

Integration of OpenCMS into SAP NetWeaver

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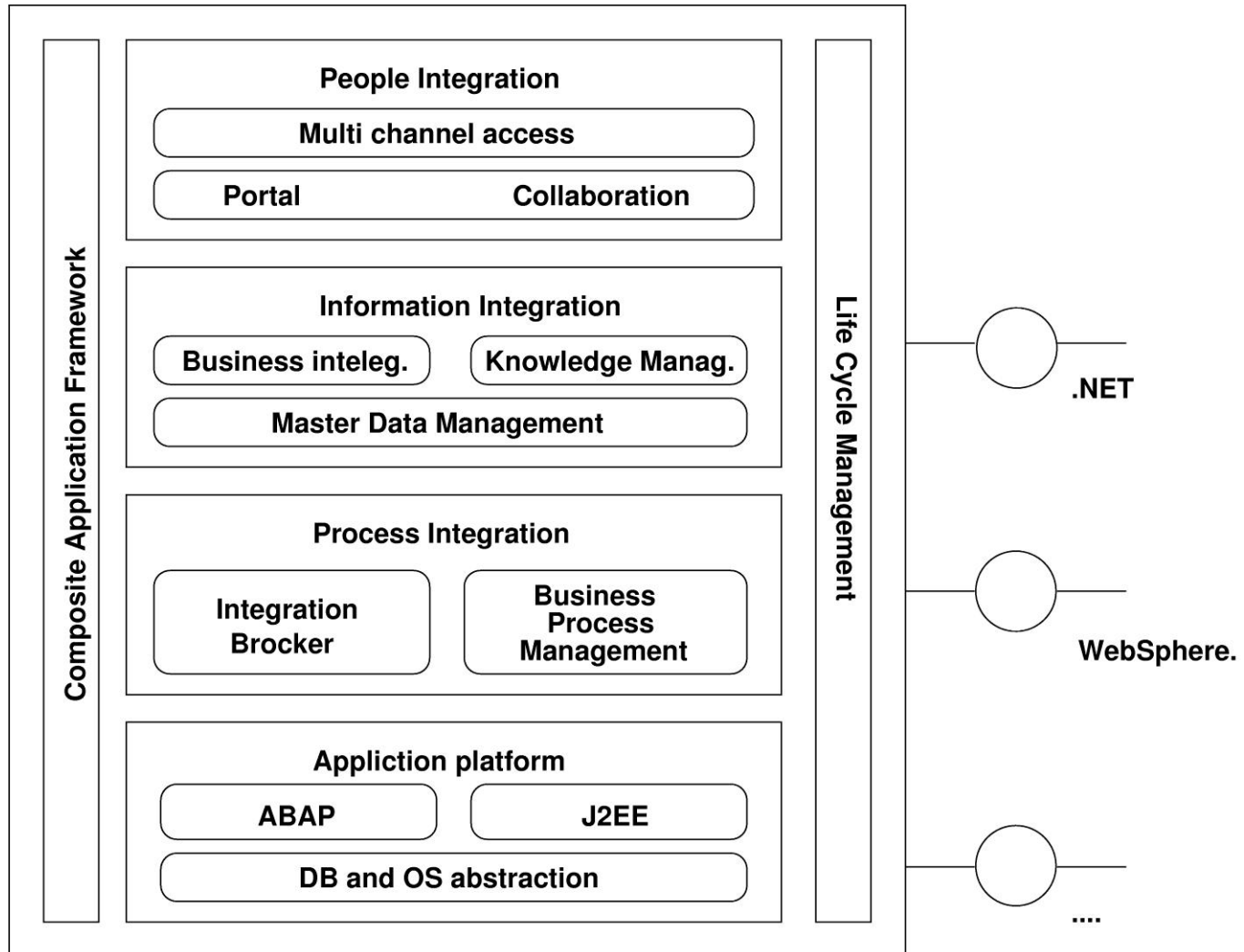
Agenda

Integration of openCMS into SAP NetWeaver

1. SAP NetWeaver introduction
2. Business case: government services portal of YNAO
3. Integration:
 - openCMS installation
 - SAP UME
 - SAP KM
 - SAP TREX
4. Further development
5. Q & A

