

How Flash optimizes Virtualization Environments

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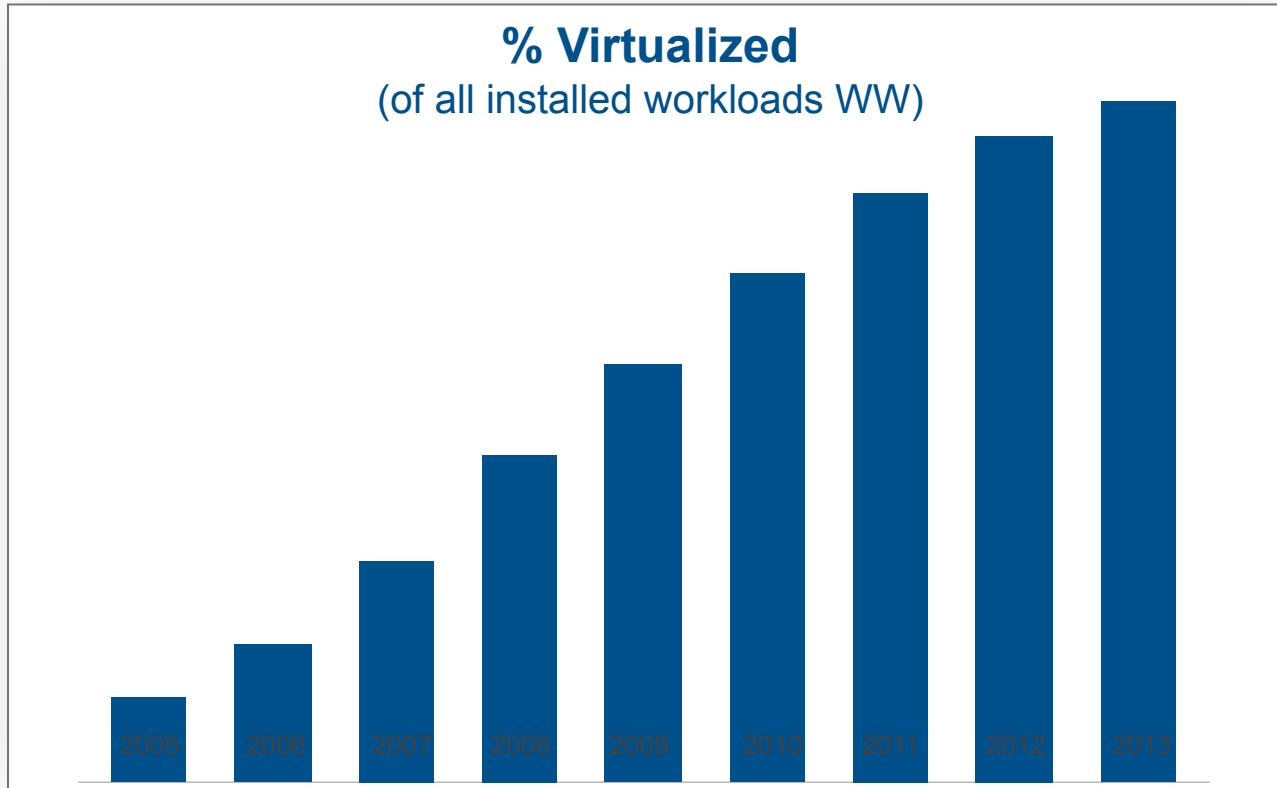


