A Roadmap for Deploying and Managing SAP with Citrix

FEATURING BEST PRACTICES AT SAP AG AND CITRIX SYSTEMS, INC.

Implementation of SAP Enterprise Resource Planning software is designed to improve business processes, decision-making and competitive advantage by providing real-time visibility across the enterprise. Before an organization can begin to benefit from SAP, it must complete the implementation and deploy the solution to the end-user community. Obtaining the optimal value from this investment over its lifetime demands a highly effective approach to application management and support.
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To simplify and accelerate SAP implementation, provide the broadest and most secure access, and expedite ongoing administration, many organizations — including SAP AG itself — use Citrix access infrastructure. The Citrix® MetaFrame® Access Suite allows applications to be centrally installed, deployed and managed on central servers and securely deployed over any network, including the Internet, to users on any client device. Citrix helps ensure a consistent, personalized experience for SAP users, while lowering administrative costs.

This white paper will describe how SAP AG and Citrix, along with many other SAP customers, are using the MetaFrame Access Suite as the best solution for speeding application deployment, simplifying user access and streamlining ongoing management.

Optimizing SAP Implementation, Deployment and Management

When investing in any new application, especially a robust solution like SAP, customers today are looking at ROI. Executives expect IT expenditures to deliver rapid returns in the form of greater productivity, efficiency, and competitive advantage. There are a number of factors that contribute to optimal returns:

- **Fast deployment** so employees can quickly begin using the new application and take advantage of increased productivity, improved customer service, etc.
- **Broad access** so users across the enterprise can benefit from the application
- Security features to enable **protected access** from a wide range of networks and devices
- **Efficient deployment, upgrades and support** to keep the application updated and available without overloading IT staff
- **Cost control** to raise overall ROI

The traditional client/server implementation model fails to meet many of these criteria. The need to install and configure software on each desktop or mobile device can be a huge task, especially in large, global organizations. This typically means long lead times in completing the rollout of an application. Once the implementation is completed, organizations still face the high costs and extensive time required to visit each desktop for upgrades and support.

Another drawback to client/server architecture is incompatibility between applications and client platforms. Often, devices must be upgraded or replaced to match the operating system or accommodate the memory requirements of a powerful, new application like the SAPGUI. Furthermore, such applications often require substantial additional bandwidth, which can create performance issues for remote and mobile workers trying to connect over constrained networks.

Finally, there is the security aspect. Today more than ever, data security is critical. When applications run in client/server architectures, there is a risk of having data intercepted over the network or physically stolen along with a user’s laptop or PDA. If organizations want to deploy applications over the Internet to reduce costs, they must invest in a Virtual Private Network or other system to ensure data security. They must also rewrite the application for Web deployment if it is not already a Web-based solution.
Overview of the Citrix MetaFrame Access Suite

Many organizations are migrating from traditional client/server architectures to a Web-based access infrastructure to address the above issues. Citrix Systems, Inc., the global leader in access infrastructure solutions, offers a model that solves many of the drawbacks of client/server application deployment while taking advantage of the move to the Web. Citrix delivers measurable returns and lower IT costs to customers. In addition, Citrix access infrastructure enables the deployment and management of Web-based applications, offering secure, high-performance access to the full functionality of the application.

THE CITRIX ACCESS INFRASTRUCTURE MODEL

The Citrix model centralizes the installation, processing, deployment and administration of applications on servers, and makes them accessible to users over any network connection, on any device. Users view and work with the graphical interface as if the application were running locally. Keystrokes and mouse clicks are transmitted from the client device to the server, which returns screen refreshes. While local resources like hard disks, printer or COM ports are mapped, the application executes 100 percent on the server; therefore the client device’s platform, capabilities, brand and age become irrelevant — for example, a UNIX® workstation can be used to access a Windows® application, and an older PC can access the latest software.

