Memory Virtualization with Open Fabrics

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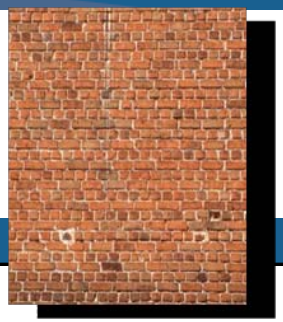
RNA networks

Virtualization  Performance

OPENFABRICS ALLIANCE

Storage Virtualization → NetApp, EMC² where information lives

Server Virtualization → vmware, CITRIX, Xen

I/O Virtualization → xsigo systems, cisco

Memory Virtualization → RNA networks

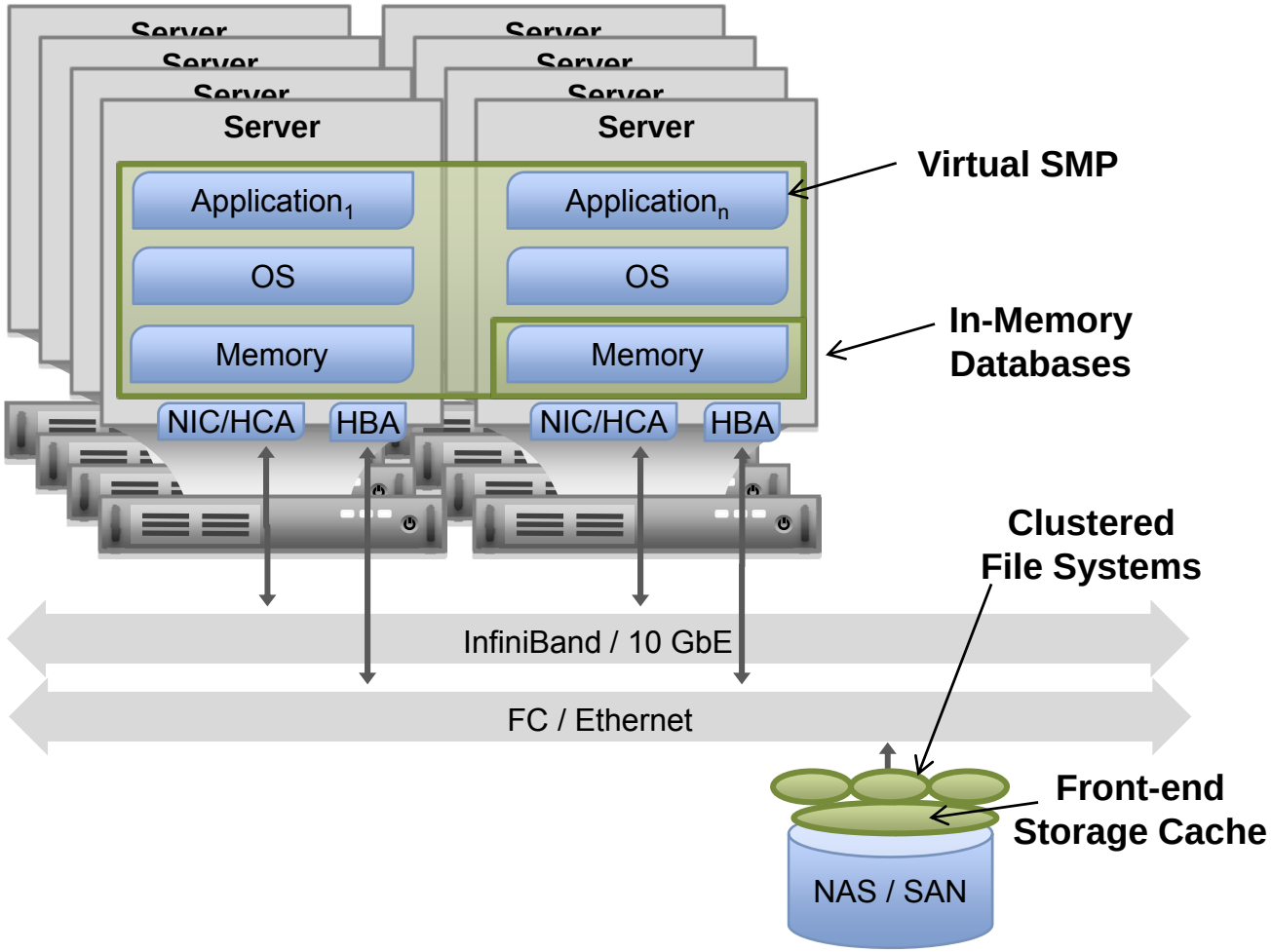
Motivation for Change

- Exponential Increases in Data Sets

- Shared Data
- Overprovisioning
  - Storage, Memory…

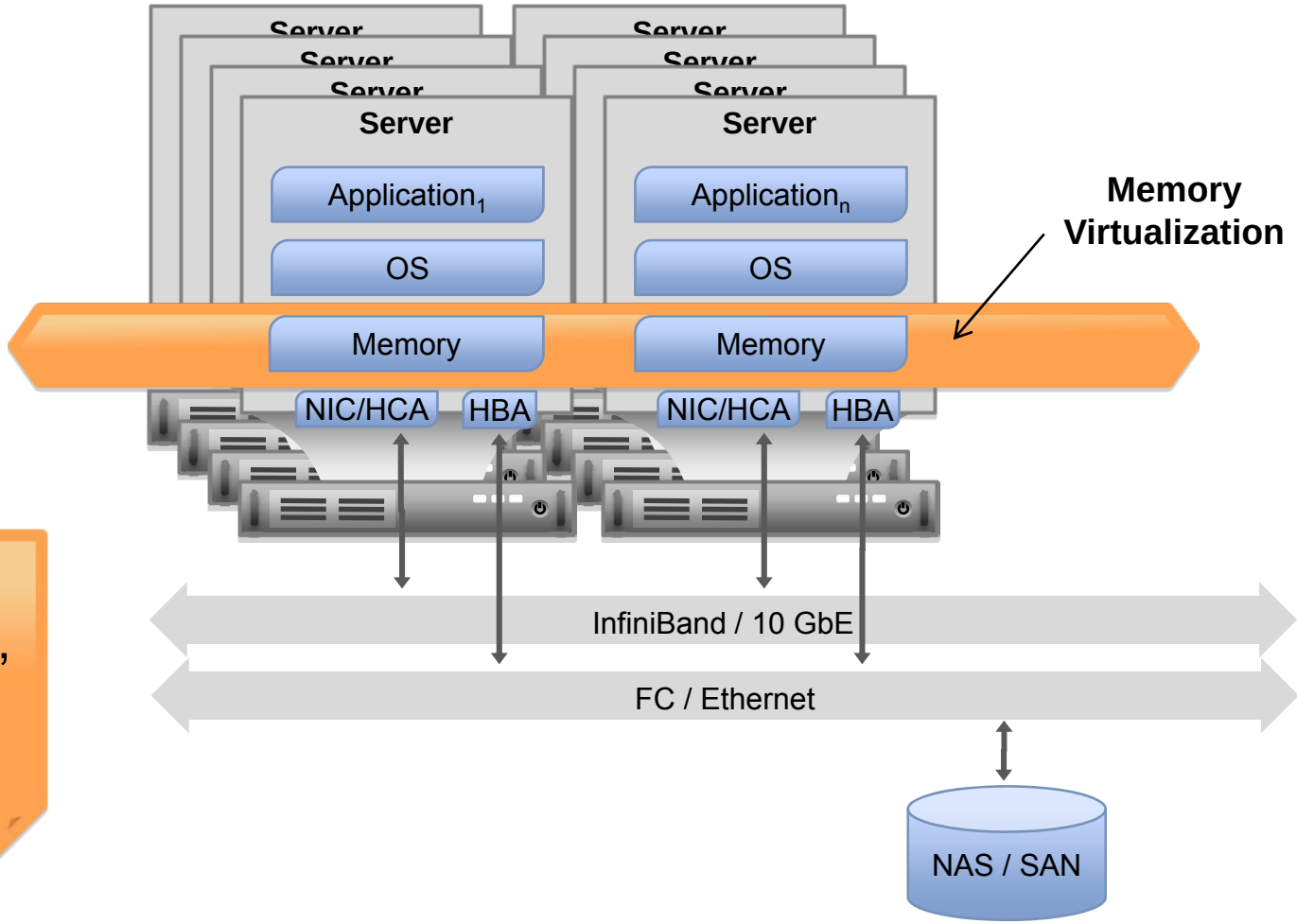
- Low Latency Communication

Memory-Related Solutions



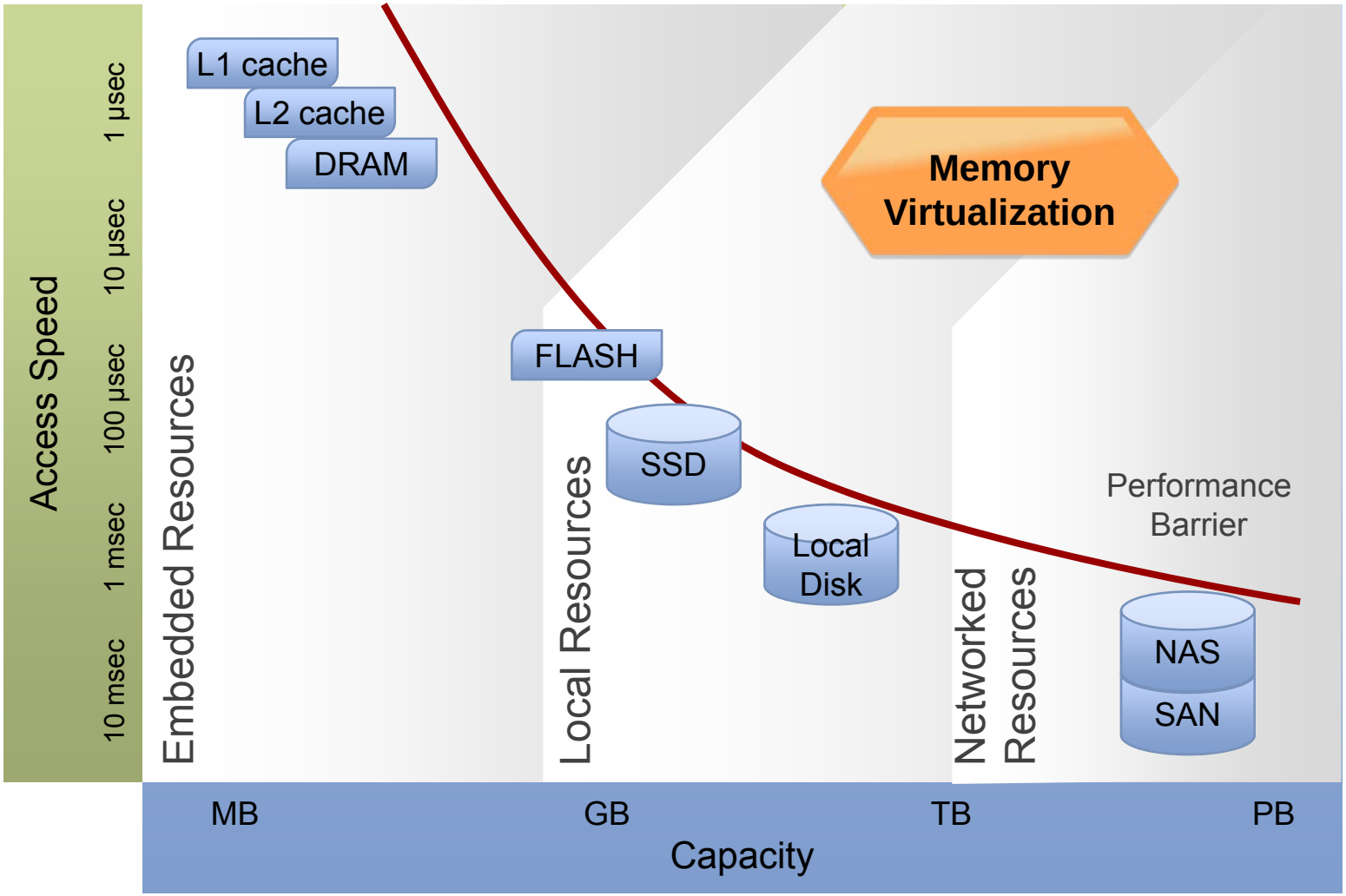
Solving Specific Needs

