



Session ID: UP204
SAP Netweaver
Application Server
with Integrated ITS



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Development Manager, SAP AG

- Introduction
- Architecture of integrated ITS
- Moving from standalone ITS to SAP Netweaver Application Server with integrated ITS
- Administrating integrated ITS
- Resource consumption, Performance & Sizing
- Outlook
- Summary

As a result of this presentation, you will be able to:

- **Understand the strategy of SAP regarding ITS**
- **Know the architecture of SAP Netweaver application server with integrated ITS**
- **Know how system administration of SAP integrated ITS works**
- **Move your IACs from ITS 6.20 to SAP integrated ITS**
- **Feel the value of SAP integrated ITS regarding your TCO**
- **Carry home up to date lifecycle information**
- **Know where to learn more, and get more information**

■ Introduction

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What is SAP Internet Transaction Server?

Extends the reach of SAP Systems into the Web

- **Maps SAP dynpro based screens to HTML**
- **Knows web transfer protocol HTTP(S) and web page description languages as well as SAP proprietary GUI protocol**

Drives transactions within the SAP System

- **Application Server sees just a SAP GUI**

Separation of Business Logic and Visual Appearance

Can be used with all SAP Releases from 3.11 up to the current releases

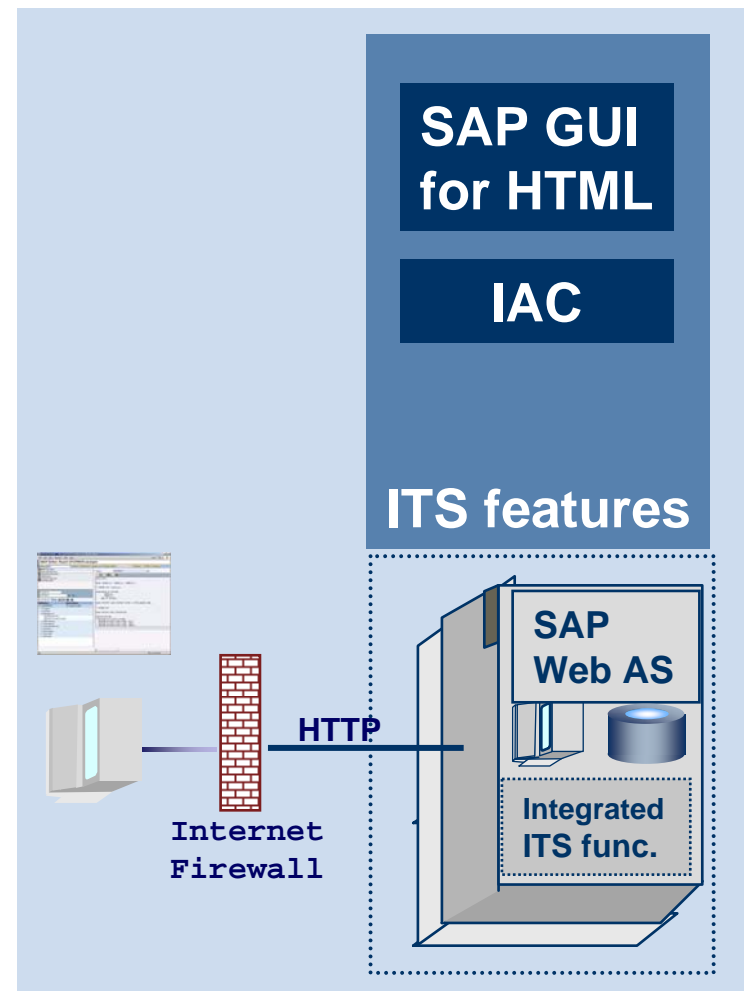
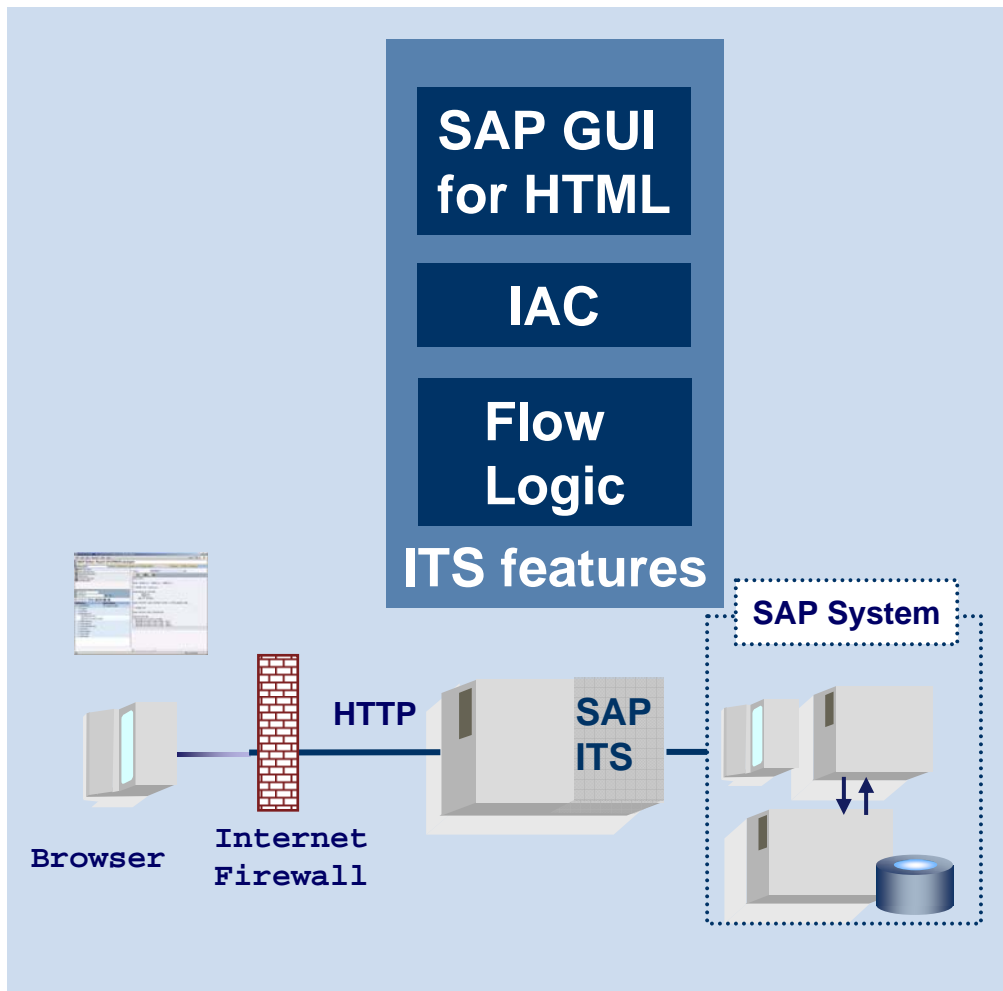
SAP ITS 6.20 standalone

