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Keeping Pace Returns!

We're pleased to present once again the *TVS Keeping Pace* newsletter. In this newest issue you'll find lots of product news and a tribute to founder Thomas Junker.

Your thoughts?

It is important that we get your feedback on what you would like to see in the VSGX product. We've given you enhanced performance (almost three times the speed of the VS18000), greatly improved reliability, and reduced real estate and power requirements. Now we are ready to hear from you about what additional capabilities you'd like us to consider. Please send your comments, suggestions and ideas to vsinfo@transvirt.com.

“Utilizing an external expansion system from The Magma Mission Technology Group...the VSGX now supports up to 416 devices.”

Expanded 928 Support

Until now, only 32 serial 928 devices were supported on the VSGX. Utilizing an external expansion system from The Magma Mission Technology Group, and added support for multiple PCI-USIOC cards, the VSGX now supports up to 416 devices. TVS offers Magma enclosures supporting one, two, three, or six PCI-USIOC cards. Each PCI-USIOC card supports 32 serial devices.



Expansion System	Supported PCI-USIOCs*	Enclosure	Redundant Power?	Max Devices
2 Slot	1	Desktop Only	N	32
4 Slot	2	Desktop or Rack mount	N	64
6 Slot	3	Rack mount Only	Y	96
13 Slot	6	Rack mount Only	Y	192

*Each PCI-USIOC requires 2 PCI slots.

The VSGX supports up to 15 virtual card slots. There must be at least one disk controller and one TCP/IP 928 for Workstation 0, leaving a maximum of 13 virtual card slots for PCI-USIOCs. Each PCI-USIOC occupies one virtual card

slot.

The VSGX is currently offered on either the Dell PowerEdge R710 or PowerEdge T710. The PowerEdge R710 supports up to two Magma expansion units, supporting a maximum of 12 PCI-USIOCs, for a total of 384 serial 928 devices. The optional PowerEdge T710 supports up to four Magma expansion units, supporting a maximum of 13 PCI-USIOCs, for a total of 416 serial 928 devices.

	2 Slot [1 PCI-USIOC]	4 Slot [1 PCI-USIOCs]	6 Slot [1 PCI-USIOCs]	13 Slot [1 PCI-USIOCs]
R710 [2 Magma units]	64	128	192	384
T710 [4 Magma units]	128	256	384	416*

*No more than 13 PCI-USIOC cards can be configured.

Recent microcode updates have also increased reliability and support for many older serial 928 devices. Some very old printers, although no longer supported, are still in use and have presented some interesting challenges due to subtle differences in timing. PCI-USIOC microcode now better supports these devices.

The specifications for the Magma enclosures can be seen at:

<http://www.magma.com/pciexpansion.asp>

VSGX Server Changes

“Performance of these servers exceeds that of the previous generation Power Edge used for the VSGX.”



In the third quarter of 2009, Dell discontinued the 29x0-III series of PowerEdge servers. TVS began a review of Dell's new offerings, looking for a comparable mix of performance, utility, flexibility, and cost effectiveness. Based on these criteria, TVS chose the PowerEdge R710 and T710 models. TVS shipped the first PowerEdge R710-based VSGX system in September of 2009.

This new line of servers utilizes Intel's new QuickPath Interconnect, or QPI, technology and its Xeon 5500 and 5600 series processors. The standard VSGX server is configured with a single X5677 3.46 GHz quad core processor. Performance of these servers *exceeds* that of the previous generation PowerEdge used for the VSGX. And here's an important note for those replacing multiple legacy VS's: This new line of servers can support up to 10 or 11 virtual VS's on a single server.



The PowerEdge R710 is a rackmount 2U server. Due to space limitations, the RD1000 is the *only* internal



backup solution offered and is required by TVS. The server can be configured with up to four 3.5" hard drives or up to eight 2.5" hard drives.

