Compaq OpenVMS Times

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COMPAQ NonStop™

The Renaissance of Compaq *OpenVMS*

by Mary Ellen Fortier, Director of OpenVMS *Marketing*

May 16 marked the zenith of several years' hard work by multiple Compaq organizations and functions, with the announcement of the new Compaq *AlphaServer* GS Series systems. Compaq *OpenVMS* played a significant role in this announcement because, when combined with these new systems, it reduces business risks by delivering:

- The flexibility, availability, and scalability to take business to the Internet
- Resilience to system failures and the ability to respond to unpredictable demands for data and information
- Unstoppable 24x365 operation

The day of the announcement, and the weeks leading up to it, were particularly exciting ones for *OpenVMS* with our participation in analyst, press, and customer pre-briefing events held in Europe, North America, and Asia/Pacific. More than 200 analysts and press representatives were briefed with extremely positive reactions.

These briefings reinforced a belief we hold within the *OpenVMS* Group that *OpenVMS* is experiencing a true renaissance. Analysts, the press, and customers were excited to see the momentum *OpenVMS* has been building over the last year, and it was clear that it had taken on a heightened level of awareness and appreciation within Compaq.

One of the key proof points to this announcement is the Compaq *OpenVMS Galaxy* architecture, which was designed specifically for the new *AlphaServer* GS *Series* systems. The excitement created 18 months ago when *OpenVMS Galaxy* was released continues to build very positive momentum with these new products.

Additionally, system orders for *OpenVMS* on the new *AlphaServer* GS Series, many of which were for multiple systems, were placed in advance of announcement!

These are truly exciting and fun times for those of us in the *OpenVMS* Group. Join in this excitement and journey with us on our rising star: Compaq *OpenVMS Galaxy* and the new Compaq *AlphaServer* GS Series systems! ❖

Straight talk: Marcello interviews Capellas

Recently, Compaq CEO Michael Capellas spoke with Richard Marcello, Vice President of the *OpenVMS* Group, and the staff of *OpenVMS Times*. Here are some highlights of that discussion.

MARCELLO: The *OpenVMS* Ambassadors described the *OpenVMS* customer base as being "fiercely loyal." Could you share your impression of *OpenVMS* customers and their importance to Compaq?

CAPELLAS: I think the *OpenVMS* customer base is unique in a number of ways. First, it is a very large group—there are more than 450,000 systems and 10 million customers worldwide. What's probably even more important is that every single one of them is running a mission-critical application. By definition, the nature of the capabilities of *OpenVMS* says that it's mission-critical because that's where the solution is best applied. Some of the most important, mission-critical systems in the world rely on *OpenVMS*. So the continued support and expansion of *OpenVMS* remains critical—not only to our customers, but also to Compaq. They are also one of the most vocal groups. The one thing I love about the *OpenVMS* customer base is that I'm never short of input. They are also very technically savvy. So in my engagements with *OpenVMS* customers—which happen quite often—there is no doubt that we're going to get down and have an engaging technical conversation. They are a very sophisticated, highly competent group of users.

MARCELLO: How do you see the *OpenVMS* customer base changing, from what it was to where it's headed?

CAPELLAS: What *OpenVMS* has been for a very, very long time is the foundation of where the entire industry is moving today. The market is moving to the foundations of availability, scalability, reliability, and superb manageability —whether that means load balancing or advanced clustering. These are things that e-commerce is now demanding, and these are things that have been around in our engineering community for a long time. As e-commerce explodes and hits its next generation, customers used to say, "I want a website." Now they say, "I want to run my business and do all transactions and customer engagement on the Web." These kinds of capabilities are going to continue to grow in importance, and they are capabilities that *OpenVMS* has long had the foundation to address. We know how to do this stuff.

MARCELLO: A testament to that shift is the fact that many new e-commerce companies—such as the International Securities Exchange (ISE), Northern Light, and E*Trade—could choose any platform in the world, and chose to build their businesses from the ground up on *OpenVMS*. What do you feel is driving this trend?

CAPELLAS: I think E*Trade is a perfect example of what we're talking about. E*Trade's business is about large scale, lots of transactions, super reliability, and consistent performance. That is what their brand is all about. You hear me talk sometimes about the fact that in the world of e-commerce, your system is your brand. Every day it's what your customer sees. So these e-commerce customers went to *OpenVMS* for a very clear reason. It is the trust that the technology would

work, that there was engineering support behind it, and that they simply would not need to spend their critical business resources worrying about things like downtime, system migration, or security. Those things were given, and would allow them to get on with the business of being what they are—which is a lot of transactions.

MARCELLO: Recently, you said that *OpenVMS* has been building momentum over the last six months. Could you expand on that momentum?

CAPELLAS: There has been momentum in a couple of different areas. First of all, the market is moving to our strengths. That is the real foundation. As the market moves toward our strengths, it's about really bringing forward the kinds of capabilities that we can do, such as clustering. We need to take our advanced engineering around clustering and our software stacks and make e-commerce real. I think we are almost uniquely qualified to service the demands of e-business. That what's going to continue to attract people to *OpenVMS*. Now it's a question of taking the fight to the streets and taking our message to the market.

MARCELLO: How do you think *OpenVMS Galaxy* plays into this?

CAPELLAS: I think *OpenVMS Galaxy* is a classic example of being able to use our engineering to solve complex problems that nobody else has been able to do. When you talk about the Internet, you by definition talk about a heterogeneous environment. It's about connecting customers to customers or suppliers to suppliers and by definition it requires there to be interoperability among different systems. *Galaxy* is an absolutely superb example of a piece of engineering that (1) provides a super level of reliability and (2) has a framework that allows interoperability in a very, very robust way. That's what's staggering about this technology—the way it allows multiple systems to interact.

MARCELLO: Given what's taking place in the marketplace and the trend toward e-business, does it make sense that robust, mission-critical servers and the operating systems that run them are well positioned for the future?

