Storage for the Cloud

VPLEX – Virtualized Cloud Storage

March 2012
Business Problem

- The previous storage provisioning model did not provide the level of availability, flexibility or data mobility that Virtualized Storage provides.
- VMware was vulnerable to a single array failure event in its production environment.
- The siloed storage approach did not allow efficient use of tiered storage, and the TCO is higher.
- Siloed storage restricts Storage vMotion.
- Previous solution impeded the ability to effectively execute an accurate capacity planning model.
- Previous solution did not allow for IT to provide efficient Storage as a Service as VMware moved into Cloud Computing.
Business Solution - VPLEX 4-Engine

- Storage virtualization
- Provides fast, efficient, highly available and mobile storage
- Scale-out clustering hardware allows customers to start small and grow big with predictable service levels
- Advanced data caching utilizes large-scale SDRAM cache to improve performance and reduce I/O latency and array contention
- Distributed cache coherence for automatic sharing, balancing and failover of I/O across the cluster
Key Domains

VPLEX 4-Engine Storage Virtualization

Helps us to understand requirement sources and details
Current Storage: Fixed, Dedicated, Silo

Combined Total Capacity: 979 TB
Used Capacity: 572 TB
Available Capacity: 341 TB

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Dual Fabric Brocade

Email

View1

View2

CPP

vFred

Oracle Prod and Stage Tier 1 and Tier 2
Total Capacity: 488 TB
Used Capacity: 290 TB
Available: 198 TB

Total
Used
Avail
287 TB
170 TB
117 TB

Total
Used
Avail
65 TB
65 TB
0 TB

Total
Used
Avail
40 TB
30 TB
10 TB

Total
Used
Avail
33.57 TB
17.29 TB
16.27 TB
As VMware migrated silo LUNs into the VPLEX cloud, it could then import the LUNs into VPLEX, thereby increasing cloud storage after each LUN migration.

99% of the migration can be done online with Storage vMotion and ASM migration for RAC DBs.

Downtime required for OCR and Voting Disks on RAC nodes.
VPLEX High Availability, Dynamic, Virtualized, Distributed

ORACLE RAC

Dual Fabric Brocade

VPLEX 4 Engine

ESX Cluster

Total Virtualized Capacity 1417 TB
Used Virtualized Capacity 838 TB
Available Virtualized Capacity 579 TB

Included VPLEX mirror for all Production
Email will use local RecoverPoint

Used and Available is based on thick devices on all CX’s
We will gain additional space once virtualized on thin devices

Virtualized storage

RecoverPoint CDP
Local Replication

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VPLEX Physical Diagram

New Engine Port Layout
More About VPLEX

- VPLEX clusters use synchronous write-through mode and contain no data in cache that could become stale or, in the event of a failure, has not written to disk.
- Virtual Volume Mirroring provides the ability to make two copies of a LUN within and across heterogeneous storage arrays.
- Data migration VPLEX can move data between different devices or between different extents while maintaining I/O access to the data.
- Distributed cache coherence for automatic sharing, balancing and failover of I/O across the cluster.
- Ability to create temporary additional mirrors for critical processing projects (e.g., Quarter End, major release, etc.).
VPLEX Benefits

- High availability – VPLEX mirror for production Tier 1 data
- Data mobility
- Flexibility
- Distributed storage virtualization
- Resource pooling – tiered storage pools
- Facilitate the move towards thin provisioning – TCO is lower
- Non-disruptive upgrades and migrations
- Accurately conduct trending analysis and capacity planning
- Centralized mechanism for provisioning storage
- Disaster recovery with VPLEX Geo and RecoverPoint (2012)
- Integrates storage Fully Automated Storage Tiering (FAST)
VPLEX Benefits (continued)

- **ITIL-like foundation:**
  - Improved IT services
  - Reduced costs
  - Improved customer satisfaction through a more professional approach to service delivery
  - Improved productivity
  - Improved use of skills and experience
  - Improved delivery service

- **Move towards Cloud Virtualized Computing**
  - Rapid elasticity
  - Measured services
  - Broad network access
  - Resource pooling
  - On-demand service
For More Information

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