NOVA Line

A newsletter for Novadyne customers who use a variety of hardware and operating system platforms.

Issue 2

Fourth Quarter 1993

In this issue

Announcing NOVAWATCH!

Novadyne is proud to announce NOVAWATCH!, a new, proactive monitoring technology for DEC VMS-based systems. NOVAWATCH! is a valuable new monitoring tool that ensures the availability of your information system. It also provides today's System Managers with the data they need to help manage their systems investment more effectively.

NOVAWATCH! monitors and reports on both *software* and *hardware* performance, 24 hours a day, 365 days per year, reducing system downtime by reporting major events before they become critical. This state-of-the-art, software-based program is one of the most efficient system monitoring tools available today. An invaluable system resource you can't afford to be without.

System Status

NOVAWATCH! continuously monitors performance characteristics and system utilization information so you know, at any given moment, the status of your system. In case of a hardware or software event, NOVAWATCH! automatically detects and prioritizes the problem based on severity and dispatches a call to our Call Handling And Dispatch system (CHAD).

Customer Reports

The information gathered during the monitoring process and from our CHAD system is also used to produce valuable system performance and service performance reports.

Based on the day-to-day system information that NOVAWATCH! gathers, your Novadyne account manager will generate customer reports and make recommendations on how to improve system availability/performance.

Systems Performance Management

The NOVAWATCH! technology is an integral part of Novadyne's Systems Performance Management. By monitoring system hardware and software parameters, NOVAWATCH! provides the fundamental framework for understanding the performance characteristics of your system. NOVAWATCH! is where Systems Performance Management begins... and where system downtime ends.

If you would like more information or would like to purchase NOVAWATCH! please call Novadyne Marketing at (800) 876-6823. ❑

NOVADYNE
Systems Performance Management

Motorola Corner

by Frank Di Carlo

Motorola announces the Series 900. This system is based on the new Motorola 197 CPU architecture, which utilizes the 88110 chip. The new chip boosts the performance from 38 MIPS per CPU to 153 MIPS per CPU.

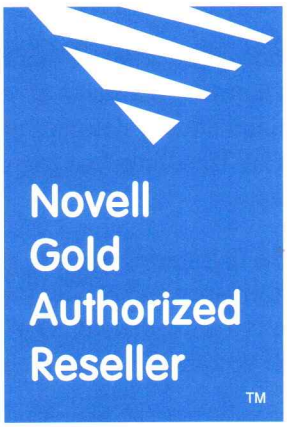
The Series 900 also incorporates the latest design in modular cabinetry. There are three modules available, a CPU module, a VME module and a SCSI module. Modules can be stacked to a maximum of five modules per stack. This can be a combination of one CPU module and up to four VME or SCSI modules. When you need to expand a small system into larger system, you will not have to swap out the small system. To "grow" the system you just stack another module onto it.

Novell Support Offered

Novadyne is pleased to announce that we are currently offering both phone support and onsite support for your Novell networks. Novell Netware versions 2.2, 3.11, and 4.0 are currently being supported. Support can be requested by calling Novadyne Marketing at (800) 876-6823.

Phone support will be handled by our Technology Center in Dallas, Texas. Onsite support will be on a Time and Materials basis at this time. Phone support is by Billable FSR at $125.00 U.S. per incident. Our onsite rates are $125.00 U.S. per hour, per incident. Uplift charges apply along with travel.

Our Dallas, Texas location has two Certified Network Engineers (CNEs) on staff and expects to add three more by the end of the year. There are currently four other CNEs in the Novadyne System with others just a few tests away from completion. Our Dallas Technology Center is currently providing phone support for Novell Netware version 2.2, 3.11, and 4.0 operating systems.



The Dallas Technology Center is also a Novell Authorized Service Center, and a Gold Reseller for Novell. The Dallas location is also negotiating with Novell to become a Novell Authorized Education Center. The Santa Ana office is currently a Gold Reseller for Novell.