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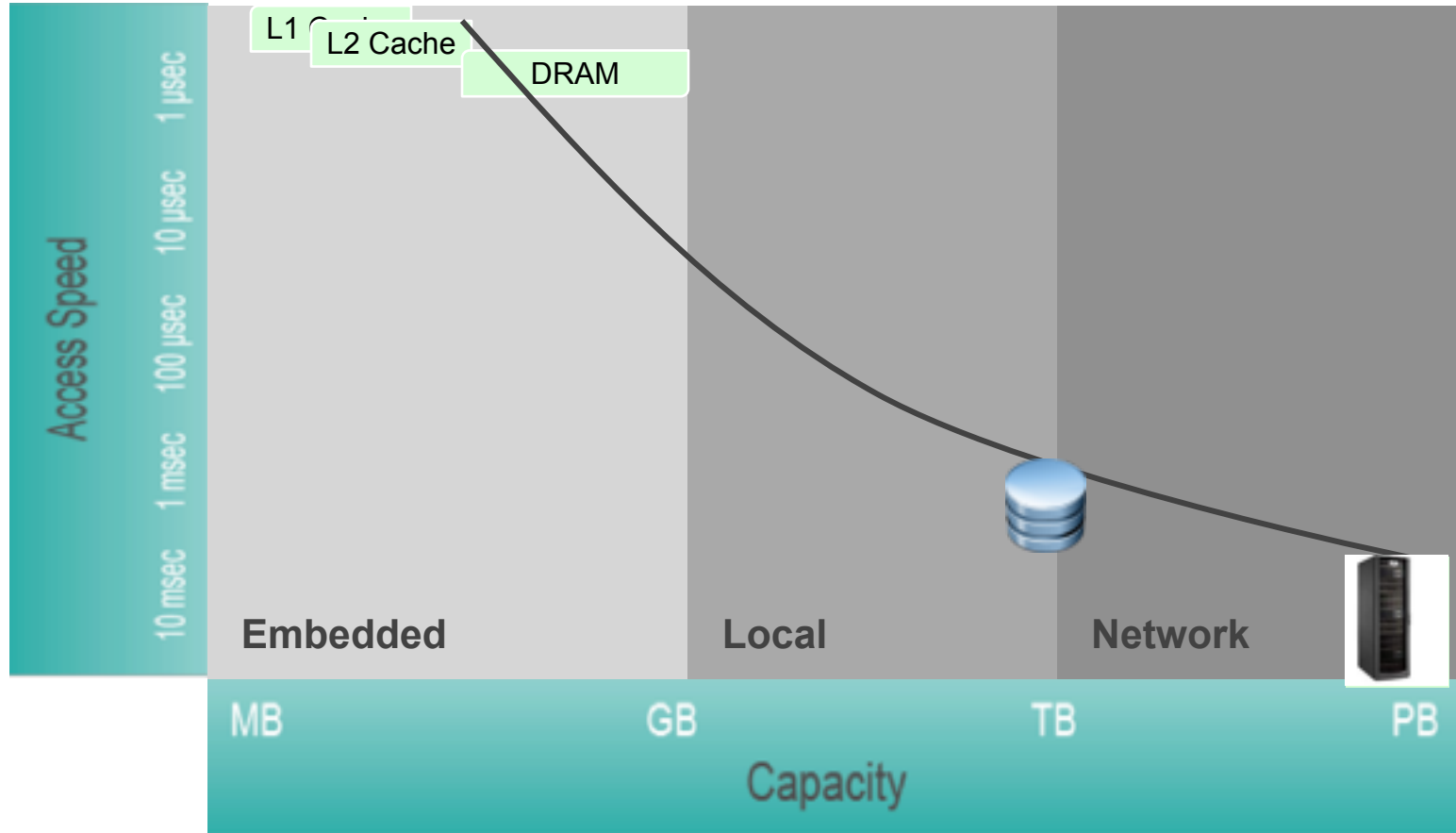
The World is Majority Virtualized



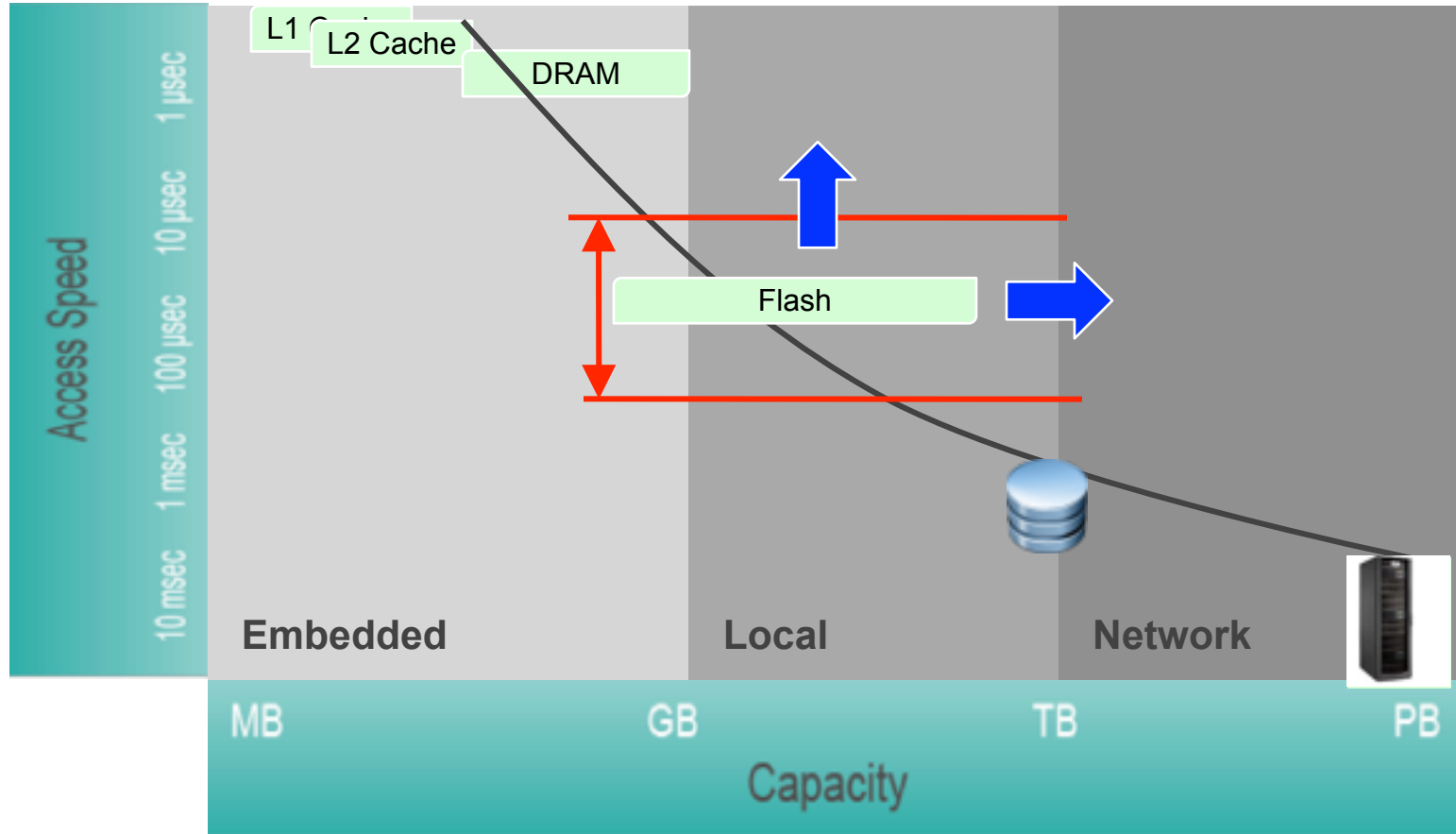
Source: IDC Worldwide Virtualization Tracker, 2010



