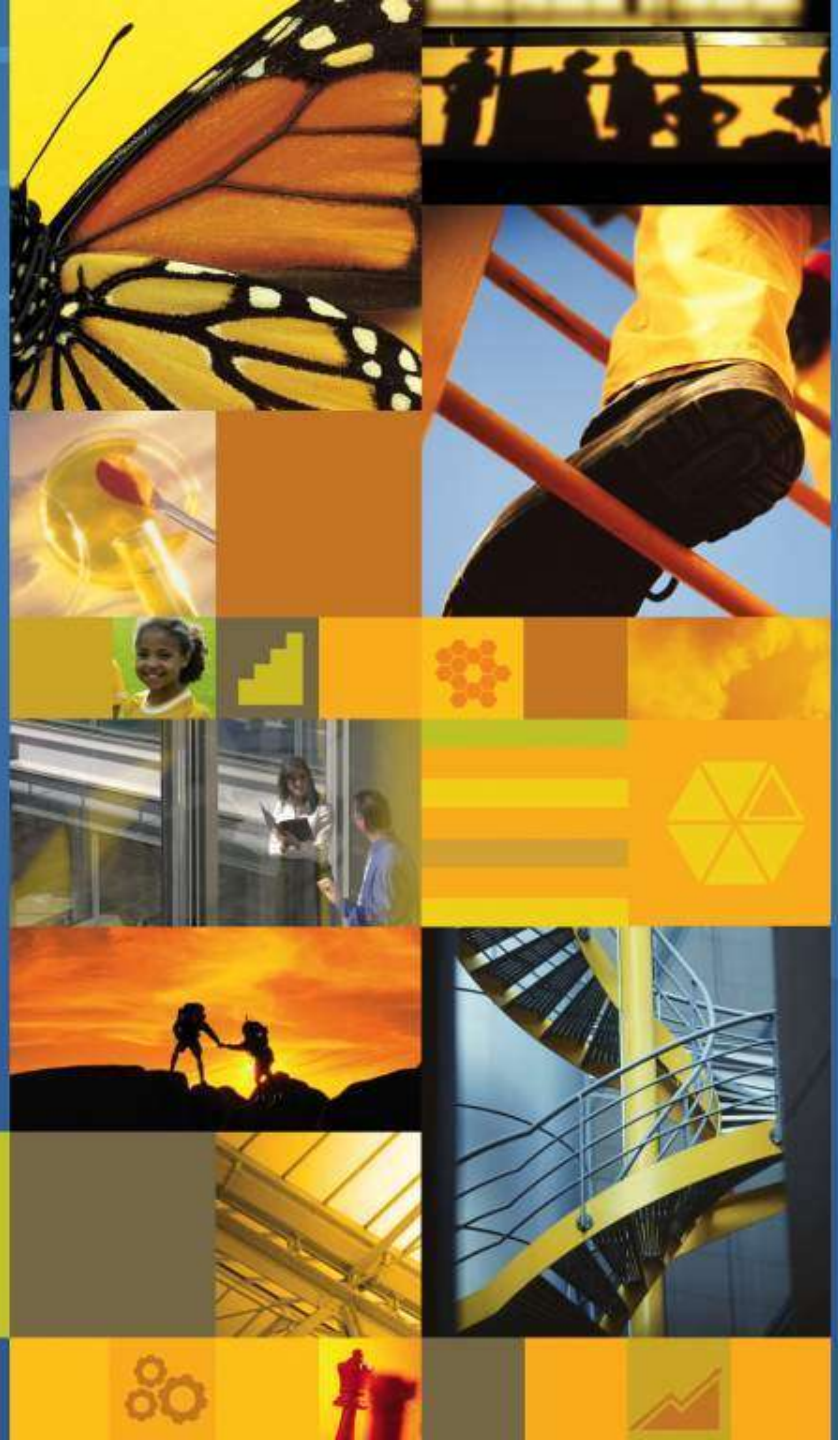

Alloy™ Software by IBM® and SAP®

Michael Hoffmann

mhoff@de.ibm.com

Lotus Client Technology

The IBM SAP International Competence Center (ISICC)

Founded by IBM and SAP in 1993, located at the SAP headquarters in Walldorf, Germany

The IBM SAP International Competence Center is the information hub between IBM and SAP

Central point of access for IBM and SAP projects

Joint development

Executive briefings

Sizing workshops

Education

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The Lotus Product Portfolio 2009

Lotus Notes and Domino
Mail, calendaring and rapid application development

Lotus Connections
Social software for business

WebSphere Portal
Composite applications and integration services with 7 accelerators

Lotus Protector
Security services for e-mail

Lotus Quickr
Collaborative content and team services

Lotus Forms
Pixel perfect, digitally signed forms

Lotus Sametime
Lotus Sametime Unyte
Unified communications and collaboration services

Lotus Mashups
Easily remix content and uncover insights

Lotus Expeditor
Eclipse based Client-side integration which extends composite applications to laptops, desktops, kiosks and mobile devices

Lotus Symphony
Free productivity tools for documents, presentations, and spreadsheets

Lotus Foundations
On-premise servers for small businesses

SW as a Service / Cloud Computing

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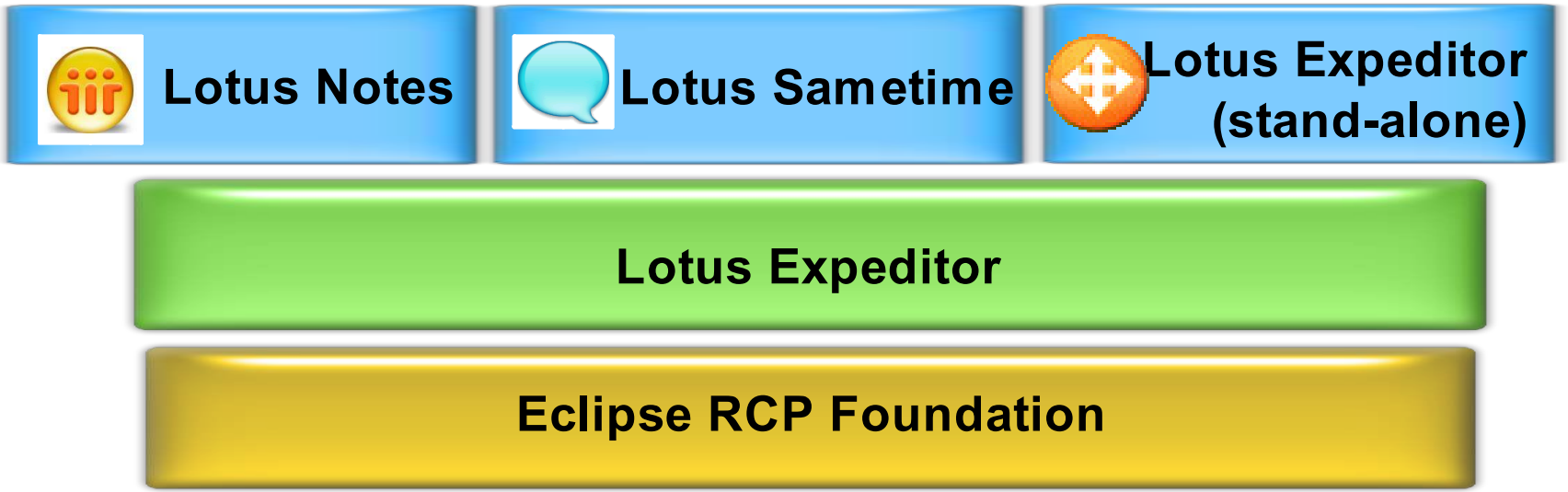
One Client Platform – Multiple Products



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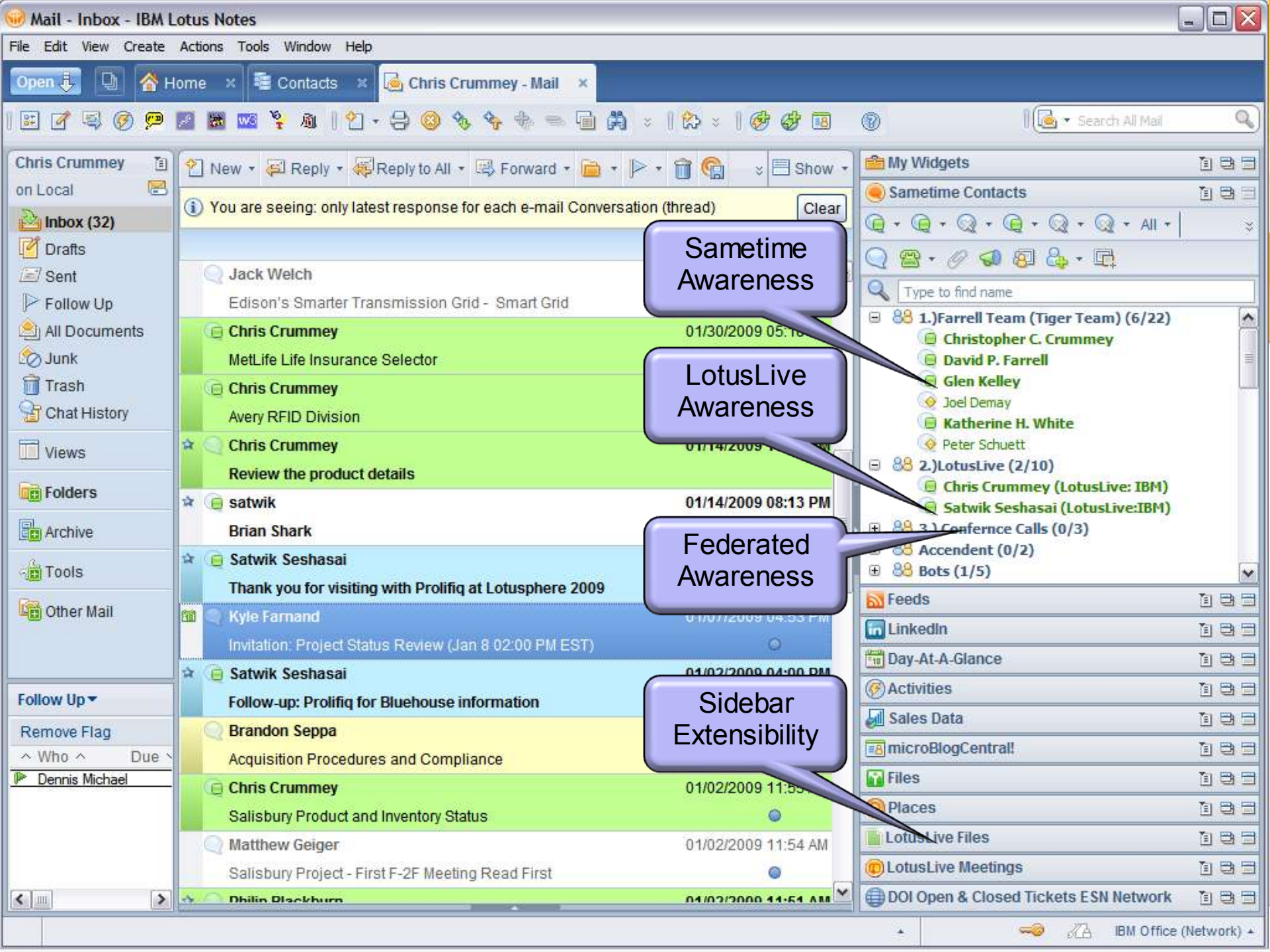
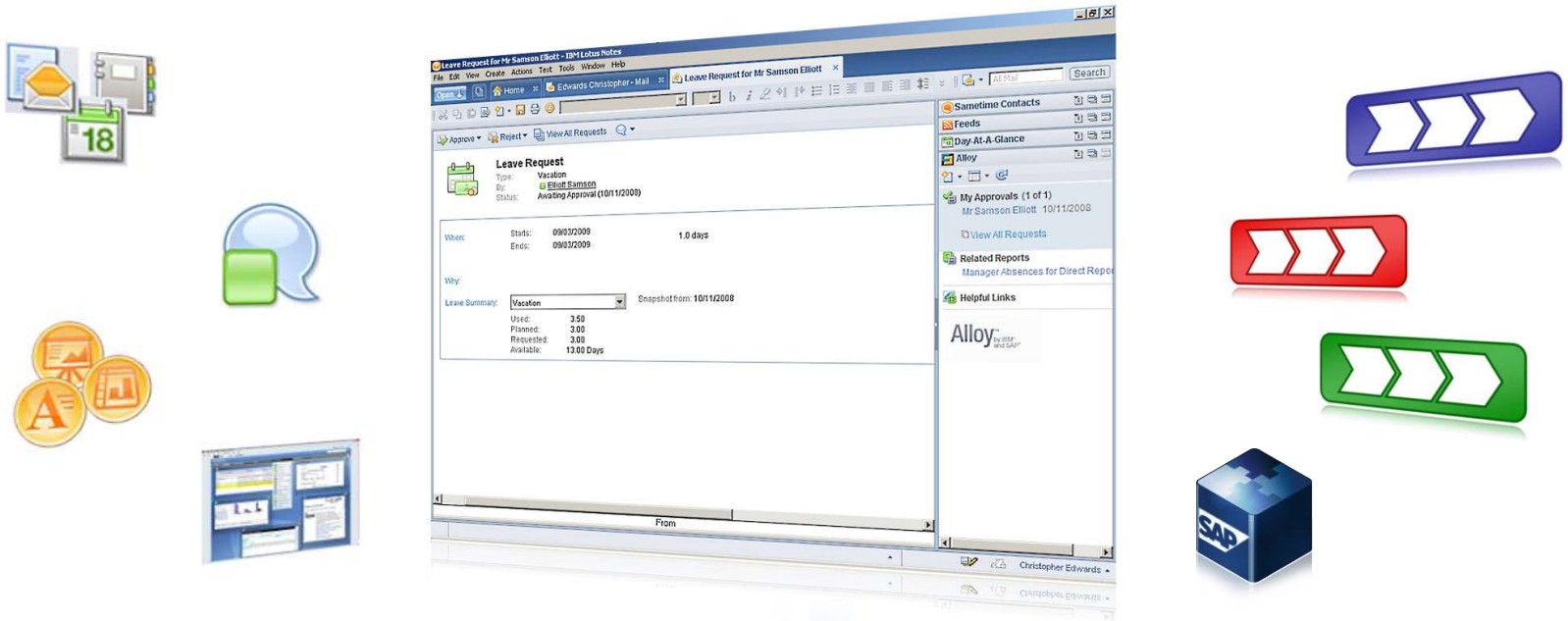

Mail - Inbox - IBM Lotus Notes
File Edit View Create Actions Tools Window Help
Open
Home
Contacts
Chris Crummey - Mail
Search All Mail
Chris Crummey
on Local
Inbox (32)
Drafts
Sent
Follow Up
All Documents
Junk
Trash
Chat History
Views
Folders
Archive
Tools
Other Mail
Follow Up
Remove Flag
Who
Due
Dennis Michael
New
Reply
Reply to All
Forward
Show
You are seeing: only latest response for each e-mail Conversation (thread)
Clear
Jack Welch
Edison's Smarter Transmission Grid - Smart Grid
Chris Crummey
MetLife Life Insurance Selector
Chris Crummey
Avery RFID Division
Chris Crummey
Review the product details
satwik
01/14/2009 08:13 PM
Brian Shark
Satwik Seshasai
Thank you for visiting with Prolifiq at Lotusphere 2009
Kyle Farnand
Invitation: Project Status Review (Jan 8 02:00 PM EST)
Satwik Seshasai
Follow-up: Prolifiq for Bluehouse information
Brandon Seppa
Acquisition Procedures and Compliance
Chris Crummey
Salisbury Product and Inventory Status
Matthew Geiger
01/02/2009 11:54 AM
Salisbury Project - First F-2F Meeting Read First
My Widgets
Sametime Contacts
All
Type to find name
1.)Farrell Team (Tiger Team) (6/22)
Christopher C. Crummey
David P. Farrell
Glen Kelley
Joel Demay
Katherine H. White
Peter Schuett
2.)LotusLive (2/10)
Chris Crummey (LotusLive: IBM)
Satwik Seshasai (LotusLive:IBM)
Accendent (0/2)
Bots (1/5)
Feeds
LinkedIn
Day-At-A-Glance
Activities
Sales Data
microBlogCentral!
Files
Places
LotusLive Files
LotusLive Meetings
DOI Open & Closed Tickets ESN Network
IBM Office (Network)
Sametime Awareness
LotusLive Awareness
Federated Awareness
Sidebar Extensibility

