

Oracle's Sun Rise, A New Dawn?

It's finally happened folks, with the EU handbrake now released Oracle and Sun are now one mighty rolling combo.

On the surface Oracle and Sun seemed quite different companies, however, both companies have collaborated with each other and worked on joint projects for many years.

Let's familiarise ourselves with an overview of each company, starting with the subject of this takeover, Sun.

Sun's traditional core product lines are computer servers and workstations based on its own SPARC processors (as well as Intel's Xeon and AMD's Opteron processors latterly). It is a multi-national vendor of computers, computer components, storage systems, computer software, and information technology services

Sun also provides a suite of software products including the Solaris Operating System, developer tools, Web infrastructure software and identity management applications. Other product areas include the Network File System (NFS) protocol, MySQL database, OpenOffice, xVM virtualisation and the ubiquitous Java platform.

In 2004, Sun surprisingly entered into a ten year framework agreement for industry cooperation with arch rival Microsoft. Sun received around a whopping US\$1.95 billion in settlement payments and royalties from Microsoft¹.

Linked in with this agreement, Sun now supports Microsoft Windows on its x64 systems and both companies have announced other collaborative areas including plans to support their respective virtualisation products².

It will be interesting to see how this framework deal will fare under the watchful eye of Oracle (considering Oracle's arch rivalry with Microsoft).

Oracle's strengths are developing and producing enterprise business software products, particularly database management systems and identity management services. The strategic acquisition of BEA Systems in 2008 (a Middleware software company for Java) provided Oracle with a vital skills base in Java development and support.

Furthermore, Oracle used a Java Virtual Machine (JVM) in the form of JInitiator to web enable the Oracle Forms client application so that it could run inside a web browser. However, since January 2008 Oracle has favoured the use of Sun's JVM as a replacement for JInitiator³.

¹ <http://www.microsoft.com/presspass/press/2004/apr04/04-02SunAgreementPR.mspx>

² <http://blogs.zdnet.com/microsoft/?p=712>

³ Technical Note 552692.1 – "Obsolescence notice for JInitiator 1.3 for E-Business Suite 11i As of July 31, 2009 Error Correction Support for JInitiator 1.3 will end."

If you haven't guessed it by now, Java is a key element that supports many of Oracle's products, especially Oracle Fusion Middleware. If you think Java, you invariably think Sun.

Let's consider what the new merged corporation may offer customers in the form of software, hardware and optimisation (leading to appling - more on this later).

From an integrated systems point of view, we may see something like the following.

The new combined corporation will be able to provide everything for enterprise data services as one vast integrated system or separate modularised components.

With respect to software, the new corporation has its own operating systems for servers and work stations which could in turn run their dynamic database and data management applications portfolio. In addition, these operating systems would support the new corporation's middleware and other applications (Java enabled no less) such as OpenOffice. All of this software would comfortably sit on their own hardware consisting of servers, storage devices (SANs and NASs), work stations and even accessible (Java once again) via a JavaCard enabled smart card or smart token for access control or a smart mobile device at the edge of the enterprise (you guessed it, with a bit more Java again). There are lots of Data Centre and Cloud related opportunities in the bargain too with the server and storage offerings available.

The recent further acquisition of AmberPoint⁴, a Service-Oriented Architecture (SOA) management software company will further enable Oracle to enhance its Fusion middleware.

Also, it would be surprising if the newly merged company doesn't dip a toe into the mobile-comms market to some degree (at least from an Operating System point of view), considering the fact that this area is growing rapidly and miniaturisation with optimisation is the way all technology goes up to a point. This is enhanced by the fact that Oracle now have their hands on Java and JavaCard has fast become the preferred platform for some smart token providers, especially the SIM (Subscriber Identity Module) in mobile cell phones.

The new corporation will still need to consider continuing to provide and support its applications on other vendors' operating systems and platforms, whilst also ensuring that its (Sun) hardware can effectively run other vendors' software too (especially other operating systems). Reaching a happy medium here could prove tricky.

