

**Re Shared Server Infrastructure, Schedule B, pages 78-79 (\$644,000)**

**Q. Please provide a list of all components being replaced in 2004 and 2005 by location, showing the make, model, and age of each component. Please indicate for each component the number and duration of any failures that have occurred in 2002 and 2003.**

**A.** The following table provides a list of all components being replaced in 2004 by location, showing the make, model, quantity and age of each component.

<b>Location</b>	<b>Make</b>	<b>Model</b>	<b>Quantity</b>	<b>Age in 2004 (Years)</b>
<b>Servers</b>				
Kenmount Road	Compaq	Prosignia 500	1	8
Kenmount Road	Compaq	Proliant 800	3	7
Kenmount Road	Compaq	Proliant 3000	2	6
Kenmount Road	Compaq	Proliant 3000	2	5
Kenmount Road	IBM	PL300	1	5
<b>Tape Drives</b>	<b>Tape Drives</b>			
Kenmount Road	Quantum	DLT 7000	2	6
Duffy Place	Quantum	DLT 4000	1	7

While statistics on the number and duration of hardware failures are not recorded at the individual component level, reports on Change Management – Request for Change (Attachment A), Compaq Support Call Log (Attachment B) and Open Storage Solutions' Report on System Status for Newfoundland Power (Attachment C) are reviewed as part of the budgeting process.

A list of any components to be replaced in 2005 will be developed as part of the 2005 budgeting process.

### **Change Management – Request for Change**

**This report contains a log of work performed on hardware infrastructure as captured in the Company's change management system for the period January 2002 to August 2003.**

## Change Management Records for Servers and Associated Hardware

<i>RFC ID</i>	<i>Description</i>	<i>Implementation Date</i>
2190	Replace Cache Battery to fix the UnderVoltage warnings on Draco OSS Disk array.	1/5/2002
2207	Re-locate server within rack and install Remote Insight Board.	1/10/2002
2210	Update pcANYWHERE to current version and re-apply SP6a	1/11/2002
2216	Reinstall OfficeScan Server	1/11/2002
2217	Replace Spares in Corvus OSS Disk Array	1/8/2002
2244	Repair Tape Drive on Draco	1/29/2002
2248	(1) Replace internal SCSI cable on Channel 2 of BBRA4. (2) Complete off-line verification of NTFS file system on USER1 RAID array.	2/3/2002
2251	Re-boot NPCRBBDC in order to reset mouse interface.	2/9/2002
2297	Install Reflection, Fax Sr., Aspect CTI, and CaptureEZE and Secure Remote/ SecureClient	3/11/2002
2308	Upgrade individual hard drive BIOS's to current versions.	3/27/2002
2336	Apply security hotfix MS02-018/Q319733 to the following servers:	4/11/2002
	NPBOSSIIS1	
	NPBOSSIIS2	
	NPBOSSIIS3	
	NPCARBDC	
	NPCLVBDC	
	NPCRBBDC	
	NPDEVCOG2	
	NPDUFDR2	
	NPDUFDR3	
	NPDUFHHR1	
	NPGANBDC	
	NPGRFBDC	
	NPIDSINTERNET	
	NPINTRA3	
	NPINTRA4	
	NP-KEN-APPS	
	NPKENDEV1	
	NPKENDEV3	
	NPKENHHR2	
	NP-KEN-MAGIC1	
	NPKENOV	
	NPKENSMOM	
	NP-KEN-USER1	
	NP-KEN-USER2	
	NPKENVCS	
	NPPABSRV	
	NPPTUSRV	
	NPREGBDC	
	NPSACD1	
	NPSCCBDC	
	NPSCCFMS	
	NPSECOND	
	NPSECURE1	
	NPSLPBDC	
	NPSTVBDC	
	NPWHTSRV	