External tape or disk storage can be added using one or more of Dell's PowerVault enclosures, such as the PowerVault MD3000 (for up to 30TB of RAID storage using fifteen 2TB2 SATA disk drives) or the PowerVault 114T (for up to two LTO-2L, LTO3, LTO3-060, or LTO4 tape drives). The complete R710 specifications can be seen at:

<http://www.dell.com/downloads/global/products/pedge/en/server-poweredge-r710-specs-en.pdf>

The PowerEdge T710 is a tower server, rackable as a 5U. This server is ideal for those needing advanced storage requirements without external enclosures. To support those advanced storage requirements, the T710 can be factory configured with LTO-3, LTO-4, or LTO-5. The T710 can also be configured with up to twelve 2.5" SAS hard drives or eight 3.5" SAS hard drives, totaling up to 9.6TB of storage.



Thanks to its 6PCIe Generation 2 expansion slots, the T710 may also be the best choice for those needing to support both an internal tape drive, or external disk or tape storage, and a large number of serial 928 devices. The complete T710 specifications can be seen at:

<http://www.dell.com/downloads/global/products/pedge/en/server-poweredge-t710-specsheet-en.pdf>

Secondary Servers and High Availability

Are you running mission-critical applications on the VS and can't tolerate downtime? Is downtime just too costly for you? TVS now offers a high-availability option with no single point of failure. How does TVS accomplish this? Read on:

- TVS configures *two* Dell PowerEdge servers, each connected to a **Dell MD3000** external raid unit.
- Each server is connected to the MD3000 via *two completely isolated data paths*: two SAS interface cards and two signal cables.



In this way, the MD3000 is completely redundant; it features twin power supplies, two completely distinct controllers, and even two power cords. Essentially, it's like having two complete raid units. The storage pool is shared between the controllers, but the array itself provides the needed redundancy. So...you now have a system with no single point of failure.

The two servers run a primary and a secondary server concurrently. The primary, or online, server is logically connected to the VS system's storage pool and is set to the production IP address(es) so that Lightspeed servers and other clients can communicate with it. The secondary server is set to a standby IP address so that it can be addressed without interfering with the production, or primary, server.

When a failure is seen or perceived, the online server is either powered off, or a script is run which relegates the server into the role of standby. The secondary server then executes a script that makes it assume the role of

“...you now have a system with no single point of failure.”

online or production server. It acquires the VS storage pool and the production IP address(es). This is done without physically connecting/disconnecting the raid array. The entire procedure can be accomplished in minutes without any reconfiguration.

The PowerEdge servers, while very reliable, do have two potential single points of failure: the motherboard and the raid controller. By using the two PowerEdge servers, those single points of failure are eliminated. And, coupled with the MD3000, which has no single point of failure, TVS provides a system with extremely high availability.

The reliability of the Dell hardware is so great that, as of today, *none* of our redundant systems has failed. Even so, our clients have taken advantage of this redundant scenario for software or firmware updates. The secondary server is updated first, then the roles are switched and production continues on the secondary server while the primary is being updated.

Lightspeed Major Releases

“The Lightspeed 3.0 client can now be installed on both 32-bit and 64-bit Windows desktop operating systems.”

The Lightspeed 3.0 client has been released. The top changes in this release are:

- Support for Windows Vista and Windows 7
- Support for Windows 64-bit operating systems
- Lowercase password support
- Enhanced SSH support for secure communications
- File Exchange support for UNIX text files

The Lightspeed 3.0 client can now be installed on both 32-bit and 64-bit Windows desktop operating systems. These operating systems include XP [Professional], Vista [Business, Enterprise, Ultimate], and Windows 7 [Professional, Enterprise, Ultimate]. Although not supported, the client software is also known to run on Windows 2003 Server.

For those needing to support lowercase passwords to comply with internal security policies, Lightspeed now supports lowercase passwords. This requires the ESAC package to be installed on the VS. For those with even more stringent security requirements, Lightspeed can now be tunneled through SSH. So even if a VPN is not available, Lightspeed communications can now be secure.

For enhanced compatibility when transferring data in from outside systems, Lightspeed File Exchange now supports UNIX text file format. In UNIX text files, lines are terminated with a single line-feed character (0Ah), whereas a PC text file is terminated with a carriage-return, line-feed character sequence (0D0Ah). UNIX text files can be copied to or from VS consecutive or VS print files.

