



# Duet Implementation Best Practices

## Whitepaper

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## **Executive Summary**

By using Duet Software, companies can easily and quickly access SAP business processes and data via their familiar Microsoft Office environment. Duet allows customers to leverage their existing Microsoft / SAP infrastructure, providing the Microsoft Office user with an intuitive interface to access and interact with business processes such as: Budget Monitoring, Leave Management, Time Management and Organization Management.

Duet™ is the result of a groundbreaking collaboration between SAP and Microsoft. It is designed to revolutionize how Information Workers interact with enterprise applications. Duet software brings together the worlds of business productivity applications and enterprise applications. It assists in not only improving the way the customer conducts business on a day-to-day basis, but allows customers to access disparate business processes exposed via SAP's Enterprise Services Architecture.

In this whitepaper we will describe the various components that make up a Duet environment, a proposed landscape, as well as scalability and high availability options surrounding Duet. In order to assist customers in planning the deployment of Duet, a sample implementation timeline is provided with discussions on resource requirements, available training and best practices taken from early Duet customer implementations.

## Introduction

Early Duet implementations have proven to be straightforward allowing customers to leverage existing Microsoft and SAP investments already in place. The path to a successful Duet implementation requires an understanding of the underlying Microsoft and SAP components involved, along with a clear picture of the implementation process and pre-requisites.

## Architecting a Duet Environment

Providing a highly available and scalable solution is required for Duet's business critical processes. This is accomplished by understanding the components that make up the Duet architecture and how data is exchanged between Microsoft and SAP technologies.

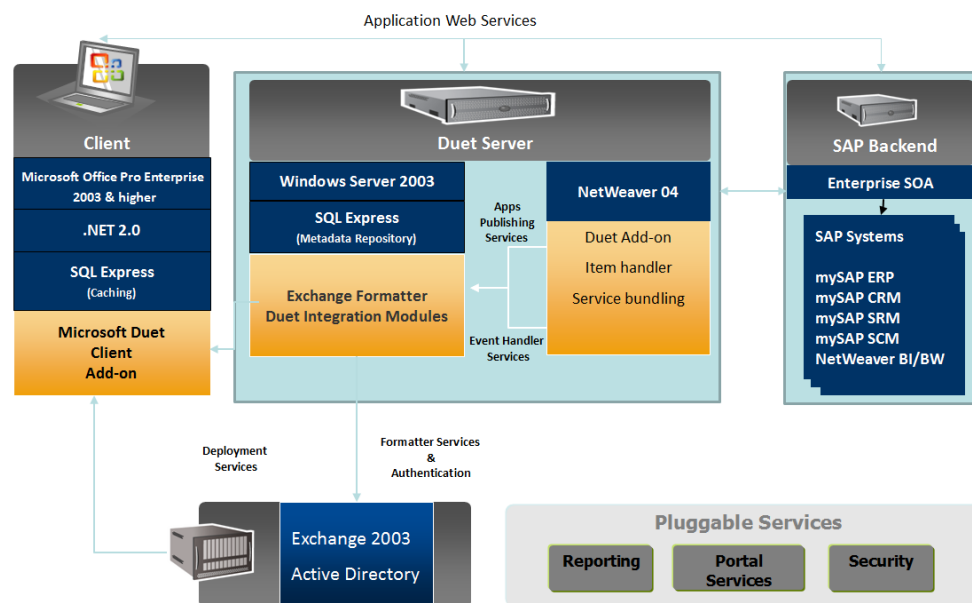
### Duet Architecture and Landscape

The basic Duet architecture consists of three core components that a customer should deploy for a basic implementation. These are: the Duet Client, Duet Server and mySAP ERP backend.

The Duet Client is the presentation layer of the architecture. The Duet Server provides: the necessary authentication mechanism, the metadata defining available ESA web services for each scenario, the Exchange Server interface, and the Active Directory-to-SAP user mapping. SAP is the line of business system from which the customer retrieves their business critical data. Additional functionality can be introduced using optional pluggable services such as customizable links to a corporate portal (SAP Enterprise Portal or Microsoft Office SharePoint Server) and an alternative or complimentary reporting solution (SAP Business Intelligence).

