




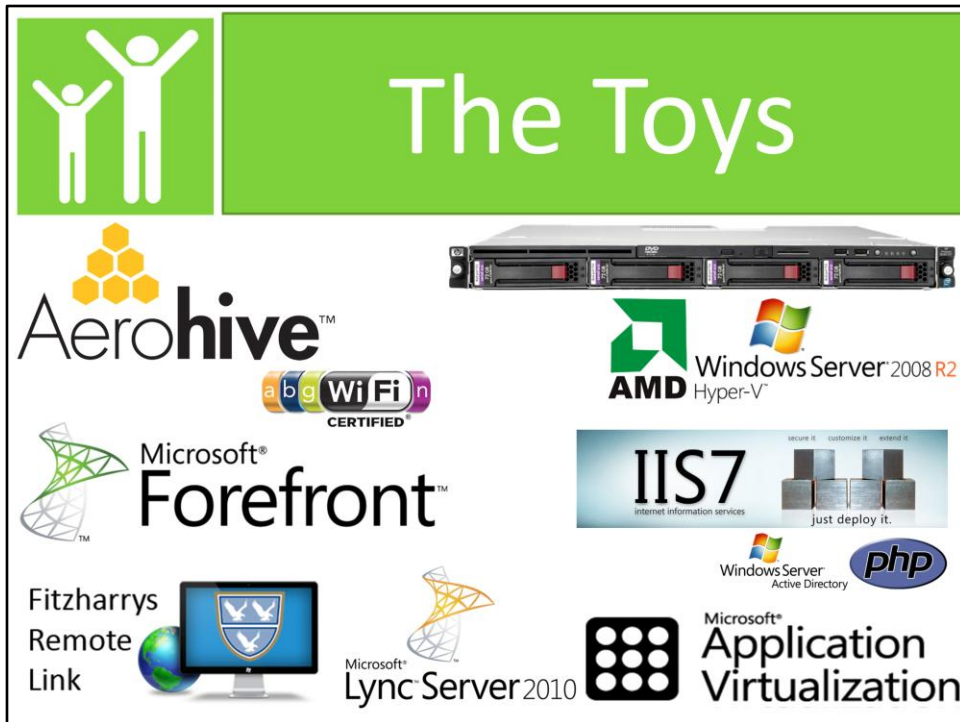


Welcome  
Edugeek  
What brought us to VDI  
How the deployment went  
What we are running  
How does SSD fit in?  
Questions at the end

	<h1>A little about Fitzharrys</h1>		
	800 Students 90 Staff	~250 supported user devices	
	Windows Server 2008 R2	Mix of XP and 7	

Includes support/teaching  
Teacher Notebooks, Support Desktops, Student Kit  
Windows Server 2008 R2 – investigating Server 8  
7 on staff, XP on student



Wireless – game changer if done right (Flexibility) - ~150 students signed up for personal use

HP/AMD Servers – Standard


Forefront TMG, Web filtering, Firewall

IIS hosted internal services (Room Booking, PO system, intranet, SharePoint)



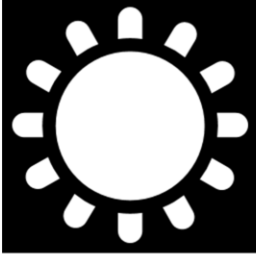
Remote Link – VPN (mention HAP)

Lync 2010 – IM,VoIP

App-V – very important

 What brought us to VDI?

The 3 Ls.....

 Low Power Consumption	 Low Noise	 Low (well almost no) Heat
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What attracted us?


**Low Power** – 100W PC vs 12W thin client – factor in server

**Low Noise** – well that's no noise in the classroom (other than keyboards)

**Low Heat** – student + PC + summer + no air con? Thin clients solve that

# What brought us to VDI?

## The 3 Es.....

		
Easier to fault fix	Easier to manage	Easier to update

**Fault fixing** – delete/refresh desktop (Virus/Application issue/just not working)  
same applies to thin client – take it out of action, put a replacement in point at server,  
less than 5 mins downtime

**Easier to manage** – completely locked down – do equivalent of refresh every night,  
just one golden image to manage (no hardware specifics)

**Easier to update** – Windows 7 migration within 30 mins, deploy new software within  
30 mins



Back in 2010

What we looked into first

Talking to account manager pointed in direction of Kaviza (now VDI-in-a-Box)