From a software point of view we may see some ambitious changes along with a targeted attempt to increase market share in many software areas, not just the standard enterprise business software. With regard to operating systems for instance, both Oracle and Sun have Common Criteria⁵ evaluated operating systems, indicating levels of assurance and security within these products:

⁴ <http://news.zdnet.co.uk/itmanagement/0,1000000308,40032013,00.htm>

⁵ Common Criteria is a product evaluation scheme which has international recognition. As of December 2008 the Common Criteria Recognition Agreement (CCRA) has 26

- Oracle Enterprise Linux Version 5 Update 1 EAL4+ 15-OCT-08;
- Solaris 10 Release 11/06 EAL4+ 06-NOV-07 with Trusted Extensions evaluated to EAL4+ in 2008.

Also, (like IBM) Oracle have a raft of Common Criteria certified EAL4 assured database products. In addition, both Oracle and Sun have products within the CESG⁶ Directory of Infosec Assured Products (admittedly some of them are showing their age a bit now).

These examples of formally assured products, coupled with the legendary reliability of these products put them in good stead in the market place.

We may end up seeing a 'fusion' of these operating systems, along similar lines to Novel's amalgamation of its Netware operating system and SUSE Linux. In many ways a fusion of Solaris UNIX and Oracle's flavour of Linux should be less complicated than Novel's challenge as Netware had little in common with Linux. The use of one specific operating system would keep down development, maintenance and support costs. They may also consider providing a domestic version free which can run from a CD/DVD or a shell within Windows, much like the innovators at UBUNTU now offer.

If they do consolidate on one operating system and manage not to frighten off existing customers with these changes, the next challenge will be to grow market share and this will require targeted marketing to the consumers that are the serial GUI trained Windows gurus. If they can make their product as easy to configure as a Windows machine and come in with heavily discounted licences, they may start to attract attention.

With regard to applications in their portfolio, Oracle's enterprise business software is used quite extensively across UK government departments (e.g., MOD and HMRC) and other parts of the public sector and private sector especially in personnel and finance systems. OpenOffice is also utilised a lot in many areas of both public and private sector in a bid to cut down licensing overheads although its market share is miniscule when compared to Microsoft's ubiquitous Office products.

We may begin to see more bundling of the new company's software offerings into Enterprise Licensing Agreements with inclusion of operating systems, OpenOffice and possibly hardware too (perhaps linked in with an 'appliancising' strategy, teasing I know, but more later).

Also, there can be no getting away from it; this new company will be all over Java. The use of Java and any further development of Java should be a key strategic aim of the new company, as in many ways it's the goose that lays the golden eggs. JavaCard has fast become the preferred platform in the smart card/smart token field and importantly there doesn't seem to be an effective challenger. There are a few smart card operating systems and Microsoft is constantly having forays into this field, but the beauty of Java within smart cards is that it can sit as a platform on top of any smart card

countries as members. See the following URL for more information:
<http://www.commoncriteriaportal.org/>

⁶ Communications Electronics Security Group (CESG).

operating system; this gives it a very privileged position for functionality, interoperability and security requirements.

On another note, Oracle has its own Software Security Assurance programme (akin to the Microsoft Security Development Lifecycle system) which aims to ensure that security is factored into its software development. This may well end up being integrated into Sun's existing software development assurance practices to produce a holistic documented corporate approach.

Related to the Oracle Software Security Assurance programme, code signing is an area that might also develop. Let's look at Microsoft for a moment to draw some context. Microsoft used to use VeriSign exclusively for its code signing requirements but this relationship soured when VeriSign issued two code signing certificates with their corresponding signing keys to a fraudster in 2001⁷.

Over the years Microsoft has weaned itself off its dependency on VeriSign (with the exception of Authenticode certificates⁸) and now they have their own corporate PKI which they use to sign their own code.

Conversely Oracle only code signs its software products that are designed to run on a Windows operating system. It does this using an Oracle Authenticode signing identity issued by VeriSign. This signing process certifies that Oracle packaged the subsequent executables.