### Minimal Duet Landscape

The minimal landscape configuration recommended for a Duet deployment combines both Microsoft IIS (Internet Information Server) services and SAP J2EE components onto a single standalone Duet Server. This is a typical configuration for Development and Quality Assurance based on best practices.



## Production Duet Landscape

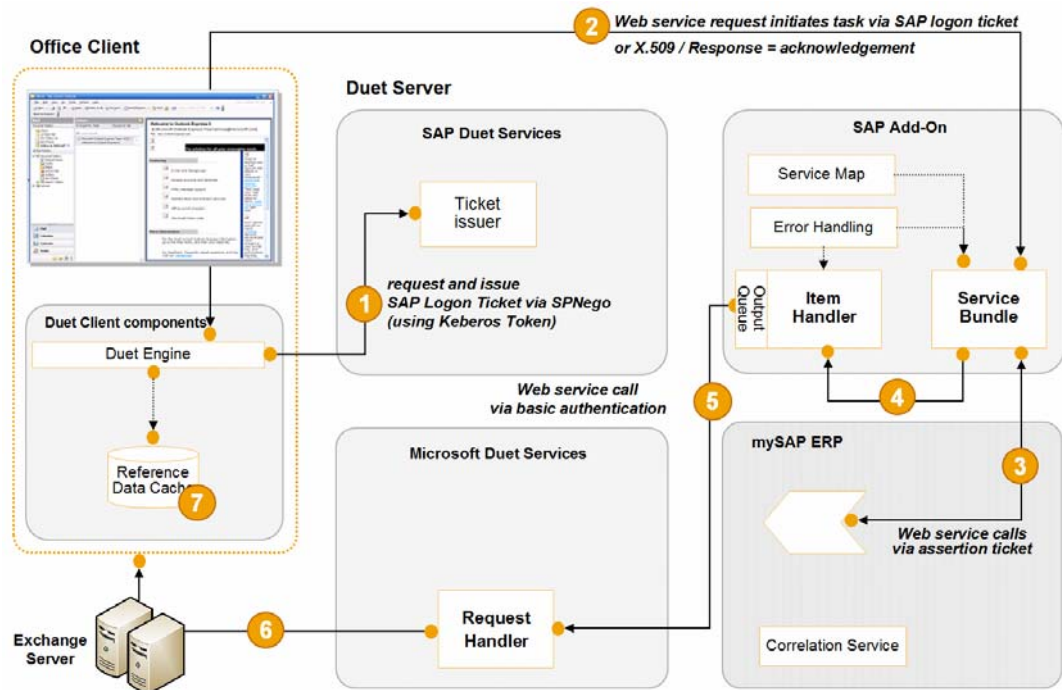
When implementing Duet in a Production environment, reliability and scalability are key concerns. The Duet architecture provides the flexibility to separate Microsoft and SAP components, allowing customers to scale each independently based on required workload. Based on best practices, it is recommended that the individual deployment of these components on separate platforms for production implementations.

As an example, the Duet Microsoft components can be deployed into a customers' existing IIS environment, using an existing SQL Server database to store the Duet Metadata. In addition, SAP's Duet J2EE components can be installed onto a NetWeaver Java Web Application Server without affecting the backend ERP ABAP system.

## Communication Flow

Providing a Single Sign-on experience for access to the backend SAP business processes, the Duet client is authenticated by the Duet Server using Windows authentication mechanisms (e.g. Active Directory, Kerberos, etc.) Once authenticated, the Duet Server uses the SAP NetWeaver infrastructure to provide the Duet client with a logon ticket. The Duet Client can then communicate directly with the backend SAP system, using a web service call to the Service Bundle, fulfilling the client request (e.g. submit a leave request).

When data needs to be transferred to the client, the backend SAP system communicates with the Exchange Server using the Request Handler on the Duet Server (e.g. manager receives an approve / reject email for employee's leave request).