- **Standalone Engine can be used with several SAP systems**
- **Supported platforms:**
 - ◆ **Windows 2003 Server**
 - ◆ **Linux /x86 SUSE SLES8, RedHat ES/AS 2.1**
- **Coming soon SUSE SLES9**
- **Coming soon ITS 6.20 64-Bit version for ADM64, EM64T**

SAP Netweaver Application Server with integrated ITS

- **Buildin engine which is part of SAP Kernel**
- **No separate installation required**
- **No ITS Web Infrastructure required**
- **Supported on all platforms of SAP Netweaver Application Server**

ITS standalone vs. SAP Web AS with integrated ITS



Internet Explorer on Windows

- **IE 6.0 and above recommended**

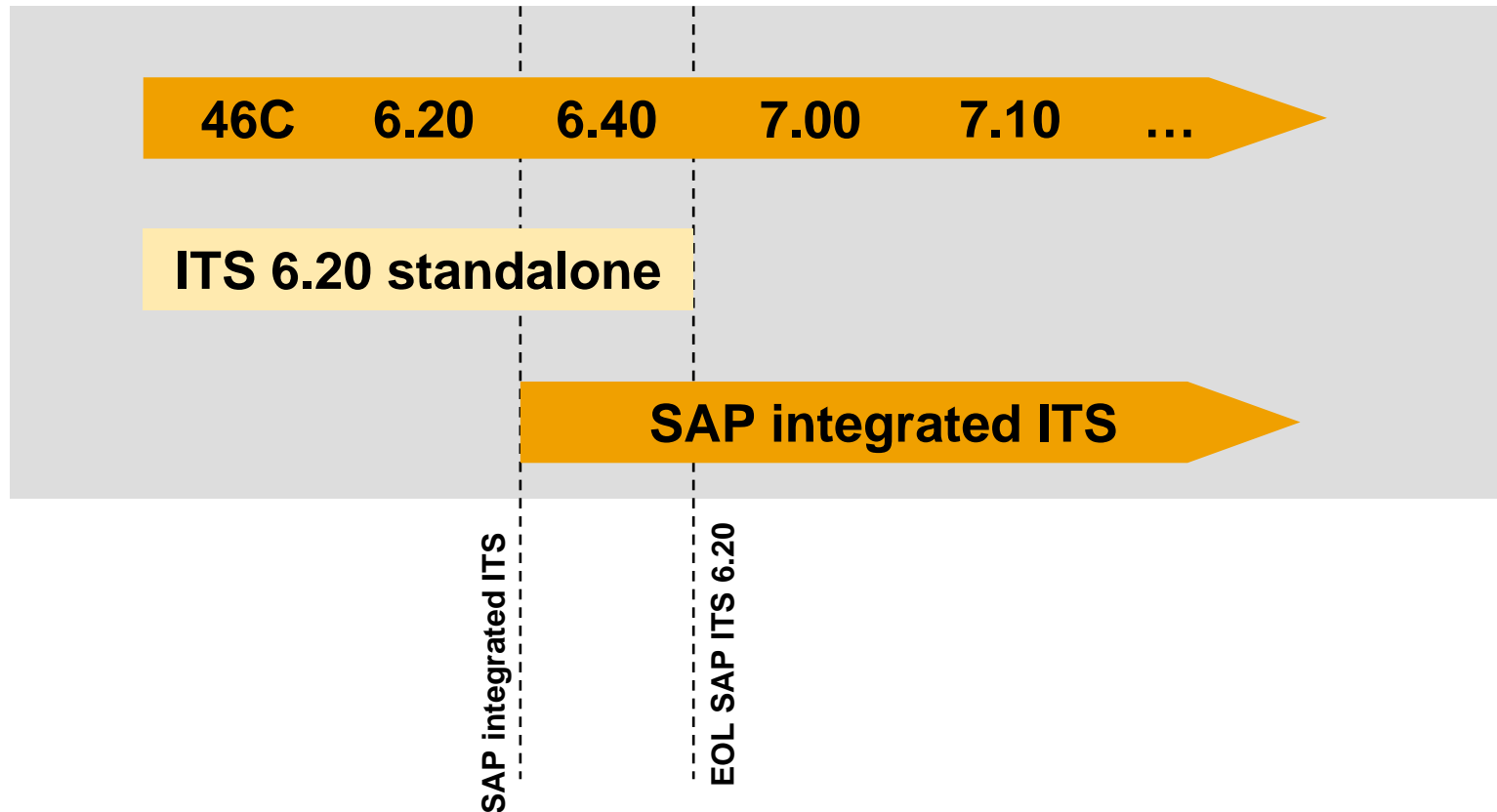
Mozilla Firefox 1.X

- **Windows**
- **Linux**
- **Mac OS X**

For details please check note 325616 or the Platform Availability Matrix: <http://service.sap.com/pam>

