



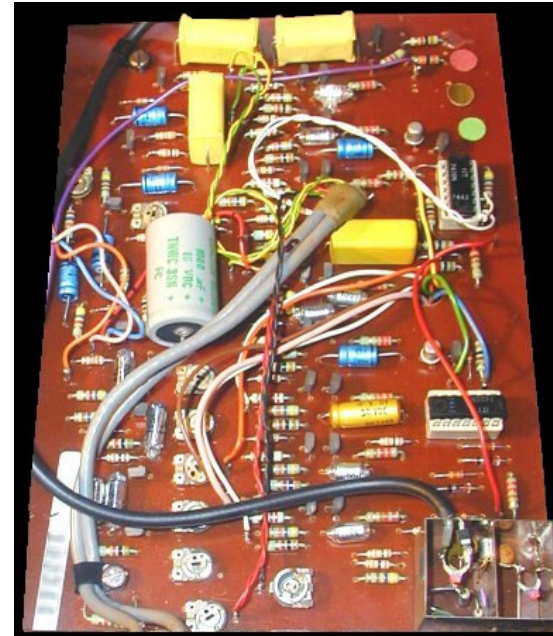
# System Architecture

## **SAP E-Recruiting v6.0**

SAP Solution Management

# System Architecture

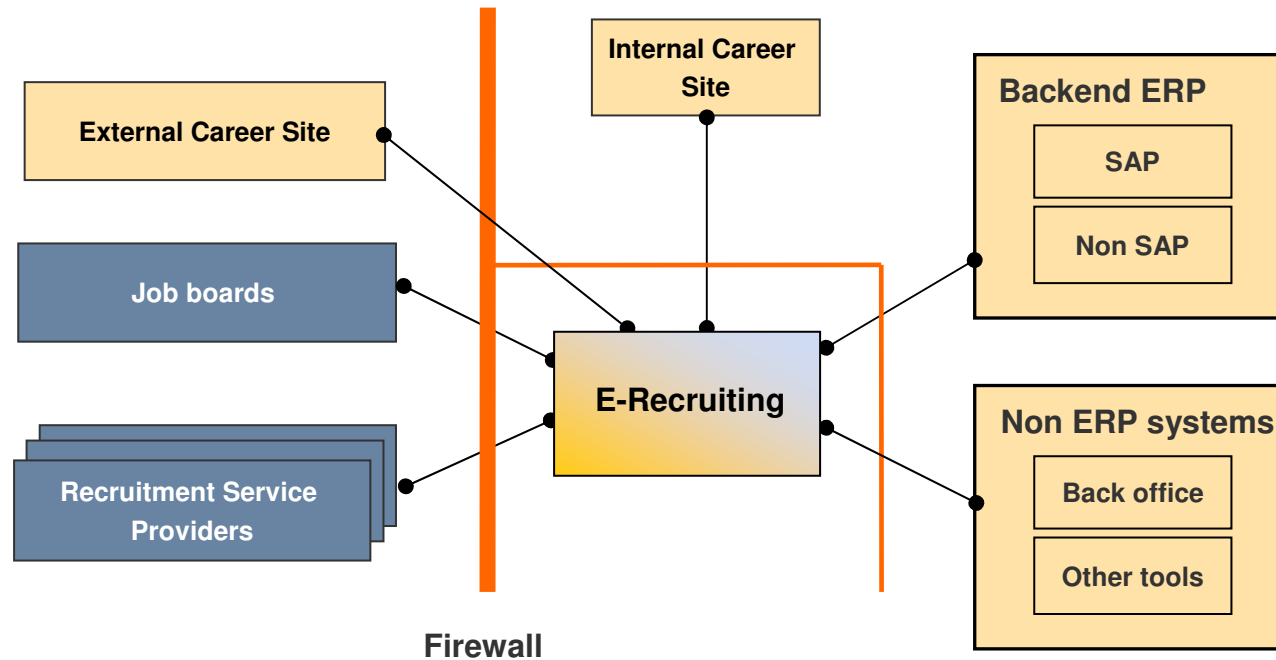
- Functional System Architecture
- Collaboration and Integration
- Technical Architecture
- Sizing and Scaling
- The Front End
- Languages



- **Functional System Architecture**
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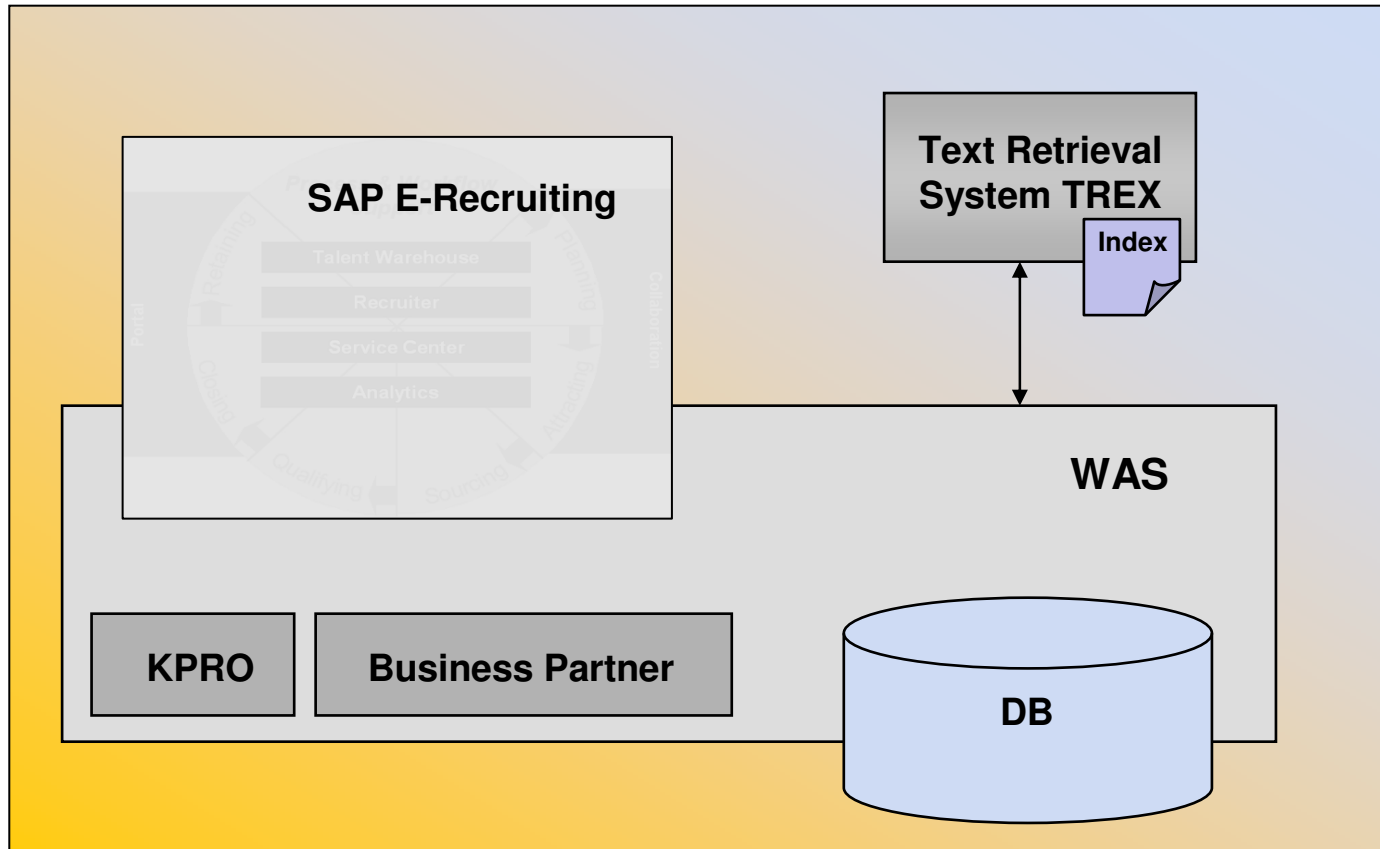