## Scalability and High Availability Considerations

The Duet Server can be broken out into multiple configurations for scalability and high availability. Because standard Microsoft and SAP technologies are used in a Duet environment, existing scalability methodologies can be implemented to improve performance. For example, to scale the Microsoft IIS services on the Duet Server, an industry standard load balancer can be used. The SAP Java components can be scaled by following general SAP practices used for a NetWeaver Java Web Application Server.

Similarly, standard high availability options can be used to provide increased reliability throughout the Duet landscape. For example, SAP Central Instance and database redundancy can be accomplished using operating system cluster solutions.

	Microsoft Duet Components (IIS)	Duet Server Add-on (NW Web AS Java)	Duet Java Add-on (NW Web AS Java)	mySAP ERP (NW Web AS ABAP)
<b>Scalability</b>	<ul style="list-style-type: none"> <li>Windows Load Balancing</li> <li>F5 Networks</li> </ul>	<ul style="list-style-type: none"> <li>Add clustered J2EE nodes</li> </ul>	<ul style="list-style-type: none"> <li>Add clustered J2EE nodes</li> </ul>	<ul style="list-style-type: none"> <li>Add Dialog Instances (App Servers)</li> </ul>
<b>High Availability</b>	<ul style="list-style-type: none"> <li>MSCS</li> </ul>	<ul style="list-style-type: none"> <li>Clustering</li> </ul>	<ul style="list-style-type: none"> <li>Clustering</li> </ul>	<ul style="list-style-type: none"> <li>Clustering</li> </ul>

For more information on scalability and high availability solutions for a Duet environment, please refer to the ***Duet for Microsoft Office and SAP: SAP Operations Guide***, found on the SAP Service Marketplace at <http://service.sap.com/instguides>.

## How to get started

Information surrounding the preparation for Duet projects has been gathered from Microsoft, SAP and implementation partners around the world. This information is provided to further simplify the deployment of Duet into current Microsoft / SAP environments. Customers can increase the ease of implementation by first determining what areas will be impacted by the project what resources are needed and how long an implementation will take.

## Resource Requirements

Based on best practices, customers who are in the project preparation phase should begin their Duet project by gathering the necessary resources. This will help manage their expectations and help them understand how they will contribute to the implementation. As with most projects, an Executive Sponsor to champion the project is recommended. This can help secure funding, as well as provide a way to escalate problems during the project. Assigning a Project Manager will also help keep the project on track.

The recommended functional and technical resources required should be brought together at the beginning of the Duet project. This helps guarantee that assistance or configuration in specific areas can be easily requested. Following are the recommended resources for the project:

### **Business Expert(s)** - mySAP ERP for FI/CO, HCM, Workflow, CATS

Having someone on the project who can provide the functional (business configuration) expertise is key. Involve someone with experience configuring HR (with ESS/MSS) for the Time Management, Leave Management and Organizational Management scenarios. Experience with the Finance and Controlling modules of SAP are needed for the Budget Monitoring scenario. With existing implementations where Duet is simply an add-on, the business configuration will typically be in place if already using ESS/MSS. This person is a part time resource.

**NetWeaver Expert(s)** - Web AS JAVA systems experts. J2EE installation, Security Technical Basis skills with both ABAP and the J2EE Engine are required. The Duet implementation includes security configuration based on the NetWeaver Java Web Application Server, with configuration of trusted systems, Active Directory connected User Management Engine (UME), Kerberos for encrypted authentication, and ABAP technical configuration. This person is a full time resource.

### **Technical Expert(s)** - Microsoft Products

Resources with expertise with various Microsoft components are required. Some examples of these skills include Microsoft Active Directory for user management, Internet Information Server (IIS) to manage the Microsoft Services installed on the Duet Server, and System Management Server (SMS) for automated client deployment. Additional required skills can include familiarity with Microsoft Office, Microsoft Exchange Server, Domain Administration, and SQL Server. This person is a part time resource.