- **ITS 6.20 is long term supported for SAP products based on SAP Netweaver 2004 and below as long as these products are supported**
- **ITS 6.20 standalone cannot be used with SAP Netweaver 2004s (SAP Kernel 7.00). Therefore ITS services based on Flowlogic and WebRFC are no longer supported with SAP Netweaver 2004s.**
- **For detailed information please check Platform Availability Matrix (PAM) to get up to date information (<http://service.sap.com/pam>)**
- **Because SAP integrated ITS is part of the SAP kernel, the maintenance is as long as the maintenance for the SAP kernel**

Lifetime ITS 6.20 vs. SAP Integrated ITS



+++ Make the move today +++

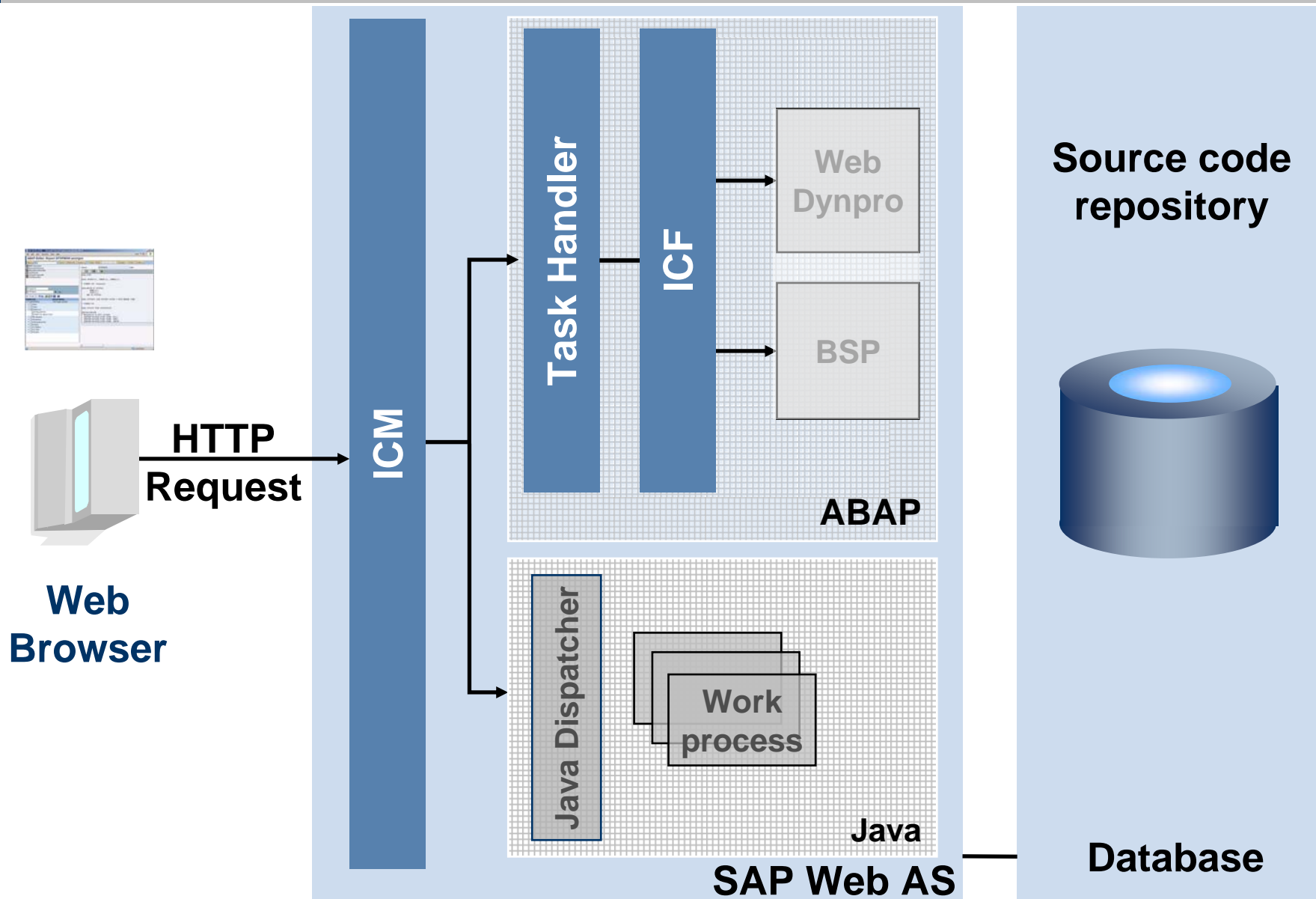
What are the advantages of integrated ITS?