# Functional Overview E-Recruiting Architecture



- Stand alone application with well-defined interfaces
- Release neutral integration to SAP HR systems

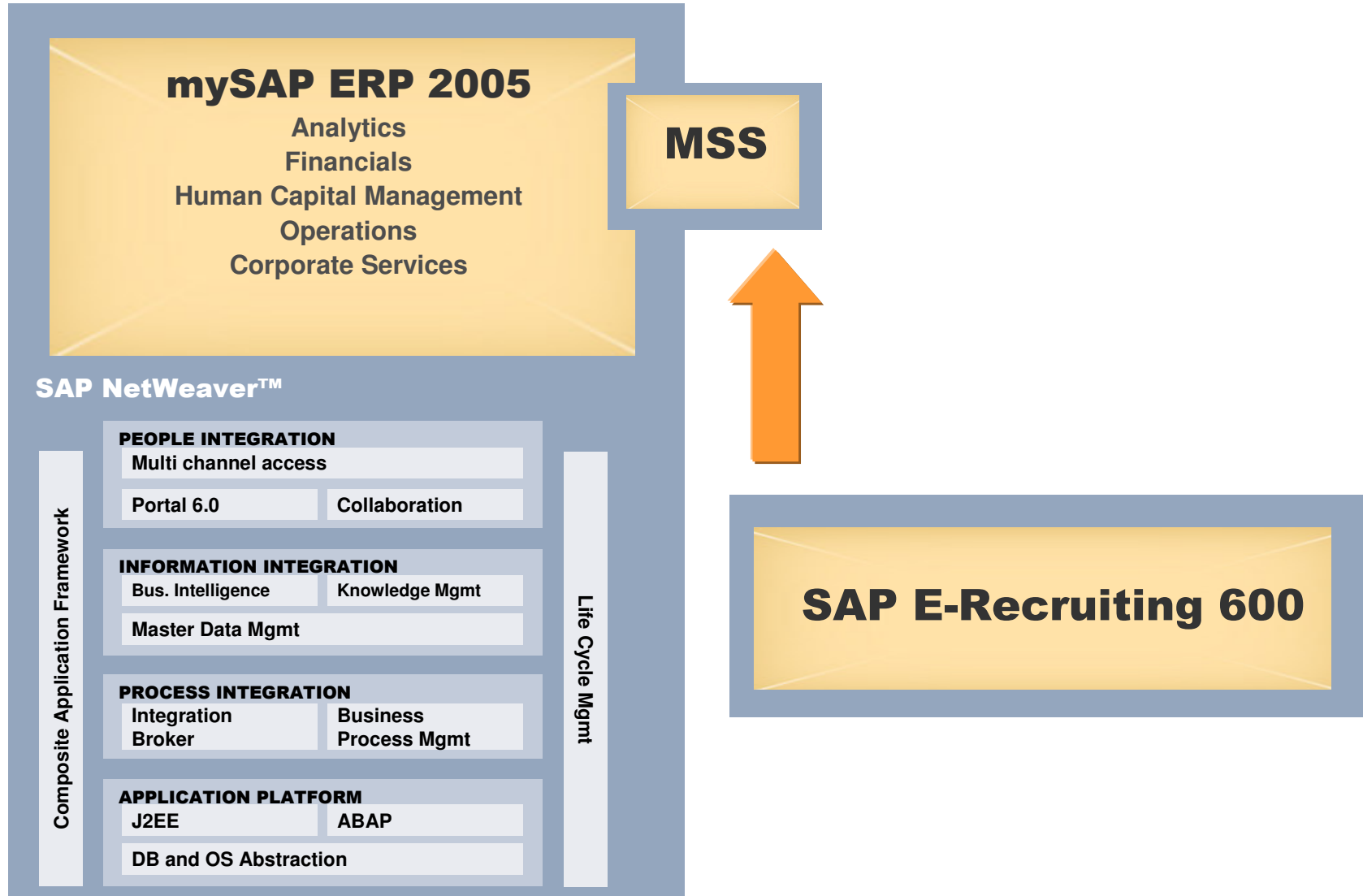
# What's in the E-Recruiting Box?



## Techniques used:

- **Presentation Layer:** Business Server Pages (BSP), HTML, HTMLB, JavaScript
- **Business Logic:** ABAP/OO, Business Partner, KPRO

# Components Overview



# E-Recruiting – Software Compatability Matrix

	Portal	BW	SAP HR (min.)	SAP Basis	SAP ECC*	TREX
<b>E-Recruiting 2.0</b>	<b>EP 6.0</b>	<b>n/a</b>	<b>4.0</b>	<b>6.20</b>	<b>n/a</b>	<b>6.0</b>
<b>E-Recruiting 3.0</b>	<b>EP 6.0</b>	<b>3.5</b>	<b>4.0</b>	<b>6.40</b>	<b>5.0</b>	<b>6.1</b>
<b>E-Recruiting 6.0</b>	<b>EP 6.0</b>	<b>3.5</b>	<b>4.0</b>	<b>7.00</b>	<b>6.0</b>	<b>7.0</b>

