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# Windows Server 2012 VDI/RDS Infrastructure and Management

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Centralized  
Management



Anywhere,  
Any Device

VDI helps deliver on this promise.

Windows Server 2012 provides a scalable, easy to manage,  
and high fidelity VDI solution.

Data  
Security



BYOD

# Agenda

- Remote Desktop Services architecture
- VDI with Windows Server 2012
- Efficient Management
- Best Value in VDI
- Rich Experience everywhere
- Key Factor for Success in VDI

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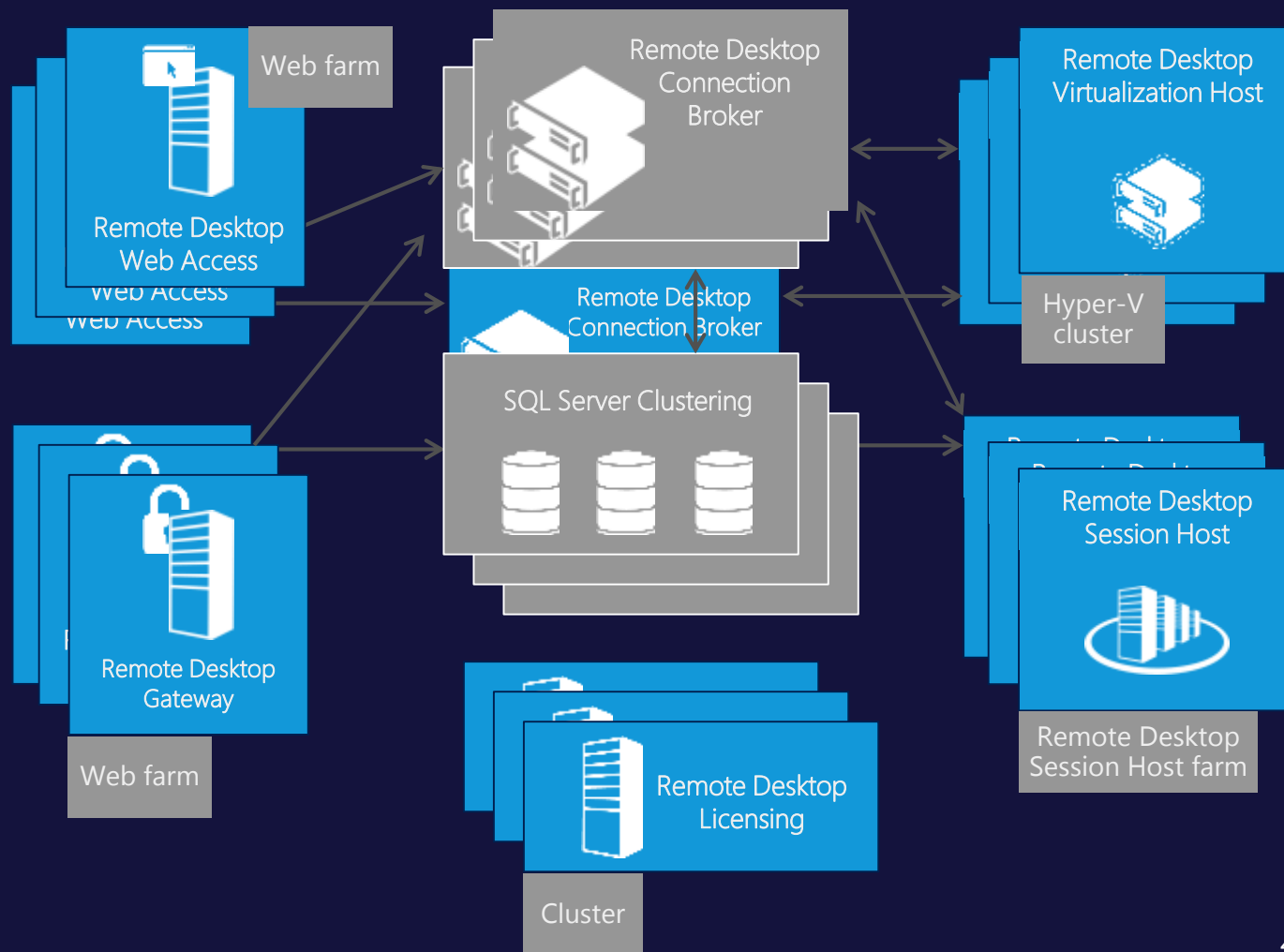
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# Remote Desktop Services architecture

## Windows Server 2012

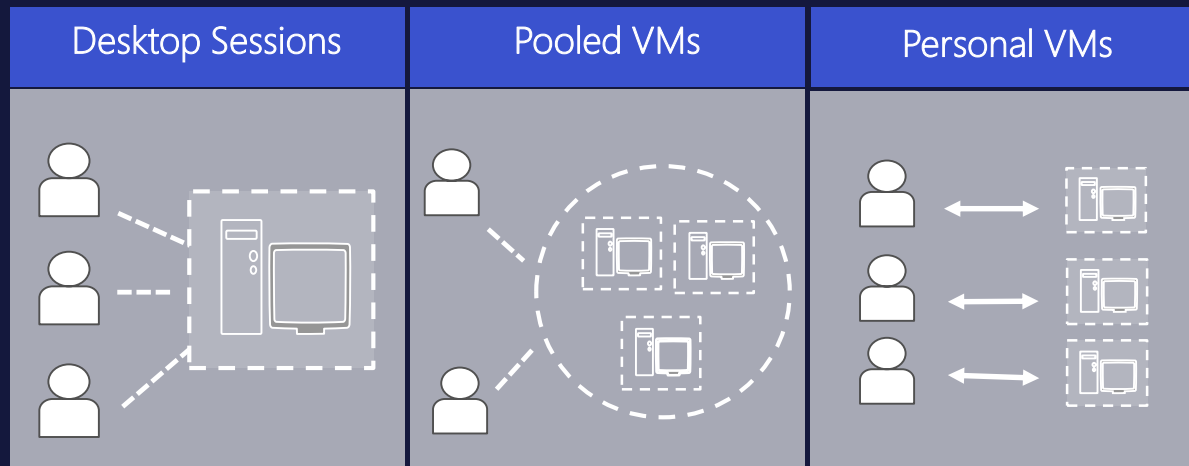
- Active/active high availability mode for brokers
- Scale-Out File Server and resiliency
- Requires Microsoft SQL Server
- Automatic data migration from single
- Instance to high availability





