

# Compaq OpenVMS Times

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## OpenVMS Year 2000 Perspective

By Rich Marcello, Vice President, OpenVMS Group

It's said that timing is everything. And for Compaq's *OpenVMS*™ platform, that saying is proving true. An operating system that has been around for over 20 years, *OpenVMS* has always provided rock-solid reliability, unmatched scalability and ultra-high availability. Today, it continues to provide all these things, but now, it's riding a whole new wave of popularity, thanks to the emergence of e-business, that's resulted in its Renaissance.



With the unprecedented expansion of the Internet, and use of the World Wide Web, you are requiring the highest levels of technology possible to enable you to compete and win in today's e-business environment. Compaq continues to offer that cutting-edge technology as evidenced by our expanding portfolio of *OpenVMS* products and capabilities announced this past year.

The latest release of *OpenVMS*, v7.3, delivers new and improved reliability, availability, and scalability, includes new additions to the Galaxy software architecture, and bolsters the core technology by adding a host of e-business-related functionality. With the majority of our customers moving to e-business, we believe that the operating system will provide the fundamental tools required to support e-business platforms. As a result, we've incorporated a host of e-business tools directly into the base license of *OpenVMS*, making this latest version of *OpenVMS* the most robust system available to support e-business.

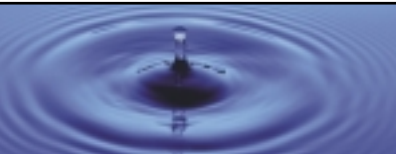
Year 2000 also brought a number of new business and marketing initiatives. Targeted at customers, as well as the media, analysts, partners and Compaq's own internal sales force, these initiatives were geared toward expanding the usability of *OpenVMS*, making it

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Compaq OpenVMS Times

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even more robust, promoting more *OpenVMS* solutions, and boosting awareness.

Fostering an *OpenVMS* Renaissance requires a blend of both tactical and strategic planning. With an eye on expanding usability, the *OpenVMS* group has developed several strategic business initiatives that lay the foundation for long term *OpenVMS* success including:

- Strengthening and expanding partner relationships
- DII COE Certification
- The *OpenVMS* Educational License Program
- The *OpenVMS* Portal
- Digital Press partnership

The *OpenVMS* group launched a major marketing effort designed to increase *OpenVMS* exposure in the marketplace. These initiatives have been directed at customers, new prospects, press, analysts and internal Compaq representatives, and included direct mail, customer forums, monthly customer and partner mailings, public relations and analyst relations, and this electronic publication.

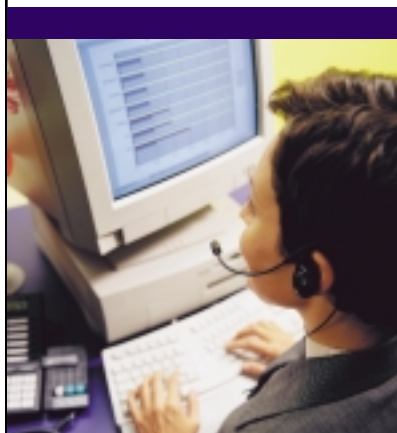
Providing sales with new and more effective sales tools and programs was also a high priority for the *OpenVMS* Group last year. As a result, we spent significant effort and resources on creating new and more effective sales tools and programs such as the Country Advocate Program and TeleForums for customers, partners, and the Compaq sales organization.

Today, *OpenVMS* is a multi-billion dollar, highly profitable business for Compaq. The *OpenVMS* Group is confident it will continue this positive impact to Compaq's bottom line in 2001 and beyond. With the host of new technical enhancements, new business and marketing initiatives, the passion of you, our *OpenVMS* customers, the dedication of the *OpenVMS* team, and the interest generated by industry experts, *OpenVMS* is sure to have a bright future ahead. May the *OpenVMS* Renaissance continue. ♦

## Alpha is everywhere!

### Supporting e-business — today and tomorrow

Because time zones have become nothing more than lines on a map, 100% uptime is the only option. Compaq's *Alpha*Powered systems keep customers open for business without as much as a coffee break.



*Alpha*, the most powerful microprocessor available, delivers continuous computing performance, scalability, availability and reliability. It was the first complete 64-bit architecture and has been meeting high-performance computing demands for more than eight years. It's optimized for real applications and real server

workloads. It runs the most robust, most available, and most growth-focused operating systems ever developed: *OpenVMS*, *Tru64* UNIX, and Linux.

The world's most transaction-intensive industries — health-care, telecommunications, financial services, and even the motion picture industry—count on *Alpha* technology.

*Alpha* has led — and continues to lead — the industry in application and workload performance since its introduction in 1992. The *Alpha* processor can be found in systems ranging from the most powerful workstations to large enterprise servers to supercomputers. *Alpha* technology lets enterprises connect to every customer, every innovation and every opportunity ... *Alpha* is everywhere.

### Alpha gets a new look

Launched in July, the new *Alpha* brand symbol is the "*Alpha* Cat" — a stylized cheetah that brings to mind the qualities



**AlphaPowered**

of speed, power and agility — sending a clear message about the exceptional nature of *Alpha*. The presence of

the *Alpha* Cat indicates a product powered by unparalleled high-performance technology.

### Birth of a burgeoning promotion

Dick Price, Director of Marketing for *Alpha* Technology, feels that the campaign addresses the public's perception of the *Alpha* processor. Although people were seeing *Alpha* as a proprietary chip for large-scale computing, *Alpha* can also be used for routine applications. Thus the central theme was adopted: *Alpha* is Everywhere. The goal is to emphasize ubiquity; "the sense of being in places where you don't know it."

The scope of the campaign is exploding with the *Alpha* Powered Partners Program, in conjunction with the Compaq Solutions Alliance (CSA). Price explains, "We're planning a program for our partners to adopt the *Alpha*Powered brand, as well as the *Alpha* Is Everywhere campaign."

### Campaign components

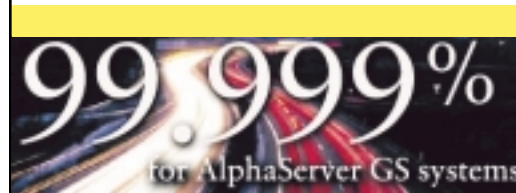
Collateral materials include a brochure, a series of five postcards and companion posters, and a host of promotional items to be shared at customer events. The brochure was released during the second week of July 2000, and has been flying off the shelves ever since.

Price reflects, "We chose to remind our customers that '*Alpha* Is Everywhere' because it has more visceral appeal. Many people can't relate to teraflops or trillions of operations per second, but they DO understand when an *Alpha* system runs the business application that allows their 8:07 train to arrive at 8:07."

The campaign highlights Compaq's prestigious wins, including a new contract to build the world's fastest non-military supercomputer. Compaq will also be working with the U.S. Department of Energy to build "the world's fastest supercomputer, period." Go, *Alpha*! ♦

## "Five Nines" for *AlphaServer* GS Series

Compaq Global Services offers customers the ultimate partnership for the highest level of business critical availability.



Compaq has expanded its Uptime Guarantee Program to offer 99.999% availability for *AlphaServer*™

GS systems. "Five nines" is the IT industry's defining standard for availability, ensuring that customers will experience no more than 5.3 minutes of unplanned downtime a year.

Compaq's Uptime Guarantee Program is a proactive partnership to meet customers' high availability needs. To qualify for the guarantee, customers must have an approved configuration, prerequisite services, and a commitment to employ sound management practices across the six domains that affect availability: hardware, system software, physical environment, operations management, applications, and network.

The "five nines" guarantee is offered at no additional cost, once the program requirements for technology, service, and serviceability have been met. And it is backed by a financial penalty: If we don't deliver on the promised availability target, customers don't pay the full service price.

Systems eligible for the "five nines" guarantee are *AlphaServer* GS80, GS160, and GS320 clustered configurations running *OpenVMS* V7.2-1H2 or *Tru64*™ UNIX V5.1, or higher, plus other configurations as modeled and recommended by a Compaq Business Critical Consultant. Prerequisite services include proactive hardware and software support, Availability Review, Availability Partnership, installation services for new systems, and other services as specified by the Availability Partnership agreement.