- **highly reduced memory consumption**
- **highly reduced CPU consumption**
- **supported on all platforms of SAP Netweaver AS**
- **much better stability due to session isolation. In case of a server crash with ITS 6.20 all users loose their session, with integrated ITS only one session is affected!!!**
- **simplified system landscape without separate ITS Agate and Web servers**
- **simplified administration which can be done by SAP basis administrators**

Highly reduced TCO

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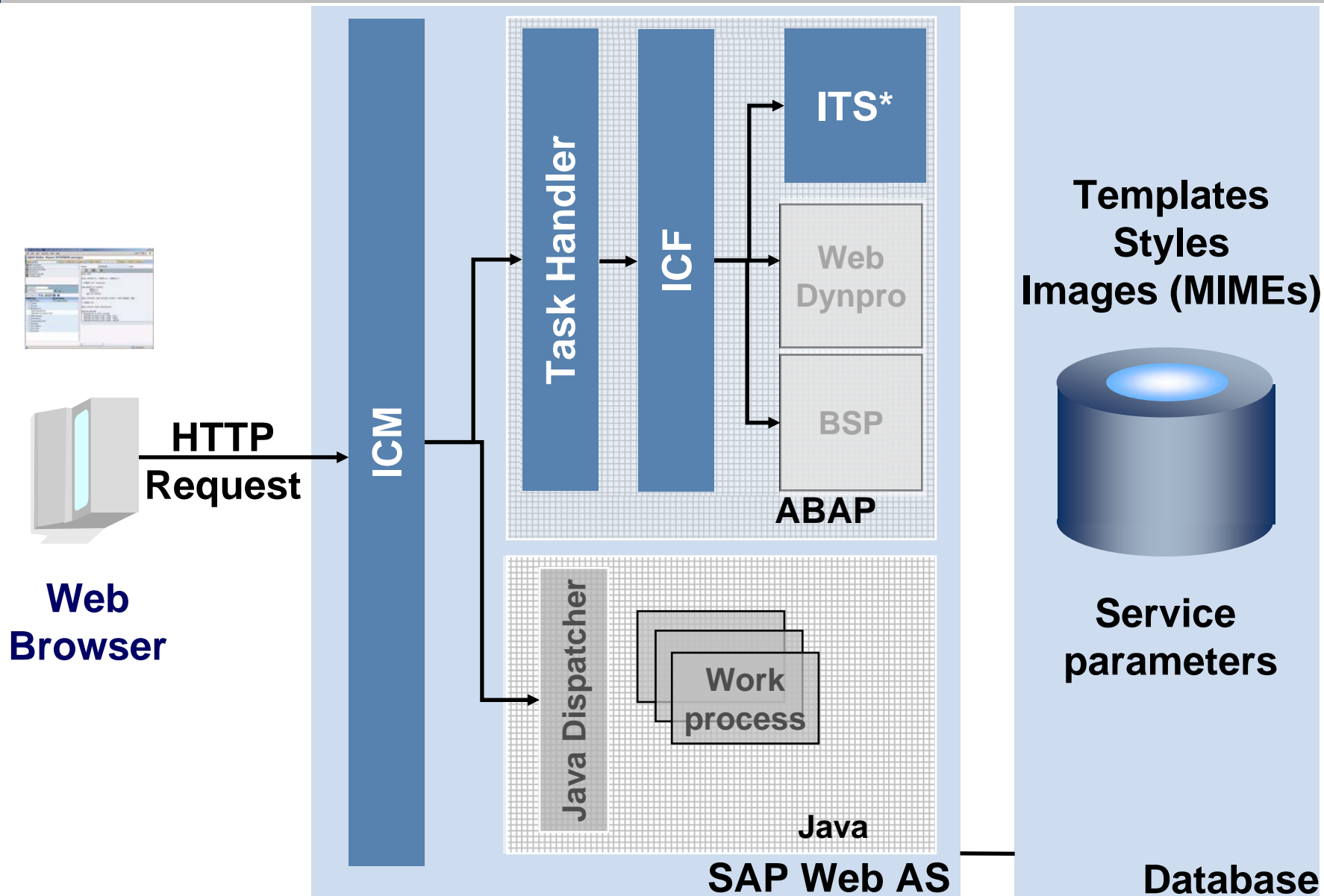
Architecture of SAP Netweaver Application Server