Lotus Notes Offerings for SAP integration

- 96: Lotus Script Extension for SAP (LSX) discontinued
  - Development environment using Lotus Script
  - Support for SAP versions until R/3 4.6
- 98: Lotus Connector for SAP (still available)
  - Plugin into Lotus Enterprise Integrator (Batch) or Domino Enterprise connection Service (realtime)
  - Development environment using Lotus Script
  - Support old and current SAP versions (R/3 4.6 – ECC6)
- 06: Notes Access for SAP Solutions (only supported on Notes 7, no further development)
  - Lotus Connector based solution, simple standard BAPI based scenarios
- 09: Alloy by IBM and SAP
  - Fully SOA / Webservice based architecture
  - Supports ECC6

Alloy - Bringing SAP Software to Lotus Notes



Office productivity

Ad-hoc processes

On every desktop

Business processes

Industry expertise

System of record

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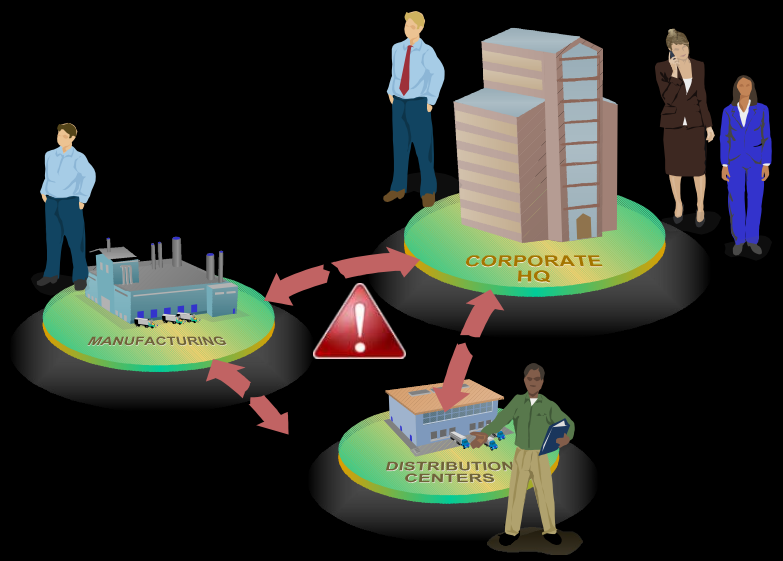
What is Alloy ?

- First jointly developed product of IBM Lotus and SAP AG that provides seamless access to SAP Systems from within Lotus Notes Client
  - Brings Business Data to the EndUser, not the Enduser to the Business Data
- Enriches Business Functionality with Collaboration Services and Collaboration Applications with Business Data from ERP Systems
- Easy to use and natural experience of SAP Data inside the Lotus Notes Client environment for
  - SAP Reports (Reporting Data) from ERP system and Business Warehouse Systems
  - Support of Decision step for any SAP Business Workflows
  - End to end Leave Management and Trip Management support
    - chosen because of deep integration into Calendar and PIM Integration
- Positioned by SAP as an alternative UI to SAP Gui and SAP Netweaver Portal

Alloy supports Busines Transformation

- The key value of Alloy is not directly the access to SAP Information from a Lotus Notes Client
- Alloy supports Business Process Transformation by
  - Removing the need of training people on new User Interfaces
  - Increase the acceptance of the new Processes by a consistent and easy to use Access into the new Systems and processes
  - Increasing the ROI for the transformation project by a quick and easy adoption
  - Drive Business Compliance internally and support legal requirements
- Examples are
  - HR Shared Service Center
  - New Sales Support Systems
  - Purchase Order management

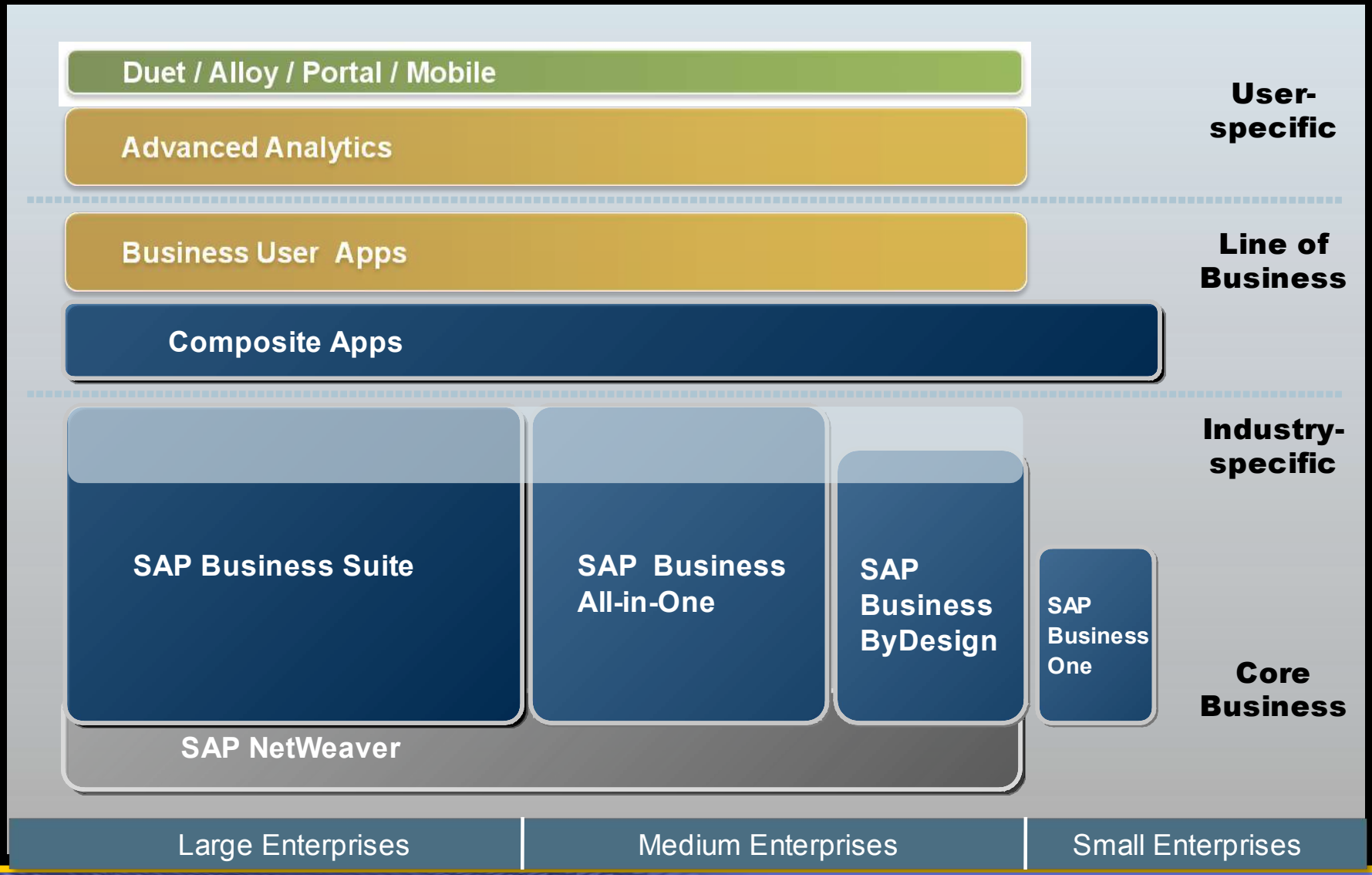
Business Users are Disconnected From Enterprise Information and Processes….



- Productivity suffers from time wasted searching for and coordinating information
- Decision-making is impaired due to out-of-date or incomplete information
- Business innovation is hindered by inability to participate in enterprise processes

- The Architecture of Notes 8 enables Users to overcome these issues and bring *Information to People* instead of *People to Information*

Alloy positioning in SAP's Solution Portfolio



Alloy does not replace the Portal but coexists with it

- Alloy provides and additional Channel for Business User to interact with an SAP Backend System. There is not necessarily a conflict but rather an opportunity
- As the Business Processes are defined on the ERP System, adding Alloy into an environment does not create huge additional Efforts but it rather leverages the ERP Implementation
- Advantages to use Alloy in Environments that already run a Portal are
  - Alloy reaches Business User in their most important Application: eMail
  - Lotus Notes Client can link to Portal or WebDynpro pages via simple HTTP links
  - Easier adoption and change of the new Processes by ease of use – seamless access to Portal based application fragments through embedded browser in Notes Client

People Have Different Roles Within Organizations

Task Worker

- **Sample roles:** payroll administrator, customer service representative
- Area expert with defined tasks
- Conducts repetitive, structured transactional work
- Uses single or a few enterprise applications
- Interface of choice: SAP Portal, SAP GUI

SAP "Power User"

Business User

- **Sample roles:** business manager, sales representative, HR manager
- Knowledge worker or people manager
- Manages exceptions and coordinates activities & resources
- Synthesizes many sources of information
- Interface of choice: e-mail, desktop productivity tools

Typical Lotus Notes User

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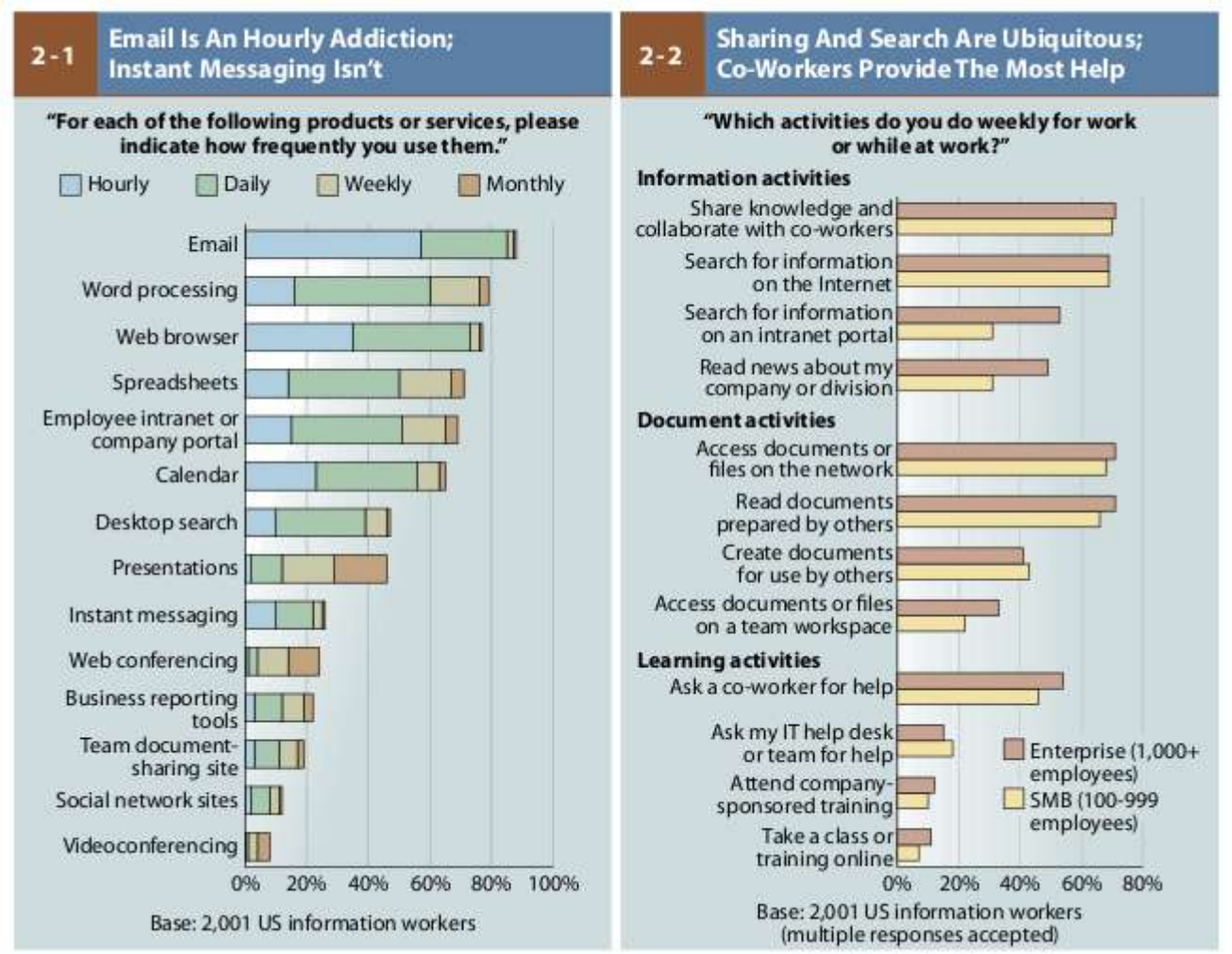
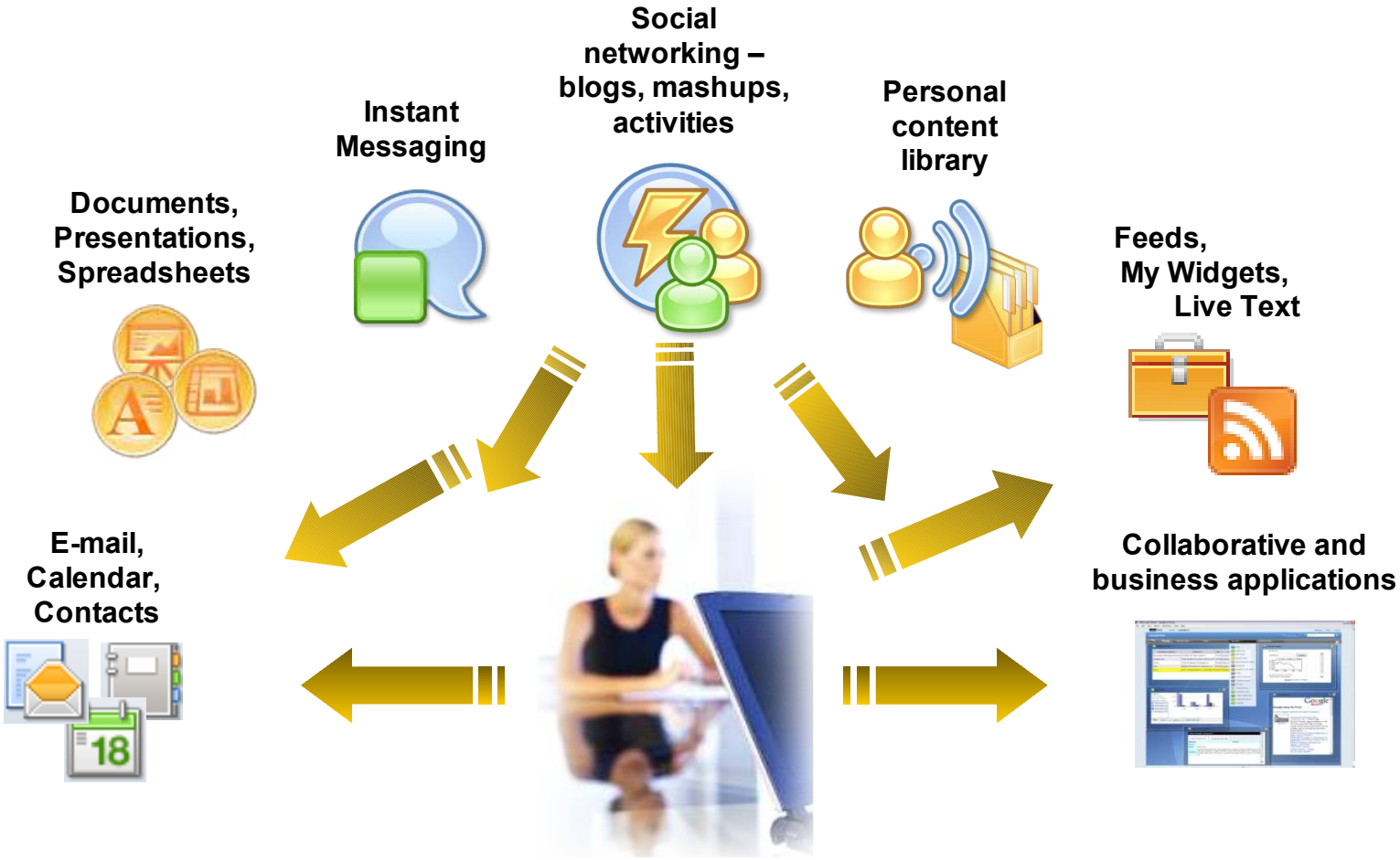
Information Worker spend most of their time in eMail and collaborate



Source: Forrester – A Day in a life of a US Information Worker (2009)

Business User's Inbox is a Catalyst for Productivity

Moving from it interrupts their workflow and introduces opportunities for distraction.