CAPELLAS: In the world of e-business, it's no longer a matter of religious choices. The market is moving toward those proven technologies that work—because they can't afford to ever go down. For years, IT wanted to be truly strategic in its positioning. Today, IT in every company is strategic about its positioning because it's no longer a case of improving operational efficiencies—although that's part of it. E-business is all about your customer engagement model. If you lose your system, you lose your customers. It's that simple. That knowledge is driving leading-edge companies back to technologies that they know have a proven track record of resilience and reliability. ❖

Debut column... Terry Shannon on *OpenVMS*

We are pleased to welcome Terry Shannon as a regular contributor to* OpenVMS Times. *Mr. Shannon's opinions are his own and do not necessarily reflect those of Compaq Computer Corporation. — Editor

"May you live in interesting times," goes an ancient Chinese curse. Such seems to be the case with the Compaq *OpenVMS* operating system. Marginalized by many, and written off by some, the OS has exceeded the expectations of the marketplace, industry pundits, and even Compaq: in a 1997 presentation, Compaq executives predicted the installed base of *OpenVMS* systems would decline to around 250,000 systems by 2001. Defying this prognostication, the *OpenVMS* base has remained fairly steady at 450,000 systems, and the *OpenVMS* revenue stream delivers a hefty $3.9 billion to Compaq's coffers each year. What's more, Compaq senior management clearly regards *OpenVMS* as a valuable strategic asset, not a cash cow that's destined for a one-way trip to the abattoir. And if all of this isn't interesting enough, it now appears that *OpenVMS* is poised for a renaissance and perhaps even a return to growth mode.

I've been invited by Compaq to contribute a regular column to the *OpenVMS* Times—a publication that offers additional evidence that Compaq is raising the profile of the best server operating system on the planet. As a longtime enthusiastic *OpenVMS* user and system manager, and as the author of one book, dozens of articles, and numerous industry presentations on the operating system, I look forward to the opportunity to chronicle the resurgence of a platform that I first encountered nearly 20 years ago.

There's plenty of Good News coming from *OpenVMS* land. For example, the new *AlphaServer* GS Series systems provide the enabling environment for the *OpenVMS Galaxy* software architecture. Based on early orders, it appears that *Galaxy* significantly improves the *OpenVMS* value proposition. *OpenVMS* Version 7.3, due out late this year, will include significant Galaxy-related enhancements as well as other improvements that will enable the OS to better exploit the Nearly Uniform Memory Architecture (NUMA) of the new *AlphaServer* GS Series. And yes, an *OpenVMS* Version 8.0 is in the works!

Compaq is taking a kinder, gentler approach to *OpenVMS* pricing. Thanks to the efforts of the Dallas Fort Worth Compaq Users Group, free *OpenVMS* Alpha and *VAX* Hobbyist licenses are available to noncommercial users. Plans are being finalized to offer free *OpenVMS* licenses to qualified educational institutions, and Compaq recently slashed the price of *OpenVMS* cluster licenses for *AlphaServer* DS Series systems by 50%.

And to prove once and for all that the rumors of the impending death of *OpenVMS* are greatly exaggerated, Compaq is in the process of rendering *OpenVMS* compliant with DII-COE (Defense Information Infrastructure – Common Operating Environment) standards. Compaq decided to embrace the COE because such support is critical to ensuring *OpenVMS*' stronghold in the government sector. The COE initiative will be enhancing applications portability to *OpenVMS* while generating over $500M in incremental systems revenue over the next five years. More importantly, COE compliance requires vendors to guarantee a minimum 15-year commitment to their platforms. Hence, the COE initiative ensures that *OpenVMS* will—like the Alpha architecture—remain viable at least through the year 2015.

Compaq has long been accused of stealth marketing, but the *OpenVMS* Group is anything but reticent when it comes to promoting its wares. Aiming to gain mindshare as well as market share, Compaq is equipping the *OpenVMS* sales force with slick new competitive marketing tools as well as aWeb-based competitive tracking facility. A slew of new marketing collateral highlights *OpenVMS* on the *AlphaServer* GS Series and other *AlphaServer* platforms. No less important is the evangelical role played by the 180-odd *OpenVMS* Ambassadors and by Compaq senior executives including Michael Capellas. *OpenVMS* Group VP Rich Marcello and his colleagues are reaching out and touching customers and prospects via an *OpenVMS* Executive Council, Diamond Customer Forums, and high-level briefings conducted worldwide.

The heavy lifting is paying off. E*Trade's decision to purchase *OpenVMS*-based *AlphaServer* GS systems to power its online brokerage—a development touted at the *AlphaServer* GS Series launch—represented a major victory over Sun Microsystems, who aggressively pitched its UE10K enterprise server. And in the win-back department, SKC is aware of at least one significant Windows NT-to-*OpenVMS* migration.

In upcoming issues of *OpenVMS Times,* I'll go into more detail on *OpenVMS* product futures, the nascent eBusiness and ASP initiatives, DII-COE, and other issues of interest. Whether you're an *OpenVMS* customer, channel partner, or Compaq employee, things are definitely looking up on the *OpenVMS* front. If you have any comments or questions, or if you have an issue you'd like me to address, feel free to drop me a line at **shannon@world.std.com**.

Terry C. Shannon, consultant and publisher of Shannon Knows Compaq, *has over 25 years experience in the IT industry as an* OpenVMS *system manager, programmer, analyst, journalist, and consultant. Since 1983 Shannon has closely tracked Digital Equipment Corporation, and more recently Compaq. Mr. Shannon has served with several large market research firms and publications. He now works as an independent IT analyst and consultant and publishes a popular industry newsletter* ❖

ISE goes live, powered by *OpenVMS* on *AlphaServer* systems

The International Securities Exchange (ISE), a new financial exchange running on *OpenVMS* went live May 26. ISE is the first of three new *OpenVMS*-based exchanges we expect to see launched this year. All three are new customers to Compaq.

Based in New York, ISE is the first nationally-registered securities exchange to be approved in the United States for 27 years. ISE is also the first fully-electronic options exchange in the U.S. The core of the exchange is powered by *AlphaServer* systems running *OpenVMS* multi-site clustering, with *Compaq Reliable Transaction Router (RTR)* software providing transaction integrity.