The new merged corporation may find added value in standing up its own code signing Certification Authority, as Microsoft has done. Indeed both Oracle and Sun have shipped their products with the capability to self-sign code and whilst I am not advocating by any means the wholesale arbitrary self-signing of code for all and sundry (this leads to a trust management nightmare!) what I am drawing attention to is the fact that both companies have the technological capability through their products to sign code.

Let's now consider what hardware developments Oracle and Sun may present.

Larry Ellison, one of the original founders and CEO of Oracle gave an interview in May last year in which he gave his solid commitment to boosting investment in SPARC microchips (contrary to the initial views of many pundits)⁹:

"Once we own Sun we're going to increase the investment in SPARC. We think designing our own chips is very, very important. Even Apple¹⁰ is designing its own chips these days."

These are optimistic words, however currently the SPARC chips are uncompetitive and will need significant investment to catch up with their

⁷ <http://www.verisign.com/support/advisories/authenticodefraud.html>

⁸ Authenticode is Microsoft's code-signing technology and its support is built into Microsoft software.

⁹ <http://www.reuters.com/article/marketsNews/idINN0740285120090507?rpc=44>

¹⁰ Apple buy most of their chip design intellectual property in from Arm and Wolfson

competition. The sudden cancellation¹¹ of the “Rock” model of the SPARC at a very late stage of development illustrates how much work is ahead for the new corporation. Through its origins and market strength, Oracle is a software company and its biggest challenges will be effectively embracing and developing its new hardware business. Hardware is a different ballgame to software and requires vast up front costs and resources to design, test, produce and support to compete on the level of IBM and HP.

No surprises that October last year, Larry took a swipe at IBM, criticising the power efficiency of IBM’s hardware and disparaging its green credentials. An interestingly deflective tactic to promote the newly acquired SPARC chipset without discrediting the functional capability of the IBM product lines - he focused solely on the power consumption angle.

The stability provided to Sun by Oracle’s ownership and Oracle’s statement of wanting to invest in the SPARC chipset (possibly via Sun’s alliance with Fujitsu, a large equipment supplier and Systems Integrator) there may be an opportunity for Sun hardware products to become more appealing to enterprise customers both in the UK government, public and private sectors. Oracle has a good reputation for providing lifetime support to their products and services¹².

On another note, Sun’s hardware Crypto Accelerator could be expanded¹³. This technology accelerates SSL cryptographic functions enabling network security for Sun platforms (Solaris or Linux), offloading SSL functions for applications, including IPSec, from host processors. This effect improves performance and maximises the use of resources.

Firewalls could also prove to be an area of interest. Sun has offered a software firewall running under Solaris called SunScreen for some years now. However, Oracle may feel that they want to compete against Microsoft’s Intelligent Application Gateway (IAG)¹⁴ firewall solution by offering a hardware firewall solution themselves.

Lastly, the Virtual Machine (VM) world may gain focus with virtualisation being a cost-effective technology solution. VMs tend to communicate over a hardware backplane these days therefore standard network security controls miss the VM traffic and fail to monitor or block traffic if required. New controls are required to marry the hardware and software worlds in the VM world and Oracle/Sun may focus on this too. With increasing CPU power and low utilisation of CPU resources within data centres hardware virtualisation has become popular¹⁵. Both Oracle and Sun have been pushing virtualisation for a while now^{16 & 17}.

¹¹ http://www.channelregister.co.uk/2009/06/15/sun_kills_rock_sparc/

¹² <http://www.oracle.com/support/lifetime-support-policy.html>

¹³ <http://www.sun.com/products/networking/sslaccel/index.html>

¹⁴ <http://www.microsoft.com/Forefront/edgesecurity/iag/en/us/default.aspx>

¹⁵

<http://wikis.sun.com/display/BluePrints/Solaris+Operating+System+Hardware+Virtualization+Product+Architecture>

¹⁶ <http://www.oracle.com/us/technologies/virtualization/index.htm>

¹⁷ <http://www.sun.com/solutions/virtualization/>

We may also start to see the optimisation of hardware for its own software products (and/or vice versa). Caution should be exercised with any push for optimisation because too forceful a play into this area may prove counter-productive if they appear to be forcing buyers down a vendor lock-in route or potentially being decried for actively disadvantaging other vendors' products (both in the hardware and software space). These criticisms have been levied against some of Oracle's and Sun's arch rivals in the past.