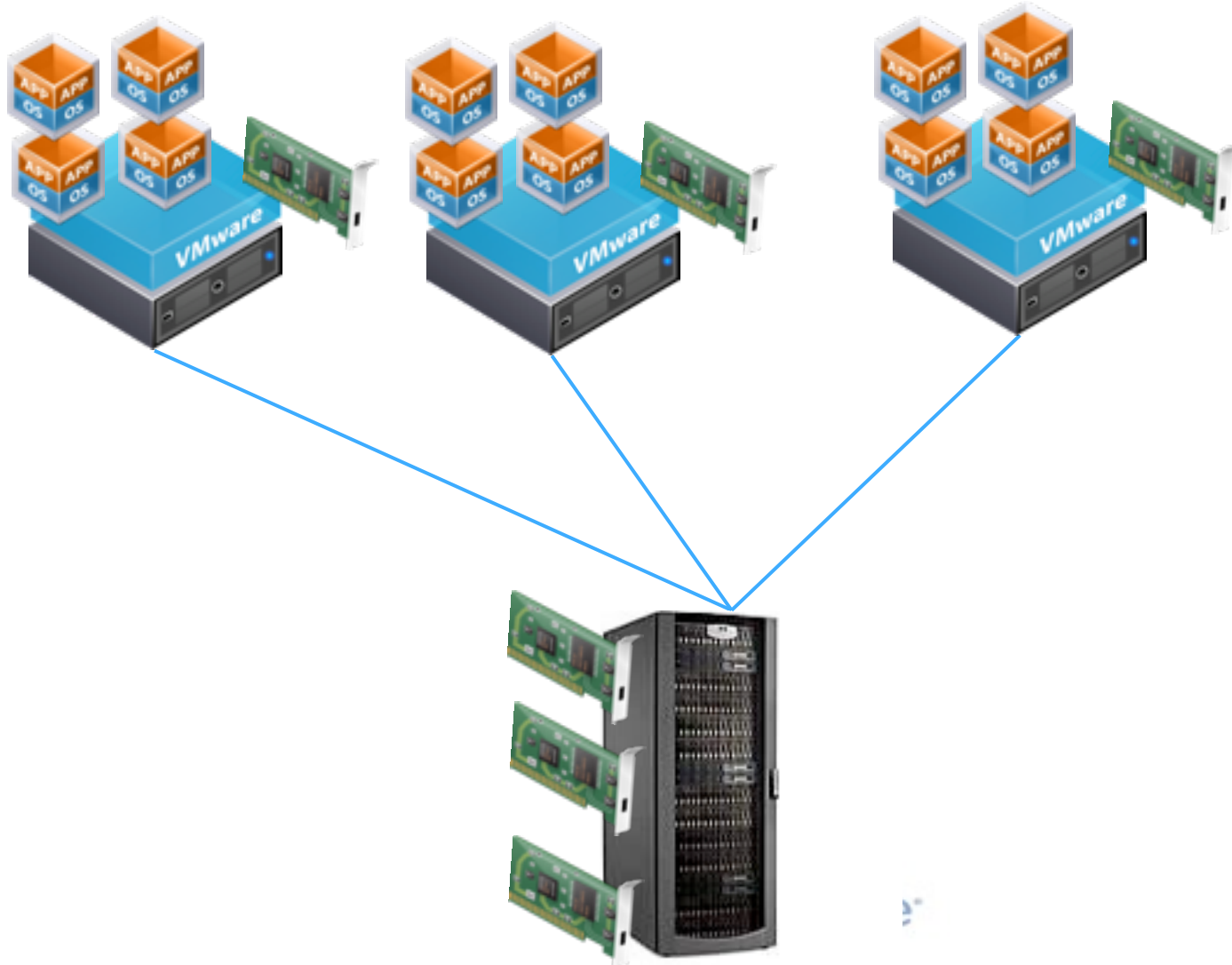
IO Stack Latencies



IO Stack Latencies



Why Flash on Server?



Flash on Server

Order of
Microseconds IO
latency

