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Opinion

Will KVM Follow Hyper-V in Its Adoption Curve?

In July, 2008, I (Joe Clabby) published a report that explained why I thought Microsoft Hyper-V would overtake VMware in terms of marketshare in virtualization. And now I find myself thinking that KVM will also gain steam and erode VMware's market share over time.

My Initial Report: Six Reasons Why Microsoft's Hyper-V Will Overtake VMware

In May, 2008, I noted six reasons why I believed that Hyper-V would encroach on VMware:

1. Price;
2. Packaging (Hyper-V is freely packaged with Windows Server);
3. Depth (given that Microsoft owns its operating system);
4. Reach (Microsoft is a \$69.94 billion software company with very broad reach);
5. Control/integration (I have long argued that vendors who own their own systems software stacks and management environments have greater control over their developmental destinies than vendors that don't — and, as examples related to this discussion, I'm starting to see a preference for integrating SharePoint, Exchange Server and Active Directory with Hyper-V); and,
6. Installed base.

This report is still available at:

http://www.clabbyanalytics.com/uploads/HyperVMarketAnalysis-Final_Final_Final.pdf

Hyper-V Progress Since 2008

Since I wrote that report, there has been steady growth in Hyper-V marketshare — but that growth has been coming in the low- and mid-market, not at the high-end (and most lucrative) enterprise level. And the reason enterprises have not rushed into Hyper-V adoption is that it remains behind VMware in terms of performance and certain features. Still, if you read reports from other analyst companies, you'll find solid evidence of Hyper-V growth:

1. Gartner believes that Hyper-V will have 27% marketshare in 2012 (up from 11% in 2009). More details on Gartner's perspective are available here: <http://blog.sciencelogic.com/server-virtualization-management-and-more-at-gartner-summit/06/2010>; and there is even more detail at: http://www.citrix.com/site/resources/dynamic/additional/citrix_magic_quadrant_2011.pdf;
2. Gartner apparently believes that VMware marketshare will decrease from a whopping 84% market share to only a mere 65%... (see this report for further

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details: <http://up2v.nl/2011/05/16/veeam-backup-replication-v6-will-support-hyper-v-and-have-changed-block-tracking-for-hyper-v/>); and,

3. A survey by Laura Didio at Information Technology Intelligence Consulting surveyed 400 global enterprises and found that Hyper-V was being used at 59% of the respondents as compared with 59% using VMware. By the way, Citrix (another virtualization software competitor) had an 18% share with its XenServer offering. (Incidentally, 58% of the enterprises surveyed said that VMware was their primary virtualization vendor — while only 32% said the same about Microsoft Hyper-V.

The point here is that the tides are shifting in the virtualization marketplace as VMware sees additional pressure from Microsoft.

Revisiting the Virtualization Marketplace

So, let's revisit the virtualization marketplace 3.5 years later. What I see now is:

1. Some price resistance to VMware (according to fellow analysts in Europe, European customers were quite “bothered” [to be spoken with a British accent] by large VMware price increases);
2. Microsoft Hyper-V is indeed gaining steam — and the reasons are that the product is starting to mature (it still lags in performance, though); the price (free) is right; and it is becoming better integrated with Microsoft systems and software management environments;
3. Gartner's forecast that VMware will drop from 84% to 65% marketshare in 2012 does not necessarily show that VMware is losing revenue but may suggest that other virtualization solutions are now grabbing nascent market share); and,
4. Some VMware customers are looking elsewhere (driven by primarily by cost, but also by tiering strategies [a need to integrate the Windows tier with other systems environments], and interest in open source environments seems to be growing.

Wherefore Art Thou, Open Source Virtualization?

The final part of point 4 (above) I find particularly interesting. As I look at market share beyond VMware and Hyper-V, I find Citrix XenServer with an 18% marketshare in 2011 (up from 9% in 2010) — and then a bunch of other virtualization software offerings from dozens of other software makers and the open source community. This interests me because the Xen hypervisor has been around since 2003—in fact, Citrix's solution is based on the XenSource solution it purchased in 2007. And most of the other offerings are based the XEN open source project. This shows me there is some market interest in using open source solutions — and opens the door for KVM.