Reuse as much of the existing SAP Web AS infrastructure as possible with integrated ITS:

- 1. Replace WGate by ICM**
- 2. Store HTML templates and services files in the SAP database, not in the file system**
- 3. Reuse ABAP software logistics for template and service distribution**
- 4. Replace ITS registry with SAP profile parameters**
- 5. Use work process roll area for ITS session information**
- 6. Simplify system landscape and reduce TCO**
- 7. Hide ITS completely behind SAP Web AS.
No separate installation is required.**

Architecture of integrated ITS in SAP Netweaver AS

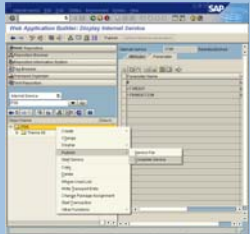


***ITS: transaction-based functionality only**

	SAP ITS 6.20	SAP Netweaver Application Server with integrated ITS
SAPGUI for HTML	✓	✓
Dynpro-based IACs	✓	✓
Flowlogic	✓	
WebRFC	✓	

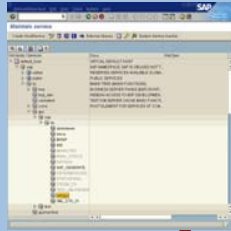
Templates and MIMEs with integrated ITS

ABAP Workbench



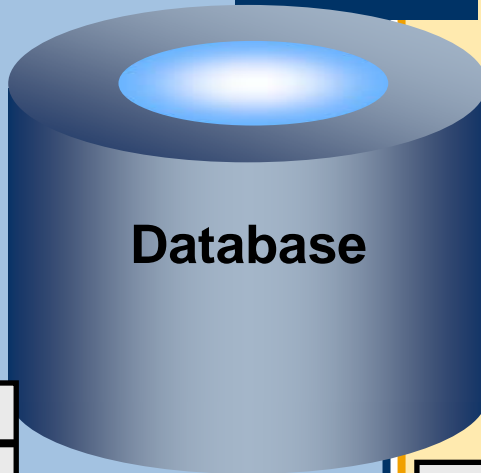
edit

Maintain ICF service



edit

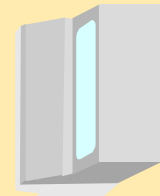
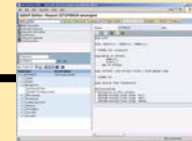
SAP system



Database

publish

HTTP Request



Web Browser

screen100.html	inactive
screen200.html	inactive
image01.gif	inactive
image02.gif	inactive
style.css	inactive
...	

screen100.html	active
screen200.html	active
image01.gif	active
image02.gif	active
style.css	active
...	

ICF service params	
Timeout	
GUI connection	
Service active y/n	
ICF handler	
...	

Design time

Runtime

It is not possible to connect SAP integrated ITS to other SAP systems as it is possible with SAP ITS 6.20.