See the full story online at:
www.openvms.compaq.com/openvms/brochures/ise ❖

Postcard Greetings

We are pleased and excited to launch Compaq *OpenVMS* on the new *AlphaServer* GS Series. These new systems powered by *OpenVMS* provide resilience to system failures and deliver the ability to meet unpredictable demands for data and information through leadership availability, reliability and scalability.

To see how strongly we believe that *OpenVMS* on the new *AlphaServer* GS Series is unstoppable, view our new e-postcards at:

www.openvms.compaq.com/e-postcard1/ and
www.openvms.compaq.com/e-postcard2/ ❖

Lowest price ever for industry-leading *OpenVMS* cluster technology!

Compaq is now offering a very attractive price on *OpenVMS* cluster licenses. This new cluster price is being offered for use on all *AlphaServer* DS Series systems and workstations, and reflects a 50% price reduction from the earlier license prices. This new offering will give customers a very cost-effective way to take advantage of Compaq's industry leading cluster capability on the *AlphaServer* and *AlphaStation* platforms.

In addition, customers can now purchase an *OpenVMS* cluster client license at 25% of the new *OpenVMS* cluster license price. This will allow customers to take advantage of *OpenVMS* cluster functionality at the lowest possible cost. This *OpenVMS* cluster client license offers all of the functionality of the full *OpenVMS* cluster license except for the ability to serve disk or have a quorum vote in the management of the overall cluster.

There is also an upgrade from the *OpenVMS* client license—offering an upgrade path to the full functional cluster license. This will give customers who buy the client license today the ability to upgrade to the full license functionality at a later date with no penalty.

For more information regarding this new offering and *OpenVMS* clusters, please visit:
www.openvms.compaq.com/availability/clusters.html ❖

Did You Know?

The British Broadcasting Corporation (BBC) prepares all their UK television program transmission schedules on applications supported by Compaq, running on *OpenVMS* systems. Good show, BBC!

"Link up! Sync up! Be the future!"

Mark your calendars for the Compaq Enterprise Technical Symposium: October 2-6 in Los Angeles

The Compaq Enterprise Technical Symposium is a new annual technical event co-sponsored by Compaq, Compaq's ASE (Accredited Systems Engineer) Program, U.S. DECUS (Digital Equipment Computer Users Society), the Compaq Solutions Alliance (CSA), and NT Wizards. The event is open to all technical implementers of Compaq-based solutions.

Enterprise Technical Symposium

October 2 - October 6, 2000 2000 Los Angeles, California

This event replaces:

- Compaq's ASE Conference
- U.S. DECUS Symposium
- NT Wizards (for system engineers who use the Microsoft Windows NT OS)
- The Global Technical Conference (a developer's conference sponsored by CSA)

Event objectives

The purpose of this event is to educate the Compaq technical community (internal and external) about new technologies and solutions from Compaq and its partners. To accomplish this, Compaq is committed to providing the best enterprise technical knowledge; the entire knowledge network will be represented. The event also functions as an advocacy forum for our user group communities, customers, and technical business partners.

For more information on this upcoming event, please visit: **www.cets2000.com** ❖

OpenVMS in the news!

Headlines about the *AlphaServer* GS Series announcement...

GUNNING FOR SUN MICRO

Smart Reseller from ZDWire, 12 May 2000
www.zdnet.com/sr/stories/news/0,4538,2568893,00.html

NEW CHOICES FOR ENTERPRISE SERVERS

InformationWeek, 15 May 2000
www.informationweek.com/786/unix.html

COMPAQ TO ROLL OUT NEW ALPHA SERVERS

EWEEK, 15 MAY 2000
www.zdnet.com/eweek/stories/general/0,11011,2569696.html

COMPAQ DEBUTS HIGH-END SERVER, EYES WEB SERVER MARKET

Infoworld.com, 16 May 2000
www.infoworld.com/articles/hn/xml/00/05/16/000516hncompaq.xml

COMPAQ ANNOUNCES LONG-DELAYED WILDFIRE SERVERS

Computerworld, 16 May 2000
www.computerworld.com/home/print.nsf/all/000516DFCE

COMPAQ HAS HIGH HOPES FOR NEW ALPHASERVERS

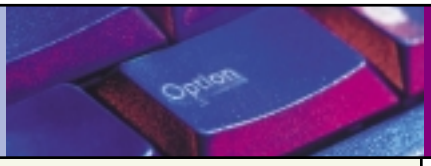
EWEEK, 16 May 2000
www.zdnet.com/eweek/stories/ general /0,11011,2570589,00.html

COMPAQ PINS INTERNET HOPES ON NEW SERVER LINE

CNET News.com, 16 May 2000
http://news.cnet.com/news//0-1003-200-1883819.html?tag= st.cn.sr.ne.1

COMPAQ BANKS ON HIGH-END SERVERS

Australian Financial Review, 18 May 2000



SKC'S OPENVMS VIEWPOINT
Shannon Knows Compaq, 20 May 2000
www.openvms.compaq.com/openvms/skc/openvmsviewpoint.pdf

COMPAQ DEBUTS 32-PROCESSOR WILDFIRE SERVER
Information Week, 22 May 2000
www.informationweek.com/787/compaq.htm

OpenVMS solutions expand...

COGNOS ANNOUNCES LATEST POWERHOUSE SOFTWARE FOR BUILDING WEB, WINDOWS AND TERMINAL-BASED APPLICATIONS ON COMPAQ'S OPENVMS BUSINESS SERVERS
www.cognos.com/news/rel_287.html

INTERSYSTEMS ANNOUNCES BENCHMARK BREAK-THROUGHS IN SCALABILITY, PERFORMANCE
CACHÉ e-DBMS Scales to 6,000 Concurrent Users on Compaq Alpha Platform
www.e-dbms.com/analysts/2000/ benchmark.html

LEGATO EXPANDS LEADING PLATFORM COVERAGE WITH STRATEGIC OEM AGREEMENT WITH WUM-PUSWARE
www.legato.com/News/index.html

IONA TECHNOLOGIES ANNOUNCES WORLDWIDE PARTNERSHIP WITH COMPAQ TO HELP CUSTOMERS REDUCE THE COST OF TRANSITIONING TO E-BUSINESS
www.iona.com/pressroom/2000/compaq.html

DOMAIN PHARMA ANNOUNCES AVAILABILITY OF CLINTRIAL 4 RELEASE 4.2J FOR THE JAPANESE PHARMACEUTICAL INDUSTRY
www.domainpharma.com/ ❖

France launches *OpenVMS* ad campaign

Compaq France has launched a three-month *OpenVMS* advertising campaign slated to run in seven major computer industry publications. The full-page ad features a Swiss banker and the caption, "There are three topics the Swiss never joke about: banking, banking and *OpenVMS*."

