Can HP Deliver 'The Moon' To Customers?

Moonshot is demonstrably a bold and interesting move by global IT giant HP. But can it translate its potential into solutions customers can see as relevant to them today, not tomorrow? Based on the evidence of its first 12 months in the market, it seems the answer is 'yes'

When it comes to the practical delivery of the low-power and efficiency messages of the Moonshot initiative aimed at hyperscale and cloud computing projects, what specifically is HP doing – and what is available for customers right now to start exploring?

To remind ourselves of the basic premise here, Moonshot, which is in its designer's words a 'software-defined server,' is claimed (according to December 2013 marketing literature from HP) to offer 89% less energy draw than conventional servers, will take up 94% less datacentre footprint, will come in at a typical 63% lower purchase cost than equivalent products on the market and operate at a very high 97% less complexity than traditional servers, too. If that is a bit too abstract a set of benchmarks, try this instead: HP has gone on record with the claim that just one 4.3U Moonshot system will deliver more performance than a standard rack of servers - while also saving you, the customer, space and juice.

HP is delivering Moonshot with four components: the central 'cartridge,' the chassis (which can carry up to 45 of the cartridges), 'uplinks' (a networking/connectivity module) and switches (an on-boarded, low-latency 1GbE bandwidth path to each node in the complete Moonshot system. The 'cartridge' metaphor is worth spelling out a bit, incidentally, as the firm specifically means that it really is flexible: the customer can specify Moonshot with the engine felt best to run the workload, thus all the way from standard Intel x86 or ARM chip, network processors, a digital signal processor (DSP), storage, or a combination thereof, while replacing a server should never be more complicated than yanking out the defective unit out and dropping your identified replacement in. And in terms of use cases, at just under 12 months ago the firm spelled out Web front-end and dedicated hosting as initial areas of potential Moonshot use, but has since started to paint a picture that stretches to Big Data and analytics applications, plus virtualised hosting, as well as things like online gaming.

Clearly, this is an aggressive step forward by the company, then. To quote HP CEO Meg Whitman, the firm has just tapped the surface of the high-density, low-power modular servers – and "no other company is taking on the datacentre the way were are" with it (plus other innovative technologies now coming on-line, she claimed). Whitman has also told audiences that Moonshot represents nothing less than "the next revolution in servers."

'A definite answer:' Moonshot as VDI engine

Which is all very well at the abstract level, but what can a customer do today with Moonshot-leveraging solutions? After all, HP started talking about Moonshot way back in 2011, though at that time the code word was 'Redstone;' it took until April last year for an actual first product to hit the streets, in the shape of a single server node release, based on the twin-core "Centerton" Atom S1200 processor from Intel. And though HP told the world it was itself an early user of Moonshot - hp.com, which gets around 3 million visitors per day, is claimed to run on a "handful" of Moonshot servers, which only consume power equivalent to that needed to make a dozen 60-watt light bulbs light up – in some quarters at least, there was a suspicion that intriguing as it all sounded, Moonshot was all really still more lab than real world - at least as yet?

In early January 2014, HP started to provide a very definite answer in the shape of its new 'HP ConvergedSystem' family of preconfigured, workload-optimised portfolio of systems for virtualisation,

Big Data and hosted desktop work. It's the latter, in fact, the HP ConvergedSystem 100, that uses Moonshot most directly, being a collaboration between the firm's Moonshot team as well as chip giant AMD and virtualisation pioneer Citrix.

It's interesting to see how choosing to package up a specific product like this allows Moonshot's power to be harnessed. Specifically, ConvergedSystems 100 offers dedicated PC-on-a-chip style resources. That means it can delivers the kind of graphics and multimedia performance a traditional desktop PC can – plus coming on-stream with a factor of six times faster graphics frames per second than comparable virtual desktop infrastructure solutions.

HP says the system therefore makes virtual desktops a lot more attractive than they have been, as it will offer a superior performance profile – plus cut admin load, as it will not need dedicated SAN or hypervisor technologies to operate.

'Density I haven't seen yet'

So, nice performance stats, yes. But what about the much-vaunted performance and cost reductions that HP says will be the secret of its success? Well, it has to be said that the firm has come out of the gate strongly on this one. This early Moonshot-powered solution is claimed to offer buyers up to 44% lower TCO (total cost of ownership), your power costs could be over 60% down and the ability to go on-line into full production in something like two hours.

This kind of clear proof of concept is exactly what Moonshot needs to start getting taken as seriously as a datacentre option as its impressive specs suggest it should be.