Compaq's solution is tailored to the customer's specific requirements — from high availability to 100% non-stop uptime. For zero tolerance for downtime, we create a solution that keeps the e-business process running virtually

uninterrupted. If the customer needs less than “five nines,” we can create a guarantee for their specific target level.

In addition to the Uptime Guarantee program for the *AlphaServer* GS Series, we also offer guarantees for Compaq *ProLiant*™ systems running Windows 2000 Datacenter or Windows NT.

For more information, visit:

[www.compaq.com/services/feature/index\\_five\\_nines.html](http://www.compaq.com/services/feature/index_five_nines.html)

## Did You Know?

**This holiday season, if you received a catalogue in the U.S. mail, it got to your door through the powers of *OpenVMS*. That's because the route of every mail carrier in the United States is managed/generated by an *OpenVMS* system.**



## Terry Shannon on OpenVMS

### *OpenVMS* in 2000: That Was the Year That Was

Many of us grizzled *VMS*™ Veterans are old enough to remember the weekly “That Was The Week That Was” skit on a TV show that proved to be one of the BBC’s most popular exports until Monty Python’s Flying Circus entered the ring. No doubt due in part to the contributions of John Cleese, the weekly skit took an irreverent view of events, significant or otherwise, that took place during the preceding 168 hours.

Even at Compaq’s so-called “Business at Internet Speed,” not all that much happens during a week in the life of an operating system. Accordingly, SKC chose to take *OpenVMS Times* readers forward into the past for a one-year review of things *OpenVMS*-related. And truth be told, the Year That Was has proven to be far less hilarious than the Cleese & Co. weekly production, especially from the point of revenue and market share growth.

It doesn’t take a rocket scientist—much less an *OpenVMS* customer—to realize that things weren’t that pretty at all in *VMS*land back in January 2000. Rich Marcello and crew were busy undoing the damage imposed by a prior regime whose rallying cry was “the future is NT, and it’ll be here Real Soon Now.” Despite the acquisition of new converts to the OS cause, *OpenVMS* revenues declined by ~10 percent year-over-year. All in all, not the sort of thing Mssrs. Capellas and Heil really like to hear about.

But if the beginning of Y2K can be characterized as “the worst of times,” the remainder of the year has shown constant and demonstrable improvement. Sales are up. Revenue is up. Recognition is up. And nope, you won’t see any *OpenVMS*-specific ads during the next Super Bowl, but *AlphaServer* GS Series boxes were conspicuous in their presence in the new “Inspiration Technology” ad campaign.

When the “none dare call it WildFire” new GS Series rollout took place last May, interest in *OpenVMS* accelerated dramatically. Finally, the platform born to run *OpenVMS* Galaxy was ready for prime time, and the biggest problem GS Series Galaxy wannabe users faced was extended lead times (happily, this issue is resolved). Technical enthusiasts are well and truly psyched by the Galactic characteristics of the GS Series,



and special kudos are in order to Clair Grant and his team for accomplishing—together with GS Series architects Dave Fenwick and Steve Van Doren—what many competitors claimed was downright impossible.

Much to the chagrin of the competition—notably a UNIX-centric firm from Mountain View, CA—the “downright impossible” is leading to a downright decline in competitive enterprise system sales. *OpenVMS*-powered GS Series systems are responsible for initial GS Series wins in a variety of countries and geographies, and their *Tru64* UNIX brethren are kicking ass and taking names in the HPTC space. Just imagine what will happen when Compaq fully implements its unique Zero Latency Enterprise (ZLE) strategy and extends its HPTC dominance into the High Performance Business Computing (HPBC) arena. Without violating confidential discussions with Compaq executives, suffice it to say that the HPBC era is coming Real Soon Now!

Not to belabor the significance of *OpenVMS* 7.3, which was well received by the press and analyst community, ISVs, existing and new customers, and Compaq employees with names like Heil, Harbert, and Capellas, the new release truly embodies the renaissance of an OS that many have given up for dead. SKC had only one issue with Version 7.3: as cool as it is, why wasn't it named Version 8? Turns out there are very good reasons for the naming convention: no savvy IT manager buys Version n.0 of anything!

Another significant Y2K development for *OpenVMS* is increased partnering. The Attunity Connect deal is a classic example, as is the newfound availability of freeware designed to “e-able” *OpenVMS* for the new millennium. Of course, there's a more cynical view of partnerships. “Lie down with dogs and you'll get up with fleas” seems an apropos summary of some of Digital's early attempts to “partner” with vendors who purchased key—dare I say “Polycentric?”—*OpenVMS* assets for a song. One such vendor will remain nameless to protect the guilty, the innocent, and the firm's stockholders; but the same does not hold true for the DEC-Oracle relationship. Oracle's acquisition of Rdb back during the Palmer era was the subject of much controversy, acrimony, and foul invective. In retrospect, Digital did the Right Thing: by ceding Rdb to Oracle (albeit at a ridiculously low price), Digital ceased to be a competitor with database behemoth Oracle Corporation. Rdb lives on and continues to be improved.

What you will see now is closer cooperation between Compaq and Oracle. I've addressed the harmonic convergence of Compaq and Oracle in previous columns, and *OpenVMS* marketectural Powerpoints and similar artifacts are replete with details on a relationship that's been improving dramatically since mid-2000. SKC anticipates more of the same. After all, Compaq does not possess an iPlanet, DB2, or similar Oracle competitive platform, and while Oracle develops on Sun boxes, Team Belmont now boasts a substantial inventory of new GS Series platforms and is hard at work tuning Oracle to exploit the NUMA-like characteristics and other features that make the GS Series a formidable enterprise competitor.

So there you have it—a slightly longer than usual SKC monologue on *OpenVMS*. We hope Compaq finds space in the next *OpenVMS Times* to include the bulk of this material, because we are as enthused about the future of *OpenVMS* as are our friends in Spit Brook, Cupertino, and Houston.

And speaking of the future, stay tuned for our January 2001 post-millennial column wherein we'll take a closer look at the role *OpenVMS* will play in Compaq's emerging Server Utility strategy. In the interim, SKC wishes all *OpenVMS Times* readers, *OpenVMS* customers, and *OpenVMS* Group employees a new millennium devoid of crashes, errata, cache errors, and the dreaded Blue Screen of Death.

Happy New Year from SKC!  
Terry C. Shannon

*Terry C. Shannon, consultant and publisher of Shannon Knows Compaq (SKC), has more than 25 years experience in the IT industry as an OpenVMS system manager, programmer, analyst, journalist, and consultant. Mr. Shannon's opinions are his own and do not necessarily reflect the opinion of Compaq Computer Corporation.*

— Editor



## OpenVMS in the news!

### THE CHICAGO BOARD OF TRADE AND EUREX'S JOINT VENTURE A/C/E LAUNCHES COMPAQ OPENVMS-BASED ELECTRONIC TRADING PLATFORM

On 28 August 2000, the Chicago Board of Trade (CBOT) and Eurex announced that their joint venture, a/c/e – alliance/cbot/eurex, launched their new electronic trading platform which runs on Compaq *OpenVMS*-based *AlphaServer* systems at its core. This new platform is identical to the platform Eurex currently operates in Frankfurt, Germany.

a/c/e is a joint venture company created from the alliance of the world's two leading derivatives exchanges, CBOT and Eurex (the exchange created by the merger of DTB Germany and SOFFEX Switzerland), and provides the new platform for electronic trading at CBOT. A common global network linking member access points with CBOT and Eurex allows member access to these worldwide, leadership exchanges through a single computer screen. *AlphaServer* systems running *OpenVMS* power the member access points, and the core of the a/c/e system runs on a four node *OpenVMS AlphaServer* cluster. Both the core and access point configurations are disaster tolerant for maximum availability.

"This is an unprecedented business alliance and we are excited to provide the best technology solution with our *OpenVMS* on *AlphaServer* platform," said Richard Marcello, Vice President, *OpenVMS* Group, Compaq Computer Corporation. "With Compaq *AlphaServer* systems and *OpenVMS* Clusters as integral components of this new electronic trading platform, a/c/e and their customers can be assured of highly scalable solutions that respond to the unpredictable demands of global round-the-clock trading."