DEPLOYMENT AND MANAGEMENT BENEFITS

The primary benefits offered by a Citrix access infrastructure solution in deploying and managing applications, such as the SAPGUI, are:

- **Faster deployment:** Instead of having to install and configure software on each device, the application is implemented on the server or server farm. This dramatically shortens deployment time and cuts IT costs. And it enables users to benefit more quickly from the new solution.

- **Efficient, centralized administration and support:** Application upgrades and maintenance can be performed on the server, reducing IT administration costs. The session shadowing feature of Citrix MetaFrame Presentation Server software allows administrators to view or take over a user session in real time, for troubleshooting or training.

- **Predictable bandwidth** requirements: Only minimal data is transmitted between client and server, so organizations gain higher application performance without the need to invest in additional bandwidth. Predictable bandwidth reduces the need to adjust the lines when new applications will be used or old ones are upgraded.

- **Extended life** of existing devices: Older devices can continue to be used, and operating platforms do not have to match. In addition, Citrix supports inexpensive thin devices, as well as the latest wireless and handheld client hardware.

- **Security:** The Citrix model offers the intrinsic security of centralized application data — only keystrokes, mouse clicks and screen updates actually traverse the network. To safeguard this minimal data, Citrix provides standards-based encryption, access control and authorization.
The aforementioned benefits extend even to Web-based technologies such as Microsoft® .NET and Java™.

**PORTAL DEPLOYMENT BENEFITS**

For SAPGUI customers who plan to deploy the application via a portal, Citrix offers additional advantages. Citrix enables non-Web-based applications, such as the Windows version of SAPGUI, to be instantly Web-enabled and published via a portal interface. Users therefore have access to full-featured and functional application UIs across the Web without the need for costly recoding. This capability speeds deployment time and saves significant time and expense. For organizations that wish to allow users to connect over the Internet, Citrix provides secure access to applications without the need for a Virtual Private Network — saving money and eliminating the complexity of installing and maintaining client-side software.

Citrix also enables SAPGUI customers to centrally implement and manage their Web browser software on the server instead of the desktop for easier administration and high performance over bandwidth-constrained networks. Centralized browser management enables administrators to prevent user downloads into the browser that could negatively impact other applications. It also ensures that all users are running the same version of the browser software.

**COMPONENTS OF THE SUITE**

The Citrix MetaFrame Access Suite, founded on MetaFrame XP™ Presentation Server software, is a suite of integrated products that enable on-demand access to applications and other enterprise resources. The products comprising the suite are:

- **Citrix MetaFrame XP™ Presentation Server:** The world’s most widely deployed presentation server, certified to run on Windows 2000 and 2003 Servers and supporting virtually any custom or commercially packaged Windows application.
- **Citrix MetaFrame Presentation Server for UNIX:** Provides users with secure access to UNIX® and Java applications, supporting Sun® Solaris®, HP-UX® and IBM AIX® platforms.
- **Citrix MetaFrame Secure Access Manager:** Offers the most cost-effective way to provide secure, personalized access over the Web to applications and information.
- **Citrix MetaFrame Conferencing Manager:** The only application conferencing product that enables people to simultaneously access, share and interact with information residing in a variety of applications.
- **Citrix MetaFrame Password Manager:** Provides single sign-on access to Windows, Web, proprietary and host-based applications running in the MetaFrame Access Suite environment.
Citrix and SAP Working Together

Citrix and SAP have been strong industry allies for a number of years:

- Citrix is a SAP Global Technology Partner and SAP is a Premier Plus member of the Citrix Business Alliance.
- Citrix has dedicated on-site support resources at SAP headquarters in Walldorf, Germany.
- Citrix has a global SAP Competence Center at SAP headquarters in Walldorf, Germany.
- SAP supports the deployment of SAPGUI on Citrix MetaFrame Presentation Server.
- SAP has selected MetaFrame Presentation Server to expand the application access capabilities of SAP Portal solutions.
- SAP AG has deployed 15,000 concurrent user licenses of Citrix MetaFrame XP Presentation Server to manage and deliver a wide array of applications to all its employees, while Citrix runs its global business on SAP.