<i><b>RFC ID</b></i>	<i><b>Description</b></i>	<i><b>Implementation Date</b></i>
2338	Replace Hard Drive on OSS Rack. Move Oracle Archive logs to new Drive.	4/12/2002
2354	(1) Install second processor upgrade in NP-KEN-USER2. (2) Install Remote Insight Board in NP-KEN-USER2.	4/25/2002
2355	Install second processor upgrade in NP-KEN-USER1.	4/26/2002
2363	Re-apply SP6a and security hotfixes in order. Test install process on NP-KEN-USER2 first; then complete on NP-KEN-USER1.	5/1/2002
2370	Apply patch to hard drive firmware.	5/8/2002
2382	Reboot server to clear memory leak.	5/14/2002
2419	Install Remote Insight Board in SCC file and print server (NPSCCBDC).	6/20/2002
2426	Uninstall Microsoft DNS Server service from each server.	6/20/2002
2433	Upgrade the Windows NT nfpower_domain domain to Active Directory.	9/21/2002
2456	Computer Room Shutdown to relocate Aspect Power Supplies and Batteries, Also to connect EPO (Emergency Power Off) module to the Fire Suppression System. During this time routine scheduled maintenance on Duffy Place Fire Suppression system, Alpha servers and disks, A/C systems etc.	7/27/2002
2478	Temporary shutdown of NPDEVEX6 in order to use system as temporary PDC. Remove and store hard drives until Active Directory migration is complete.	7/31/2002
2499	Need to add a driver to the Clarendville server and set up a print queue for a HP DesignJet 430 printer. This printer driver is not on the server and will be installed from a driver downloaded from the Internet.	8/14/2002
2536	Reboot NP-KEN-USER2	9/12/2002
2571	Shutdown/power-down/power-up/Re-boot NP-KEN-USER2 to reset mouse and ARCserve interfaces.	10/4/2002
2574	Replace failed power supply in ProLiant server.	10/7/2002
2577	De-commission NPDEVCOG2	10/8/2002
2586	Remove Drafting folder and DSS share from Power Systems area. Implement *.BAK purge routine for Drafting area.	10/11/2002
2593	Install Remote Insight Board in NP-KEN-USER2	10/19/2002
2600	Install 1 additional CPU and Power Supply in Draco.	10/30/2002
2625	Replace / Repair left CRD5500 Raid Controller	11/4/2002
2645	Left OSS CRD5500 Raid controller Failed.	11/13/2002
2667	Connect 50 GB array (BBRA2) to NP-KEN-USER2	12/15/2002
2674	Move IS department directory on NP-KEN-USER2 from F: to O:.	12/19/2002
2685	Replace spare OSS drives that have failed.	1/6/2003
2687	Install disk storage upgrade in NP-KEN-USER2	1/10/2003
2716	Reboot NP-KEN-USER2 in order to unlock console.	2/7/2003
2717	Move files and shares located on OSS array BBRA1 to new internal disks.	2/7/2003
2728	Install RAM upgrade in NP-KEN-USER2. Total RAM will equal 1 GB.	2/21/2003
2739	Decommission NPDUFDR1.	2/27/2003
2740	Install new hard drive and expand volumes F:, G: and R:.	3/3/2003
2748	De-commission NPDUFDR2.	3/4/2003
2749	Re-boot server (to clear console) and migrate Corporate areas to new disks.	3/7/2003
2787	Install second processor upgrade in NPSACD2.	4/15/2003
2830	Decommission NPINTRA3 and NPKENDEV3	6/13/2003

**Compaq Support Call Log**

**This report contains maintenance records from Hewlett Packard,  
the supplier of the Company's servers, for the period  
January 2002 to August 22 2003**