SAP integrated ITS can only be used to enable access from the web browser to transactions running within the Web AS Server

Please check Note 709038

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- **Services written for ITS standalone don't run out of the box with the integrated ITS. They have to be configured in Internet Communication Framework (ICF) of SAP Netweaver Application Server**
- **Reason: Web AS and ITS standalone were too different to make them fully compatible. But differences are mostly hidden. For a dynpro-based IAC service developed according to our recommendations it only takes minutes to adopt them to the integrated ITS**
- **Flowlogic and WebRFC are legacy technologies. Services based on these programming models can't be run with integrated ITS. You should move these services to technologies like Web Dynpro or BSP.**

How to run a dynpro based IAC service with integrated ITS:

- 1. Publish the service in SE80 to site "Internal".**
- 2. Create service in ICF of Web Application Server (recommended location below /sap/bc/gui/sap/its) with transaction SICF**
- 3. Bind the service to ITS handler class and configure a GUI connection**
- 4. add required parameters from standalone ITS service to ICF service**
- 5. run the service from ICF**

Demo



1.) Differences between standalone ITS and integrated ITS you have to keep in mind

- no global service available in ICF, from where other services inherit parameter settings
- no “ITS” login available. Logon always means to logon to the SAP server, which receives request before ITS. A custom login page handler class can be defined in SICF in the service definition
- hard coded mime references with path /sap/its/mimes don't work. Use ~UrlMime instead to get correct mime path.
- ICF doesn't understand ITS specific parameters like ~login, ~language, ~password, ~client in the URL. Use sap-user, sap-language, sap-password, sap-client instead.
- using ~service in URL don't work. Use the service name directly.

2.) Differences between standalone ITS and integrated ITS you have to keep in mind

- connection specific parameters like ~messageserver, ~systemnumber, ~appserver, ~connectstring, ~group etc. don't make sense in WebAS environment.
- Check IAC migration guide and service parameter guide on <http://help.sap.com>
- SAP TechEd 2004 Hands-on Session: Migration of Existing ITS Services from Standalone to Integrated SAP Internet Transaction Server, PRTL255,
- Check out <http://sdn.sap.com> for the PDF of this session

SAPGUI Debugger is no longer available

Use the new HTTP debugger instead (Req. 6.40 SP14).

- 1. You can set HTTP breakpoints in ABAP editor**
- 2. You can debug sessions of other users**
- 3. You will drop to the new ABAP debugger automatically when the breakpoint is reached**

SAP Note 722735

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Good news: If you have a running SAP Netweaver Application Server the administration of integrated ITS is very easy compared to ITS 6.20 standalone

There is just one important parameter you should care of

em/global_area_MB

This parameter sets the size of the global shared memory which is being used from all work processes and holds the ITS session and template data.

No separate administration tools needed anymore.
Admin-Tool no longer exists

You can administrate the integrated ITS completely with the following SAP transactions

- **RZ10/RZ11**
Definition of profile parameters
- **ST11**
Error Log Files
- **SM21**
System Log
- **SITSPMON**
Status of the integrated ITS
- **SICF**
Configuration of the ITS-ICF-services

Features of SITSPMON

- **Memory statistics to answer question like “How much global memory of my application server is being used by integrated ITS?”**
- **Change profile parameters**
- **Invalidates Template and Mime caches both locally and system wide**
- **Business HTML runtime statistics to decrease you server load (with 7.00)**
- **Advanced feature like overview Mutex lock and template cache for tracking down for development support**

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Please keep in mind: You don't get the integrated ITS for free.

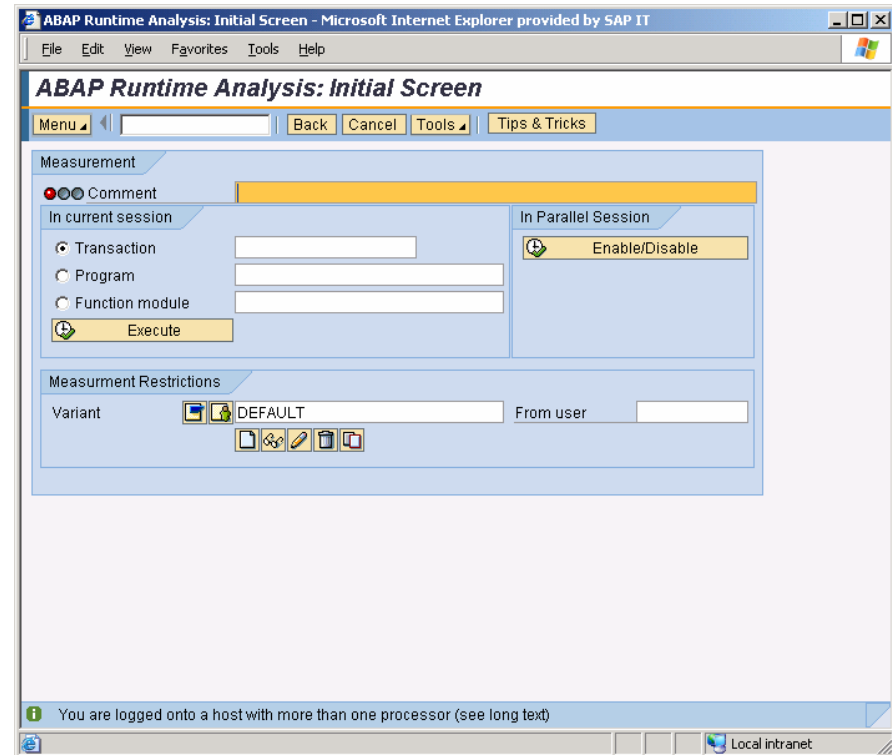
- **Integrated ITS consumes memory and CPU on the Web application server host**
- **Good news: Memory consumption is much smaller than for ITS 6.20 standalone**
- **Good news: CPU consumption is 30 % less compared with ITS 6.20 standalone**
- **Please budget to use your free Agate hosts of standalone ITS as application servers in your SAP Netweaver Application Server environment**