The full text reads :

"Logical. Swiss bankers are very serious about numbers. For *OpenVMS*, the numbers speak for themselves. 25 years of experience. 10 million users. 450,000 systems installed. 6000 service specialists. 60% of the world's funds transfers. 90% of the world's microprocessor chips manufacturing. 50% of mobile phones billing systems. 5 of the world's top 10 stock exchanges. For the most critical applications, *OpenVMS* is much more than a highly reliable technology. It is also more than a very long term investment. It is the system you can always count on." ❖

Did You Know?

In Italy, the distribution of electricity nationwide is controlled, managed, and monitored by *OpenVMS*. So, whenever someone flips the switch in Italy, *OpenVMS* is there!

OpenVMS Times—being read worldwide!

The *OpenVMS* Marketing Group started the *OpenVMS Times* as a vehicle to keep Compaq customers, partners, and employees informed of the latest developments in *OpenVMS* strategy, solutions, products, and activities. While we write an English version and post it on the Web, many countries are translating it into their native languages, including Japanese, Swedish, and Russian.

To check readership, we conducted a study to identify the general location of the visitors to the website and determine statistics on the total activity for this website during a designated time frame. In a one-month period, the customer version of *OpenVMS* Times had 9,952 hits! ❖

Changes coming in *OpenVMS* V7.1 support service

Effective July 1, 2000, *OpenVMS* Alpha Version 7.1-2 and *OpenVMS VAX* Version 7.1 joined the Prior Version Support Program. You can be confident that the Prior Version Support Program will provide the highest level of remedial support that you received under the standard support contracts.

OpenVMS Alpha Version 7.1-2 has superseded *OpenVMS* Alpha Version 7.1. Best Endeavor Support may be available for *OpenVMS* Alpha Version 7.1, depending on local expertise. Best Endeavor Support includes phone or e-mail access to technical experts and online access to tools and technical information.

Both *OpenVMS VAX* Version 5.5-2 (including V5.5-2H4) and *OpenVMS VAX* and Alpha Versions 6.2 (including V6.2-1Hx) will continue to be supported under the Prior Version Support Program, with support commitments through June 30, 2001.

For more information on Compaq's Prior Version Support offerings, please visit the Prior Version Support website: **www.compaq.com/services/software/ss_mature.html** ❖

Did You Know?

If you buy a new house in the United Kingdom, it is guaranteed for 10 years by the National House Builders Confederation, which relies on *OpenVMS* clusters.

Announcing Compaq *BridgeWorks* Version 1

The *OpenVMS* Group is pleased to announce that Compaq *BridgeWorks* Version 1 was released in late May. A brand-new tool to build distributed applications, *BridgeWorks* has been available since December under a field-test license. Distribution of the software is from the Web (free of charge) and by CD (for a nominal fee). A variety of Compaq service options are available.

BridgeWorks is a development tool designed for Compaq *OpenVMS* application developers who want to extend the reach of their *OpenVMS* applications to serve new Web-and desktop-based clients. Using a distributed model, *BridgeWorks* provides a solution for the broadest range of *OpenVMS* users—one that builds on their existing investment. In fact, the product works with all versions of *OpenVMS* on Alpha systems and all versions of *OpenVMS* on *VAX* systems back to V5.5-2.

BridgeWorks is an easy-to-use, wizard-driven interface running on Windows NT. The developer simply supplies details about an existing callable application, and *BridgeWorks* does the rest. The result is an *OpenVMS*-based server application—that wraps all the routines the developer wants to preserve—and a Windows NT—or *OpenVMS* on Alpha-based middleware application interface (COM objects in this release) that almost any kind of client application can be written to use.

As an enterprise application integration enabler, *Compaq BridgeWorks* contributes to the *Compaq NonStop™* eBusiness commitment for *Compaq OpenVMS*. It overcomes many of the barriers to reusing business logic in heterogeneous computing environments, where standardized application interfaces are key to enabling business-to-business and business-to-consumer communication.

BridgeWorks can "componentize" applications written in COBOL, Pascal, BASIC, FORTRAN, C, and most other 3GL languages that support the *OpenVMS* Calling Standard. Applications suited for wrapping should not rely on embedded terminal I/O and should have routines that are externally callable. *BridgeWorks* includes online help and a start-to-finish tutorial for new users building their first distributed application. This online help includes a knowledge base of information related to integration issues and solutions, and provides extensive guidance and links to a wide range of Web-based sources.

For more information, visit:
www.openvms.digital.com/commercial/bridgeworks ❖

Just released! Compaq *X.25* for *OpenVMS Alpha Systems*

Compaq X.25 for *OpenVMS Alpha Systems* V1.4 has been released and is on the CY00 Q2 *OpenVMS* Layered Product CD delivered in May 2000. This release provides the capability to run X.25 over TCP/IP (XOT) and support for the Gateway Access Protocol (GAP) Server function.

The X.25 Server function brings to the Compaq *X.25* for *OpenVMS* product the functionality formerly called the multihost function in the *VAX* P.S.I. product. This function implements what is known as a connector node. A connector node serves as a gateway to allow other Compaq *X.25* for *OpenVMS* nodes (called client systems) access to one or more Packet Switched Data Networks (PSDNs). There can be more than one connector node in a DECnet network, thereby allowing access to a virtually unlimited number of PSDNs.

