Cloud Workflows

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About the speaker

Lee Danskin

Chief Technology Officer, Escape Technology

Veteran of M&E, AEC and Design

25 years in industry

Part of the development team for Maya

Maya Master

Loves all things visual

Currently researching light-field technology

History: how we got to the cloud

Started on premises.

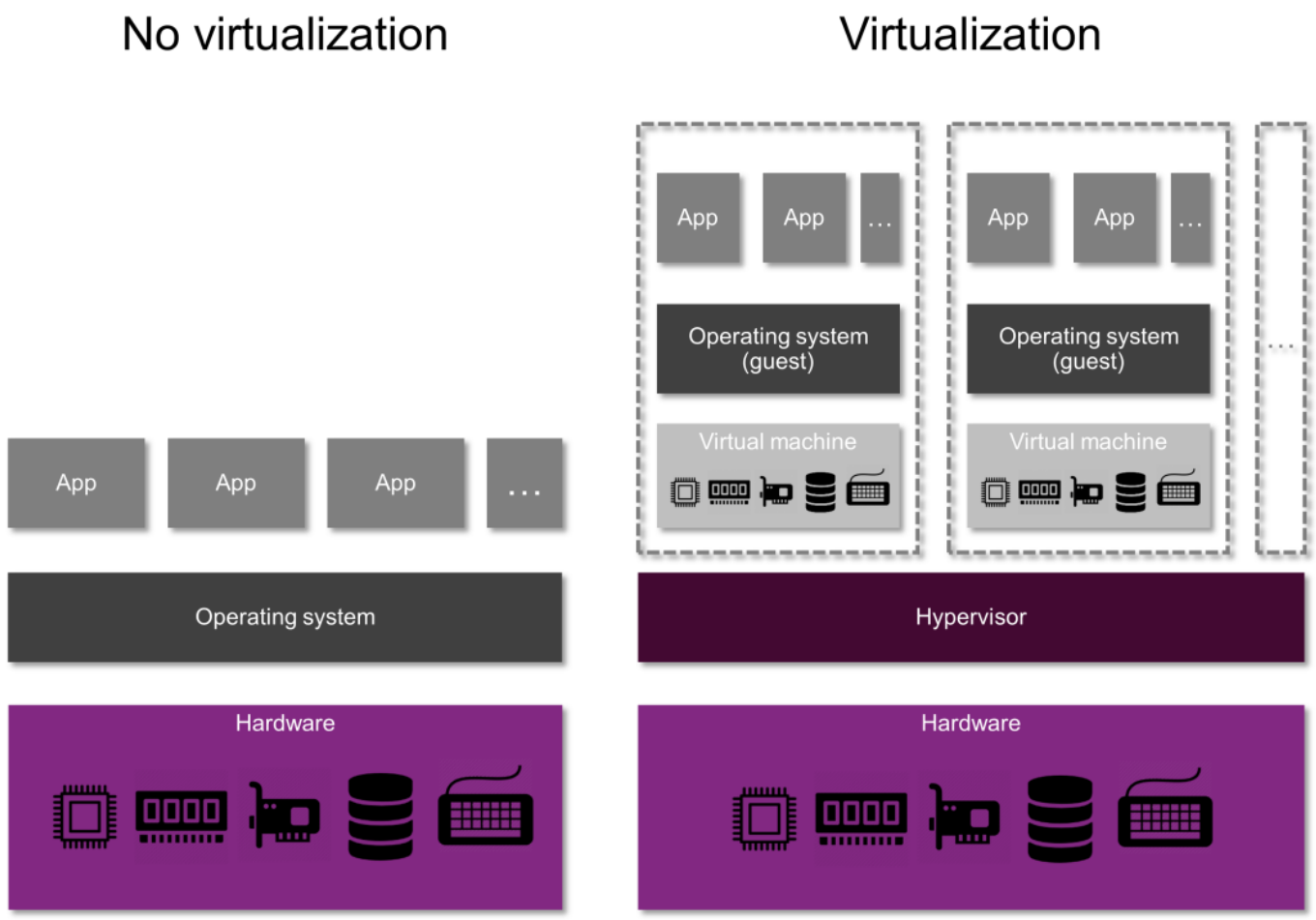
With the move to multi core processors most applications couldn’t take advantage of the massive compute

