Rumours of the death of VMS...

After 30 years, the venerable VMS operating system is showing no signs of going away. How is it holding on to its position at the heart of some of the world's most mission-critical systems?

Many of the world's largest stock exchanges and banks; thousands of hospitals; national rail systems; several of Europe's mobile phone networks; the majority of the US army's computer systems.

What do they have in common? They all rely on a 30 year-old operating system, one that is still unrivalled in its robustness and security by Unix let alone Linux or Windows.

Originally developed by Digital back in the 1970s for its Vax minicomputers, the VMS operating system is now on its third owner – Hewlett-Packard (HP) – and has had its obituary prematurely published multiple times.

Perceived by many as 'legacy' technology that has been superseded by Unix and even Windows, it has survived poor management and even poorer marketing only through the dedication of a diehard regiment of engineers and a customer base that has surprised Digital, interim-owner Compaq and then HP with its unswerving loyalty to the product.

But there are signs that even if HP didn't realise when it merged with Compaq in 2002 that it was getting what some regard as a 'jewel' of operating systems, it may finally be waking up to the on-going commercial potential of OpenVMS (as it is branded).

When CIOs in most market sectors talk about disaster recovery, security, business continuity, five nines uptime and measures of reliability, few think of OpenVMS as a potential solution. However, in healthcare, telecoms, government, manufacturing and other sectors, OpenVMS has long been the mainstay of reliability.

Derek Eaton is head of IT at the Police Mutual Assurance Society (PMAS), which runs most of its services, including a new Child Trust Fund, off OpenVMS. "If you had to choose an operating system to bet your mortgage on in terms of that machine being available 24x7, where would you put your money? I'd still bet on VMS," he says.

While he says he has no particular emotional attachment to OpenVMS or any brand of operating system, Eaton still says it would be difficult to "find an IT manager who lies in bed at night wondering if his OpenVMS system will be available the next morning."

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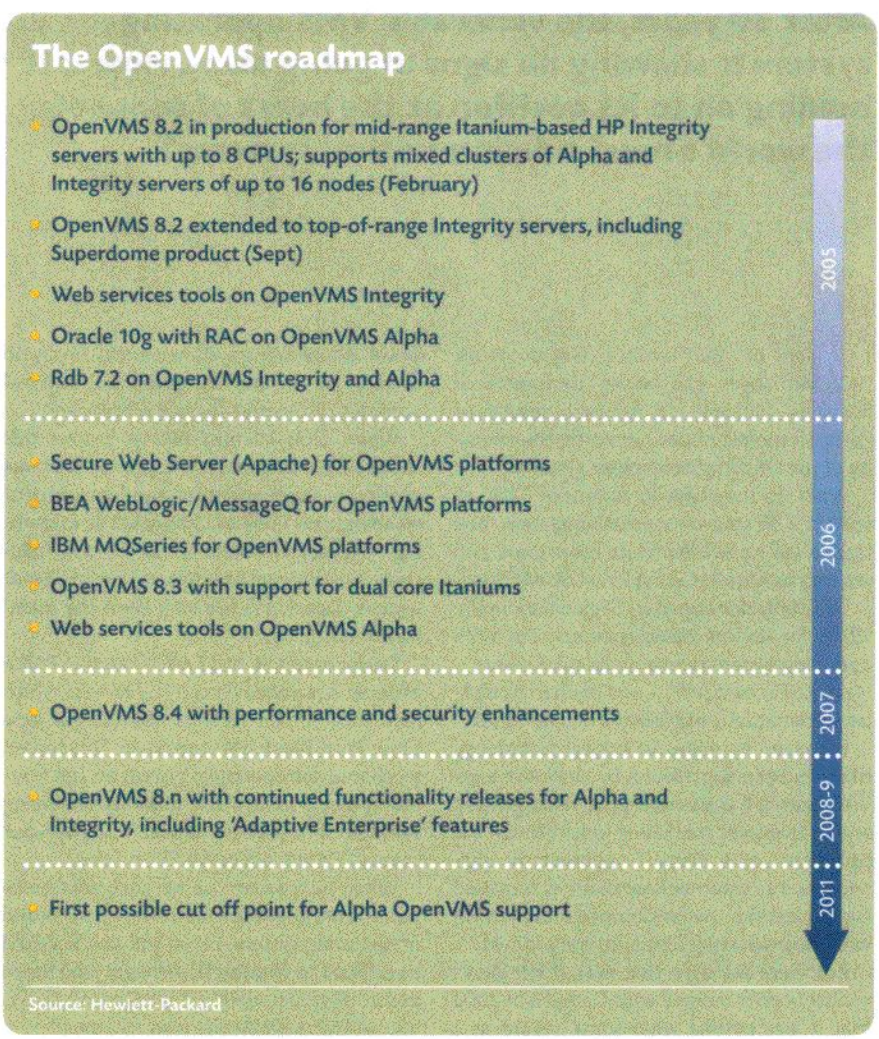
OpenVMS timeline

