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Executive Summary

Every IT organization understands the cost and challenges involved in the administration and maintenance of networking and storage infrastructures. HP offers a unified solution that can reduce IT expenses, streamline processes, and reduce complexity. HP Storage Essentials (HP SE) is a part of the unified IT solutions that HP offers. HP Storage Essentials is an open standards-based suite of storage software that delivers integrated heterogeneous functionality for storage network (DAS, SAN, and NAS) management, storage resource management, provisioning, and application infrastructure monitoring. HP Storage Essentials monitors the performance of the storage infrastructure that supports key business applications so customers can promptly diagnose the root causes of application performance issues. Another key functionality of HP Storage Essentials is to manage the provisioning of storage devices in a storage area network (SAN).

SAP applications and database are typically stored into and loaded from storage devices in a SAN. SAP’s Adaptive Computing Controller (ACC) 7.1 virtualizes the applications or services which include application resources and storage. SAP ACC provides vendor integration to enable virtualized storage management. The HP Storage Essentials Storage Resource Management (SRM) Enterprise Edition 6.0 Microsoft Windows Application Integration Software for SAP Adaptive Computing Controller extends HP SE to support SAP ACC for Storage Area Network (SAN) attached storage from Hewlett-Packard (HP).

This whitepaper describes the implementation of an Adaptive Computing environment for SAP application services. The configuration used consists of Windows Server 2003 managed nodes running on HP BladeSystem servers using an HP StorageWorks XP10000/12000/20000/24000 Disk Array, and an HP StorageWorks EVA 4000/4100/6000/6100/8000/8100. This document provides an overview of the setup, integration, and configuration of an HP-specific implementation example.

Adaptive Computing Setup

The Adaptive Computing configuration supported by HP Storage Essentials for SAP ACC consists of managed node servers, control stations, and storage disk array(s). Managed nodes are Windows 2003 Servers that host SAP central instances and database instances. Microsoft SQL Server 2005 SP2 is used for database instances. The control stations consist of at least five servers—HP SE, HP SE Provider, SAP Solution Manager, SAP ACC, and DNS server. The DNS server could be combined with SAP Solution Manager in one server only if the DNS server is not a Domain Controller thereby reducing the number of servers to four. The Solution Manager cannot be installed on a Domain Controller because Local Groups cannot be created on a Domain Controller. The servers used for the managed nodes and control stations could either be HP BladeSystem or HP Integrity server. The following Figure 1 illustrates an implementation example of an Adaptive Computing configuration.
In the configuration shown in Figure 1, two SAP systems X22 and B77 are configured each with one database and one central instance service. All SAP data, log files, and binaries use disks which reside on a storage disk array accessible through a storage area network (SAN). In all cases, Microsoft SQL Server 2005 SP2 is the database server software. Using HP Storage Essentials Integration software for SAP ACC provides the ability to relocate SAP and database services from one managed node to another. The database and central instance services could be combined to run on one node as the case with SAP System B77 or split as in SAP System X22.

**Hardware Components**

**Control Stations**

There are at least four control stations (servers) required for Adaptive Computing Controller—HP SE, SAP ACC, SAP Solution Manager, and HP SE Provider server. A fifth server, DNS, could be combined with the SAP Solution Manager server. If the storage disk array used is an EVA, Command View EVA can either be installed on the HP SE Provider server or else an additional server will be necessary. Command View XP software is not required for the XP disk arrays. A blade or non-blade server can be used for the control stations. In the ACC operations tests performed, all control stations used a BL460c blade server.
The operating system is 32-bit Windows Server 2003 except for the ACC Server which could be either a 64-bit Windows Server 2003 or SuSE Linux Enterprise 10 SP1. HP recommends a minimum of 120 GB internal disk drives for the DNS, SAP ACC, and SAP Solution Manager servers. It is also recommended to have a connection from the control stations to the local SAN storage and utilize the disk space from SAN in a reliable and efficient way. The recommended LAN used for the interconnections between the managed nodes and control stations is at least 100 Mbps. The minimum required memory for each server used in the Adaptive Computing environment is 3 GB. Refer to HP SE documentation for the recommended hardware and software requirements for the HP SE and Provider servers. For SAP requirements, refer to the SAP Product Availability Matrix.