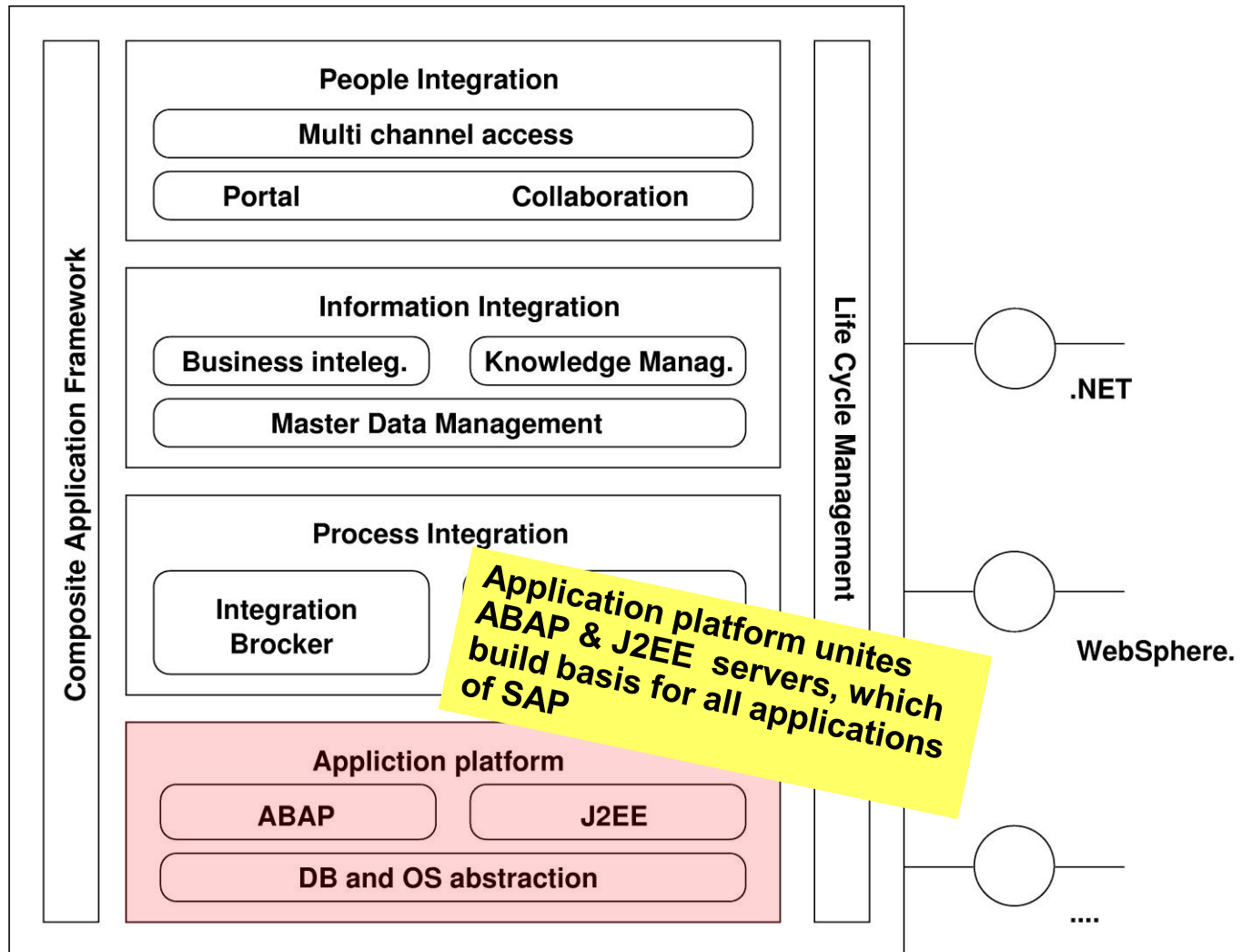
SAP NetWeaver Introduction

Application Platform



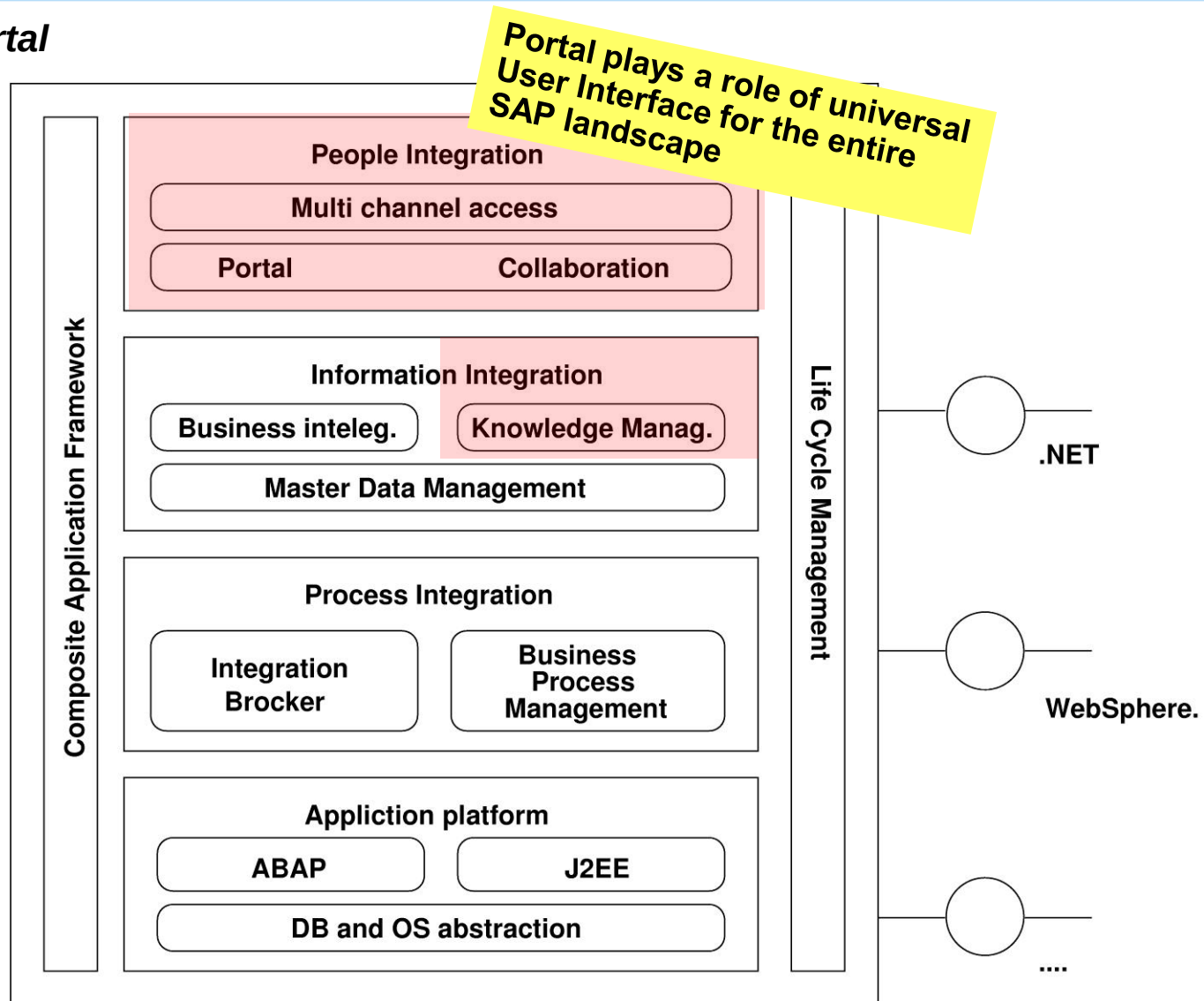
SAP NetWeaver Introduction

Application Platform



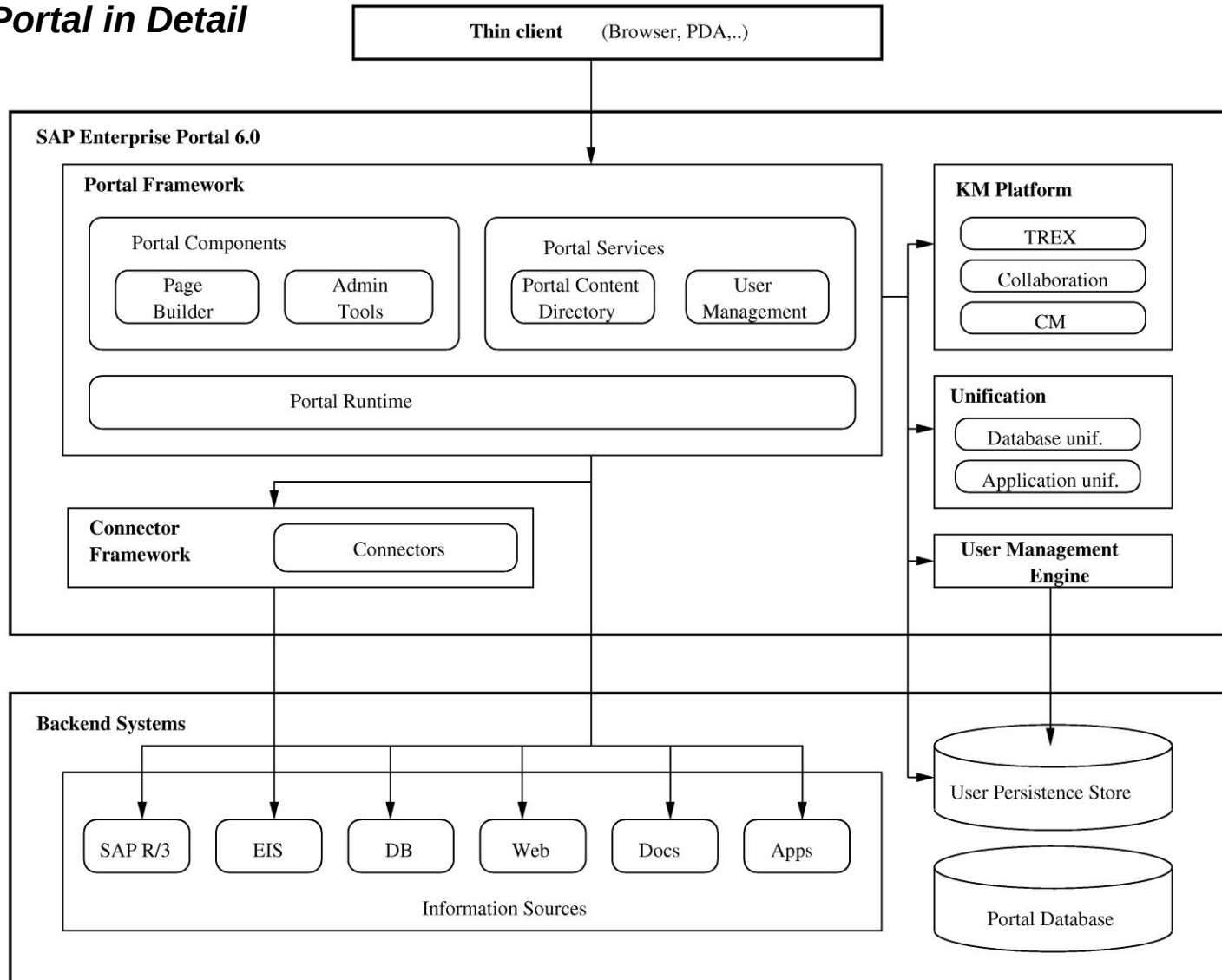
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Enterprise Portal