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Alloy Executive Summary

Familiar Working Environment

Deliver SAP information and applications into Lotus Notes to improve productivity

Rapid Deployment

Ensure rapid adoption and minimal training for end users

Extensibility

Add functionality needed for each unique business user group

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Familiar Working Environment

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Workflow Decisions Management
Details

Manager

Collaboration

SAP	Lotus Notes	SAP
Workflow runs in SAP and arrives at a decision. Decision email is delived to Manger‘s Inbox	Manager reviews contextual Information and collaborates Manager makes a decision without leaving Inbox	Workflow continues in SAP

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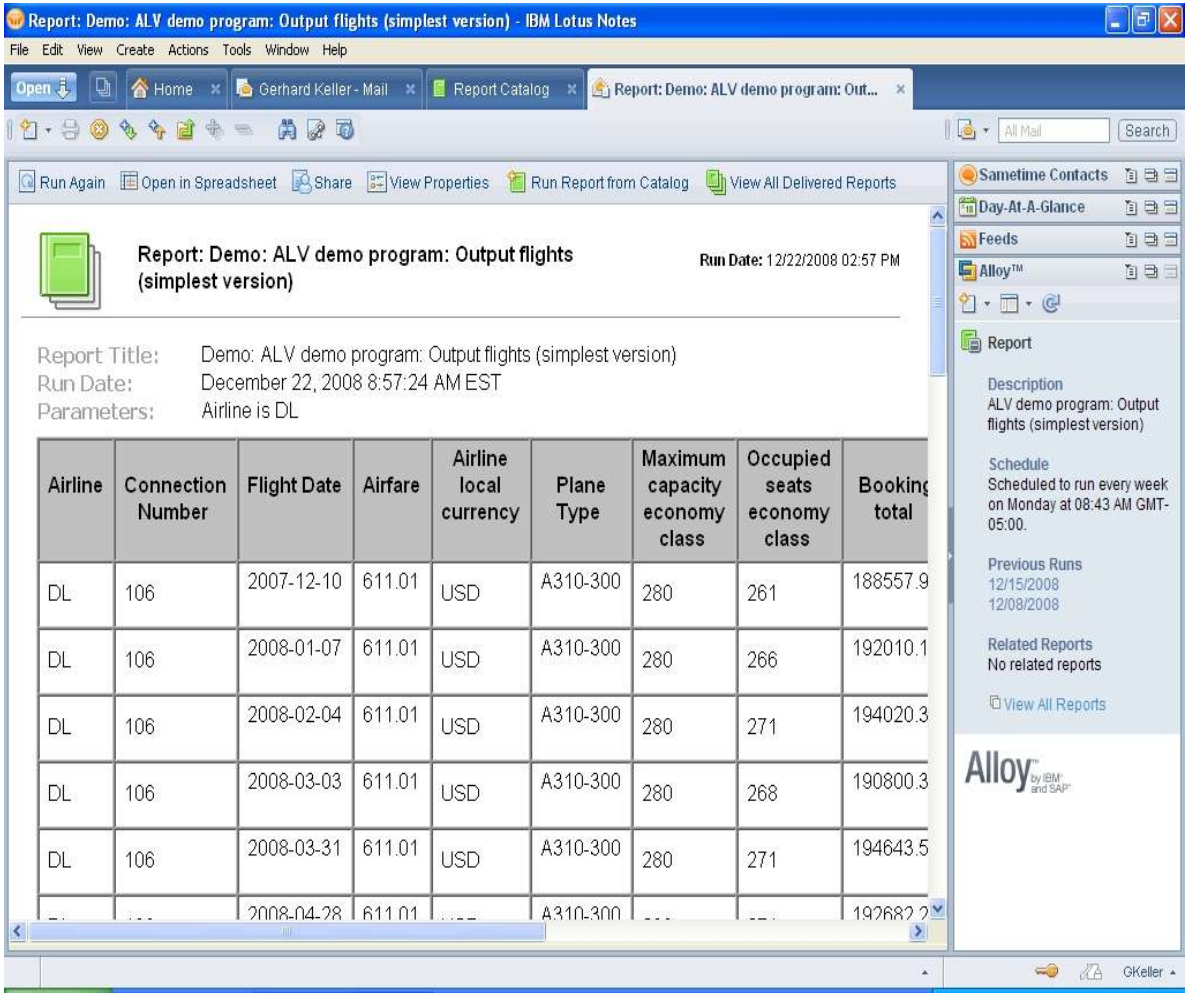
Reports Management

Give users information to make good decisions



Easy access to BI, ERP and line of business reports

Self service subscription and personalization

Forward or access reports off-line

Links to related reports and information

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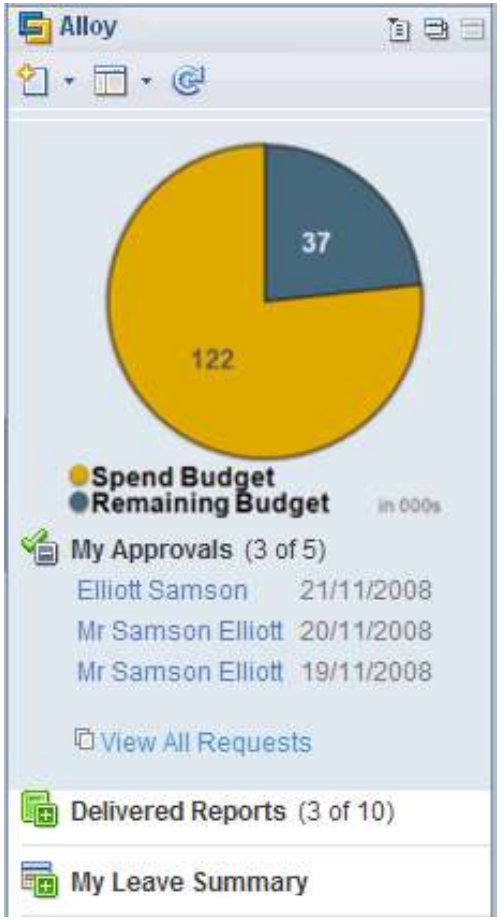
Bring contextual information to facilitate better decisions



Bring contextual information from SAP Business Suite

Use standard customization tools like Lotus Notes Designer, Lotus Script, SAP Implementation Guide

Integrate additional helpful information into the sidebar

Customize email and document forms to fit your needs

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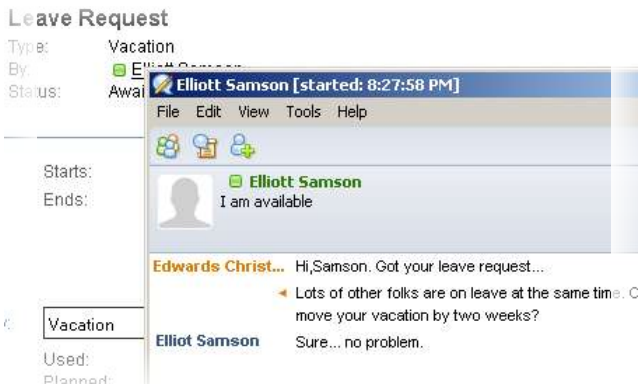
Intuitive Design

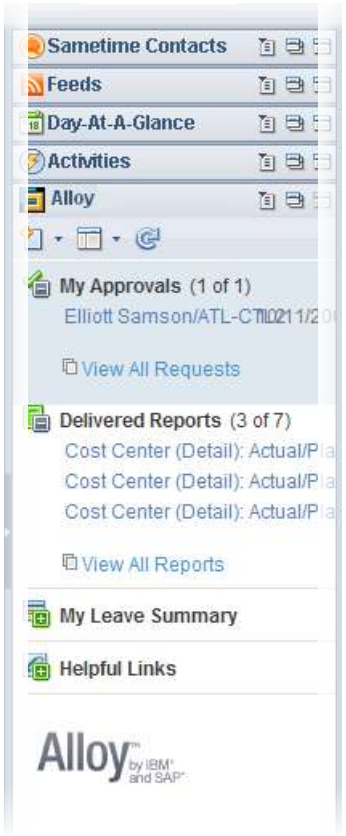
Build on what Notes users know and expect

Embedded directly into calendar, e-mail

Simple action buttons for decision maker



One-click collaboration



Side bar adjusts to current user context

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Rapid Deployment

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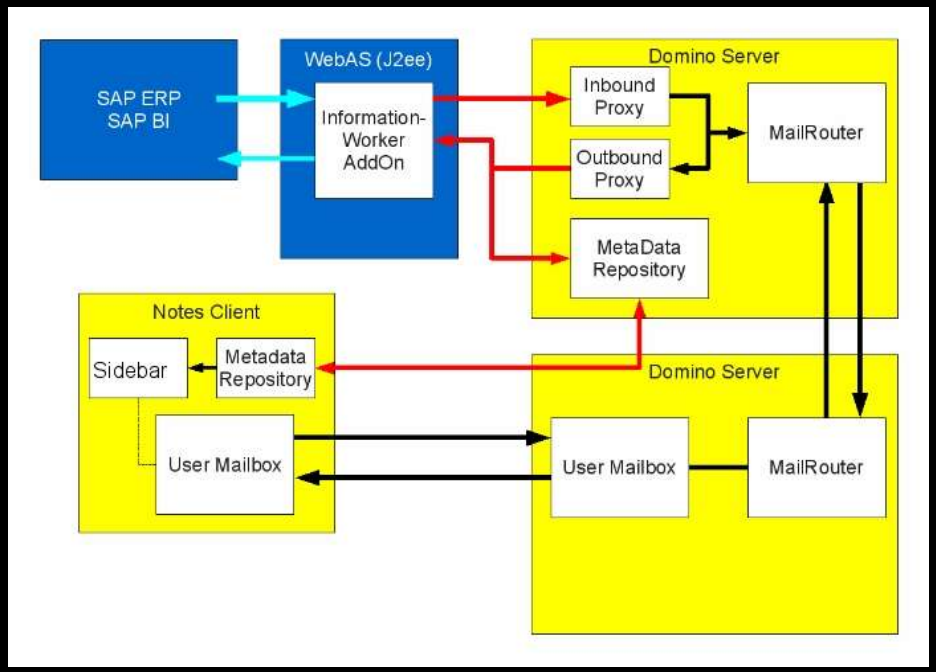
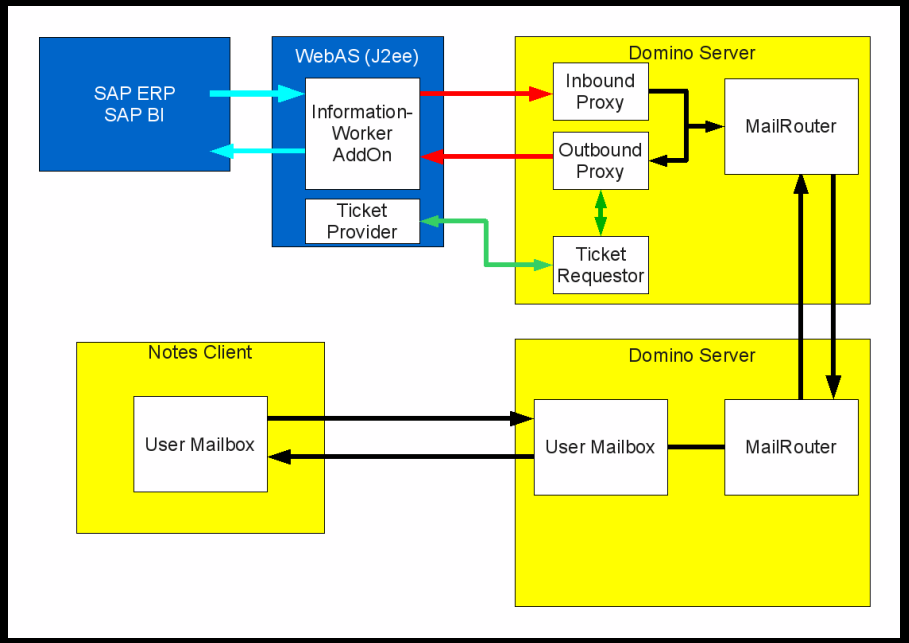
Rapid Deployment of Alloy into existing environments



- Deployment happens on the Alloy components only
  - existing Domino Mail Servers stay untouched
  - No installations on SAP Systems necessary
- The two Alloy components act as a Gateway into the respective environments
- Alloy respects for deployment well known mechanics:
  - “Designer” task for new Mail template
  - Widget catalog for Sidebar PlugIn
  - Notes DB for storage of Metadata

Single Sign-On between Domino and SAP



- Alloy leverages SAML (Secure Assertion Markup Language) for Single Sign On
- Basic assumptions:
  - Lotus side and SAP side are in a trust
  - User is authenticated to a IBM Lotus Notes Client / IBM Lotus Domino® Server
  - SAP UserName is maintained in Domino Directory for mapping
- Basic Flow of the Single Sign-on:
  - Notes object is signed by the user
  - Domino Server requests SAP Logon Ticket on behalf of the user using SAML
  - WebServices Call is done on behalf of the user with SAP Logon Ticket