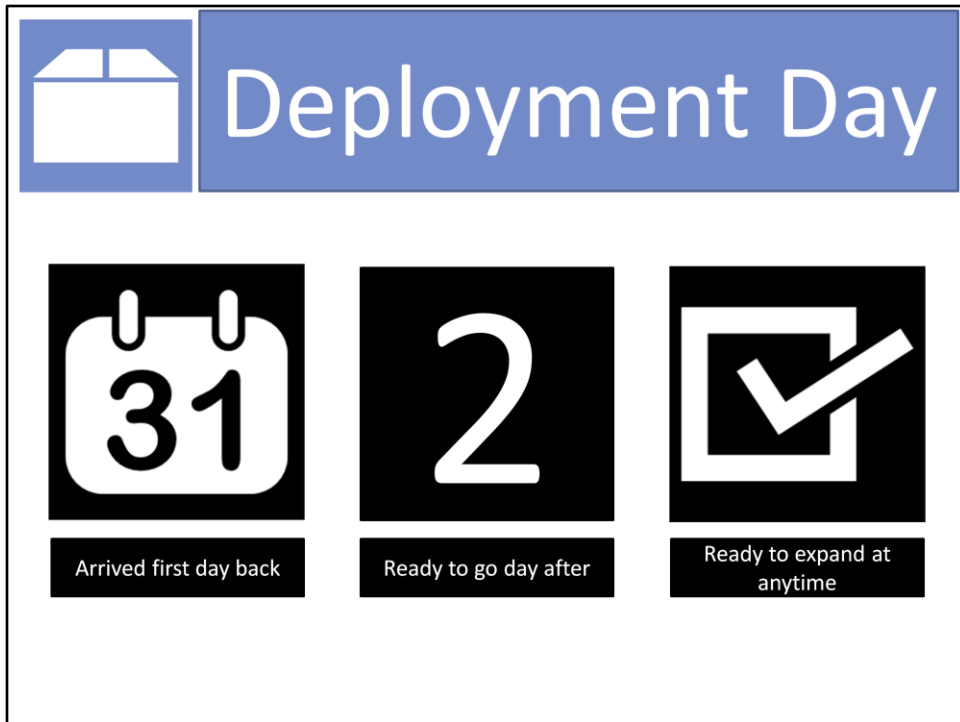
Download trial off of website

Put on testing PC (my PC!) – try it out on SSD if you have one

Get 2x thin clients from 10zig

Do some thinking

Deploy!!



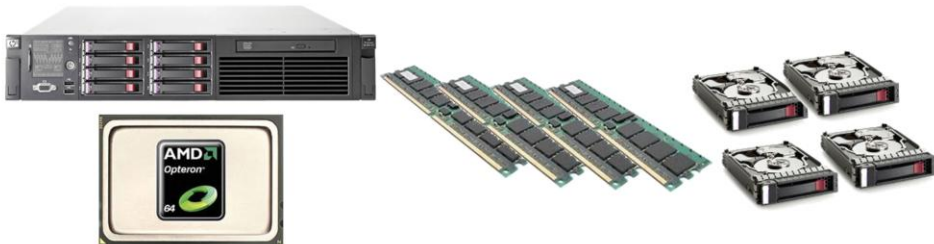
Arrived first day back in January

By end of day the next day we were setup and good to go

Ready to expand at anytime – just a matter of upgrading server/adding new server



# The Hardware



The beast

Original XenServer – Windows XP

Now Hyper-V – Windows 7

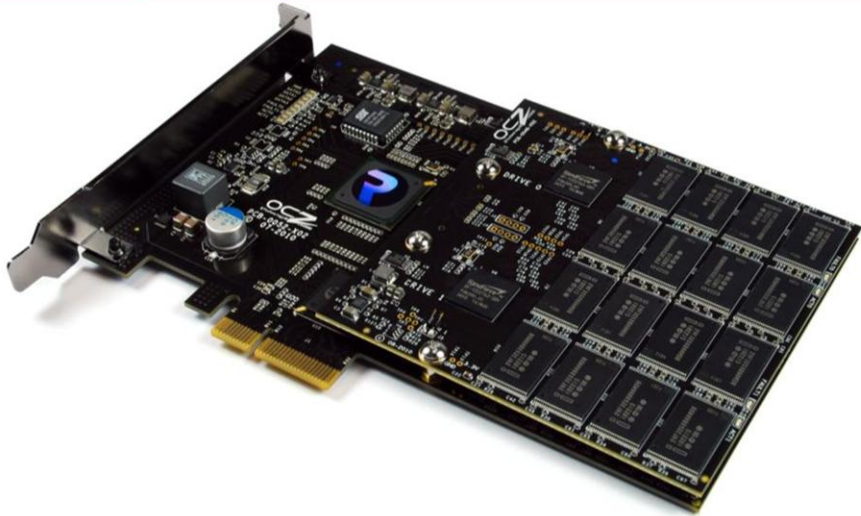
AMD 8 core HE processor (65W)

