HP Integrity SAP ERP White Paper

Integrated Solutions Deployment Lab

Revision 1.0

Executive Summary

The purpose of this white paper is to assist sales representatives and solution architects with understanding, implementing, and consolidating ERP solutions using multi-partition HP Integrity platforms. By leveraging the work that HP performed in implementing a multi-tiered SAP R/3 application, customers can reduce their deployment time, which improves the Total Customer Experience for their HP-UX 11i HP Integrity implementation. Customer Focused Testing reduces deployment time by validating and documenting all major hardware and software elements in a given configuration.

This document demonstrates to customers and HP field personnel that this configuration information has been successfully validated in the test environment. Please note that while these configurations have been effectively validated, they have not been optimized for specific customer workloads and may therefore need further refinement.

Terms and Definitions

- ABAP – SAP's native configuration language
- DB/CI – Database and Central Instance for SAP
- Enqueue – The server that controls the lock request to the SAP Central Instance
- lgtst – SAP Logon Group Test Tool
- niping – An SAP utility to validate the TCP/IP configuration
- SICK – SAP transaction verifying Installation and consistency check in ABAP dictionary
- SGeSAP – Serviceguard Extension for SAP

SAP Solution Overview

Hardware Components

Database Servers

Two Integrity Superdome hard partitions were running SAP DB/CI and Oracle 9.2.0.1.0 in a SGeSAP cluster configuration. A HP StorageWorks Virtual Array 7410 was used for shared database storage. A HP Surestore disk system SC10 was used for the operating system.

Application Servers

Two Integrity Superdome hard partitions were running SAP R/3 Enterprise 4.7 SR1.

DNS Server

One Integrity Superdome hard partition was running the Windows 2003 64-bit Data Center Edition. A HP StorageWorks disk system 2110 was used as a boot device.

Software Components

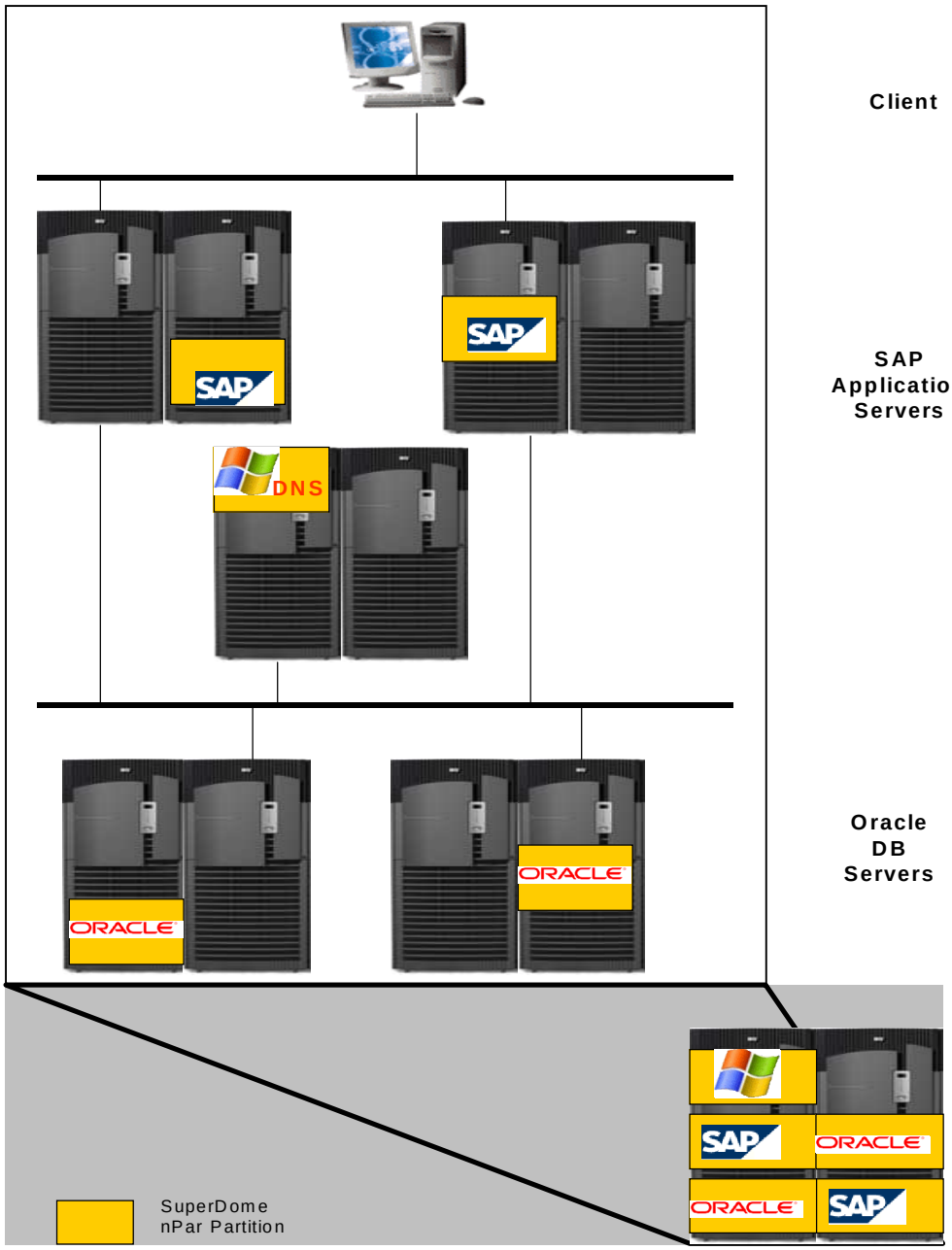
The software stack was comprised of HP ISU products and ISV software components. SAP was installed along with the high availability Serviceguard Extension for SAP (SGeSAP). When incorporated together, the following software components provide a highly available SAP/ERP application environment:

