Overcoming the Limitations of Server-Side Storage

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The Cloud Data Center is Software-Defined

Microsoft System Center / vCenter

| VM.1 | VM.2 | VM.3 | VM.4 | VM.5 | VM.6 | VM.n |

Software-Defined Resources per VM

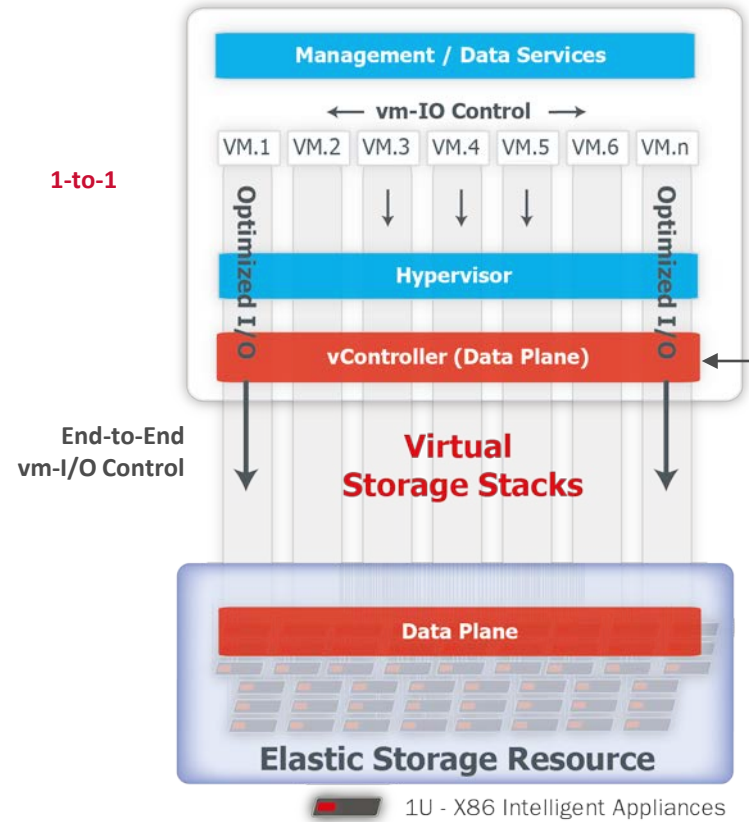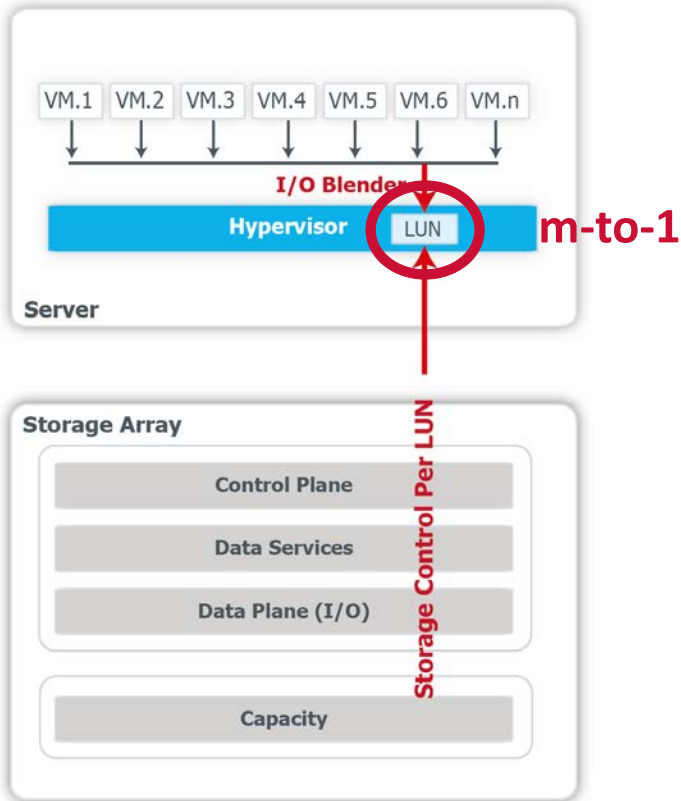| Compute | Network | Storage |