Using a variety of client systems and connector nodes (which can be client systems to other connector nodes), many configurations can be created. One typical implementation of a connector node is as a Local Area Network (LAN) node which provides PSDN access for all the DECnet nodes on the LAN.

The X.25 over TCP/IP (XOT) component enables transmission of X.25 packets over a wide area network composed of TCP/IP connections, using the methods described in RFC1613. The XOT module and its associated data links can be used as another data link service provided in place of Link Access Procedure Balanced (LAPB) data links normally used with X.25 PROTOCOL DTE (Data Terminal Equipment) entities, or Logical Link Control Class 2 (LLC2) data links used on LANs.

XOT provides a solution for users who may be migrating to a networking backbone that supports only TCP/IP, but have legacy X.25 applications that must continue to communicate. Or they may be migrating from DEMSA or DECnis hardware.

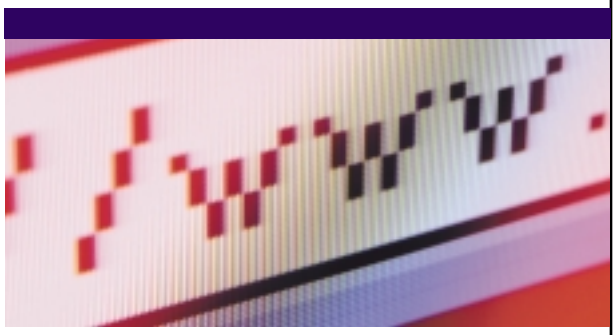
For more details, visit:
www.openvms.compaq.com/network/wan.html ❖

New and improved—the RTR website!

The *Compaq Reliable Transaction Router (RTR)* middleware website has been completely revised. Check out the new page at: **www.compaq.com/rtr**

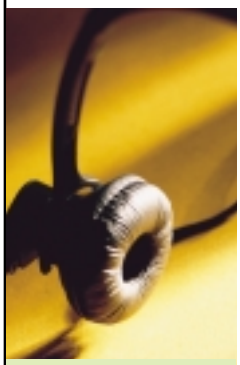
Also, the latest version of the *RTR Newsletter* has just been distributed and is available at:
www.compaq.com/products/software/ntenterprise/rtr/htmdocs/RTRNEWSno8-03-00.html

The newsletter contains the latest product information and announcements regarding *RTR*. ❖



Sounds good! IDE/ATAPI CD-ROM audio support for *OpenVMS*

The IDE/ATAPI device driver has been modified to include support for the IO$_DIAGNOSE interface, which enables support for CD-ROM audio and other special purpose devices. The DECWindows CD-ROM player application has also been modified to support both SCSI and IDE/ATAPI interfaces.



Future versions of *OpenVMS* and DECwindows are expected to include IDE/ATAPI CD-ROM audio support. In the interim, IDE/ATAPI CD-ROM audio support will be made available on the *OpenVMS* Freeware disk.

For more details, visit:
www.openvms.compaq.com/openvms/freeware/index.html ❖

Now available: *Compaq X.500 Directory Services V4.0* for *OpenVMS* on *Alpha systems*

Underlining the recommitment to *OpenVMS* mail and messaging, the latest version of *Compaq X.500* is now available. This version includes the crucial Lightweight Directory Access Protocol (LDAPV3) interface to the directory—enabling it to interoperate with popular LDAP clients, user agents, and applications.

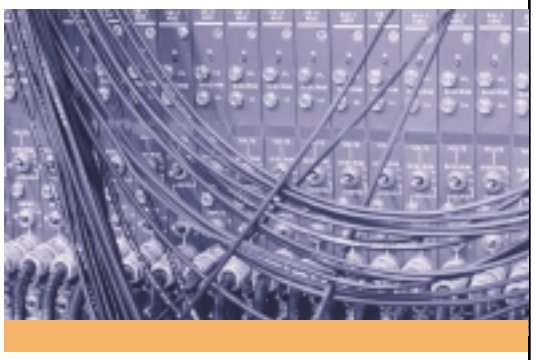
Inclusion of the LDAPV3 interface ensures that the directory can fully participate in a multi-directory environment with a mix of directories supporting both LDAP and X.500 standards from multiple vendors. Also, with the growth of e-business and e-commerce, *Compaq X.500* is very capable of providing robust and scalable directory services across intranets, extranets and the Internet to customers, suppliers, and partners.

Using the X.500 or LDAP model, departments and organizations may adopt an incremental, independent approach to the establishment of a directory service using conforming products from many vendors on multiple diverse platforms. These separate implementations may then be connected together to provide a single logical directory service that spans the department, organization, region or world—now termed Meta-Directory.

Second largest global X.500 directory

According to the Radicati Group, *Compaq X.500* enjoys the second highest X.500 directory worldwide market share, based on systems installed.

The *Compaq X.500* V4.0 directory may contain information on anything of interest, including people, systems, network resources, applications, authentication certificates, and databases. It is designed to be accessed by individual users, applications, and software developers. Both the established DAP interface and the new LDAPV3 interface may be accessed simultaneously by disparate applications, thereby providing full backwards compatibility with earlier versions.



For further information, please visit:
www.openvms.compaq.com/solutions/mail.html ❖

MAILbus 400 Message Transfer Agent V2.0C now available

MAILbus 400 V2.0C is now available on *OpenVMS* for *AlphaServer* and *VAX* systems. This version supports the Microsoft Exchange file transfer bodypart format and provides extensive document conversion capabilities that may be defined on a per user basis by a profile in the prerequisite *Compaq X.500* directory service. The product provides full, seamless connectivity between Microsoft Exchange, Office Server, ALL-IN-1 V3.2 and other servers and electronic mail systems.

Full support for RFC 1006 on *OpenVMS* means that either X.25 or TCP/IP transports may be used, giving the user a choice of transports. This support extends to remote applications that can use TCP/IP to connect to XAPI.

Both *Compaq X.500* and *MAILbus 400* on *OpenVMS* continue to be enhanced based upon direct customer input and emerging standards.

For further information, please visit:
www.openvms.compaq.com/solutions/mail.html ❖

Did You Know?