- HP-UX 11i v2 Operating Environments
- HP Hardware Partitions (nPars)
- HP C/ANSI C Developer 's Bundle
- HP aC++ Compiler
- Java2 1.3 SDK for HPUX
- HP Serviceguard
- HP Serviceguard Extension for SAP (SGeSAP)
- HP OpenView Storage Data Protector
- SAP R/3 Enterprise 4.7
- Oracle 9i Database

Hardware Topology

In order to perform a server consolidation proof of concept, a 3-tier SAP R/3 installation was implemented using hard partitions on a single Integrity Superdome complex. An additional partition on the Integrity Superdome was used as a Windows-based DNS server. See Figure 1, below.

Figure 1: Hardware Topology



Application Environment

The application stack was used to validate the Serviceguard failover, installation, configuration and basic functionality of SAP. The SAP R/3 compliance test was used to verify that the application in the software stack was working correctly. The HP OpenView Storage Data Protector backup and recovery product was also tested.

High Availability Environment

At the database tier, the Serviceguard Extension for SAP (SGeSAP) was integrated with Oracle 9i on two Integrity Superdome partitions to provide high-availability for SAP and Oracle processes. The SAP and Oracle data files were stored on external disk arrays that were accessible from both the primary and secondary DB/CI servers. A dual path between the external storage and the database servers eliminated the single point of failure between the disks and systems. Serviceguard ensured that processes would failover whenever the primary server system became unavailable.

SAP R/3 Compliance Testing

Test Activities

The SAP compliance test consists of running SAP transactions through the SAPGUI client front-end. The test validates the application functionality at all three levels: the client, the application, and the database layer. It also verifies the network functionality between all of the SAP servers.

- Checking SAP Instance Processes

  This test verifies that all SAP R/3 processes are running.

- Basic Network Functions and Configuration

  This test validates the network configuration of the SAP R/3 network. The `niping` utility is used to verify network connectivity between the host machines.

- Load Balanced SAP Front Logon

  This test checks that the SAP "load balanced front logon" functionality is working properly. When a user connects as part of a logon group, one of the servers from the list of reachable application servers is selected by the load balance mechanism to handle the session.

- Checking Reachable Application Servers

  The `lgtst` tool is used to access and check the message server list on the Central Instance (CI), which keeps a list of application servers that can be reached within the system.

- Checking Address Entries of the Local Gateway

  The gateway service on the CI keeps a list of addresses that refers to the local host machine. This test checks the number of entries currently held by the gateway and determines whether all local addresses are included in the address list.

- Checking Consistency

  The SAP defined transaction `SICK` compares the kernel, database, and operating system release to determine whether certain tables exist and are consistent in the ABAP Dictionary.

- Checking the Message and Gateway Services

  This test verifies the message and gateway services are functioning properly. All the SAP R/3 instances of a SAP R/3 system should be displayed and the work processes should be viewable.

- Checking Logical Remote Function Call Destination

  These transactions check to see if the Remote Function Call destination is reachable

- System Wide Remote Function Call Connection

  This transaction uses remote function calls to all running SAP R/3 instances in order to show all of the users who are currently logged on to the entire SAP R/3 environment.

- Enqueue and Update Services

  The enqueue service locks objects at the SAP level using an enqueue table. This table is held in the Central Instance. In order to check communication with the enqueue service inside the system, this test accesses the enqueue service from a non-Central Instance.

Test Results

The compliance tests passed with no errors.

High Availability Testing

Test Activities

In order to verify the high availability characteristics of SAP, Oracle, and SGeSAP, a failover test was performed. The Serviceguard cluster was brought up and the package was started on the primary DB/CI server. After validating that all of the SAP and Oracle processes were up and functioning correctly, a compliance test was run on the active DB/CI server. Next, a Serviceguard planned failover was performed on the cluster which migrated the application package from the primary node to the secondary node. Once again, a compliance test was performed on the active DB/CI server to verify application functionality. Finally, the Serviceguard package was migrated back to the primary node. All SAP and Oracle processes were verified and a compliance test was completed.

