Product Brief

Microsoft Cloud Platform System Powered by Dell

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Abstract: *Software-driven IT architectures are the future and Microsoft is sharing its expertise and experience building clouds with its announcement of Microsoft Cloud Platform System. Microsoft's splash into the market is targeting enterprise IT data centers and service providers that are focused on the potential of hybrid cloud and the consistency Microsoft can offer in these environments. While Microsoft may not have market exclusivity, the appeal of this new cloud platform is undeniable and is worth further exploration.*

Software-defined Cloud

Software-driven IT architectures are the future and Microsoft is sharing its expertise and experience building clouds with its announcement of Microsoft Cloud Platform System. The IT industry is constantly under a cyclical wave of distribution and compression. The current cloud tsunami frankly has many businesses perplexed, but has also highlighted the significance of the software needed to power some of the world's largest cloud computing environments. This includes the major global clouds of Amazon, Adobe, Google, Salesforce, and Microsoft. Each of these providers achieve massive scale through software that drives the underlying compute, network, and storage layers. The cloud provides services that operate in an efficient environment to deliver performance, security, and economics matched to specific business requests. It's that simple and Microsoft is about to pour this value into corporate IT data centers and service providers.

Before jumping into the specifics of the Microsoft Cloud Platform System, it's worth reiterating that cloud strategies are maturing and IT infrastructure is collapsing, as is validated by the following results from ESG research:

- ESG's annual IT spending intentions survey has shown a consistent annual increase in the usage and prioritization of public cloud computing services since 2011 and we expect to see this trend continue and likely accelerate in 2015.[1]
- One-third of ESG research respondent organizations consider themselves to be current IaaS users in some form, while another 27% have plans to use these services.[2]
- The transition from server virtualization to private cloud continues. Built upon a foundation of server virtualization, one half of respondent organizations already have a private cloud infrastructure in place, while an additional 20% plan to deploy one in the future.[3]
- Usage of integrated computing platforms (converged server, network, and storage solutions) continues to increase, with strong ties to private cloud. One-third of respondent organizations have already deployed integrated computing platforms, while an additional 44% have plans for or interest in these types of solutions.[4]

The cloud marketplace and shift towards converged IT infrastructure consumption strategies are having a profound impact on businesses as well as the IT vendor community. Legacy business models are at risk and a new wave of IT consumption models are flooding into businesses.

Microsoft Cloud Platform

The Microsoft cloud platform ensures consistency between a customer's on-premises deployment, a third-party service provider, and the Microsoft Azure public cloud. This hybrid cloud model also includes a management strategy powered by Microsoft System Center and a development platform for modern IT applications, as well as identity management,

[1] Source: ESG Research Report, *2014 IT Spending Intentions Survey,* February 2014.
[2] Source: ESG Research Report, *2014 Public Cloud Computing Trends*, March 2014.
[3] Source: ESG Research Report, *Trends in Private Cloud Infrastructure*, April 2014.
[4] Source: Ibid.

data services, and virtualization throughout the platform. The consistency enables IT to choose the optimum operation and consumption model while delivering traditional and next-generation IT services. Microsoft customers reap the benefits of on-premises Windows and Linux deployments connected to a leading public cloud provider and can tap into additional value provided by service providers that offer cloud services for specific industries, applications, and geographies. This consistency is also now extended directly into a hardware platform designed to deliver the essential software and hardware components into corporate IT data centers and service providers and form the foundations for their cloud architectures.

Microsoft Cloud Platform System powered by Dell

The Microsoft Cloud Platform System is a 1-4 rack cloud platform based on Windows Server 2012 R2, System Center 2012 R2, and Windows Azure Pack. Cloud Platform System is more than a cobbled-together reference architecture to compete with converged system vendors, it is an architecture based on the lessons that Microsoft has gained from running its own public clouds and further optimized for applications that can be deployed through run-books. The system is designed to handle a failure with N+2 fault tolerance, allow for orchestrated patch management, and provide automated updates. According to Microsoft, Cloud Platform System is designed to execute 8,000 virtual machines[5] across 1.1PB of maximum usable storage and can run both Windows and Linux workloads. Other important highlights of known and some relatively unknown features include:

Windows Azure Pack: WAP creates a cloud experience and service delivery model through an administrative portal and a tenant portal for a self-service, multi-tenant cloud with Windows Azure-consistent experiences and services.

