



Virtual Desktop Infrastructure Service



AIMS Virtual Desktop Service

A desktop that follows you from place to place and device to device

- Access your desktop from anywhere with Internet service
- Use the device you prefer
- Fast deployment and improved support
- Persistent Workspace
- Current: 10% of AIMS supported desktops virtualized
- Planned: Over half of AIMS desktops virtualized



Virtual Desktop Service Drivers

- Cost ??
- Energy/Waste Reduction
- Fully Managed Service
- Security
- BYOD



VDI Keys to Success

- User Experience
 - Personalization
 - Training
 - Storage
 - Network
- Realistic Savings Expectations



AIMS VDI Deployment

INFRASTRUCTURE:

- Dell rack-mounted servers;
- Tintri storage device
- VMWare Horizon + Unidesk

CLIENTS:

- Workstation running Windows 7 Thin PC + View Client
- Zero Client
- Thin Client Running WYSE OS

VDI - Storage

Most Important Component!

- Primary driver of user's experience
- IOPS!!! Must handle utilization peaks
 - Boot Storms
 - Anti-virus scans
- Performance achieved via SSDs + Custom File System
- Up to 70% Write Requests vs 10% for Server
- Typically the highest cost component
- AIMS chose Tintri



VDI - Storage

Why Tintri?

- Best “bang for the buck” at the time
- Presents as NFS mounted storage
- Optimized for VMWare
 - VM and vDisk auto alignment
- Thin Provisioning
- Deduplication and Compression
- User Interface supporting device, per-VM and per-vDisk monitoring and management

VMstore performance [view trends](#)

IOPS	Throughput	Latency	Flash hit ratio
624 IOPS 407 - 13,766	6.0 MBps 0.9 - 269	0.7 ms 0.8 ms	100%

Performance reserves

62% free



38% used

Physical space

7.9 TiB free



4.4 TiB used

Performance reserves changers

AIMSWK-CHEREKK	0.1 %	▲ 0.1
AIMS-Reference	0.4 %	▲ 0.1
AIMSWK-ROGERSD	0.08 %	▲ 0.08
AIMSWK-LaGrewJ	0.08 %	▲ 0.08
AIMSWK-WINGERS2	0.06 %	▲ 0.06
AIMSWK-BRADLEYW	0.06 %	▲ 0.06
AIMSWK-WINGERS	0.05 %	▲ 0.05
AIMSWK-LohrentJ	0.2 %	▲ 0.05
AIMSWK-Cuffs	0.04 %	▲ 0.04
AIMSWK-CHANCEL	0.04 %	▲ 0.04

[view all 214 virtual machines](#)