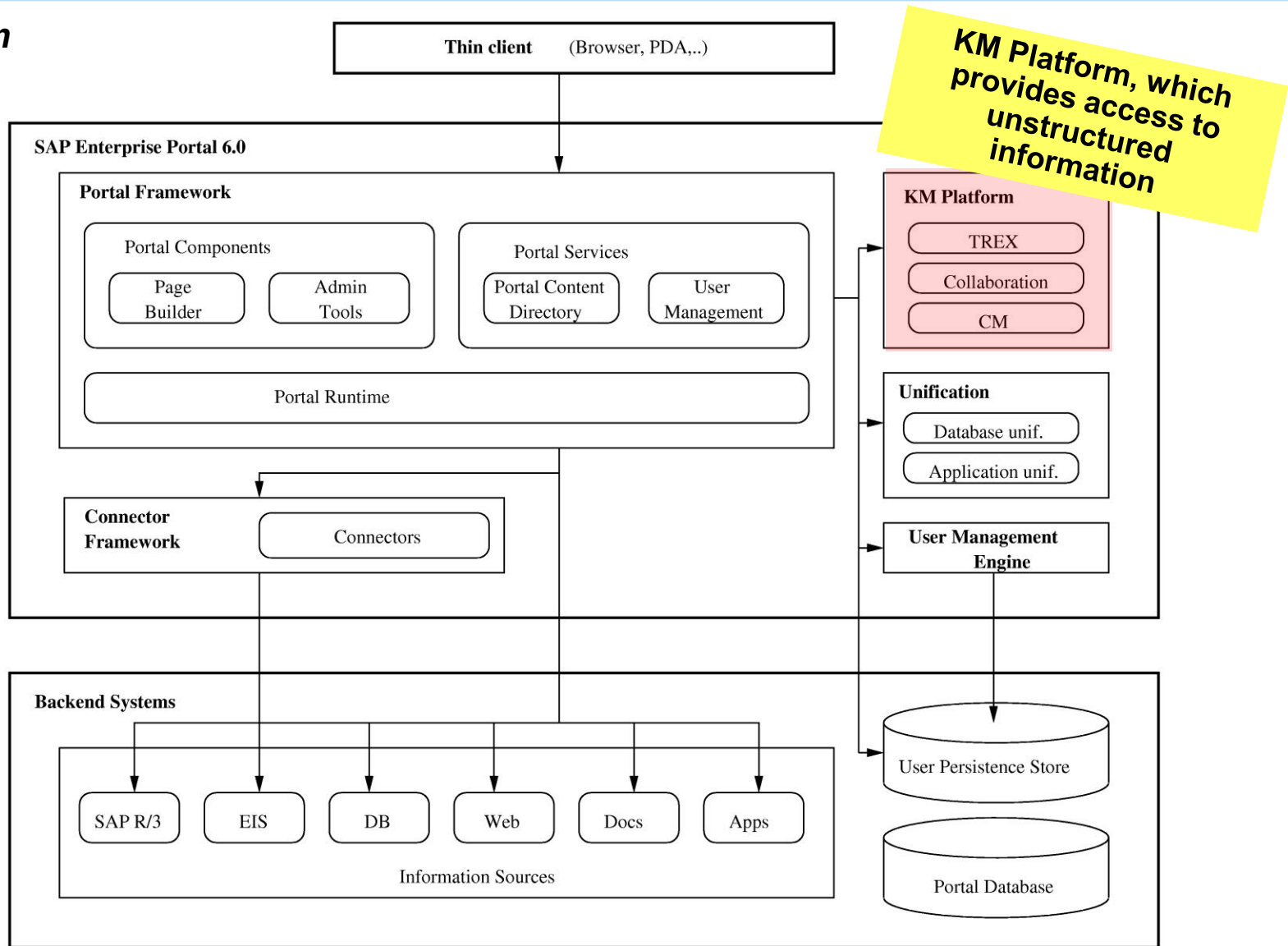
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Enterprise Portal in Detail



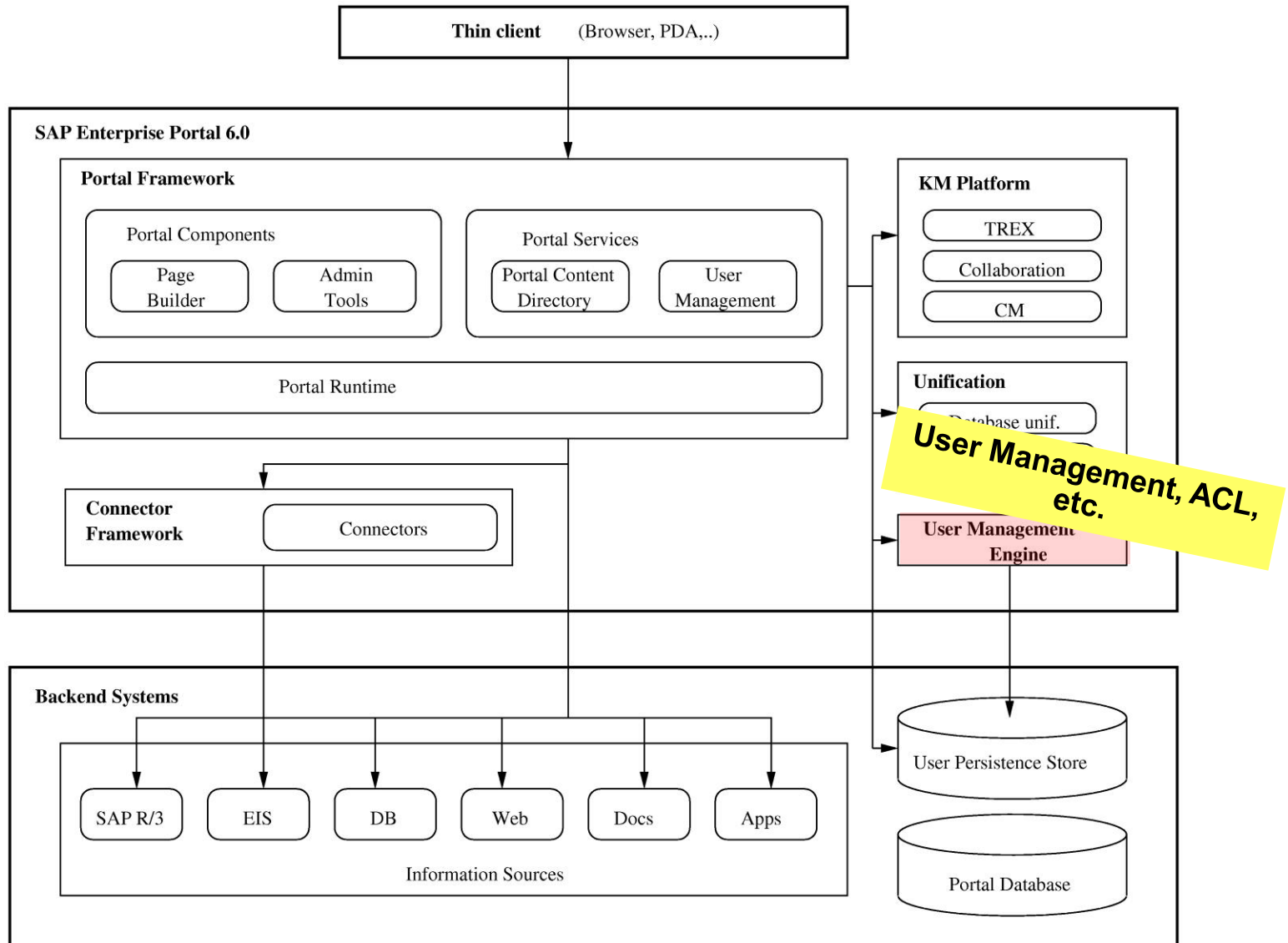
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KM Platform