In selecting the Eurex platform on *OpenVMS*, a/c/e has chosen an architecture that has been proven through more than 10 years of operation to scale to the highest volumes, and shown its reliability during a period of the greatest volatility in world markets. *AlphaServer* systems running *OpenVMS* are in use worldwide to power over 40 of the leading financial exchanges, including 5 of the top 10 Stock Exchanges worldwide.

For the press release from CBOT, please visit:

[http://www.cbot.com/cbot/www/cont\\_detail/o,1493,11+24+108+863,00.html](http://www.cbot.com/cbot/www/cont_detail/o,1493,11+24+108+863,00.html)

### COMPAQ UNVEILS NEW AND ENHANCED OPENVMS CAPABILITIES TO MEET CUSTOMERS' E-BUSINESS REQUIREMENTS

In case you missed this 3 October Compaq press release, please visit: [www.compaq.com/newsroom/pr/2000/pr2000100301.html](http://www.compaq.com/newsroom/pr/2000/pr2000100301.html)

### ACTIVEBATCH SIMPLIFIES BATCH JOBS

ActiveBatch Version 3.0 from Advanced Systems Concepts is a distributed job management and scheduling system that supports execution of batch jobs across a heterogeneous set of platforms — including *OpenVMS*, Windows NT, and UNIX.

ActiveBatch 3.0 is feature-rich and easy to use. The GUI interface offers both novice and expert views, while queue and job wizards simplify job scheduling and execution. Script language independent, it can also be used to submit jobs via languages such as XLNT, Perl, VBScript, and Java.

ActiveBatch's scheduling system allows job execution using a date/time-based calendar and/or on an event basis.

For the complete article, please visit:

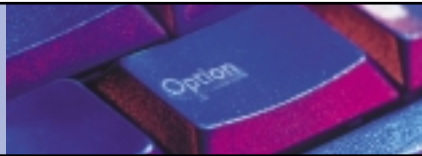
[www.networkmagazine.com/article/NMG20000830S0008](http://www.networkmagazine.com/article/NMG20000830S0008)

### DIGITASK EXTENDS OPENVMS SI SERVICES AND CLUSTER CONSULTING

On 19 September Digitask Consultants, Inc. announced the broadening of their relationship with Compaq. They will now offer *OpenVMS* system integration (SI) services in New York, New Jersey, Pennsylvania, and Delaware, as well as *OpenVMS* cluster consulting services throughout the United States. This relationship leverages Digitask's *OpenVMS* expertise in the financial services market.

For the full press release, visit [www.digitask.com](http://www.digitask.com)

Or send e-mail to [sales@digitask.com](mailto:sales@digitask.com)



## OpenVMS in the news!, con't.

Write-ups from the announcement have been very positive:

### COMPAQ ANNOUNCES NEW AND ENHANCED OPENVMS OPERATING SYSTEM PRODUCTS

IDC Commercial Systems and Servers Newsletter  
Server News: Period Ending 4 October 2000, Product News,  
pp 6-7 (Requires IDC subscription service)

### COMPAQ RATCHETS UP OPENVMS WITH V7.3

ComputerWorld

[http://www.computerworld.com/cwi/story/0,1199,NAV47-81\\_STO52144,00.html](http://www.computerworld.com/cwi/story/0,1199,NAV47-81_STO52144,00.html)

And, see what others had to say in response to the ComputerWorld article in:

NetworkWorldFusion Forums

<http://www.nwfusion.com/cgi-bin/WebX.cgi?230@53.5qXda6UdkRi^o@.ee6f641>

Plus...

### COMPAQ MAKES GOOD ON COMMITMENTS TO VMS WITH OPENVMS V7.3

Computergram International, 4 October 2000

<http://www.computerwire.com/computergram/>  
(Search for: "VMS"; subscription service required)

And from the largest weekly IT newspaper in France...

### OPENVMS LIVES AGAIN (COMPAQ REINVIGORATES OPENVMS) [In French] Le Monde Informatique

<http://www.lmi.fr/semaine/2000/868%5F14%5Fsystemed%5Fexploioo.htm>

### OPENVMS LIVES ON

IT-Director.com, 5 October 2000

<http://www.it-director.com/00-10-05-3.html?itdeo510> ♦

## SANway for OpenVMS

### Fibre Channel connectivity for CI-based VAX clusters



Explosive volumes of data are putting new demands on companies to double storage capacity an average

of every 12 months, as well as increase data availability and transfer speeds over existing networks. *OpenVMS* running in a VAX™ cluster remains one of the most robust systems in the industry today. But while VAX clusters are the workhorses behind many mission-critical applications that support e-business, they're limited from many of the new advancements in high-speed and high-capacity storage that are feeding today's volume of data. New advancements, such as fibre channel-attached storage subsystems and high-speed tape backup technologies, could richly benefit VAX computer interconnect (CI)-based clusters — if only a common interface existed. Now it does.

### The SANway for OpenVMS Solution – available exclusively from Avnet Enterprise Solutions

This Compaq-certified solution unites the industrial-strength VAX system with the latest innovation in open-architecture storage. SANway provides a gateway between the CI bus and a fibre channel network. This enables all the advantages of a storage area network (SAN), including:

- Enhanced data sharing and data access
- Consolidated storage
- Centralized control of data
- Improved availability, performance, and administration
- Lower cost of management
- Improved disaster recovery

This highly scalable and flexible storage solution combines the high availability of Compaq's fibre channel capabilities with the expertise of Avnet Enterprise Solutions. SANway for *OpenVMS* is a complete solution comprising system assessment, hardware, software, installation, and ongoing consultation. SANway is supported by a Compaq Worldwide Category A support plan.

Avnet Enterprise Solutions is an e-business infrastructure architecture company that optimizes e-business applications by integrating hardware, software and services. Avnet leverages its unique suite of technology and financial assessment services to ensure a company's IT infrastructure is highly available, scalable, backed-up and secure. Avnet Enterprise Solutions delivers best-in-class solutions with the industry's Internet

leaders, including BMC Software, Cisco Systems, Compaq, Computer Associates, DataMirror, Enterasys, Hewlett-Packard, IBM, J. D. Edwards, Oracle, Tivoli, and Veritas.

For more information, visit [www.es.avnet.com/SANway](http://www.es.avnet.com/SANway) ❖

## Digital Networks established as independent company

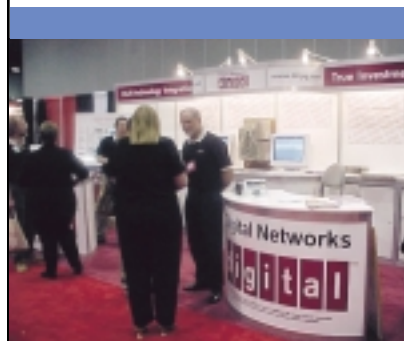
On 25 September, the former networking division of Digital Equipment Corporation (DEC) was established as a new and independent company operating under the trade name of Digital Networks. The new company is under the leadership of Bill Burger as president, and currently employs approximately 100 highly skilled employees in offices located throughout the United States and Europe. The management team has more than 100 years of DEC experience.

Digital Networks will continue to focus on providing innovative solutions for complete workgroup and wiring closet networking needs of enterprise customers globally. The company plans to extend development, marketing, and support for the award-winning Digital-branded products including the MultiSwitch 900, GIGAswitch/FDDI, VNswitch 900 Family, DEChub 90, DECserver and the well known, intuitive, easy-to-use management application, clearVISN.

As an independent company, Digital Networks can now offer the best of both worlds in products and services to customers. Digital Networks is built upon the solid and reliable Digital-branded networking products, with loyal customers

and distribution channels established worldwide. The new company has the agility of a start-up company to focus, innovate, and quickly add new products to the portfolio — while continuing to protect customer investments in Digital-branded networking products. In addition, Digital Networks is 100% focused on channels, providing more business opportunities to partners.

As a sponsor of the CETS2000 event in Los Angeles, Digital Networks introduced itself as a new independent company and announced two new products: the 24-port Fast Ethernet Workgroup Switch with GbE uplinks and the high-density WAN Dial Access Concentrator 200 Series. Both products provide the lowest cost-per-port connectivity in the industry as well as other significant competitive advantages.