**\*SAP ECC (SAP Enterprise Core Component) required for integration scenarios offered in latest E-Recruiting release.**

# What is the role of these components?

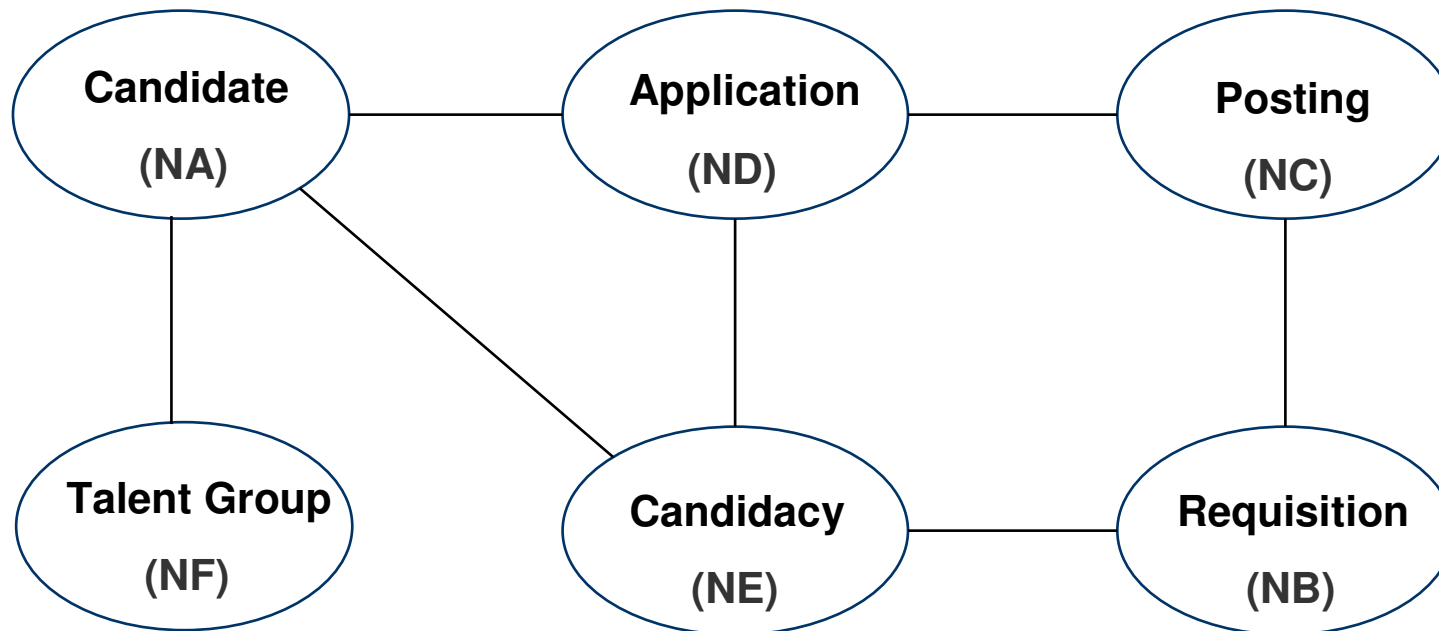
## SAP Basis

- **Web Application Server**
- **ABA**
- **E-Recruiting**
  - ◆ **BSP: E-Recruiting Presentation Layer (user interfaces)**
  - ◆ **ABAP / OO: E-Recruiting Business Logic**
  - ◆ **User Management: authorization data of all users**
  - ◆ **KPRO: storage and retrieval of all requisitions, posting and candidate information in XML formatted documents. The latter are compiled from Infotypes, tables and attachments.**
  - ◆ **Infotypes: Storage of requisition, posting, candidate and application information**
  - ◆ **Business Partner: storage of name and address data of all known users (incl. candidates)**

## TREX

- **Indexing of all KPRO documents**
- **Storage of index on own file server**
- **Facilitating search of KPRO document on the basis of these indexes**

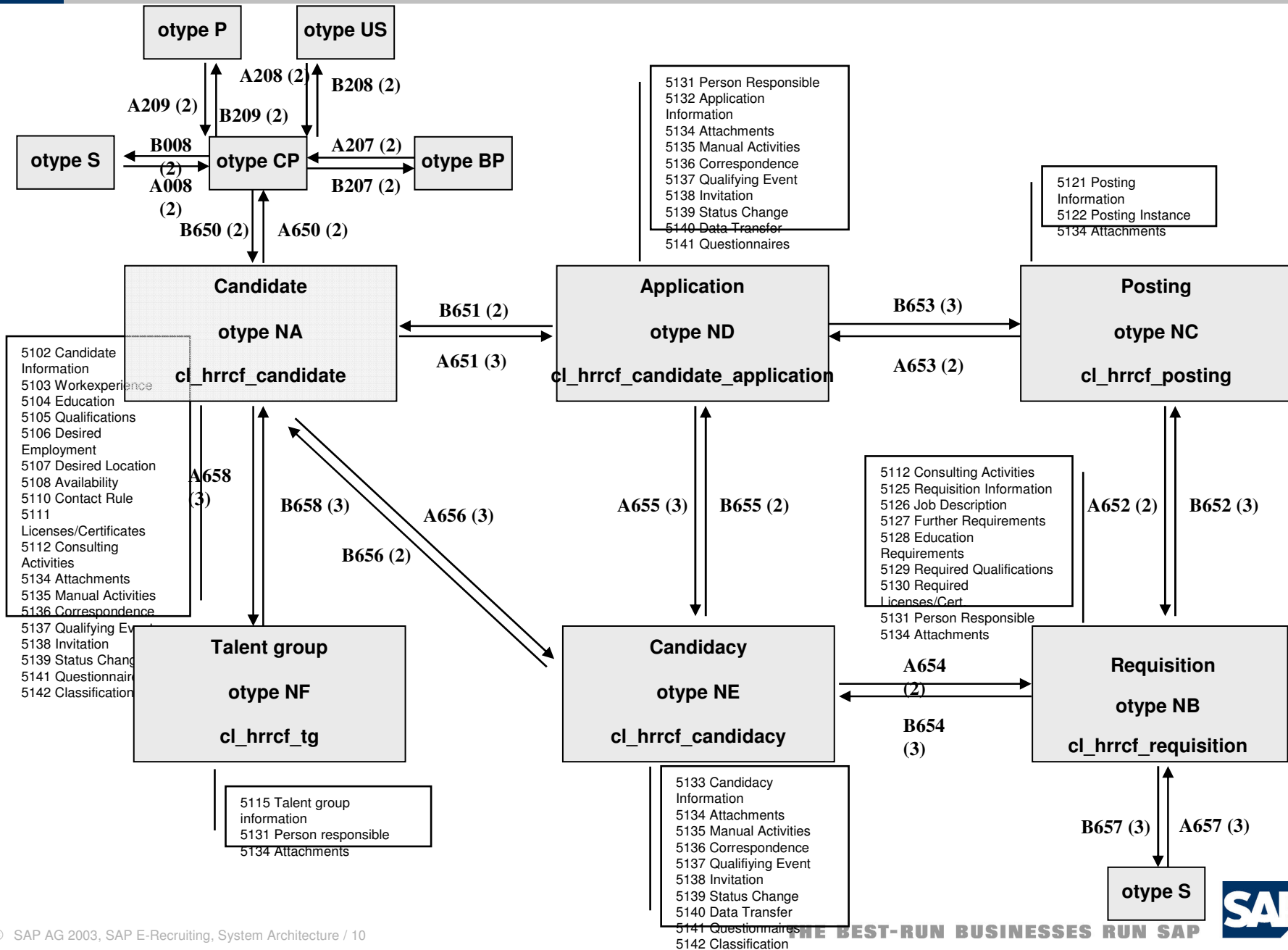
# E-Recruiting PD Object Model



Legend: NA, ND, NF, NE, NB and NC are Object Types

**Talent Group is a new object in Release 6.0**

# Complete Data Model



# System Architecture

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# Types of Integration

- 1. Integration of Organizational Management Data**
- 2. Personal Data Synchronization**
- 3. Qualifications Catalog**
- 4. Data Transfer for New Employees**
- 5. BW Integration**
- 6. External Integration via Enterprise Services Architecture (ESA)**
- 7. Manager Self-Service Integration**
- 8. Integration to Internal Back-Office Systems**
- 9. Integration to Internal & External Career Sites**