1975	WORK BEGINS AT DIGITAL EQUIPMENT CORP ON AN OPERATING SYSTEM FOR ITS VAX HARDWARE
1978	FIRST RELEASE OF 'VAX-11/VMS' (VIRTUAL MEMORY SYSTEM)
1980s	VMS BECOMES THE 'GOLD STANDARD' OF MINICOMPUTER OPERATING SYSTEMS
1991	RENAMED 'OPENVMS' AS RIVALRY FROM UNIX DEMANDS GREATER SUPPORT FOR INDUSTRY STANDARDS
1992	FIRST RELEASE OF OPENVMS FOR ALPHA. VAX HARDWARE DISCONTINUED
1997	DIGITAL SELLS ITS ALPHA BUSINESS TO INTEL; INTEL WILL SELL ALPHAS BACK TO DIGITAL
1998	COMPAQ BUYS DIGITAL
2001	PORT OF OPENVMS TO ITANIUM ANNOUNCED
2002	COMPAQ AND HP MERGE
2004	HP ANNOUNCES LAST ALPHA-BASED HARDWARE WILL SHIP IN 2006
2005	OPENVMS FOR ITANIUM RELEASED

The OpenVMS roadmap



Source: Hewlett-Packard

As well as reliability, OpenVMS has security features available only in high-end Unixes and immunity to security issues such as buffer overflow errors that are so often the basis of vulnerabilities in Windows and Unix operating systems.

And for disaster recovery, the system comes with features that are even now only available at the extreme high-end: support for full 'share everything' clustering with up to 96 different nodes, each of which can contain up to 64 CPUs and can be based on Vax, the 64-bit Alpha processor originally developed by Digital or Intel's new Itanium processor; synchronous mirroring of data at distances up to 500km; and built-in imaging and restoring of system disks.

It is unsurprising, therefore, that organisations that have had a traditional interest in uptime and security have stuck with OpenVMS. And as HP's commitment to OpenVMS has gone from lukewarm to enthusiastic, the install base has not just stabilised but has actually started growing again.

Mark Gorham, vice president of the OpenVMS division at HP, says that of the 411,000 or so current users of OpenVMS, roughly 100,000 still use the now-ageing Vax hardware. However, revenue continues to grow year-on-year in the low double digits and 10% to 15% of all OpenVMS business comes from new users.

WORK OF ART

What does surprise OpenVMS's fans is that so few organisations even think of it as an option. "How on Earth did the world go from where we all use VMS when doing serious work to the situation we have now where VMS is considered a bit of a has-been and everyone considers Unix bomb-proof?" wonders Elliott Roper, a long-time OpenVMS developer and managing director of systems integrator Yezerski Roper Ltd. "Unix is not bomb-proof; it's a toy. Anyone who knows the difference can tell [OpenVMS] is a work of art."

OpenVMS's decline from its heyday is a result of many factors. For one, there was the acceptance by many IT executives that being tied to a single vendor's hardware platform

(as VMS originally was) undermined an ability to take advantage of industry standards. The growing scarcity of OpenVMS skills, and the smaller number of enterprise applications available for the operating system, have also contributed to its diminution, as has the understandable desire of many IT decision makers to have a more manageable, homogeneous infrastructure.