Test Results

All SAP and Oracle processes were running correctly on the active node after the planned failover and each compliance test completed without any errors.

HP OpenView Storage Data Protector Testing

Test Activities

The HP OpenView Storage Data Protector Client software was locally installed on each clustered SAP R/3 database node. The client software components include Data Protector's disk agent for file system backup, user interface for command-line access, and SAP R/3 integration for linking the SAP R/3 backup utilities (BRTOOLS) with Data Protector. The Data Protector Manager GUI was used to import the hostname of the application cluster package to the Data Protector Cell Manager so that backups could continue in the event of an application cluster package failover. The SAP R/3 integration was then configured using the hostname of the application cluster package. The validation testing sequence consisted of the following:

- Local installation of the client software to the clustered SAP R/3 database nodes
- Importing the hostname of the application cluster package to the Data Protector server
- Integration of the SAP R/3 backup utilities (BRTOOLS) with Data Protector
- Online backup using both the Data Protector Manager GUI and the client command-line interface
- Restoration of the SAP R/3 data file, using the Data Protector Manager GUI
- Recovery of the database, using the SAP R/3 (BRRECOVER) utility
- Online backup after an SAP R/3 application fail-over to the secondary database node in the cluster

Test Results

As described in the test activities, this testing was intended to uncover any inconsistencies with the product usage specifications. The overall test results were successful. However, a documentation error was discovered due to a SAP product change. A detail of this discovery is presented in Appendix F.

Functional Summary / Recommendations

The overall results of the tests indicate that multi-tiered SAP R/3 application environments can be successfully implemented and consolidated on multiple partitions of a single Integrity Superdome complex. The SAP R/3 application, Oracle database, networking and backup software all functioned as expected in this highly available configuration. In addition, the Windows Data Center Edition DNS server ran in a separate partition on the same Integrity Superdome complex. This demonstrates that HP-UX and Windows operating systems can run independently and simultaneously in their designated partitions within the same Integrity Superdome.

Accordingly, the Integrated Solutions Deployment Lab makes the following recommendations:

- Consider using Workload Manager. This product dynamically moves CPU resources between partitions as required to achieve the service level objective of SAP application. Again, this ensures higher levels of server utilization and increased agility since server resources are automatically and effectively adjusted on demand to meet changing business priorities and application usage levels.
- Consider the Integrity Superdome as well as other smaller cell architecture Integrity servers for server consolidation efforts.
- Follow the standard HP high availability implementation guidelines.
- Follow the standard Oracle performance tuning process for each database server.
- Follow the standard SAP performance tuning process for the application servers.
- Consider using the Instant-Capacity-on-Demand (iCOD) and Pay-Per-Use (PPU) products. The ability to pay only for the actual processors used could significantly reduce the Cost of Ownership, while leaving “head room” in the system available for rapid deployment. Also, the presence of the available processors could enhance system reliability since the iCOD software will automatically switch to a new CPU in the event that an error is detected in a currently used CPU.