Managed Landscape

The managed landscape or adaptive managed nodes in the reference system shown in Figure 1 consists of three BL460c blade servers with Windows Server 2003 x64 operating system and three rx2600 Integrity servers with Windows Server 2003 IA64 operating system. HP Storage Essentials agent, Microsoft SQL Server 2005 SP2, and multi-pathing software are installed on the managed nodes. All managed nodes need to have the supported Fibre Channel host bus adapters (HBA) for SAN connectivity. Internal disks are used for central operating system and database operations while the SAN is used exclusively for storing database data files and SAP binaries.

Storage

All files for the database services reside on physically-mounted SAN storage partitions. Managed nodes are attached to this SAN storage through Fibre Channel. Every physical I/O to data files, transaction logs, and SAP files is directed to the physically attached SAN disks.

The current implementation of the Adaptive Computing concept is based on an “OS dynamic disk provisioning” method (not to be confused with the supported Windows disk configuration of Basic disks only instead of Dynamic disks configuration). HP Storage Essentials SRM Application Integration software for SAP ACC is responsible for the storage virtualization. The integration software currently supports HP StorageWorks XP10000/12000/20000/24000 and HP StorageWorks EVA 4000/4100/6000/6100/8000/8100 storage disk arrays.

Software Components

Operating System

The supported operating systems on the managed nodes are Windows Server 2003 x64 R2 SP2 and Windows Server 2003 IA64 SP2. On the control station servers except for the ACC Server, the operating system used is Windows Server 2003 x86 R2 SP2. The operating system used on the ACC Server is either Windows Server 2003 x64 R2 SP2 or SuSE Linux Enterprise 10 SP1. All servers are configured on an Active Directory Domain using Roaming Profiles. Registry edits are necessary for all managed nodes in order to support virtual hostnames.

HP Storage Essentials

The supported version on the SAP ACC environment is HP SE 6.0.1 and 6.0.2 Enterprise Edition. Once HP SE is fully installed and configured with HP SIM, the software for SAP ACC integration can be installed afterwards. No other software or configuration is necessary to setup the integration software besides the HP SE credentials, HP SIM credentials and port information provided during its installation.
SAP Software

There are two main SAP control station servers—the SAP ACC Server and SAP Solution Manager. Solution Manager Version 3.2 SP15 and ACC version 7.1 SP06 were configured. In ACC version 1.0, the Solution Manager was required for the interprocess communication. However, in ACC version 7.1, the Solution Manager is no longer required except for the generation of installation keys. Solution Manager Version 7.0 can also be used to generate the installation keys. In the tested configuration, the Unicode version of SAP was tested with ABAP-only instances.

Another change in SAP ACC 7.1 is the replacement of the OpenSSH software by SAPHOSTAGENT as the vehicle for the interprocess communication. The SAPHOSTAGENT provide functions for administering and monitoring SAP Netweaver components and hosts. All managed nodes were configured using SAPHOSTAGENT SP26 downloadable from SAP software distribution website.

Database

Microsoft SQL Server 2005 SP2 is the supported database for SAP in this release on the managed nodes. Only the database engine needs to be installed on all of the managed nodes. The database is created during the SAP installation. Unless a central management station is used for the SQL Servers, it is recommended that the SQL Management Studio be installed on the managed node(s). The SQL Management Studio can be used to configure the database on the managed node(s) to successfully relocate from one node to another. The SAP data and log files generated by the database installation are stored on the LUNs presented through Fibre Channel.