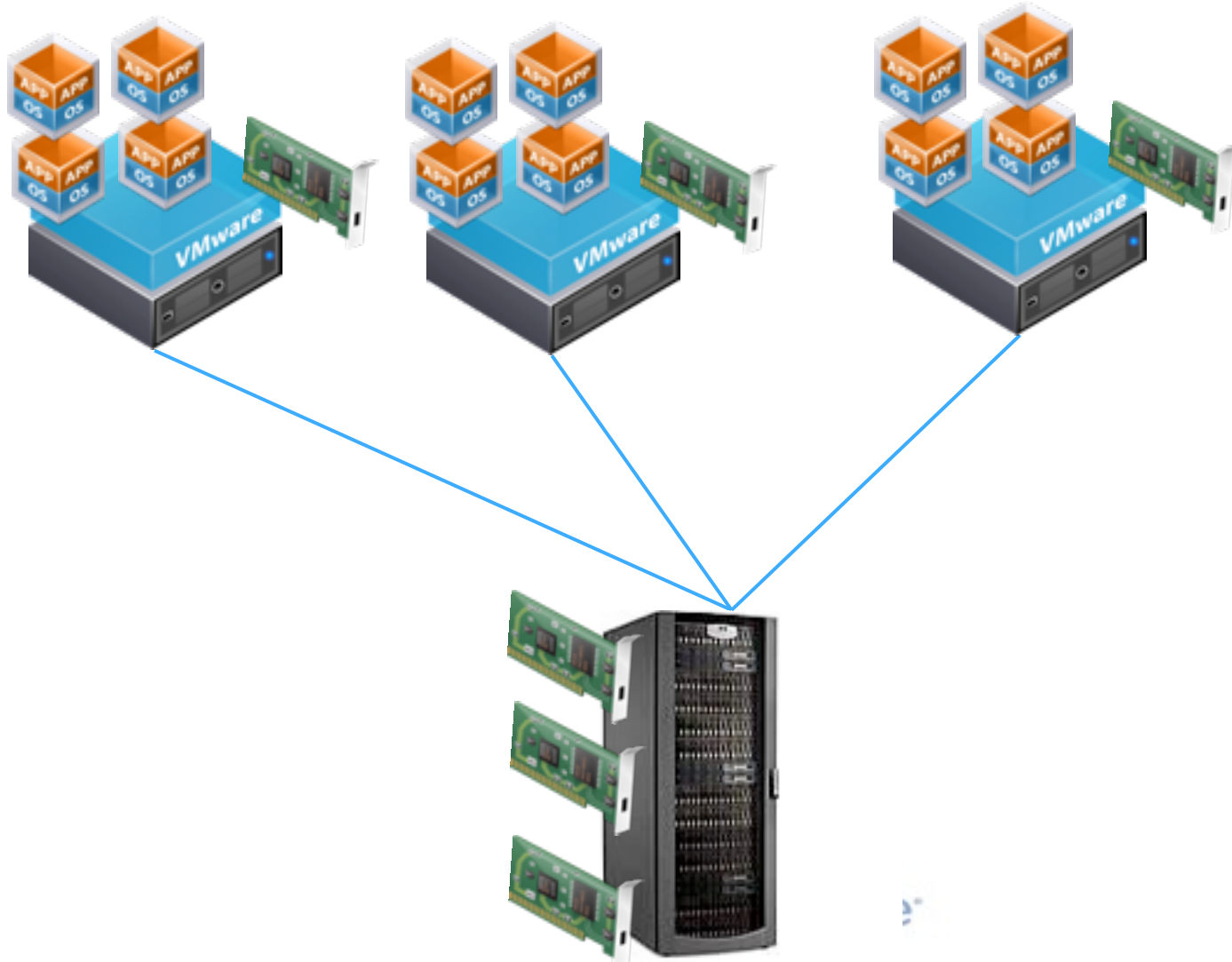
Incremental Scale-
out

Flash on Array

Order of
Millisecond IO
latency

Step function
Scale-out

Why Flash on Server?