# #1 - Integration of Organizational Management Data

## ALE of Org Unit, Position, Job (HR release as low as 4.0B)

- Basic objects, no real infotypes
  - ◆ OM objects (Infotype 1000): org units (O), jobs (C), positions (S), and persons (P)
  - ◆ OM relations (Infotype 1001): A003, A002, A007, A008, A012, B002, B003, B007, B008, B012

## Overview of HR data based on org unit, position, job (E-Recruiting 3.0 and ERP 2004 HCM system )

- Display of HR information as an overview within the requisition.
- Based on integration units that reference data extraction ABAP classes.
- Can be enhanced and extended by the customer without modification.
- Examples of the data are working time for a position, account assignment feature.
- This integration requires that the linked HCM system is ERP 2004 or higher.
- When on ECC recruiters can restrict positions found for the requisition to vacant positions.

# #1 - Integration of Organizational Management Data (Cont.)

## Defaulting of job / position requirements from HR onto requisition

### ■ Requires E-Recruiting 6.0, ERP2005 HCM system

**Requisition**

[Personal Pages](#) > [Requisition Maintenance](#) > Requisition

Requisition [US Risk Management Specialist](#) Status [Released](#)

A requisition is a formal request to fill one or more jobs. Store the relevant data and release the requisition.

**Requisition** 1 General Job Information  2 Organizational Data  3 Support Team  4 Job Requirements  5 Education Requirements

Support Team Education Requirements

**Job Requirements**

Specify the skills and qualifications a candidate should have to be considered for a vacancy

Qualifications		
Qualification Group	Qualification	Proficiency
A-Task-Specific Knowledge	Administration	Excellent
A-Task-Specific Knowledge	Finance	Excellent
A-Task-Specific Knowledge	Quality Management	Above average

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**Edit** Transfer of HR Requirements

## #2 - Personal Data Synchronization

Employee data comes from HR when HR is the system of record (Infotypes 0000, 0001, 0002 and 0105):

- Organizational Assignment

- Personal Data

- Addresses

- Communication Data

- Qualifications (E-Recruiting 6.0 / ERP2005 HCM system)

Synchronous when using ERP2005 on same instance

Asynchronous (ALE) when using earlier release or on separate instance

## **#3 - Qualifications Catalog**

### **Integrated via ALE**

**As of Release 3.0, E-Recruiting can use a subset of the greater qualifications catalog (especially useful when on same instance)**

- **Designate which qualifications and qualification groups are relevant for E-Recruiting**

**Benefits of a single competency database without scaring external candidates with the many internal qualifications.**

**Note: E-Recruiting can also have own qualification catalog for standalone implementations**

## #4 - Data Transfer for New Employees

**Release 3.0 uses “New hire data transfer” activity into HR.**

- **Uses PA48 on the HR side**

**Release 6.0 uses new XI HR-XML integration to bring candidate into HR.**

- **Data accessed through the new Personnel Administrator role in ERP2005**
- **More flexible**
- **Secure**
- **Provides easier maintenance of system landscape and various integration points**
- **Open industry interface in case of integration with non-SAP HR**

**Note: Customers can still use the existing RFC interface to PA48.**

## #5 - BW Integration

**For E-Recruiting 3.0 BW content was delivered in the BW 3.52 content release. Predelivered queries are:**

- **Requisitions Created**
- **Open Requisitions**
- **Requisition Status Changes**
- **Applications vs. Offers**
- **Interviews vs. Offers**
- **Offer vs. Acceptance**
- **Time to Fill**
- **Source of Applications**

**Powerful use of talent pool data (e.g qualifications of people in talent pool).**

**Needs HR master data such as organizational units to be extracted from an HR. This is not extracted from E-Recruiting as HR is the system of record.**

## #6 - External Integration via Enterprise Services Architecture (ESA)

### Job Board Integration (Release 6.0)

- Uses XI to send HR-XML data to job boards
- We are currently working with job boards and aggregators so that they can become certified partners

### Job Board Integration (Release 3.0)

- We deliver a framework for sending data to job boards but nothing is predelivered and XI is not used

## #6 - External Integration via Enterprise Services Architecture (ESA) – Continued

### Candidate Import (Release 6.0 Fast Track mid-2006)

- Import of candidate data for resume parsing (e.g. candidate uploads resume and the system defaults their work history etc.)
- Integration to resume parsing service providers that process paper, fax, email receipt of resumes.
- Import of candidates from legacy systems

Background check and assessments integration planned for ERP2007

Partner solutions (Pecaso and ERP Solutions provide integration with resume parsers, Pecaso integrate with SHL for applicant assessments).

# #7 – Manager Self Service (MSS)

With E-Recruiting 3.0 and ERP2004 E-Recruiting workset available in MSS:

- ◆ Uses Adobe Form Designer for nice form layout
- ◆ Defaults requisition information from HR
- ◆ Can create and send requisitions to recruiters
- ◆ Can receive requests for candidate feedback from recruiters

The screenshot displays the SAP Manager Self Service (MSS) interface. At the top, a navigation bar includes 'Home', 'Development Plan', 'My Staff', 'My Budget', 'Employee Self-Service', 'Learning Solution', and 'Learning Cockpit'. Below this, a secondary navigation bar lists various HR functions like 'Overview', 'Attendance', 'Employee Review', 'Personnel Change Request', 'Recruiting', 'Reporting', 'Compensation', 'Organization', 'Headcount', 'ESS in MSS', and 'Workforce Cost Planning'. The main content area is titled 'Recruiting' and shows a progress indicator for a 'New Requisition Request' with four steps: 1. Select Parameter, 2. Edit (highlighted), 3. Review and Send, and 4. Completed. Below the progress bar, there are links for 'Show Previous Requisition Requests' and fields for 'Selected Form' (Simple Requisition Request) and 'Selected Position' (Account Executive). The central focus is a 'Simple Requisition Request' form with the following fields: 'Requisition Title' (Account Executive), 'Application Close' (Nov 26, 2005), 'Process Template' (Sales), and 'Job Data'. An information icon indicates that the selected process template provides a guideline for recruiting activities. The SAP logo is visible in the top right corner of the form area.