44GB RAM

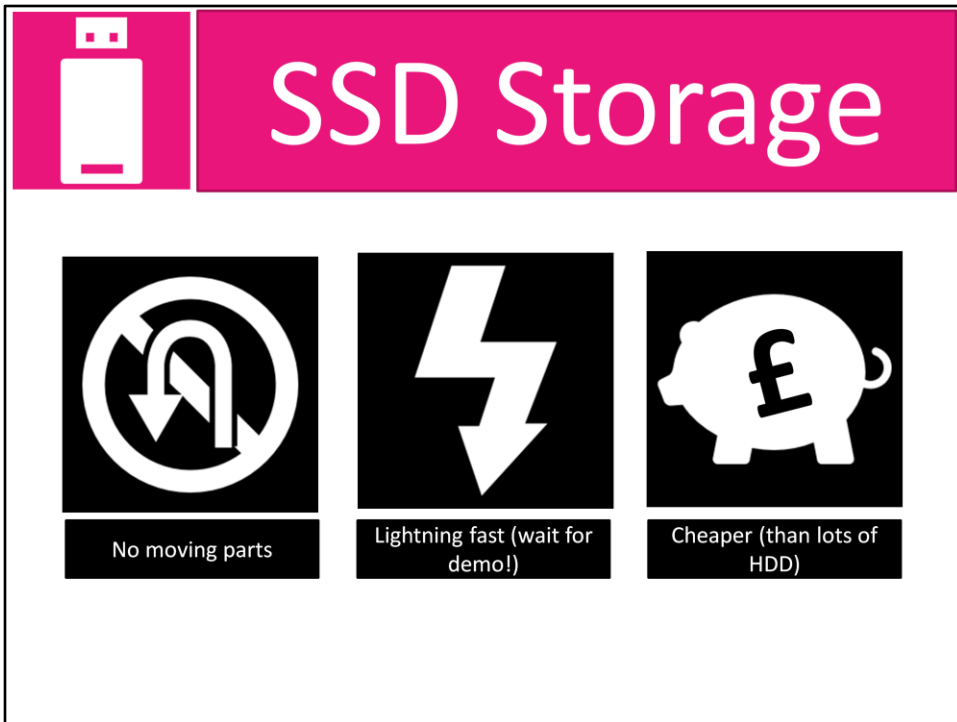
4x15k 72GB SAS HDDs – go for small capacity in large numbers



# Secret Sauce



OCZ RevoDrive 3 X2 240GB PCI-E SSD



The infographic is contained within a black-bordered box. At the top left is a white icon of a USB drive on a pink background. To its right, the text "SSD Storage" is written in white on a pink background. Below this are three black squares, each containing a white icon and a text label. The first square shows a circular arrow with a diagonal slash through it, labeled "No moving parts". The second square shows a lightning bolt, labeled "Lightning fast (wait for demo!)". The third square shows a piggy bank with a pound symbol (£) on its side, labeled "Cheaper (than lots of HDD)".