General Performance

- SD benchmarks showed an overall performance improvement of integrated ITS compared with ITS 6.20 of up to 30 %

For individual measurements

- Use the *ABAP Runtime Analysis (ATRA)* for Kernel times
- Use the program *sitspmon* for BHTML runtime measurement (activate parameter *itsp/ SAPjulep/Profiling* in 7.00)



Required memory for integrated ITS is

- the memory for the ITS application (prepared templates) plus
- the memory required by each session

Memory requirement of the SAP GUI for HTML:

- SAP GUI for HTML application (prepared templates): approx. 6 MB.
- SAP GUI for HTML sessions: approx. 3 MB for each session.

Actual memory consumption for an ITS application can be viewed in transaction *sitspmon*. You can also estimate the size of the prepared tree using this application.

1.) Memory

Activate all services you plan to run in SICF

Run the services and monitor the memory consumption for templates and sessions in SITSPMON

The estimated total memory consumption of integrated ITS is:

$$\text{TOTAL MEMORY} = \text{Template Memory} + \text{Average Session Memory} \times \text{No. of Estimated User}$$

2.) CPU

Use well known Quicksizer tool <http://service.sap.com/sizing>

Demo

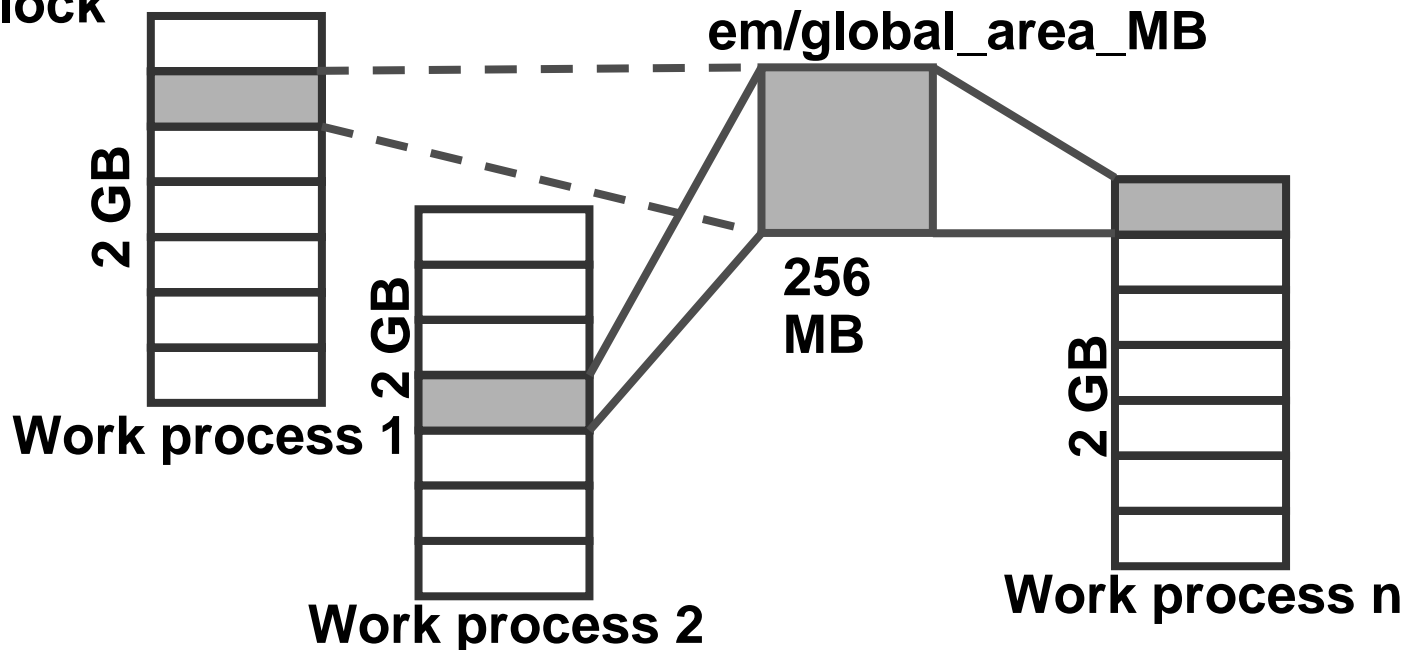


- **Application type: SAP GUI for HTML (prepared templates approx. 6 MB per language)**
 - **Number of parallel sessions: 50**
 - **Logon languages: 2 (DE and EN) (only important with 6.40)**
 - **Browser type: 1 (only MS IE)**
 - **Current setting of value “em/global_area_MB”: 64 (default)**
- em/global_area_MB = 64 MB (default value of global_area_MB)**
- + 12 MB (6 MB * 2 languages * 1 browser type)**
 - + 150 MB (3 MB * 50 sessions)**