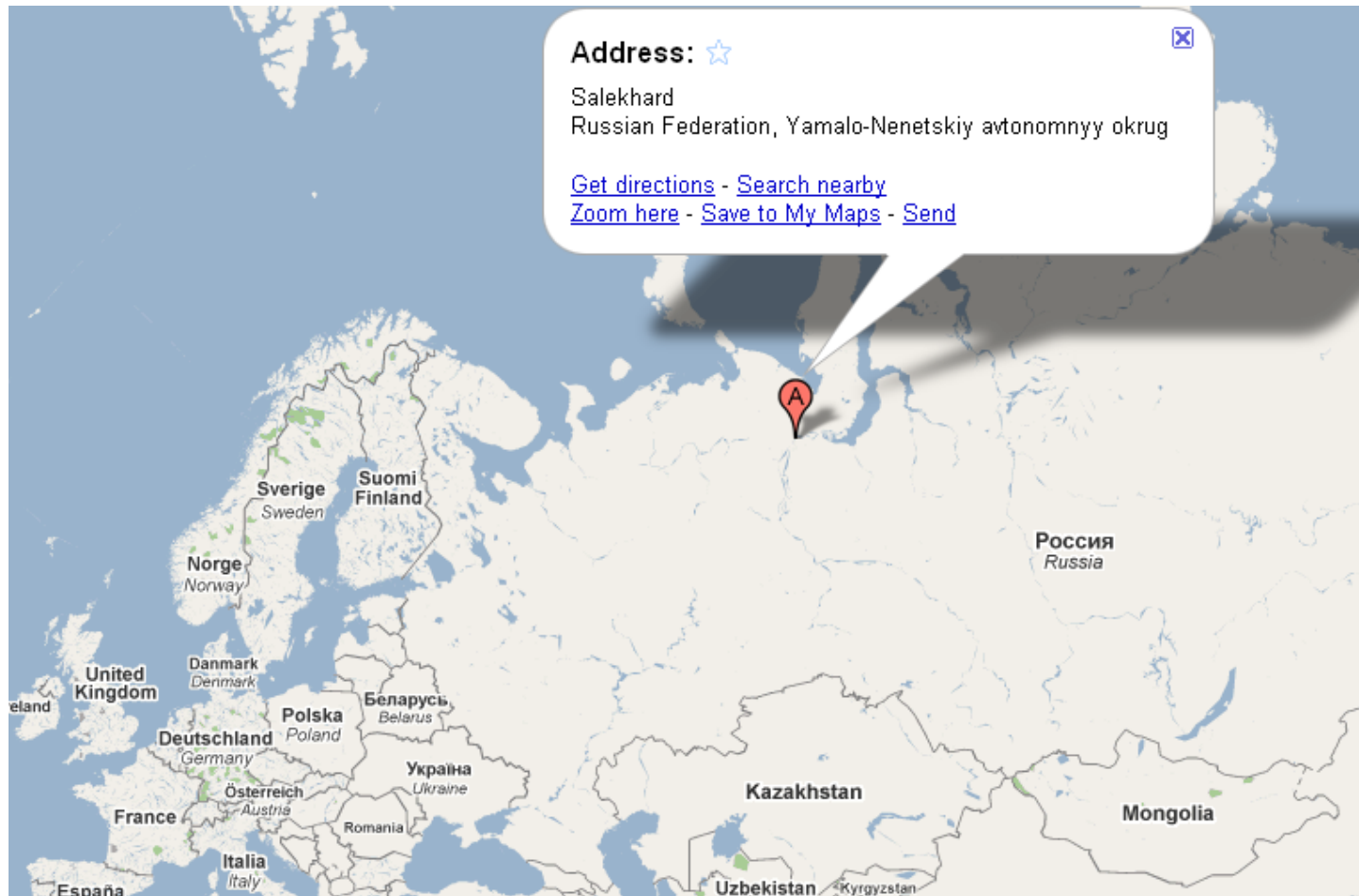
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UME