Elastic Resource Pools

The Cloud Data Center Requires

Elastic Resources

Per vm-I/O Control

End-to-end I/O control and optimization per vm

Scaling: The Problem with Scale-out Clusters

Inefficient and Inflexible

Inefficient – 3 Way Replica for Protection
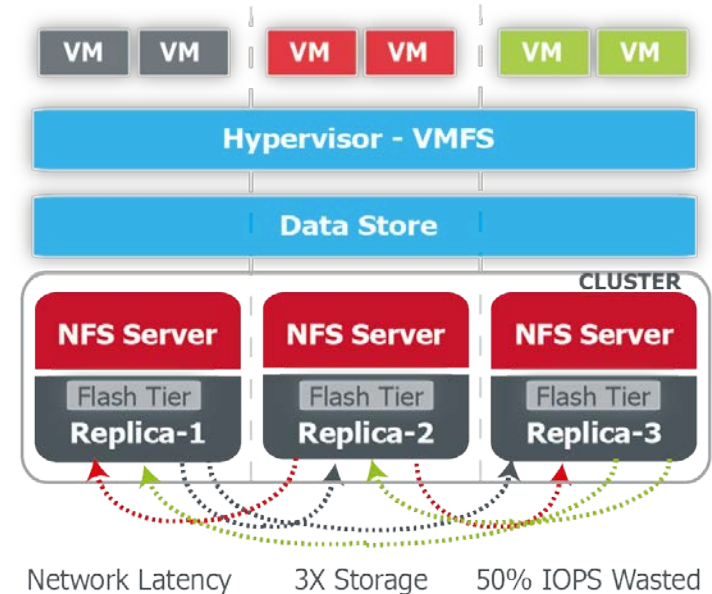
Adds Latency

Consumes 3X Storage Capacity

Wastes 50% of available IOPS

Inflexible - Forced to Grow Servers with Storage

Or have separate shared storage – Increased TCO

What about support for existing servers

Traditional Caching Architecture

Waterfall Cache Architecture

- Multiple layers of non-integrated caches
- Cache layer has no intelligence of cache above/below
- Each lower cache duplicates cache layers above
- Each lower cache becomes less efficient (cache hit rates lower)
- Each lower cache wastes more cache resource

Waterfall Cache Architecture

VM
App
OS
Hypervisor / Filesystem
Host Flash Cache
Duplicates Above
Storage Flash Cache
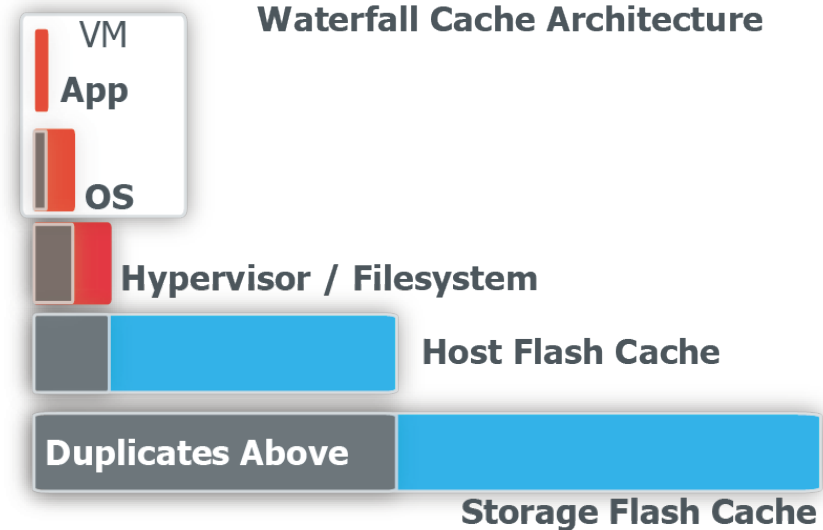
Server-Side Cache + SAN