## #8 - Integration to Internal Back-Office Systems

### Email / Calendar Integration

- Emails can be sent directly from WAS. Receiving and administration via external email software
- Recommended to do interview scheduling in preferred tool (e.g., via portal)

### Resume Scanning and OCR software

- Requires third-party software
- Enabled via upload of attachments and API's for basic data import

### Virus Scanner

- Requires third-party software
- Integrated via Business Add In (BADI) during upload of attachments

### Word Processor / PDF Integration

- PDF view, print and download possible after overview
- Attached (Word, PDF) documents can be uploaded and send by email (e.g., contracts)

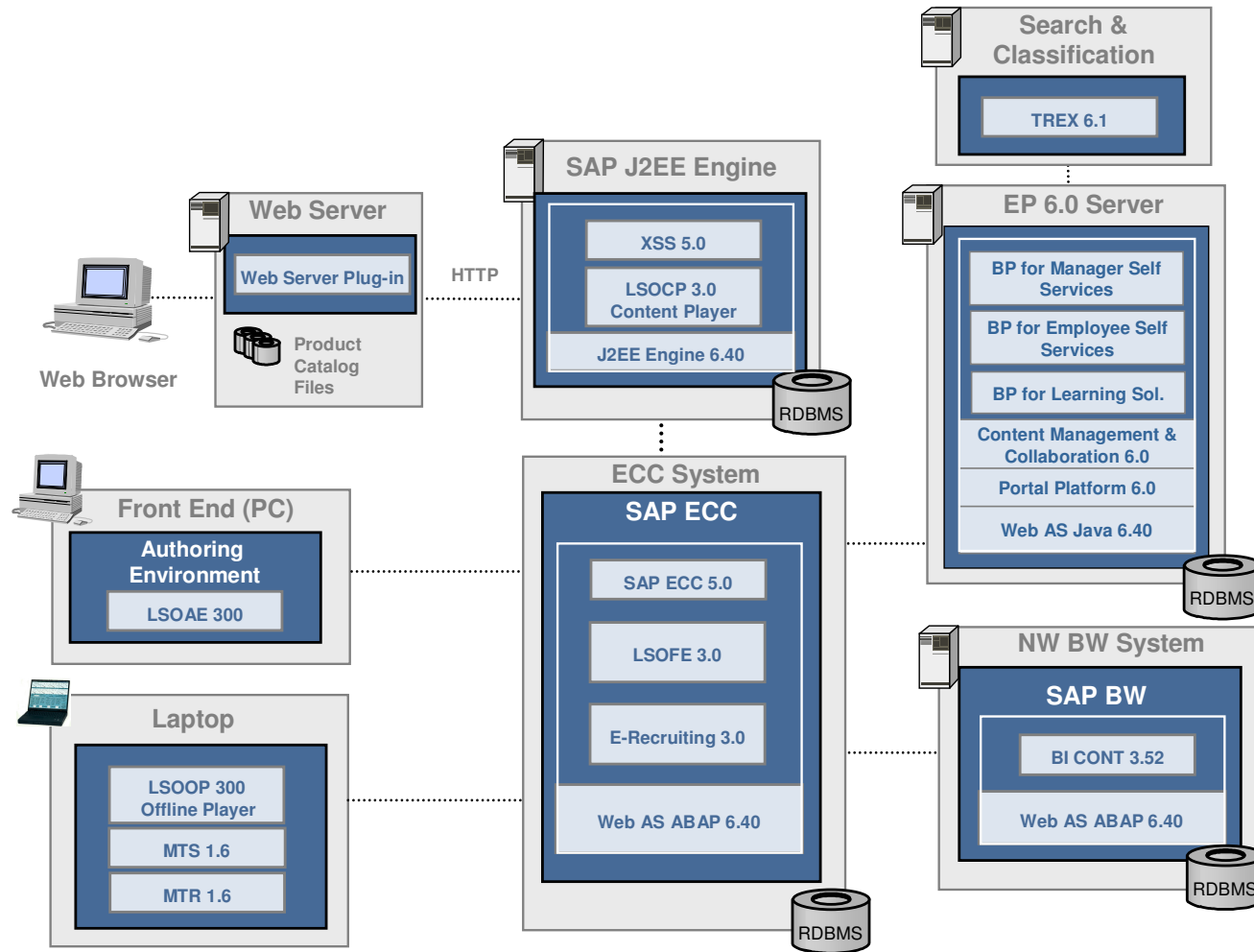
### Internal and External Career Sites

- Intranet / extranet integration by embedding of URLs
  - Unregistered search for jobs
  - Register (if not already done)
  - Log on
- Upfront registration of internal candidates possible (company policy)
- SSO possible for internal candidates (company policy)

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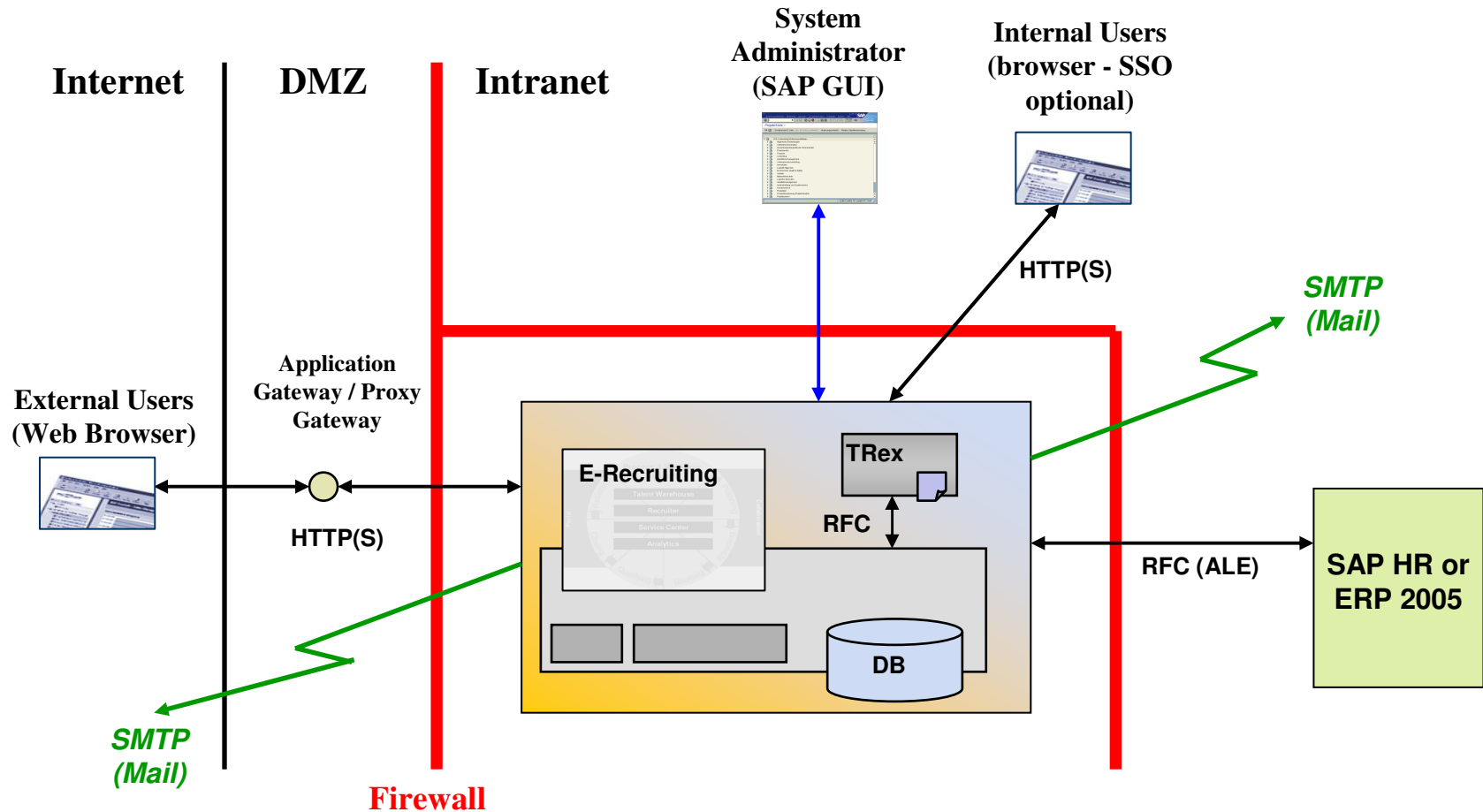