Multipathing

If dual path is configured for storage, all managed nodes need the fully featured HP MPIO DSM for XP version 2.00.01 or higher installed for the XP disk array or HP MPIO DSM for EVA disk array version 2.01.00 or higher. The latest version is downloadable from the HP Support website. This software is not necessary if using a single path.

Preparation of OS for Adaptive Computing

Certain configuration tasks need to be performed initially to establish an Adaptive Computing environment. Active Directory domain, hostnames and IPs (virtual and physical), and roaming profiles need to be configured.

Active Directory Domain

All configurations of users, groups, or services are centrally managed by Active Directory Services. It is recommended that a dedicated server is used. To manage all activities, some operations have to be centralized in the environment. All user and managed nodes must be a member of an Active Directory domain. The user profiles of the SAP users must be centrally hosted on a central server and made available through shares.
Hostnames and IP Addresses

All managed nodes are configured to use physical and virtual hostnames and joined to the Adaptive Computing Windows domain.

- The physical IP, virtual IP and (short) hostnames must be added to the Windows hosts file.
- SAP ACC activates the virtual IP/hostname on the managed node that is running the SAP application service and database. The following table (Table 1) lists the registry entries necessary to support virtual hostname activated by SAP ACC on the managed nodes. Before updating the registry, please read the Microsoft whitepaper titled “Using SQL Server 2005 with SAP R/3.”

Table 1: Registry edits for Virtual Hostname support

<table>
<thead>
<tr>
<th>Key</th>
<th>Name</th>
<th>Type</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>HKLM\SYSTEM\CurrentControlSet\Control\Lsa DisableLoopbackCheck</td>
<td>DWORD</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>HKLM\SYSTEM\CurrentControlSet\Control\Lsa \MSV1_0 BackConnectionHostnames</td>
<td>MULTI_SZ</td>
<td>Virtual Hostnames</td>
<td></td>
</tr>
<tr>
<td>HKLM\SYSTEM\CurrentControlSet\Services\la namanserver\parameters OptionalNames</td>
<td>MULTI_SZ</td>
<td>Virtual Hostnames</td>
<td></td>
</tr>
</tbody>
</table>

Roaming Profiles

Designate a server to be used to save the roaming profiles. In the test setup, the SAP ACC Server was selected. Every SAP installation has an associated system ID (SID). The SID is a 3-character alphanumeric description of the SAP install, example X22 or B77. When SAP is installed, two key users, SIDadm and SAPServiceSID, are created. Roaming profiles must be created for these users. After that, they need to be initialized on the managed nodes where the SAP SID will be relocated to by logging in as such usernames.

Adaptive Computing Files

The SAP Adaptive Computing files are packaged in the SAPHOSTAGENT SAR file available for download online. Extract the SAR file into a temporary directory on the managed node directory then run in the install executable. If there is a previously installed old version of the Hostagent, uninstall it and delete the remaining files before re-installing the newer version.

The Adaptive Computing and Hostagent files are stored under the adaptive directory %SYSTEMDRIVE%\Program Files\hostctrl. There are two libraries required to support Adaptive Computing: the platform library (libsapacosprep.dll) and the partner-specific library (libsapacosprep_hp.dll). For the Windows operating system, SAP provides the platform library packaged in SAPHOSTAGENT SAR file. The partner-specific library is provided by HP which gets installed on the managed node using the HP SE Integration software for SAP ACC.

OpenSSH

As mentioned earlier, OpenSSH is no longer required by SAP Adaptive Computing for communication to the managed nodes. However, HP SE Integration software for SAP ACC still requires OpenSSH to execute provisioning commands to the managed nodes. OpenSSH software is deployed to the managed nodes through HP System Insight Manager (HP SIM). The recommended deployment is to use the local (not domain) administrator account on the managed node.
SAP start/stop scripts

In SAP ACC 1.0, Windows scripts need to be written to stop or start the database, central, and dialog instances. HP provided customers sample scripts for reference and/or further customization since SAP did not have them available.