# VDI with Windows Server 2012

Powered by Windows Server 2012  
Remote Desktop Services



1 platform | 1 experience | 3 deployment choices

Efficient Management  
Best Value for VDI  
Rich Experience everywhere

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# Efficient Management

Simple to deploy, intuitive to manage, easy to expand at scale



Easy Deployment



Unified  
Administration



Streamlined VM  
Management

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# Easy Deployment with automation

Set up a simple VDI deployment easily and quickly

Create virtual machines automatically with settings

Use wizard-based setup and deployment for multiple scenarios



# Unified administration that is intuitive to manage



Provide one, integrated console for roles, servers, collections, users, and virtual machines

Offer consistent publishing applications and desktops

Automate and manage at scale with Windows PowerShell





# Streamlined management of virtual Machines for scalability



Use master images for personal  
and pooled virtual machines

Avoid patch storms by queuing  
maintenance updates



Accelerate system preparation,  
optimize logons, and provide  
automatic rollbacks

# Best Value for VDI

## Key Platform Capabilities



User Disks



Fair Share



Storage



Highly Available

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# User Profile Disk

BEST  
VALUE  
FOR VDI



Enable personalization on pooled virtual machines or sessions

Store user data and settings on a separate virtual hard disk



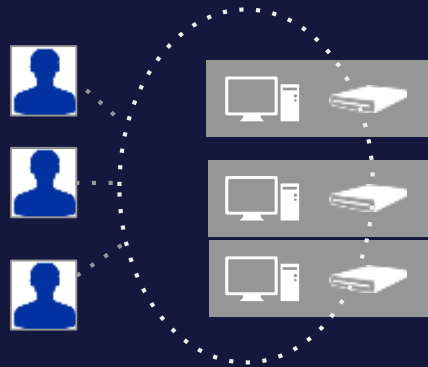
Simplify deployment of lower-cost VDIs (pooled virtual machines and sessions)

# Personalization with User Profile Disk

BEST  
VALUE  
FOR VDI

## Benefits

- Available with pooled virtual machine collections and remote desktop session host collections
- Stores all user settings and data
- Contains roaming user profile, Folder Redirection cache, and user environment virtualization
- Roams with user within collection
- Appears as a local disk and improves application compatibility



User Profile Disk with pooled virtual machine collections



User Profile Disk with remote desktop session host collections

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# Fair Share



Dynamically distribute  
resources (bandwidth, CPU,  
and I/O)

Help ensure high performance  
across user virtual machines  
and sessions

Apply to both sessions and  
virtual machines





# Multiple storage options



Use direct-attached storage, network-attached storage, and clustered or SAN storage

Provide configuration options to optimize for tiered storage

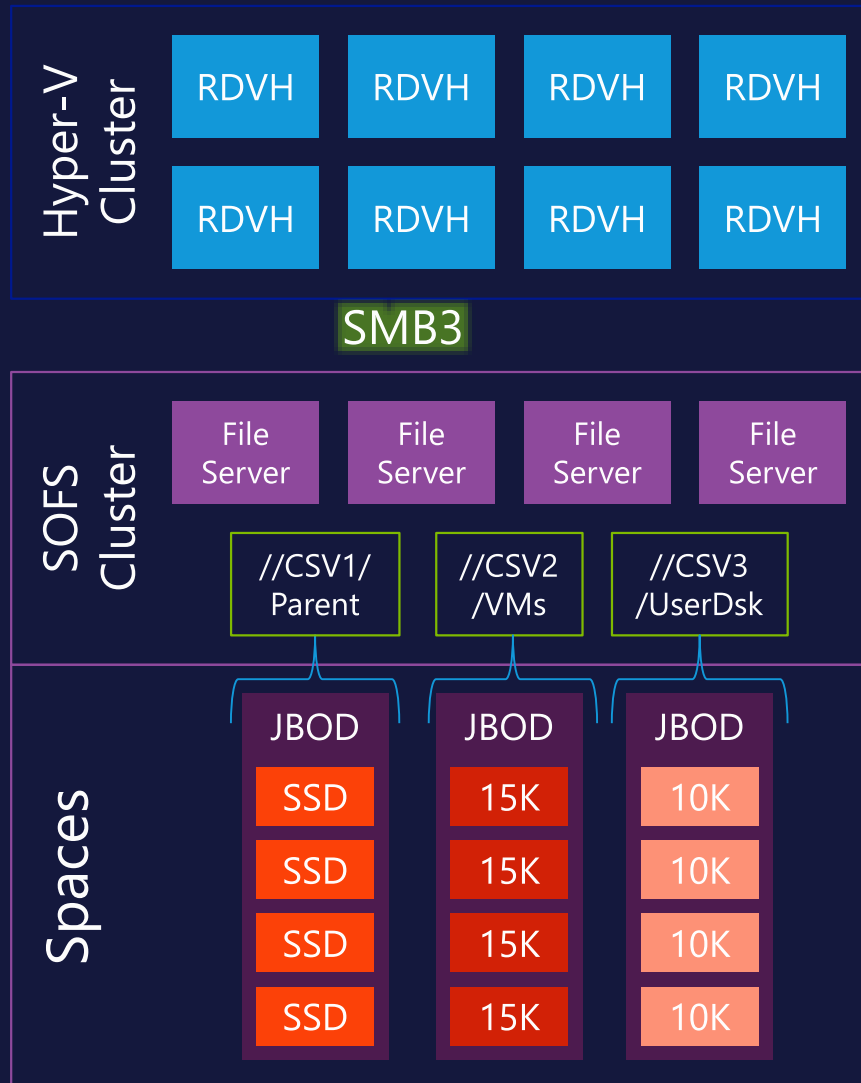
Reduce storage cost while maximizing I/O operations per second