*Above, Dennis Majikas, Director of Pre-Sales Technical Support for Digital Networks, speaks to an exhibit booth visitor at CETS2000.*

Digital Networks presented its value proposition at the *OpenVMS Ambassadors'* meeting and Partner Roundhouse held in Nashua, New Hampshire. Dennis Majikas, former GIGAswitch/FDDI product manager and project manager for the Disaster Tolerant FDDI VMSclusters, presented Design and Implementation Strategies

for Integrating Switched FDDI Backbones with 10/100/1000 Ethernet with zero disruption to mission-critical production networks and zero product obsolescence. Special emphasis was put on how *AlphaServer* cluster configurations can be used with Digital Networks products to achieve mission-critical business recovery solutions.

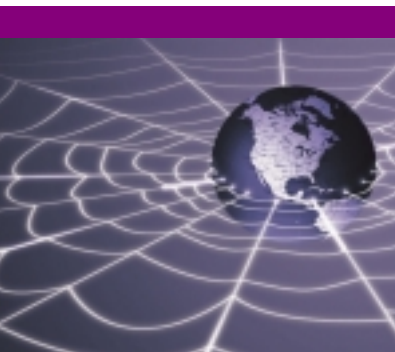
For more information about Digital Networks please visit [www.dnpg.com](http://www.dnpg.com) or call the sales hotline at 1-877-341-9594 ❖

***Digital Networks is the tradename of DNPG, LLC, and is not affiliated with Compaq Computer Corporation. DIGITAL, the Digital Logo and DEC are used under license from Compaq Computer Corporation.***



## Just a click away....*OpenVMS* services are on the Web!

Compaq Global Services recently refreshed the content on both the hardware and software sections of their website.



Based on feedback from customer usability testing, we learned that customers would like to come to our site and be able to find, in one place, the answer to, "What services are available for my product?" In response to this feedback, we have reorganized both our software services

([www.compaq.com/services/software/index.html](http://www.compaq.com/services/software/index.html)) and our hardware services ([www.compaq.com/services/hardware/index.html](http://www.compaq.com/services/hardware/index.html)) Web sites to provide easy searching by product. Please visit and see the broad range of services that are available for your *OpenVMS* on *AlphaServer* platform!

For more information, visit : [www.compaq.com/services](http://www.compaq.com/services) ❖

## Did You Know?

If you're the pilot of an F-22 Stealth Fighter, an astronaut flying the Space Shuttle, or a pilot of the new proto Eurofighter, you're flying with *OpenVMS*.

## Customizing *OpenVMS* on *AlphaServer* solutions



With the *OpenVMS* Renaissance in full bloom, enterprise-computing professionals are discovering the high value of the *OpenVMS* operating system on the *AlphaServer* platform. They are sold on the proven availability, reliability, scalability, and

performance that *OpenVMS* delivers. And, since their requirements are often unique, complex, and mission-critical, they count on Compaq CustomSystems & Solutions engineering and implementation capabilities to reduce risk and speed solution deployment.

### Compaq custom capabilities include:

- Engineering expertise using standard and emerging technologies to tackle a range of issues — from environmental packaging and storage area networks to supercomputing and disaster-tolerant solutions
- Mixed-architecture solution design with *OpenVMS* and Windows NT
- Project-based activities for the *OpenVMS* installed base in collaboration with Compaq Professional and Customer Services for a range of upgrade opportunities
- Customer-focused business practices that simplify ordering and enable full lifecycle partnership
- Factory integration and testing of Compaq and third-party hardware and software products — creating solutions that are ready to run upon delivery
- Mission-critical onsite delivery and installation — to cut deployment time and minimize operational disruptions
- Complete configuration and solution documentation to keep complexity under control
- Dedicated project management for a single point of accountability — from quote development to final acceptance testing

## Meeting the unique needs of the world's most demanding IT environments

Working with the Compaq CustomSystems team, you can reach your computing goals across a wide range of industries including manufacturing, telecommunications, financial services, healthcare, and the public sector. And new opportunities in server consolidation, storage area networks, and Oracle-based integrated e-business platforms are ideal candidates for custom-tailored *OpenVMS* solutions.

With *OpenVMS* software, *AlphaServer* platforms, and Compaq custom capabilities, we have the tools and talent to create the best solutions possible for your customer. What can we build for you today?

To learn more about Compaq custom capabilities, visit [www.compaq.com/customsystems](http://www.compaq.com/customsystems) ❖

## Compaq affirms commitment to BASEstar product suite

The BASEstar Product Suite recently joined the Compaq Business Critical Server Group (BCSG). This significant move demonstrates Compaq's long-term commitment, support, and continued development of this important product set. Compaq will continue to serve BASEstar customers and maintain the highest level of customer satisfaction.

The BASEstar platform will continue to be the core family of products upon which Compaq delivers manufacturing solutions for discrete and process industries worldwide. Compaq's blazingly fast servers, state-of-the-art factory integration software, worldwide services, and decades of experience in manufacturing make the BASEstar-based solution a proven winner.

*OpenVMS*-based BASEstar Classic is available on both *Alpha*™ and *VAX* hardware platforms. BASEstar Open, the portable, client/server product, is available on *OpenVMS* (both *Alpha* and *VAX* platforms), Windows NT/Windows 2000, and *Tru64* UNIX. BASEstar Open Client software for Windows 95/98/Windows 2000 is available for connecting BASEstar to PC-based applications.

BASEstar Open is the foundation upon which the Process Data Acquisition System (PDAS) has been built. Focused on Process Manufacturing, PDAS connects the manufacturing shop floor to the SAP R/3 suite of modules through SAP's Production Planning for Process Industries (PP-PI) module.



Today, hundreds of customers worldwide base their mission-critical production applications on the robustness, breadth of functionality, and long-term availability of BASEstar.

Partnerships with third parties are very important to BASEstar's ability to meet both the technology and the service needs of various market segments. Compaq is actively encouraging OEMs to incorporate products or components of BASEstar into their offering, ISVs to integrate their applications, and Systems Integrators to adopt BASEstar into their solutions.

Compaq considers BASEstar an important business and will continue to invest in its future to help customers improve their competitiveness. Upcoming *OpenVMS Times* articles will profile how current customers use BASEstar in mission-critical manufacturing environments.

To learn more about Compaq's BASEstar real-time factory floor integration framework, visit the BASEstar webpage at [www.compaq.com/basestar](http://www.compaq.com/basestar) or contact the BASEstar team via e-mail at [mfg@compaq.com](mailto:mfg@compaq.com) ❖



## Customer Profiles: Bank Austria

*“OpenVMS is the operating system to use when you need reliability. That’s a given.”*

— Dietlinde Kellner, IT Manager at Bank Austria



Headquartered in Vienna, Bank Austria is the largest banking group in Austria, and a major player in the international treasury business. Always on the move, Bank Austria’s treasury system load increases 200%-300% annually — and business

developments can spike system demand by as much as 2500% in a single year.

Bank Austria needed to remain predictable and operational 24 x 7 — even as they moved toward replacing their core of high-end servers. According to Dietlinde Kellner, IT Manager at Bank Austria, The bank needed servers that were 100% reliable, offered the ultimate in security, and could scale on a moment’s notice. And their performance needed to go beyond established benchmarks. Bank Austria chose Compaq *AlphaServer* GS systems running *OpenVMS*.

*“OpenVMS is the operating system to use when you need reliability. That’s a given. But we also live on performance, as we have one big application that must serve many hundreds of users equally well. In OpenVMS, we get it all,”* said Kellner.

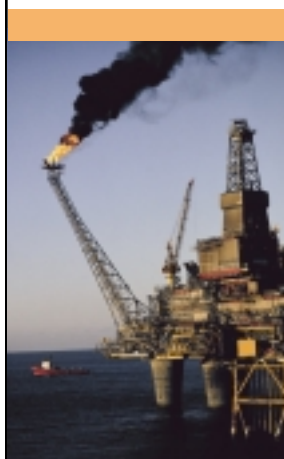
Moreover, Kellner goes on to say “The continual rolling upgrades of the *OpenVMS* operating system are what have allowed us to map the benefits of our *AlphaServer* GS systems to our main application, Wall Street.”