"The Moonshot platform is totally different to what we've seen – in terms of power usage, in terms of scaling; it really is very appealing to me, as it introduces a density [in the rack] I haven't seen yet," says one early and it would seem convinced Moonshot customer, Mark Burkels, Manager, Dedicated Hosting at Netherlands-headquartered co-location and hosting specialist Leaseweb. Burkels is convinced Moonshot will enable his team to add "loads and loads of servers all at once" and have his cloud customers "grow with us."

If HP can continue to offer solutions-based Moonshot-enabled products to the market such as the ConvergedSystem 100, plus win more customers like Leaseweb round to its version of delivering this new-style micro-server approach to cloud and other big scale enterprise-level computing tasks, Moonshot could well prove to be one of its most important products for the rest of the decade.

It could also enable it to win big in what seems to be opening up as the next hot area of the server marketplace – ultra-dense. Thus last year market-watcher IDC told the world it sees over 14% compound annual growth in shipments of units of ultra-dense servers in the 2008 to 2017 timeframe, for example.

If HP can pull off moving Moonshot into such a promising market while keeping those impressive performance characteristics as 'up' in terms of delivery while pressing those power costs and complexity overheads 'down,' in other words, it really will help customers reach the Moon.

Who's Already Taking Advantage Of Moonshot Out There?

While there in no question that Moonshot is a focus of serious endeavor internally within its creator, some sceptics have wondered how much traction it is actually gaining in the marketplace. That position may need to be reviewed, given recent open discussion by HP about some significant Moonshot wins:

Hollywood giant 20th Century Fox leadership revealed at a HP conference in Barcelona just before Christmas that it has transformed its conventional data centre into a cloud one – with CIO John Herbert telling delegates that use of MoonShot had helped his team crunch his server farm down to just a few racks (plus improve the overall organisation's entire digital supply chain), plus enabled the studio to be able to move 8 Petabytes of content around per year.

Other identified, confirmed first-wave Moonshot users include Web services company Leasesweb (see main article) and online finance giant PayPal.

For another customer, Purdue University, where new clusters using it are being built in the campus' HPC Centre, "Moonshot gives you plug-and-play capability" – with its VP and CIO Gerry McCartney adding that it means, "I can put a lower processor CPU in [the server] because frankly, I've got work I don't need this big stonking chip to do." His colleague, HPC Systems Manager Mike Shuey, confirming that, "We can more efficiently utilise the power and cooling we've got available but offer the same, if not slightly superior, service to our customers and applications."

Meanwhile for yet another current Moonshot customer, datacentre operator and services firm Savvis, the keywords seem to be "cheaper and faster." "If you're going to deploy racks and racks of compute, there's a lot of capital outlay there," says Director of Engineering, Managed Services Andrew Cook, who says his team likes the small-unit, "solutions-based" approach of Moonshot as a way to get round this issue. "What we're seeing with Moonshot is the ability to stuff more into a smaller space with less heat, cooling, power [and] space requirement." Cook adds that Savvis was able to plus Moonshot directly into its existing infrastructure, turn it on – and we were able to build servers without making any modification to our existing process or systems." For Cook, Moonshot stands out as "one of the most scalable solutions that I personally have ever seen," while he also admires its ability to let Savvis deploy multiple workloads within the same chassis.

What Does HP Mean By 'Hyperscale'?

At the 2013 launch of the first iteration of Moonshot, HP CEO Meg Whitman provided some eye-catching stats and facts about why her firm is convinced super-dense computing like Moonshot has to happen.

As we know, the world has moved from mainframes to minis to racks of cheap, standard Intel processors. The problem is, modest two-socket x86 servers that take up 1U or 2U of rack space, even when networked together, will not be efficient enough long-term to meet the compute demands of a Planet Earth – especially one where the Internet of Things has taken off. The kind of big datacentres that will have to be built to deliver that scale of IT, says HP, will need on average eight to ten million new servers in the next three years… but using conventional rack or even blade servers, all those new servers would take up the equivalent of the entire island of Manhattan, will cost between $10bn to $20bn and would require approximately ten power plants to run, or about the equivalent of two million domestic homes.

"Right now, we are on a path that is not sustainable from a space, energy, and cost perspective," said Whitman – with the only real alternative being datacentres that can deliver such big levels of processing but in much more dense and efficient a fashion.

Such datacentres *are* being built, by firms like Google, Yahoo!, Facebook and Amazon, who are creating powerful compute platforms by building massively parallel, virtualised environments where broken elements are discarded, not fixed. Thus the real thrust of Moonshot is it's the way the majority of enterprises will be able to utilise to do the same – only on a much more affordable basis. Or to quote Whitman in her own words, "HP Moonshot marks the beginning of a new style of IT that will change the infrastructure economics and lay the foundation for the next 20 billion devices. "