SAP FAQ Acknowledges Positive Impact of Citrix Software

In 2003, SAP customers gave Citrix a Member’s Choice Top 25 Gold Star Award. In an online poll conducted by SAP FAQ, a 15,000-member online resource for more than 1,000 global organizations that use SAP collaborative business solutions, Citrix access infrastructure software was one of 25 offerings recognized as having the greatest positive impact on members’ SAP implementations over the previous year. In addition, the members of SAP FAQ indicated overwhelmingly that they would recommend Citrix software to colleagues.

Customer Profile: SAP AG

“Citrix MetaFrame has greatly improved our ability to rapidly deploy and effectively manage a broad range of applications to our employees, regardless of where they are located or which type of client device they are using.”

— Reiner Schmitt, project manager for Windows Terminal Server at SAP AG

SAP AG uses Citrix MetaFrame Presentation Server software to centrally manage their SAPGUI, Business Warehouse, Microsoft Office, and other applications and rapidly deploy them to over 30,000 employees around the world. SAP chose Citrix as an improvement over its previous client/server architecture, which required “fat” PCs to run applications locally. The company’s current implementation encompasses 270 servers running MetaFrame Presentation Server software and Microsoft Windows 2000, Terminal Server in three datacenters. SAP publishes a desktop of applications, personalized by user or group, which is accessed via the portal interface over dial-up or the Internet. Users have the option to log in from home to access their applications.
CITRIX IN ACTION

One example of the Citrix model in execution at SAP is the Global Customer Development Services (GCDS) organization, which designs custom solutions for SAP customers. GCDS implemented Citrix MetaFrame Presentation Server software to help members of its virtual teams — located in Germany, India, Japan and the U.S. — work on project files, data and other information by remotely accessing half-a-dozen applications running on Citrix servers in Walldorf, Germany.

Prior to the Citrix implementation, these applications were installed on each user’s PC and caused serious desktop support, performance and administrative challenges. Thanks to the access infrastructure model, users enjoy faster application performance — even over low-bandwidth networks — and easier collaboration through access to the same applications, files and documents. At the same time, Citrix streamlined application administration and reduced support and maintenance costs.

BENEFITS TO SAP AG

From both business and IT standpoints, the use of Citrix MetaFrame XP Presentation Server software to provide internal access to applications has delivered measurable benefits to SAP. These include up to 40 percent cost savings over “fat” PCs and up to 35 percent increase in application performance.

• **Rapid application deployment:** Applications are quickly installed on the server and made available to all users immediately, saving weeks or months of delay. There is no longer any downtime from installing software or upgrades on the desktop.

• **Consistent user experience:** Each user accesses his/her own personalized desktop of applications, regardless of network connection or device. Performance is optimized, even for remote and mobile users. Employees can connect from home using their personal devices. And for the technical support, all users need to do is request shadowing by administrators in the data center.

• **High performance:** Citrix increases application performance by reducing the network load. Only about 20 Kbps of bandwidth is required for access.

• **Extended device life:** Existing PCs can be used for a longer period, because with Citrix server-based application processing, every device becomes a thin client that is simply used to view the application.

• **Security over the Internet:** The secure gateway feature of MetaFrame XP Presentation Server provides a high level of security over the Internet without the need for a VPN. This minimizes complexity and makes it easy to leverage the Internet for cost-effective access.
Customer Profile: Citrix Systems, Inc.

Citrix selected SAP’s ERP solution because it was the best enterprise-class software suite. Citrix runs its global business operations on SAP, deploying SAPGUI from MetaFrame XP Presentation Servers in its Fort Lauderdale, Florida headquarters via the Web to more than 1,700 employees worldwide. The company used the web interface feature of MetaFrame XP Presentation Server to instantly Web-enable the Windows version of SAPGUI. Along with approximately two dozen other enterprise applications, Web content and other resources, SAPGUI is published to Citrix employees through a Web-based access center provided by Citrix MetaFrame Secure Access Manager.

