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A note from the Editor

From time to time things fall down, and the editors of Keeping Pace would like to apologize for the delay in distributing Issue #3 of this newsletter. We're glad to be back and hope all of our readers will continue to enjoy this periodical despite its recent interruption.

Connecting the Bits

The following is an extract from an article written by Thomas Junker, Vice President, TransVirtual Systems. The URL for the entire article can be found at the end of this abstract.

Summary

The New VS supports several classes of legacy VS peripheral devices. The choice of whether to carry forward any such devices into the New VS environment is one that should be considered carefully. It could be unwise to carry forward some legacy devices due to their age and/or low performance. On the other hand it could be unwise to change more than is necessary to accomplish the upgrade to the New VS. TransVirtual Systems and Getronics can assist customers in making these choices. This article presents the issues with explanations of the factors and tradeoffs.

Legacy Peripherals

The foundation of peripheral devices in the Wang VS line is the "928" connection, commonly referred to as "coax" because its most common implementation uses the familiar Wang dual coax cables. 928 encompasses native Wang workstations, printers, telecommunications devices and some lesser known devices. It is *not* the connection for disks, tape drives, TCP/IP or WIIS imaging, although there have been a few 928-connected tape drives.

The New VS supports many Wang 928 devices by means of the optional PCI Universal Serial I/O Coprocessor (USIOC).

The other major form of device connectivity is the Small Computer System Interface (SCSI, pronounced "skuzzie"). Wang moved strongly to this interface in the late 1980s for disk and tape drives. Over time SCSI replaced the older Storage Module Device (SMD) standard for disk drives and the Pertec interface for reel to reel tape drives. **The New VS supports many Wang SCSI devices as well as many newer devices.**

There are some other forms of connectivity that don't necessarily involve legacy Wang VS peripherals *per se*, but which arise in considering how the New VS will handle things the legacy VS may be doing.

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About 928, or “Wang coax” peripherals

In the legacy Wang VS world, 928 connectivity comes in a number of forms, determined partly by the VS system unit and partly by choices made in the design of the system implementation. Large VS systems usually have Electrical Active Port Assemblies (EAPAs) mounted on the backpanel of the VS cabinet. An alternative is the Twisted Pair Active Port Assembly (TPAPA), which is functionally the same but the connection to the remote workstation or printer is via a twisted pair cable instead of a dual coax cable. A less common form of connectivity is fiber, where a Fiberway II APA on the VS is connected to a remote peripheral cluster by a fiber optic cable.

Other devices may also be mounted on the backpanel of the VS cabinet, such as 6550 or 6550A telecommunications devices. TCBs, as they are known, do not connect internally but rather simply use the VS as a mounting place and a source of power. They have Wang dual coax connectors and must be cabled to EAPA ports, usually a few inches or feet away on the same VS.

Small VS systems (VS5000 and VS6000) cannot mount such panels on the rear of the VS, and handle connectivity differently. Coax workstations and printers, for example, can connect with cables to eight compact coax ports on the back of a Serial I/O Coprocessor while an outboard expansion box contains another 24 ports.

A variation shared by both the large and small VS systems is the option to use a Universal Serial I/O Coprocessor (USIOC) and entirely external mounting, power and connection for 928 and TCB peripherals. In this configuration a Universal SIOC in the VS is cabled to an external enclosure where EAPAs, TPAPAs and TCBs may be mounted. **This is the way the New VS connects to 928 devices, using one or more external enclosures to mount the APAs and TCB devices.**

Conclusions

While there is a high degree of support and compatibility of the New VS with legacy Wang VS devices, there are good reasons to examine carefully the prospect of carrying any of those devices forward. At the same time, changing more than is necessary to accomplish the upgrade to the New VS may complicate the process and have an undesirable impact on the customer organization.

Accordingly we recommend a cautious approach, carrying certain types of devices forward to the New VS where feasible, to avoid changing more than is necessary at the moment of the upgrade, but examining the tradeoffs between minimal change and taking advantage of new features and connectivity available in the New VS.

Lightspeed NVS, the principal PC/VS connectivity product in the VS community today, also supports VS printing to a wide variety of modern printers and offers a web interface for VS logon service. Legacy printers and their uses can be examined to see which may be good candidates to be replaced by modern printers such as network laser printers, operated through Lightspeed NVS.