Security and desk moves are always pain points

Virtualisation made IT’s life easier, quicker, and more cost effective

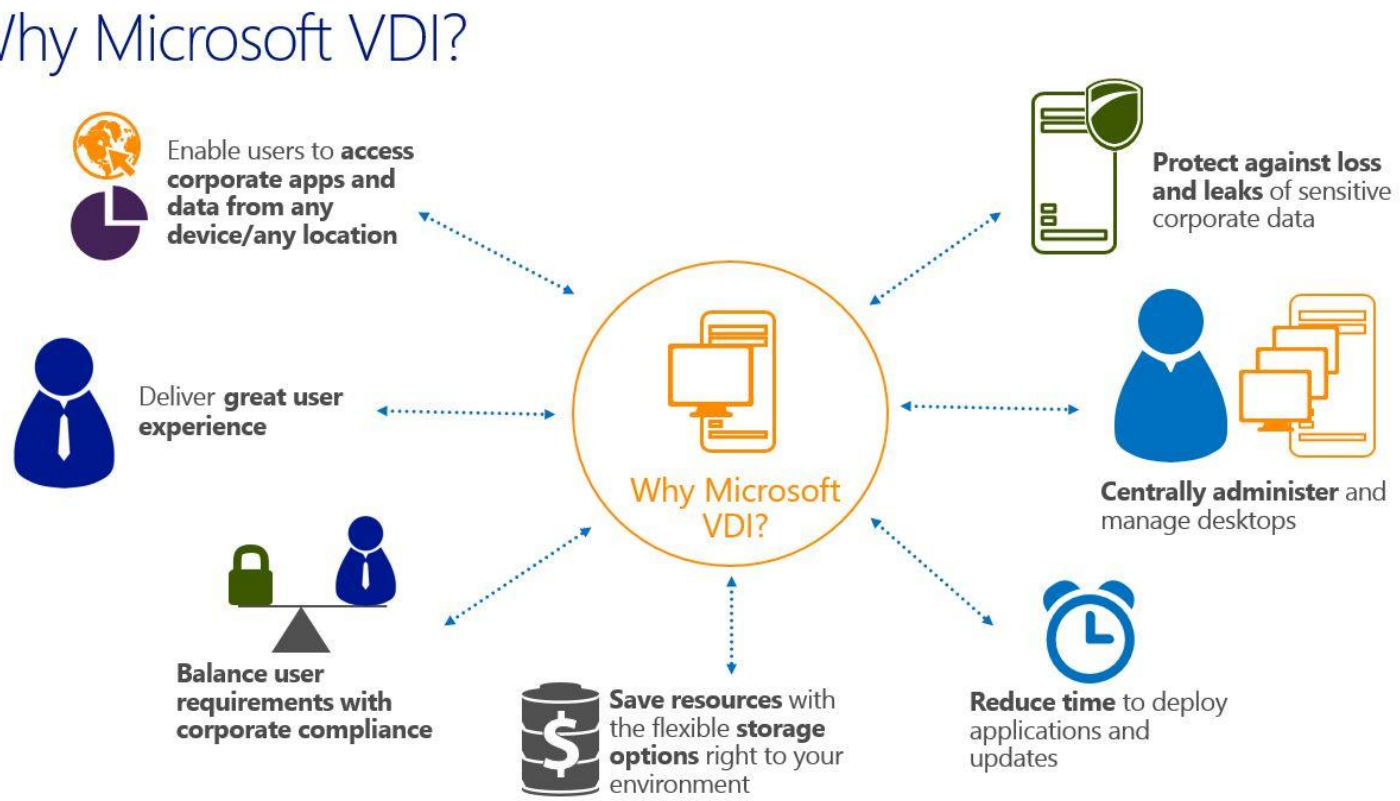
Multiple machines. One source.