Appendix A – Detailed Hardware Environment

Integrity Superdome Partitions

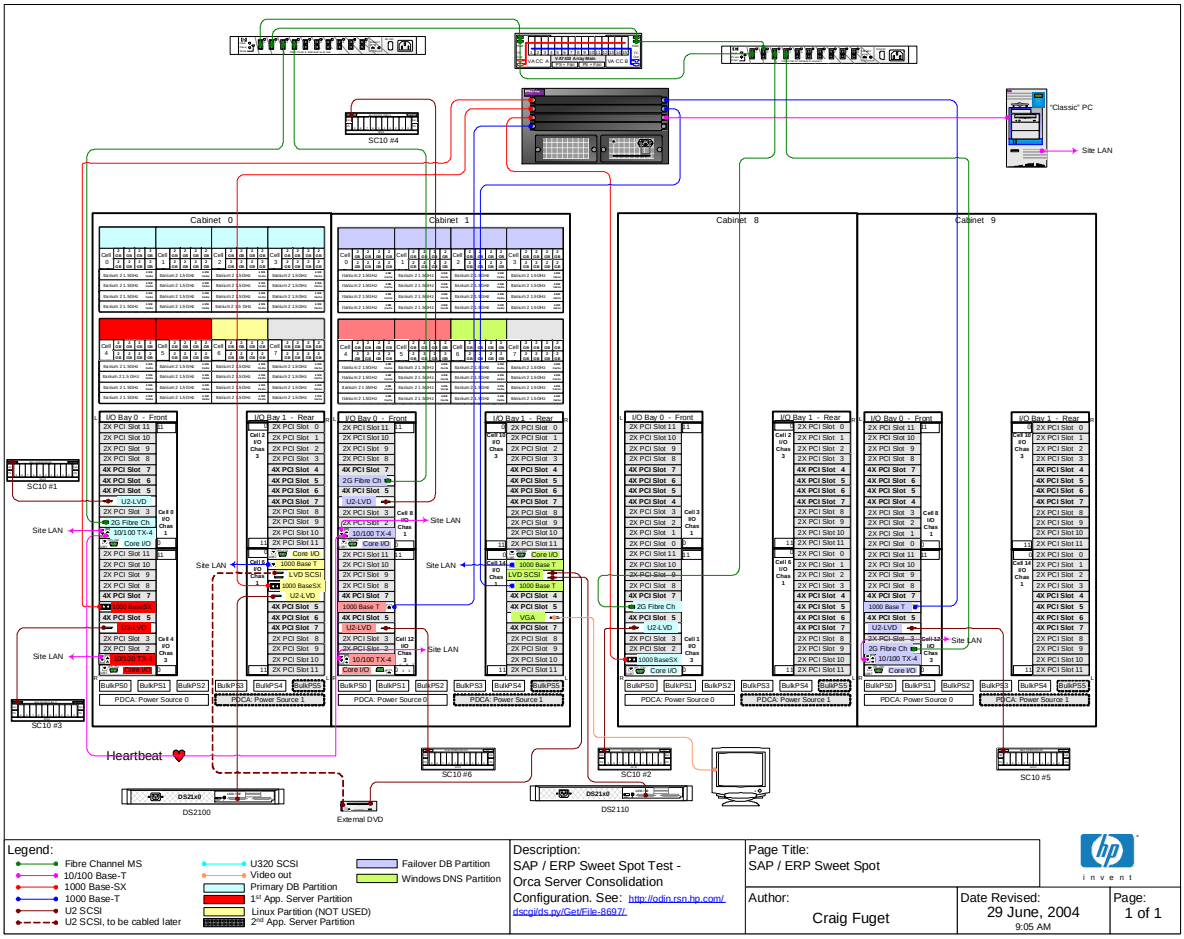
A 16 cell Integrity Superdome with two IO expanders was used. Each of the cells was connected to its own IO chassis. Redundant IO paths, particularly on the database partitions, were implemented to maximize fault tolerance. To maximize availability and fault isolation, the replicated partitions (database servers, application servers) were defined in different cabinets. To optimize performance, all of the cells for any given partition were kept within a single cross-plane.

Table 1: Partition Definitions

Partition	Cell	# CPUs	Interleaved Memory (GB)	Cell Local Memory (GB)
0 / Primary DB/CI Server	0 (0/0)[1]	4	11	1
	1 (0/1)	4	11	1
	2 (0/2)	4	11	1
	3 (0/3)	4	11	1
1 / Secondary DB/CI Server	8 (1/0)	4	11	1
	9 (1/1)	4	11	1
	10 (1/2)	4	11	1
	11 (1/3)	4	11	1
2 / First Application Server	4 (0/4)	4	11	1
	5 (0/5)	4	11	1
3 / Second Application Server	12 (1/4)	4	11	1
	13 (1/5)	4	11	1
4 / Windows 2003 Data Center Edition DNS Server	7 (0/7)[2]	4	11	1
Unused cells	6 (0/6)	4	NA	NA
	14 (1/6)	4	NA	NA
	15 (1/7)	4	NA	NA

[1] This is the local format, which refers to "cabinet 0, cell 0". See parcreate(1M).
[2] This cell was selected because its IO chassis was closer to the peripheral device rack where the system console was housed.