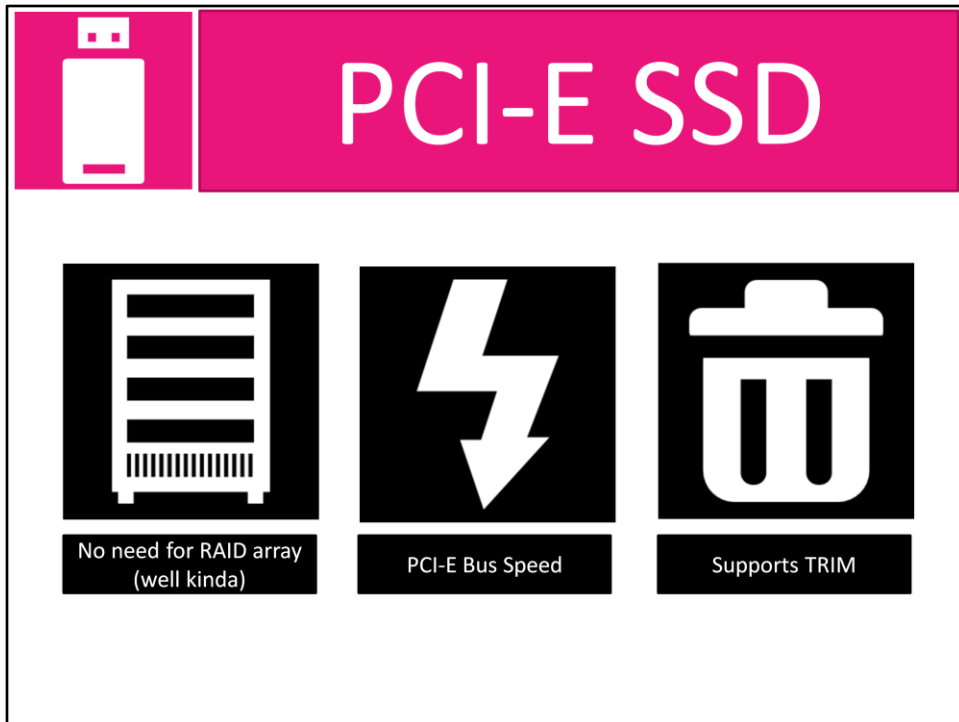
# SSD Storage

- No moving parts
- Lightning fast (wait for demo!)
- Cheaper (than lots of HDD)

**No moving parts** – Less potential to break would you enjoy spinning around at 15k?

**Lightning fast** – No seek times

**Cheaper** – Than a comparable amount of HDDs (even the £1,000 drives)



The graphic features a pink header with a white SSD icon on the left and the text "PCI-E SSD" in white on the right. Below the header are three black squares, each containing a white icon and a text label. The first square shows a RAID array icon with the text "No need for RAID array (well kinda)". The second square shows a lightning bolt icon with the text "PCI-E Bus Speed". The third square shows a trash can icon with the text "Supports TRIM".

**RAID** – RAID is done on the PCI-E card or through OS, no need for separate controller (like HP p410)

**PCI-E bus speed** – Right on the PCI-E bus, no controller needed and so much faster (than 2.5" SSD)

**TRIM** – Longer life as TRIM commands can't be passed through (most) RAID controllers – extends life of SSD

PCI-E SSD

The screenshot shows the Windows Resource Monitor for a remote desktop connection. The 'Disk' tab is active, displaying the following data:

Process	PID	Read (B/sec)	Write (B/sec)	Total (B/sec)
System	4	32,300,222	28,285,553	60,585,775
System Idle Processes	0	0	0	0
smss.exe	2408	796,437	2,408	799,125
svchost.exe	1516	179,543	0	179,543
svchost.exe	4360	26,060	4,722	31,782
System	0	6,521	0	6,521
perfmon.exe	3504	102	0	102
vdmConnectorService.exe	1404	90	0	90
svchost.exe (netbios)	934	42	0	42
taskmgr.exe	6376	34	0	34
svchost.exe	6376	34	0	34

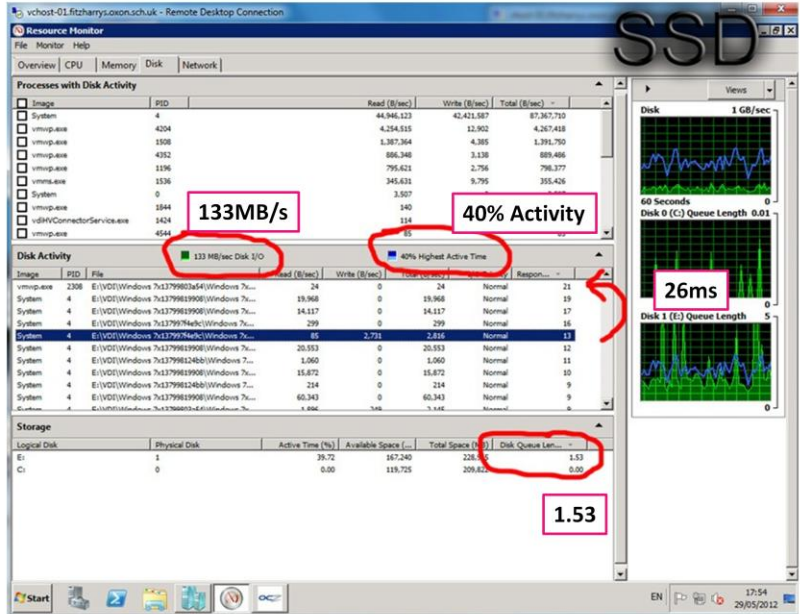
The 'Disk Activity' section shows a total of 97 MB/sec on Disk 1 (C:), with 100% highest active time. The 'Storage' section shows a disk queue length of 27.91.

Annotations in the image highlight:

- 97MB/s (Total Disk I/O)
- 100% Activity (Highest Active Time)
- 266ms! (Disk Queue Length)
- 27.91 (Disk Queue Length)

HDD

# PCI-E SSD



SSD