- Rise of Vmware, Citrix, Hyper V, linuxKVM and others
- Hypervisors and Brokers to deliver computing to thin clients
- VDi



Moving pixels, not data

- Streaming protocols and compression techniques have continually improved over the last ten years
- HDX
- PCoIP
- Blast



Machine location and migration

Machines start life on the desk with network to the **server**

The s**erver** starts in the corner of the room then moves and is located in a **machine room** somewhere in the building

With **Virtualisation** the machines joined the **server** in the **machine room.** Only monitors and thin clients remain on the desk

As the business scales the **machine room** is outgrown and moved to an offsite **datacentre,** shipping pixels and data back to the head office from a remote location

Private cloud was born

The move to using someone else’s computers in someone else’s datacenter when you need them was obvious

Phases/stages

DESKTOP

LOCAL MACHINES

Desktop/deskside machines connected to a server

MACHINE ROOM

VIRTUALISED

Virtualised rack mounted machines connected to servers and storage

Remote machines KVM or Pixel scraping.

CO-LOCATION

REMOTE VIRTUALISED

Outgrown the machine room need specialised cooling and power

Remote Data Centre supplying multiple locations

Private Cloud

CLOUD

BILLED USAGE

Connected to your DC or Office, dialup and dial down compute and storage for burst capacity and specialised instances, or remote/satellite sites

Internet and Cloud requirements

These are now different requirements

Internet was once all you needed, for email, browsing, ftp, drop box, Gdrive etc

Lift and shift data ?

The journey of the IT infrastructure requires forever larger bandwidth

Where to invest ?

Where is the tipping point…….

Phases/stages Network

DESKTOP

LOCAL MACHINES

1Gb internal network

100Mb on 100 MB Bearer

MACHINE ROOM

VIRTUALISED

1Gb to desktop

10Gb backbone

100Mb on 100Mb bearer

CO-LOCATION

REMOTE VIRTUALISED
or Data Shifting

Multiple 10,25,40,50,100 Gb

Connections to data center

1Gb on 10Gb Bearer

CLOUD

BILLED USAGE

Direct Connect to Cloud

Amazon

Azure

Google

Moving pixels less bandwidth

Tipping point?

Why no workstations?