Flash on Server

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Flash on Array

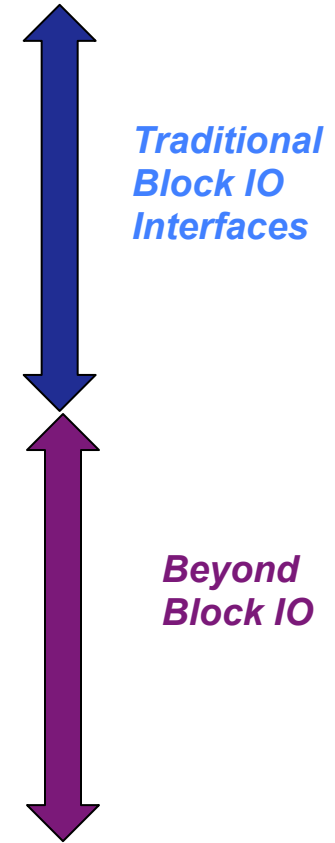
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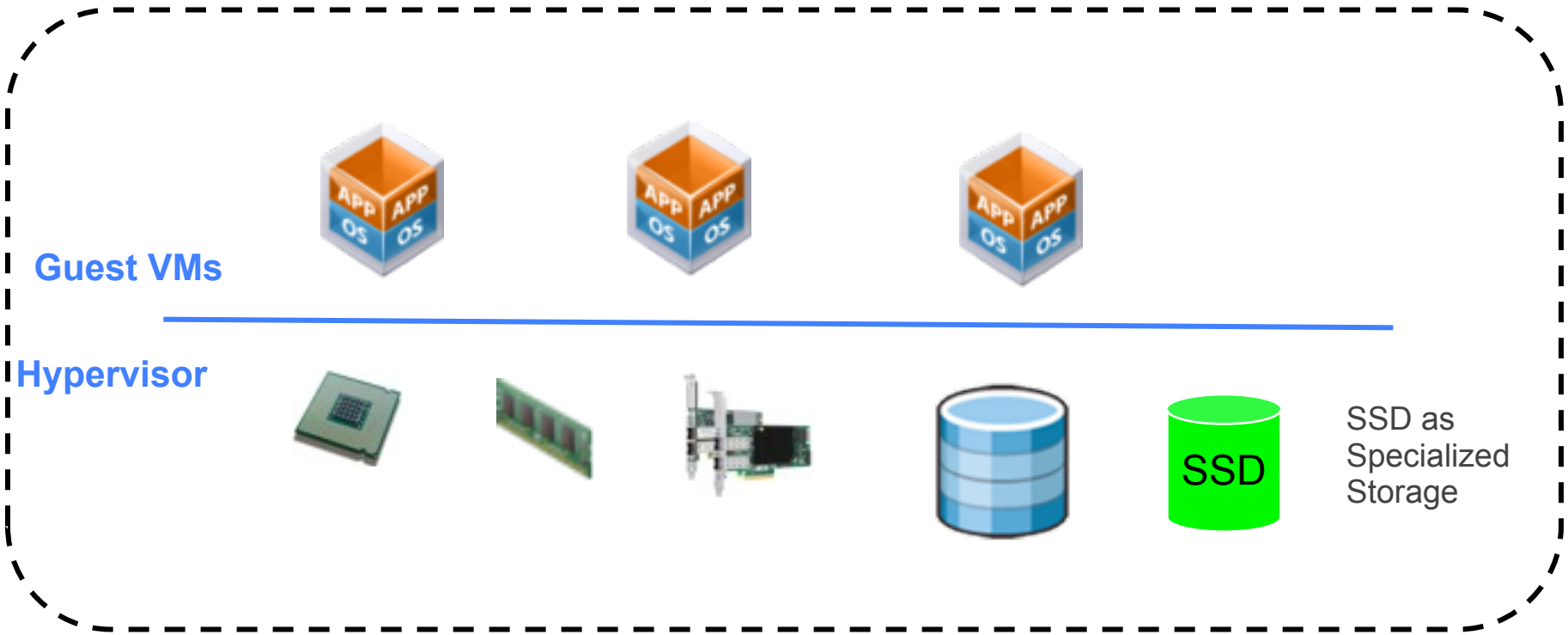


Flash for Virtualization: Use-cases

- IO Cache
- Tier 0 Storage
- Swap Space
- Memory paging
- Transactional memory
- ...