Figure 2: Partition and IO Layout



SAP GUI Server

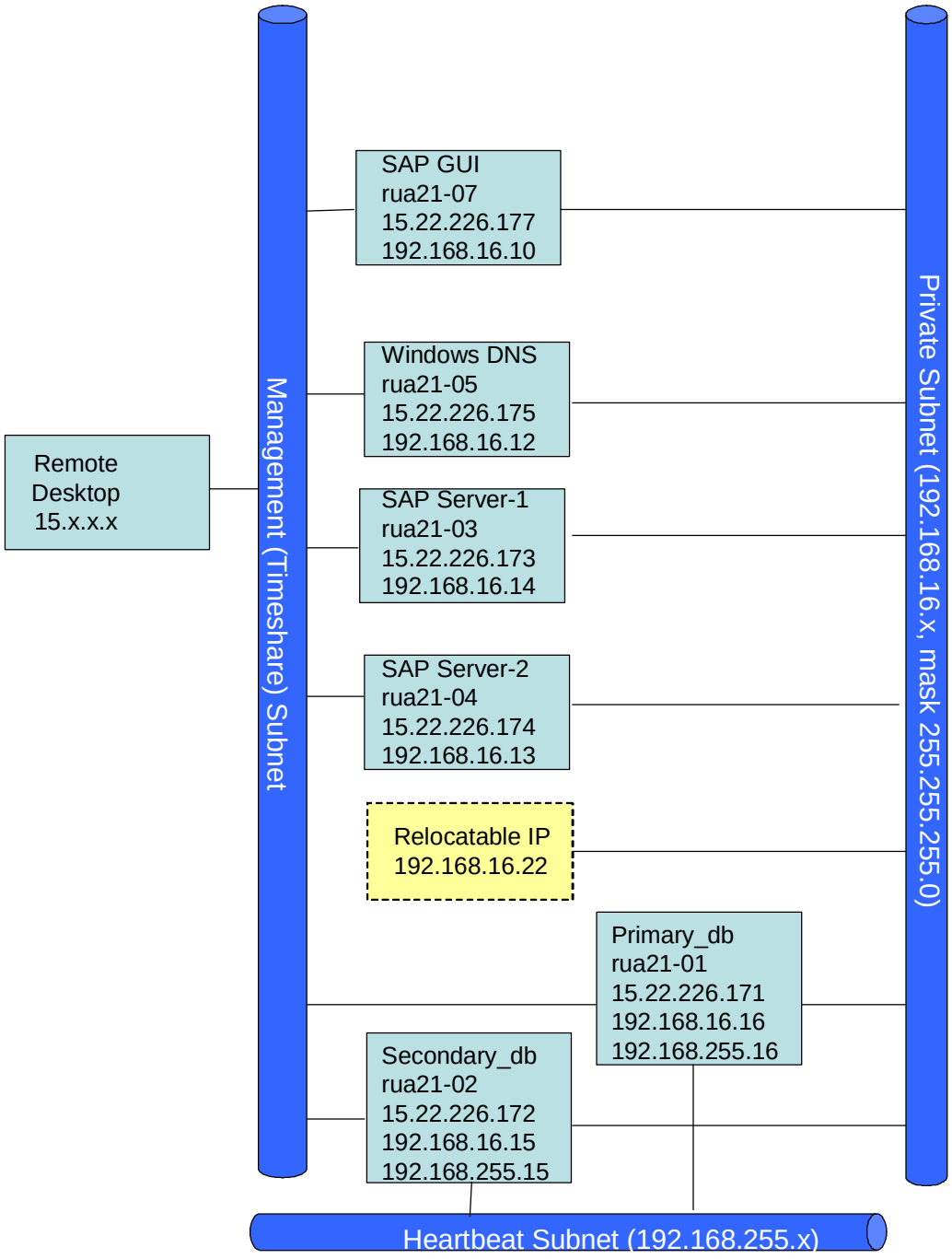
The SAP GUI software was installed on an HP Kayak XU800 32-bit PC. No special peripherals were required, beyond having two 100 Base-T network connections.

Data Protector Cell Manager Server

The Storage Data Protector Cell Manager Server software was installed on an HP9000 L2000 system. The system had a fibre channel connection to an HP SureStore 2/20 tape library and a 100 Base-T connection to the network.

Appendix B - Network Topology

Figure 3: Subnet Layouts



Appendix C – Detailed Software Environment

Database Servers

Table 2: Database Server Software

Product	Version	Software Description
B3701AA	C.03.71.23	HP GlancePlus/UX Pak for s800 11.23
B3901BA	C.05.50	HP C/ANSI C Developer's Bundle (S800)
B3913DB	C.05.50	HP aC++ Compiler (S800)
B5140BA	A.11.23.01	MC/Serviceguard NFS Toolkit
T1905BA	A.11.15.00	MC/ Serviceguard
B6834AA	B.01.03.01	HP-UX Security Patch Check Tool
B6848BA	1.4.gm.46.3	Ximian GNOME 1.4 GTK+ Libraries for HP-UX 11iV1.6
B6849AA	B.02.01.02	Bastille Security Hardening Tool
B8339BA	B.03.00.03	servicecontrol manager Server and Agent Bundle
B8465BA	A.01.05.05	HP WBEM Services for HP-UX
B9073BA	B.06.00	HP-UX iCOD (Instant Capacity on Demand)
B9788AA	1.3.1.09.07	Java2 1.3 SDK for HP-UX
B9789AA	1.3.1.09.07	Java2 1.3 RTE for HP-UX
B9901AA	A.03.05.06	HP IPFilter 3.5alpha5
Base-VXVM	B.03.50.IA.003	Base VERITAS Volume Manager Bundle 3.5 for HP-UX
CDE-English	B.11.23	English CDE Environment
CMDVIEWSDM	A.1.07.00	hp StorageWorks Command View SDM
FDDI-00	B.11.23.00	PCI FDDI;Supptd HW=A3739B;SW=J3626AA
FibrChanl-00	B.11.23.01	PCI FibreChannel;Supptd HW=A6795A,A5158A
GigEther-00	B.11.23.01	PCI GigEther;Supptd HW=A4926A/A4929A/A6096A;SW=J1642AA
GigEther-01	B.11.23.01	PCI GigEther;Supptd HW=A6825A/A6794A/A6847A/A8685A/A9782A/A9784A/A7109A
HPUX11i-OE-MC	B.11.23	HP-UX Mission Critical Operating Environment Component
HPUXBaseAux	B.11.23	HP-UX Base OS Auxiliary
HPUXBaseOS	B.11.23	HP-UX Base OS
IEther-00	B.11.23.01	PCI IEther;Supptd HW=A6974A
Judy	B.11.11.04.15	Judy Library - development and runtime libraries for handling dynamic arrays
MOZILLA	1.2.1.03.00	Mozilla 1.2 for HP-UX
MySQL	3.23.54a.00	MySQL open-source database
NPar	B.01.00	nPartition Provider - HP-UX