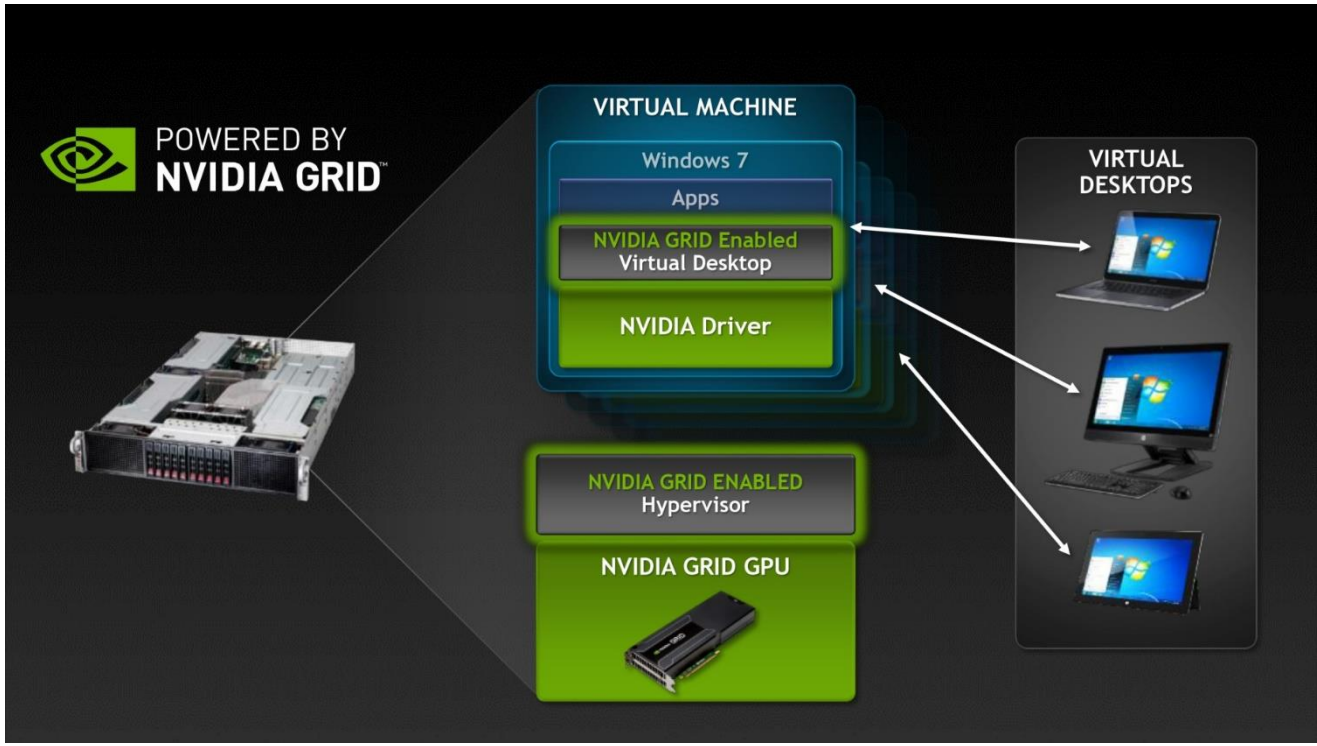
Graphics

VDi has passed by most workstation users as the need for high resolution monitors and graphics capabilities could not be virtualised successfully.

Until recently

Grid

NVIDIA created the virtualised GPU, allowing all the benefits of VDi but for workstations as well.



The benefits

Moving your workstation from your desk

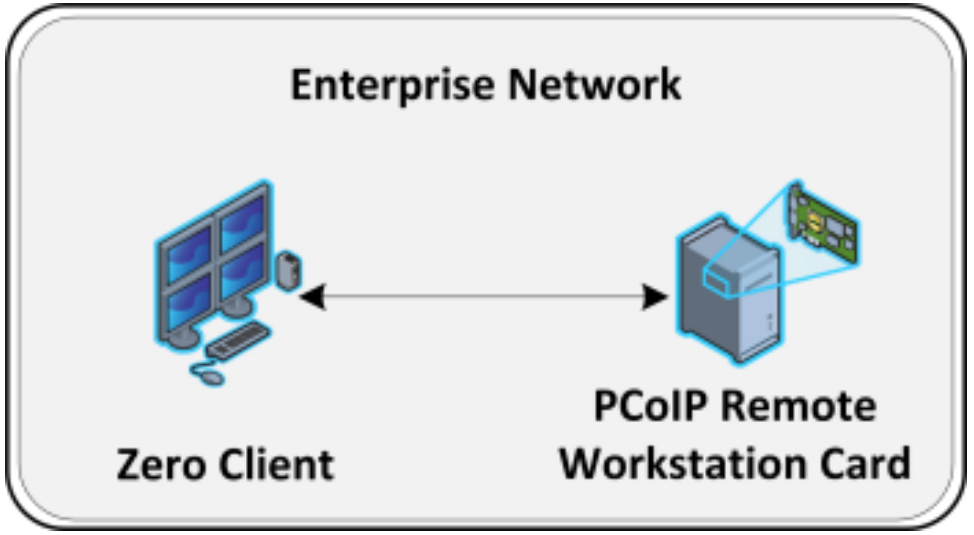
Networking limitation of the cabling to your desk

Data sizes and load times increasing exponentially

Outperform a single workstation using cloud workflows

Use what you need when you need it

Security no data on desktop or chromebook!



But what about cloud workflows?