In contrast to SAP ACC 7.1, SAP eliminated the need for the scripts only for the central and dialog instances. The start and stop functionalities for the central and dialog instance were integrated into SAPHOSTAGENT. For the database instance, scripting is still required. However, instead of two separate scripts (one for stop and one for start); only one script called dbcontrol.bat needs to be created. HP provides customers a sample dbcontrol.bat script. Table 2 below is a comparison and summary of the scripting requirement of SAP ACC 1.0 and 7.1 on the Windows operating system.

Table 2: SAP ACC Scripting Requirements between versions 1.0 and 7.1

<table>
<thead>
<tr>
<th>Central Instance</th>
<th>ACC 1.0</th>
<th>ACC 7.1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>prepareCl.cmd - script to register and start the central instance service</td>
<td>Scripts are no longer needed because the functionality is integrated into the SAPHOSTAGENT</td>
</tr>
<tr>
<td></td>
<td>deleteCI.cmd - script to un-register and stop the central instance service.</td>
<td></td>
</tr>
<tr>
<td>Database Instance</td>
<td>attachDB.cmd - script to attach the SAP database into SQL Server</td>
<td>One script referenced by SAPHOSTAGENT is required and needs to be called dbcontrol.bat. See details below for more information.</td>
</tr>
<tr>
<td></td>
<td>detachDB.cmd - script to detach the SAP database from SQL Server</td>
<td></td>
</tr>
<tr>
<td>Dialog Instance</td>
<td>prepareDI.cmd - script to register and start the dialog instance service</td>
<td>Scripts are no longer needed because the functionality is integrated into the SAPHOSTAGENT</td>
</tr>
<tr>
<td></td>
<td>deleteDI.cmd - script to un-register and stop the dialog instance service.</td>
<td></td>
</tr>
</tbody>
</table>

Database Scripting Requirement

In SAP ACC 7.1, a script called dbcontrol.bat that performs the stop and start database operations is required. This script needs to be located on the adaptive directory. The location or name of the script can also be changed with the `service/dbcontrol` parameter in the SAPHOSTAGENT `host_profile` file.

The required syntax for dbcontrol.bat is

\[
\text{dbcontrol operation dbtype dbname [RemoteService]}
\]

where:

- `operation` is either `stop` or `start`
  - `stop` operation – the script detaches the database then stops the Microsoft SQL Server database service.
  - `start` operation – the script starts the Microsoft SQL Server database service then attaches the database.

- `dbtype` is the database type used (mss for Microsoft SQL Server, ora for Oracle and so on).
- `dbname` is the name of the database usually the SAP SID.
- `[RemoteService]` is the optional parameter indicating whether the start or stop operation of the remote service was requested.
Included in the database script are SQL stored procedures that are loaded to the master and SAP database. The stored procedures perform the attach and detach of the Microsoft SQL Server database files. HP provides customer sample SQL stored procedures for reference and/or further customization.

**Adaptive-Enabled Managed Nodes**

Once SAP Application Services and the database are fully configured on the managed nodes, they need to be activated to support Adaptive Computing. For details, please refer to the SAP Adaptive Computing Implementation document. Only Adaptive-enabled servers are visible on the SAP ACC GUI. In the previous SAP ACC version 1.0 release, SAP Solution Manager and OpenSSH are required to register managed nodes. SAP ACC version 7.1 eliminates these requirements. In both versions, however, SAP Solution Manager is still required to generate the SAP installation keys.

**HP Storage Essentials Storage Virtualization**

Storage in the Adaptive Computing infrastructure is virtualized by HP SE. HP SE is storage management software used to centrally manage and monitor resources in a Storage Area Network. HP SE stores all information about hosts and disks available in one or more SANs.

While start (attach), stop (detach) and relocation (relocate) of application services are controlled from the SAP ACC Server, each managed node has a number of local services that perform the required work on the respective managed node. The stack of components installed for the adaptive managed nodes is illustrated in the following Figure 2.