In May 2011, IBM and Red Hat, along with several other vendors banded together to form the Open Virtualization Alliance (OVA) — an organization chartered with driving awareness of the open source KVM virtualization scheme, driving KVM adoption, fostering a KVM ecosystem, encouraging KVM interoperability — and promoting best practices (including highlighting customer success stories). Just for the record, KVM stands for kernel-based virtual machine — a virtual machine implementation that exploits an operating system's kernel. It has been ported to Intel VT-x or AMD-V; it has also been

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ported to S/390 architecture (IBM's System z mainframe environment); PowerPC microprocessors, IA-64, and an ARM (advanced RISC machine) port is in progress.

As I see it, there is huge growth potential for KVM — to date, 241 vendors have joined OVA — despite the seemingly overwhelming market share already claimed by VMware, Microsoft, and Citrix. And despite critic's statements that KVM is too little/too late, I think we're looking at the same situation with KVM that we were looking at with Microsoft a few years ago.

In 2008, when I wrote my Microsoft Hyper-V report, Microsoft's virtualization market share was in single digits — and now it is expected to reach a 27% marketshare. What has happened is that Microsoft's product has matured — and demand by users of Microsoft's other software for integrated virtualization solutions has driven Hyper-V's rise. I expect the same thing to happen to KVM. It comparatively immature now (like Linux was in the late 1990s), but when the worldwide open source community jumps into action, I think it is going to surprise a lot of people when they see how quickly KVM matures.

A User Scenario: The DutchCloud

I have to admit that I've only talked to a few KVM users (they're kind-of hard to find — and when do you find them, it is hard to get them to talk on the record) — including a distinguished engineer who runs an IBM research lab. Most recently, I listened to a presentation by Martijn van Zoeren, CEO of an organization known as DutchCloud, a leading ISP (internet service provider) based in the Netherlands that focuses on small and medium customers in just a few key industries (healthcare and electronics). DutchCloud offers its customers a wide range of cloud based services from fully managed IaaS (Infrastructure-as-a-Service) environment through to disaster recovery solutions.

When it comes to KVM, DutchCloud had been looking for some time for a light-weight highly functional solution for core cloud service delivery. Its challenges were to improve the delivery of cloud services in terms of cost, speed, agility, minimized operations and industrial strength solutions. And its primary objection to VMware has been cost (the company uses VMware — but was looking for an alternative).

What DutchCloud chose to do was to implement the KVM hypervisor for virtualization — and to augment this hypervisor with IBM's IBM SmartCloud Provisioning. The KVM hypervisor, as expected, significantly lowered virtualization license costs — but what surprised DutchCloud was the big bump in performance that they got from using KVM. IBM has integrated KVM with its x86 server solution (System x) — and is now reporting that KVM on System x has demonstrated 18% better virtual machine consolidation performance versus the competition (meaning VMware).

The business benefits of this performance increase include:

- The ability to consolidate more workloads per virtualized server (this leads to better return-on-investment as the servers DutchCloud owns can now do more work);

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- Improved scalability (it is easy to scale KVM to large environment); a reduction in cloud management costs (in some enterprises, management can cost up to 50% of an IT operating budget. And in the ISP environment, the better a machine is managed, the more competitive and more profitable the ISV can be. Dutch Cloud reported “no/low maintenance, minimized operational administration, and no outages required for upgrades);
- Rapid deployment of new services in seconds rather than hours. (Dutch cloud can deploy hundreds of new VM instances in under 5 minutes — it takes them substantially longer to do the same with VMware); and,
- A big change in the delivery of disaster recovery services from cold-standby (capital intensive) to rapidly deployed (making the deployments “utilization efficient”) and making virtualization significantly more cost effective for customers and CSPs.

Summary Observations

I'll admit that Microsoft Hyper-V has not gained marketshare as quickly as I expected it to. One big reason has been that Hyper-V needed a lot of enrichment — features critical to real world computing processes—that is just arriving. Another reason, I believe, was that the worldwide recession slowed the growth of new projects in the Microsoft world such as virtualization (still, Microsoft's other lines did well and Microsoft is now a \$70 billion company).

Overall, I think KVM adoption will mirror or even exceed Hyper-V adoption, gaining steam as it matures — and as people become aware of the cost reductions, performance improvements, and management improvements associated with this technology. Many have characterized OVA as too little/too late. But I see it as just enough/just-in-time for KVM — a growing and vital community that has the potential to improve KVM infrastructure and management to a level that will compete extremely well with Hyper-V and VMware within the next few years.

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