If possible, include someone on the project with experience implementing Duet to make your implementation efficient and effective. Microsoft and SAP have been training their Professional Services organizations as well as Partners on Duet from the early stages of the product. If the recommended resources are not internally available, these should be acquired using an implementation partner with experience implementing Duet. Various implementation partners have participated in the early preview program

## Project Planning

The project planning phase for deploying Duet will vary from customer to customer. The following project plan is an estimate based on early Duet implementations performed by Microsoft and SAP. The proposed timeline assumes the customer has the prerequisites for: mySAP ERP, SAP NetWeaver Web Application Server Java, Microsoft Exchange Server and appropriately sized hardware for Duet components.

As illustrated below, implementing Duet in a development environment or as a proof-of-concept can be accomplished in approximately 11 days. This project plan assumes a single scenario implementation in a Development, Quality Assurance and Production environment with the required resources and related SAP backend configuration in place.

	Task Name	Duration	Start	Finish	Predece
1	[-] Duet 1.0 - 3-System Landscape	48 days	Fri 6/23/06	Thu 8/31/06	
2	[-] Project Preparation	4 days	Fri 6/23/06	Wed 6/28/06	
8	[-] Blueprint	2 days	Thu 6/29/06	Fri 6/30/06	
9	Design Budget Reporting Scenario	2 days	Thu 6/29/06	Fri 6/30/06	7
10	Blueprint Complete	0 days	Fri 6/30/06	Fri 6/30/06	9
11	[-] Realization	31 days	Wed 7/5/06	Wed 8/16/06	
12	[-] DEV Environment	11 days	Wed 7/5/06	Wed 7/19/06	
13	Install Duet Server	3 days	Wed 7/5/06	Fri 7/7/06	10
14	Install Java Add-on	2 days	Mon 7/10/06	Tue 7/11/06	13
15	Apply backend Support Packages	2 days	Mon 7/10/06	Tue 7/11/06	14SS
16	Create and test client installation package	1 day	Wed 7/12/06	Wed 7/12/06	15
17	Configure Security	1 day	Thu 7/13/06	Thu 7/13/06	16
18	Configure Time Management	1 day	Fri 7/14/06	Fri 7/14/06	17
19	Configure scenario related jobs and number ranges in backend	1 day	Mon 7/17/06	Mon 7/17/06	18
20	Unit Test Time Recording	2 days	Tue 7/18/06	Wed 7/19/06	19
21	DEV Environment Complete	0 days	Wed 7/19/06	Wed 7/19/06	20
22	[-] QAS Environment	11 days	Thu 7/20/06	Thu 8/3/06	21
23	Install Duet Server	3 days	Thu 7/20/06	Mon 7/24/06	
24	Install Java Add-on	2 days	Tue 7/25/06	Wed 7/26/06	23
25	Apply backend Support Packages	2 days	Tue 7/25/06	Wed 7/26/06	24SS
26	Create and test client installation package	1 day	Thu 7/27/06	Thu 7/27/06	25
27	Configure Security	1 day	Fri 7/28/06	Fri 7/28/06	26
28	Verify transports	1 day	Mon 7/31/06	Mon 7/31/06	27
29	Configure scenario related jobs and number ranges in backend	1 day	Tue 8/1/06	Tue 8/1/06	28
30	Module Integration Test Time Recording	2 days	Wed 8/2/06	Thu 8/3/06	29
31	QAS Environment Complete	0 days	Thu 8/3/06	Thu 8/3/06	30
32	[-] PRD Environment	9 days	Fri 8/4/06	Wed 8/16/06	
41	[-] Final Preparation	7 days	Thu 8/17/06	Fri 8/25/06	
42	[-] PRD Environment	7 days	Thu 8/17/06	Fri 8/25/06	
43	Verify transports and configuration	1 day	Thu 8/17/06	Thu 8/17/06	40
44	Pilot group client deployment	1 day	Fri 8/18/06	Fri 8/18/06	43
45	Fix Issues	5 days	Mon 8/21/06	Fri 8/25/06	44
46	Final Preparation Complete	0 days	Fri 8/25/06	Fri 8/25/06	45
47	[-] Go-live & Support	4 days	Fri 8/25/06	Thu 8/31/06	

## Technical Training

Since Duet reuses existing investments taken from your current Microsoft and SAP environment, technical training of the resources involved while implementing Duet should focus on the Duet configuration itself. Online learning maps are available on the SAP Service Marketplace with Duet training classes being delivered by both Microsoft and SAP. Additional information and education material is located at <http://service.sap.com/education>.