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**Figure 2:** Adaptive Computing stack of installed components

![Adaptive Computing stack of installed components](image)
The sapacosprep service calls the Windows platform library in order to perform the required action. The sapacosprep service is used to prepare the environment of an application service upon start up and removes the established environment upon the stopping of this service. In addition to this service, the agent called sapacoscol is also installed into the OS during the deployment phase. The sapacoscol service reads data (hostnames, OS version, CPU utilization, and so on), out of the shared memory and transfers it to SAP ACC. For further details, refer to the SAP ACC implementation guide.

The SAP services preinstalled in each managed node reside in the adaptive directory %SYSTEMDRIVE%\Program Files\hostctrl. The platform library required to communicate with HP SE integration library and perform resource allocation also reside in the same adaptive directory.

**SAP ACC Storage Resource Identifier**

Since the implementation of the Adaptive Infrastructure on UNIX supports NFS mounts as well as SAN mounts, the configuration of file systems in the SAP ACC should reflect the type of file system. As differentiation between NFS and SAN mounts, the syntax in the following Table 3 is used.

**Table 3: SR and NFS syntax**

<table>
<thead>
<tr>
<th>Storage Type</th>
<th>Mount Point</th>
<th>Export Path</th>
<th>Options</th>
<th>FS/SRID Type</th>
<th>Partner ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR</td>
<td>DB_&lt;SID&gt;_SRID</td>
<td>N/A</td>
<td>N/A</td>
<td>HPSE</td>
<td>hp</td>
</tr>
<tr>
<td>NETFS</td>
<td>N/A</td>
<td>&lt;host&gt;:&lt;path to SAP files&gt;</td>
<td>rw</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

A storage resource (SR) does not necessarily represent a single disk. It represents a group of disks that belong to an SAP or database service. HP SE ensures that all disks are cleanly attached/detached and mounted/unmounted on the file system. In Windows systems, a storage resource identifier or SRID refer to the disks containing the SAP binaries, database, and log files. NETFS is the storage type designation by SAP for NFS mounts and it is not supported in Windows. Every SAP database and central instances can be associated to a single or multiple SR entries.

Virtual Disks are grouped by HP SE Integration software for SAP ACC in disk configurations. Each disk configuration is assigned a Storage Resource Identifier (SRID). The SRID is used by the Adaptive Computing Controller to refer to the virtual disks belonging to a specific SAP or DB service. In the reference system shown in Figure 1 earlier, the DB_<SID> SRID convention for the disks belonging to the database and logs was used. Any string format is acceptable as long as it matches what is specified in the SAP ACC configuration for the particular SID. HP SE checks and attaches/detaches all disks belonging to an SRID on a specific target node. For each SRID that can be activated or deactivated on a chosen pool node, HP SE keeps an entry in an XML file. For every SRID, HP SE stores the hostname, LUN name, vdisk name, volume group map files and the reparse points to be used when attaching to a managed node. Any changes to the XML files should only be performed using HP SE SRM Application Integration Software for SAP ACC configuration user interface.
Adaptive Computing Operations

The number of SAP ACC operations in version 7.1 has been expanded from three to five operations. The Attach operation is now two separate operations called Prepare and Start. The Detach operation is now two separate operations called Stop and Unprepare. The fifth operation is still called Relocate.

- The Prepare and Start operations are the processes of presenting, mounting SAP storage resources, and starting of SAP applications on a managed node. Both operations are launched individually or as one from the SAP ACC GUI.

- The Stop and Unprepare operations are the processes of stopping the SAP applications, unmounting, and unpresenting of SAP storage resources on a managed node. Both operations are launched individually or as one from the SAP ACC GUI.

- The Relocate operation is a combination of the Stop and Unprepare operations from one managed node followed by a Prepare and Start operations to another managed node of SAP. The following Figure 3 depicts the interaction between SAP ACC and HP SE. Following the diagram are the step by step details of the operations. Detailed descriptions are also provided in the following sections.

