Hosting Performance-Sensitive Applications in the Cloud

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Hosting enterprise apps on private/public cloud is a matter of “when will we deploy” and not “should we deploy”

Significant business opportunity for cloud service providers in hosting performance-sensitive apps like Oracle, SAP, OLTP, ERP etc.
Limitations of Legacy Solutions

Monolithic controller architecture

- Noisy neighbors contending for shared resources
- Requires dedicated silos to deliver performance within shared storage
- Unviable on a large scale

Hardware-defined performance

- Cannot automate performance provisioning through software
- Requires spindle configuration and constant monitoring
- Misfit for fast deployment and reconfiguration needs
Inefficient Workarounds

Traditional SAN/NAS arrays
- Designed for just capacity control, small number of stable workloads
- Requires dedicated storage silos to deliver performance
- Upgrading to faster spindles/controllers, dedicated silos only results in increased costs and management complexity

Advanced SAN/NAS arrays
- Deliver Control of Service (CoS), not Quality of Service (QoS)
- Admins can set limited priorities at a superficial level
- Still requires overprovisioning and constant monitoring

Scale-out arrays
- Easier management of multiple storage nodes
- Deliver performance by just overprovisioning hardware
Storage Requirements for Cloud

To host performance-sensitive apps in the cloud, storage solutions should be able to deliver:

- Predictable performance (guaranteed QoS) to every application within a shared storage platform
  Demands multi-tenant storage controller!

- On-demand storage performance (IOPS, throughput, latency)
  Demands software-defined storage!
Multi-Tenancy Evolution

- Across the Stack:
  - Application
  - Server
  - Network
  - Storage
Multi-Tenancy Evolution

First to be multi-tenant: Application layer (SaaS)
Multi-Tenancy Evolution

Next to be multi-tenant:
Network (VLAN)
Multi-Tenancy Evolution

The Big Bang

Server Multi-Tenancy

The Stack

- Application
- Server
- Network
- Storage

Windows Server
KVM
Hyper-V
vmware
Citrix XenServer
Multi-Tenancy in Storage?

Storage multi-tenancy
The final layer left
Multi-tenant Storage Needs

Security and isolation

Tailored IOPS, throughput, latency

Delegated administration, backup and management
Multi-tenant controller enables guaranteed performance and cloud class security to every application within a shared storage platform.
Software-defined storage abstracts performance (IOPS, throughput, latency) from the hardware.

- VM
- VLAN
- Virtual Storage

- Abstracts
- CPU
- RAM
- Storage and networking ports
- Number of ports
- Traffic shaping (QoS)
- IOPS
- Throughput
- Latency
- Capacity
Software-defined storage

Every endpoint (LUN) within a shared storage platform can now be defined beyond capacity, in terms of IOPS, throughput, latency.

Enable fast deployment and re-configuration options with guaranteed QoS to every application within shared storage.
Thank you

Q & A