The company has achieved dramatic cost savings of more than $2.5 million per year from deploying SAPGUI on MetaFrame XP Presentation Server. These annual savings include $500,000 in lower bandwidth costs, $250,000 in lower support costs, and $400,000 in reduced administrative expenses.

Citrix developed a number of best practices for deployment of the SAPGUI using MetaFrame XP Presentation Server. Using these guidelines, organizations can actually complete a deployment in as few as 20 days.

**Citrix Best Practices for SAPGUI Deployment**

- Centralize your SAP implementation on Citrix MetaFrame Presentation Server software to save on resources, bandwidth, support, and administration.

Deploying the SAPGUI to the end-user community requires, at a minimum, a Pentium processor, 341MB of physical disk space, and 96MB of memory. Not every organization is prepared to update desktops to this level due to the IT resources, costs, and support fees that are required. By deploying SAPGUI on Citrix MetaFrame Presentation Servers instead of on each desktop, Citrix was able to have the initial fully functional UI running within 20 days, without the need to upgrade client devices or provide local installation and support.

Following initial deployment, Citrix MetaFrame Presentation Servers can simplify ongoing administration by
allowing server-based updates to SAPGUI. Approximately three to five SAPGUI updates are released each month. Some organizations invest in installation tools such as Microsoft Systems Management Server (SMS) to deploy these updates to clients. However, SMS requires another large implementation and does not always successfully update every user’s system. Before being able to launch the application, remote users can expect prolonged connection times and delays as large updates download. Additionally, users receive the updates at different times, resulting in ambiguous support calls and multiple version support issues. By deploying SAPGUI on MetaFrame Presentation Server, you avoid client interdependencies and failed SMS updates, and everyone gets the updates at once. If there is a problem with the UI, you have the expertise in one location to correct it for all users.

- Run your SAP Web applications (e.g. SAP Enterprise Portal) from an Internet Explorer browser published using MetaFrame Presentation Server software to save bandwidth and improve response time.

  SAP Web applications can be large — on average, these applications utilize 80-120 Kbps of bandwidth, although SAP’s newer compression technologies can lower these numbers to 60-90 Kbps. Citrix MetaFrame Presentation Server consistently provides bandwidth utilization between 5 and 25 Kbps, with first use figures less than 50Kbps. This can significantly reduce your network infrastructure costs by a factor of three or more. (Note: These results can vary based on the SAP module and individual network parameters. They are based on what Citrix’s internal IT department observed during SAP deployment and may differ by customer.)

  Additional benefits include reduced login times, improved responsiveness of the core SAP system, and improved responsiveness in the Web applications supporting SAP.

- Use the session shadowing feature of Citrix MetaFrame Presentation Server to reduce the costs and IT effort required to train your users.

  MetaFrame Presentation Server software allows administrators to remotely shadow a user session — observing the user’s screen or even taking over the session. This allows cost-effective training, troubleshooting and support from the server, instead of requiring visits to the desktop. The teacher mode allows multiple users to be trained at the same time, potentially across disparate geographic regions. Therefore, the shadow functionality alone could save your organization thousands of dollars a year in travel expenses.

- Implement the SAPGUI in Enjoy Mode.

  Users prefer the SAPGUI Enjoy Mode — the enhanced usability version of the product — to Terminal Services Mode, which utilizes fewer system resources, but is considered less rich and usable. A dual processor system (>800MHz) with 2GB RAM can support 40-45 users in Enjoy Mode or 55-70 in Terminal Services mode. Your users will thank you for choosing Enjoy Mode — in fact, they may demand it. Performance will differ based on the connected backend type. For example, the SAPGUI connected to SAP Business Warehouse will cause a higher load … but always use a pilot!

- Use SAP desktop shortcuts to take your users directly to their common transactions.