**NLH-84 NP**  
**Attachment B**  
**NP 2004 CBA**

LogNo	AgrmtNo	CustmrName	SysType	SerialNo	Sum Of Dlh	Option	Option Serial #	LogDt	LogTime	LastOfLineACrmt	PartNo
CDNB12454 02	795-0029-98	NEWFOUNDLAND POWER	A4100	NI72406UIO	2.5	A4100	NI72406UIO	17-Jan-02	11:54	PICKUP/DYNAMEX/NA	-TZ88N-VA
CDNB14841 02	795-0025-98	NEWFOUNDLAND POWER	A4100	NI724056PY	2	A4100	NI724056PY	31-Jan-02	18:47	FRU:KN304-DA	-KN304-DA
CDNB19998 02	795-0015-97	NEWFOUNDLAND POWER	A4100	NI624032RA	2.5	A4100	NI624032RA	07-Jan-02	14:30	CUST MEETING/CALENDARS	
CDNB20051 02	795-0082-99	NEWFOUNDLAND POWER	55NJA	NI92407145	13.5	55NJA	NI92407145	01-Feb-02	12:41	CLOSED VIA CALL UPDATE	FC-RZ1DD-VW
CDNB42434 02	795-0029-98	NEWFOUNDLAND POWER	A4100	NI72406UIO	3	A4100	NI72406UIO	13-Apr-02	03:55	TS W/CUST. C NOTES	-B3005-CA
CDNB61413 02	795-0082-99	NEWFOUNDLAND POWER	55NJA	NI92801893	15	55NJA	NI92801893	07-Jun-02	11:59	RE CONG SYS	
CDNB61593 02	795-0029-98	NEWFOUNDLAND POWER	A4100	NI72406UIO	2.1	A4100	NI72406UIO	08-Jun-02	18:56	CLOSE CALL	DS-RZ1DA-SW
CDNB62803 02		NEWFOUNDLAND POWER	OO7KC	.	2.5	DEALPHAOT	NI92407148	13-Jun-02	16:00	KZPBA-CX/TZ88N	
CDNB74074 02	795-0026-98	NEWFOUNDLAND POWER	A4100	NI72400BQV	1.5	A4100	NI72400BQV	19-Jul-02	15:30	/NA-SYS PM	
CDNB74075 02	795-0088-99	NEWFOUNDLAND POWER	A4100	NI93600784	1.5	A4100	NI93600784	19-Jul-02	15:03	/NA-SYS PM	
CDNBA3976 02		NEWFOUNDLAND POWER	OO7KC	.	2	OO7KC	.	21-Oct-02	08:37	CLOSED VIA CALL UPDATE	
CDNBA6266 02	795-0029-98	NEWFOUNDLAND POWER	A4100	NI72406UIO	3.5	A4100	NI72406UIO	30-Oct-02	08:47	CPU/TEST	
CDNBB1581 02	795-0026-98	NEWFOUNDLAND POWER	A4100	NI72400BQV	1	A4100	NI72400BQV	08-Nov-02	09:55	RPLC CPU/TEST VR	B3005CA
CDNBB1581 02	795-0026-98	NEWFOUNDLAND POWER	A4100	NI72400BQV	1	A4100	NI72400BQV	08-Nov-02	09:55	CLOSED VIA CALL UPDATE	B3005CA
CDNBB2989 02	795-0088-99	NEWFOUNDLAND POWER	A4100	NI93600784	2.5	A4100	NI93600784	15-Nov-02	09:57	RAID CONTROLLER	293344701
CDNBB2989 02	795-0088-99	NEWFOUNDLAND POWER	A4100	NI93600784	2.5	A4100	NI93600784	15-Nov-02	09:57	CLOSED VIA CALL UPDATE	293344701
CDNBB3251 02		NEWFOUNDLAND POWER	OO7KC	N/A	12	CQHSG80OT	NI72400BQV	18-Nov-02	08:51	PO#/CFG KGPSA/WRG PRT	
CDNBB3251 02		NEWFOUNDLAND POWER	OO7KC	N/A	12	DEALPHAOT	NI72400BQV	18-Nov-02	08:51	KGPSA/CONF HSG80021192	
CDNBB3251 02		NEWFOUNDLAND POWER	OO7KC	N/A	12	DEHSG80OT	NI72400BQV	18-Nov-02	08:51	HBA/HSG80	
CDNBB4347 02		NEWFOUNDLAND POWER	OO7KC	N/A	0	DEA4100OT	NI72400BQV	21-Nov-02	13:06	KGPSA	DSKGPSACY
CDNBC4728 02	795-0082-99	NEWFOUNDLAND POWER	55NJA	NI92407147	1.5	55NJA	NI92407147	31-Dec-02	11:39	/NA-PICK UP PARTS	293489701
CDNBC4728 02	795-0082-99	NEWFOUNDLAND POWER	55NJA	NI92407147	1.5	55NJA	NI92407147	31-Dec-02	11:39	CLOSED VIA CALL UPDATE	293489701