Much of the specialty steel that is processed in the United States is rolled using computers controlled by applications running Compaq *OpenVMS* on *VAX* and *AlphaServer* systems.

New release of *Compaq Multimedia Services* for *OpenVMS Alpha*

Compaq is now shipping version V2.2 of the *Multimedia Services* for *OpenVMS Alpha*, also known as *MMOV* V2.2. This product provides the ability to record and playback audio and video files under *OpenVMS*.

MMOV V2.2 may be installed on *OpenVMS Alpha* versions V7.1-2, V7.2-1 and later releases. The main focus of this release is audio support for Compaq Creative Labs/Ensoniq AudioPCI Card. This card is available for the *AlphaStation* XP900, also known as the "*VMS*station." In addition, the PCI option is available for other Alpha workstations and servers.

MMOV V2.2 continues to support the Microsoft Sound Board on the current version of *OpenVMS*. The Microsoft Sound Board was previously available as an ISA bus card or as an integrated option on older Alpha workstations.

The Ensoniq PCI audio card replaces the Microsoft Sound Board, which is now only available in limited supply. *MMOV* V2.2 release provides unofficial support for the integrated ESS Technology ES1888 AudioDrive sound chip on the Alpha Personal Workstation and the *AlphaStation* XP1000. The embedded ES1888 sound chip has not been fully qualified for the V2.2 release and has not been listed in the SPD as a supported option. However, the unofficial support for the ES1888 in the V2.2 kit may be sufficient for non-critical applications. ❖

Garnering rave reviews: *OpenVMS and Windows NT Integration For Dummies*

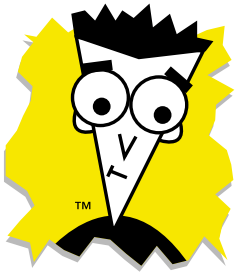
The new book, *OpenVMS and Windows NT Integration For Dummies,* is now available from Compaq. Here's what reviewers are saying:

"Windows NT seems to be everywhere these days, and* OpenVMS *installations are no exception.* OpenVMS and Windows NT Integration For Dummies *brings together all the information you'll need to start extending the proven reliability, availability, and scalability attributes of* OpenVMS *to the Windows NT environment. If you now have, or plan to adopt, a mixed* OpenVMS-Windows NT *infrastructure, this book is essential reading."

— Terry C. Shannon
Consultant and publisher,
"Shannon Knows Compaq"
Author, Introduction to *VAX/VMS*

"Finally, the best known secrets are revealed to the masses... The interoperability and cultural compatibility of* OpenVMS *and Windows NT in the irreverent style the ...*For Dummies *books are known for. A must read for anyone involved in enterprise systems integration!"

— Arnold De Larisch
Computer Research Specialist
Florida Atlantic University
Center for Complex Systems and
Brain Sciences



To order copies, please contact your Compaq representative. ❖

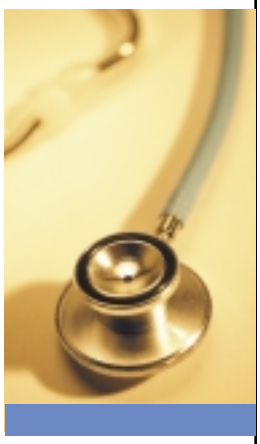
Partner Profile:

Cerner Corporation

"Over the years, OpenVMS has provided a very stable and durable platform. And in our view, what clients are looking for is a platform that provides stability and endurance."

—Gerry Duncan
Director, Technology Integration
Cerner Corporation

While system stability and availability are critical in all industries, in healthcare they can literally mean the difference between life and death. With a roster of over 1000 clients worldwide, Cerner Corporation is a leading supplier of clinical and management information and knowledge systems for healthcare organizations.



Working together, Cerner and Compaq have installed some of the largest and most comprehensive information systems in the healthcare marketplace. Joint projects include one of the largest fully integrated clinical information systems in the United States—connecting a dozen hospitals in a major-metropolitan area. When fully implemented, more than 17,000 individuals will use Cerner's HNA Millennium running *OpenVMS* on *AlphaServer* systems. In another joint project, Cerner and Compaq have deployed a completely paperless practice of medicine at a leading U.S. medical clinic, which has run successfully for almost four years.

Unpredictable demand offers Cerner its greatest challenge. Duncan explains, "In healthcare, the workload is never predictable. Yet our clients want a system that will deliver high levels of performance no matter what will happen. That's an almost impossible task.

"*OpenVMS* Galaxy lets us apply more computer resources virtually instantaneously when a need arises—which is a significant breakthrough for an operating system. Galaxy represents *OpenVMS*' vision on what the high water mark ought to be in terms of running large systems. To be able to add another CPU board—just drag and drop it over and get instantly more power—is like a dream come true for managing capacity when demand is somewhat unpredictable," says Duncan.

Ron Mustard Director, Client Data Center adds, "The combination of Compaq *OpenVMS* Galaxy, next-generation *AlphaServer* systems, and *OpenVMS* clustering will allow us to give our clients a level of performance that wasn't even dreamed of a couple of years ago."

For the full story, see:
www.openvms.compaq.com/openvms/brochures/cerner ❖

Did You Know?

In Montreal – and in fact the whole province of Quebec – *OpenVMS* controls the production of and transport of electricity. Shine on, Quebec!

Partner Profile:

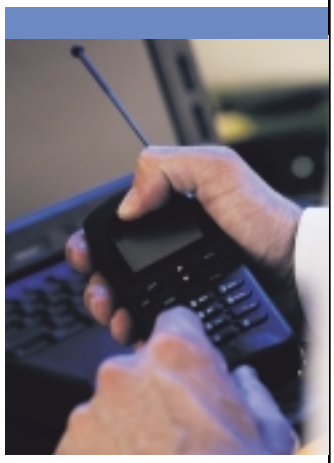
KSCL, Ltd.

Scaling for the future

"Technically, OpenVMS offers all kinds of things that other systems can only layer on top. Its scalability, cost of ownership, and ease of use are unmatched."

— Calum McCready
Director of Strategic Sales
KSCL, Ltd.