  SAPGUI allows users to create desktop shortcuts. These shortcuts save the SAP R/3 transaction code. Therefore,
users do not have to remember that ‘/npr05’ is how you access Travel and Expense Entry or that ‘/nsbwp’ is how you approve these requests. The complexities of transaction codes are hidden behind the simple shortcuts that can be published in any quantity to your user community in general, or to specific user groups.

• Utilize local printing when running SAPGUI on MetaFrame Presentation Server to allow users to print anywhere.

SAPGUI supports a feature called LOCAL printing (also known as ‘LOCL’ or “Frontend printing”), which allows users to print to their locally mapped printers. Therefore, when you’re in SAP and hit print, the printout appears on your previously defined printer. This method works, but can be slow at times since there is additional spooling that occurs through the print daemon and may consume additional bandwidth.

• Utilize SAP-defined printing to speed up large reports.

In order to improve speed and provide consistent print layouts, define an NT print queue within SAP. These SAP defined printers are able to print reports and other large jobs quickly and with a consistent layout, as they are mapped through SAP itself and made available through the SAPGUI.

• Set up SAP Business Warehouse (BW) on a separate Citrix MetaFrame Presentation Server farm, zone or dedicated servers to improve performance.

SAP BW requires very high bandwidth and additional system resources, as the majority of data is passed to the SAPGUI itself. Therefore, we recommend that Citrix customers install the SAP BW components of the GUI on a separate set of servers, as the load supported will be cut in half. So customers can expect 20-25 users for SAP BW.

• Utilize Citrix web interface technology within the SAP Enterprise Portal to deliver SAP and non-SAP applications running on MetaFrame Presentation Server via the Web.

Citrix and SAP are working together to add value to the SAP Enterprise Portal. It will allow you to deliver fully featured and functional UIs through the Citrix ICA® protocol across the Web. Therefore, any application, including Outlook®, terminal emulators, non-Web-enabled applications or SAPGUI, can be hosted within the SAP portal utilizing Citrix technology.
Additional Customers

In addition to SAP AG and Citrix, there are a number of large enterprises that are deploying SAPGUI using Citrix MetaFrame Presentation Server. Here are some examples: Balfours, Bertelsmann, Bull, Chevron, Dresdner Bank, Motts, Nestle, Porsche, Rubbermaid, Shell, UN World Food Program and Volkswagen.

Conclusion

Especially in today’s economic climate, major IT investments are expected to deliver rapid and measurable returns to the organization as a whole. Deploying and managing SAP solutions with Citrix software is a proven way to give all users across the enterprise fast, secure access to the new system so they can become more productive, improve decision-making and work easily from any location or infrastructure. In addition to speeding and streamlining access to SAP, Citrix delivers substantial cost savings in the areas of administration, support, bandwidth consumption, additional security solutions and new device hardware, allowing organizations to invest this capital in more strategic areas. By raising productivity while lowering costs, Citrix answers management’s requirement for significant ROI.

Citrix Access Infrastructure for the On-Demand Enterprise

Citrix Systems, Inc. (Nasdaq:CTXS) is the global leader in access infrastructure solutions. The most trusted name in enterprise access, the Citrix MetaFrame Access Suite enables people to easily and securely access the on-demand enterprise from anywhere, on any device or connection. Nearly 50 million people in more than 120,000 organizations around the world use Citrix every day. Based in Fort Lauderdale, Florida, Citrix has offices in 22 countries, employs 1,700 people worldwide, and has more than 5,000 channel partners.
About Citrix: Citrix Systems, Inc. (Nasdaq:CTXS) is the global leader in access infrastructure solutions. The most trusted name in enterprise access, the Citrix® MetaFrame® Access Suite enables people to easily and securely access the on-demand enterprise from anywhere, on any device or connection. Nearly 50 million people in more than 120,000 organizations around the world use Citrix every day. Based in Fort Lauderdale, Florida, Citrix has offices in 22 countries, employs 1,700 people worldwide, and has more than 5,000 channel partners.