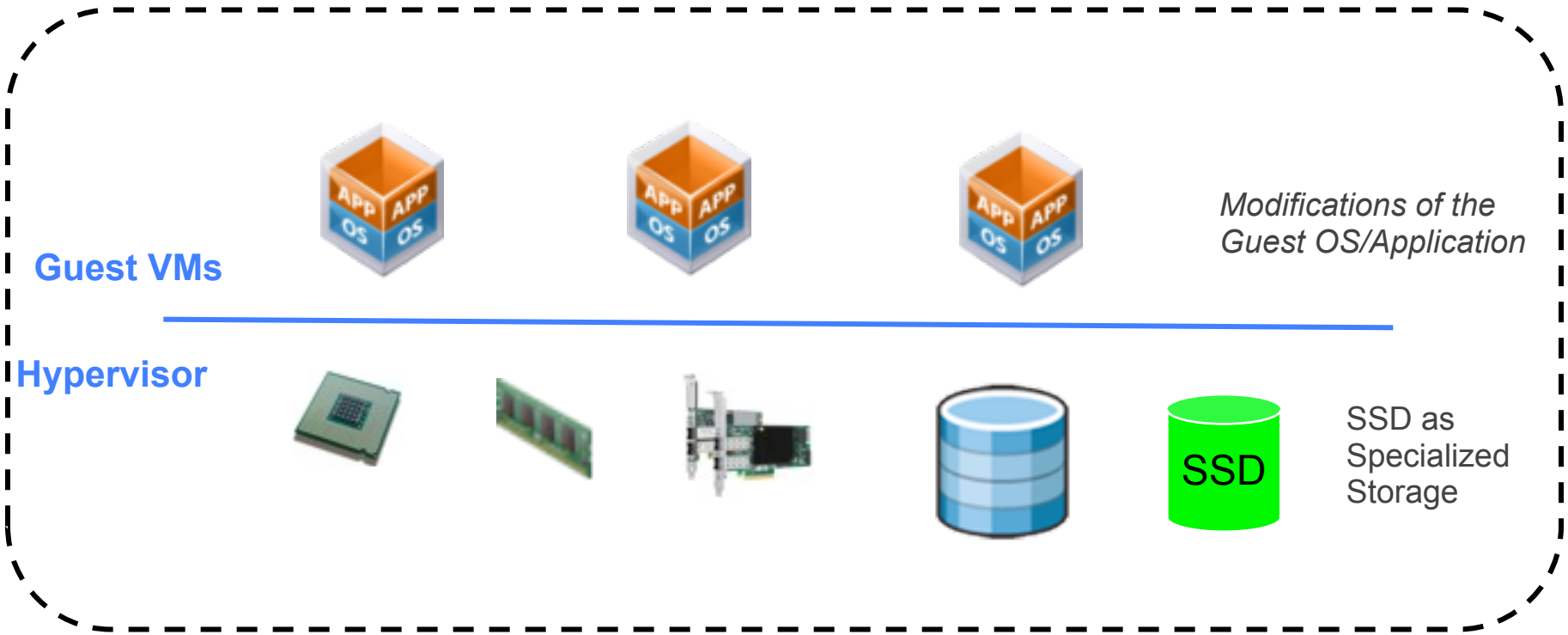
Flash in a Virtualized Environment



Paravirtualization Approach



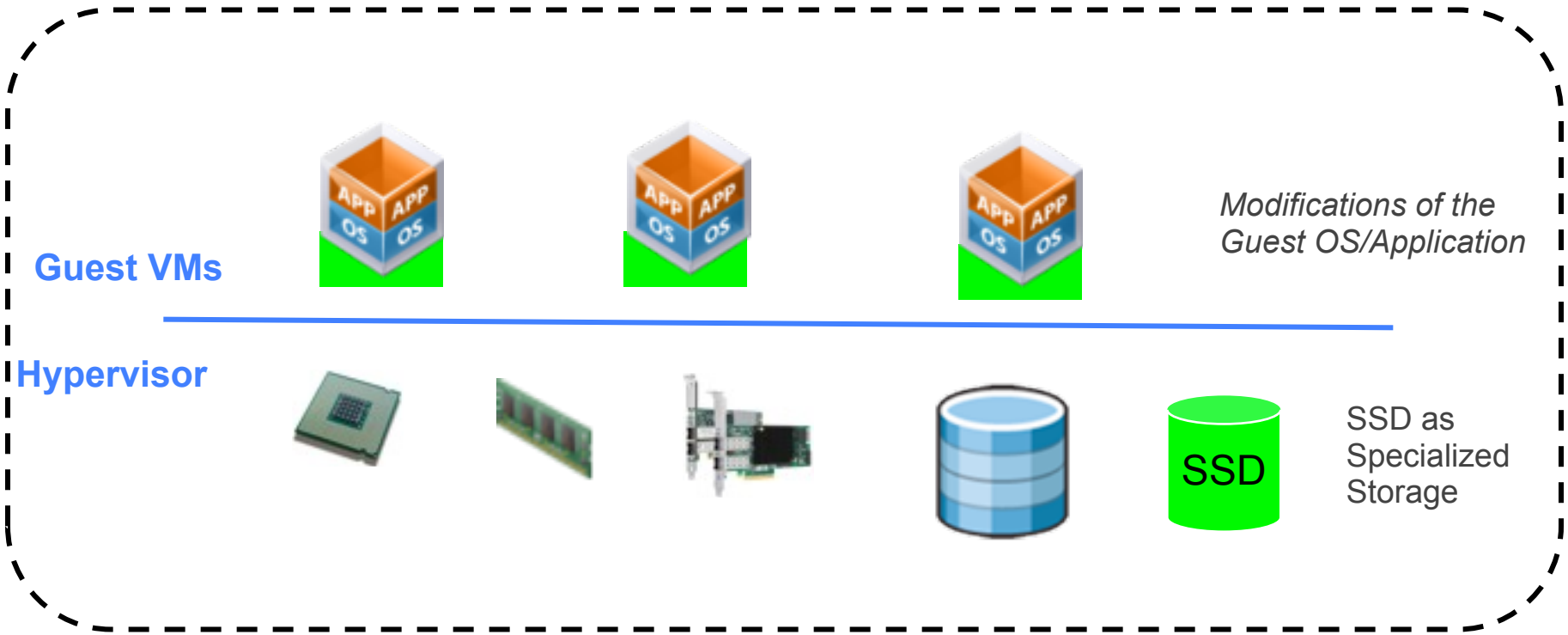