An alternative method of training can include implementing a small test environment which can help with hands-on education. Duet installation and configuration guides are available on the SAP Service Marketplace: <http://service.sap.com/instguides> → xApps → Duet.

## Best Practices and Lessons Learned

The following best practices and lessons learned come from Microsoft and SAP's involvement in early implementations. This guidance is provided to ensure successful installations while implementing each Duet scenario.

- **Gather all project team members together at the beginning of the project** - This will allow for the customer to have all the right resources dedicated to the project from the beginning. It will also set expectations as to how the resources will be utilized and how their area of expertise is impacted by the project. Project team members should attend Duet training courses before installing Duet. Information regarding Duet training and the online learning maps can be found on the SAP Service Marketplace at <http://service.sap.com/education>.
- **Meet all hardware and software prerequisites before deploying Duet components** - Use the Check Tool for SAP Duet ABAP to analyze the SAP system and verify the required ABAP components exist (program attached to SAP Note #946455, found at <http://service.sap.com/notes>).
- **Gather all required documentation** - Download the Duet for Microsoft Office and SAP - SAP Master Guide (<http://service.sap.com/instguides> → xApps → Duet). In addition, view the SAP Duet Central Note before starting the implementation. This document will provide details on support package levels and add-ons required. The SAP Duet Central Note will also provide links to all version specific related notes, which can assist in troubleshooting. SAP Notes can be downloaded from the SAP Service Marketplace at <http://service.sap.com/notes>.
- **Configure Backend Business Processes before installing Duet** - Since Duet simply provides a new user interface for existing business processes, the functional business configuration in the SAP system should be completed before implementing Duet scenarios. Customers should implement Duet based on the scenarios already configured in the SAP backend systems.
- **Increase Duet Logging when troubleshooting** - During the installation of the Duet Server, Duet Add-On, Duet Client and Business Applications, customers should regularly review the J2EE Log Viewer provided with the SAP Web Application Server Java installation. The standard log configuration does not provide information regarding all errors. However, the J2EE event log can be configured to view all errors by making modifications to specific settings in the Log Configurator found in the J2EE Visual Administration tool. Additional information can be found in the developer trace files of the ABAP system
- **Reporting Scenario Might Require a Larger Mailbox** - Because the reporting scenario allows for real-time and scheduled reporting from a backend mySAP ERP or mySAP Business Intelligence system, larger Exchange mailboxes for Report Management users should be considered. Report templates can be configured with default criteria by the Duet administrator to minimize the possibility of large reports.
- **Administration and Performance Considerations** - Deploying all Duet components in the same physical location can facilitate administration (e.g. adding new roles and scenarios) of the Duet environment and can help avoid performance issues.
- **Start with a small pilot program** - Starting with a small implementation helps quickly show the interdependencies between the various systems (ABAP, J2EE, Internet Information Server, SQL Server, Exchange Server, Active Directory and the Microsoft

Office client) and can facilitate the architecture of a larger rollout based on the differences specific to your environment.

- **Document your system landscape** - Because of the various servers, services and tools used during a Duet implementation, it is important to document system hostnames, locations, IP addresses, operating system accounts, J2EE passwords, Visual Administrator accounts, SDM (Software Deployment Manager) passwords, SAP Agent accounts, SAP backend ABAP accounts, etc.

## **Conclusion**

Implementing Duet takes an understanding of the various components involved and advance project preparation. Knowing what to avoid is sometimes as important as knowing what to do! From the experiences of early Duet implementations, best practices have been developed and delivered to customers to ensure ease of deployment. These best practices assist customers in moving from the implementation phase to quickly enjoying the Duet experience. Microsoft and SAP continue to jointly develop, deliver and support best-practices for global deployments of Duet.

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