# Basic Architecture: ERP Operation (Release 3.0)

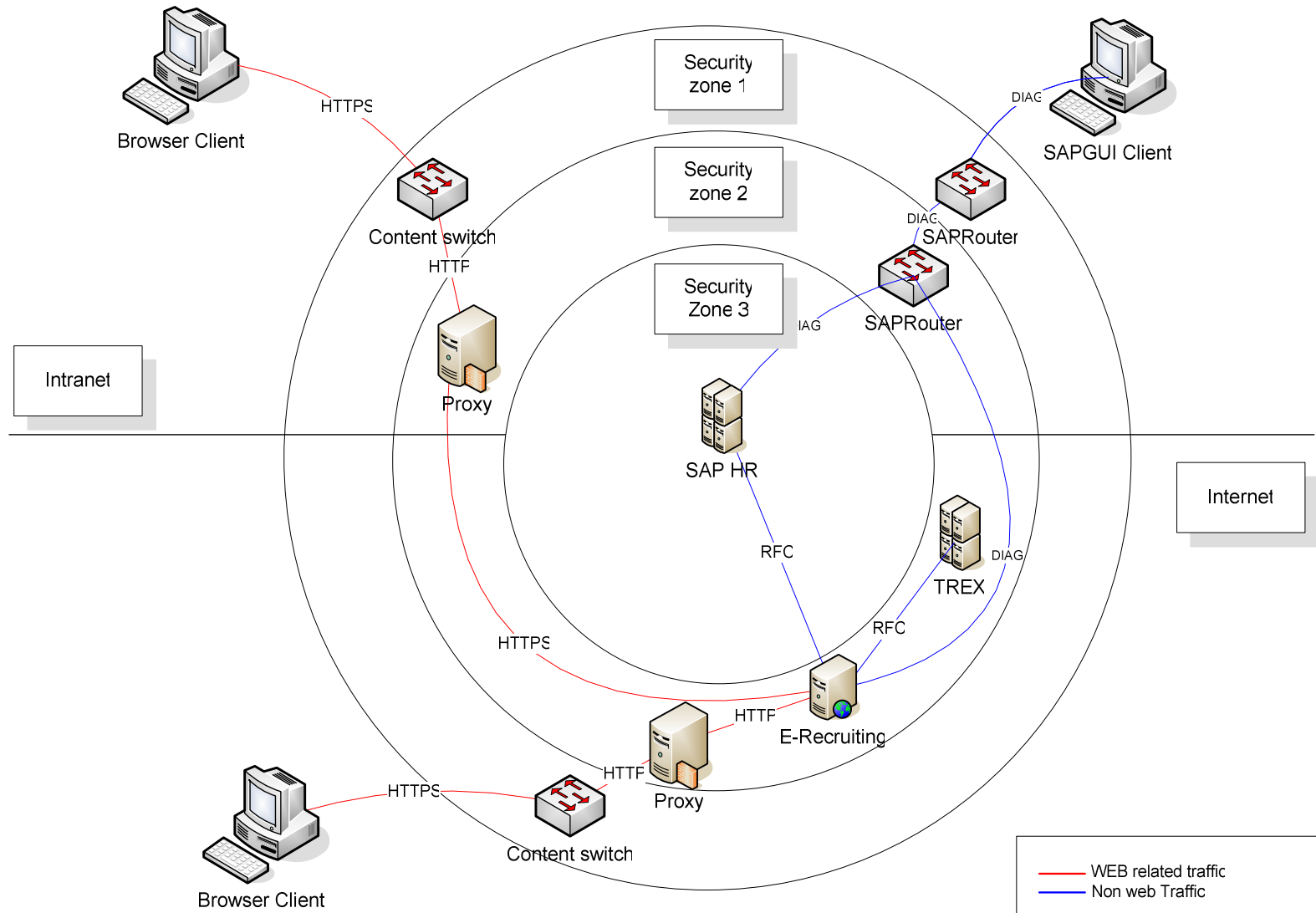


Source: Master Guide ERP 2004

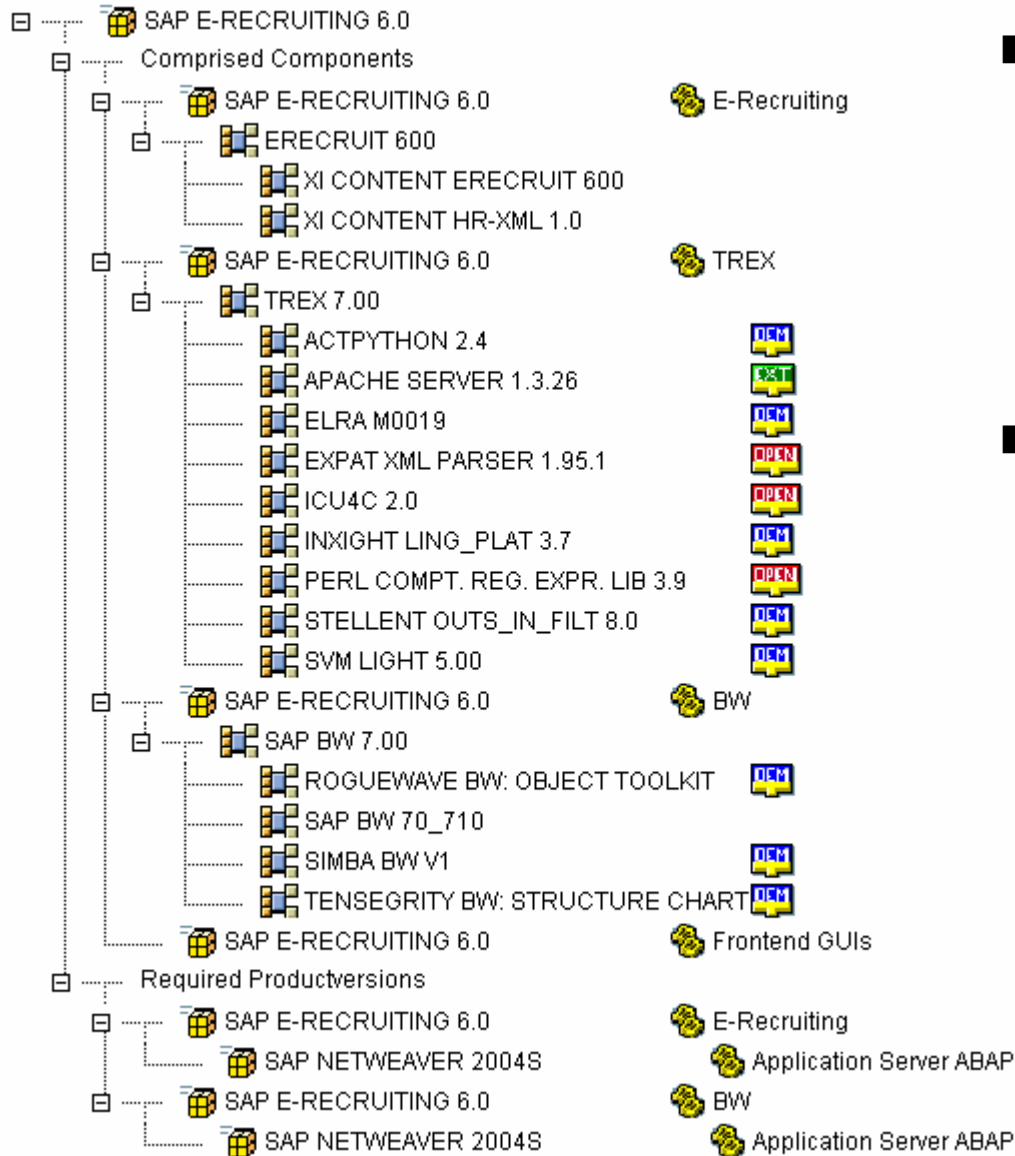
# Basic Architecture: Stand-Alone Operation



# Example System Landscape



# System Components (PPMS)



■ **E-Recruiting Release 6.0 is an add-on that can be installed on the SAP ECC System or on any other system based on the SAP Netweaver 2004S ABAP Stack**

■ **See also:**

- **Installation note: 830591**
- **Upgrade note: 830592**

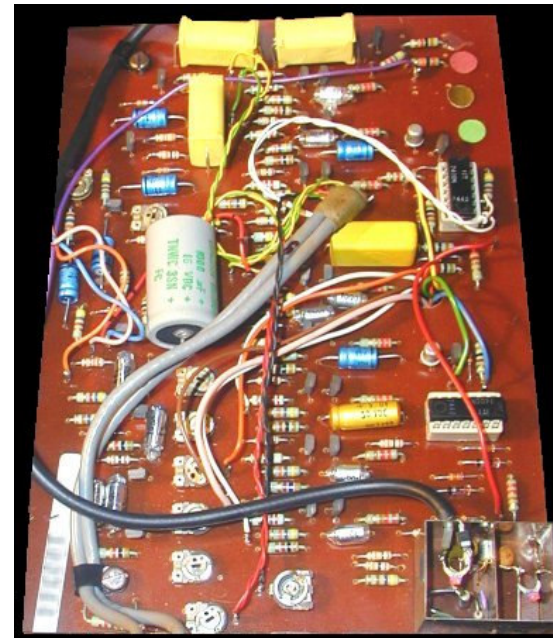
**You can run *SAP E-Recruiting* (and *Succession Planning*) fully integrated on one machine, on the basis of SAP ECC 6.0.**

- **When you do so, the *SAP Business Partner* concept enables you to make HR master data and organizational data available to other applications.**

**You can run *SAP E-Recruiting* (and *Succession Planning*) on one machine, and SAP ECC 6.0 on a separate instance.**

- **In this case, ALE Distribution enables you to make your enterprise structure available in *SAP E-Recruiting*. The system automatically creates an employee in *SAP E-Recruiting* for each employee in the form of the *SAP Business Partner*.**

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# Sizing (example only)

## ■ Database Server 1000 SAPS

- ◆ Operating System: Windows 2000
- ◆ Database volume: approx. 100 GB
- ◆ Database: Oracle, SQL server or SAP DB
- ◆ Number of processors: 4 (à 1 GHz)
- ◆ RAM: 4 GB
- ◆ 1 client: production

## ■ 1 TREX Server 1000 SAPS

- ◆ Operating System: Windows 2000 Advanced Server (incl. service pack 2)
- ◆ Network protocol: TCP/IP
- ◆ SAP component SAP Gateway (standard): Version 6.10 or 6.20
- ◆ Number of processors: 4 (minimum à 1 GHz)
- ◆ RAM: 4 GB
- ◆ Hard disk capacity: minimum 40 GB (software installation / index)

**Assumptions: Company size approx. 20,000 employees. Internal and external recruitment. TREX has 5 indexes of 100,000 documents with various formats (MS Word, MS Excel, PDF files and so on). An average document consists of 10 pages**

# Sizing E-Recruiting via the Quick Sizer

## ■ Basis of estimation:

- ◆ Number of recruiters plus their average # interactions