# Detail : Storage Options

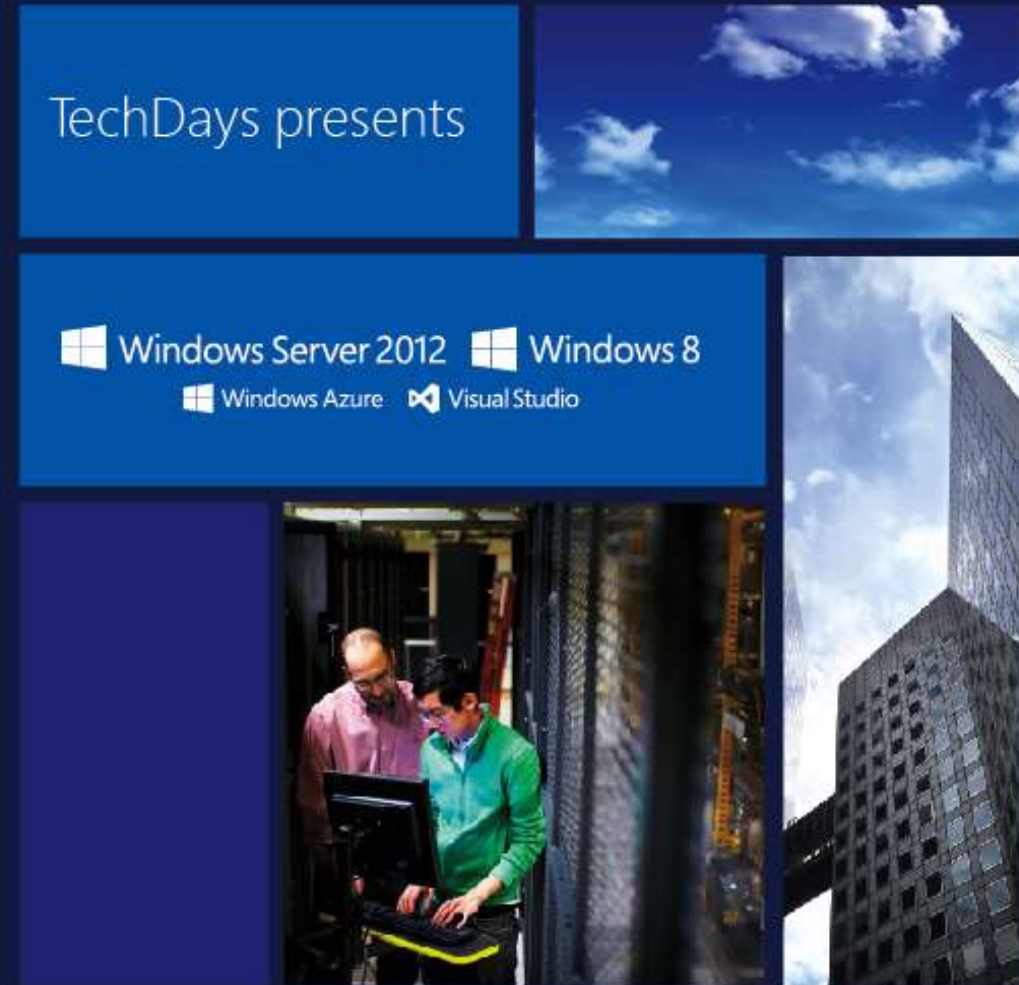
BEST  
VALUE  
FOR VDI

## New in WS2012

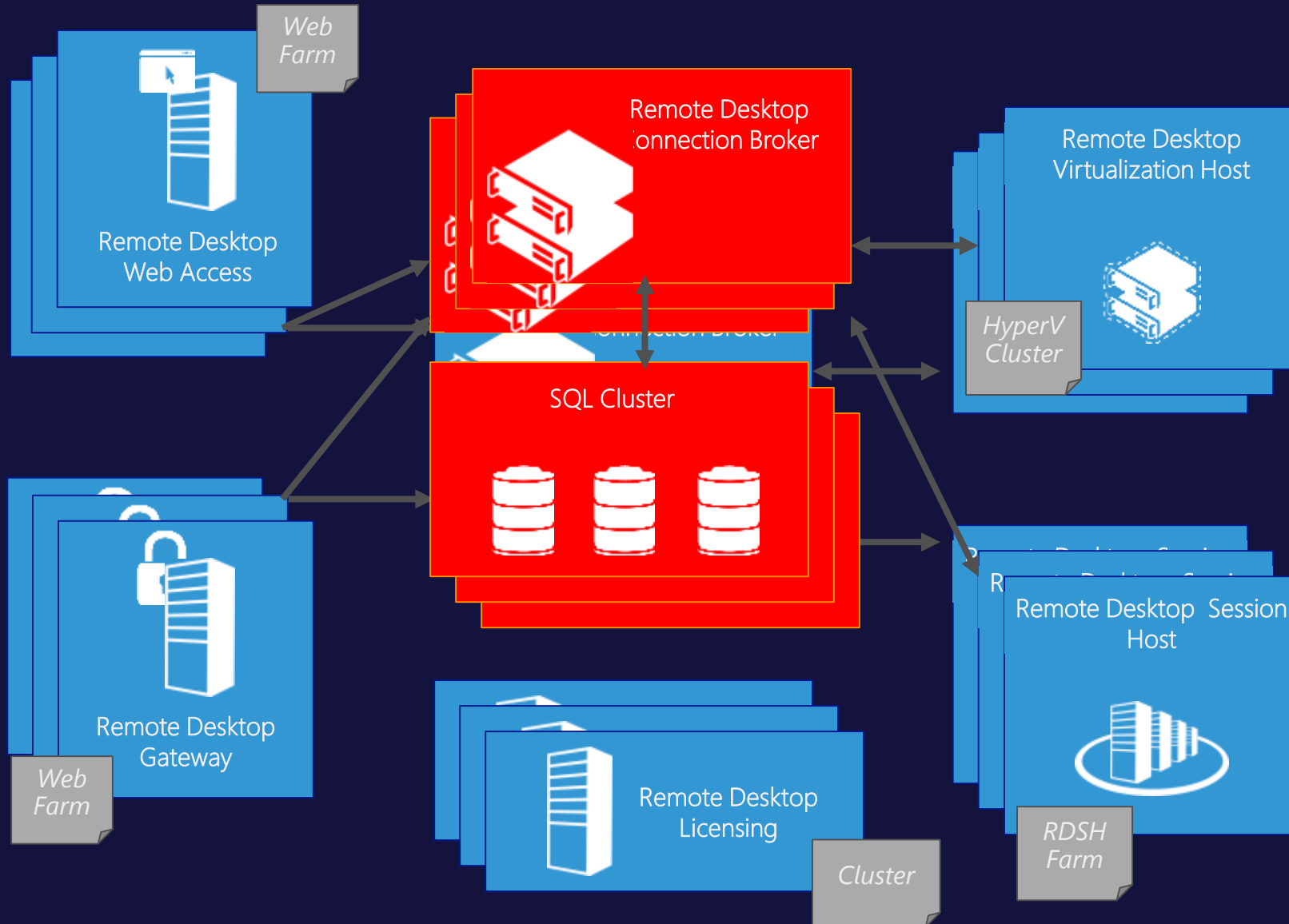
- Storage Spaces
- SMB3, Hyper-V
- Cluster Storage Volume
- Scale-out File Server



An example configuration



# Detail : High Availability



## New in WS2012: **Active/Active HA mode for Broker**

- ⊗ Scale out and resiliency
- ⊗ Requires SQL Server
- ⊗ Automatic data migration from single instance to HA

# Detail : GPU Choice

CPU-Emulated DirectX 11 software GPU provides 3D capabilities to sessions and VMs at high scale

- Optimized for knowledge worker workloads, such as Office, Web Browsing
- Highest scale for Session Host and VDI

RemoteFX vGPU provides a virtualized hardware-accelerated DirectX 11 GPU for VDI, optimized for

- Best performance for 3D graphics-intensive applications
- Best experience with full shading, animations and transitions
- Best application compatibility, running as a console session in VM

Note: The RemoteFX vGPU requires a DX11 compatible GPU to be installed in the host.

# Detail: GPU Choices



## Quadro FX 5800

With advances in GPU architecture and computing environments, the NVIDIA® Quadro® FX 5800 featuring 240 CUDA parallel processing cores, provides professionals with visual supercomputing from their desktops delivering results that push visualization beyond traditional 3D.