Why is Compaq the best answer for Bank Austria? Kellner responds, “If we were to move to a new application, that would take several years, and add a lot of risk. Instead, we wanted to optimize what we had to work better, smarter, and faster. The Compaq Test Lab; the Compaq *OpenVMS* Engineering Team; Compaq Global Services; Compaq *AlphaServer* GS systems; and the *OpenVMS* operating system all helped us do exactly that. Compaq earns very high marks all around.” ♦

## Suncor Energy, Inc.

*“OpenVMS has always been a stellar operating system. It’s extremely reliable and robust. The meantime between failure with OpenVMS is measured in years instead of hours.”*

— Cliff Pedersen, Manager, Process Control and Information Technology, Sarnia Refinery, Suncor Energy, Inc.



At the Sunoco refinery in Sarnia, Ontario, the raw material may be crude, but the processing technology is pretty slick. A computerized process control system provides the real-time optimization needed to align production with market activity — quickly and accurately.

Sunoco, Inc. of Canada, a division of Suncor Energy, Inc., credits its *OpenVMS* cluster from Compaq Computer Corporation as a critical

component of a \$17 million payback and with winning industry kudos. A survey by Solomon Associates named the refinery the Best in the World in Hydrocracker Control and Optimization. The refinery also won a Computerworld Smithsonian award for Excellence in IT and Innovation in Manufacturing.

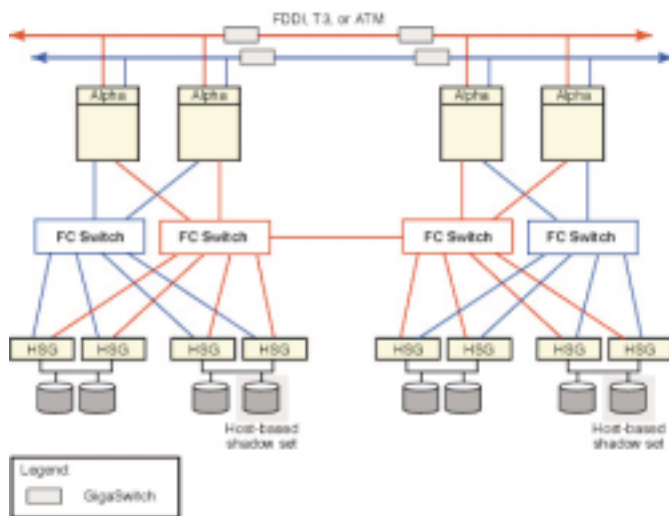
According to Cliff Pedersen, Manager, Process Control and Information Technology, “Compaq is the expert in scientific computing. And *OpenVMS* is the most stable, secure, and reliable operating system in the industry. Before implementing *AlphaServers*, it took us three hours to solve the equations to adjust the process operating conditions. We cut that to 90 minutes with the VAX 6500s and then down to only 20 minutes with our previous *AlphaServer* systems. Now it takes between 10 and 15 minutes.”

For complete versions of these and other *OpenVMS* success stories, visit:

[www.openvms.compaq.com/openvms/brochures/](http://www.openvms.compaq.com/openvms/brochures/) ♦

## Disaster tolerant Fibre Channel support added to Volume Shadowing

Fibre Channel is the first *OpenVMS* storage interconnect capable of spanning long distances. This new technology can be incorporated into well-established *OpenVMS* multi-site clusters to provide new levels of performance and robustness in disaster tolerant (DT) configurations.



The latest Volume Shadowing remedial kits for *OpenVMS Alpha* V7.2-1 and 7.2-1H1 introduce new qualifiers for managing shadow sets in a disaster tolerant configuration. This approach allows the system manager to disable automatic and non-deterministic shadow set reduction done by host-based volume shadowing, and do the reductions manually. When this alternative is used, access restrictions used in a Fibre Channel disaster tolerant cluster configuration are not necessary. Manual volume shadowing control might be particularly attractive to those who have already chosen manual control to regain quorum when the site-to-site SCSI interconnect fails.

To order these kits, visit:

[www.support.compaq.com/patches/](http://www.support.compaq.com/patches/)

For more information about *OpenVMS* Fibre Channel support, visit: [www.openvms.compaq.com/openvms/fibre/](http://www.openvms.compaq.com/openvms/fibre/) ♦

## Run VAX VMS software without a VAX!

Users of older VAX VMS applications will soon have the option to run unmodified VAX code on *OpenVMS*-based *Alpha* systems by using the VAX emulator in development by Software Resources International. In the past, the company developed a PDP-11 emulator and more recently it has produced a VAX emulator running on the Intel platform. The CHARON-VAX emulator acts as a hardware abstraction layer creating a “virtual VAX system” that directly executes binary VAX instructions. This emulator has been tested with VAX VMS system configurations running as far back as VMS 4.7.

VAX peripherals such as MSCP disk controllers, tape drives, serial I/O, and Ethernet adapters are emulated and mapped to the host system services. The emulator does not require any change in the original VAX VMS operating system or application code. When starting the emulator, a specific VAX system configuration is created by means of a configuration file, which then boots a VAX VMS disk image. Such disk images can be copied directly from a VAX system or generated by CHARON-VAX from a VAX VMS installation kit. The emulator provides tools to generate VAX disk images, transfer the VAX VMS system and user disks, and convert tapes to tape images. The emulator uses multi-threading to reap the benefit from SMP host systems, and facilitates emulation of new peripherals and connection of existing peripheral hardware through bus adapters.

### Introducing CHARON-VAX for *OpenVMS Alpha*

Software Resources International, in collaboration with Compaq *OpenVMS* engineering, is now porting the emulator to *OpenVMS Alpha*. The goal of this product is to create a “virtual VAX” as an *OpenVMS* cluster member with a direct interconnect to the *OpenVMS* host system. This lets customers run existing VAX applications in the emulator with the application data residing on the *OpenVMS Alpha* host system — thereby making it accessible to host applications. The implementation will allow the clustering of multiple copies of CHARON-VAX on an *OpenVMS Alpha* SMP system for high performance requirements.

Standalone evaluation copies of CHARON-VAX for *OpenVMS Alpha* are available now. Software Resources International



intends to release beta test copies with networking capability starting in December 2000. Further information is available at [www.vaxemulator.com](http://www.vaxemulator.com)

Software Resources International of Geneva, Switzerland, which has its roots in Digital Equipment Corporation, provides a wide range of migration services for *OpenVMS* and *Tru64* UNIX, including source code porting, programming language translation (e.g., PL/I to C) and database migration. The company, which works closely as a subcontractor with Compaq in several European countries, has representative offices in many European countries and the USA. Detailed information is available at [www.softresint.com](http://www.softresint.com) ♦

## i3 introduces MenuFinder V3.2 for *OpenVMS*

Italian Internet Information (i3) has just released MenuFinder version 3.2, a professional menu generator tool for *OpenVMS*. Currently, it is available free of charge for all VAX servers and for one *Alpha* system for every company, which may download it and use it forever, without time or functionality limitation.



MenuFinder simplifies the life of system managers and users because it lets them easily manage hundreds of DCL procedures or user instructions — avoiding the difficulty of maintaining DCL-based menus. With more than ten years of

development and optimization history, MenuFinder delivers its features in an extremely compact footprint.

Whether you are a system manager, a power user, or an operator, you will benefit by using this tool for the daily handling of documents, procedures, and programs.

Have you ever asked yourself, “Where is that procedure I wrote and ran last month?” MenuFinder can easily find that procedure — even if you forgot its name and where it is.

How does it work? When you write a procedure choose its name, give it a simple description, and associate it to a MenuFinder choice. Then forget that name and when you need that procedure, simply use the “Find Words” in Choice Descriptions function to find it. Then edit, run, or print the procedure — simply by pressing just two keys.

For more information, or to download the free unlimited version of MenuFinder, go to

[www.itre.com/mf/overview.html](http://www.itre.com/mf/overview.html) ♦

## Process Software acquires PMDF messaging products, continues to support *OpenVMS*



On 9 October, Process Software, a leader in networking solutions for *OpenVMS*, announced an

agreement with Innosoft International, Inc. to provide development and support for Innosoft's PMDF suite of electronic messaging products.

