Flash Memory & Virtualization: Choosing Your Path

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Forward Looking Statement

During our meeting today we will be making forward-looking statements.

Any statement that refers to expectations, projections or other characterizations of future events or circumstances is a forward-looking statement, including those relating to revenue, pricing, market share, market growth, product sales, industry trends, expenses, gross margin, future memory technology, production capacity and technology transitions and future products.

Actual results may differ materially from those expressed in these forward-looking statements due to the factors detailed under the caption "Risk Factors" and elsewhere in the documents we file from time-to-time with the SEC, including our annual and quarterly reports.

We undertake no obligation to update these forward-looking statements, which speak only as of the date hereof.

~~Who~~ What is FlashSoft?

- Server-tier SSD caching software
  - Windows Server, Linux
  - Supports any SSD
  - Transparent to apps, VMs, storage
- Acquired by SanDisk in February 2012
  - Originally Founded 2009

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Two Views of Caching

One View
Caching is a feature of a solid-state hardware device

Another View
Caching is a software-based approach to applying solid-state technology to minimize I/O latency across server clusters and storage networks

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Fundamental Goals

- Migrating business critical applications to VMs
- Efficient virtualization infrastructure
- Enabling progress in VDI initiatives
- "Non-intrusive"
  - To VMware capabilities and features
  - To VMs and their applications
  - To virtualization management, backup, etc.
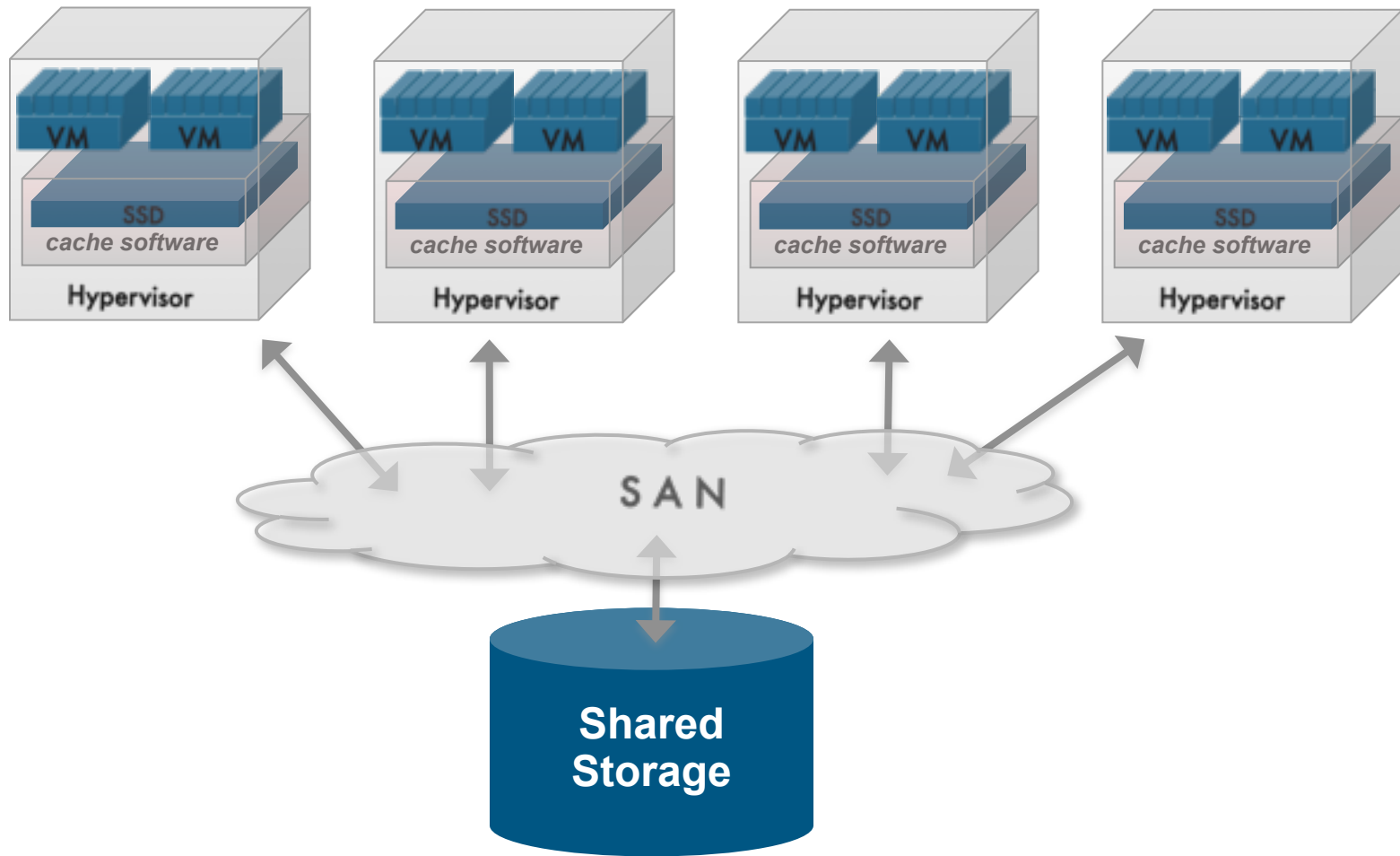 - To existing storage, especially flash systems

