A cog in the machine?

The impact that virtualisation has upon software may be well understood, but just what is the impact on hardware? Is it now redundant – resigned to being a minor bit player, or is a renaissance in its purpose at hand?

By Ben Furfie

For years, virtualisation has been heralded as one of the technologies that alongside cloud and smartphones will enable brand new, more efficient ways of working, and at a lower total cost of ownership than the companies currently experience.

But while the concept behind virtualisation is understood fairly well – especially compared to its sister technology cloud computing – its impact on the current infrastructure of an enterprise is less understood. Does virtualisation mean that you can throw away all your old, out-of-date hardware and spread the load more efficiently across your newer servers in a way that you couldn't before? Does it even mean hardware is becoming less important?

"Not at all," states Sanjeet Padhy, practice manager for service assurance at CA Technology MENA. "Virtualisation by definition is a combination of software and hardware engineering that creates virtual machines." It is a point expanded on by Noman Qadir, regional channel manager at Citrix: "Virtualisation has not made hardware less important. Rather it has introduced a new flexibility to choose the right combination of IT equipment and manage the hardware, software, and services environment more efficiently and cost effectively," he argues, adding that if anything, the introduction of widespread virtualisation had made choosing the right hardware even more important.

One area where virtualisation has enabled a major overhaul is in the realm of the datacentre. "Hardware continues to play an essential role in customers' datacentres," says Dave Brooke, general manager, Dell Middle East. "Modern computer virtualisation began as software, but hardware is getting in on the act," he continues. "And in the process, it is improving performance. That includes the number of virtual machines a host can run concurrently, and the effective cost per virtual machine." EMC's regional pre-sales manager Zaher Haydar echoes Brooke's sentiments about the impact that virtualisation is having on hardware, but warns that with the shift in emphasis on where processing occurs with cloud computing, it is more important than ever to carefully consider the composition of the enterprise's backend IT infrastructure. "Hosting multiple applications within virtual machines, on shared hardware (as is the case with cloud computing), requires higher levels of performance, reliability, availability and scalability compared to dedicating a certain piece of hardware to performing just one task or application. That applies not just to the servers, but also the storage arrays, and the SAN/LAN components."

However, despite that, Adbdulrehman Ubare, head of technical operations at eHosting Datafort is quick to remind everyone that current usage models for non-virtualised hardware usually means that only a small fraction of the machine's capacity is utilised. "The industry standard for average hardware utilisation is only 10% of total available capacity," he says. "With the introduction of virtualisation, hardware resources are being leveraged for better consolidation, utilisation, higher return on investment, and lower total costs of ownership."

But exactly how does it affect the lifecycle management of the hardware that has been virtualised, from procurement, through to its retirement?

The increased use of virtual machines will place new demands on IT infrastructures.

VIRTUALISED TODAY?

We asked three leading experts in the field of virtualisation in the Middle East what an enterprise that was fully virtualised would look like if it existed today.

Probably the most obvious characteristic of a non-virtualised datacentre is different application environments being hosted on seperate silos. With virtualisation, it would transform datacentres into large shared pools of compute and storage resources.
Zaher Haydar, regional pre-sales manager, EMC, Turkey, Emerging Africa and the Middle East

One of the main characteristics would be the consolidation of hardware. The obvious difference is reduced IT infrastructure.
Dave Brooke, general manager for Dell Middle East

Organisations would be able to increase utilisation of their hardware, and deploy more software without increasing their capital spend.
James Staten, VP and principle analyst at Forrester Research

"Virtualisation makes the management of hardware much easier because applications speak to the virtualised layer, rather than the hardware specifically," says James Staten, vice president and principle analyst at Forrester Research. "It makes a lot of the operational tasks easier, and thus they are much simpler to automate." Ubare agrees, adding: "Yes, virtualisation simplifies IT operations, but it also drastically reduces the cost of procurement, provisioning, management, and decommissioning of hardware." The use of virtual machines is one area where IT departments can save money in particular. "A typical case in point is a *VMware*-based server virtualisation, which has allowed our clients to run multiple virtual servers on legacy Intel/AMD server hardware," says chief executive of ISIT, Mahesh Vaidya. "Many of our clients have actually delayed or foregone investment in the current server refresh cycle because they simply haven't needed new hardware." Perhaps one of the more surprising people to be advocating this very phenomena is Dell Middle East boss, Brooke. "If it is planned correctly, virtualisation can enable customers to extend their procurement cycles. You don't need to replace hardware as often, since your resources are pooled. When you've maxed out your processor and memory pool, all you need to do is add more servers," he adds. "Management is easier, and as a consequence, the retirement of hardware is delayed."

Even at the front end, the introduction of virtualisation can result in significant cost savings, argues Qadir. "Virtualising desktops changes the PC refresh model, because it decouples PC hardware and software: the purchase of a new PC and the software to run it on no longer needs to happen simultaneously. The latest desktop software – and currently that means *Microsoft Windows 7* – can be delivered from the datacentre to an old PC repurposed as a thin client. It slashes the cost of PC procurement, while allowing the organisation to sweat their existing PC assets. The saving derived from extending the useful life of PCs, combined with much lower desktop costs, means the initial investment in desktop virtualisation is usually recouped in just 12-24 months," he adds.

Another area where companies can benefit from the introduction of virtualisation is in mobility solutions, as Haydar explains.

IN NUMBERS

10%

The industry standard utilisation of hardware processing power is just one tenth of capacity.

Source: eHosting Datafort

12-24

The number of months it takes to realise a return on investment for desktop virtualisation.

Source: Citrix

30%

The percentage most large enterprises have virtualised their IT.

Source: CA Technologies

"Server virtualisation enables application mobility, while storage virtualisation enabled data mobility. Application and data mobility means that it is much easier to manage the relocation of applications and their associated data from one hardware platform, to another (for example, a desktop thin client, to an iPad). This can be done either for operational reasons, such as balancing and optimising the usage of available hardware resources, or to adapt to some business changes requiring certain hardware to be repurposed to server a different application or process," he says.

However, while the technology simplifies a lot of the actual hands on issues, and provides new ways of utilising existing resources, there is a still a need for the CIO to argue their case more strongly with the board for a better understanding of the IT issues facing implementations. "New IT requirements are almost always a result of a business need," argues Ubare. "What goes on the shopping list for your datacentre, for example, is almost always decided in a boardroom by business units that are not often aware of the underlying IT requirements for their business driven initiatives." ACN