In the agreement with Process, Innosoft will transition certain rights to development and responsibility for support of PMDF products on all platforms to Process Software. The goal of the relationship is to ensure that the PMDF customer base continues to receive the top quality service and product enhancements it has been accustomed to from Innosoft.

The company's strong commitment to the *OpenVMS* market — demonstrated by the technological advances they continue to make to their TCPware and MultiNet TCP/IP products — combined with its firm dedication to customer support, will guarantee that this agreement serves the mission-critical business needs of PMDF customers.

“This relationship ensures that PMDF customers will continue to receive the best support and a full commitment to the product,” says John Murgo, president and CEO of Process Software. “We are very excited about working with the PMDF



customers and are committed to investing in the future of this product.”

Both companies are focused on implementing a seamless transition of responsibility for the support of Innosoft's PMDF products to Process Software. Effective immediately, customers should contact Process Software to purchase PMDF licenses or support. Current customers should continue to contact Innosoft for technical support until instructed otherwise.

Based in Framingham, Massachusetts, Process Software has been a leader in delivering premium networking software solutions since 1989. The company provides TCPware and MultiNet, two TCP/IP software packages for Compaq *OpenVMS* systems.

For more information, visit [www.process.com](http://www.process.com) ❖

## Mark your Calendars! ITUG/DECUS coming to Lisbon in May

**What:** ITUG/DECUS 2001 Joint European Conference

**When:** 6-7 May — Pre-conference Seminars  
8-10 May — Conference & Exhibition

**Where:** Lisbon, Portugal

ITUG and DECUS, Compaq's Enterprise Computing User Groups, are joining forces for their second annual joint educational event. More than a thousand enterprise computing users, Compaq executives, product managers, product engineers, and related products and services vendors will participate.

### The conference features:

- Approximately 20 pre-conference educational seminars (6-7 May)
- Compaq executive speakers
- Over 120 technical sessions by users and Compaq experts

- An exhibit hall featuring a large Compaq booth showcasing enterprise computing products as well as exhibits from more than 50 partners and vendors
- Special Interest Group (SIG) sessions

Industry leaders, Compaq executives, technical experts, and experienced users will deliver more than 120 technical sessions. The technical sessions — both general and platform-specific — will cover the latest information about Compaq's major enterprise computing platforms including *OpenVMS*, *NonStop™ Himalaya*, *Tru64* UNIX, Linux, *AlphaServer* systems and NT servers. Sessions are focused around the following track topics:

- Platforms
- Operating systems and networking software
- Enterprise systems management
- Applications development
- Business solutions
- Emerging technologies

For more information, visit [www.jointconference.org/](http://www.jointconference.org/) or call the ITUG/DECUS 2001 Joint European Conference Headquarters at +011 32 2 743 1548 (Europe) or +1.800.845.4884 or +1 312.321.6851 (U.S. and Canada). Register early to receive the lowest registration rate and secure accommodations! ❖

*Did You  
Know?*

**If you ship material through the port of New York or container cargo through the port of Rotterdam, you are a user of *OpenVMS*.**



## Improved remote control technology for *OpenVMS*

The new PEEK & SPY program for *OpenVMS* on *Alpha* systems from Networking Dynamics Corporation offers improved remote control features that will boost support desk and security capabilities.



The PEEK product was created as a tool for help desk and user monitoring. The main advantage is that it allows two terminals to be linked together by software, so that the system manager doesn't have to run around to distant parts of the building or another site to see what is actually happening on users' terminals.

The PEEK program allows a watcher to make a connection between his or her terminal and another "target" user's terminal. Thereafter, whatever the target user's program outputs is sent to both terminals. The watcher and the target user may take turns giving keyboard input to the user's process.

The PEEK program may be used only with the target user's explicit permission, or by a privileged user. The target user is always warned that he or she is being watched and may disallow watching at any time.

The SPY program provides all of the features of the PEEK program with a couple of exceptions. The user being watched is not warned that he or she is being watched, nor are they allowed to enter commands to control the SPY program. The system manager may authorize whether SPYing on a particular user will never be allowed or if a user should be warned when he is SPYed on or whether a user should be told about a rejected watch attempt.

From a security viewpoint, the privileged SPY user can see everything done by a user and use one of four journaling options to document their actions. PEEK & SPY supplies a command file that creates a detached process which records sessions to an output log file. You can lock out a user's keyboard input in case of a security breach.

PEEK & SPY allows the system manager to log out users who do not logout themselves when you need to shut all or part of your system down. Another important feature that gives PEEK & SPY an advantage over other remote control software is Instant Screen Refresh. This allows one to see the user's entire screen when the watching first begins, as opposed to only seeing what the user inputs after you have started watching.

To make user training even easier, a "Teacher Feature" has just been added that allows multiple users to remotely view a single terminal of a system manager or instructor.

For more information, visit [www.networkingdynamics.com](http://www.networkingdynamics.com)

## Compaq Management Agents for *OpenVMS*, V2.1

Web-based enterprise management (WBEM) is an architecture that allows you to use a Web browser to monitor many devices connected to a network. Compaq Management Agents for *OpenVMS* includes a Web server for system management, as well as management agents that let you look at devices on your *OpenVMS* systems.

### New features include:

- Cluster sub-agent (for use with Compaq Insight Manager)
- File names changed to WBEM\$
- CPU utilization
- Sets and traps for disks
- Enhanced system board data
- *AlphaServer* GS Series discovery application
- Improved help files
- New user manual includes a troubleshooting section
- MultiNet support
- Additional management agents
- Bug fixes (SCSI, NIC, HEALTH)

You can download the latest version now from:

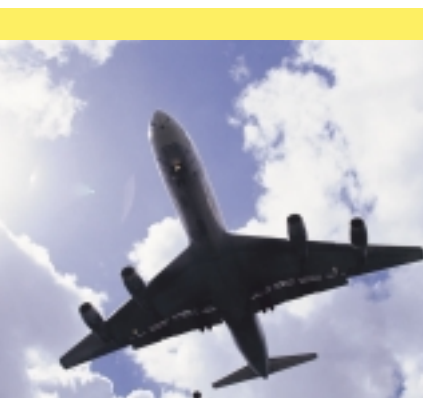
[www.openvms.compaq.com/openvms/products/mgmt\\_agents/](http://www.openvms.compaq.com/openvms/products/mgmt_agents/) ♦

## LTU takes to HyperTape: a storage solution for a travel company

LTU, a major German travel company, uses BridgeHead Software's HyperTape Enterprise Backup solution to accomplish data backup and archive across its *OpenVMS* and other environments.

With approximately 5,250 employees and revenues of DM 4.045 billion, the LTU group is one of the largest companies in Germany's tourism sector. LTU relies on an extensive array of data processing systems and applications for coordinating the many parts of its business — including reservations, stock control, and flight operations.

As a result of such disparate disciplines, a highly complex and heterogeneous systems environment has evolved. The in-house reservations system runs on an *OpenVMS* cluster, while material management, accounting and back office systems, and Flight Operation products run on other Compaq and HP systems. Nearly a terabyte of data is being generated on a daily basis and these levels are doubling each year.



With LTU's requirement to safeguard such vast amounts of information, there were compelling arguments for developing a comprehensive backup strategy for all its platforms and operating systems. LTU's vision was one of a single data backup solution that would integrate the various

hardware platforms and software environments, including *OpenVMS*, UNIX, Windows NT, Novell, and NonStop-Kernel.

While providing a uniform procedure for backing up data from all platforms, it was also imperative that the information could be restored quickly in the case of handling errors or hardware faults. A further objective was to reduce administrative overheads without impeding the company's day-to-day business operations. This meant that backups

had to run to completion between 7 p.m. and 7 a.m. LTU also required a solution that offered affordable mechanisms for archiving data with high levels of security.

The only solution that met all of LTU's requirements was HyperTape Enterprise Backup Software from BridgeHead Software. HyperTape's scaleable client/server-based software solution is designed specifically for backing up and restoring critical organizational data in the high capacity networks of medium-sized and large companies. Its innovative design enables the implementation of uniform and consistent backup strategies in heterogeneous environments. In addition to *OpenVMS*, HyperTape supports more than 30 different platforms and is compatible with all the common UNIX dialects. HyperTape can be operated with magnetic tape drives, automated tape libraries, or in conjunction with Hierarchical Storage Managers.