If you have any Novell questions or would like information on our Novell support please call Novadyne Marketing at (800) 876-6823. ❑

You can even add SCSI peripheral devices by adding a second stack if necessary. The cabinetry also provides for "environmental monitoring" in case the temperature rises above a preset threshold.

The Series 900 supports UNIX System V, Release 4.0 which takes optimum advantage of the powerful multiprocessing capabilities of the Motorola MC8810 RISC architecture. It incorporates the latest standards available for Symmetrical Multiprocessing.

Models within the Series 900 consists of the 911, 912, 921, 922, 933 and 963. The 911 comes with 32 MB of memory and a 40 MHz single processor with 16 KB of cache memory. The 912 comes with 64 MB of memory and a 40 MHz single processor with 16 KB of cache memory. The 921 comes with 32 MB of memory and a 50 MHz single processor with 16 KB of cache memory. The 922 comes with 64 MB of memory and a 50 MHz single processor with 16 KB of cache memory. The 933 comes with 128 MB of memory and a 50 MHz single processor with both 16 KB of cache memory and 256 KB of secondary cache. The 963 comes with 128 MB of memory and two 50 MHz processors with both 16 KB of cache memory and 512 KB Secondary cache.

REALITY X and uniVerse have been ported to this new Operating System. BBX and UniData will be ported by the end of this year. Please contact your VAR or Dealer for more details.

Virtual Disc

This tip on Motorola virtual disc comes from Gary Moote, one of Novadyne's Technical Support team members.

At times the need may arise to expand a partition or a disc drive to encompass space that crosses a disc boundary. This allows a file system to expand across more than one disc.

This capability is available on Motorola systems without having to purchase additional software to accomplish the task.

A single partition can be concatenated to another disc drive or two complete drives concatenated together. I will outline the procedure here, or if you have need of further information on this subject, refer to your *man* pages under vdsk.

To begin, enable virtual disc using the sysgen utility, named VDSK Virtual Disk Device Drive. Within the slice table add the partitions which you wish to be concatenated together. Place an entry in file vdsk.conf within the etc directory naming the new partition by reference of the partitions created in the slice table. Use vdskinit to initialize the virtual disk. Now create a file system using the virtual partition that was named in the vdsk.conf file. Make a directory for the file system. Label the file system using the virtual partition name from vdsk.conf file. Mount the file system and create the lost+found directory. The system must be booted to enable the vdsk parameter.

Process completed; the system will now treat the two partitions as one. ❑

RDBMS Corner

by Mike Bingman

This column is dedicated to the Relational Data Base Management Systems (RDBMSs) that Novadyne supports. The table below reflects the latest Database Manager/Product Portation Schedule, with expected production release dates:

Hardware Platform	System O/S Release	VMark uniVerse 6.3.4.X/7.3(.1)(.2)	UniData 2.3/3.1.5	REALITY X 3.1/4.0	BBx 1.4/2.0	Novaport Asynch Expander
Sun(MP)SPARC, SuperSPARC, SPARCclassic	Sun 4.1.3 (Solaris 1.0)	N/A[1]	Current	N/A	Current	Current
Sun(MP)SPARC, MP SuperSPARC, SPARCclassic	Solaris 2.1	Current/NA	NA/Current	N/A	N/A	Current
Sun SPARCcenter 1000/2000	Solaris 2.2	Current/(Current)(1/94)	N/A/Current	N/A	N/A/Current	Current
	Solaris 2.3	TBD	TBD	N/A	N/A	TBD
Motorola (All)	V.3	Current/(N/A)(N/A)	Current/N/A	Current/N/A	Current	N/A
	V.4	N/A(Current)(1/94)	N/A/Current	Current/Q1'94	Current[2]	N/A

[1] SunOS 4.1.3 systems are supported by uniVerse 6.3.4
[2] Will run under Motorola V.3 88OPEN compliancy

As of 11/15/93, based on information provided by vendors' authorized corporate representatives.
Compiled by Fred Landis, Sr. Product Manager.