OnlineDiag	B.11.23.01.21	HPUX 11.23 Support Tools Bundle, Jun 2003
ParMgr	B.11.23.01.00	Partition Manager - HP-UX
Sec00Tools	B.01.00.03	Install-Time security infrastructure.
T1456AA	1.4.1.03.01	Java2 1.4 SDK for HP-UX
T1457AA	1.4.1.03.01	Java2 1.4 RTE for HP-UX
T1471AA	A.03.10.007	HP-UX Secure Shell
T2357BA	B.03.09	MC/Service Guard Extension for SAP
USB-00	B.11.23	Object Oriented USB Driver
hpuxwsApache	B.1.0.06.01	HP-UX Apache-based Web Server
hpuxwsTomcat	B.1.0.06.01	HP-UX Tomcat-based Servlet Engine
hpuxwsWebmin	A.1.0.06.01	HP-UX Webmin-based Admin
hpuxwsXml	A.1.0.06.01	HP-UX XML Web Server Tools
perl	D.5.8.0.A	Perl Programming Language
scsiU320-00	B.11.23	PCI SCSI U320; Supptd HW=CorelO
Oracle RDBMS	9.2.0.1.0	Oracle 9i Database for IPF
SAP R/3	4.7 SRI	SAP R/3 Enterprise
DATA-PROTECTOR	A.05.10	HP OpenView Storage Data Protector

Application Servers

Table 3: Application Server Software

Product	Version	Software Description
B3701AA	C.03.71.23	HP GlancePlus/UX Pak for s800 11.23
B3901BA	C.05.50	HP C/ANSI C Developer's Bundle (S800)
B3913DB	C.05.50	HP aC++ Compiler (S800)
B5140BA	A.11.23.01	MC/Serviceguard NFS Toolkit
B6834AA	B.01.03.01	HP-UX Security Patch Check Tool
B6848BA	1.4.gm.46.3	Ximian GNOME 1.4 GTK+ Libraries for HP-UX 11iV1.6
B6849AA	B.02.01.02	Bastille Security Hardening Tool
B8339BA	B.03.00.03	servicecontrol manager Server and Agent Bundle
B8465BA	A.01.05.05	HP WBEM Services for HP-UX
B9073BA	B.06.00	HP-UX iCOD (Instant Capacity on Demand)
B9788AA	1.3.1.09.07	Java2 1.3 SDK for HP-UX
B9789AA	1.3.1.09.07	Java2 1.3 RTE for HP-UX
B9901AA	A.03.05.06	HP IPFilter 3.5alpha5

Base-VXVM	B.03.50.IA.003	Base VERITAS Volume Manager Bundle 3.5 for HP-UX
CDE-English	B.11.23	English CDE Environment
FDDI-00	B.11.23.00	PCI FDDI;Supptd HW=A3739B;SW=J3626AA
FibrChanl-00	B.11.23.01	PCI FibreChannel;Supptd HW=A6795A,A5158A
GigEther-00	B.11.23.01	PCI GigEther;Supptd HW=A4926A/A4929A/A6096A;SW=J1642AA
GigEther-01	B.11.23.01	PCI GigEther;Supptd HW=A6825A/A6794A/A6847A/A8685A/A9782A/A9784A/A7109A
HPUX11i-OE-Ent	B.11.23	HP-UX Enterprise Operating Environment Component
HPUXBaseAux	B.11.23	HP-UX Base OS Auxiliary
HPUXBaseOS	B.11.23	HP-UX Base OS
IEther-00	B.11.23.01	PCI IEther;Supptd HW=A6974A
Judy	B.11.11.04.15	Judy Library - development and runtime libraries for handling dynamic arrays
MOZILLA	1.2.1.03.00	Mozilla 1.2 for HP-UX
MySQL	3.23.54a.00	MySQL open-source database
NPar	B.01.00	nPartition Provider - HP-UX
OnlineDiag	B.11.23.01.21	HPUX 11.23 Support Tools Bundle, Jun 2003
ParMgr	B.11.23.01.00	Partition Manager - HP-UX
Sec00Tools	B.01.00.03	Install-Time security infrastructure.
T1456AA	1.4.1.03.01	Java2 1.4 SDK for HP-UX
T1457AA	1.4.1.03.01	Java2 1.4 RTE for HP-UX
T1471AA	A.03.10.007	HP-UX Secure Shell
T2357BA	B.03.09	MC/Service Guard Extension for SAP
USB-00	B.11.23	Object Oriented USB Driver
hpuxwsApache	B.1.0.06.01	HP-UX Apache-based Web Server
hpuxwsTomcat	B.1.0.06.01	HP-UX Tomcat-based Servlet Engine
hpuxwsWebmin	A.1.0.06.01	HP-UX Webmin-based Admin
hpuxwsXml	A.1.0.06.01	HP-UX XML Web Server Tools
perl	D.5.8.0.A	Perl Programming Language
scsiU320-00	B.11.23	PCI SCSI U320; Supptd HW=CoreIO
Oracle RDBMS	9.2.0.1.0	Oracle 9i Database for IPF
SAP R/3	4.7 SRI	SAP R/3 Enterprise