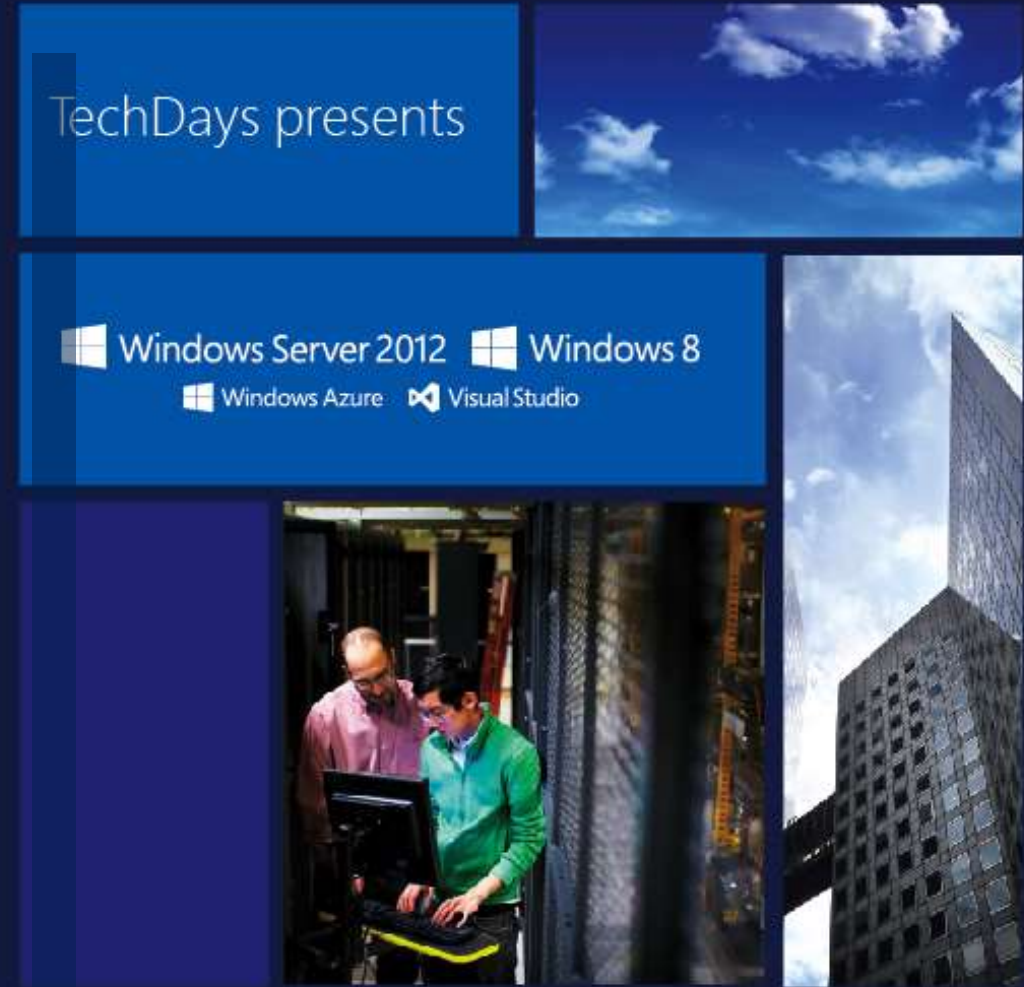
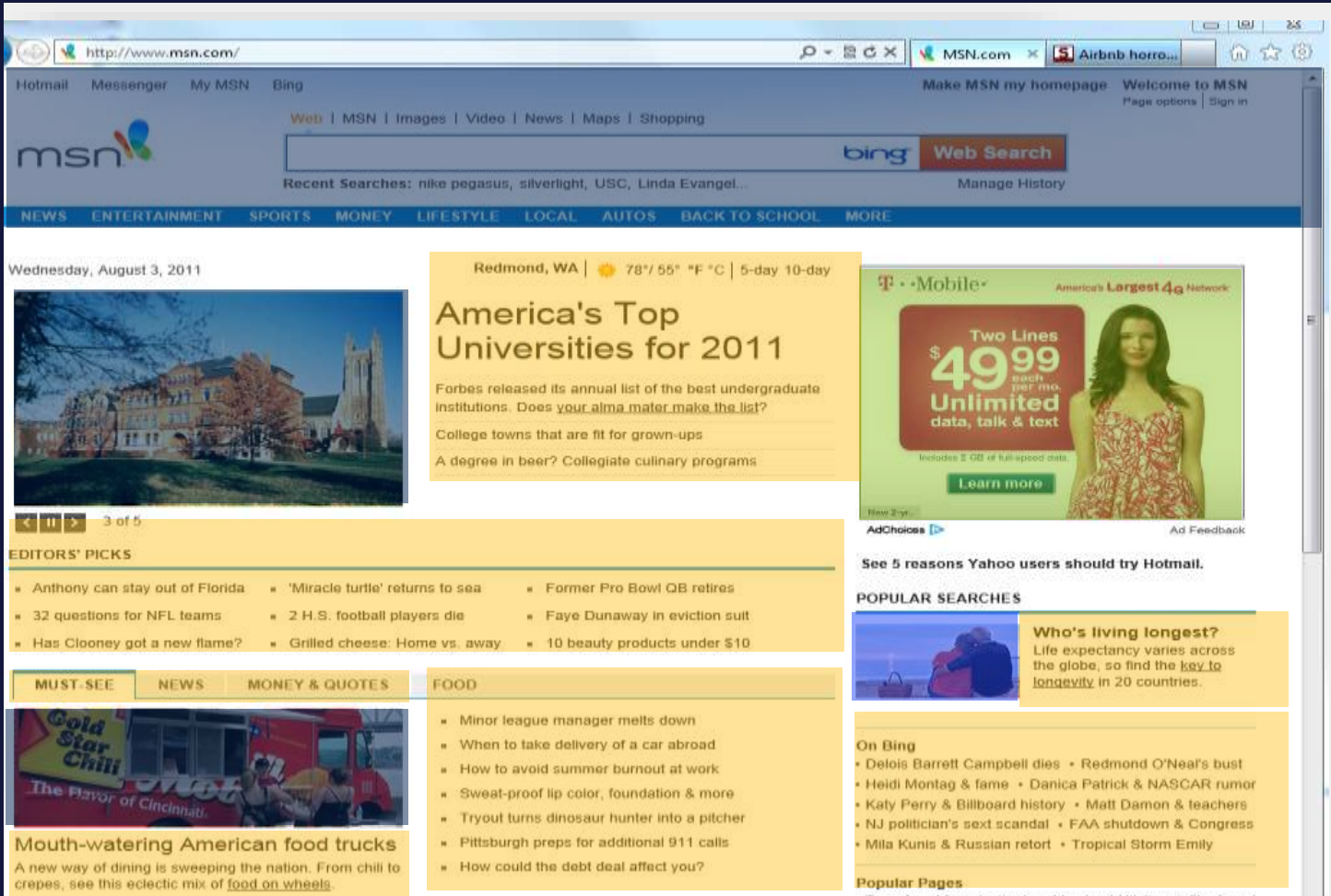
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# RemoteFX Adaptive graphics