"Call me on my cell phone." It's a sentence being heard around the world. And it's getting louder every day.



So it's no surprise that the telecommunications industry is undergoing exponential growth—which leads to increased demands on call processing, billing, and customer care services. Staying ahead of this frenetic growth curve is Edinburgh-based KSCL, Ltd. (**www.kscl.com**), one of the top providers of software solutions to the world's telecommunications markets.

Working together, KSCL and Compaq provide the most scalable, reliable, and high performance billing solutions to the telecom industry worldwide. KSCL's roster of clients includes companies in the wireless, wireline, satellite, cable, and Internet segments—from startups to tier 1 operators of blue chip companies such as BT Cellnet and France Télécom Mobiles.

The combination of *OpenVMS* and the next-generation, high-end Compaq *AlphaServer* systems enables KSCL to deliver high performance systems that can handle the explosive growth telecommunication carriers and service providers are currently experiencing.

Using Compaq's latest technology, KSCL has demonstrated performance that is a quantum leap faster than the previous performance level for its flagship application, Jupiter. This technology combines the bandwidth offered by Compaq *StorageWorks* Fibre Channel technology, the increased CPU performance of Alpha CPU EV67, the high-end *AlphaServer* GS160 system, and new functionality of *OpenVMS* version 7.2-1H1. As a result, KSCL claims the lead in scalable telecom billing systems, and is able to offer its customers scalability options that previously only mainframe vendors could provide.

Says McCready, "*OpenVMS* undoubtedly has a proven track record of being able to scale, whereas some of the other technologies haven't been around long enough to prove that. Sometimes a startup may have zero customers. In a very short space of time they can have hundreds of thousands, and in a very short time after that, millions of customers. They need to have a comfort that you have a solution that can grow with them without having to change the system. Our largest customer supports over 10 million subscribers on *OpenVMS*—a huge number by any definition."

For the full story, see:
www.openvms.compaq.com/openvms/brochures/kscl -gs ❖

Customer Profile:

International SEMATECH

Shaping the future

"Compaq OpenVMS on AlphaServers has helped us meet our performance challenges. Today we're delivering data to our customers anywhere from 5 to 11 times faster than before."

— Patrick Meyer
IT Manager of Manufacturing
Execution Systems
International SEMATECH

In the semiconductor manufacturing industry, performance is a fast moving target.

Setting the pace for the world's leading chip manufacturers is a veritable think tank of semiconductor manufacturing — International SEMATECH (**www.sematech.org**). Composed of 13 semiconductor manufacturing companies from seven countries, International SEMATECH is the world's premier research consortium.

Located in Austin, Texas, International SEMATECH's leading-edge manufacturing facility relies on the Compaq *OpenVMS* operating system running the Consilium (**www.consilium.com**) Workstream MES application on Compaq *AlphaServer* systems.

According to Meyer, "The greatest benefit we receive from *OpenVMS* on *AlphaServers* is that we have high availability. It's a very robust and tolerant platform. It's able to recover quickly from errors without losing information and it's easy to scale—we can add resources to it when we need to, without having to reconfigure the entire system."

Raising the bar on performance

In 1998, the consortium's business requirements dramatically increased as they encountered some projects that required that the MES system do more work for the technicians and engineers, thus allowing them to complete more projects in the same period of time. To meet this requirement, International SEMATECH moved from a *VAX* to *AlphaServer* 2000 platform on March 31, 1999.

In hopes of gaining even faster performance, International SEMATECH then transitioned from *AlphaServer* 2000 systems to *AlphaServer* DS20 systems.

Meyer says, "*Compaq OpenVMS* on *AlphaServers* has helped us meet our performance challenges. Today we're delivering data to our customers anywhere from 5 to 11 times faster than before. People in our member companies say, 'It used to take about an hour. Now it takes 6 or 7 minutes.' We believe that we've reduced the elapsed time for most functions by about 87%. This allows our manufacturing group to work on more projects in the same amount of time."

International SEMATECH takes advantage of two key Compaq core competencies, clustering and mirroring. Meyer explains, "We use *OpenVMS* clustering to help increase our availability. It allows us to balance processes between the two servers, which helps us manage our resources on site. With the RA8000 we mirror all of our disks across the MES system so that if there were a failure we could hot swap a disk and still be in production. The combination of *OpenVMS* clustering and mirroring results in high availability, load balancing, and reliability."

IT Director Michael Sigman agrees, saying, "The Alpha cluster and storage array combination enable us to deliver high performance and availability for business critical applications."

For the complete success story, visit **www.openvms.compaq.com/openvms/brochures/sematech** ❖

Capacity Planning and System Performance

Step 1: Establishing a baseline

There is one key factor to successful capacity planning projects. It's clearly defining the baseline. Generally speaking, a baseline is a standard to which effective comparisons can be made in order to determine the amount of change. From a capacity planning viewpoint, a baseline is a set of values of key performance metrics captured at the same time that together reveal how well the system is performing at the time of capture.

A baseline is important because it is the basis for future comparisons of system performance. With a baseline it is possible to quantitatively judge the effects of internal and external changes to the system. An example of an internal change to a system would be the installation of a new version of *OpenVMS*, or a hardware configuration change. An example of an external change would be a significant increase in orders from customers or an increase in the number of customer service representatives using the system. Another advantage to developing and using a baseline is that it provides a firm basis for examining trends of system performance. It also allows for the proactive management of system resources to meet business needs.

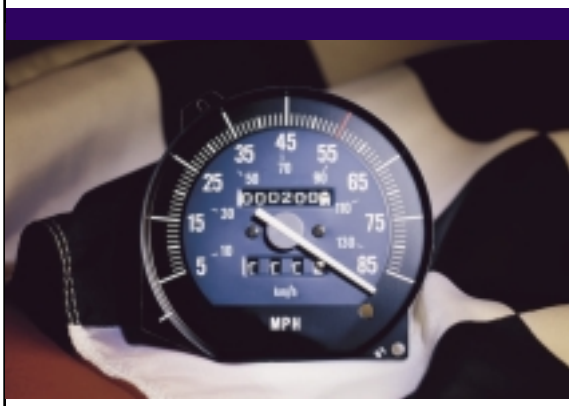
To compose an effective baseline, you need components from three vital areas:

1. The primary component-and the most overlooked-is the area of business metrics. It is crucial to tie metrics used to manage the business with the metrics used to judge system performance. Business metrics are unique to the business function that the system supports. Examples of business metrics include number of orders, number of customer accounts, and number of customer requests.