Converging factors, internet speed and latencies have got faster and lower, with cheap viable performance metrics.

All compute can now be virtualized. The rise of Software Defined storage and networking allows dynamic usage of compute hardware regardless of who owns it.

Hybrid workflows

Hybrid workflows extend your internal IT solutions whether DC based or on prem and stretch to the cloud seamlessly, blending both environments.

Born in the cloud

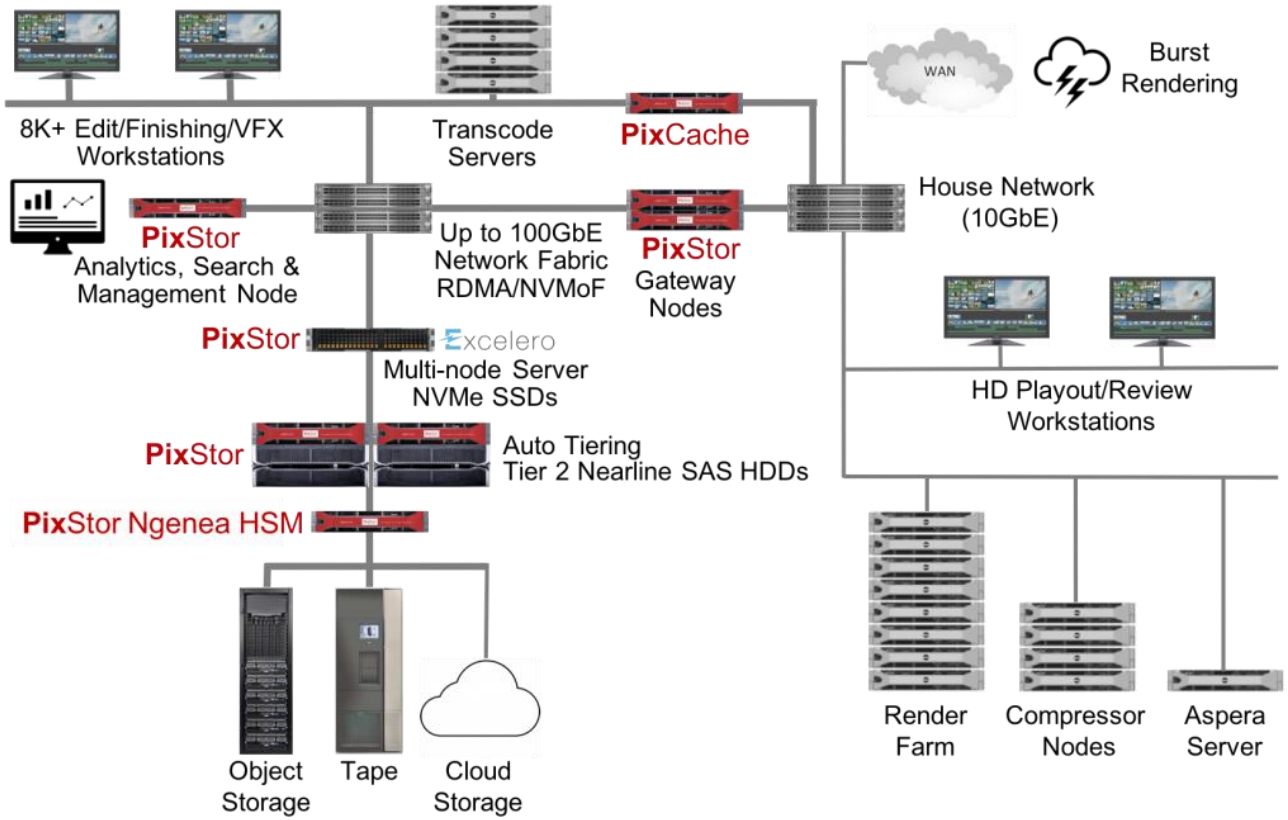
For those who want a minimal on premises solution and have complete flexibility in the cloud, Great options for new startups who are need to use freelancers and remote workers without scaling issues.