LTU has been using HyperTape since 1995, during which time the solution has grown to include three backup nodes with thirty-six tape drives in eight large Compaq TL series tape libraries. The media management has also been upgraded to OpenMedia, making the solution SAN-ready. In spite of being a highly complex and diverse system, LTU professes total satisfaction with HyperTape's ability to deliver on its promises.

For inquiries to our U.S. sales people please use:  
[Sales.US@BridgeHeadSoftware.com](mailto:Sales.US@BridgeHeadSoftware.com) ♦

## Did You Know?

**If you're using the underground  
in London, the electric lights  
lighting your way are controlled  
by an *OpenVMS* system.**



## NEMONIX now shipping XMI SCSI adapters with optional 100Mb Ethernet controllers

Nemonix XMI adapters for VAX 6000, 7000, and 10000 series systems offer exceptional performance and are designed for easy plug-and-play installation utilizing available XMI slots.



The Ultra-Wide SCSI Adapter provides peak I/O performance and the 100Mb Controller offers increased networking capabilities, is 10/100 compatible, and allows multiple controllers. The 100Mb Ethernet Controller is capable of 5.5 megabytes of sustained transfer speed. The Ultra-Wide SCSI Adapter is capable of 25 megabytes of sustained transfer speed. The controller is compatible with HSZ50, HSZ70, HSZ80, HSZ22, H3000, H700, and H10000 storage array systems, and supports many other storage configurations. It works very well with the new tape storage and allows the tape storage to run at full speed without any data transfer problems.

Both products may be purchased separately or in convenient combo card packages. The adapters may be installed and maintained by Compaq, and Nemonix offers 24 x 7 technical assistance via phone. Combine this with your existing maintenance contract and you have the highest level of support possible. Nemonix takes pride in offering superior products, backed by outstanding service and support.

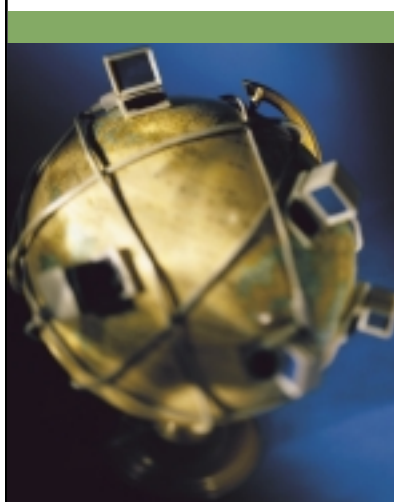
For engineering questions contact Dan at [engnemonix@wn.net](mailto:engnemonix@wn.net). For sales information call 1-800-435-8650 or visit [nemonix@wn.net](mailto:nemonix@wn.net) ❖

For engineering questions contact Dan at [engnemonix@wn.net](mailto:engnemonix@wn.net). For sales information call 1-800-435-8650 or visit [nemonix@wn.net](mailto:nemonix@wn.net) ❖

## Announcing enhancements to Compaq Office Server for OpenVMS

Continuing Compaq's commitment to offer competitive messaging solutions on *OpenVMS*, Office Server V6.0 will be shipping early in 2001.

This version includes many enhancements. For example, nested folders are now available with a depth of ten levels. The first clients that can take advantage of this feature are Outlook through the MAPI Driver V6.0, IMAP4 clients, and Web clients through the Web Interface V7.0 (see below). TeamLinks V5.0 will also support nested folders in 2001.



To support user population consolidation onto *AlphaServer GS Series* systems, V6.0 offers twice as many mail areas (SDAFs) as previous versions. This enables more users to be supported since they can now be spread across ten message stores, allowing faster backup of each and improved disk I/O throughput as more spindles may be employed. Other enhancements include IMAP4 Server performance improvement, permanently empty folders, and recognition of MP3 body type.

Available in 2001, Office Server Web Interface V7.0 will be able to take advantage of nested folders and empty folders. It also delivers blind carbon copy support and the GUI is substantially improved with two-pane folder/document layout.

For more information, visit: [www.openvms.compaq.com/commercial/newsletter/newsletter\\_home.html](http://www.openvms.compaq.com/commercial/newsletter/newsletter_home.html) ❖

## XTRAN expert system automates translation, analysis, re-engineering

XTRAN from Pennington Systems is an expert system that provides translation, analysis, and re-engineering automation for a wide variety of assemblers, third and fourth generation computer languages, command languages, and database languages — including a number of *OpenVMS* language dialects and VAX MACRO.

Through a combination of translation and re-engineering, XTRAN can provide a high degree of automation in the process of migrating code to or from *OpenVMS*, *Tru64* UNIX, and Windows. More generally, XTRAN's expert system capabilities make it possible to automate *any* software engineering tasks to the greatest extent possible.



XTRAN was originally developed for symbolically manipulating computer languages. Since XTRAN's creation, Pennington has increased its power substantially and added a wide variety of languages to its repertoire. The user tells XTRAN what to do using a powerful rules language Pennington calls "meta-language." It includes more than 250 built-in primitives, recursive and iterative

operators, text input and output capabilities, and extensive control over immediate or delayed evaluation.

XTRAN's computer language analysis capabilities include sophisticated, rules-driven analysis of all the languages XTRAN supports. Powerful pattern matching facilities are available at both the statement and expression levels. XTRAN's analysis capabilities can be used to assess the scope of a migration or for a re-engineering effort. It can also be used in imposing, and assessing conformance to, coding standards and conventions across a large body of code.

XTRAN's translation capabilities include translating a number of assemblers to C, including VAX MACRO. XTRAN also translates Pascal, PL/I, Fortran, PL/M, and several proprietary languages to C or C++, RPG to C or COBOL, and assemblers to other assemblers. COBOL translation capabilities are in development.

XTRAN's re-engineering capabilities can automate the application of a set of changes across a body of code — for example, to change operating system, database software, graphics software, or user interface. XTRAN complements the pattern matching facilities mentioned above with powerful pattern replacement facilities at the expression, datatype, and statement levels. XTRAN's re-engineering facilities are also available during the process of translating code.

For more information visit [www.pennington.com](http://www.pennington.com) ❖

## Did You Know?

**If you ride a train in Germany, France, Italy, or Poland you are a user of *OpenVMS*.**

## Partner Profiles:

### Tri-Com

*“OpenVMS clusters are absolutely bullet proof. I challenge a lot of these other OEMs to be able to come up with a solution set like that.”*

—Tim Donovan  
President and Chief Executive Officer, Tri-Com

#### Capitalizing on convergence

Convergence. To most data-intensive organizations, it's just another word for confusion. Helping companies sort through the confusion is Tri-Com, a forward thinking systems integrator based in Annapolis, Maryland. Tri-Com provides products and business support services to the converging communications and Internet industries — focusing on data center solutions, network infrastructure, project management, business and technology solutions, OSS deployment and integration, and software quality assurance.

Tri-Com's platform of choice is Compaq *AlphaServer* systems running the Compaq *OpenVMS* operating system.



According to Bob Strouts, Vice President of Technology Services, “We believe Compaq hardware and software products are really the best in the industry, and we lead with those products — whether it be computer solutions, storage area network solutions, or networking solutions. We only want to implement quality solutions, and we believe that *OpenVMS* on *AlphaServer* systems provide just that.”

Strouts explains, “Anytime there's an application that has to be available 24 by 7, that's where we recommend *OpenVMS* on *AlphaServer* systems. *OpenVMS* is such a consistent, solid operating system, easy to use, and rock solid in its reliability. If you need a system that is highly scalable, that's where *OpenVMS* shines. It gives customers the ability to scale just about any size solution that they need and is available almost 100% of the time. From Tri-Com's perspective, we can't ask for a better solution to offer our customers.”

## VX8000

*“With Version 7.3, Compaq has done an outstanding job of making OpenVMS an even better Internet server platform.”*

— Bert Grevelink, general manager, VX8000



Among many leading companies in Europe, a link between the past and the future is a company called VX8000. Based in Laren, Holland, VX8000 is an IT service company specializing in system development, integration, and management. VX8000 offers full support for customers who rely on the Compaq

*OpenVMS* operating system — including onsite consulting, worldwide training, VAX to *Alpha* upgrades, and project responsibility including Service Level Agreements. Today, a key focus of VX8000 is on integrating its customers' mission-critical systems with Internet applications.