Figure 3: Interaction between HP SE and SAP ACC
Prepare and Start Operations

Refer to Figure 3 for the steps described in the attach operation.

1. When the application services are stopped, the Prepare operation is invoked from the SAP ACC Server which calls sapacosprep on the managed node to activate the virtual IP through the SAP Hostagent.
2. SAP ACC makes another call to sapacosprep which passes the SRID information of what is to be attached to the partner-specific library, libsapacosprep_hp, on the managed node.
3. The managed node processes the SAP ACC Prepare request by passing the SRID information to the integration software.
4. Based on the SRID, HP SE can determine which virtual disk to present and mount to the managed node. HP SE communicates with the SVP Web Console on an XP disk array or with Command View EVA on an EVA disk array.
5. The HP SE Provisioning call to the storage disk array will cause the appropriate virtual disk to be presented to the managed node. Once presented, HP SE mounts it and sends a message to the corresponding OS-agent to mount the disks on the target system’s file system. HP SE checks and creates reparse points for the disks to be attached on the managed nodes. The same happens to all the SAP sapmnt directory structure.
6. After a successful mount, SAP ACC invokes the Start operation. The ACC Server communicates with the managed node through the Hostagent. In the Start operation, SAP ACC passes the necessary SAP or DB application service startup arguments to the Hostagent.

Stop and Unprepare Operations

Refer to Figure 3 again for the detach operation steps described below:

1. With the application services running, the Stop operation is invoked from the SAP ACC Server to the running Hostagent on the managed node. In the Stop operation, SAP ACC passes the necessary SAP or DB application service shutdown arguments to the Hostagent.
2. After a successful stop of the application services, the Unprepare operation is invoked by the ACC Server. SAP ACC calls sapacosprep on the managed node which passes the SRID information of what is to be detached to the partner-specific library, libsapacosprep_hp, on the managed node.
3. The managed node processes the SAP ACC detach request by passing the SRID information to the integration software.
4. Based on the SRID, HP SE can determine which virtual disk to dismount and unpresent on the managed node. HP SE passes this information to the Web Console of the XP disk array or Command View of the EVA disk array.
5. The HP SE Provisioning call to the storage disk array will unmount the virtual disk, then unpresents the appropriate virtual disk from the managed node.
6. After a successful unmount, SAP ACC deactivates the virtual IP on the managed node.

Relocate Operation

SAP ACC has a third operation called Relocate that combines the four operations - Prepare, Start, Stop, and Unprepare. When this operation is selected, a Stop operation is called first on the original node followed by an Unprepare operation. If that is successful, the Prepare operation is called to the new node followed by the Start operation. Note that if a relocate is to be implemented to/from the same node, there is an SAP ACC specific key required to activate this feature. Without this key, relocate is only supported from one node to a different node.
SAP Installation

There are two ways to install SAP instances on a managed node—Default and Multi-instance Stacking. The Default installation only allows one instance of SAP to run on the managed node. The Multi-instance stacking installation on the other hand allows multiple SAP instances to run simultaneously on the same managed node. These two installations are described in detail below. For further details on the supported SAP configuration, refer to SAP Product Availability Matrix website.

Default SAP Installation

The default installation of SAP installs the instance under the \usr\sap\<SID> directory. Figure 4 shows the typical mount structure of a managed node with SAP central instance (CI_X22_SRID) and the database (DB_X22_SRID) mounted using the default SAP installation. Reparse points are used and do not make use of any drive letters, thus avoiding any conflicts with already used drive letters. In this example, the systemdrive of the managed node resides locally. The advantage of this installation is that it is simple and straightforward. The disadvantage is that only one instance at a time can run on the managed node.