Hybrid workflows

Software Defined Storage that allows you to run your storage on what you want when you need it, allowing you to run it in the cloud provider of your choice.

This allows your data to stretch in and out of the cloud enabling disaster recovery, remote workstations, render farms, FEA simulation clusters, and remote site collaborative workflows.

All on OPEX cost models against the project in hand.



Born in the cloud workflows

The option to have extremely minimal on premise hardware and utilise the cloud for all projects, spinning up and down hardware resources as you require based on team size.

Completely software defined

Define the speed and capacity of the whole facility based on the project requirements.

Cloud affects how you work

With great Scale, comes better working practices

Unlimited resources

The right resource?

What works on premise, requires different approaches for cloud..

Brokers….

On Premise Today

On premise...	Single Machine	Render stills, Ties up machine, does not scale,
On premise...	Render farm	common solutions.
On premise…	DCC 3DSMax or Maya	Renderer Arnold, Vray, Octane, Redshift, Renderman
On premise…	Windows complete pipeline, render nodes as well as workstations	
On premise…	Render everything through DCC application and use all sorts of file formats...	

Visualisation in the Cloud

Render farm……. In the cloud….

Using external farms lift and shift the data?

hybrid centralisation of data shared between cloud and on prem….

Utilising compute in the cloud Linux vs Windows, workstation windows $450, linux $260

Visualisation Pipelines eg:

Every cpu cycle counts! and costs!

Do not run Maya or 3DSMax in the cloud!

Export to Arnold Ass files or Vray vrscene files

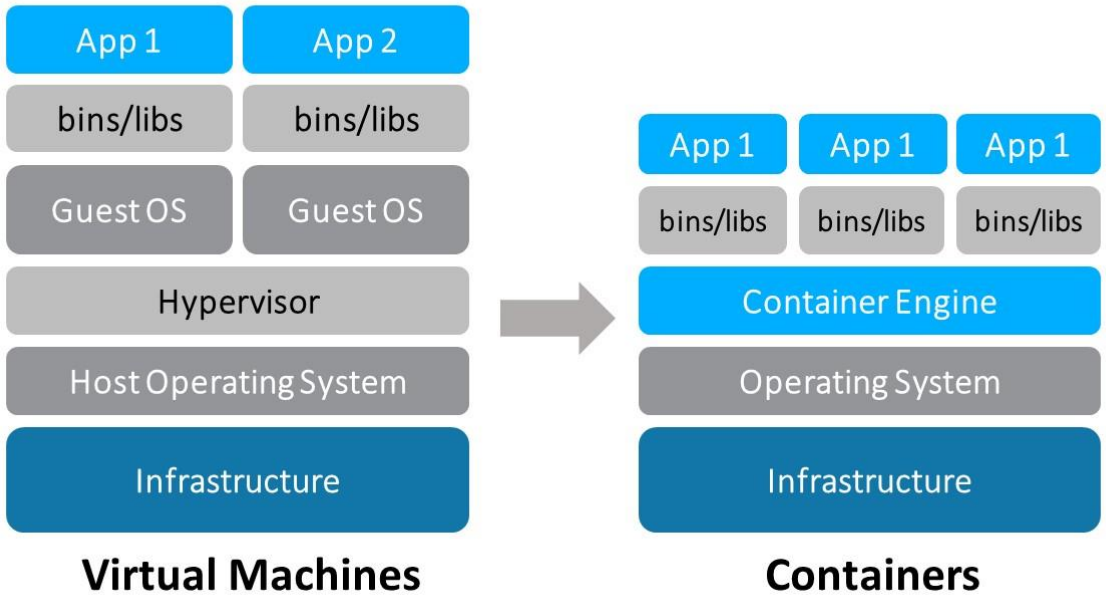
Convert all textures to correct formats

Run linux backend to workstations for compute

Future: Containerisation

Docker

Containerisation is one step further on from VMs, allowing you to run multiple apps on the same hardware with different OS in each container. All self contained.



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