DNS Server

Table 4: DNS Server Software

Product	Version	Software Description
HP Data Center	DTC.10B.ISO	Windows 2003 Data Center Edition

SAP GUI Server

Table 5: SAP GUI Server Software

Version	Software Description
NT Service Pack 5	Windows 2000
3.3.7	VNC
6.20	SAPGUI

HP OpenView Storage Data Protector Cell Manager Server

Table 6: Data Protector Cell Manager Server Software

Product	Version	Software Description
BUNDLE	B.11.11	Patch Bundle
BUNDLE11i	B.11.11.0102.2	Required Patch Bundle for HP-UX 11i, February 2001
Base-VXVM	B.03.20.1	Base VERITAS Volume Manager 3.2 for HP-UX
CDE-English	B.11.11	English CDE Environment
DATA-PROTECTOR	A.05.10	HP OpenView Storage Data Protector
FCManagerSTAND	3.1.F	Bundle of Fibre Channel Manager
FDDI-00	B.11.11.02	PCI FDDI;Supptd HW=A3739A/A3739B;SW=J3626AA
FDDI-02	B.11.11.01	HPPB FDDI;Supptd HW=J2157B;SW=J2658BA
FibrChanl-00	B.11.11.09	PCI/HSC FibreChannel;Supptd HW=A6684A,A6685A,A5158A,A6795A
GOLDAPPS11i	B.11.11.0206.4	Gold Applications Patches for HP-UX 11i, June 2002
GOLDBASE11i	B.11.11.0206.4	Gold Base Patches for HP-UX 11i, June 2002
GigEther-00	B.11.11.14	PCI/HSC GigEther;Supptd HW=A4926A/A4929A/A4924A/A4925A;SW=J1642AA
GigEther-01	B.11.11.04	PCI GigEther;Supptd HW=A6794A/A6825A/A6847A
HPBridgeManager	A.01.00.0086	HP Bridge Manager for Enterprise Storage Mgmt
HPOVSAMAP	03.10.00.0126	HP OpenView Storage Area Manager Applications
HPOVSAMCA	03.10.04.0023	hp OpenView storage area manager Core Applications

HPOVSAMCP	03.10.04.0023	hp OpenView storage area manager Builder Application
HPOVSAMDA	03.10.04.0023	hp OpenView storage area manager HostAgent DIAL
HPOVSAMHA	03.10.04.0023	hp OpenView storage area manager HostAgent Framework
HPOVSAMHB	03.10.00.0126	hp OpenView storage area manager HostAgent HBA Gateway
HPOVSAMJR	1.4.1.3	hp OpenView storage area manager embedded JRE
HPOVSAMLM	03.10.00.0126	hp OpenView storage area manager Allocater Application
HPOVSAMPM	03.10.04.0023	hp OpenView storage area manager Optimizer Application
HPOVSAMSG	03.10.00.0126	hp OpenView storage area manager HostAgent SCSI Gateway
HPSCSIGateway	A.01.00.0011	HP Bridge Manager for Enterprise Storage Mgmt
HPUX11i-OE	B.11.11	HP-UX Internet Operating Environment Component
HPUXBase64	B.11.11	HP-UX 64-bit Base OS
HPUXBaseAux	B.11.11.0206	HP-UX Base OS Auxiliary
HWEnable11i	B.11.11.0206.5	Hardware Enablement Patches for HP-UX 11i, June 2002
ITOAgent	A.06.00	ITO Agents for HP-UX 11.x English
IUX-Recovery	B.3.6.82	Ignite-UX network recovery tool subset
J1608CA	B.02.00.09	Netscape Fasttrack Server
MeasureWare	C.02.65.00	MeasureWare Software/UX
MeasurementInt	C.02.65.00	HP-UX Measurement Interface for 11i
OnlineDiag	B.11.11.07.11	HPUX 11.11 Support Tools Bundle, Jun 2002
OnlineJFS	B.11.11	Online features of the VxFS File System
RAID-00	B.11.11.01	PCI RAID; Supptd HW=A5856A
perl	B.5.6.1.C	Perl for HP-UX