Solution Drawbacks

- Adds round-trip network latency
- 2X Network IO between hosts
- Consumes host CPU resources
- Wastes 50% Flash IOPS/Capacity
- Not an integrated solution, manage two vendors, two products.
- Waterfall cache wastes further resources in array due to duplication
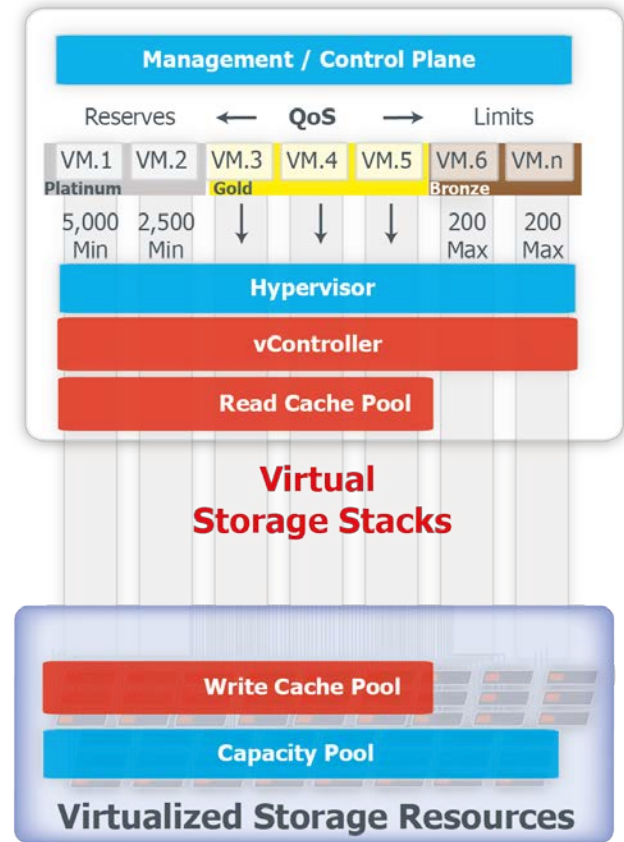
Architecture – Write-back Cache
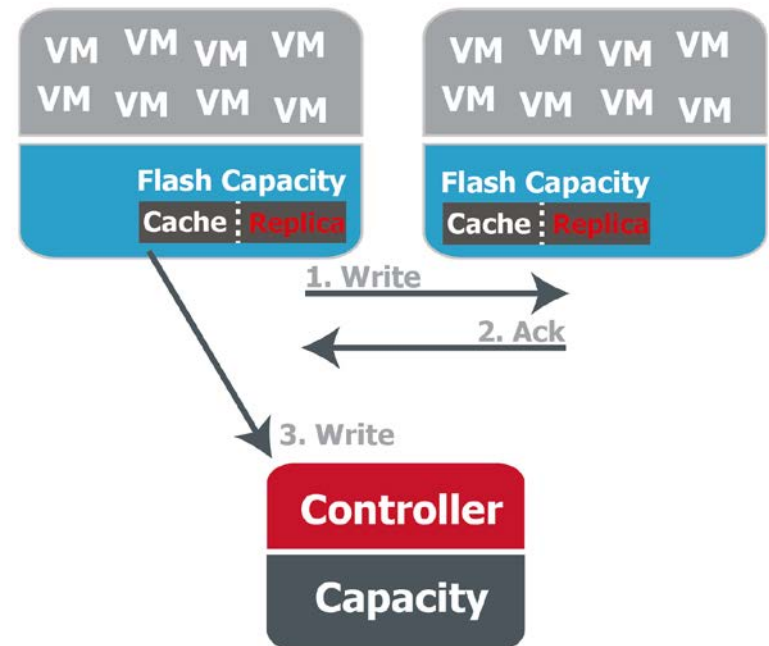
What is GridCache
Industry's first Integrated Distributed Write-back Cache.

Architecture – Integrated, Distributed Write-back Cache

- One integrated, intelligent cache architecture
- Eliminates waterfall duplication of cache
- Intelligent – vController sits in front of the cache, gives you the ability to control what goes through cache
- Integrated - Combines server-side and storage-side cache into a global cache built for clusters

What is GridCache
Industry's first Integrated Distributed Write-back Cache.