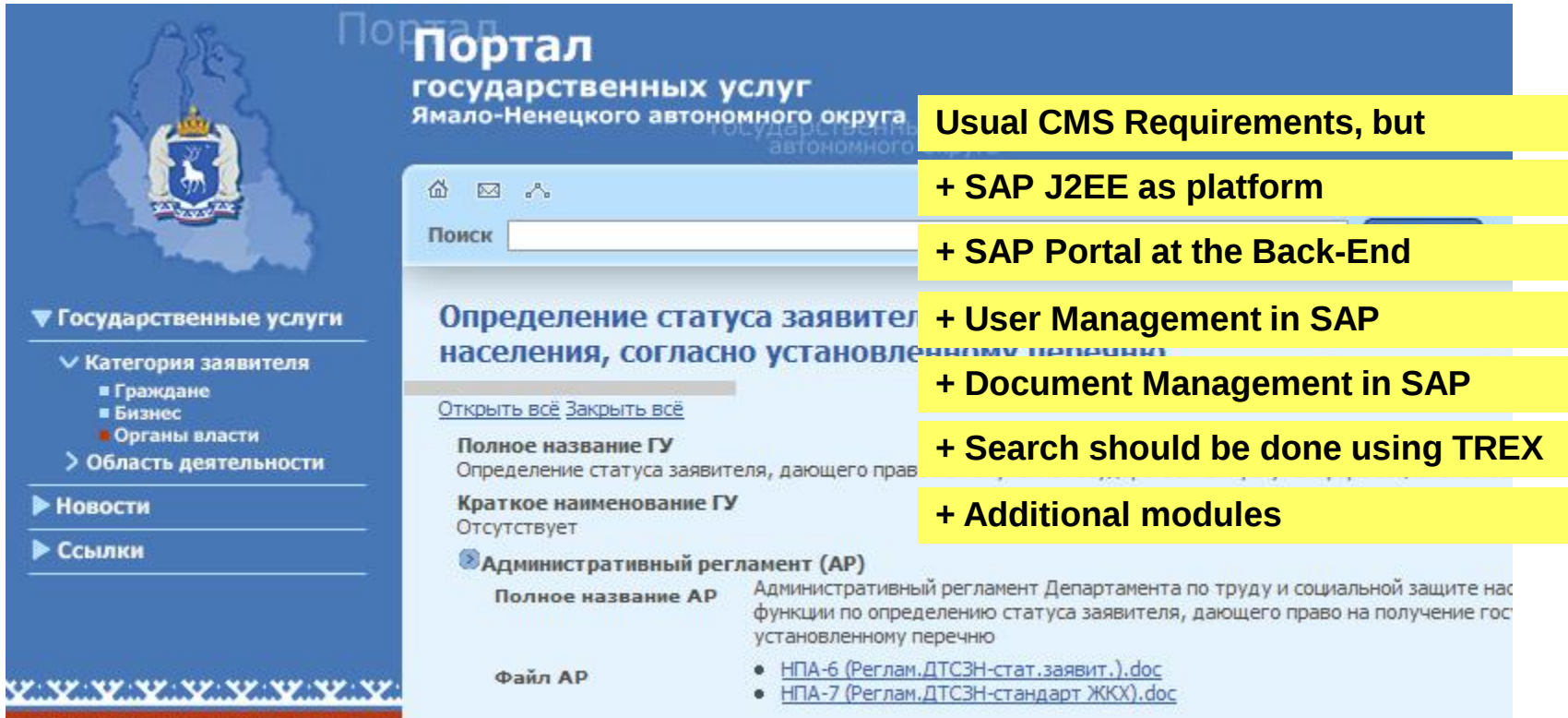
Business Case

Government Services Portal of YNAO (Yamalo- Nenetski Avtanomi Okrug)



Business Case

Government Services Portal of YNAO (Yamalo- Nenetski Avtanomi Okrug)

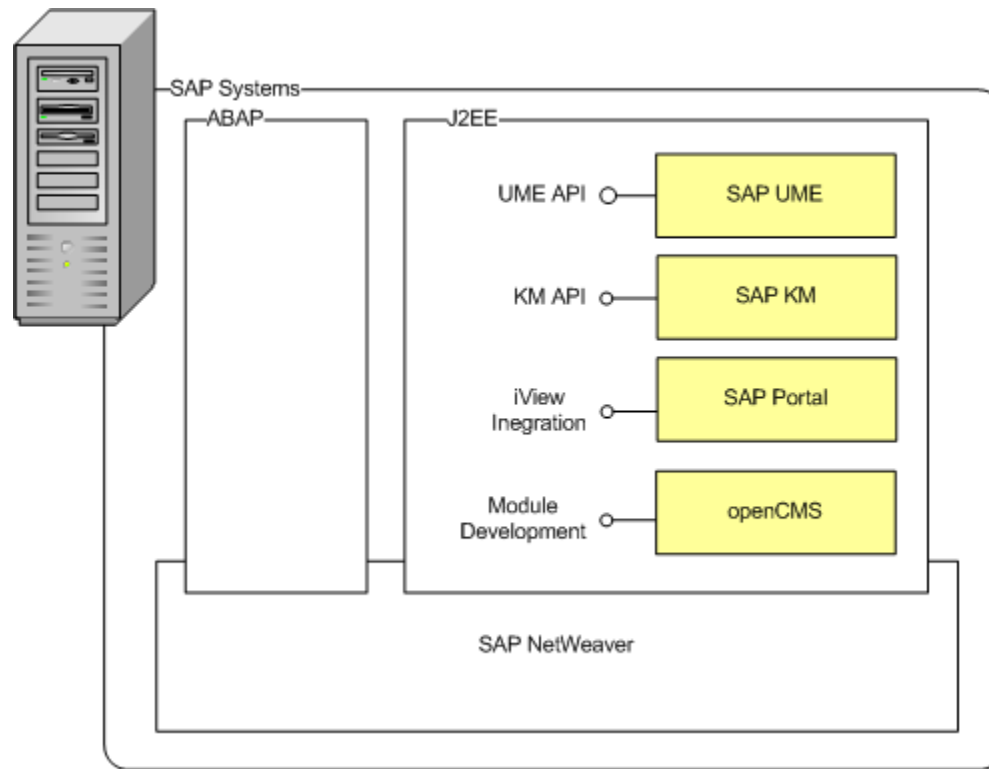


The screenshot shows the 'Портал государственных услуг Ямало-Ненецкого автономного округа' (Portal of Government Services of the Yamalo-Nenets Autonomous Okrug). The interface includes a search bar, a sidebar with navigation links for 'Государственные услуги' (Government Services), 'Новости' (News), and 'Ссылки' (Links). The main content area displays information about the 'Определение статуса заявителя населения, согласно установленному перечню' (Determination of the status of the population applicant according to the established list). It includes fields for 'Полное название ГУ' (Full name of the GU), 'Краткое наименование ГУ' (Short name of the GU), and 'Административный регламент (АР)' (Administrative regulation (AR)). The 'АР' section lists two documents: 'НПА-6 (Реглам.ДТСЭН-стат.заявит.)' and 'НПА-7 (Реглам.ДТСЭН-стандарт ЖКХ)'.

- Usual CMS Requirements, but
- + SAP J2EE as platform
- + SAP Portal at the Back-End
- + User Management in SAP
- + Document Management in SAP
- + Search should be done using TREX
- + Additional modules