CDNB11112 03	795-0168-95	NEWFOUNDLAND POWER	A2150	KA439EFEL1	2	A2150	KA439EFEL1	08-Jan-03	10:53	T/S NO POWER	304127401
CDNB14504 03	795-0015-97	NEWFOUNDLAND POWER	A4100	NI624032RA	1	A4100	NI624032RA	23-Jan-03	11:44	/R-TAPE/TEST/R	TZ88NVA00
CDNB14504 03	795-0015-97	NEWFOUNDLAND POWER	A4100	NI624032RA	1	A4100	NI624032RA	23-Jan-03	11:44	CLOSED VIA CALL UPDATE	TZ88NVA00
CDNB21040 03	795-0015-97	NEWFOUNDLAND POWER	A4100	NI624032RA	1.5	A4100	NI624032RA	06-Feb-03	09:56	SITE VISIT	
CDNB23928 03	795-0082-99	NEWFOUNDLAND POWER	55NJA	NI92407149	1.5	55NJA	NI92407149	19-Feb-03	20:08	RPL P/S	304804301
CDNB23928 03	795-0082-99	NEWFOUNDLAND POWER	55NJA	NI92407149	1.5	55NJA	NI92407149	19-Feb-03	20:08	CLOSED VIA CALL UPDATE	304804301
CDNB24563 03	795-0082-99	NEWFOUNDLAND POWER	55NJA	NI92407148	1.5	55NJA	NI92407148	24-Feb-03	11:22	TAPE DRIVE	293489701
CDNB24563 03	795-0082-99	NEWFOUNDLAND POWER	55NJA	NI92407148	1.5	55NJA	NI92407148	24-Feb-03	11:22	CLOSED VIA CALL UPDATE	293489701
CDNB24679 03	79H-0002-01	NEWFOUNDLAND POWER	DESKT	CAREINST	3	CQALPHAOT	CAREINST	24-Feb-03	12:28	SYSTEM INSTALL	
CDNB24679 03	79H-0002-01	NEWFOUNDLAND POWER	DESKT	CAREINST	3	DESKT	CAREINST	24-Feb-03	12:28	CLOSED VIA CALL UPDATE	
CDNB24681 03	79H-0002-01	NEWFOUNDLAND POWER	DESKT	CAREINST	3.5	CQDS25 OT	CAREINST	24-Feb-03	12:34	SYSTEM INST	
CDNB24681 03	79H-0002-01	NEWFOUNDLAND POWER	DESKT	CAREINST	3.5	DESKT	CAREINST	24-Feb-03	12:34	CLOSED VIA CALL UPDATE	
CDNB32299 03	795-0168-95	NEWFOUNDLAND POWER	A2150	KA439EFEL1	4.5	A2150	KA439EFEL1	12-Mar-03	14:20	CPU/TEST	B2020AA
CDNZ30157 03	9LP-0004-97	NEWFOUNDLAND POWER	OO7KC	TRUSTB	1.5	CQHSG80OT	AY25100378	18-Mar-03	16:11	DISK/TEST	189395001
CDNB33535 03	795-0082-99	NEWFOUNDLAND POWER	55NJA	92003181 NI	3.5	55NJA	92003181 NI	19-Mar-03	13:15	SYSTEM PM	
CDNB60756 03	795-0029-98	NEWFOUNDLAND POWER	A4100	72406UIO 01NI	4	A4100	72406UIO 01NI	04-Jun-03	09:51	SYSTEM PM	
CDNB60757 03	795-0025-98	NEWFOUNDLAND POWER	A4100	NI724056PY	1	A4100	NI724056PY	04-Jun-03	09:52	PM-REP RAID CACHE BATT	KZPSCUX
CDNB60758 03	795-0015-97	NEWFOUNDLAND POWER	A4100	NI624032RA	1	A4100	NI624032RA	04-Jun-03	09:54	PM-REP RAID CACHE BATT	KZPACUX
CDNB61938 03	9LP-0004-97	NEWFOUNDLAND POWER	OO7KC	CPQWNFLD	2	CQDL380SE	D244JZG2D102	10-Jun-03	16:32	PWR SWTH COVERS	274052001
CDNB72165 03	795-0015-97	NEWFOUNDLAND POWER	A4100	NI624032RA	3	A4100	NI624032RA	14-Jul-03	12:02	RAID CNTR/CFG/TEST	293344701
CDNB72165 03	795-0015-97	NEWFOUNDLAND POWER	A4100	NI624032RA	3	A4100	NI624032RA	14-Jul-03	12:02	CLOSED VIA CALL UPDATE	293344701
CDNB72233 03	795-DESKT-90	NEWFOUNDLAND POWER	A4100	NI72400BQV	3.5	A4100	NI72400BQV	15-Jul-03	11:12	SYSTEM PM	