Multi-instance Stacking Installation

In order to allow multiple SAP instances to run on a managed node, the SAP mountpoints need to be at the same level as the main \usr\sap directory. SAP instances are initially installed on the default location as described earlier and on another mountpoint in the \usr\sap<SID> directory. In other words, the same virtual disk (LUN) is visible in two mountpoints. After the installation, the mountpoint under the default \usr\sap\SID location is deleted. Then adjustments to the SAP start and stop profiles specific to the SID need to be done pointing to the new location. Figure 5 shows the typical mount structure of a managed node with SAP central instances (X22 and B77) and the database (X22 and B77) mounted. Notice that the database directory level is the same as in the default installation.
The advantage of this installation is that it allows for multiple instances to run on one managed node instead of just a single instance. The disadvantage is that it is a more complicated installation and will require a server with more memory and processing resources to accommodate multiple instances.

Figure 5: Mount structure on a managed node with multi-stacked SAP instances

Advantages of the HP Storage Essentials Solution

The following list discusses the advantages of the HP Storage Essentials Windows Application Integration Software for SAP ACC solution. The SAP ACC integration software:

1. Enhances and expands the functionality of HP Storage Essentials in storage virtualization.
2. Provides lights-out relocation of SAP and Database application services from one server to another.
3. Improves cost savings from the ongoing maintenance and administration of storage.
4. Provides a single point of control allowing customers to operate, observe, and manage an adaptive business solution. HP Storage Essentials’ integration software allows HP customers running SAP to realize the advantages provided by SAP ACC.
5. Enhances the ability to troubleshoot complex problems that span server and storage infrastructure.
6. Provides a single source for server and storage asset information.
7. Seamlessly integrates with the HP Storage Essentials SRM Enterprise Edition Software Suite such that a single interface can be used to monitor and manage SAP applications and databases along with the rest of the elements in the SAN.
8. Extends HP Storage Essentials support of HP servers and storage.
For more information

HP

HP Unified Infrastructure Management
http://www.hp.com/go/unified

HP StorageWorks Storage Essentials
http://www.hp.com/go/storageessentials

HP BladeSystem
http://www.hp.com/go/blades

HP StorageWorks XP disk array
http://www.hp.com/go/xp

HP StorageWorks EVA disk array
http://www.hp.com/go/eva

HP Services Mission Critical Support
http://www.hp.com/hps/mission

HP System Insight Manager
http://www.hp.com/go/hpsim

HP StorageWorks solutions for SAP
http://www.hp.com/go/storageworks/SAP

HP Virtualized Infrastructure Solutions for SAP Business Suite
http://www.hp.com/go/SAP/vis

SAP

SAP
http://www.sap.com

SAP Service Marketplace
This website contains technical information about SAP. A free registered account needs to be created in order to access the information.
http://service.sap.com

SAP Adaptive Computing Controller
One level above the SAP Service Marketplace URL is the SAP ACC website. From this location, the most current SAP ACC library may be downloaded.
http://service.sap.com/adaptive
https://www.sdn.sap.com/irj/sdn/adaptive

SAP Product Availability Matrix (PAM)
This website contains the technical information and supported configuration for SAP components.
http://service.sap.com/pam
Relevant SAP Notes from the SAP Service Marketplace

SAP Note 1119255 Support Package Stack Guide—SAP Netweaver PI 7.1
SAP Note 1113545 Problems with SAPHOSTAGENT
SAP Note 1008828 ACC 7.1 PI/Adaptive Computing Controller Collective Note
SAP Note 1084753 Issues with sapacosprep
SAP Note 1031096 Installing Package SAPHOSTAGENT
SAP Note 1018839 Registering in the System Landscape Directory using sldreg
SAP Note 1172161 RFC Gateway configuration for SLD Data
SAP Note 1031096 SAP Host Agent installation
SAP Note 958253 SuSE Linux Enterprise Server 10: Installation Notes
SAP Note 171356 SAP Software on Linux: Essential information
SAP Note 985158 Collective patch for sapstartsrv

Microsoft

Microsoft whitepaper regarding the use of SQL Server 2005 with SAP R/3
http://www.microsoft.com/technet/itshowcase/content/sql2005sap.mspx