SAP J2EE

Deployment



SAP J2EE

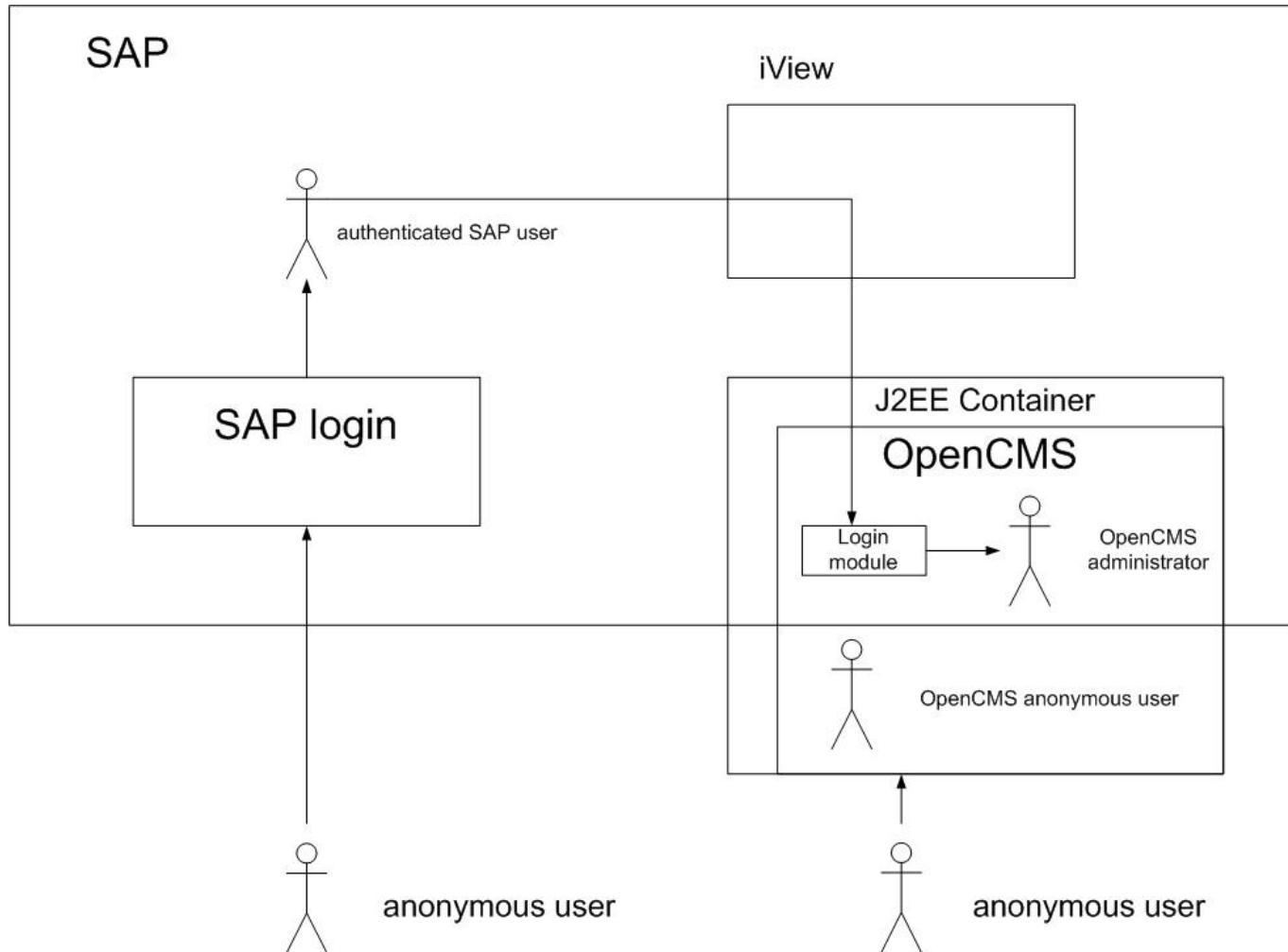
Deployment

- Unfortunately SAP NetWeaver 6.4 (current release at that point) supports only JDK 1.4, JSP - 1.0 and Servlet Specification 2.0
- Therefore we could only use opencms version 6.x and lower
- SAP NetWeaver J2EE server requires specific descriptors and installation file format.
- We assemble EAR with descriptors sda-dd.xml (standard parameters for SAP container) and application.xml (descriptors for SAP services used by opencms)

```
<reference reference-type="weak">
  <reference-target
    provider-name="sap.com"
    target-type="application">com.sap.km.application
  </reference-target>
</reference>
```

Integration – SAP UME

SAP UME – SSO Module Development



Integration – SAP UME

SAP UME – SSO Module Development

We add user to openCMS in case it is present in SAP but not in openCMS (CmsDriverManager.loginUser)

```
IUser sapUser = UMFactory.getAuthenticator().getLoggedInUser(request, response);
....
newUser = m_userDriver.createUser(dbc, sapUser.getName(),
    pwd, sapUser.getDisplayName(),
    firstName, lastName, sapUser.getEmail(), 0L, 0, new HashMap(), "", userType);
```

```
public void login(IUser sapUser) {
    login(sapUser.getName(), "", null);
}
```

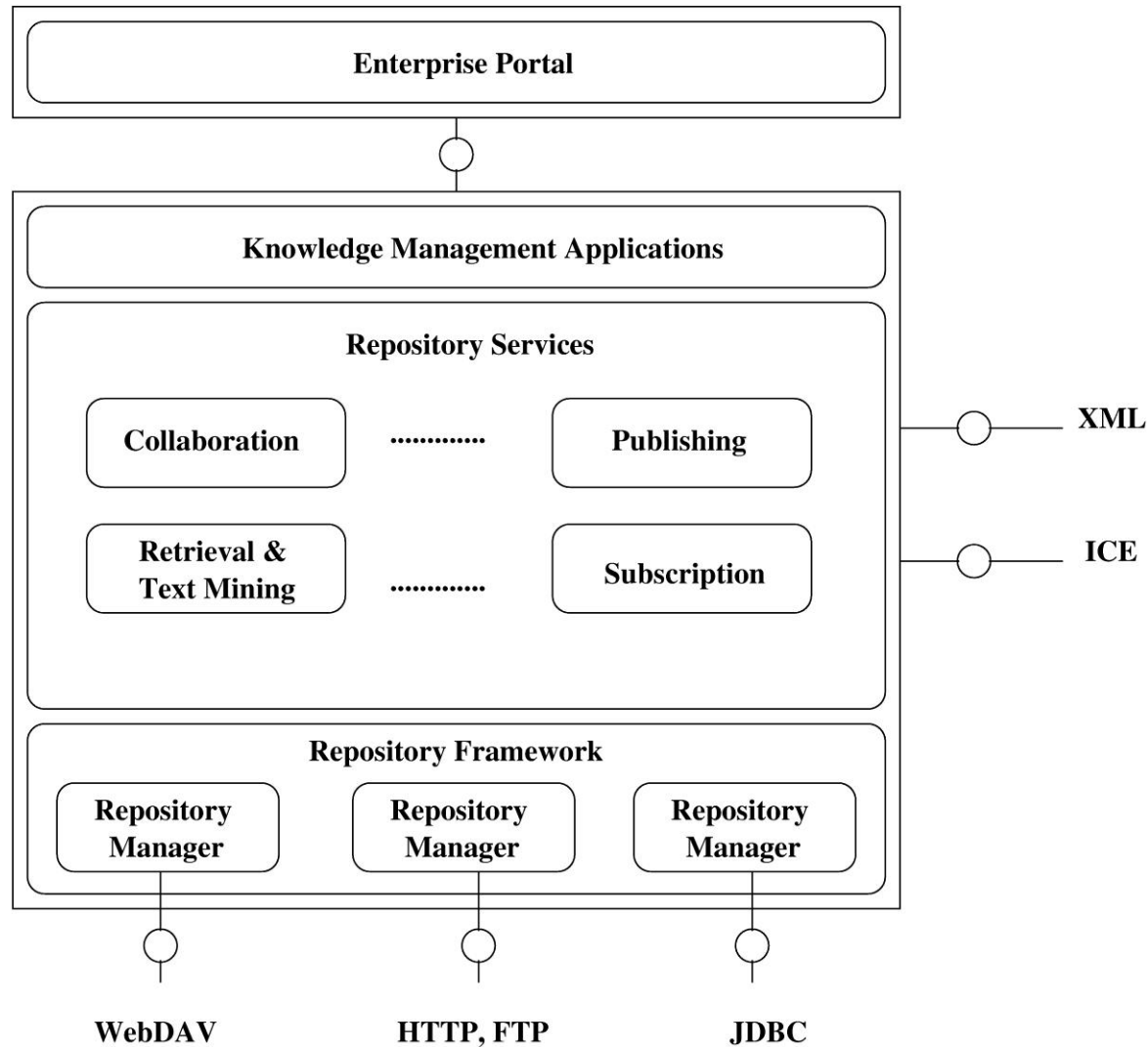
Simple login of SAP user

```
public String displayDialog() throws IOException {
    IUser sapUser = UMFactory.getAuthenticator().
        getLoggedInUser(getRequest(), getResponse());
    if (sapUser == null) {
        // do usual login
    } login(sapUser);
}
```