Flash in a Virtualized Environment



Paravirtualization Approach



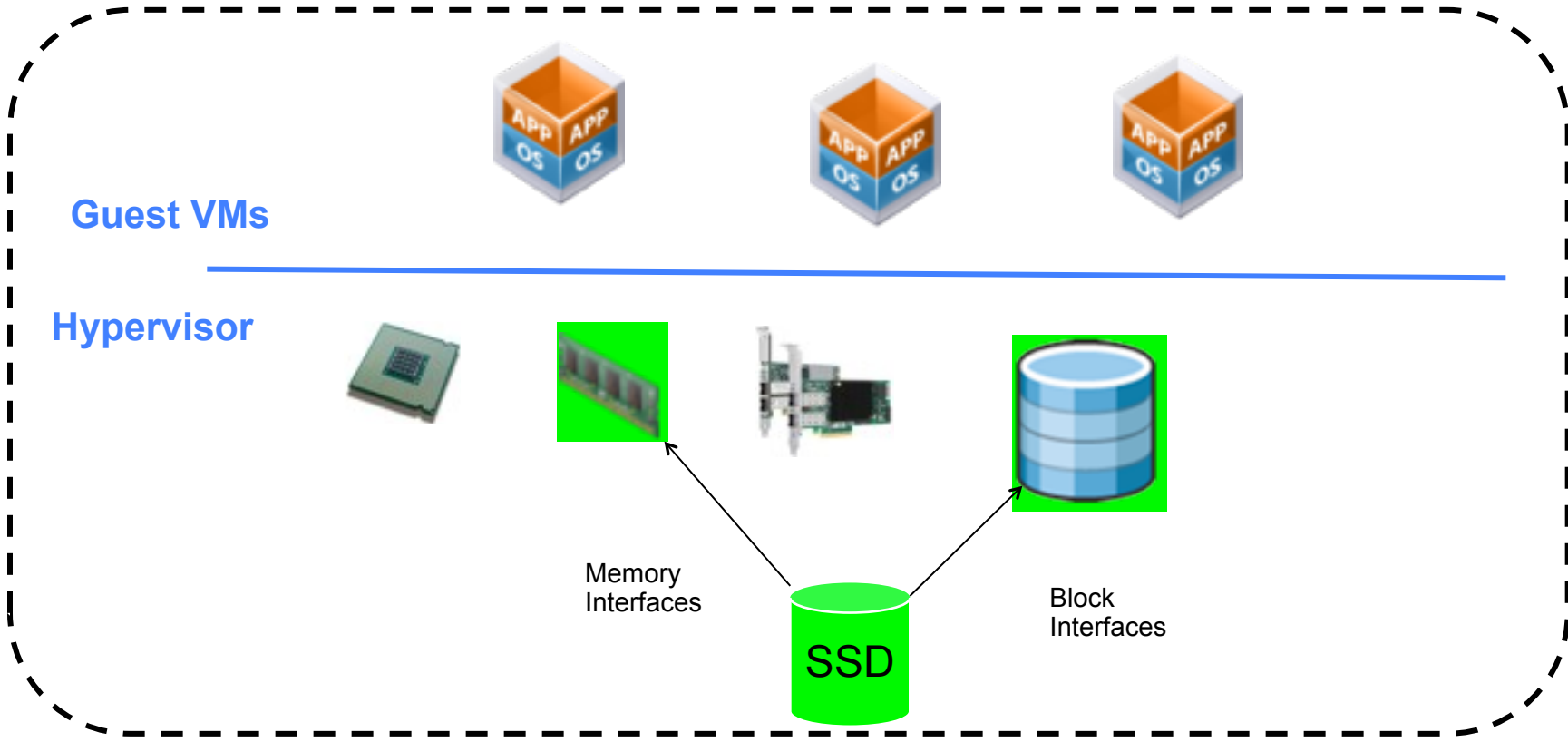
Flash in a Virtualized Environment



Paravirtualization Approach