**Open Storage Solutions' Report on System Status  
for Newfoundland Power**

**This report contains maintenance records from Open  
Storage Solutions, a supplier of disk storage devices, for the period  
January 2002 to August 2003.**



## **Open Storage Solutions' Report on System Status for Newfoundland Power**

**September 2, 2003**  
**Derek Long**  
**Account Manager – Atlantic Region**

Open Storage Solutions  
**All your data.**  
**All the time.**  
**Period.**





## **Maintenance Report from January 2002 - Present**

Over the last twenty (20) months DRACO had nineteen (19) calls. The results were:

Two (2) calls logged for PMs on Draco as a result of computer room shutdowns.

Four (4) calls logged for disk drive failures.

Seven (7) calls logged for broken tape leaders.

Six (6) calls logged for controller related problems

Over the last twenty (20) months CORVUS had five (5) calls. The results were:

One call logged for PM on CORVUS as a result of computer room shutdown.

Two (2) calls logged for disk drive failures.

Two (2) calls logged for controller related problems

Details follow:

### **Service summary for OSS Raid Subsystem (Draco):**

- Jan.02 02 3pm: Received a call from Keith Le Feuvre. There was a low voltage alarm coming from the right raid controller. Keith planned for the shutdown on Jan 5<sup>th</sup>. I replaced the batteries on both controllers. During power up disk shelves 2,5and 8 did not come on-line. A drive time out was adjusted on the raid controllers and I found a disk drive power supply on Ch2 ID 3 was a little low. I adjusted the power supply. I recommended replacing the channel cards for shelves 2,5&8 and doing a firmware upgrade, however it was suggested I wait for the next shutdown. Duration of call 4 hours 30 min.
- Jan. 08 02: Received a call from Keith Le Feuvre. Two disk drives failed. I replaced the failed drives. Duration of call 1hr 10min.
- Jan.11 02 1pm: received a call from Keith Le Feuvre. The left raid controller was reporting a high temperature alarm. The shutdown was planned for Jan 12 8am. I replaced the fans in both controllers. Customer did not want to replace channel card at this time. System came up fine. Call Duration 2hr 20 min.
- Jan 29 02 12pm: received a call from Keith Le Feuvre. A broken tape leader on one of the DLT 7000 tape drives. Wanted me to replace the leader at 6:30. The call was completed at 7:30 pm the same day. Duration of call 1hr 15 min.