Tape presents both issues and opportunities. The issues mostly have to do with transferring disk data from the old system to the new, and dealing with historical tapes that cannot be discarded. The opportunities arise from the

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fact that the New VS can operate many new devices that the legacy VS cannot. Among these are DLT, SDLT and LTO tape drives with capacities and speeds vastly greater than those of legacy VS tape technologies. This can result in a dual approach in which one type of tape technology is employed to achieve compatibility with the legacy VS or its tape library while a newer tape technology is employed for making VS and Linux backups going forward.

Wang disk drives will generally have no place in the New VS because they are mostly old, slow, and not fault tolerant. In rare cases a Wang disk drive might be used during testing and cutover as a “shuttle disk,” moving between the old and new systems. After cutover there should be no need whatsoever of Wang disk drives on the new system.

In general, VS workstations should be replaced by Lightspeed NVS on user PCs. Lightspeed allows multiple VS workstation windows to be opened, supports copy/paste with other Windows applications, and supports transferring files between VS and PC. If, however, a customer organization makes strong use of native VS workstations, the option exists to carry some or all of them forward, at least for the medium term and to get past the upgrade to the New VS. It is fairly typical that where a desire to retain native VS workstations exists, only selected ones will be retained.

Usually the only gnarly issue that comes up is how to achieve tape compatibility to move disk volume data to the New VS for testing and ultimately for cutover. Systems that have been kept up to date will tend to have later tape technology and be compatible with the New VS. Older systems may require a solution to be devised for the specific site.

The entire article can be found on the TVS website in the TVS documentation section:

<http://www.transvirtualseystems.com/documentation/tvs>

The file name is: Legacy Peripherals on the New VS _3_.pdf

“Many programs are 5 to 10 times faster than before. Enthusiasm was shown by everybody. Even the skeptics and the VS-no-friends were impressed.”

A Letter from From...

TVS recently finished an installation at Labo Nuytinck, a privately owned laboratory for medical analysis, that operates only in Belgium. It has an independent subdivision, AnaBioTec, which is a Contract Research Organization in Pharmaceutical analysis working on an international level. Shortly after Labo Nuytinck went into production, we received an email from Emeil Van Camp, the IT Manager for Labo Nuytinck. The email speaks for itself.

Last weekend Roger Lee and I worked very hard. It was tense, a lot of sweat but no tears, on the contrary we joked a lot. By Monday morning Roger brought us into production, just seconds before the first employees came in. We decided to start all activities on the New VS. It was like crossing the point of no return ... The beginning was bumpy with 3 crashes in the first hour. We carefully tuned the XDMS shared area size the problems were gone!

In the beginning I was extremely critical, concentrating on every single anomaly and possible problem and on everything that might look like a

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problem. I was not able to step back and enjoy the moment, I saw problems everywhere ... but by the end of the day, the problems seemed to be non problems.

After a few days, when most of the users had used most of the programs, more and more comments came in. The system was *so* much faster! Why did we have to wait so long before this was installed? Many programs are 5 to 10 times faster than before. Enthusiasm was shown by everybody. Even the skeptics and the VS-no-friends were impressed.

Looking back at last weekend, I consider this a very smooth migration!

I'd like to thank everybody who was involved to make this installation a great success, especially Roger Lee, the staff at Getronics, along with many others. I'd also like to thank Thomas Junker because it was he, who first informed me about the New VS, what the technical capabilities were, and its prospects, and that there was no... virtual async... yet. His many instructive e-mails were incredibly helpful.

Labo Nuytinck flies ! Thank you guys.

Keeping Pace would like to share your upgrade story with the VS community. Let us know about your experience at vsinfo@transvirt.com.

Tips & Techniques

Q: What are the types of issues I can expect when I move over to the new system?

A: Generally transitions have been amazingly smooth, which underscores the high level of compatibility our developers have achieved. The problems we've had have been the same problems we would experience moving to "modern legacy" hardware. These are somewhat exacerbated by the age of many VS systems, making the jump to "modern" equipment more dramatic.

