



The Benefits of Flash Storage for Virtualized Environments

Virtual infrastructure has become the mainstream deployment model in enterprise IT today.

OVER 77%

of all enterprises have a “virtual first” strategy for new server deployment.

84.9%

Percentage of all x86 workloads to be virtualized by 2019



IDC Survey

82%

of enterprises had greater than 50% of their storage attached to virtual machines.

Key storage challenges in virtual environments:

On a 5 point scale, enterprises identify their most pressing storage challenges.

4.0
Managing data growth

3.9
Increasing performance

3.9
Meeting availability requirements

3.9
Meeting agility requirements



Spinning disks are challenged in virtual environments.

Server consolidation makes it difficult for spinning disks to provide predictable performance. Performance complaints drive admins to spend a lot of time tuning performance.



High HDD latencies preclude the use of in-line storage efficiency technologies to help manage data growth.

I/O stream is extremely random, slowing spinning disks even more.

Throughput requirements of densely consolidated workloads require hundreds to thousands of spinning disks:

Hard to manage, high energy and floor space needs

Flash is essential for virtual computing.

Managing Data Growth



- Storage infrastructure scale
- In-line data reduction (4:1 to 6:1 on average)
- Focus on effective not raw capacity

Increasing Performance



- Hundreds of thousands to millions of IOPS
- Consistent performance to meet sub millisecond SLAs

Availability And Reliability



- Data protection with high performance
- Rapid data movement for fast recovery
- SSDs have higher reliability than HDDs

Agility And Lower Cost



- Bring new VMs up almost instantly
- Performant storage efficiency technologies



Robust growth is forecasted for the All-Flash Array (AFA) market.

I/O workloads generated by densely consolidated virtual infrastructure cannot be cost-effectively met with spinning disks, driving a meteoric rise in the AFA market.

AFAs grow to a **\$5B MARKET** by 2019 taking over an estimated **67.2%** of the primary external storage market.



100%

of enterprises currently using AFAs want to move more workloads to them over time

80%

of enterprises are bullish about the “all-flash data center for primary storage”

8%

of enterprises are committed to having an all-flash data center for primary storage