Alloy Metadata Handling Concept

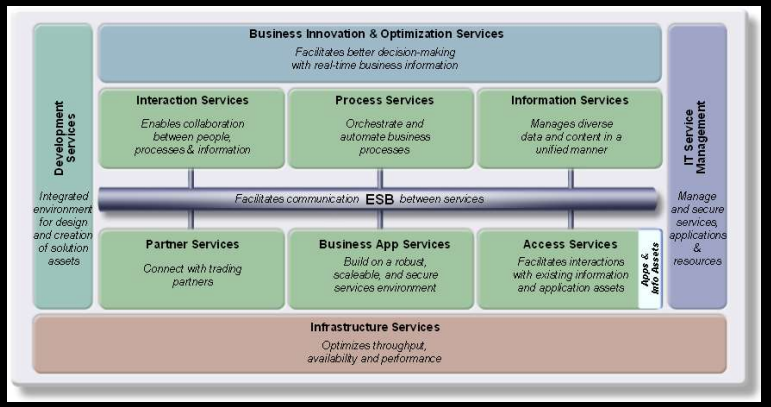
- One of the common Integration problems is that only data is integrated, but configuration settings are not reflected
- Alloy reads SAP configuration (e.g. Leave Types or Report Templates) and provides them to the user
  - Client updates automatically
  - Application logic is driven from SAP customizing
  - Notes developer does not need to update Key mappings anymore
- The Sidebar Elements are stored in the Metadata repository, too
  - Provided in HTML which allows full customization and extension (e.g. Charts in the sidebar)
  - developers can easily do more customization than just changing the existing blocks
  - Integration of Real-time content from other server / services, e.g. communication through Ajax or a WebService or Google Charts
  - Applying corporate UI Guidelines or CSS Stylesheets
- New Metadata / HTML fragments don't require Notes Design updates but are distributed through the Metadata mechanism down to the Notes Clients (WebService Call)

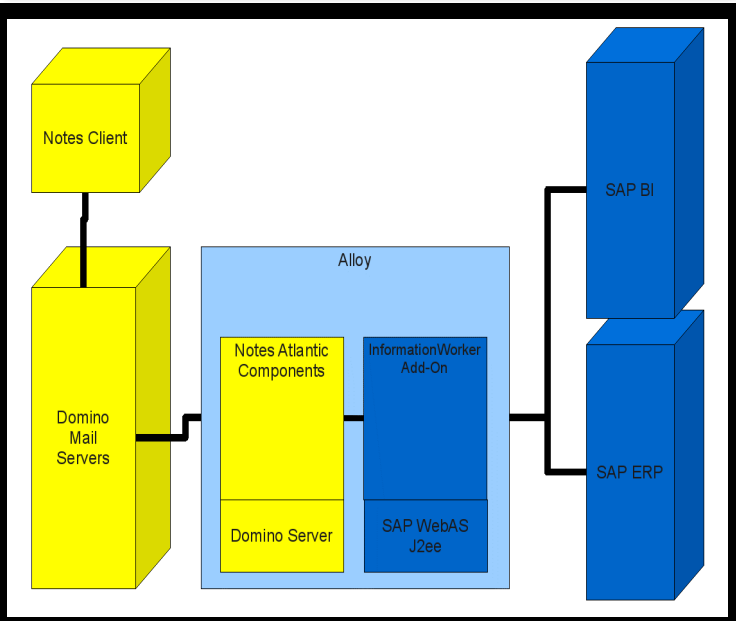
Extensibility

© 2009 IBM Corporation

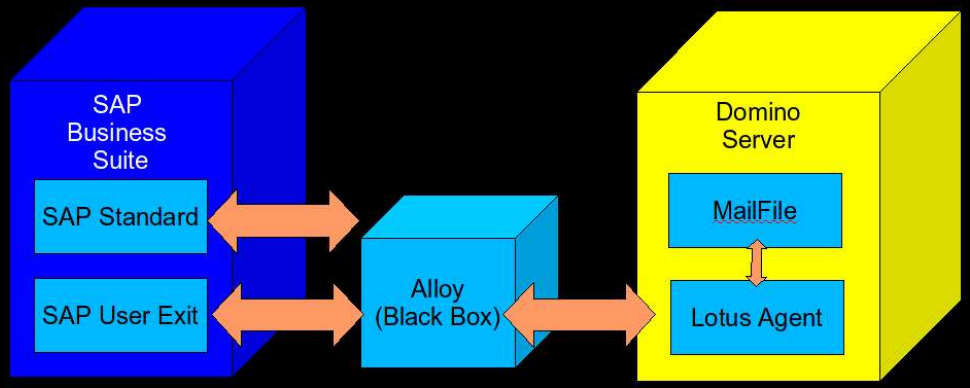
Alloy Extensibility is made easy through Architecture and its SOA compliance

- All communication in Alloy between IBM Lotus Notes and SAP Business Suite uses WebServices
- Transfer data format is XML, even for storage of certain data
- Metadata is either XML (for data) or HTML (for the sidebar)
- SAML is also based on WebServices, basically strict structure



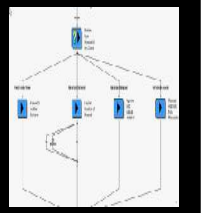
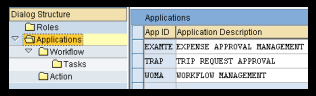
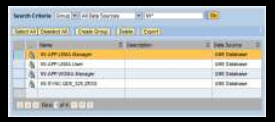
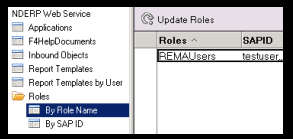


Customizing / Extensibility in Alloy



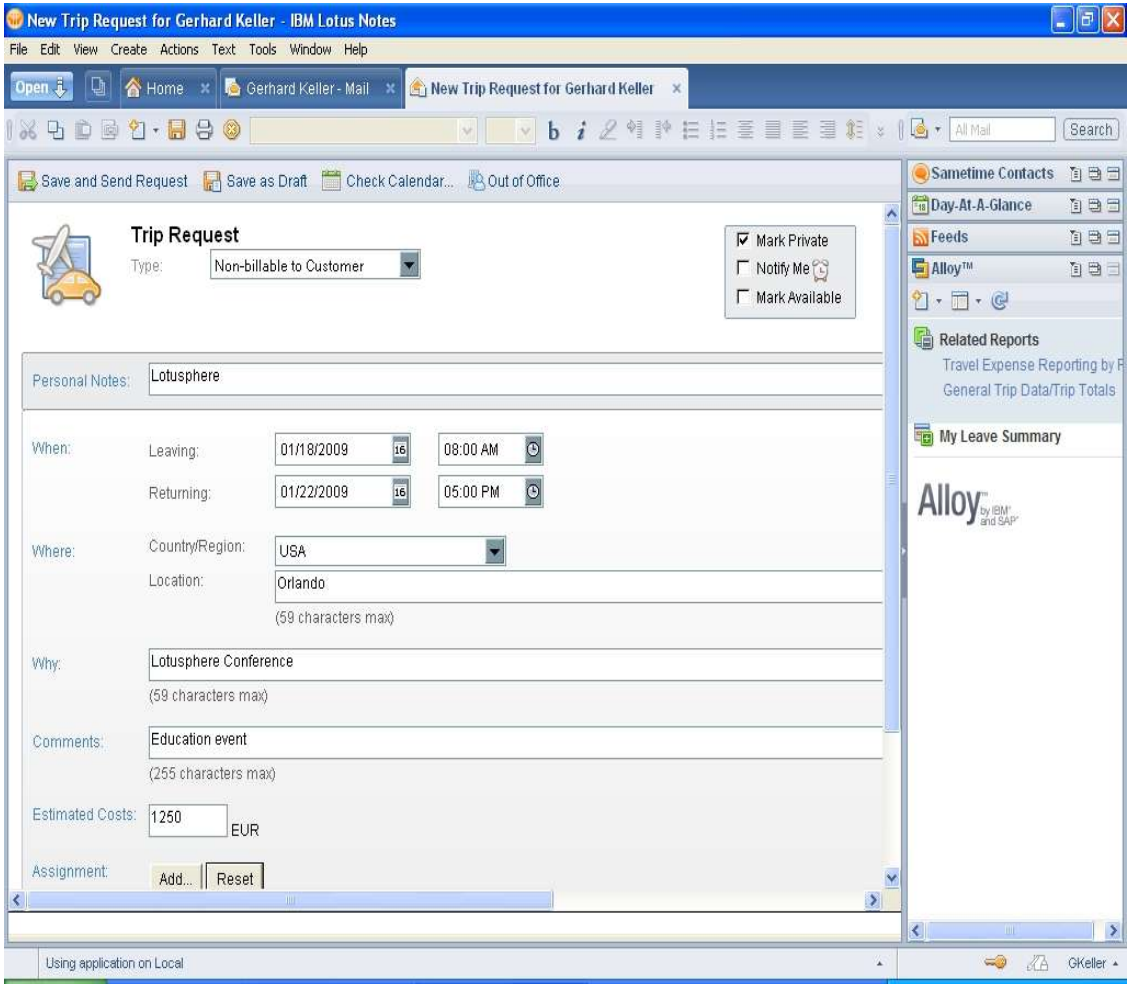
- Customizing and Extensibility happens through normal mechanisms:
  - SAP Side
    - ABAP User Exits
    - Standard configuration
  - Lotus Side
    - Normal Notes Design Elements with Domino Designer
- No additional skills are needed to extend the functionality
- Alloy itself acts as a BlackBox which establishes connectivity and save delivery of Messages

Quick Guide to Expose Workflow Decisions in Alloy

	~15 Min.	~5 Min.	~10 Min.	
	Step 1	Step 2	Step 3	Opt: Step 4
	Configure SAP Backend	Configure IBM Lotus Domino Server	Configure SAP Alloy Add-on	Magnify Decision UI
 SAP Business Workflow	IMG and Custom Handlers	Configure IBM Lotus Domino Server with the application id and bound type created in step 2	The IBM Lotus Domino configuration generates a user role on SAP Alloy Add-on. Assign user to this role.	Magnify and enrich the decision UI with additional information in the decision body and the Alloy sidebar
 SAP Backend		IBM Lotus Domino Server	 SAP Alloy Add-on	 IBM Lotus Domino Designer

Travel Management

Request, review and approve trip details quickly



Schedule and approve trip requests

Links to key information, e.g. travel and expense policies

Link to collaboration tools to discuss and resolve quickly

Ensure data consistency and compliance

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Examples of Workflows that can be brought to Alloy