Solution

- One integrated, intelligent cache architecture
- Serve 80% of IO from large read cache in host
- Eliminate 80% network IO and IOPS from shared storage
- Storage becomes large, efficient, high performance write pool
- Compared to all flash array
  - Significantly faster when host cache is hit
  - Significantly less expensive
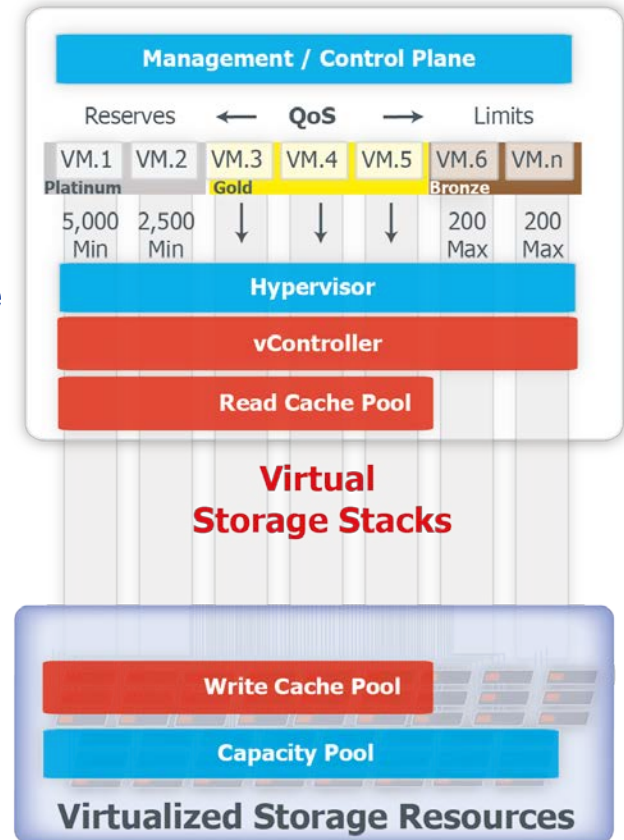
Differentiation vs. Server-Side Cache + SAN
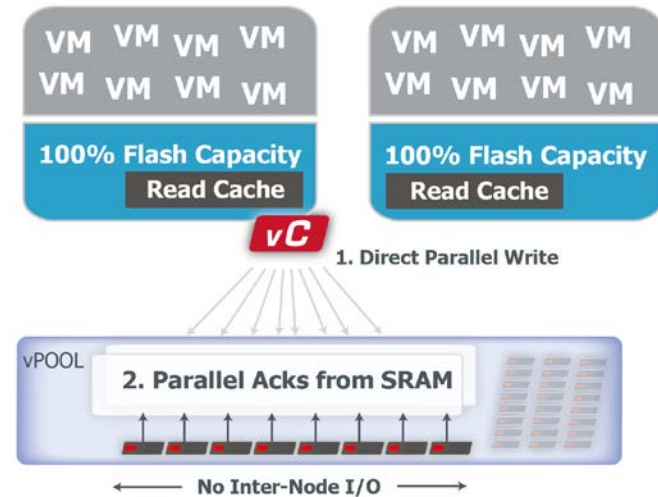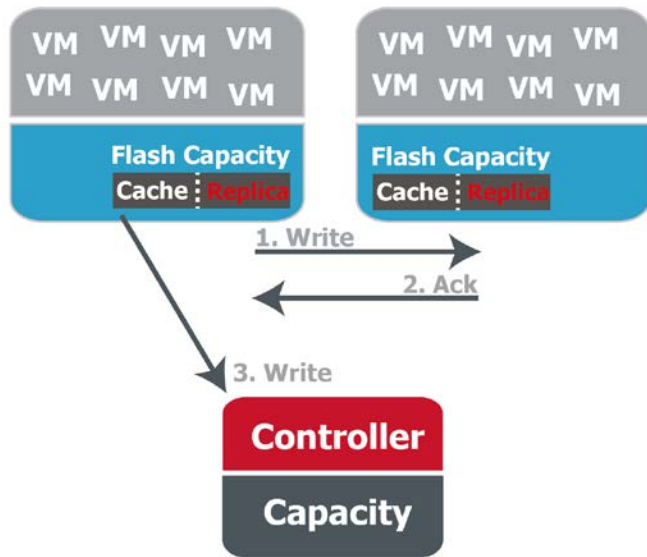
- Faster writes (parallel IO)
- 5X faster reads (2X working set served)
- Single integrated cache architecture

Thank You