VMware at VWworld 2009 — A Synopsis

M. R. Pamidi and Anil Vasudeva
Senior Editors
IT Newswire

Executive Summary

Going beyond virtualization, VMware earlier this month showed their hand at VMworld 2009 to become a major player in corporate datacenters and Cloud Computing infrastructure hosted by managed service providers (SPs). To this end, it has recently introduced a slew of new products for *Infrastructure-as-a Service* and roadmaps to address the higher level of *Platform-as-a-Service* using the SprigSource acquisition to explosive growth of virtualization and emerging needs of the cloud computing marketplace.

Introduction

VMworld 2009 held earlier this month in San Francisco and attended by an estimated 12,500 developers, end users, customers, partners, and vendors was a great event. VMware has very ambitious and far-reaching goals to extend its role from just being a virtualization vendor to become a key player in the datacenter and cloud computing.

Cloud Computing

Cloud Computing (Figure 1) in the past few years has grown large enough to subsume high-performance/grid computing, service-oriented architecture (SOA), infrastructure-as-a-service (IaaS), platform-as-a-service (PaaS), software-as-a-service (SaaS), utility computing, web services, and Web 2.0. IMEX Research, an independent market research firm, holds the view that PaaS will eventually morph, with some of its functionality percolating up into SaaS, and the rest distilling down into IaaS.

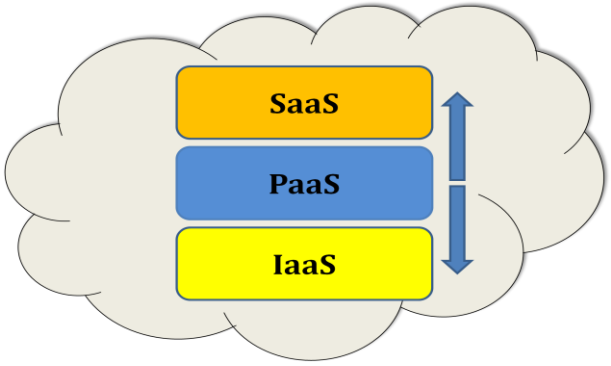

Figure 1. Cloud Computing Layers

VMware Initiatives

VMware continues to garner unprecedented following in the virtualization community around the world and believes in a future of private, public, and hybrid clouds. It already has vSphere for internal private clouds; vCloud for cloud federation; and is now offering vCloud Express which allows its SP partners to create a cloud computing platform with pricing and functionality similar to Amazon Web Services. Does it plan to build public clouds? No, it will leverage 1,000+ SPs to build external and public clouds. It is eyeing to transform all IT assets — from the desktop to the datacenter to the cloud — using a common virtualization platform to create a dynamic IT infrastructure for an agile, responsive business. Figure 2 shows what we believe are VMware's comprehensive roadmap.

Todd Nielsen, VMWare COO, has set up specific goals:

- Reduce capex by 50%-60% by delaying datacenter expansion
- Reduce opex by 25%-30% by lowering administration and operational costs, while reducing energy costs by up to 80%