2. The next area to include in the baseline is that of application metrics covering both throughput and response time. It is important to track the performance of the applications used to support the business in order to judge whether their resource needs can be met by the system.

3. The last area covers the standard system performance metrics. Examples in this area include the usual suspects: CPU utilization, I/O activity, MPSynch, and locking statistics.

A baseline composed of these complementary factors allows for the discovery of what can often be subtle interactions between the business, the applications, and the system.



Once you have captured a baseline containing elements of all three factors, you will be better prepared to track performance as it changes and quantify the effects of any new developments that affect system performance. Baselines can begin with just a few representative metrics in each category and then evolve with time to meet the needs of the situation. We strongly recommend developing clear baselines for all systems that are important to the business.

Step 2: Application Performance Metrics

Few people would purchase an automobile without a speedometer, and most people would insist on additional instrumentation such as odometers, temperature gauges, and warning lights if their vehicle did not already come with these capabilities. With our cars, we know that sufficient instrumentation is essential in order to understand how well our vehicle is operating. However, there is often a reluctance to add performance instrumentation to software systems. This lack of instrumentation can be a serious impediment to resolving performance problems that the application encounters.

Defining the performance metrics for a software system is most effective when the system is being designed. During the system's design, the key mechanisms supporting the system's functions are visible and malleable. For example, a key system component could be a queue manager that dispatches messages to several other system processes in

order to accomplish the system's mission. It would be best to design in the performance monitoring to this queue manager, rather than trying to guess at its contribution to the application's purported "poor performance" during a crisis. It also tends to be more difficult to add performance instrumentation to an already implemented system.

Experience has shown that the best applications include instrumentation that measures and records all of the following:

1. Response time for key transactions
2. Throughput for key operations
3. Frequency counters for essential internal activities (queuing, locking, etc.)

The best application designs also provide a mechanism for periodically accessing the current values of the key metrics and creating a timeline showing how these quantities vary over the course of the day. The timeline format makes it possible to relate what happened within the application to other timeline statistics covering external factors such as CPU busy, Mpsynch, disk queuing, or database activity.

Designing in performance instrumentation is important for obtaining superior application performance on SMP architectures. Many applications deployed on SMP architectures utilize locks to control access to important system components, and the performance of these locks often controls the overall performance of the SMP application, given their interaction with the underlying SMP lock mechanisms.

Step 3: Issues in Benchmark Development

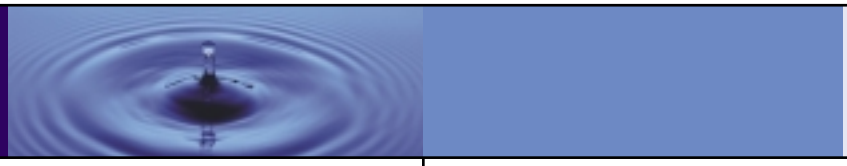
Benchmarks are not just for the professionals. A benchmark can be a useful tool for the capacity planner or performance analyst to answer those "what if" questions posed during the course of business. The "what if" question most on the minds of performance analysts these days is: "What if the business increases by 25% or more this year—will my application be able to maintain its current level of service?" One way of developing a quantitative answer to this question would be to execute your own benchmark.

We will assume that your primary interest in having a benchmark is to run experiments that allow you to predict changes in system level performance (e.g. throughput and response) caused by increasing demand.

There is one overarching design goal to focus on in the development of an effective benchmark. That design goal is simplicity. Simplicity means that the benchmark should be representative of the core of the application—not all of the various adornments to the application. In other words, how do real users actually use the system today?

The best benchmarks focus on accurately representing the resources consumed by the key transactions. Effective benchmarks are representative. They have data access patterns and resource use similar to the actual application. Many commercial applications that use a Data Base Management System (DBMS) tend to spend substantial time within the DBMS. So it is also important to capture an accurate picture of data base access patterns within the benchmark. Moderately accurate emulation of data base size can be a key factor.

An ongoing, day-to-day performance management commitment on your current system is essential in capturing the data you will need to create representative benchmark workloads and to design the experiments that will give you the answers you are looking for. Automated collection, reduction,



reporting, and historical tracking of key statistics are essential precursors to effective benchmark design. For best results, you will need measures of throughput, response, system resource use, and data base activity coupled with the most important external business measures such as number of customers or transactions.

Simplicity also applies to benchmark operation. An effective benchmark is easy to set up and run multiple times within a brief test period window (e.g. three to five runs within a single day). By adding automatic collection and archiving of benchmark performance metrics, you can substantially enhance your ability to explore a wider range of possible scenarios and parameter settings.

In our work with *OpenVMS* benchmarks, one technique that we have found particularly effective is a test design that permits ramping up the load, step-by-step, during a single run of the benchmark. Once the load stabilizes at each stage, we capture a full set of relevant performance measures and then ramp up to the next level. We continue the ramp up process until some performance bottleneck or other limiting condition arises or when it is clear (e.g. by watching response time stretch out) that the system has become severely overloaded. Later examination of the data captured during these multi-stage runs helps us identify primary and secondary limiting resources. Subsequent tests can then be planned to eliminate those bottlenecks and to ramp up to even higher levels of throughput.

If you are wondering what it will take to handle a workload that's increasing at 25% or 50% per year, testing at maximum capacity is imperative. That means that you must make sure your benchmark design allows you to test under ever-higher loads. You will get your answer only when you are able to determine the maximum throughput (while maintaining acceptable response) of each test configuration that you try. ❖

OpenVMS Times is published monthly by the *OpenVMS* Marketing Group, Compaq Computer Corporation, to keep you informed about the latest in *OpenVMS* strategy, solutions, products, and activities.

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