Result: You should set em/global_area_MB to 256 MB

Note: With 7.00 the memory is independent from the logon language

- On 32 Bit platforms the process memory is limited to 2 GB (with special OS setting 3 GB)
- ITS session information is stored in shared memory
- Shared memory has to be mapped in the process memory as one block



- Recommendation: use 64-bit platforms with 6.40. With 7.00 this limitation no longer exists

If SAP integrated ITS does not work, OSS Note 698329 provides a step to step description how to trouble shoot and get integrated ITS to run.

Please also check the documentation available at <http://help.sap.com>

The screenshot shows a Mozilla Firefox browser window displaying the SAP Library page for "SAP ITS in the SAP Web Application Server". The page title is "SAP ITS in the SAP Web Application Server" and it includes an "Overview" section. The overview text states: "The SAP Internet Transaction Server (SAP ITS) is integrated into the kernel of the SAP Web Application Server 6.40 as an Internet Communication Framework (ICF) service called the *integrated ITS*. Like other ICF services, the integrated ITS is accessed through the Internet Communication Manager (ICM)."

Below the text is a diagram titled "Comparison Between the Integrated ITS and the Standalone ITS". The diagram illustrates the flow of data and control between a Browser, SAP ITS WGate Server, Web Server, SAP ITS A Gate Server, and SAP System. Key components and processes shown include:

- Browser**: Initiates a "User Request" and receives "HTML Pages".
- SAP ITS WGate Server**: Receives the "User Request" and sends a "Call WGate" to the **Web Server**.
- Web Server**: Sends a "Send Prepared Request" to the **SAP ITS A Gate Server**.
- SAP ITS A Gate Server**: Contains "Service Files", "HTML Templates", and "Row Files". It receives "Load Service File" and "Load HTML Templates / Flow Files". It sends an "Output" to the **SAP System**.
- SAP System**: Contains the "SAP Internet Application Component", "SAP Lab", and "SAP Lab". It interacts with the **SAP ITS A Gate Server** via "SAP I" and "SAP Lab".

Frequently asked question:

Integrated ITS in SAP Netweaver doesn't have a WGate in the DMZ. Is it as secure as ITS 6.20 ?

For an SAP Netweaver AS environment is it recommended to place a application gateway or SAP Web Dispatcher in the DMZ. This setup provides the same high level of security as ITS standalone.

Securing the integrated ITS means securing Web Application Server. Please check the Web AS related security documentation

Please attend TechEd lecture "Increasing Infrastructure Security by using Application Gateways" (AGS200) for further information regarding security of Web AS

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- **Highly improved memory management. The 32-Bit limitation known from 6.40 no longer exists. Memory consumption is independent from logon languages.**
- **SAPGUI for HTML rendering redesign. Internet Explorer and Mozilla Firefox support the same feature set and themes**
- **Improved diagnostics for developers and administrator**
- **New ABAP Debugger for ITS service debugging (downported to 6.40 with SP 14)**
- **Business HTML runtime statistics to decrease you server load**

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- **SAP Netweaver Application Server contains ITS on all hardware platforms.**
- **Integrated ITS doesn't require any additional installation. Its just inside Application Server, ready to run...**
- **Integrated ITS reduces your TCO and let your user access SAP Netweaver AS to run transactions with a Web Browser. You don't have to maintain a separate ITS infrastructure.**
- **The dynpro-based IAC runtime and SAP GUI for HTML are supported with the integrated ITS.**
- **It very easy to adapt IACs for the SAP Integrated ITS.**
- **ITS smoothly integrates into Web AS. It makes full usage of the existing infrastructure provided by Web AS.**
- **Administration can be done by standard well known SAP basis tools. Your basis administrators will be happy!**



Public Web:

www.sap.com

SAP Developer Network ITS Forum: www.sdn.sap.com

SAP Customer Services Network: www.sap.com/services/

NetWeaver Developer's Guide: www.sdn.sap.com/sdn/developersguide.sdn

SAP Help Portal: help.sap.com

Information about SAP ITS: <http://service.sap.com/sap-its>



Related SAP Education Training Opportunities

<http://www.sap.com/usa/education/>

<http://www.sap.com/education/>



Related Workshops/Lectures at SAP TechEd 2005

- AGS202, Security in SAP Internet Transaction Server (ITS) Landscapes, Lecture (1 hour)
- UP206, SAP User Interface Technologies, Lecture (1 hour)



Q&A



Feedback

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and do not take the handouts for the following session.

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