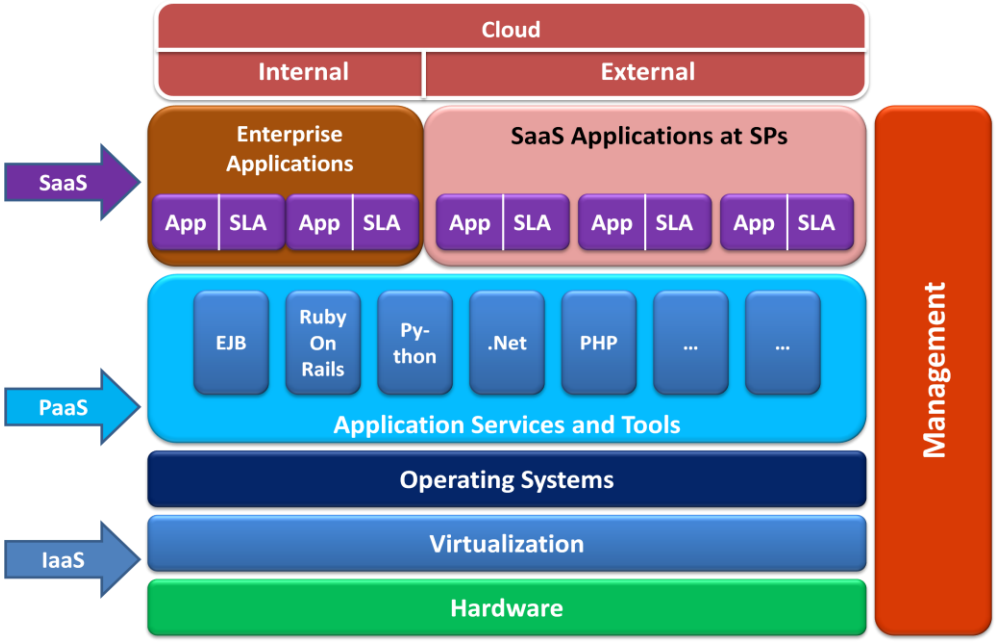

Figure 2. Future Vision of Cloud Computing

In essence, VMware wants to:

1. Let its customers leverage operational efficiency by deploying VMware solutions, by exploiting the agility of 150,000+ customers to further emphasize VMware's value-add.
2. Let customers standardize on a common VMware application framework.
3. Unlock the potential value of cloud computing, so customers don't have to invest in datacenters, thus minimizing capex and opex, and switch to a pay-as-you-go model:
    a. Evolve the operational model of on-demand, self-service vis-à-vis days/month usage.
    b. Make the lights-out-datacenter dream come true.
4. Fully federate services with the vCloud initiative, leveraging the likes of AT&T, Verizon, and other SPs with guaranteed QoS, SLAs, and layered security.
5. Let SPs charge a flat fee per month per application. This is what VMware President and CEO Paul Maritz calls *software mainframe*. And you thought the mainframe was dead!
6. With vCloud Express, have the SPs bring down the prices even further and possibly charge their customers $1/day per application.

VMware has a vision where its tools will become the foundation for cloud computing upon which PaaS and SaaS will be built. To that end, the company introduced many products as part of the virtualization journey:

1. vSphere Enterprise essentials (starting at $166/processor)
2. vCenter family (lifting the level of management)
3. vCloud for revaluating and bridging internal (datacenter) and external (SP) clouds using vCenter and vCloud Express:
    a. vCloud APIs span vCenter instances between internal and external clouds
    b. VMware GO, a web service for SMBs that automates ESXi configurations and installations
4. VMware View, enables desktop as a service
5. SpringSource, enterprise Java PaaS

So, how exactly does cloud computing fit in the picture? Deploy the core applications in a dedicated mode and use cloud for load spikes. Longer term, will there be vendor-specific, multiple clouds that won't interoperate? To alleviate this problem, there are efforts underway, such as the Cloud Computing Interoperability Forum and Open Virtualization Format, to eventually make life easy for developers and end users.

VMware Products for Cloud Computing

VMware offers a rich set of products in the cloud computing space, as shown in Figure 3.