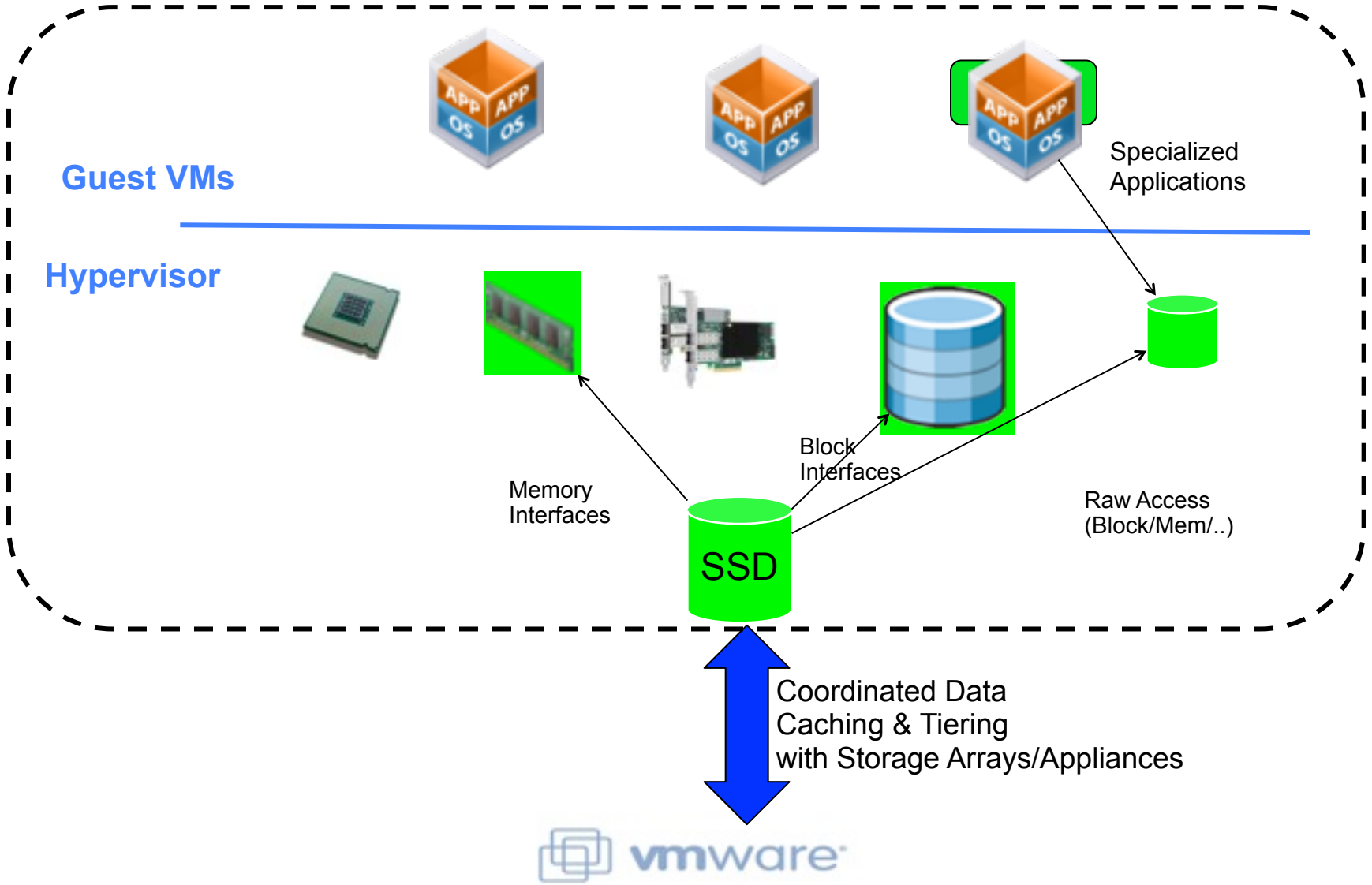
Flash in a Virtualized Environment



Transparent Virtualization



Holistic Datacenter View





Questions?