Unidata Seminars

Novadyne has recently had the pleasure of assisting Unidata with their 3.1/3.2 seminars across the country. These seminars are aimed at giving users the opportunity to see exactly what the UniData RDBMS can do for them with information on Client/Server technology, SQL (Structured Query Language) and much more. Even though our previous issue of *NovaLine* offered information on some of the new features of UniData 3.1/3.2, some of the features of Unidata Open Database Interoperability seemed in order following the latest seminar demonstrations.

Open Database Interoperability

In release 3.2, both foreign clients and remote databases are able to interact fully with UniData using Unidata new UniServer and UniDesktop products. A powerful client/server architecture, UniServer and UniDesktop provide interoperability across heterogeneous, distributed networks. Client applications on operating systems such as Microsoft Windows can now use UniData as an SQL server. With UniData release 3.1, any third-party query/reporting or decision support application can cooperatively interoperate with UniData so long as the tool supports either Sybase Open Client API or has the ability to link external C routines.

Sybase Open Client, Unidata UniDesktop, and CallBasic all provide the ability to interface with the UniData database. Unidata applications can now access foreign SQL servers as well. Using Sybase Open Client API available in UniBasic, UniData applications may connect to any Open Server - UniServer or gateway - on the network. Another feature of release 3.1 interoperability is UniData Open File System, which provides a connection through UniBasic READ and WRITE commands.

- Application Interoperability

Through Sybase Open Client API, PC decision support tools such as Personal Access, GQL, Forest and Trees and others can connect directly with UniData UniServer. Each of these tools presents a Windows-based interface for access and analysis of UniData files.

- UniData UniServer

Through UniData support of SybaseUe Open Server, Unidata can also be a remote SQL server. Any application - for Microsoft Windows and any other platform environments - that employs the Sybase Open Client API can access UniData files. UniServer also supports the execution of remote procedures and stored ECL (Environment Control Language) commands.

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UNIX Corner

by Kathryn Rebe

System Backup

Backup is one of the most crucial administration functions. A procedure to regularly backup file systems ensures file system integrity against a possible system crash and ensures user files against accidental deletion.

There are several commands for backing up files or moving the tape, five of which are:

tar
cpio
ufsdump/ufsrestore (Sun Microsystems only)
mt
dd

tar Command

The tar command archives multiple files and/or directories only a single tarfile, usually a tape file. the desired files must fit on a SINGLE tape.

Example of tar commands:

tar -cvf /dev/rmt/0	copy the entire contents of the current directory and subdirectories to tape. Restoring from this tape will restore recursively.
tar -tvf /dev/rmt/0	list the names of the files on the tape.
tar -xvf /dev/rmt/0	restore all the files from the tape to the current directory.

cpio Command

The cpio command stands for copy in or out. It copies file by file. cpio's major advantage over tar is its flexibility. cpio accepts its input from standard input and directs its output to standard output.

Example of cpio commands:

find . -depth -print | cpio -ovcB /dev/rmt/0	copy the list of files from find to tape in cpio format.
cpio -ivct /dev/rmt/0	list the names of the files on the tape.
cpio -ivcdumB /dev/rmt/0	restore all the files from the tape to the current directory.

ufsdump and ufsrestore Commands

The ufsdump and ufsrestore commands replace the SunOS 4.X dump and restore commands to backup files on a SunOS 5.X system. ufsdump is used to backup all files in a filesystem, or files changed after a certain date, or a specified set of files and directories. (ufsdump is traditionally used to backup a complete filesystem.)

When doing full level ufsdumps, there are some preliminary steps required:

- shutdown the system to single user
- fsck all your partitions

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Industry News...

Robotics Companies Are Growing

Reversing a downward trend in recent years, robotics companies in the U.S. posted a record gain in the third quarter of 1993.