- April 02 02 3pm: received a call from Keith. A failed disk drive. Call was start time was April 02 02 time 4pm. Call duration 40 min.
- April 13 02 7:30am: received a call from Keith Le Feuvre. The Alpha server could not see half of the raid drives. After some trouble shooting the problem was with the Host Channel card on the right controller. The host channel card and internal cables for the host cards were replaced. Also on power up shelves 2, 5, & 8 did not come on line. I loaded the new code to both controllers and done a power cycle, all drive shelves came on line and system powered up, however 2 drives in the raid failed. They were replaced. Start time of call April 13 02 at 9am.
- May 3 02 5:10pm: Received a call from Sean Kearley. A broken tape leader on one of the DLT 7000 tape drives. Wanted me in at 8:30 that evening. Call duration: 1hr.
- June 12 02 5pm: Received a call from Keith Le Feuvre. There were two dropped drives on the raid: One from JBOD and the other from a raid set. I replaced the drives. Time in June 12 7:00pm call duration: 1hr 20 min.
- Oct 15 02 3pm: Received a call from Keith Le Feuvre. They are planning a computer room shut down for Oct 19th and would like a PM done on equipment. I vacuumed a large amount of dust from the system. Because there was so much dust I replaced both controller fans. Checked all cables and terminators and power supplies. All OK. However during power up channel 2 would not come on line. I replaced Channel 2 cards from both controllers. Powered up the equipment again and syatem came up. Call Duration 5hr 20 min.
- Nov 4 02: Received a call from Sean Kearley: The left controller failed and the fault tolerant raid system done its job and failed over to the surviving controller. According to the Raid logs the failure happened Friday night/ Saturday morning. I was notified of the failure on Monday 10am. Sean wanted me in there at 8:30 pm on Nov 4<sup>th</sup>. I went in and found that the problem was with unstable voltage from one of the two redundant power supplies for the raid controllers. Call duration 2hr 30min.
- Oct.19 02: Done a PM on the Draco Raid subsystem. Time in was 8am time out was 1pm. This was planned maintenance that was completed during a planned computer room shutdown.
- Nov 04 02: Replaced a power supply on a CMD 5500 raid controller.

- Nov 13 02: Replaced 2 x 128MB memory modules from the left controller.
- Dec 04 02: Replaced a DLT7000 tape drive Leader as a result of bad/old media being used.
- March 07 03: Replaced a leader in a DLT 7000 tape as a result of bad/old media being used. During that same call the power supply for the tape drive rack was replaced.
- April 04 03: Replaced a DLT 7000 tape drive.
- April 25 03: Replaced a disk drive on the CMD5500 raid system
- May 28 03: Replaced a leader in a DLT 7000 tape drive as a result of bad/old media being used.
- June 10 03: Replaced a leader in a DLT 7000 tape drive as a result of bad/old media being used.

### **Service for OSS Raid Subsystem (Corvus):**

- Jan 8 02 10am: Received a call from Keith Le Feuvre. He informed me that Corvus had two drives that failed. He wanted the drives replaced on Jan 9<sup>th</sup> at 2:30 pm. Call duration 1hr 20 min.
- July 15 02 2pm: Received a call from Keith Le Feuvre. A computer room shutdown is planned for Duffy on the 27<sup>th</sup>. I checked the system Loaded new code checked power supplies cables and terminators. I was on site doing a PM on this system, which was not covered on a 7 X 24 contract. Therefore the PM was a billable call. The cost per hour for a weekend call is \$280.00 per hour. I was on site that day for 6 hours. Because of the good relationship between Open Storage Solutions and Newfoundland Power I only charged for 2 hours.
- Sept 12 02 5:30pm: Received a call from Keith Le Feuvre. High Temperature alarms were being reported on our of the raid controllers. Keith wanted me there at 8:30 pm on Sept 6<sup>th</sup>. Call Duration was 1 hr 30 min.
- Oct 02 02 10am: Received a call from Keith Le Feuvre a disk drive had failed. He wanted me on site to replace on Oct 8 1:30 pm. Call duration 1hr 20min

- Oct 15 02 8:30am: Received a call from Keith Le Feuvre a high temperature alarm on a raid controller. I arrived that day at 9am and replaced a fan. This system is covered by a service contract for service Monday – Friday 8-5. Again because of the relationship between the two companies I performed the service the same day without additional cost to the customer.