Dialog in CMSLogin extention

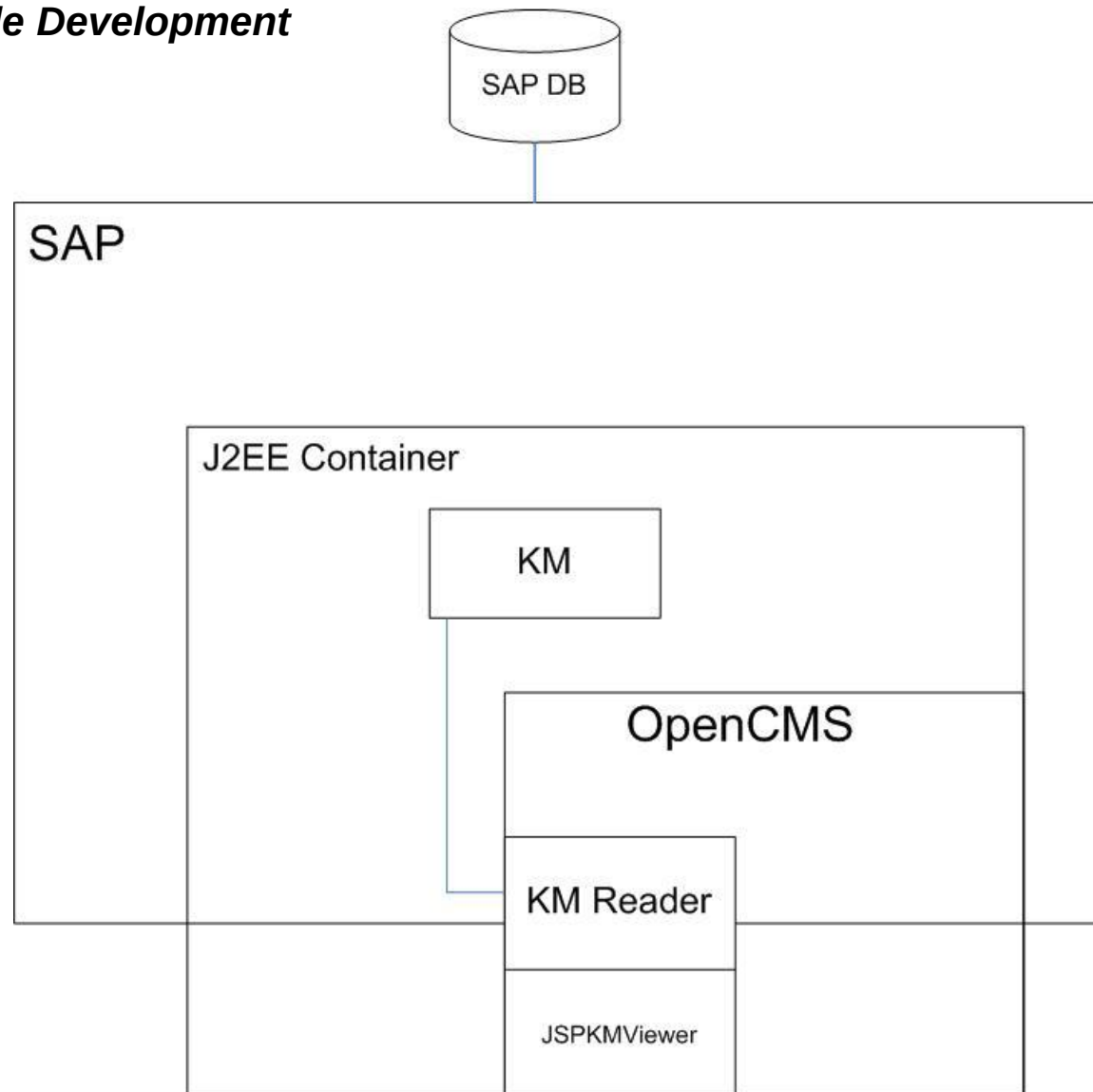
Integration – SAP KM

What is SAP KM?



Integration – SAP KM

SAP KM – Module Development



Integration – SAP KM

SAP KM – Module Development

```
package com.surasystems.rpgukm;
```

```
import java.io.BufferedReader;
```

```
import java.io.IOException;
```

```
....
```

```
import com.sap.security.api.UMFactory;
```

```
import com.sap.tc.logging.Location;
```

```
import com.sapportals.portal.prt.service.IServiceContext;
```

```
import com.sapportals.portal.security.usermanagement.IUser;
```

```
import com.sapportals.wcm.IWcmConst;
```

```
.....
```

```
public void setAnonymousMode() {
```

```
    mode = ANONYMOUS_MODE;
```

```
    try {
```

```
        IUser user =
```

```
        WPUMFactory.getUserFactory().
```

```
        getEP5User(UMFactory.getAnonymousUserFactory().getAnonymousUser());
```

```
        rc = new ResourceContext(user);
```

```
    } catch (Exception ume) {
```

```
        ume.printStackTrace();
```

```
    }
```

```
}
```

We can use SAP KM and UME API fully within openCMS since it is deployed on SAP NetWeaver server and contains run-time reference in deployment descriptor

Since the KM content from SAP should be available on the web, one of the options would be to work with an anonymous user

Integration – SAP KM

SAP KM – Module Development

Getting IResource from RID

```
private static IResource getResourceByRID(RID rid) {
    try {
        IUser contextUser =
            WPUMFactory.getServiceUserFactory().getServiceUser("cmadmin_service");
        ResourceContext resourceContext = new ResourceContext(contextUser);
        IResourceFactory resourceFactory = ResourceFactory.getInstance();
        return resourceFactory.getResource(rid, resourceContext);
    } catch (Exception e) {
        //handle error
    }
}
```

```
public String getResourceContent(IResource resource) {
    //get resource content
    char c[] = null;
    try {
        IContent content = resource.getUnfilteredContent();
        BufferedReader reader = new BufferedReader(new
            InputStreamReader(content.getInputStream(), "UTF-8"));
        int length = (int) content.getContentLength();
        if (length > 0) {c = new char[length];
            reader.read(c, 0, length); } else {
            c = new char[10]; }
        } catch (ContentException ce) {
            ce.printStackTrace();
        } catch (IOException ioe) {
            ioe.printStackTrace();
        } return (String.valueOf(c));
    }
}
```

Here we retrieve the content of KM resource which then can be rendered to JSP page.