The Washington Post quotes figures from the RIA (Robotic Industries Association) that new orders totaled 1,915 robots valued at $177 million in the third quarter, surpassing the previous best third quarter, which occurred in 1985.

Orders for the third quarter, which ended Sept. 30, were up more than 40 percent over 1992.

The association says more robots were ordered during the first nine months of this year than in all of last year, despite continued economic problems in the United States, Europe, and Japan.

The Post reports nearly 97 percent of the robots ordered in the third quarter were for the North American market. "Just a year ago, exports accounted for 25 percent or more of business for U.S.-based robotic companies." ❑

Next Issue...

Look for Novadyne's **1994 Trade Show Dates** and **Tandem Computer Support** in the next information-packed issue of *NovaLine*.

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Example of ufsdump and ufsrestore commands:

ufsdump 0dsbfu 54000 13000 126 /dev/rmt/0h /	copy the entire contents of the /dev/dsk/c0t3d0s0 partition to tape.
ufsrestore -ivf /dev/rmt/0h	restore in interactive mode a tape made with ufsdump. In this mode, you can do an ls to list the files on the tape, cd directory to change to a directory on the tape. To restore a file, use the add command to add the file to an extract list. Once all commands have been added, use the extract command to restore the files off the tape.
ufsrestore -rvf /dev/rmt/0h	restore all the files from the tape to the current directory.

mt Command

The mt command positions the tape to a certain spot.

mt -f /dev/rmt/0 rewind	rewind the tape.
mt -f /dev/rmt/0n fsf 1	move the tape one file system forward.

Note: if you are positioning the tape, make sure you use the no-rewind device name so the tape does not rewind when it is finished.

mt -f /dev/rmt/0 status	print the status of the tape. This will tell you if a tape is loaded and the type of tape drive.

dd Command

The dd command is a conversion and file copying program. Basically, it just copies an input file to an output file. The dd command can read a tape written in non-UNIX format and can be used to convert the format of the file.

Examples of the dd command:

dd if=/var of=/dev/rmt/0	copies the files from /var to tape.
dd if=/dev/rmt/0 of=file1	makes a copy of the tape on /dev/rmt/0 to a file called file1.

Look for more UNIX tips next time here in *NovaLine*. ❑

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- Server Gateways

Sybase has written gateways not only for its own SQL Server, but also for Oracle, Ingres, Informix, Rdb, and VSAM. These gateway products can be purchased from Sybase, and are fully interoperable with both UniServer and UniDesktop.

- UniBasic Client

Unidata provides UniBasic call level interface to Sybase Open Client API. These calls use the Sybase Open Client protocol to send client requests to network servers. With release 3.1, you can access the world of open database computing from your existing UniBasic applications.

- Unidata Open File System & Network File Access

Another feature of release 3.1 is UniData Open File System which through UniBasic READ and WRITE commands, allows UniData to access files on remote machines.

If you have any interest in these seminars, the final seminar will be in Dallas, Texas on December 14th. Or, contact your Novadyne representative for further information. ❑

Industry News...

It seems that the race for the fastest and most capable computer will never stop. And, there is one critical resource in the ever-expanding world of computing that users everywhere never seem to have quite enough of - *Memory*.

Semiconductor memory is a key component in the search for computing power, whether it's a small desktop system or a large mainframe.

The SIA (Semiconductor Industry Association) declared there was no longer a need to worry about a disruption in the supply of computer memory chips.

Prices for the chips rose sharply last summer after an explosion and fire destroyed a Sumitomo Chemical Corp. factory in Japan responsible for half the world production of a key ingredient in chips, epoxy resin.

A module of three chips that represent 1 megabyte of memory cost dealers about $33 before the fire. It rose to around $95 in late July and August as speculation grew that production of memory chips would be slowed.

Prices fell to the $40-$50 range this fall as those fears abated and have recently reached the $30 range as Sumitomo resumed production of epoxy resin.