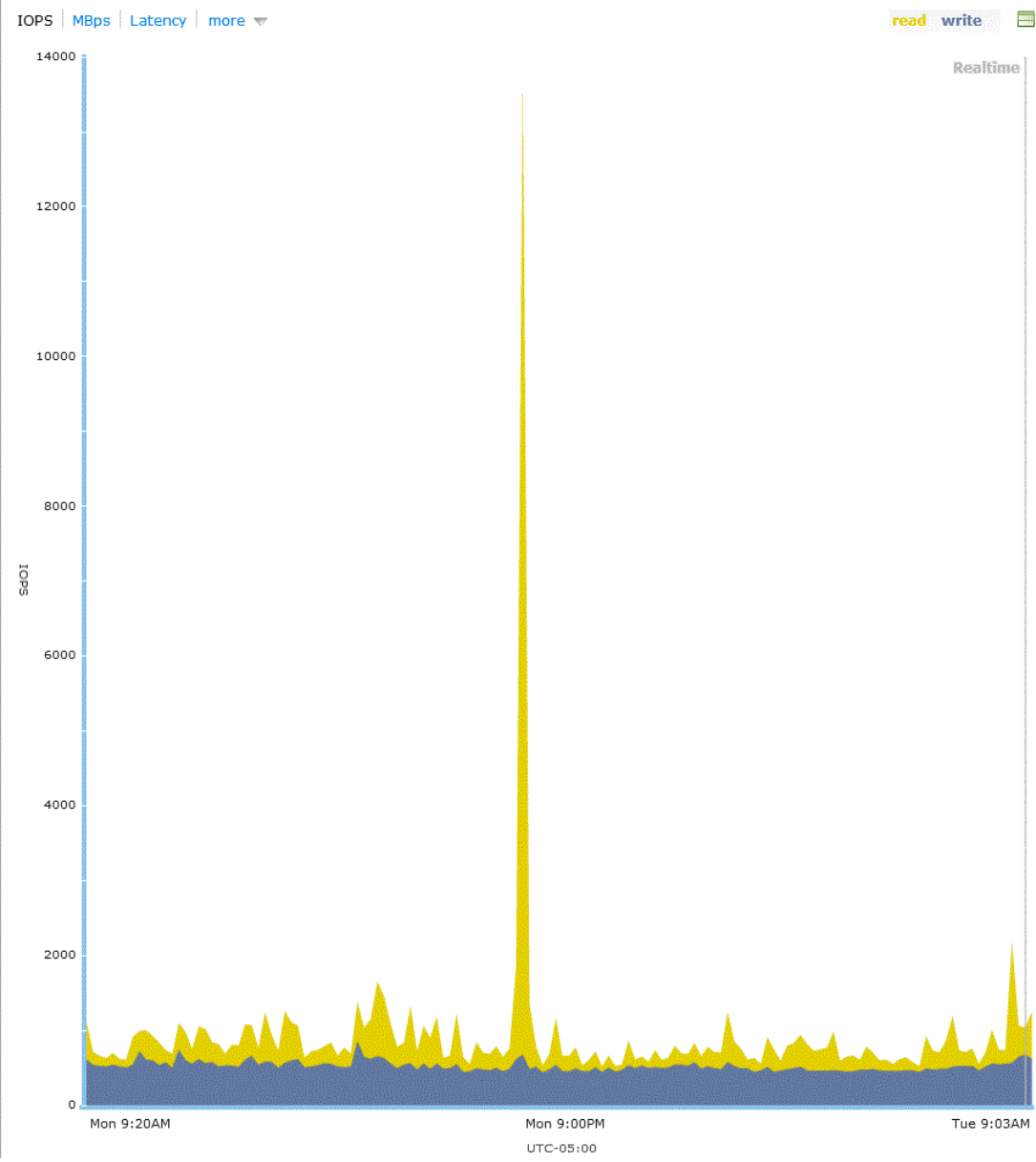
Space changers

AIMSWK-CHANCEL	14.9 GiB	▲ 14.9
AIMSWK-CHEREKK	7.6 GiB	▲ 7.6
AIMSWK-ROGERSD	7.6 GiB	▲ 7.6
AIMSWK-BRADLEYW	6.9 GiB	▲ 6.9
AIMSWK-LaGrewJ	7.1 GiB	▲ 6.7
AIMSWK-SangerD	5.9 GiB	▲ 5.9
AIMSWK-WINGERS	6.1 GiB	▲ 5.6
AIMSWK-WINGERS2	6.1 GiB	▲ 4.5
AIMSWK-GabrusG	4.4 GiB	▲ 4.4
AIMSWK-HenrichA	4.1 GiB	▲ 4.1

[view all 214 virtual machines](#)



