ESG Lab Validation Report Preview	**Fusion ioVDI**

High-performance Virtual Desktops with Stateless Cost Efficiency

Fusion ioVDI is a desktop virtualization solution designed to accelerate virtual desktops with server-side flash while seamlessly integrating into any DAS, SAN, or NAS environment. ioVDI Software and Fusion ioMemory deliver desktop performance from server-side flash with the ability to leverage VAAI (with compliant storage) to provide both persistent and stateless desktop capacity and data protection. This report summarizes ESG Lab testing and validation of the Fusion ioVDI solution and previews the results that will be shared in detail in an upcoming ESG Lab Validation report.

Full report coming soon:
http://www.fusionio.com/solutions/vdi/

The Product

Fusion ioVDI can be deployed with well-known qualified servers from Cisco, Dell, HP, IBM, Supermicro, and others. ioVDI complements VAAI-compliant shared storage to optimize SAN/NAS investments and supports all VMware mobility features including vMotion, DRS, HA, and SRM as well as VMware snapshots. Virtual desktops are managed and configured using VMware Horizon View and vCenter.

Fusion ioVDI utilizes a number of advanced technologies to optimize performance using low cost infrastructure. Write vectoring intelligently directs transient desktop writes to server-side flash while persistent desktop writes are directed to shared storage. Write vectoring recognizes the existence of transient desktop writes that never need persistence, including page file I/O, temporary files, and browser temp data. Essential desktop writes such as auto-saves and user data updates are directed as expected to shared storage for protection and HA. Transparent file sharing provides inline, file-level deduplication of all desktop data hosted on a server so that partial or complete common files can be simultaneously accessed by hundreds of virtual desktops. Dynamic flash reallocation optimizes flash performance across desktops during migration events.
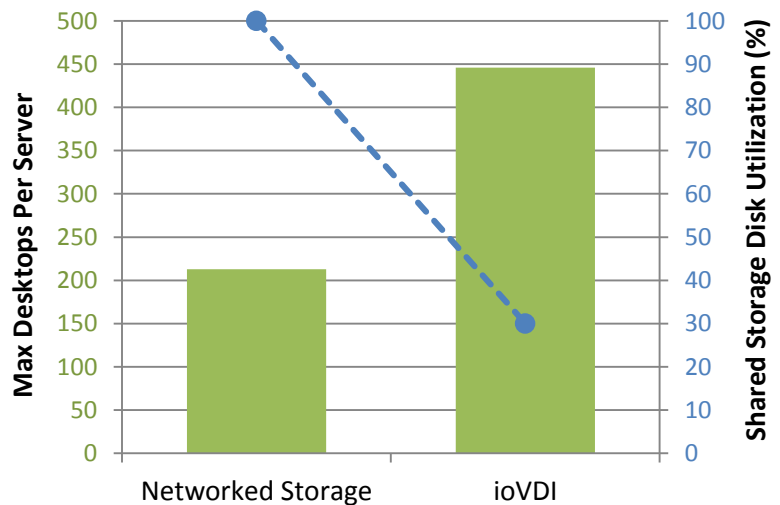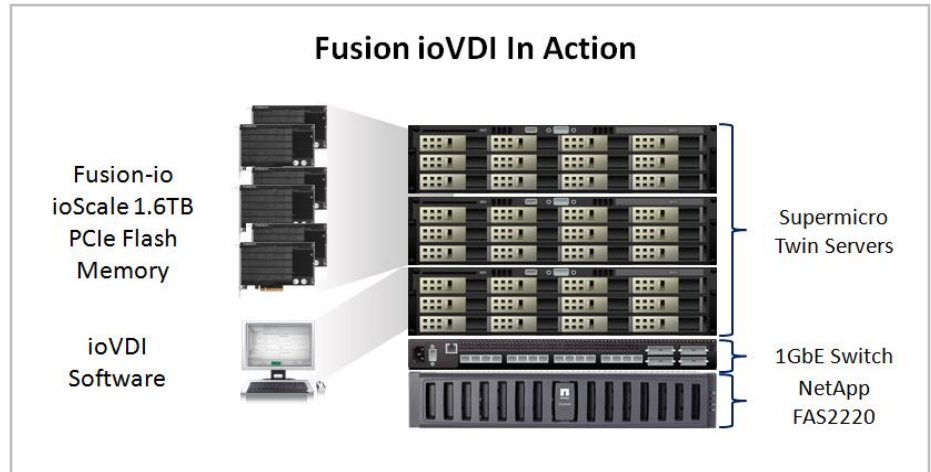
Why This Matters