Bert Grevelink, general manager of VX8000, says, “We started 12 years ago on the Compaq *OpenVMS* platform. In those days, that was the preferred platform for mission-critical applications. Today, *OpenVMS* is still a superior platform for mission-critical applications, and even more so with the new e-business economy.”

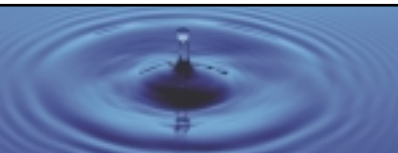
“Clustering is the prime reason that *OpenVMS* is a 24x7 operating system,” says Grevelink. It's long been an industry-leading feature of *OpenVMS*, and still is. “Between clustering and the new e-business features of Version 7.3, *OpenVMS* offers companies a superior Internet server platform.”

Grevelink says that's good news for VX8000 customers. “The *OpenVMS* system that provided competitive advantages in the past will continue to give customers a competitive advantage in the future — simply by integrating it with e-business technologies.”

For complete versions of these and other *OpenVMS* success stories, visit:

[www.openvms.compaq.com/openvms/brochures/](http://www.openvms.compaq.com/openvms/brochures/) ♦





# High system CPU utilization in an SMP environment

## Section I

This article addresses high system CPU utilization in an SMP environment. This section details key high level strategies that a performance analyst can use to reduce high system CPU utilization. The high level strategies presented within this article are a mixture of short-term and long-term solutions. This article will not address the definition of what “high system CPU utilization” is, since there are many valid definitions of the term.



The first strategy is to review the affected system's workload to identify portions of the workload that do not have to be done as they are currently. There may be components of the system's workload that are not essential to the business mission being performed by the system. An example of such a component could be ad-hoc

reporting programs executing on a system whose primary mission is to service a high number of transactions that require short response times. The outright removal of these components, or the shifting of these components to other systems or other times, can often dramatically reduce system utilization.

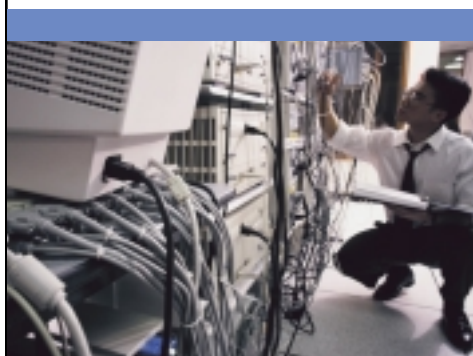
A related short-term strategy is to audit the system's users. This audit can often identify users who are not primary to the system's mission, or users who are making sub-optimal usage of the system's capabilities. Once again, these users can be removed from the system, or moved to another system.

In the long-term category, performance auditing of the major application components of the system's workload can be used to reduce system utilization. The purpose of an application performance audit is to quantify the

performance cost of each of an application's functions. Once this quantification is done, then the functions can be reviewed to determine whether their performance cost is justified by their business need. Sometimes an application performance audit will identify nonessential functions, which can be removed from the application.

## Section II

The goal of this section is to illustrate several ways that the performance analyst or capacity planner can develop a context for the high CPU utilization. In other words, once the immediate crisis is over, the performance analyst can review the system's performance with the following viewpoints in mind.

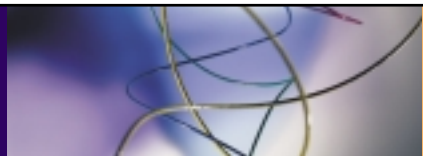


The first action the performance analyst should take is to develop an historical viewpoint on the system's CPU utilization and how this relates to the growth in business use, i.e., how the user workload as

measured from the application viewpoint is growing over time. This action is necessary in order to predict when the next crisis could occur, and determine what actions should be taken to avert the crisis. This historical viewpoint should be developed using a timeline with as relatively fine granularity as possible — one minute, for example, with the tools being used. It is then possible to aggregate to larger time units, if necessary. When you can track both CPU use and changes in actual user demand together, you will be able to develop an understanding of the relationship between the business work you ask of your system and how this translates into your system's CPU load.

The first viewpoint concerns what is known as Moore's Law. Originally, Moore's Law stated that circuit densities increase four-fold every three years (thus doubling every 18 months). The law is now used more generally to express the rate of growth of many computer system attributes — including the ability of hardware vendors to deliver increases in raw system performance — when averaged over a long period





of time. In some cases, this increase in raw power can be used directly. In other instances, application, administration, and tuning changes may be required to achieve the system's potential.

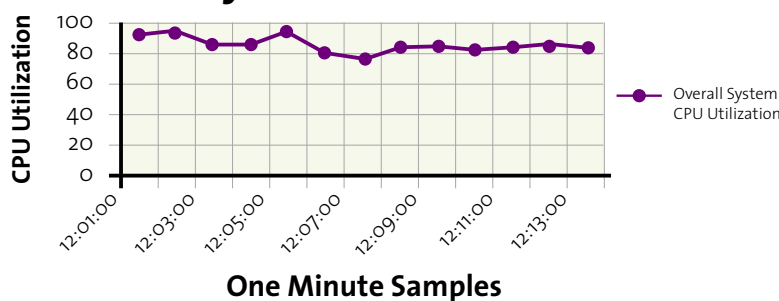
If an examination of the timeline shows a growth rate higher than that implied by Moore's Law, then some actions must be taken to adequately handle the future workload, since it will be unlikely that even raw hardware performance will keep up with the workload's demands. In this case, it is likely that the workload will need to be partitioned in order to meet demand.

Another viewpoint involves examining the constructed timeline to discover any recurring patterns. For example, CPU utilization may only be a problem during certain times of a year, month, or day. You may find that the patterns of use may be radically different during some of these periods and that the relationships between work completed and the load on the CPU vary as well. For long-term success as your business grows, you will have to have enough CPU capacity for all the peaks in the cycles. Since some of these peaks may be several times more intense than the normal load, the timeline approach will help you avoid the mistake of basing your calculations on averaged workload. Meeting peak workloads in an optimal fashion may require substantial effort in the areas of offloading unnecessary work to other systems and in carefully timing the execution of the largest jobs to off peak periods.

### Section III

This final section examines the use of workload decomposition. Earlier, it was noted that the construction of a system performance timeline was necessary to determine the actual reasons for high system CPU utilization.

## Overall System CPU Utilization

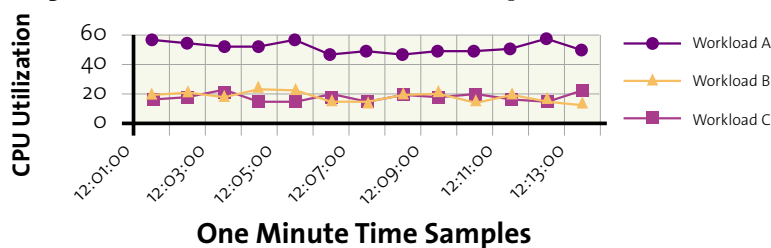


This section will assume that this system performance timeline was constructed, and that the construction method used makes the manipulation of the timeline easy.

An example of a system performance timeline is presented below. This diagram presents a high level view of a particular system that has high system CPU utilization. One possible avenue of attack for the performance analyst is to delve further into the workload components of the overall system performance presented in the below graph, and tease out any lurking separate workloads.

It is often fruitful for the performance analyst to manipulate the system performance data by identifiable workloads in order to determine what portion of the overall system's workload could be moved elsewhere (whether in time or system location). An example of this type of system workload decomposition is shown below.

## System Workload Decomposition



This graph would indicate that it could be possible to take one of the three workloads on the system and place it on another system with excess capacity, thereby allowing for the growth of the two workloads left on this system.

This article presented suggestions for a performance analyst faced with a system exhibiting high system CPU utilization. Along with controlled system changes, consideration of these suggestions will lead the performance analyst toward the goal of reducing system utilization. ♦



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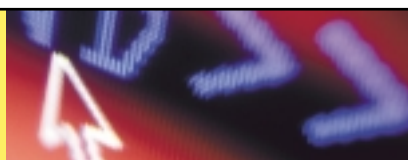
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