For now, the potential for shortages appears to have dissipated. ❑

Sun Corner

by Kathryn Rebe

Have you moved to Solaris 2.X yet? Below is a list of files that have changed names and a short description. I found this list very helpful to have around.

List of SunOS 5.X System Administration Files

4.X File	5.X File	Purpose
/vmunix	/kernel/unix	the kernel
/boot	/ufsboot	ufs boot block
/etc/passwd	UNCHANGED	user/login accounts
	/etc/shadow	user/login password and aging information
/etc/group	UNCHANGED	group accounts
/etc/hosts	UNCHANGED	hostnames and IP addresses
/etc/aliases	UNCHANGED	electronic mail aliases/groups
/etc/motd	UNCHANGED	message of the day file displayed at login
/etc/defaultdomain	UNCHANGED	domain name
/etc/hostname.??0	UNCHANGED	hostname on primary network interface
	/etc/nodename	system hostname
/etc/hostname.??1	UNCHANGED	hostname on second network interface
/etc/ethers	UNCHANGED	ethernet addresses and hostnames of diskless clients
/etc/bootparams	UNCHANGED	defines root and swap for diskless clients
/tftpboot/boot.sun4	/netinet	boot file for diskless clients
/etc/printcap	/etc/lp	directory of printers and their features
/etc/rc.boot	/xbin/bcheckrc	script run at single user-mode and startup
	/etc/init.d	directory of scripts run at system startup
	/etc/rc0	script executed for run level 0
	/etc/rc1	script executed for run level 1
	/etc/rc2	script executed for run level 2
	/etc/rc3	script executed for run level 3
	/etc/rc4	script executed for run level 4
	/etc/rc5	script executed for run level 5
	/etc/rc6	script executed for run level 6
/etc/ttytab	/etc/saf	directory that defines port monitors and listeners used by the Service Access Facility
	/etc/inittab	read by the process init upon startup to define system startup sequence and run states
/etc/services	UNCHANGED	Internet services and ports
/etc/rpc	UNCHANGED	RPC services and program numbers
/etc/protocols	UNCHANGED	defines network protocols
/etc/networks	UNCHANGED	network names and addresses
/etc/netmasks	UNCHANGED	netmask value to apply to IP address
/etc/inetd.conf	UNCHANGED	services and processes started by the process inetd
/etc/defaultrouter	UNCHANGED	identifies default router
/etc/gateways	UNCHANGED	by the process routed
/etc/fstab	/etc/vfstab	file system table mounted at startup
/etc/exports	/etc/dfs/dfstab	exported/shared file systems/directories
/etc/mtab	/etc/mnttab	list of current mount table
/etc/xtab	/etc/dfs/sharetab	list of current exported/shared table
	/etc/nsswitch.conf	defines the name service and lookup order for system
	/etc/netconfig	defines network protocols, the device reference and translation library
	/etc/default/fs	defines default local file system as ufs
	/etc/default/login	defines default login information; CONSOLE=/dev/console root login allowed on console device only, not network
	/etc/default/passwd	defines default password requirement
	/etc/default/su	defines defaults of the command su
	/etc/default/cron	defines defaults of cron, such as CRONLOG=YES keeps a log of cron activities

REALITY/MDISI Corner

by Ed Kupchunas

Current OS Releases and Patches

Listed here are the most current Operating System revisions and patch levels for each supported system. Novadyne is responsible for installing all REALITY OS patch tapes on systems under maintenance. Please call Central Dispatch at (800) 678-3399 to schedule OS patch tape installations.