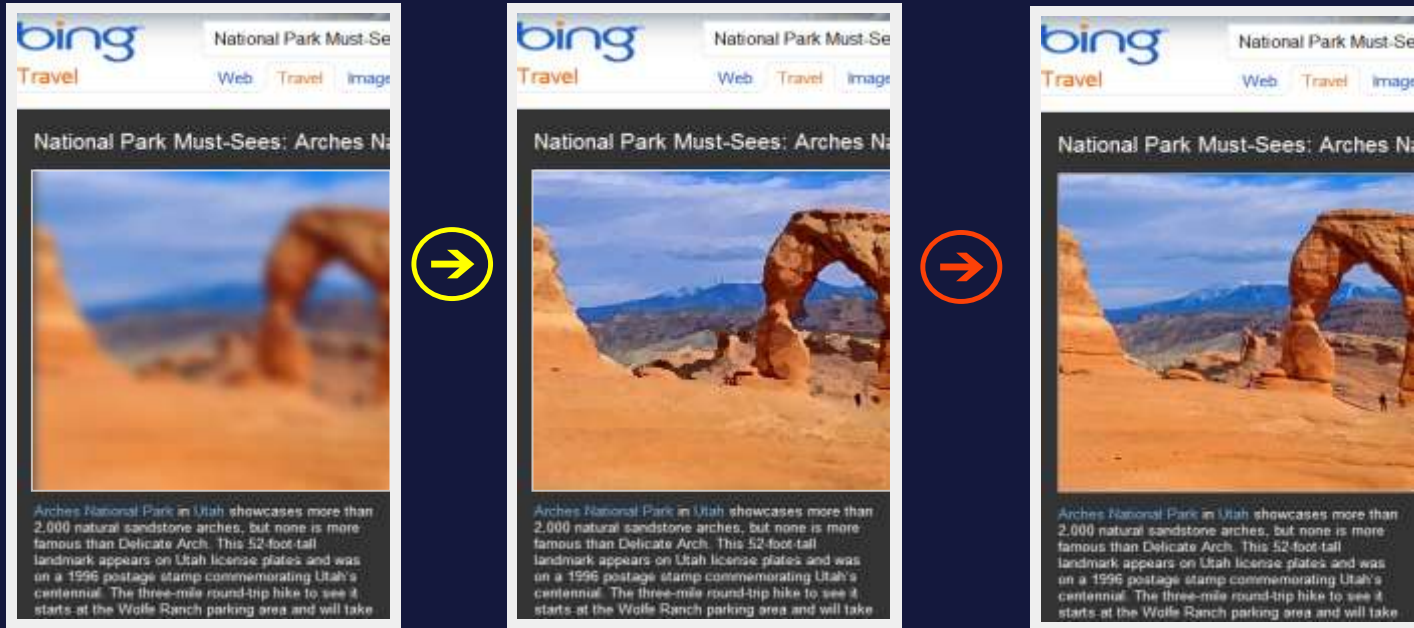


■ Text content

■ Image content

■ Video and animations

# RemoteFX progressive rendering



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The collage includes a blue sky with clouds, a modern building facade, and a server room with two people looking at a computer monitor.

# RemoteFX for WAN

## Benefits

Combines RemoteFX adaptive graphics with intelligent WAN-aware transports

- Automatic choice of TCP or secure UDP transport
- Detects and tunes graphics to network dynamically and automatically
- Integrated with Remote Desktop Gateway



Delivers a great user experience beyond corporate networks

- Branch offices
- Wireless devices
- Work-from-home offices
- Roaming users on 3G/4G networks

Balances **bandwidth** and **scale** to give the best user experience



# RemoteFX Media Streaming

Uses dynamic codecs that have low bit rates for audio and video

Supports redirection of Windows Media

Decreases bandwidth consumption as much as 90 percent



Provides server-side video detection for other media types

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# RemoteFX USB device redirection

- Can be used with all scenarios
  - Physical, virtual, or session desktop
  - No GPU needed
- Isolates devices to the user's session
- Uses a wide variety of USB peripherals, including those requiring isochronous transfers