In general, there are three categories problems fall into:

- (1) Operating System upgrade issues: The minimum VSOS level under the TVS product is 7.53.1. Many users are transitioning from far older builds. Sometimes this is transparent. Other times its necessary to do relinks or even recompiles.
- (2) Tape drive problems: Many of these systems have hardware that is quite old and have tapes that are obsolete and of questionable quality. The one thing we *don't* to do is add hardware to the old system. That can be expensive *and* risky. Instead we use our newer equipment to read the data. We have located a number of inexpensive tape drives that connect to the Dell hardware that have good luck reading the old tapes. Sometimes it takes multiple passes with cleaning tapes and restore attempts, but we have always managed to get the data from the tapes.

If there is a lot of data to move, we have developed a specialized piece of hardware in the form of a dual ported disk. This can be mounted on the legacy hardware, and then on the Dell hardware (but not at the same time), and can moved large quantities of data relatively quickly.

(3) Performance issues: Each TVS product is calculated to closely duplicate the performance (based on FAST rating) of a specific class of Wang hardware. What makes things different is the disk performance. Between the access speed of modern disks, and the efficiency of Linux I/O handling, the system can get "out of balance." In other words, it's like a jogger and a runner trying to pace each other. This is easy to spot and it is handled by adjusting some of the VSOS parameters, such as the number of buffers available.

Q: All the configurations I see have some kind of RAID drive. What is a RAID drive and why is it so important?

A: Because disk drives have moving parts and because they are so critical to system operation, they are usually the most likely point of failure in the hardware of most systems. As the cost of disk drives plummeted, the RAID controller, (**Redundant Array of Independent Drives**) became more and more viable as a backup solution. RAID controllers are disk controllers that appear as a single disk to the application, but are actually a cluster of drives. The RAID controller uses a variety of algorithms to keep multiple copies of the data. In the event a disk drive fails, operations continue as normal. Frequently, drives on RAID controllers are "hot swappable", meaning that the failed component can be replaced with no down time. The old drive is removed, the new one inserted, and the RAID controller brings the new drive up to date.

A simple *non-authoritative* discussion of raid drives can be found at <http://en.wikipedia.org/wiki/RAID>

Q: When installing the new Lightspeed release I see a check box for special handling for Legacy VS. Why is that?

A: What the checkbox does is enable secure shell. Originally the Lightspeed client could be configured to talk to multiple gateways. This was necessary because processing power was often limited. When Lightspeed, starts up, the client sends a UDP packet to each gateway to determine what their individual load is. It then selects the gateway with smallest load and sets up its session. This was part of the load balancing system under Lightspeed.

As we've said before, in the TVS product the Lightspeed gateways have been virtualized, they no longer run on separate processors let alone separate computers, it's all emulated on the VS. The load balancing will and does still work, but it's not an imperative to a smoothly working system under TVS's product.

The fact that the load balancing doesn't make any difference to the Lightspeed client running on the new VS isn't a good reason to change it. If it ain't broke, don't fix it.

So why the check box? We wanted to allow the client to operate through secure shell, however the UDP protocol is incompatible with that.. That said, some of our clients might need to be able to use the TVS Lightspeed client with legacy systems, so we couldn't remove it.

Q: The latest release of the Lightspeed client is Vista compliant. This is very convenient, but what changes does that include?

A: Vista added quite a bit of security to the Windows OS. In order to use these new security features, a number of changes had to be made. Here is a brief list:

- 1) User Access controls. Added program manifests and registry changes to get setup to work with the Vista virtual store and UAC's
- 2) Help files. Converted the existing winhelp files to html help and updated the distribution package.
- 3) Setup issues. The user must now be logged in as an administrator to install the client software.
- 4) The appearance of document transfer hanging fixed. (Not really a Vista change, but corrected in this release.) Changed the progress dialog for document transfers, the dialog did not function properly and large (slow) file transfers would appear to hang.
- 5) Configuration Management. Changes were made so that the configuration manager will store the master configuration files in:
c:\program files\lightspeed\software\lsnvs\master

Only administrators will be able to make changes to the master configurations and the buttons for them in the manager will not work. The personal configuration for each user will be stored in that users virtual store under
c:\users\username\application data\local\virtual store\ program files\lightspeed\software\lsnvs\personal.

Do you have a question about system upgrades or the future of your legacy VS applications? Send it to us at vsinfo@transvirt.com.

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