Memory Virtualization



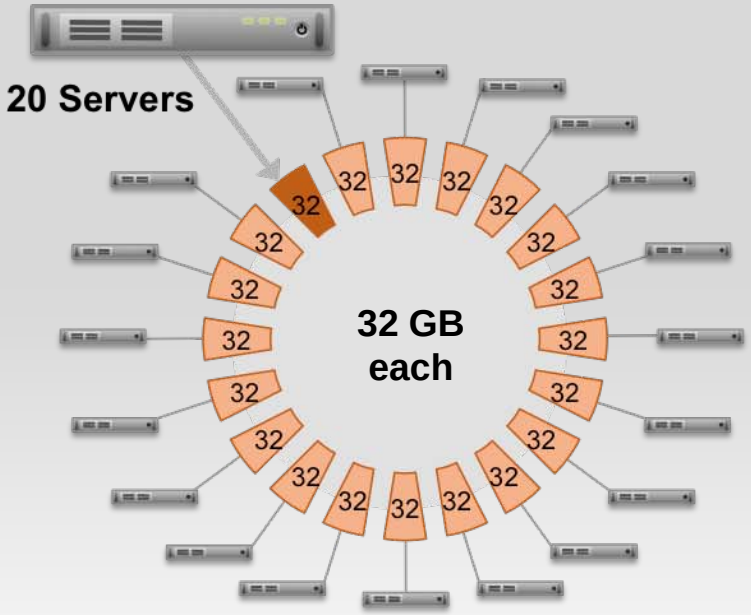
Scalable, Simple

Break the Performance Barrier



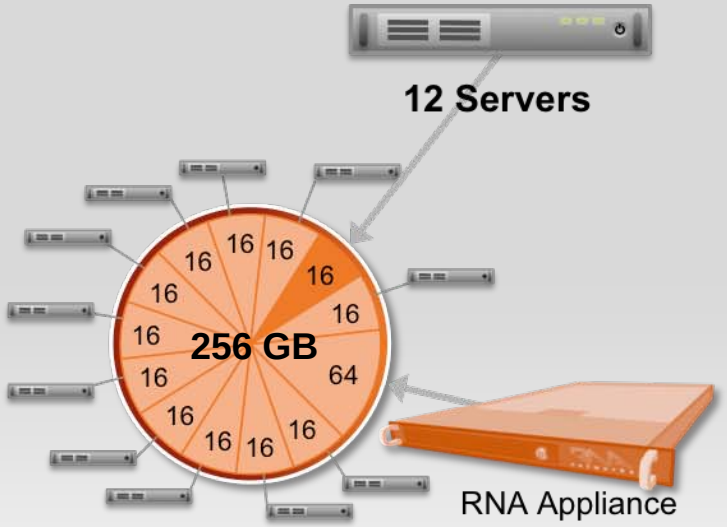
Efficient

Isolated Memory



- **32 GB** accessible / node
- **640 GB** Total

Memory Virtualization



- **Up to 256 GB** accessible / node
- Lowers power consumption

Scalable