Isochronous  
transfer



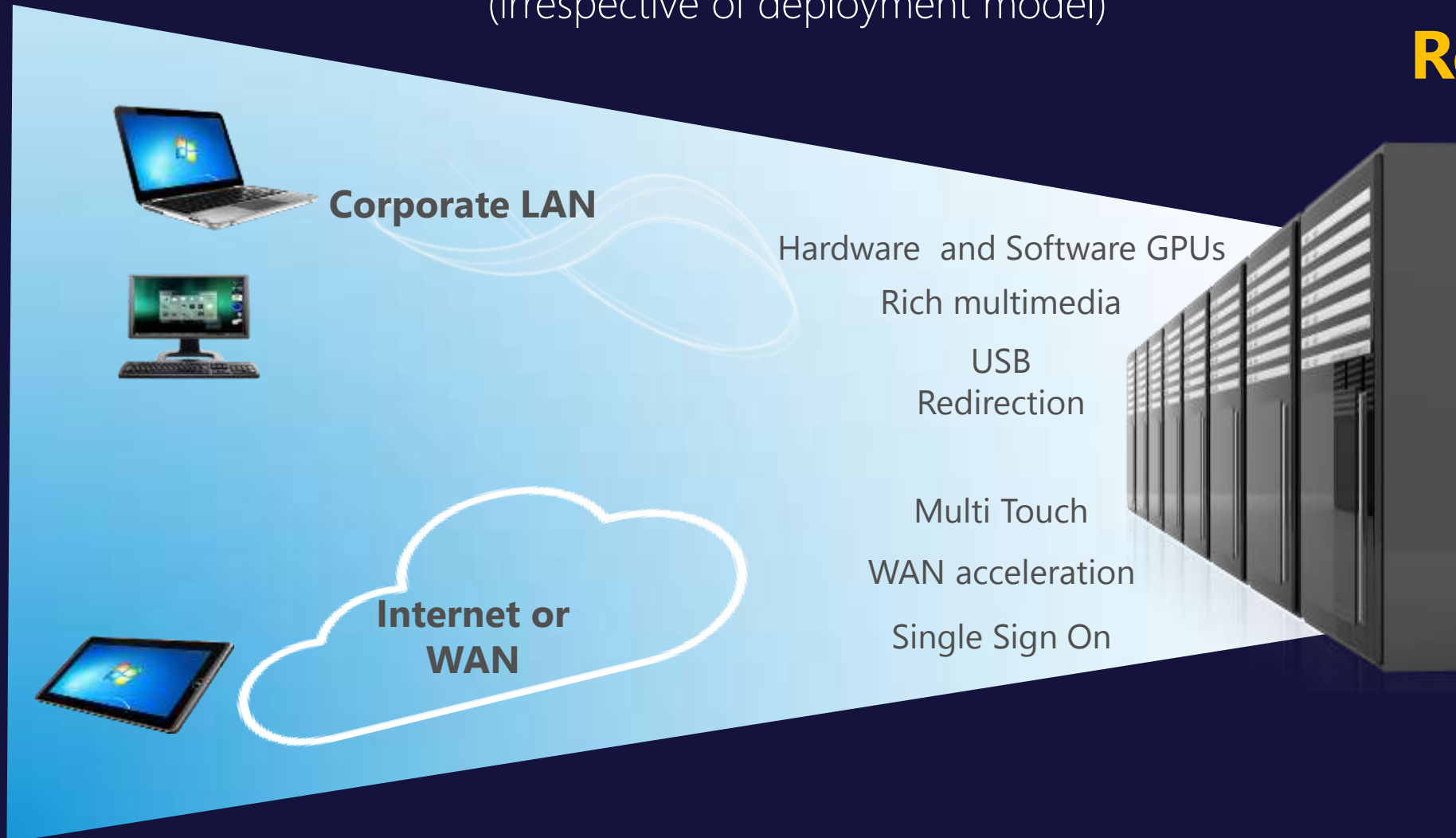
RemoteFX  
USB  
Device  
Redirection



# Rich Experience Everywhere

RemoteFX delivers a consistently rich user experience to users over LAN or WAN  
(irrespective of deployment model)

**RemoteFX**



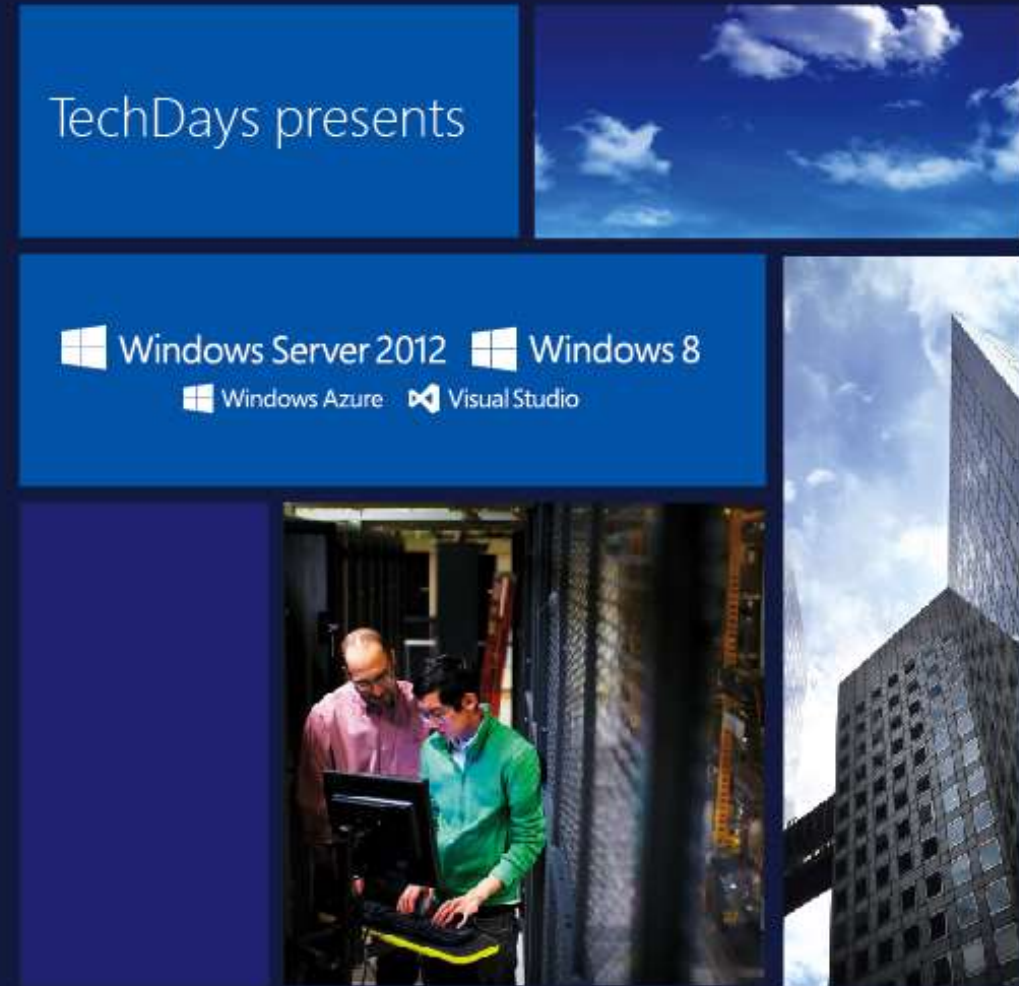
# Detail: Tuning RemoteFX

- By default, RemoteFX balances bandwidth and scale to give best UX
- Group policies help customize deployments differently
  - Optimize only for scale or only for bandwidth
  - Adjust visual quality of images, e.g. lossless mode for workloads with pixel perfect need
  - Enforce choice of transport – UDP / TCP
- New performance counters to monitor and troubleshoot bandwidth and UX