In a recent ESG research survey, 41% of respondents called out providing a consistent computing experience for remote and mobile users as a challenge with endpoint devices. Among organizations that have deployed desktop virtualization, poor performance was cited as a top challenge with their environment. Virtual desktop environments can hammer an infrastructure with I/O that is generally random, constantly shifting, and often write intensive.

ESG Lab validated that Fusion ioVDI delivered outstanding persistent desktop performance with stateless desktop economics. With a workload simulating 1,000 heavy virtual desktop users, we measured response times in microseconds, a reduction in disk utilization averaging more than 70%, and fast, consistent boot times averaging less than ten seconds under full load. All of these tests were executed on an almost absurdly economical test bed, with industry standard servers from Supermicro, entry-level storage from NetApp, and a commodity 1Gb network switch.

ESG Lab Validation Highlights

ESG Lab is in the process of performing hands-on evaluation and testing of ioVDI at the Fusion-io Silicon Valley offices in San Jose, California. The following is a summary of the results observed so far:

- ESG Lab observed excellent performance in a 1,000 seat virtual desktop environment built using low-end commodity NFS storage over legacy 1Gb Ethernet.
- ESG Lab observed fast, consistent boot times under full load of 8-12 seconds, while running 1,000 desktops.
- Tens of thousands of IOPS were being serviced by ioVDI with reads and transient writes serviced by server-side flash.
- Fusion ioVDI provided consistent, predictable response times of less than 200 microseconds as measured with Login VSI over multi-hour test runs. A Windows 7 desktop accessed from an iPad was extremely responsive.

Fusion ioVDI In Action

Fusion-io
ioScale 1.6TB
PCIe Flash
Memory

ioVDI
Software

Supermicro
Twin Servers

1GbE Switch
NetApp
FAS2220

- Using online sources for pricing of the components used in the test bed, ESG lab confirmed that virtual desktop infrastructure could be provided at a cost of less than $125 per desktop.
- ESG Lab observed a significant increase in maximum desktop density with ioVDI.
- Back-end storage traffic was reduced by 90% overall, measured at the disk, with 60% of write traffic offloaded from back-end storage.
- Boot times and desktop responsiveness were observed to be faster than an SSD-equipped laptop.

Issues to Consider

While Fusion ioVDI can significantly reduce server, storage, and network costs, organizations will still have to consider the costs of both virtual desktop software and client operating system licensing.

The Bigger Truth

Today's virtual desktop solutions tend to force users into one of two camps: cost-effective server-side solutions, which are limited to stateless desktops, or storage-side solutions, which are designed to deliver the performance and availability required for persistent desktops but are only really cost-effective at a very large scale.

Fusion ioVDI bridges this gap with an approach blending software and hardware that delivers virtually all IOPS performance from server-side flash while retaining SAN integration for highly available capacity and virtual machine mobility. Fusion ioVDI delivers the persistence, performance, and HA of storage-side solutions with the cost-effectiveness and simple deployment model inherent in server-side solutions.

ESG Lab experienced the benefits of ioVDI first hand. Using an external keyboard, the user experience of a virtual Windows 7 desktop accessed from an iPad was crisp and responsive, with no noticeable difference from that of a physical laptop.

Fusion ioVDI delivers outstanding performance where it matters for the desktop user experience. ESG Lab saw fast boot times for 1,000 users under load, predictable performance over time with very little variability, and linear performance scaling with practical starting and scaling increments.

Full report coming soon:
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