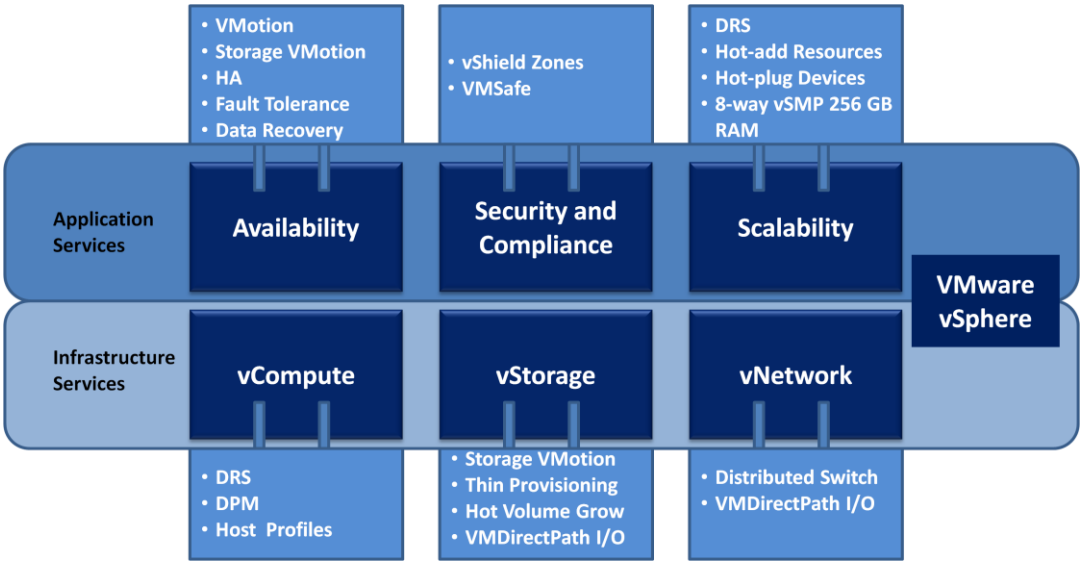

Figure 3. VMware's Cloud Computing products

With vSphere 4 and its companion products, VMware's Steve Herrod, CTO, is not settling for the cloud or the software mainframe, but aiming at building 'The Giant Computer' with 32 TB of RAM! VMware also announced a family of new products for specific use-case scenarios. CEO Paul Maritz in his Keynote referred to the vCenter family of products: AppSpeed, vCenter Server, CapacityIQ (capacity planning), Chargeback, ConfigControl (configuration), and Lab Manager 4.0 to enable self-service in private clouds. vCenter can integrate with other products via APIs. In fact, IBM is leveraging vCenter APIs to provide integration with IBM's power meter, embedded in the IBM hardware, now integrated with vCenter Server.

Here are some interesting factoids:

- Only 30 of the Fortune 1000 haven't implemented VMware; Paul Moritz offered a free trip to VMworld 2010 to the sales person/reseller that signs up the last of the Fortune1000.
- VMware vSphere downloads average about 30,000 per week since production.
- 75% of customers surveyed will upgrade to vSphere this year.

Another interesting component of vSphere is VMotion that lets users move running virtual machines from one physical server to another with no impact to end users. Suppose a multinational has datacenters in Asia and the U. S. If you want your datacenter to be closest to your users, your datacenter will VMotion (as a verb) from the datacenter in Asia to the one in the U. S., following the sun. If you want your datacenter to be in a place when the energy prices are the lowest — during night-times — you VMotion the datacenter as needed, following the moon. Although this may sound very innovative, VMware seems to be forgetting that every service at some point needs persistent storage and its story is very weak in this area. Thus, the example of datacenter moving from USA to China is really far-fetched because it is not really possible to move all the data over that fast. You cannot move the compute nodes alone leaving what should be fast I/O to happen over the WAN. The two solutions are WAN acceleration/protocol optimizers like those provided by RiverBed and Blue Coat, or one has to develop the application to be N-Tier wherein you have built-in intelligence to balance the compute, I/O, bandwidth, and latency. Sun Microsystems solved this using JavaVMs and servlets ten years ago; generalizing this to other environments is not so straightforward. Yes, compute utilization can be increased, cost reduced…but the complexity in fibre channel switching or network utilization management greatly increases. These components continue to be more expensive than compute nodes. Once we go beyond the gains we get from CPU scavenging and relatively static provisioning

to a very dynamic environment, we can not at all be sure whether this will be save money for anyone.

Finally, VMware's recent acquisition of SpringSource is noteworthy. Why? It will play a huge role in VMware's vCloud application integration roadmap. Many folks believe that the use of lightweight frameworks and virtualization will result in radical simplification and help eliminate redundant and complex layers of management. VMware executives made it clear that, despite the acquisition, SpringSource would continue to remain open source and to support Java services and a range of platforms. Longer term, the plans appear to be to find ways to slide the Spring framework onto VMware vSphere and enable ways for Spring to inform the hypervisor about application requirements and behaviors.