Hyper-V: The hypervisor creates the hardware abstraction and fluidity of virtual machines across the platform and consistency across a hybrid cloud architecture.

SMB 3.0 & Storage Spaces: Storage Spaces in Windows Server 2012 R2 is designed to allow the creation of highly available, scalable, and high-performing storage solutions by virtualizing cost-effective storage. Storage Spaces is designed with key technologies to meet the needs of enterprise workloads. Storage pools aggregate sets of physical disks into one or more units of management that can be expanded dynamically. Storage Spaces provides storage virtualization and resiliency with support for clustering. Storage Spaces in Windows Server 2012 R2 provides an ideal foundation for SMB 3.0 file shares while offering a single point of management for storage, server, and network. Features of the SMB 3.0 protocol include transparent failover, scale-out, multichannel, remote direct memory access (RDMA), encryption, and Volume ShadowCopy Services (VSS).[6]

Hyper-V Networking: Windows Server 2012 R2 provides a layer of abstraction between physical networks. Hyper-V network virtualization enables virtual networks to span physical networks and provides the flexibility to create advanced packet filtering through the Hyper-V extensible switch. Software-defined networking (SDN) capabilities allow administrators to isolate virtual machines and encapsulate network ID headers, as well as filter and route traffic based on policy. Partners can also provide Layer 2 functionality to further enhance the environment and provide consistency with existing networking investments.

Dell Integrated Hardware

The current iteration of Microsoft Cloud Platform System is built on Dell hardware that includes Force 10 networking, PowerEdge servers, and PowerVault JBODs. Perhaps the most notable highlight is the absence of legacy SAN infrastructure. Microsoft and Dell have integrated Windows Server 2012 R2 storage capabilities on a JBOD system that is comprised of both traditional hard disk drives and SSDs. Dell also adds the potential of synergistic system management capabilities with OpenManage Essentials, which includes monitoring and control of Dell servers, storage, and networking through a single systems management console.

Converged Systems Market Impact

[5] 2vCPU, 1.75 GB RAM, 50 GB disk.

[6] Source: ESG Lab Review, *Microsoft Windows Server 2012: Storage Performance and Cost Analysis*, July 2013.

Microsoft's splash into the market is targeting enterprise IT data centers and service providers that are focused on the potential of hybrid cloud and the consistency Microsoft can offer in these environments. While this architecture will be compared to other non-Microsoft based converged systems on the market such as VCE, Cisco/NetApp FlexPod, and even emerging OpenStack solutions such as Nebula, the Microsoft Cloud Platform System is a significant departure from traditional IT infrastructure architectures. Many vendors continue to ride the VMware wave and others such as HP Helion and Red Hat are taking an open source approach to the market. All of these virtualization and cloud strategies are viable and Microsoft will have to amplify its efforts in the enterprise and with service providers to clearly distinguish the Microsoft value and its experience in cloud computing. Microsoft is also going to be faced with some resistance from both IT and competitive rhetoric about its capabilities at the Microsoft Cloud Platform scale based on Hyper-V and relatively unfamiliar storage and networking capabilities. A consistent wave of enterprise IT and service provider proof points will help squelch and overcome these barriers along with an increased level of marketing cadence that targets IT professionals, cloud architects, and business owners to help make an informed and confident decision for future IT investments.

The Bigger Truth

Software as the foundation for our next-generation data centers, coupled with the benefits of consistency between on-premises and off-premises IT services, are what Microsoft has designed into the Cloud Platform System. IT organizations and business alike are challenged with short-term and long-term cloud computing strategies. They all see the potential, but not everyone has come to terms with an optimum strategy for dealing with the economic and organizational impact. Microsoft is introducing a cloud platform, but what the company is ultimately doing is helping IT change the way it thinks about delivering IT services and challenging traditional IT infrastructure deployments. The introduction of Microsoft Cloud Platform System is as much about the way IT is evolving and how businesses will consume IT services as it is about Microsoft integrating its software with Dell hardware. Both are important, but it's the shift in IT service delivery, business consumption, and legacy IT vendor business models that are the most intriguing implications of the announcement. Microsoft's advantage is its experience in the cloud, its business applications, its presence on the desktop, and perhaps perfectly timed, its strategy led by its new CEO Satya Nadella. While Microsoft may not be the only choice in a market that is experiencing rapid change, the appeal of this new cloud platform is undeniable and is worth further exploration.