Financial Transaction Release Workflow

Recruitment Workflow

Purchase Order Workflow

Material Creation Workflow

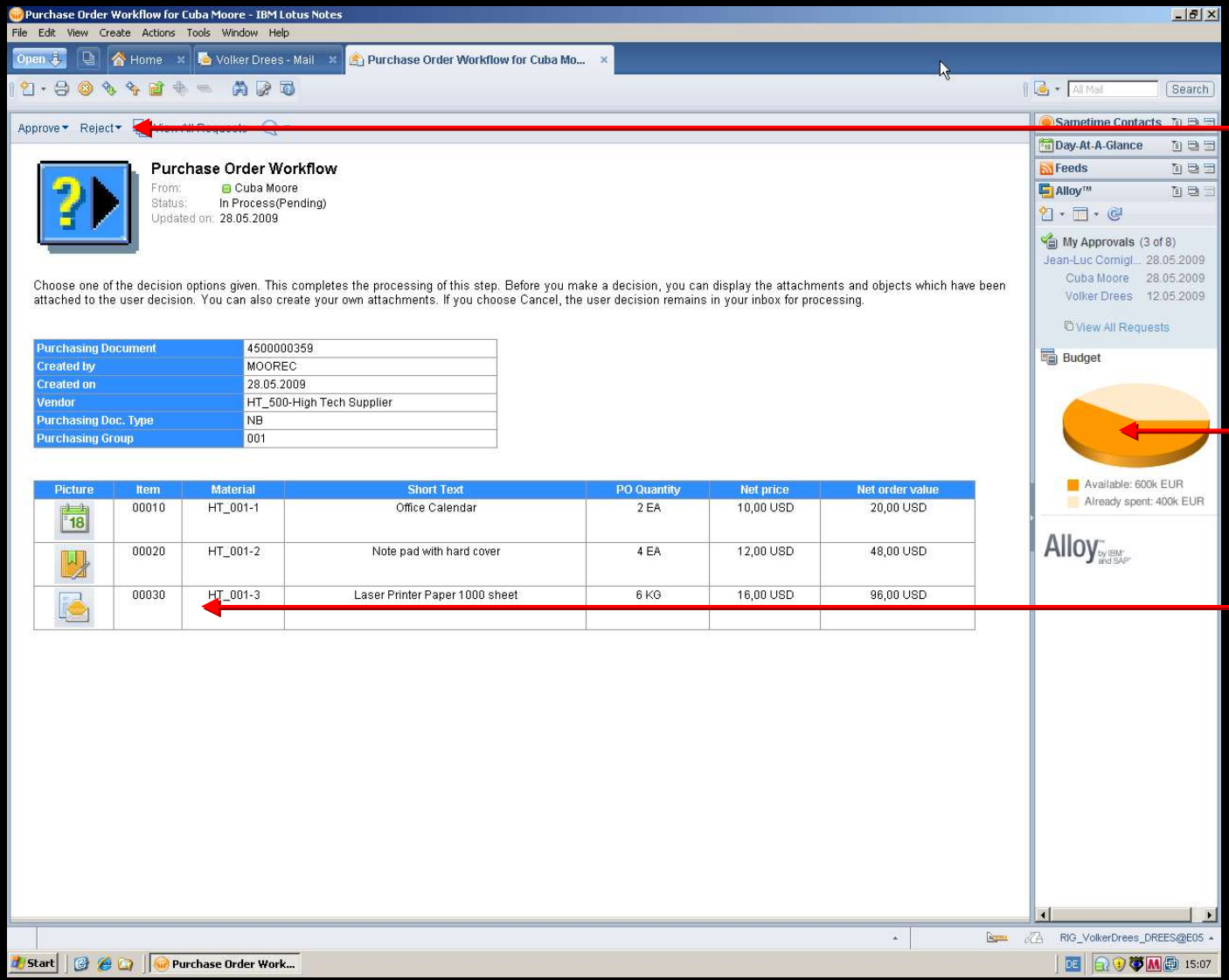
Sales Approval Workflow

Transport Workflow

Process Quality Workflow

Product Development Workflow

Purchase Order Workflow

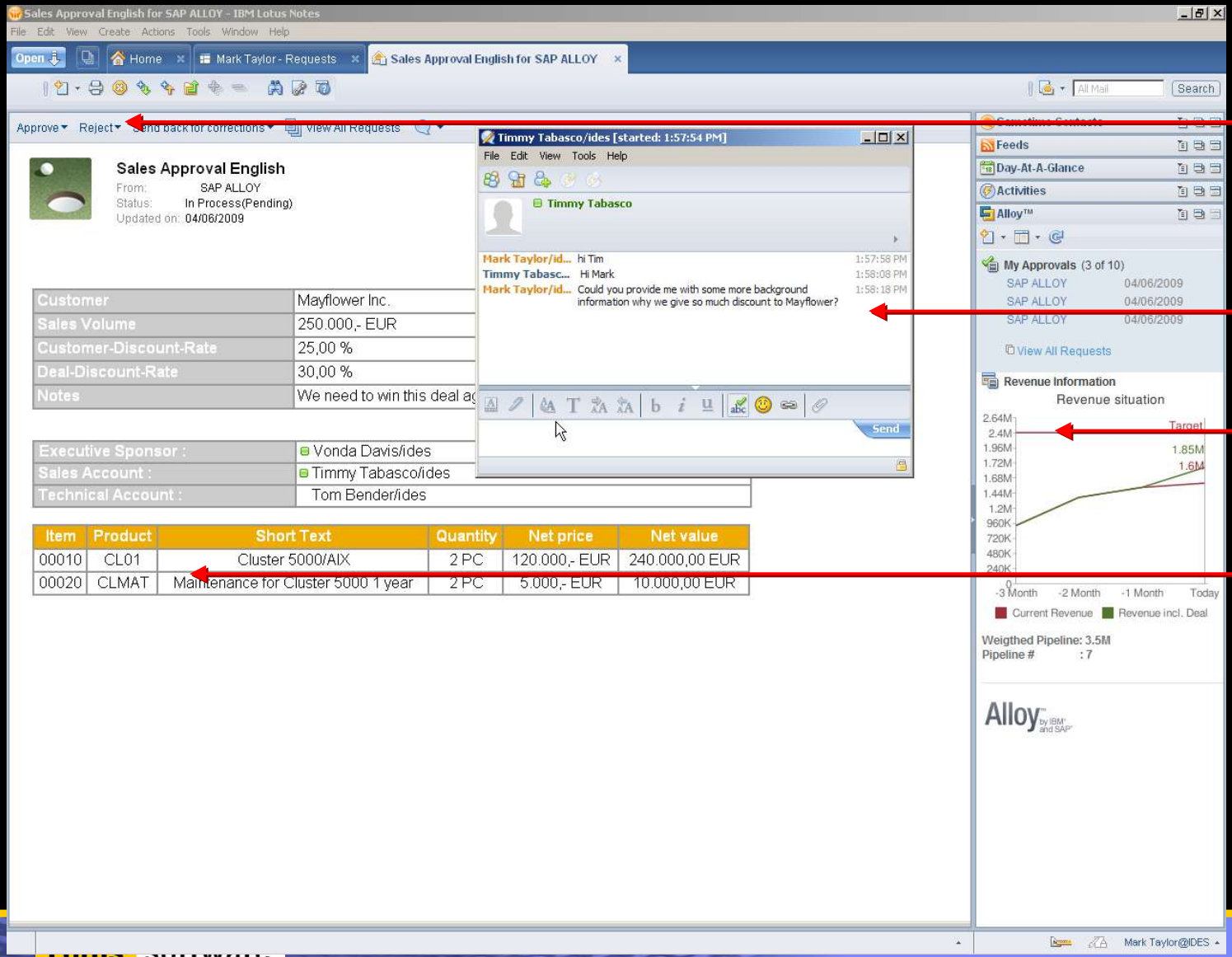


Manager can make decision right from Lotus Notes

Contextual Information

Details

Sales Approval Workflow



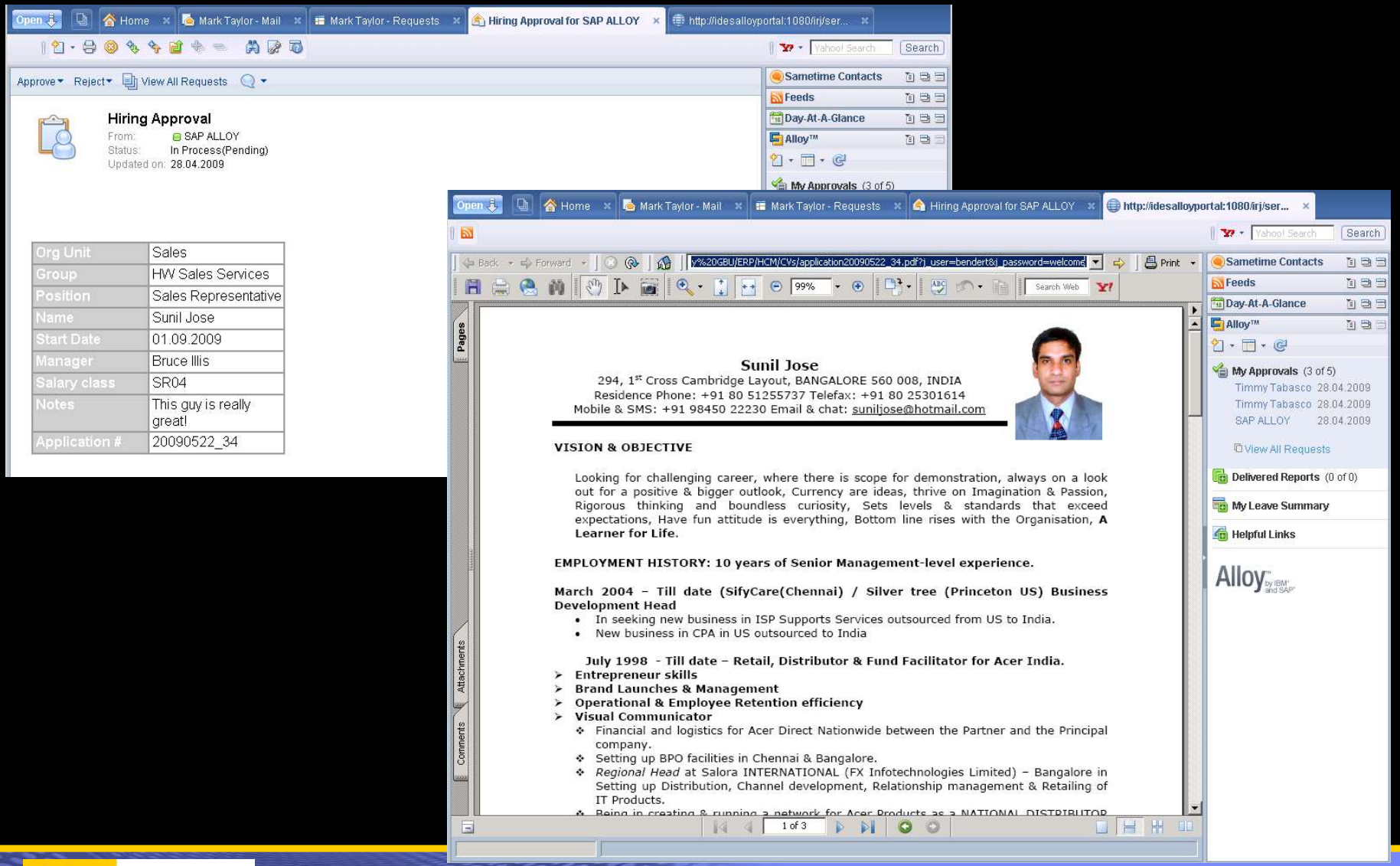
Manager can make decision right from Lotus Notes

Contextual Collaboration

Contextual Information

Details

Hiring Approval



Lotus. software

Key Benefits

For the business user, the enterprise and IT

Increase effectiveness, responsiveness, and productivity	•A smarter work environment for business users, integrating the collaborative capabilities of Lotus Notes with SAP applications, workflows, and information
Improve decision making	•Easy and intuitive access to relevant, contextual business information
Better risk management and mitigation	•Employees can more easily adhere to business processes, follow workflows, and act on essential information
Increase ROI	•Leverage existing investments in SAP applications and Lotus Notes.

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What makes Alloy unique?

Reliable, simple and extensible

The first product jointly developed and supported by SAP and IBM

Eliminates the need to build and maintain expensive custom programming or interfaces to integrate SAP applications with Lotus Notes

Allows in-house developers and system integrators to customize and extend functionality to better serve unique needs

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Architecture

"How it all works together …"

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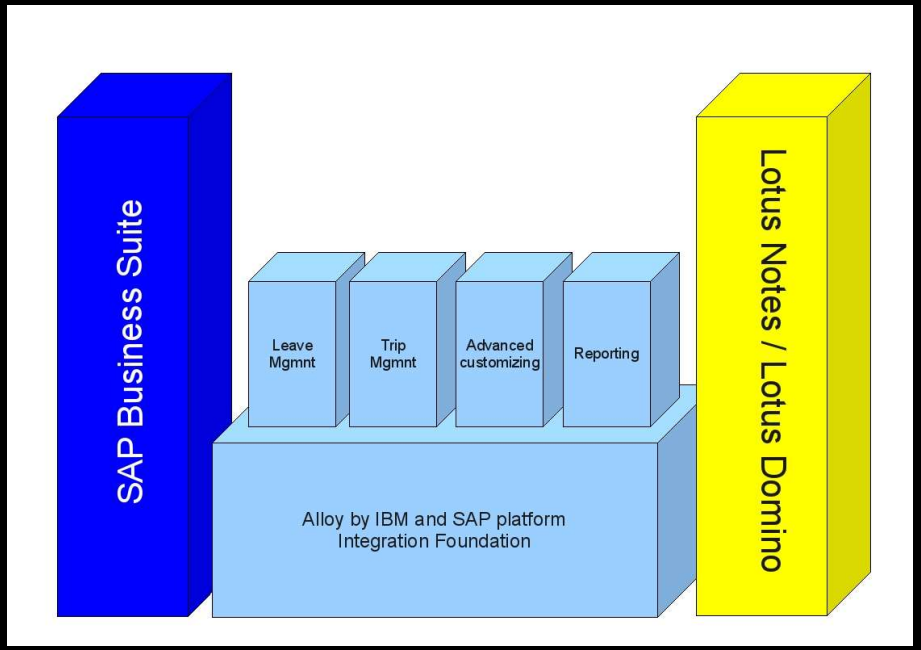
Two Sides of Alloy

- Alloy acts as a **platform**
  - Provides integration for a set of SAP business objects
  - Transaction safeness
  - Single Sign On
  - Extensibility
  -
- Alloy Acts as a **Business Solution**
  - Provides Out of the Box business application together with Workflow support and reporting



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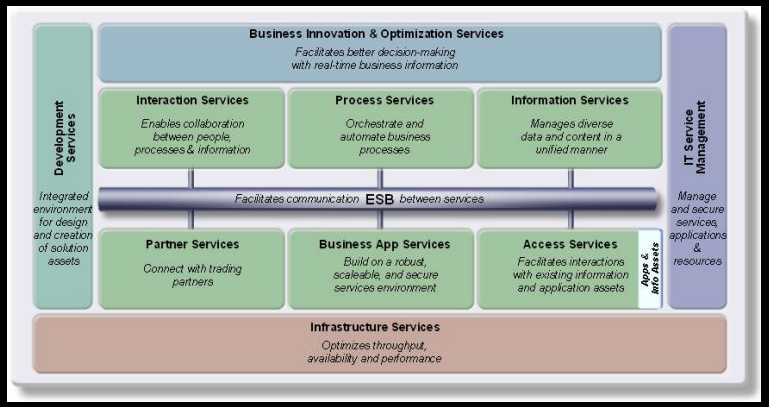
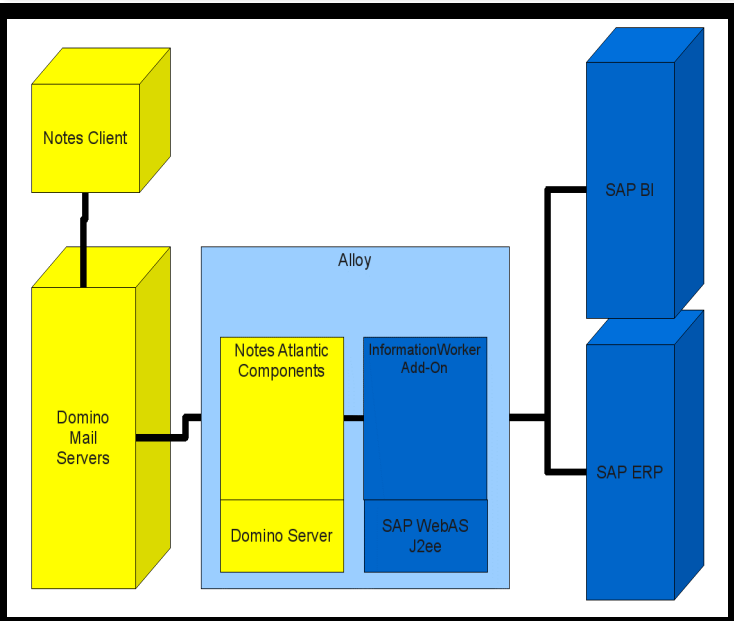
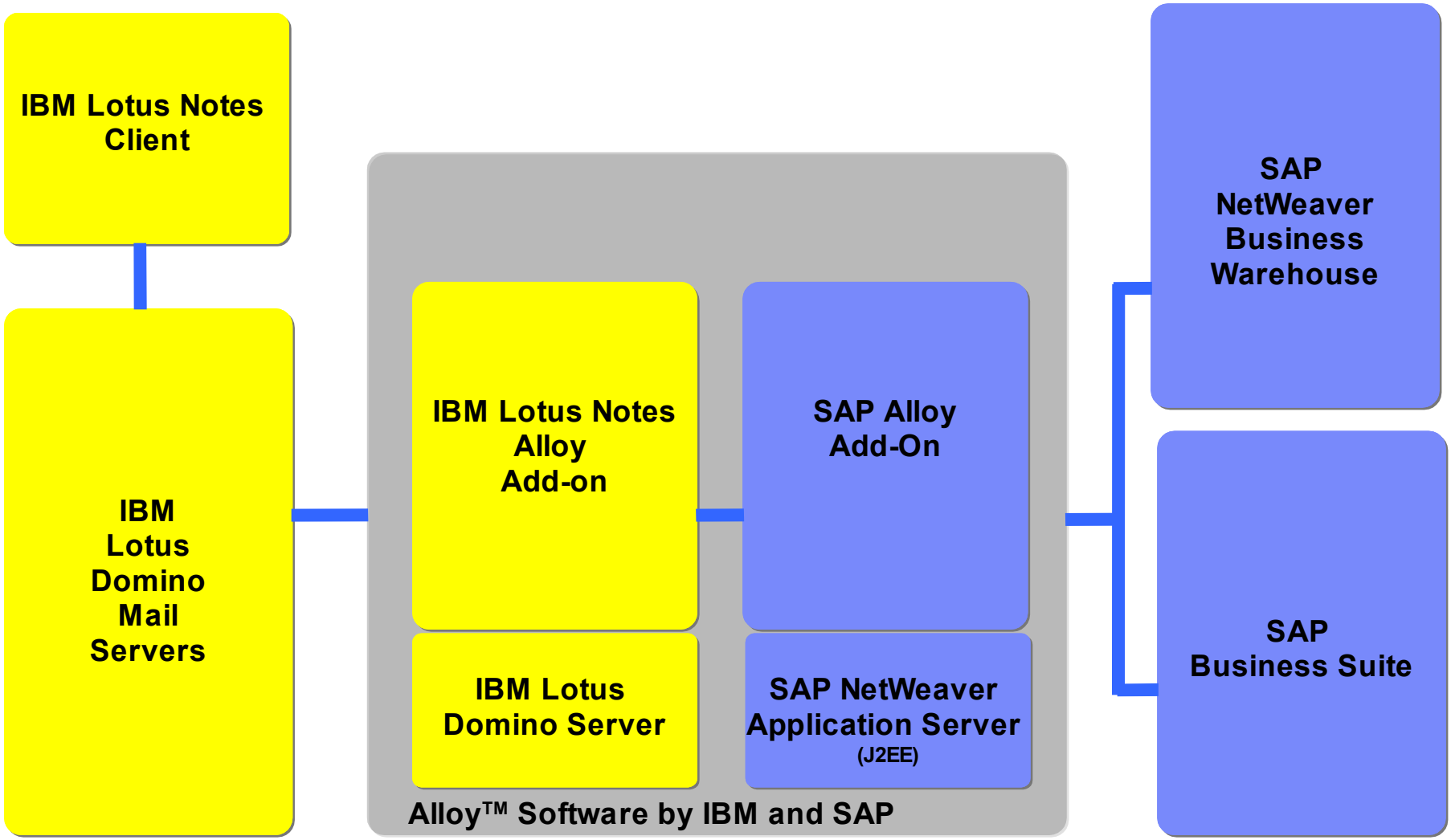