VM	IOPS	MBps	Latency ms	Provisioned GiB	Used GiB	Change MB/day
AIMSWK-CHEREKK	18	0.2		0.9	456	7.6
AIMSWK-CHILDSR	0	0.01		0.0	256	11.2
AIMSWK-CHRISTIJ	0	0.01		0.0	256	11.7
AIMSWK-CoatesN	0	0.01		0.0	276	29.3
AIMSWK-ColemanJ	0	0.01		0.0	256	10.4
AIMSWK-COOKS	9	0.05		0.4	256	9.4
AIMSWK-Cuffs	0	0.01		0.0	336	4.5
AIMSWK-DELANGL	0	0.01		0.0	256	10.0
AIMSWK-DhondupD	0	0.01		0.0	256	8.3
AIMSWK-ESQUIVED	1	0.01		0.0	256	12.5
AIMSWK-EVANSR	2	0.01		0.0	256	11.1
AIMSWK-F	0	0.0		0.0	223	2.9
AIMSWK-FAITHS	0	0.01		0.0	266	14.3
AIMSWK-FASSJ1	0	0.01		0.0	266	12.9
AIMSWK-FINGERSD	0	0.01		0.0	256	11.1
AIMSWK-FryW	8	0.3		0.6	336	23.5
AIMSWK-GabrusG	0	0.01		0.0	393	4.4
AIMSWK-GarciaL	0	0.01		0.0	323	3.2
AIMSWK-GerberS	5	0.03		0.4	266	10.0
AIMSWK-GILLKK	17	0.2		0.6	326	25.0
AIMSWK-Halla	0	0.01		0.0	256	9.1
AIMSWK-HANSBROA	12	0.2		1.0	384	30.3
AIMSWK-HARVEYT	0	0.01		0.0	333	4.0
AIMSWK-HEITZS	4	0.04		0.4	356	24.9
AIMSWK-HenrichA	0	0.01		0.0	353	4.1
AIMSWK-Herfell	0	0.01		0.0	306	10.9
AIMSWK-ImhoffM	1	0.01		0.0	266	12.3
AIMSWK-JIMENEZA	10	0.06		0.4	256	14.0
AIMSWK-JohnsonD	11	0.07		0.4	326	11.8
AIMSWK-JOHNSONM	1	0.01		0.0	306	18.5



Contributors on

- [AIMS-UCPT-02/UnideskLayers/App/Reader/P1a9c31ce0000051.B0.R9.V0.vmdk](#) 5,198 IOPS
- [AIMS-UCPT-01/UnideskLayers/App/Reader/P1a9c31ce0000051.B0.R9.V0.vmdk](#) 3,410 IOPS
- [AIMS-M-UCPT-02/UnideskLayers/App/Reader/P1a9c31ce0000051.B0.R9.V0.vmdk](#) 1,200 IOPS
- [AIMS-UCPT-02/UnideskLayers/App/SEP-12-1-4100-4126/P1a9c31ce00000357.B0.R1.V0.vmdk](#) 389 IOPS
- [AIMS-UCPT-01/UnideskLayers/App/SEP-12-1-4100-4126/P1a9c31ce00000357.B0.R1.V0.vmdk](#) 287 IOPS
- [AIMSWK-GabrusG](#) 210 IOPS
- [AIMSWK-Halla](#) 178 IOPS
- [AIMS-M-UCPT-02/UnideskLayers/App/Reader-DC/P1a9c31ce028b5442.B0.R2.V0.vmdk](#) 143 IOPS
- [AIMS-M-UCPT-02/UnideskLayers/App/SEP-12-1-4100-4126/P1a9c31ce00000357.B0.R1.V0.vmdk](#) 129 IOPS
- [AIMSWK-ROGERSD](#) 93 IOPS



AIMS VDI - Unidesk

Why Unidesk?

- OS Layers & App Layers
 - Merge with Personalization Layer
 - Reduces disk usage by 70%
 - Reduces number of “gold images”
 - Reduces application management time
 - Easier-to-use Management Interface
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AIMS VDI - Network

VDI Networking

- Knowledgeable Techs!!!
- High Bandwidth, High Reliability in Datacenter
- Put desktop close to data
- Ubiquity of Internet



AIMS VDI – Access

CLIENTS:

- Workstation running Windows 7 Thin PC + View Client
- Zero Client
- Thin Client Running WYSE OS
- Other Devices...

AIMS VDI - Unidesk

Desktops:

- “Persistent”
- Windows 7
- Fully Managed/Supported
 - 100% Patching Compliance Rate
- Accessible from anywhere that has Internet



VDI - Trends

- Storage Solutions
- Personalization
- Application Delivery
- Multi-media Support
- Mobility/BYOD
- Desktop As A Service (DAAS)



Questions?