exporters will be using REXEC connections to the AS/400 and call the correct methods listed above based on the event metadata and event source.

## Legacy Bridge Workflows

This section describes the high-level workflow for the Legacy Bridge.

### Legacy Bridge High-Level workflow



Figure 4: Legacy Bridge High-Level Workflow

### High-level Overview for Event Monitor



Figure 5: High-Level overview of the Event Monitor workflow

### High-level Overview of the Data Importer/Data Transformation Process



Figure 6: High-Level overview of the Data Importer workflow

## High-level Overview of the Export Service



Figure 7: High-Level overview of the Export Service

# 

# Appendix A – Business service classifications

## Definitions, Acronyms and Abbreviations

The following abbreviations and acronyms have been used in this document.

Table 1: Definitions, Acronyms and Abbreviations

|  |  |
| --- | --- |
| **Term** | **Meaning** |
| **PS** | People Soft |
| **ERD** | Employee Reference Data |
| **SQL** | **Structured Query Language**: language used to access data held in a database |
| **TBD** | **To Be Determined** |
| **REST** | **Representational State Transfer**: Interface standard that allows for interchanging data between systems via web services. |
| **JSON** | **JavaScript Object Notation**: a lightweight data-interchange format easily read by humans and processed by computers |
| **ACL** | **Access Control List**: a list that tells a computer system which access rights a user or client has to a particular data object such as allowed access to PII data elements |
| **RESTful** | Interfaces that implement a REST like service |
| **DB** | **Database**: a system used to store large record sets allowing for standard methods to manage CRUD operations. |
| **CRUD** | **Create Retrieve Update Delete**: a basic set of operations done on data sets |
| **ETL** | Method to Extract, Translate, Load data from one system to another |
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Table 2: Service Definitions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Characteristic** | **Aspect** | **Mission Critical** | **Business Critical** | **Business Operational** | **Administrative Services** |
| **Service Hours** | Operational hours | 7 x 24 | 7 x 24 | 5 x 24 | 5 x 8 |
| Maintenance window | 4 hours / month | 8 hours / month | 48 hours / week | 60 hours / week |
| **Service Availability** | Availability | 99.99% | 99.9% | 99% | 99% |
| Backups | No impact to availability | No impact to availability | May impact availability | May impact availability |
| Availability measurement | Required | Required | Required | Required |
| **Reliability** | Unplanned outage | 1 / year | 4 / year | 8 / year | N/A |
| **Customer Support** | Maximum priority of helpdesk call | 0 | 0 | 1 | 2 |
| **Service performance** | Metrics defined in SLA | Required | Required | Required | Not required |
| Backups | No impact to service performance | May impact service performance | May impact service performance | May impact service performance |
| Restore metrics defined in SLA | Required | Required | Required | Not required |
| **Change Management** |  | Required | Required | Required | Not required |
| **IT Service Continuity** | DR Solution | Required with full operational capability | Required with full operational capability | Not required | Not required |
| Availability in DR mode | 99.99 | 99.5% | N/A | N/A |
| Data loss | None | Some, defined in SLA | N/A | N/A |
| Service recovery time | 2 hours | 72 hours | N/A | N/A |
| **Security** | Compliance | Required | Required | Required | Required |
| **Service Reviews** | Frequency | Monthly | Monthly | Six monthly | Not required |