Alloy 1.0 Architecture



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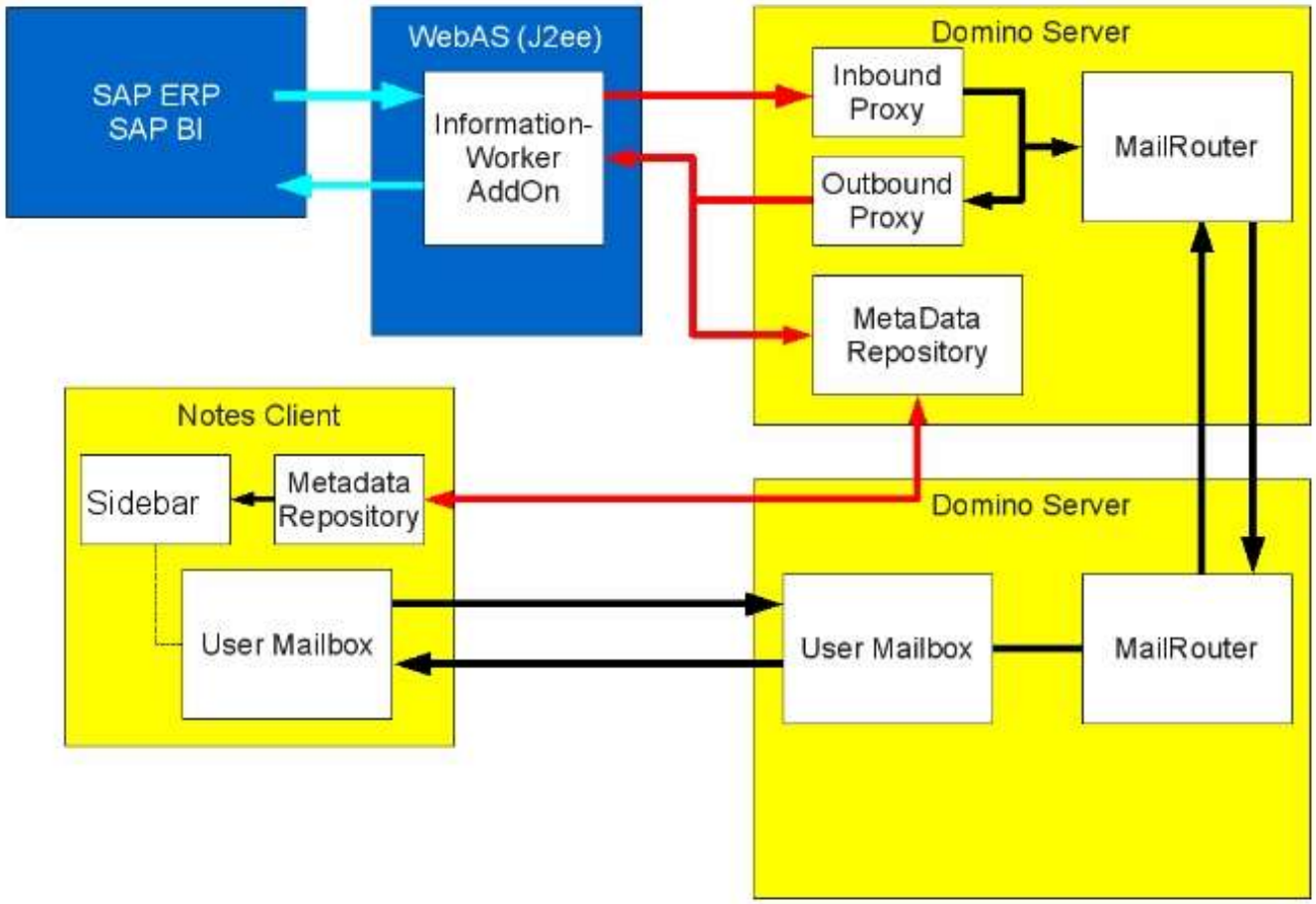
The Architecture behind Alloy



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  - Client updates automatically
  - Application logic is driven from SAP customizing
  - Notes developer does not need to update Key mappings anymore
- The Sidebar Elements are stored in the Metadata repository, too
  - Provided in HTML which allows full customization and extension (e.g. Charts in the sidebar)

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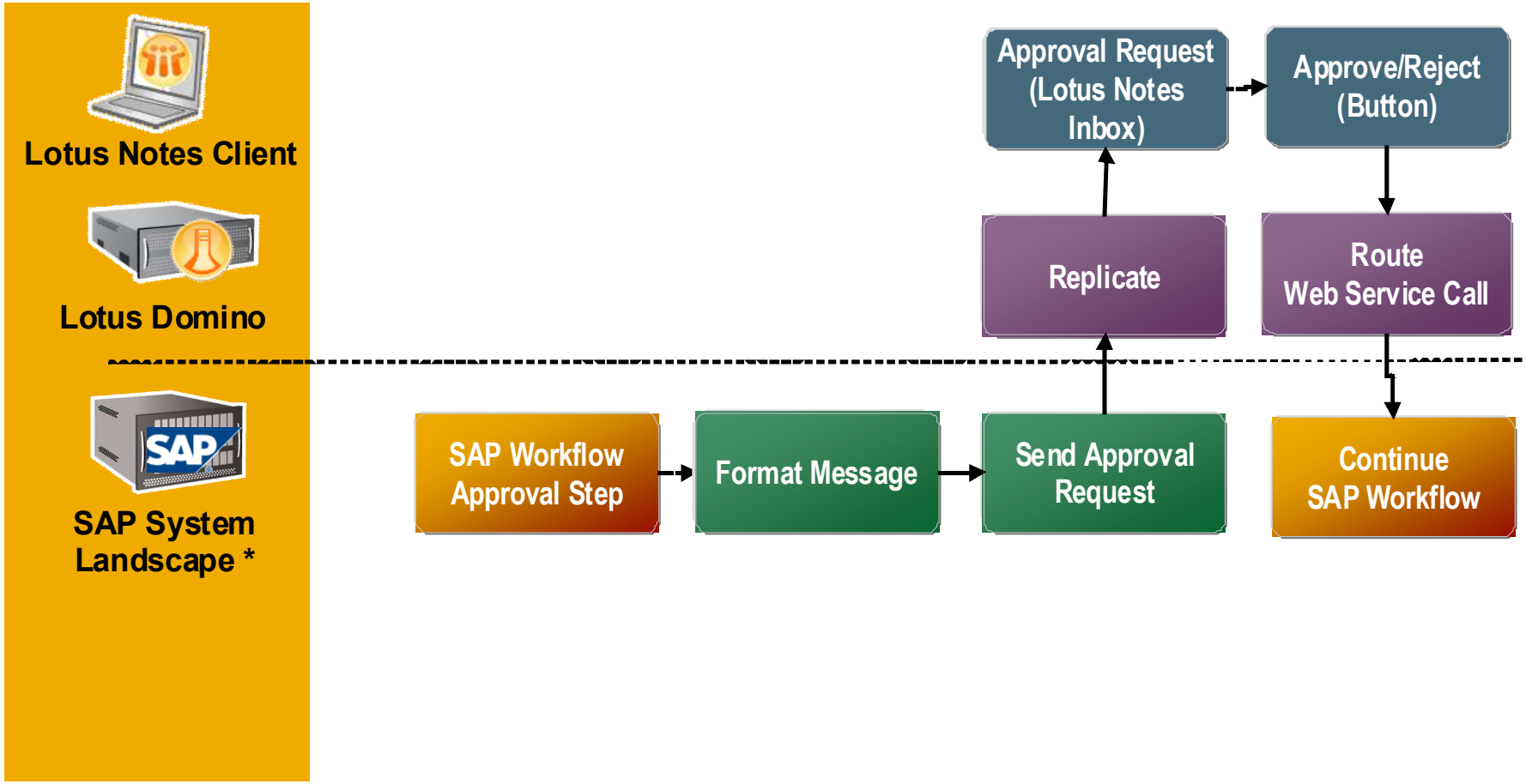
Alloy Workflow Approval Flow

- Not limited to SAP delivered approvals or decisions



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Single Sign-On

- Alloy leverages SAML (Secure Assertion Markup Language) to enable Single Sign-On between IBM Lotus® Notes® and SAP Business Suite

- Basic assumptions:
  - Lotus side and SAP side are in a trust association
  - If a user is authenticated to a IBM Lotus Notes Client / IBM Lotus Domino Server this authentication is also used for SAP
  - SAP UserName is maintained in Domino Directory as it is probably different from Notes Name

- Basic Flow of the Single Sign-on:
  - Notes object is signed by the user
  - Domino Server requests SAP Logon Ticket on behalf of the user using SAML
  - WebServices Call is done on behalf of the user with SAP Logon Ticket

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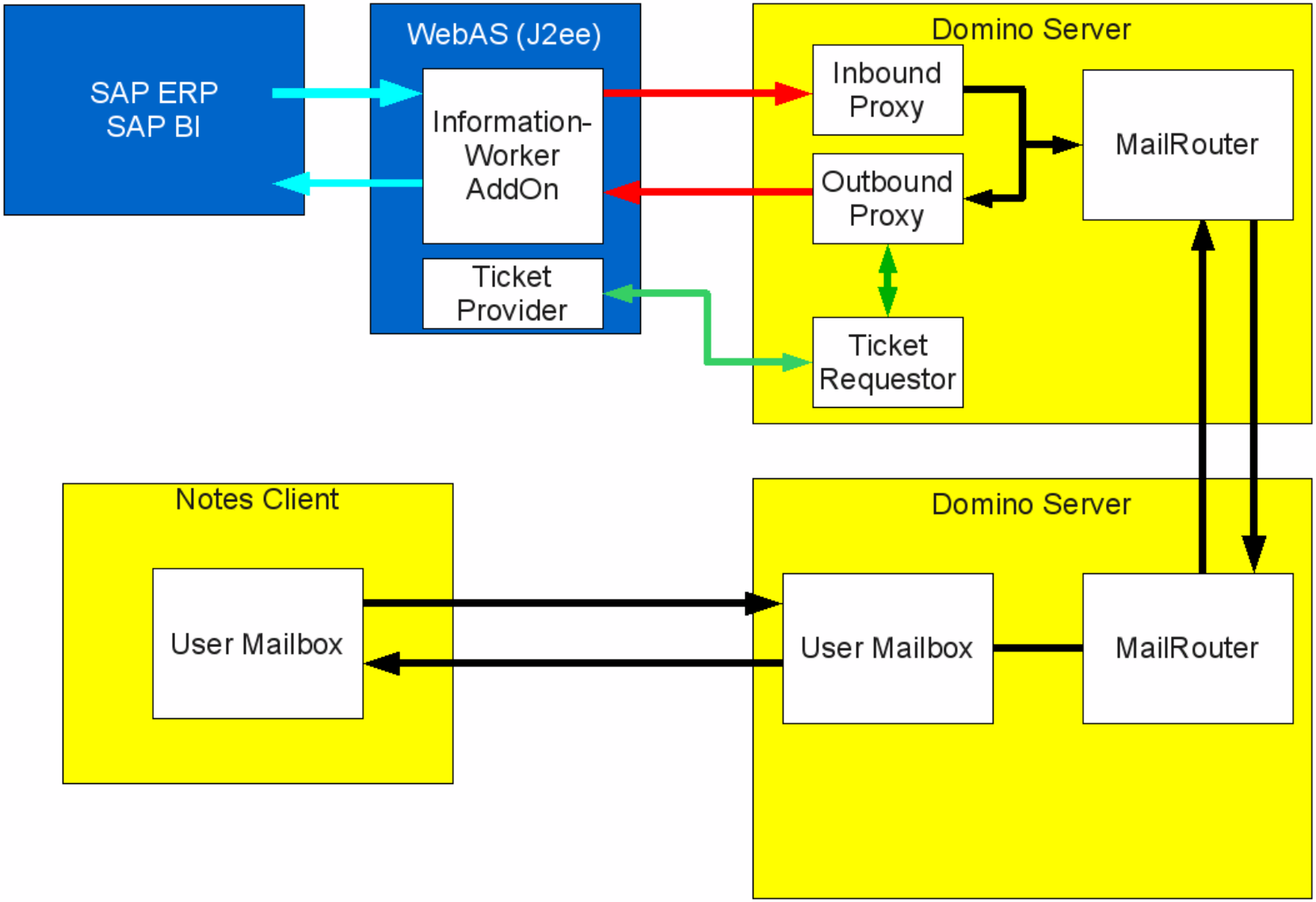

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Extending Alloy to the BlackBerry

MDS Server

MailFile

Alloy

BlackBerry Extsn

Domino Side

SAP Side

SAP ERP / BI Systems

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Notes Technologies that enables us to build Alloy

- Alloy relies on a set of product capabilities from Domino and Notes
- New capabilities from Release 8:
  - **WebService Support** for Data Transfer between Lotus Domino and SAP Business Suite
  - **Sidebar Plugin** to render supporting data for a Business Object
  - **Widget Catalog** to allow easy provisioning of the Sidebar plug-in
- Previous capabilities
  - **Mail Routing** to establish communication to Client
  - **Template inheritance** to bring Alloy specific mail template extensions into production
  - **HTML** to define Layout of the sidebar

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Deploying Alloy

- Deployment of Alloy happens in 2 parallel streams
- SAP Administrator
  - Setup of SAP WebAs (J2ee Server) [suggested]
  - Deployment of Alloy components
  - Configuration against SAP ERP / SAP NetWeaver BI
- Domino Administrator
  - Setup additional Domino Server [suggested]
  - Deployment of additional templates
  - Creation of Alloy Domino Databases
  - Setup of UserMapping for Single Sign-On
- Joint tasks
  - Connecting the two systems
  - Test connectivity

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Deployment Options for Alloy

- Basically 2 deployment options are seen

- Proof of Concept Deployments
  - SAP ERP/ SAP NetWeaver BI Servers are existing
  - Alloy (SAP WebAs / Domino Server) get deployed on one machine
  - Possible routing to additional Mail Servers in Domino Environment

- Production Deployment
  - SAP ERP / SAP NetWeaver BI Servers or Instances are available
  - SAP WebAs gets installed on one Box
  - Domino Server to host Alloy components gets installed on one Box
  - Domino MailServer stay untouched

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Alloy System Prerequisites for v1.0

IBM Lotus

- Lotus Notes 8.0.2 or above
- Lotus Domino 8.02 or above

SAP

- SAP EPR 6.0 or higher
- SAP BI 3.5 or 7.0

Initial Languages

- English, German, French, Italian, Japanese

Platform Support

- Lotus Notes client – initially Microsoft Windows XP 32 bit and Windows Vista 32 bit
- Domino – initially Microsoft Windows Server

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Alloy initial Deployment steps – SAP side

- Deploy and configure SAP Information Worker Add-on
- Establish trust between SAP Systems and SAP Information Worker Add-on
-
- Perform configuration in the SAP System (Alloy IMG)
  - For Reporting maintain report data for the report catalogs
  - For custom workflows configure Workflow Decision Management

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Alloy initial Deployment steps – Domino Side

- Addition of Alloy Design Elements to mail8.ntf
- Update of MailBox Design
- Setup of Sidebar plug-in in Widget Catalog
- Creation of Domino Policies for ECL updates, notes.ini parameters
  - $NDERPMDWS_URL=http://sapdomqe.notesdev.ibm.com/NDERPws.nsf/MetaDataService?openwebservice
  - $NDERPMID=Alloy Mail In Database@Hannover
- Configuration of Alloy Databases on the server
- Setup of SSL on Domino Domino Server hosting Alloy (SAML requirement)