Series	Release	Patches (PP=Paper Patches)
4700	4.3RevD	PP1-2
6000	2.3RevD	RevC Tape (includes PP 1-175)
	1.1RevD	RevB Tape
	7.0RevP	Courtesy Tape E (includes PP 1-360) *
	7.2	Courtesy Tape B (includes PP 1-134) *
6000 Enhanced	2.4RevA	RevA Tape (includes PP 1-175)
	7.0RevP	Courtesy Tape E (includes PP 1-360) *
9000	5.3RevD	RevD Tape (includes PP 1-157)
	1.3RevC	RevA Tape
18	6.0RevF	RevC Tape (includes PP 1-157)
	7.0RevP	Courtesy Tape E (includes PP 1-360) *
	7.2	Courtesy Tape B (includes PP 1-134) *
14/400	2.3RevD	RevA Tape (includes PP 1-175)

C-Shell Programming Tip...

by Larry Gravatt

Here's a simple but very useful shell script.

These shellscripts convert all filenames in the present working directory (pwd) to the opposite character case. The first character in the script must be a pound sign (#). If you have execute permission (chmod +x lowercase.csh) on the file then all you need to type is the file name to have it executed.

LOWERCASE.CSH

```
#!/bin/csh
#       LOWERCASE.CSH
#
# converts all filenames in the current directory to lowercase.
# foreach file (*)
    set newname = 'echo ${file} | tr '[A-Z]' '[a-z]''
    if (${newname} != ${file}) then
        echo moving ${file} to ${newname}
        mv ${file} ${newname}
    endif
end
```

UPPERCASE.CSH

```
#!/bin/csh
#       UPPERCASE.CSH #
# converts all filenames in the current directory to uppercase. #
foreach file (*)
    set newname = 'echo ${file} | tr '[a-z]' '[A-Z]''
    if (${newname} != ${file}) then
        echo moving ${file} to ${newname}
        mv ${file} ${newname}
```

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NOVADYNE Systems Performance Management

DOS Corner

by Frank Di Carlo

Printing REALITY Spooler Jobs to PC Printers with TERMiTE

Thanks to Steve Middleton (Novadyne Technical Support) for this information on printing to a PC printer from the REALITY Spooler using TERMiTE.

First you must create a Formqueue assigned to the port that you have the PC attached to. Therefore if the PC is connected to port 23, assign the Formqueue to device 23. This will work fine for directly connected PCs. If they are coming in over a network and getting random port numbers then you must use the port number that is valid for that particular session.

Next, using SP-ASSIGN, send the print jobs to that Formqueue. They will stay in that Formqueue and not print until you run the following DATA/BASIC program:

```
PRINT CHAR(27):"_LLPT1":CHAR(27):"\"
PRINT CHAR(27):"[=5i"
PERFORM "PORT-DESPOOL (X)"
PRINT CHAR(27):"[=4i"
END
```

Please note that the "[" character above is not a control character.

This program opens the PC printer, routes the jobs in the Formqueue to the printer and then closes the printer. Remember to define the TERMiTE printer menu option to be LPT1 and not the DOS file TERMITEn.LST (where n=the session number).

Automating Data Transfer With TERMiTE

People want to have the transfer of data between a PC and a REALITY system to be automated. This is very easy to do with the combination of REALITY and TERMiTE. Rather than get involved with every possible scenario, let me illustrate just one and then you can relate that to your own task. In our example, we want to transfer a special file that we created to Lotus 1-2-3. That file name is "TO.PC" and we want to use the ENGLISH attributes "PART#," "DESC," "ONHAND," "PRICE," and "COST." What we would do is add to our existing program the following lines:

```
CALL PIX.GET('TO.PC PART# DESC ONHAND PRICE COST','WITH PRICE GE "5300"',"","",ERROR)

CALL PIX.PASS.TO.DOS("C:\DATABASE\TOPC","","",4,ERROR)
```

The first line selects that data records and the second passes them down to the PC and into a fixed length file called "TOPC" in the directory "DATABASE" on drive "C". The length of each element is determined by the ENGLISH attribute.

This program could be run on the PC before you leave and made to sleep until a certain time at night and then run, or it could be part of a job stream that runs. Of course it must run on the PC because TERMiTE is a PC based product. ❑

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