- ◆ Peak number of registrations (Nregis) per hour plus their average # (Sregis)
- ◆ Peak number of searches (Nsearch) plus their average # (Ssearch)
- ◆ Peak number of applications (Nappl) plus their average # steps (Sappl)

### Let's expect the following

- 8 low e-Recruiters
- 170 searches per hour
  - ◆ 6 steps
- 40 registrations per hour
  - ◆ 22 steps
- 15 applications per hour
  - ◆ 13 steps

### Applying the formulas

- $N = 170 \cdot 6 + 40 \cdot 22 + 15 \cdot 13 = 2,095$
- Number of medium active applicants =  $2,095 / 120 = 18$

### Input in the Quick Sizer

- PA-PD: 36 medium and 16 low users
- Result from Quick Sizer : 205 SAPS

### Mapping recruiters to Quick Sizer users

- Assumption: We can map recruiters to PA-PD
- Formula: 1 recruiter equals two PA-PD users in the QS

### Mapping applicants to Quick Sizer users

- $\text{Total\_N\_Steps} = \text{Nregis} \cdot \text{Sregis} + \text{Nsearch} \cdot \text{Ssearch} + \text{Nappl} \cdot \text{Sappl}$
- Convert the interaction steps to medium users (2 steps per minute = 120 steps per hour)
- $\text{Nmedium} = \text{Total\_N\_Steps} / 120$
- $\text{NPA-PD} = \text{Nmedium} \cdot 2$

<http://intranet.sap.com/quicksizer>

# Rules of Thumb for TREX Servers (indication only)

## ■Disk space

- Installation directory: at least 600 MB for the TREX software
- Index directory: at least 40 GB, depending on the number and type of documents to be indexed  
If documents exist in different formats (Microsoft Word, PDF, and so on), the index needs approximately half as much disk space as the documents. For pure HTML documents, the index needs about as much disk space as the documents.
- Queue directory: Approximately three quarters of the disk space required by the indexes. The documents to be indexed are kept temporarily in the queue directory before being forwarded to actually be indexed.
- Backup directory: Approximately 1.5 times the disk space required by the indexes. The backup directory is only relevant if you want to implement index replication or a backup/restore procedure. If this is the case, the backups of the indexes are stored in the backup directory.