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Custom Development

"How to make it work for you …"

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The key development / design Patterns are simple:

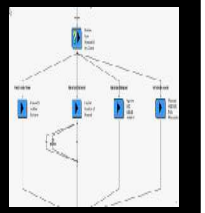
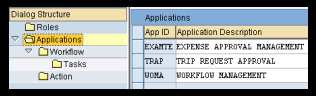
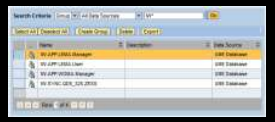
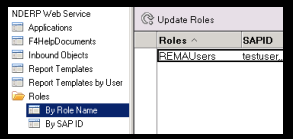
The business process remains at one place – The ERP System

Business Configuration is driven through ERP System only

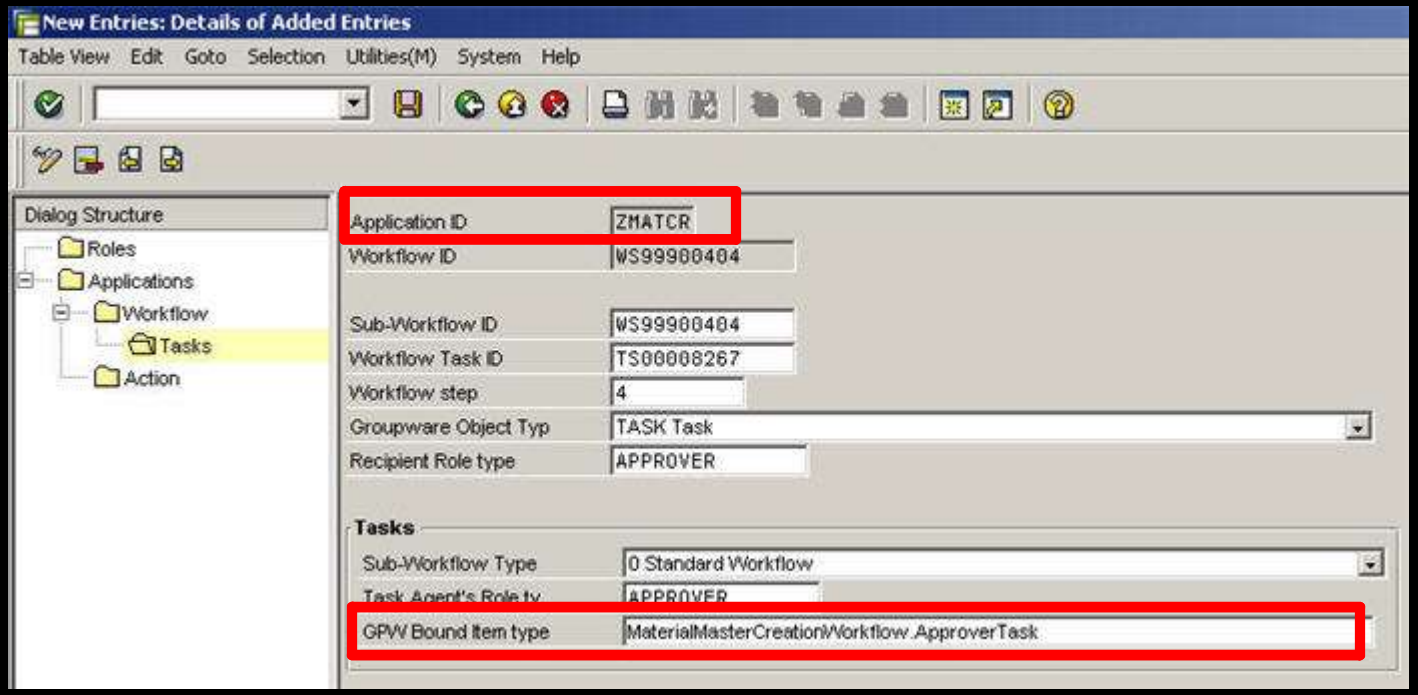
No rebuilding of the SAP System / UI if not necessary

Open and extensible concepts on Notes Side – so Notes developer can add functionality

Quick Guide to Expose Workflow Decisions in Alloy

	~15 Min.	~5 Min.	~10 Min.	
	Step 1	Step 2	Step 3	Opt: Step 4
	Configure SAP Backend	Configure IBM Lotus Domino Server	Configure SAP Alloy Add-on	Magnify Decision UI
 SAP Business Workflow	IMG and Custom Handlers	Configure IBM Lotus Domino Server with the application id and bound type created in step 2	The IBM Lotus Domino configuration generates a user role on SAP Alloy Add-on. Assign user to this role.	Magnify and enrich the decision UI with additional information in the decision body and the Alloy sidebar
 SAP Backend		IBM Lotus Domino Server	 SAP Alloy Add-on	 IBM Lotus Domino Designer

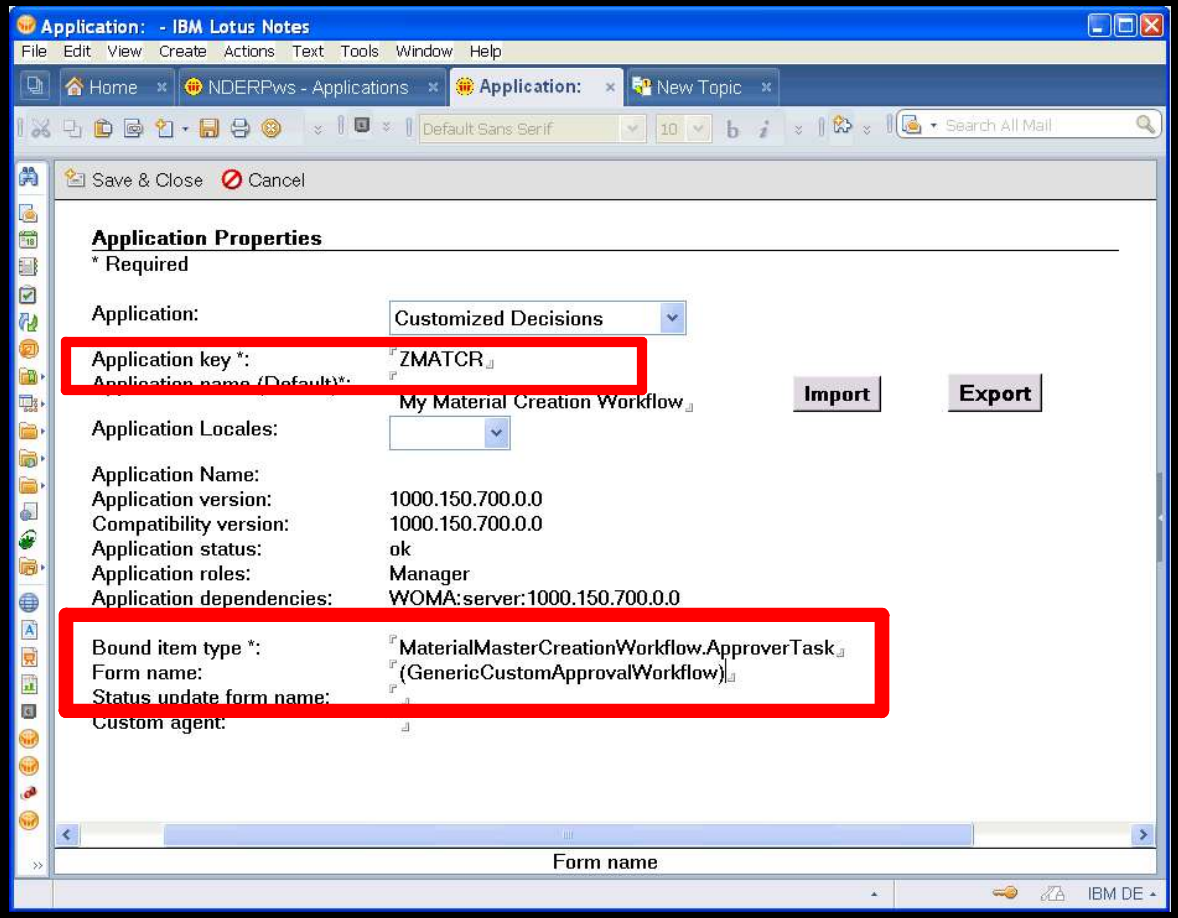
Configure Workflow to use Alloy



Configuration of the WF Details is performed and the BoundItemType added

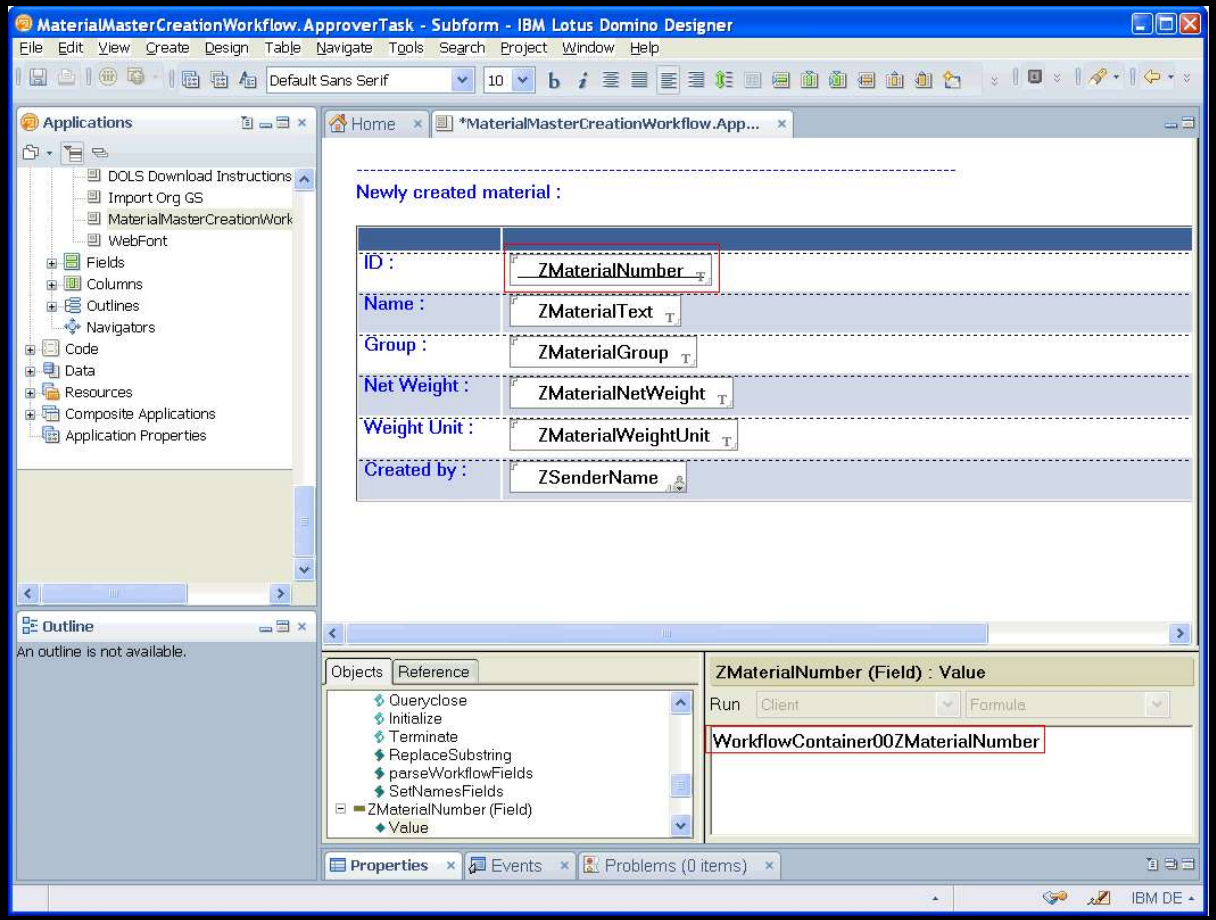
Register Workflow on Lotus side

The registration is done in the NDERPWS.nsf Application by mapping to the Application Key and the BoundItemType (Maps to definition in the SAP System



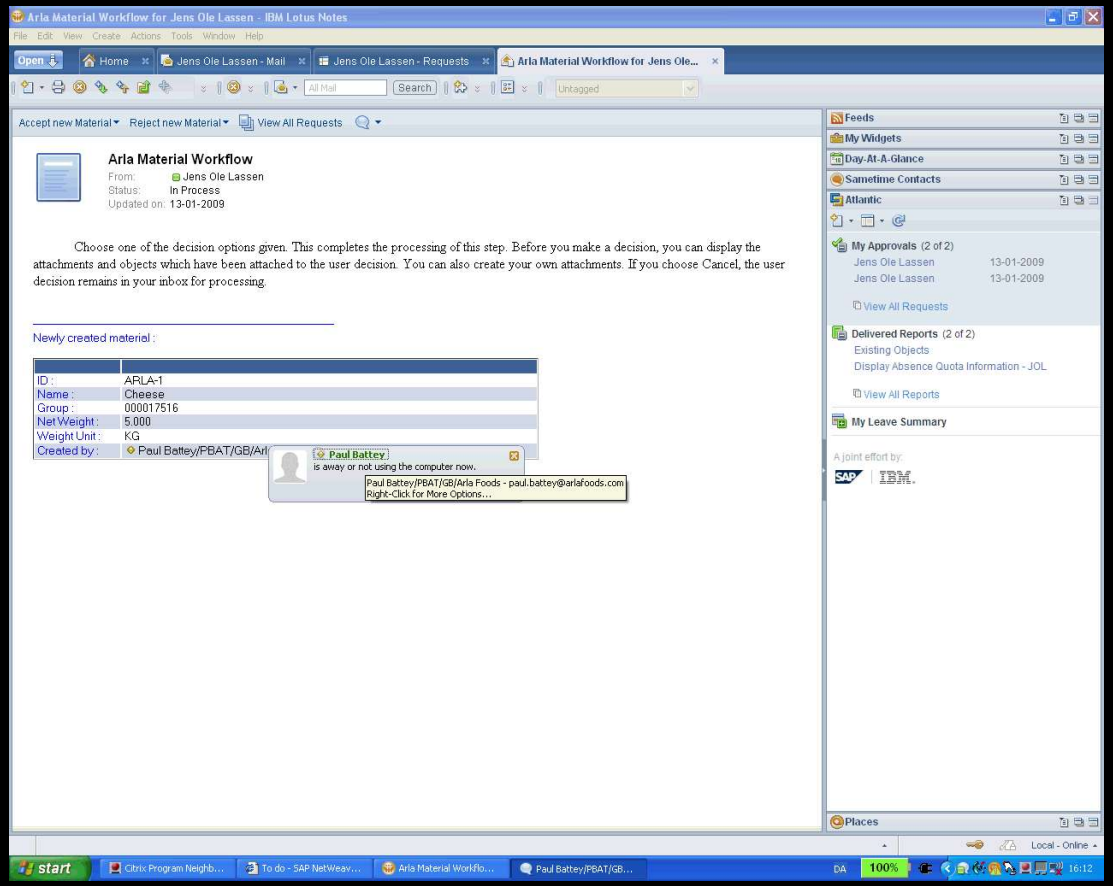
Generate Elements for Alloy in Notes

And the field names as they are coming from SAP and appear in the Notes Document. The Fields should be set to computed to prevent editing