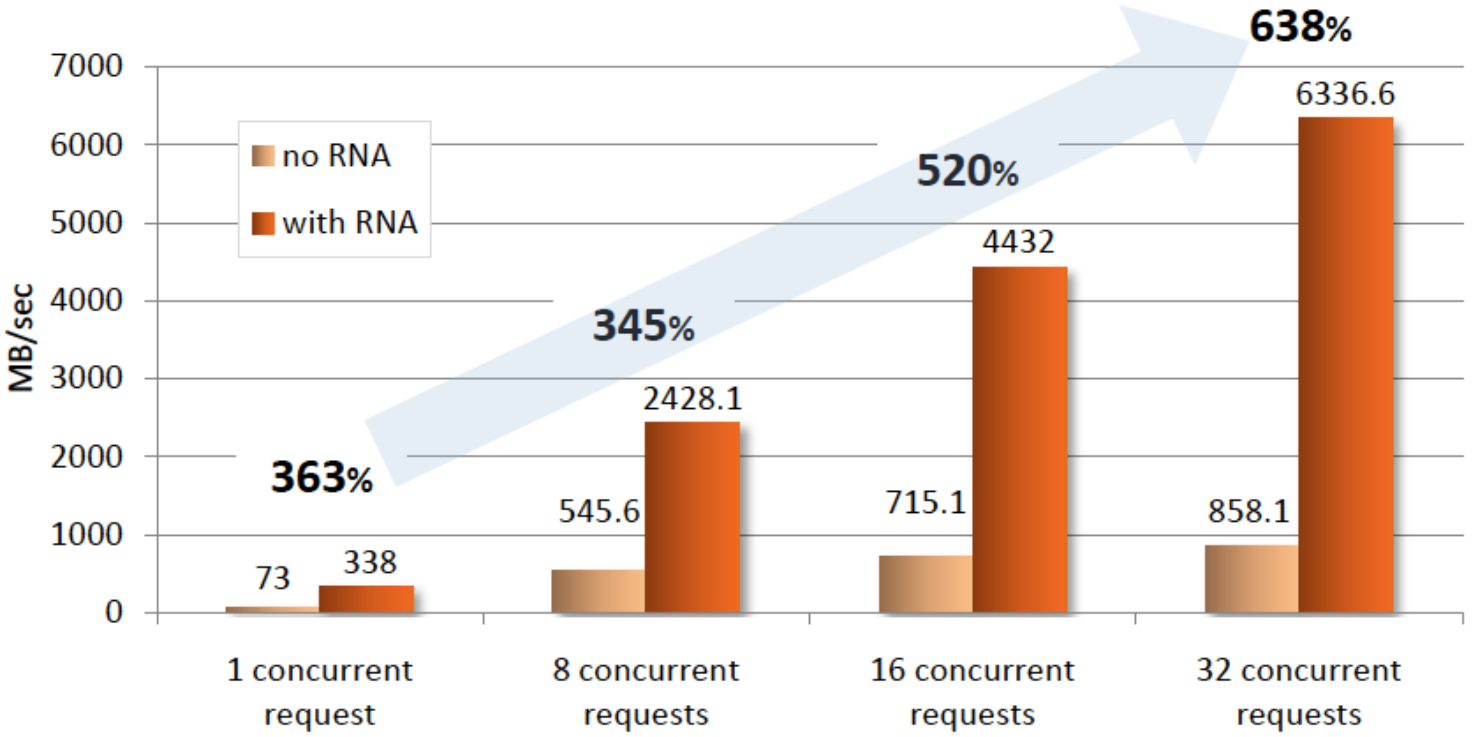
- Scales dynamically
  - Up to 500+ nodes
  - Up to 10 TB+ memory pool capacity
- Performance Scaling
  - Add existing nodes for more bandwidth
  - Add appliances to create ‘memory cluster’

Simple

- No application changes
  - Supports monolithic or parallel apps
- No storage changes
  - Works with existing file system
- No OS changes
  - Simple kernel driver

Results

- Application Performance Improves with Scale



* Benchmark for I/O access with large datasets using IOZone

Summary

- Order-of-magnitude increase in application performance
- No changes to existing cluster
- Improved resource efficiency

A New Way to Take Advantage of Open Fabrics