In a research piece I produced for the UK MOD back in June last year, I stated that you might see the "appliancising" of the Oracle database product, in that it may ship within its own hardware, ostensibly "Oracle in a Box". The idea being that it could be a plug and play solution with simple installation requirements that would be browser configurable and wouldn't need to deal with driver requirements for other vendors' hardware components or operating systems. Well to some degree, it looks like my prediction came true; both Oracle and Sun are now promoting the world's first database machine for data warehousing and online transaction processing (OLTP)¹⁸. It's the Oracle Exadata V2 - with Sun FlashFire Technology; interestingly using Intel Xeon (Nehalem) processors.

So, it could well prove to be that Software, Hardware, Java (as the glue) and Appliancising/Optimisation may be the four pillars that will support this new colossus of a corporation. Could this new corporation prove to be a colossus of the 21st century as IBM had been for most of the 20th century? Well, time will tell, but all the vital ingredients are there, especially the all important survival instinct.

In addition, Oracle and Sun are unlikely to want to turn their backs on old alliances forged with hardware companies such as AMD, Dell, Fujitsu, IBM, Intel and HP because these alliances have and will continue to bring in vast business. However, this road may get rocky before it settles down again, as they are competing as a hardware vendor themselves.

Also, it is essential that Oracle maintain their positive track record of following Open Standards. It can all too often be the case that some companies have historically exploited their positions to introduce proprietary technology. This allows them to achieve vendor lock-in, creating a mighty headache for consumers (especially enterprise customers) when things go wrong, do not interoperate with other vendors' wares, need to be upgraded/refreshed or need to be migrated away from.

Radical mergers like the Oracle/Sun combo could revolutionise and shake up IT. Conversely, Oracle would do well to remember what happens to companies who either overstretch themselves and/or who become entrenched in fighting yesterday's wars and settling old scores (Novell became unstuck doing both - can anyone remember CNE?).

The sheer success and might of Oracle clearly illustrates it knows what it is doing as a corporation, even though it has not always been plain sailing. To that end a quote attributed to the wise Oracle of Delphi may advise Oracle well, "make your own nature, not the advice of others, your guide in life."

¹⁸ <http://www.oracle.com/database/database-machine.html>

Larry's first swipe at IBM's green credentials illustrates the start and shape of things to come. It's started more gently than his usual sparring, at least for now.

Kevin Eagles is a principal IA CLAS consultant with the security and resilience practice of VEGA Consulting Services.

His IT career began in the mid-1990's as a network administrator from which he moved into managing IT systems within the Public Sector. Kevin then moved on to join the Civil Service in 2003 to work for the Ministry of Defence (MOD). His first role for MOD lasted for three years and he was privileged to become part of a team of subject matter experts in key technology areas. Kevin's area of expertise for the MOD was PKI and smartcard interoperability for which he won a MOD commendation for his national and international efforts, especially in supporting the DII programme.

After his PKI and smartcard role within the MOD he went on to become an information and network security manager for the MOD's Defence Corporate Business Applications Integrated Project team dealing with vast programmes such as Defence Electronic Commerce Service (DECS), Defence Medical Information Capability Programme (DMICP), Defence Learning Portal (DLP) and Air Movements Operations (AMO).

Since being with VEGA Consulting Services, Kevin has had many assignments with the MOD and HMRC. For the past 18 months Kevin has been contracted to the BT Defence Fixed Telecommunications System (DFTS) programme as their evaluation manager and IT health check co-ordinator. BT DFTS is a £3 billion PFI deal with the MOD.

Kevin also has his own research domain at <http://www.sensornets.co.uk> looking at wireless sensor networks and mobile computing. His work won an award for Best Innovative Technology at the WISTP conference in 2007.