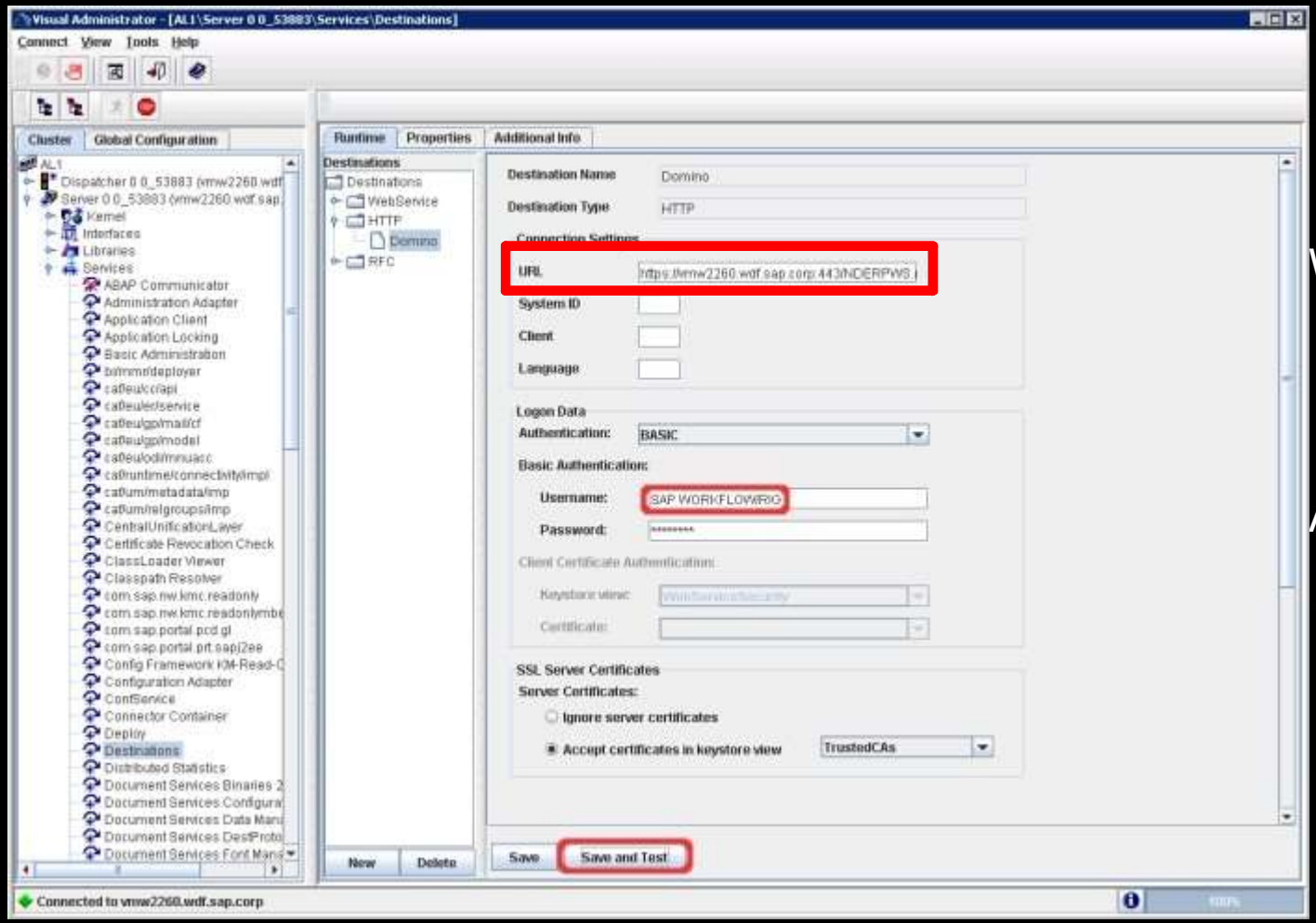


The SAP approval Item is available in Lotus Notes

This is how the result in Notes will look like – therefore the WF needs to be registered in Lotus Notes



Administration SAP Side: Server



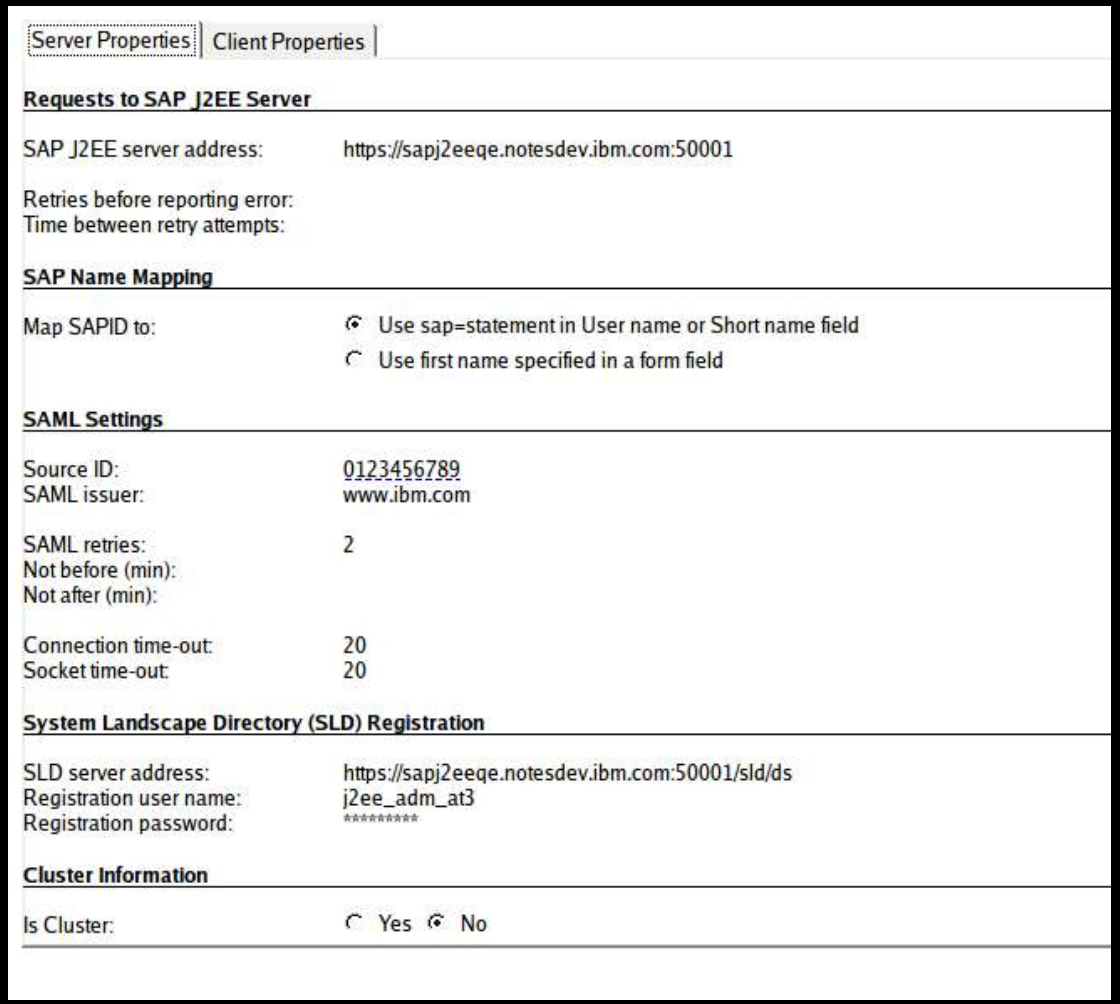
WS Endpoint in Domino

Admin user name for Requests (inbound for Domino)

Administration Lotus Side: Server

- Alloy extends the standard mail8.ntf with a set of additional DesignElements
  - Reason for 8.02 is beyond performance the fact that the 8.02 mail template already holds Alloy Design elements – so nothing is overwritten
- Role out of the Alloy Design is very easy and done via designer task
- Other tasks are normal Domino Admin tasks
  - Sign Design Elements
  - Setup of Alloy Databases / Deployment of jar Files
  - Setup the username mapping for the SSO
    - Tivoli Directory Integrator can help

Administration Lotus Side: Server



SAP J2ee Server Address

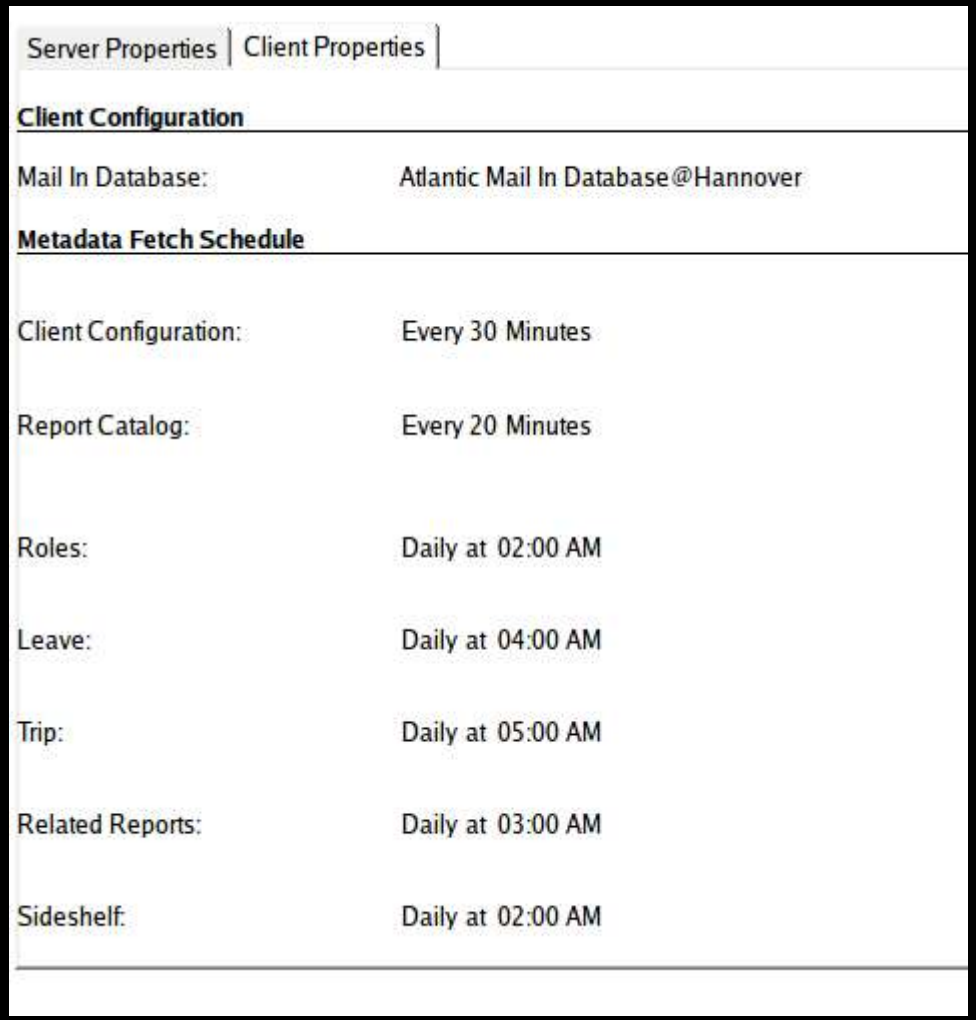
SAML User Mapping

SAML Security Settings

SLD Registration

Clustering (targeted SP1)

Administration Lotus Side: Server



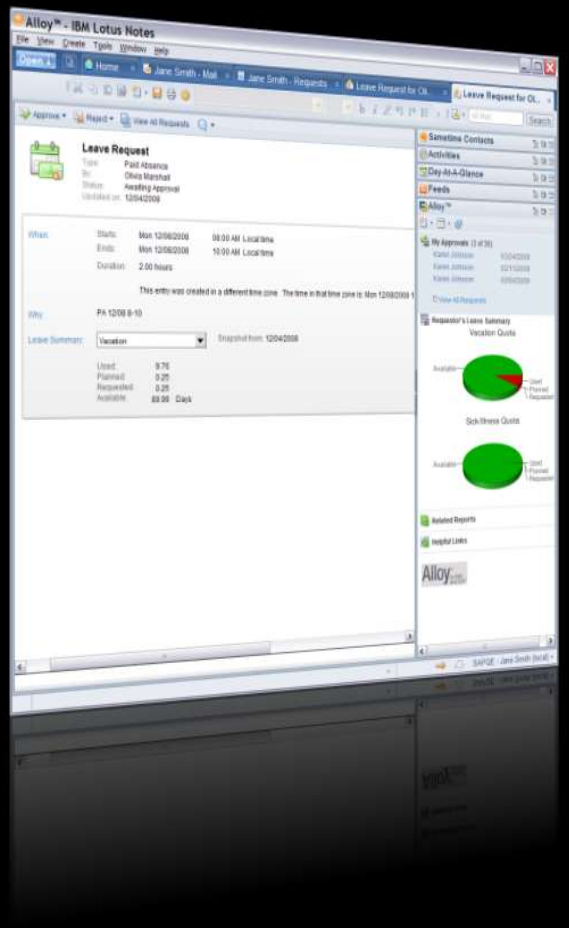
Mail-In Database Name

Metadata Sync schedule

Administration Lotus Side: Client

- Deployment of Alloy on the Client is very easy
- Sidebar component needs to be installed
  - Either through
    - SW rollout
    - Update Site
    - Widget Catalog
  - The Sidebar creates the Metadata NSF and initiates the sync for the initial use of Alloy
- Mailfile changes come down on the Client through Replication
- Client holds 2 Notes ini parameters in Alloy 1.0 that need to be set
  - Client side Communication endpoints
    - $NDERPMDWS_URL *[URL for Metadata Sync]*
    - $NDERPMID [Mail-In DB for Requests]
  - Management per Domino Policies

Customizing: Adding Charts to the sidebar



As the Sidebar Widget is simply constructed out of HTML fragments

In this example

- Google Charts are added to display Business Data
- HTML fragments are stored in Metadata repository
- A simple Notes Agent overrides the HTML Data and constructs the HTML code to embed the charts. Data is read from the Notes Document
- In general any data from the workflow container is available either as Notes field or in a base64 encoded XML stream inside the Notes Document

Comparison of Alloy and Duet

Feature	Duet	Alloy	NaSs
Mission Statement	One size fits all	integration foundation that keeps the balance between out of the Box content and reusabel patterns	Notes based solution
Architecture	Duet Server, consisting of WebAs and MS Server	Alloy relies on WebAS and Domino Server. No new Server developed	Notes Server only, no WebAS
Scenarios	10 announced, not all delivered yet http://www.duet.com/about/features/index.aspx	3 main scenarios: Leave Management, Trip Management, Reporting and Analytics	7 basic scenarios
extensibility	None – scenarios can't be customized nor extended	Open foundation, Workflow is a generic pattern that allows any decision step from Business workflow to be exposed to Notes (done via Abap Workbench / Domino Designer)	via Lotus Script / domino Development
ERP supported	ERP 2005	ERP6 SPS17	R/3 4.6 and 4.7
BI Supported	3.5 and 7	3.5 and 7	none
WebAS preReq	WebAS 6.40	WebAS 7	none
Client PreReqs	Office 2003 Enterprise Edition SP2, .net framework, SQL Server	Notes 8.02	Notes 7.02
other Server preReqs	SQL Server 2003, Exchange 2003, Active Directory	none	none

Reference materials

- On the Internet
  - http://www-01.ibm.com/software/lotus/products/alloy/ - on IBM.com
  - http://www.sap.com/solutions/alloy/index.epx – on SAP.com
- Documentation and Forums
  - IBM wikiA
  - SAP SDN – search on Alloy

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