Digital, Compaq and HP have also all had problems with the marketing of OpenVMS. The decision by Digital to change VMS's name to OpenVMS – to emphasise its compatibility with the Unix Posix standard – is still proving confusing almost 14 years on: even existing Vax customers want to know the difference between VMS and OpenVMS and how they can upgrade.

Compaq and Digital have both exhibited what Colin Butcher, an award-winning OpenVMS developer and technical director of XDelta, tactfully describes as "stealth marketing". "There are more people out there than I'd care to admit who thought it had gone away."

HP's VMS chief, Gorham, who has survived with most of the original VMS team since its Digital days, also found it hard to sell OpenVMS as part of Compaq. "When I walked into customers saying I'm here from Compaq and I'm here to talk to you about OpenVMS there was a bit of confusion and maybe sometimes disbelief because Compaq was known as a PC company."

The merger of Compaq and HP also stalled VMS marketing while HP got to grips with its new acquisition.

PMAS's Eaton recalls going to a seminar just after the merger where an HP spokesperson hinted that OpenVMS was "a surprise to the company after the takeover and it hadn't realised what it had got". Many of HP's server teams have also overlooked OpenVMS, often talking of the company's "three operating system strategy – Windows, Linux and HP-UX".

It is only now that HP seems finally to be working out a long-term plan for OpenVMS. The three-year long project to port OpenVMS from the dying Alpha chip to Itanium 2 was completed in January 2005. To coincide with the launch, HP announced some key software ports to the platform, including Computer Associates Unicenter Console Management and IBM's WebSphere MQ software.

Internal work to port as many of the most popular open source enterprise applications is also well under way, with Apache and other packages already ported – although not in production yet. A set of tools and a compatibility layer to help developers port applications from Unix to OpenVMS have also come as a welcome relief to developers more used to tools helping them move away from OpenVMS. Lastly, the threat of OpenVMS simply dying out as more and more members of the original Digital team retire is diminishing as the company has embarked on the recruitment of a new generation of VMS developers. Overall team numbers have actually increased considerably over the last three years, despite HP's decision last year to outsource thousands of its staff.

Mark Gorham Hewlett-Packard: "[OpenVMS] revenue continues to grow year-on-year in the low double digits and 10% to 15% of business comes from new users."

SLOW AND STEADY

Nevertheless, no one is talking about VMS returning to its glory days. Even if the departure of CEO Carly Fiorina doesn't prompt a massive rethink of HP's strategy and focus, there is still the problem of mindshare. HP has little intention of launching a mass-marketing campaign for OpenVMS so user numbers are likely to continue to increase only slowly if at all.

Education schemes to increase the OpenVMS skills base are continuing through donations of machines to universities, but few recent computer science graduates have had any exposure even to the name OpenVMS and there are no new Alpha or Itanium workstations on which to run OpenVMS. Andreas Vollmer, formerly OpenVMS manager at Ikea and now OpenVMS system manager at a major European postal service, finds that he has to evangelise the system to many and train his administrators in-house. "Even then, it takes a year before they get to grips with it, and two years before they can be in charge of a live environment."

Greater availability of packages from the bigger enterprise software vendors is also going to be needed if HP is to stave off migrations and encourage new users.

Vollmer's team, for example, were considering a move away from OpenVMS since their Sybase database wouldn't run on the system.

The release of OpenVMS for Itanium 2 has now made them think about moving away from Sybase and changing database instead.

Perhaps the biggest problem for OpenVMS, however, is this pinning of its fortunes to Itanium 2. When Compaq planned to port the system away from Alpha, it was limited by technical issues to only a few possible 64-bit chips. At the time, Itanium seemed more promising than many regard it now, and if it were to fail in the market or fail to scale to the performance levels required by many OpenVMS users, the end of OpenVMS development would almost certainly be assured – even if HP had to keep on some Alpha-based and Itanium-based hardware to support powerful customers with 25-year support contracts, such as the US Department of Defense.

With HP facing a potential change in direction under new CEO Mark Hurd, OpenVMS is again at a crossroads. But its heavyweight supporters, which have helped rebuild the momentum behind the operating system, are unlikely to let it slow. ⓘ

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