Lightspeed LSVS 3.21.00 has also been released. The top changes in this release are:

- Support for the upcoming release of the 2000-device VS OS
- Lowercase print class support
- LSMONITR enhancements

The LSVS 3.21.00 software maintains support for VS operating systems 7.43.01 up through the current 7.54.12, as well as for the soon-to-be-released 2000-device VS OS, tentatively named 7.54.20. This new OS effectively doubles the number of users[+devices] supported by the VSGX. This version of the VS OS is expected to be available only on the VSGX.

Some heavy users of Lightspeed print redirection have run out of print classes. LSVS 3.20.92 and below only supports uppercase print classes, which means they are limited to 26 print classes. LSVS 3.21.00 also supports lowercase print classes, doubling the number of print classes to 52.

The LSMONITR utility has been enhanced to display the number of connected users for each gateway. When managing a specific gateway, LSMONITR will now display up to 128 connected users. This allows LSMONITR to control all of a VSGX virtual Lightspeed gateway's users instead of only the first 64.

In Tribute: Thomas Junker

Though possessed with a dogged determination about most things, Tom Junker finally succumbed to cancer on June 1, 2010, only a few weeks shy of his sixty-second birthday.

A man who enjoyed such disparate treats as ice cream and deep-fried turkey skin, Tom was hardworking and extraordinarily bright and, at times, could be quite stubborn. A keeper of everything, Tom was organized nonetheless. He knew where everything was, and could locate even the smallest scrap of paper on a moment's notice.

Plugged In

His passion, however, was computers. From his time with Scantlin Electronics, Tom lived, loved, and breathed computers. A major early accomplishment in his professional life was developing an operating system for Quotron, the leading stock reporting system.

Eventually, Tom became enamored of the Wang system. Even as other systems displaced Wang, Tom considered it his personal calling to keep the Wang — this “best-kept secret” — alive and in the forefront.

By bringing like-minded people together, he established a revived and robust Wang community. Arguably, there would be no new VS were it not for Tom Junker's commitment to and confidence in the system. His knowledge and passion for Wang systems created a far-reaching network that has become a society in itself. This knowledge and passion continues to grow and flourish in the engineers, developers, and other members of the Wang community who will now keep the VS system moving forward.

Tom's passion for computers was more than professional. He was a gamer, too. Most notably, he was a participant in EVE Online, a science-fiction game universe. As a holder of numerous EVE accounts, he was known to play multiple games simultaneously.

“Tom considered it his personal calling to keep the Wang...alive and in the forefront.”

Family, Friends, Community

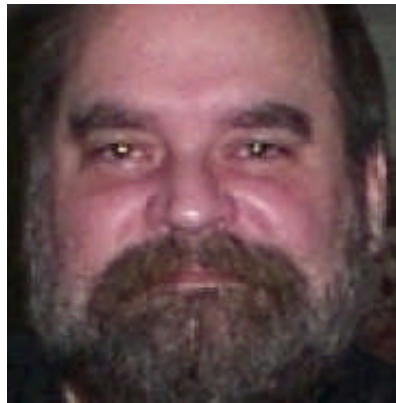
The child of a German father and an Irish mother, Tom was raised in Riverdale, in New York City. He went on to live in communities around the city and around the world, from Costa Rica to Texas. He visited family in his mother's home county of Sligo in Ireland and, most recently, Tom traveled back to New York City to visit places from his childhood.

One such place was the Palisades Boat Club, along the Hudson River in Yonkers, New York. The Junker family has a long history with the club — the oldest in New York State — and all were life-long members. Tom had fond recollections of his time there, and the club will be placing a plaque in the boathouse to honor his memory.

“...he was adamant about the importance of education.”

Always occupied with something, Tom was the president of his homeowners' association for nine years. He was also a great storyteller and a wonderful teacher. And even though he himself found school to be rather boring, he was adamant about the importance of education. This commitment led him to teach his daughter how to read at 3 years old and how to swim when she was 4. She is now carrying on that tradition as an educator herself.

A good and loyal friend, Tom tried to take care of everyone. He leaves behind loving friends and family who miss him dearly and a legacy of dedication and passion.



*Thomas Junker
1948-2010*

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