Appendix D - Integrity Superdome Database and Application Server Configuration

Database Server Configuration

HP-UX Configuration and Tunes

Table 7: Database Server File System Layout

File System	Size
/	720 MB
/stand	512 MB
/var	4600 MB
/usr	3000 MB
/tmp	720 MB
/opt	4600 MB
/home	256 MB
/oracle/client	280 MB
/oracle/S03	12000 MB
/oracle/S03/sapdata1	10016 MB
/oracle/S03/sapdata2	12416 MB
/oracle/S03/sapdata3	11616 MB
/oracle/S03/sapdata4	13600 MB
/oracle/S03/mirrlogA	320 MB
/oracle/S03/mirrlogB	320 MB
/oracle/S03/origlogA	320 MB
/oracle/S03/origlogB	320 MB
/oracle/S03/oraarch	2400 MB
/oracle/S03/saparch	800 MB
/oracle/S03/sapreorg	1600 MB
/oracle/stage	6400 MB
/sapmnt/S03	1600 MB
/usr/sap/trans	1600 MB
/usr/sap/S03	2016 MB

Table 8: Database Server Kernel Tunable Parameters

Tunable	Value	11.23 Default
dbc_max_pct	8	50
dbc_min_pct	5	5
maxdsiz_64bit	17179869184	4294967296
maxuprc	400	256
ninode	8192	4880
shmmax	17179869184	1073741824
semvmx	32767	32767
semume	100	100
semmnu	256	256
semaem	16384	16384
msgmap	2048	1026
msgtql	2046	1024
msgmnb	65535	16384
msgseg	32767	8192
nstrpty	60	60
swchunk	8192	2048

SAP R/3 Application Server Configuration

HP-UX Configuration and Tunes

Table 9: Application Server File System Layout

File System	Size
/	720 MB
/stand	512 MB
/var	4600 MB
/usr	3000 MB
/tmp	720 MB
/opt	4600 MB
/home	256 MB
/oracle/S03	1400 MB

/oracle/stage	1500 MB
/sapmnt/S03/exe	1228 MB
/usr/sap/S03	900 MB

Table 10: Application Server Kernel Tunable Parameters

Tunable	Value	11.23 Default
dbc_max_pct	8	50
dbc_min_pct	5	5
maxdsiz_64bit	17179869184	4294967296
maxuprc	400	256
ninode	8192	4880
shmmax	17179869184	1073741824
semvmx	32767	32767
semume	100	100
semmnu	256	256
semaem	16384	16384
msgmap	2048	1026
msgtql	2046	1024
msgmnb	65535	16384
msgseg	32767	8192
nstrpty	60	60

DNS Server Configuration

Windows Configuration & Tunes

There were no special configuration changes or tunes for the Windows system, other than explicitly selecting and naming the network adapters.

DNS Configuration

Windows 2003 Server no longer installs and enables Domain Name Services (DNS) by default. Configuration will have to be done manually.

Appendix E – Patches

Table 11: HP OpenView Storage Data Protector Patches on Cell Manager Server and SAP DB/CI Server

Patch	Description	Cell Manager	DB/CI Server
PHSS_29142	OV DP5.10 patch - EVAA packet	ü	
PHSS_29143	OV DP5.10 patch - DOC packet	ü	
PHSS_29414	OV DP5.10 patch - CC packet	ü	ü
PHSS_29417	OV DP5.10 patch - MA packet	ü	
PHSS_29423	OV DP5.10 patch - CM packet	ü	
PHSS_29863	OV DP5.10 patch - ORACLE8 packet	ü	
PHSS_29864	OV DP5.10 patch - SAP packet	ü	ü
PHSS_29867	OV DP5.10 patch - CORE packet	ü	ü
PHSS_29872	OV DP5.10 patch - SSEA packet	ü	

Appendix F – Problems and Workarounds

In order to restore a SAP R/3 data object, the "HP OpenView Storage Data Protector UNIX Integration Guide" provides examples using the BRRESTORE utility from SAPDBA. Using this method to perform the restore resulted in the following error:

```
SAPDBA: Bad format in detail BRBACKUP log file.
       (2004-xx-xx 17.21.04)
  Filename: "/oracle/S03/sapbackup/bdmdnmwr.pnf"
  Line    : 41
  Additional info: LOC_017:
```

Workaround: When the problem was reported to SAP, HP was told that SAP is no longer developing the SAPDBA functions and that SAPDBA will soon be obsolete. SAP strongly recommends that customers use the BRRECOVER functions rather than the equivalent SAPDBA functionsbecause BRRECOVER will always be fully up-to-date.

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