Integration – SAP KM

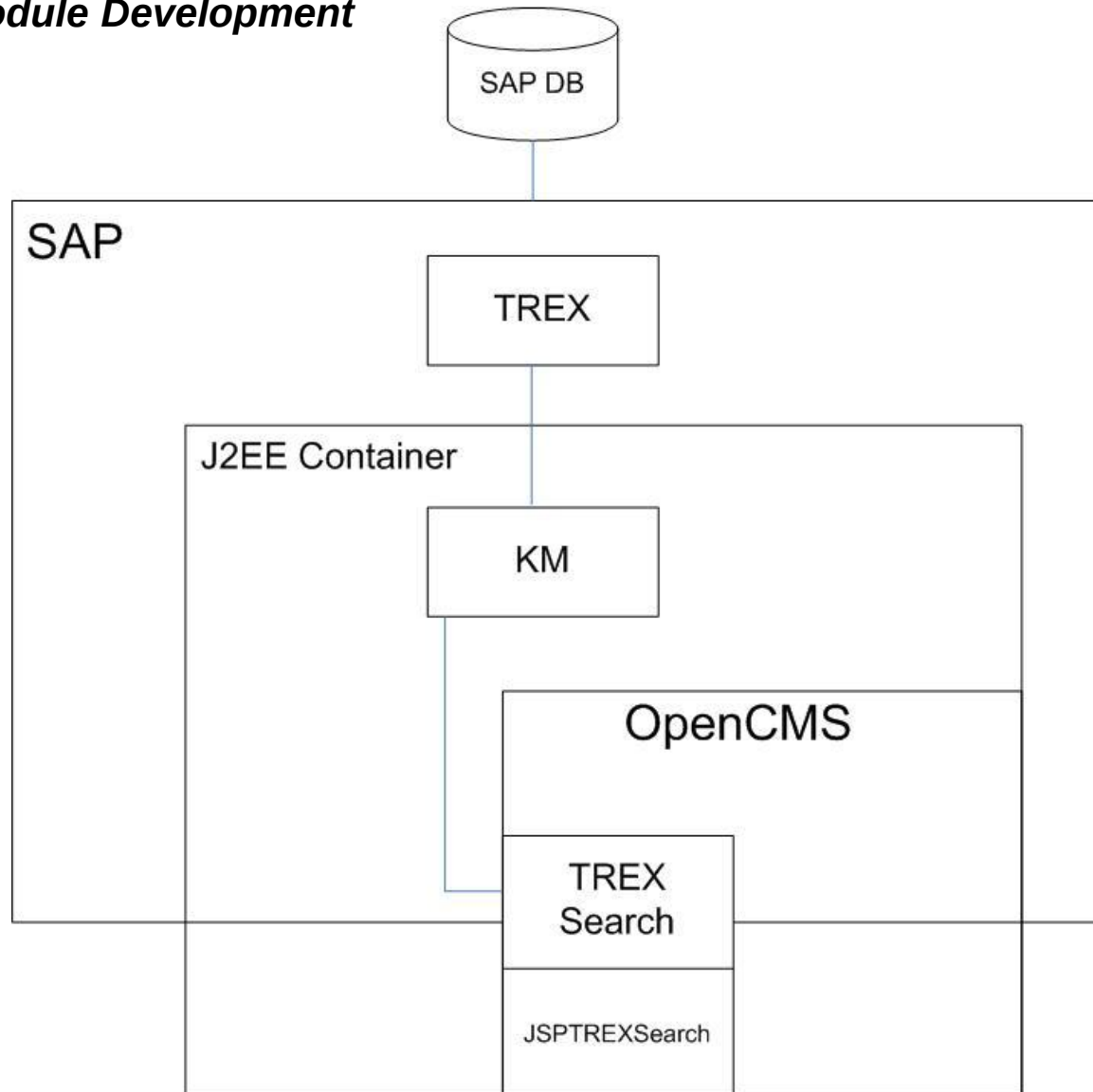
SAP KM – Module Development

```
public String getCustomProperty(IResource resource, String name) {  
  
    String value = null;  
    try {  
  
        IPropertyName propertyName =  
            new PropertyName(IWcmConst.SAP_WCM_NAMESPACE + "/custom", name);  
        IProperty property = resource.getProperty(propertyName);  
  
        if (property != null ) {  
            value = property.getStringValue();  
        }  
    } catch (ResourceException re)  
    {  
        //error handling  
    }  
    return value;  
}
```

KM IResource properties offer a good possibility to handle resources from SAP KM differently

Integration – SAP TREX

SAP TREX – Module Development



Integration – SAP TREX

SAP TREX – Module Development

```
package com.surasystems.rpgusearch.util;
```

```
import java.io.Serializable;  
import java.util.ArrayList;  
import java.util.List;  
... .
```

```
import com.sapportals.wcm.WcmException;  
import com.sapportals.wcm.control.released.search.SearchQueryListBuilder;  
import com.sapportals.wcm.repository.IResourceContext;  
import com.sapportals.wcm.repository.PropertyName;  
import com.sapportals.wcm.repository.ResourceException;  
import com.sapportals.wcm.repository.ResourceFactory;  
... .
```

```
import com.sapportals.wcm.service.indexmanagement.IIndexService;  
import com.sapportals.wcm.service.indexmanagement.IWcmIndexConst;  
import com.sapportals.wcm.service.indexmanagement.retrieval.search.IFederatedSearch;  
import com.sapportals.wcm.service.indexmanagement.retrieval.search.IQueryEntryList;  
import com.sapportals.wcm.service.indexmanagement.retrieval.search.ISearchResultList;  
... .
```

Similar to KM integration we can simply use KM TREX API within our openCMS module.

Integration – SAP TREX

SAP TREX – Module Development

Setting index with resource context

```
public void fillIndexList() throws ResourceException, WcmException {  
    this.indexList = getIndexService().getActiveIndexes();  
    this.indexList = getIndexService().isReadAllowed(this.rc, this.indexList);  
}
```

```
public void setQuery(String query){  
    this.query = query;  
    resetSearchSession();  
}
```

Setting the query string

```
public void startSearch() throws WcmException{  
    SearchQueryBuilder sqb = new SearchQueryBuilder();  
    sqb.setSearchTerm(query);  
    IQueryEntryList qel = sqb.buildSearchQueryList();  
    IFederatedSearch federatedSearch =  
        (IFederatedSearch) indexService.getObjectInstance(  
            IWcmIndexConst.FEDERATED_SEARCH_INSTANCE);  
    session = federatedSearch.searchWithSession(qel, indexList,  
        this.rc, getSortPropertyName());  
}
```

Starting the search

Integration – SAP TREX

SAP TREX – Module Development

Getting results

```
public ISearchResultList getResults(int nResults) throws WcmException {
    this.paging = new Paging(
        1, session.getTotalNumberResultKeys(),
        session.getTotalNumberResultKeys(),
        session.getTotalNumberResultKeys() );
    if (!paging.isEmpty()){
        int nEndRow =
            session.getTotalNumberResultKeys() < nResults ? session.getTotalNumberResultKeys():nResults;
        return session.getSearchResults(paging.getStartRow(), paging.getStartRow() + nEndRow - 1);
    }
    return null;
}
```

Further Development

Potential to enhance SAP NetWeaver with openCMS

- Integration with SAP PCD (Portal Content Directory) should provide a more convenient way to administrate the menu of web presence. SAP PCD also provides a powerful API.
- Solution for clustering.
- SAP NetWeaver 7.0 uses Java 1.5 so an upgrade to next openCMS version should be possible.

Thank you for listening!

Questions?

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