Solution Requirements: 1

- Data persistence and recoverability
- Efficient hardware utilization & lifecycle
- Efficient use of system resources
- RAID configurations and backup
- Automatic resource optimization
- Prioritization
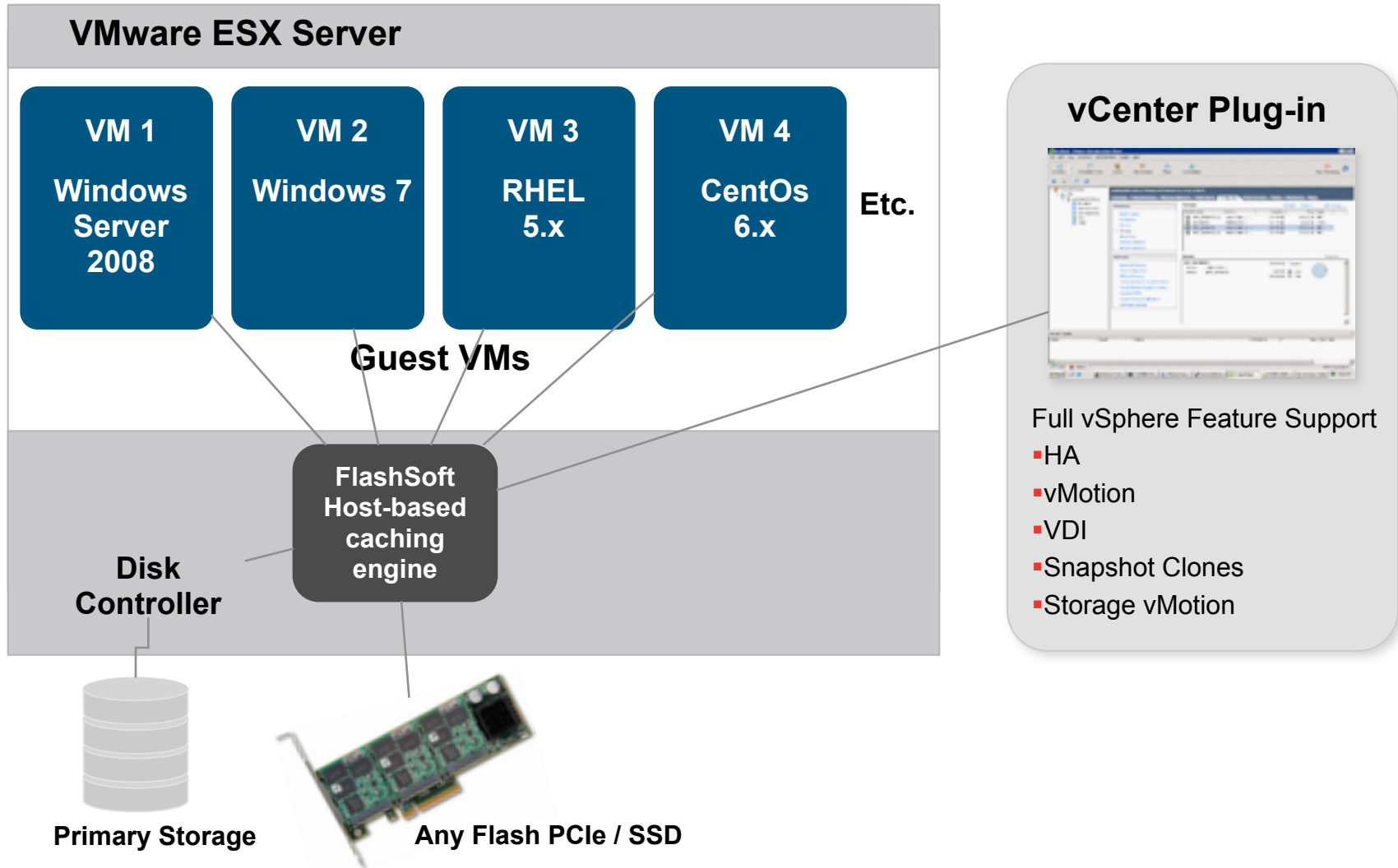- Heterogeneous SSDs
- Write-back caching

Solution Requirements: 2

- "Native" clustering
    - HA
    - vMotion, Storage vMotion,
    - Snapshots, linked clones
- New VM creation
- Native GUI

Caching in Clusters

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FlashSoft Architecture

SanDisk Approach

- "Software-Oriented" Strategy
- Allows openness, flexibility
- Partnerships with providers of:
    - Enterprise SSDs
    - Enterprise servers
    - Enterprise storage systems
    - Enterprise flash arrays and appliances

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Conclusion

- We are still in the early days
- Beware of all dogmatic declarations
  - Including this one
- Know your objectives, set your criteria
- Test it yourself

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Thank You

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