## ■RAM

The necessary available ram can be estimated as “Size of Index on disk (Index directory) / 20”.

The maximal size of ram that can be used by one TREX process is limited to 2GB on windows systems and HP Unix, 4 GB on SUN Solaris.

In practice this will be only relevant for the TREX index server process ( index information stored in ram for optimal search performance).

Remark: It's not possible to start more than one index server process per server.

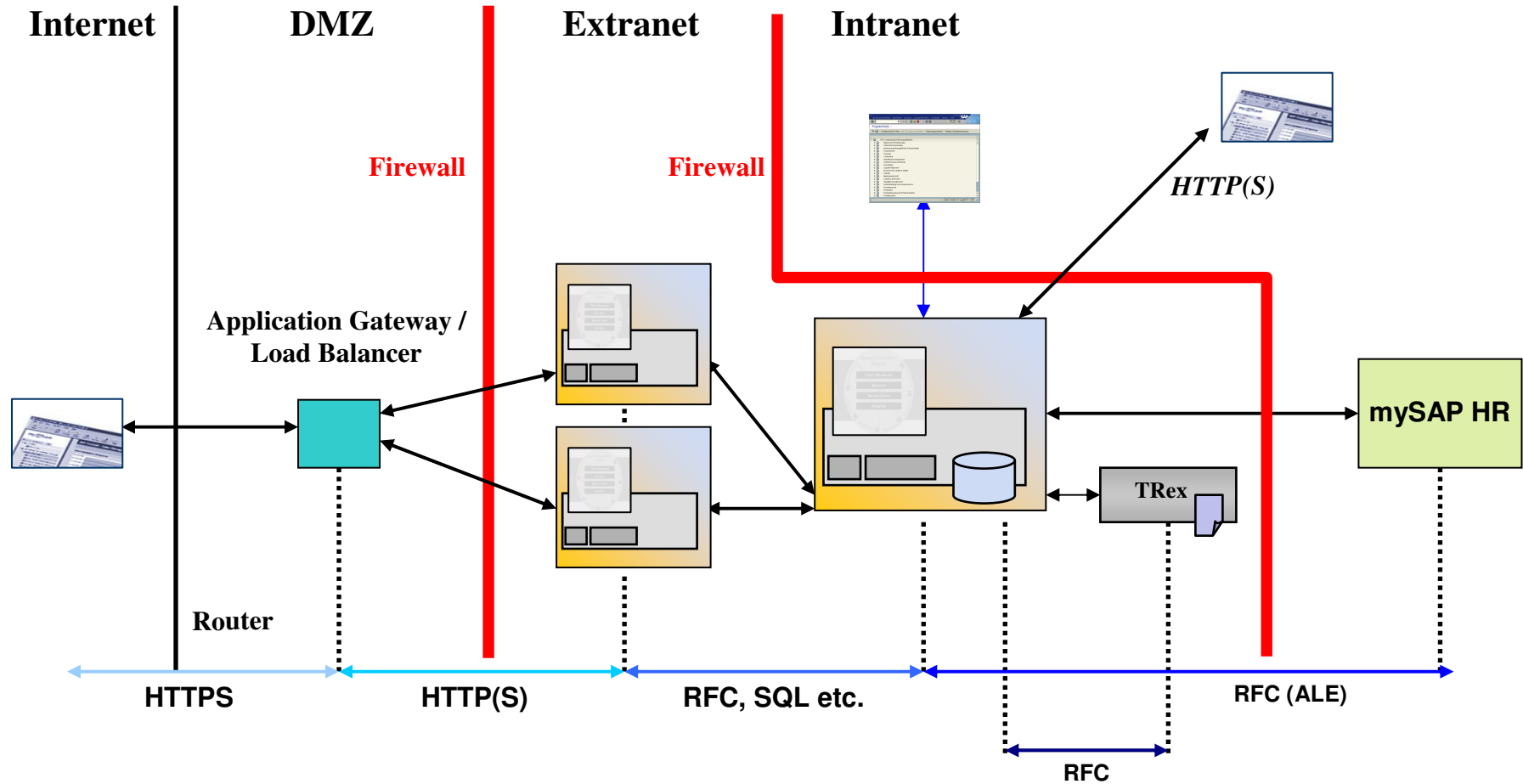
## ■Processor

At least Pentium III with 2 processors, each with a clock speed of a minimum of 1GHz. Pentium IV with two processors, each with a clock speed of 2 GHz, is recommended.

## ■Active users

“10000 search requests per hour” is a good starting point to calculate the number of active users depending on the load profile per TREX server.

# Scaling: Example with Three Application Servers



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## Internet Browser

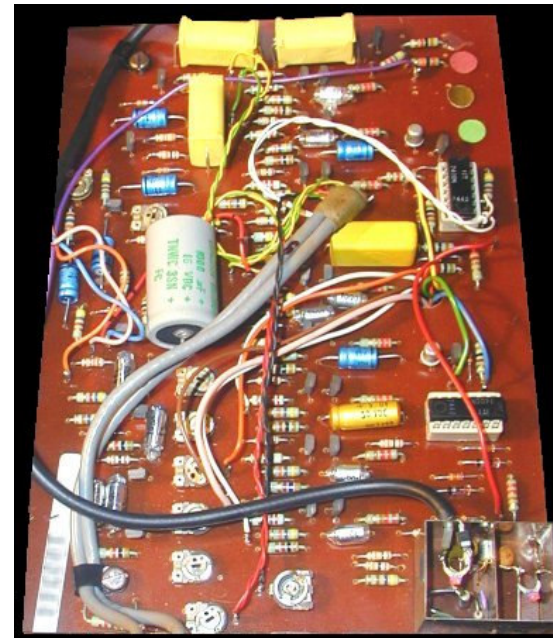
- Required for recruiter, manager and candidate access.
- System access via URL (parameters for language, client, and style sheet)
- Netscape (7.01), Internet Explorer (5.5+) but check note: 598860
- SSO for employee / recruiter access (not required)
- HTTP / HTTP(S)
- Memory cookies and active scripting (JavaScript) should be enabled

## SAP GUI

- Required for system administrator (customizing and system administration)

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# Supported Languages

- The following languages are supported in the standard:

Chinese (simplified)	French	Korean
Czech	German	Polish
Danish	Hebrew	Portuguese
Dutch	Hungarian	Russian
English	Italian	Spanish
Finnish	Japanese	Swedish

- Other languages may be supported upon request
- Updated information on supported languages can be found in SAPNet alias /PAM
  - ◆ <http://intranet.sap.com/pam> -> SAP Application Components -> SAP E-Recruiting