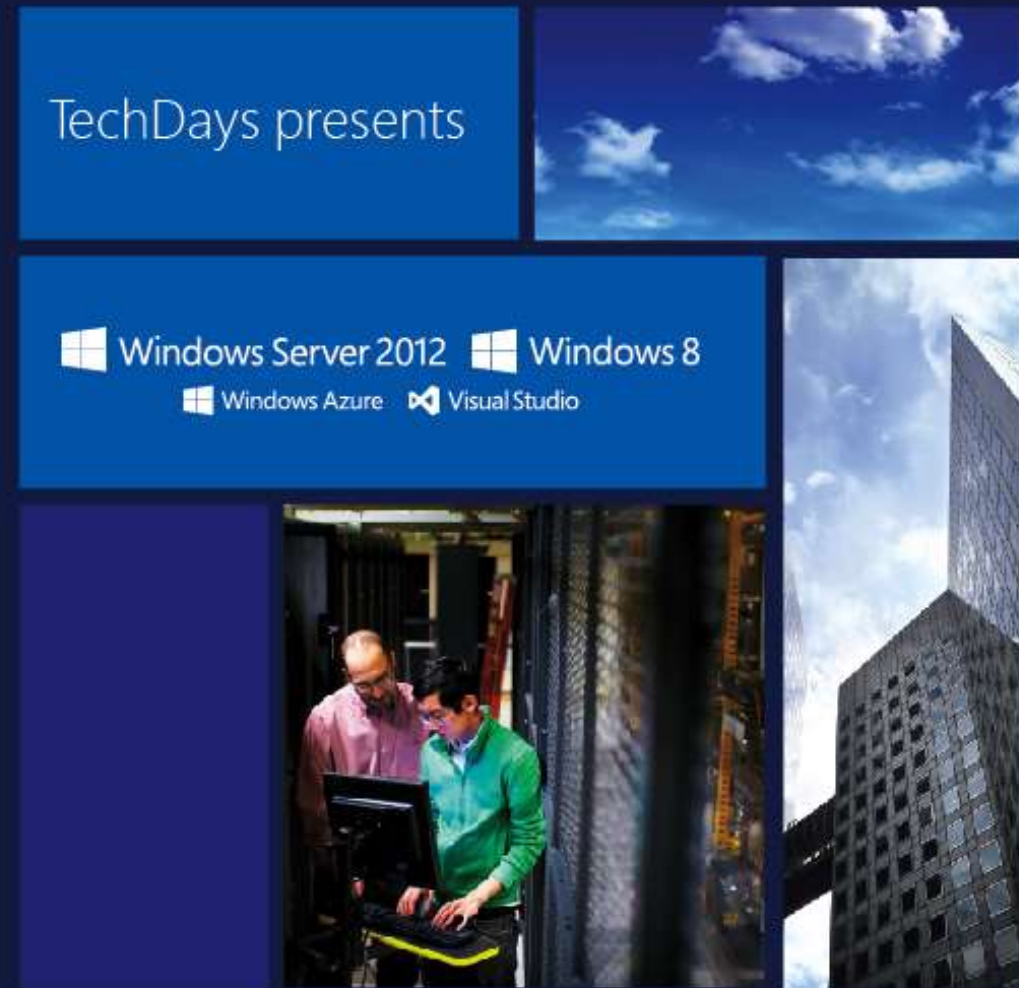
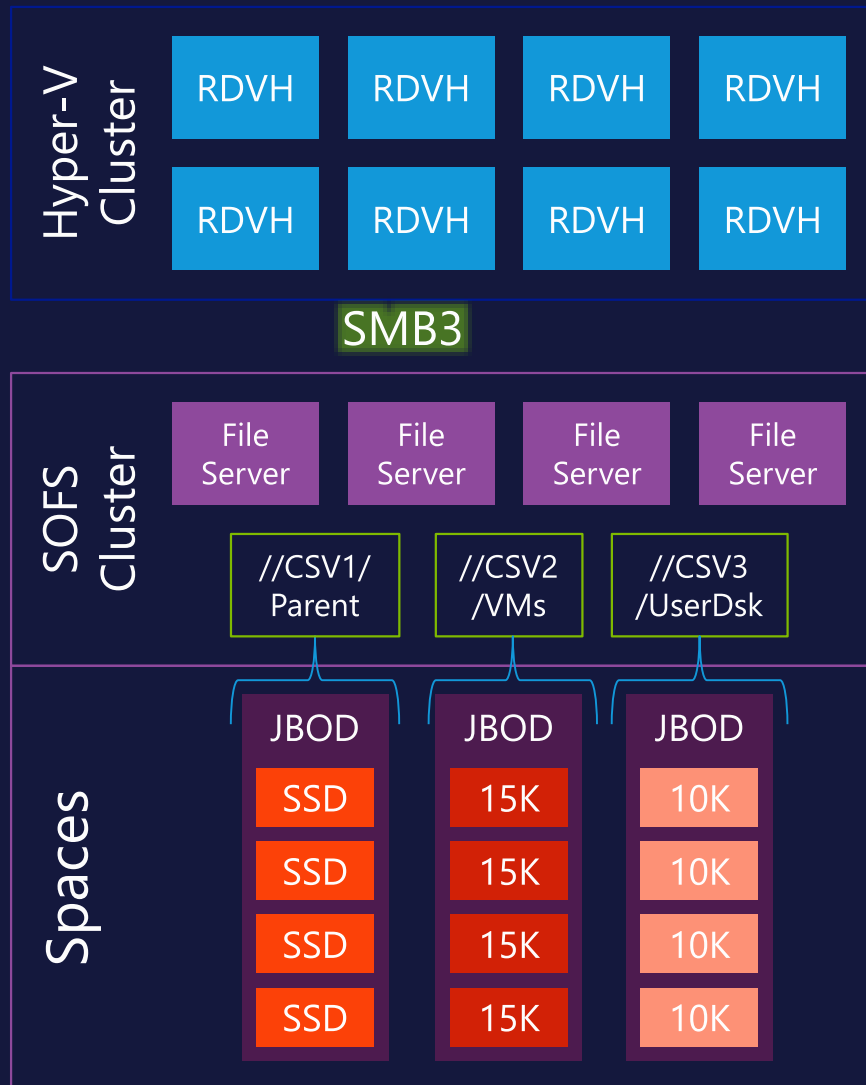


# Key Factor for Success in VDI

- Optimize IOPS in Virtual Machine (Windows 7)
  - As a Caching Tier on SAN/NAS
  - By creating Hybrid SSD/SAS storage arrays
  - As local disk to store the Base Image as a read-
- Optimize Bandwidth (RemoteFX)
  - Manage Group policy (RemoteFX)
  - Optimize quality of content

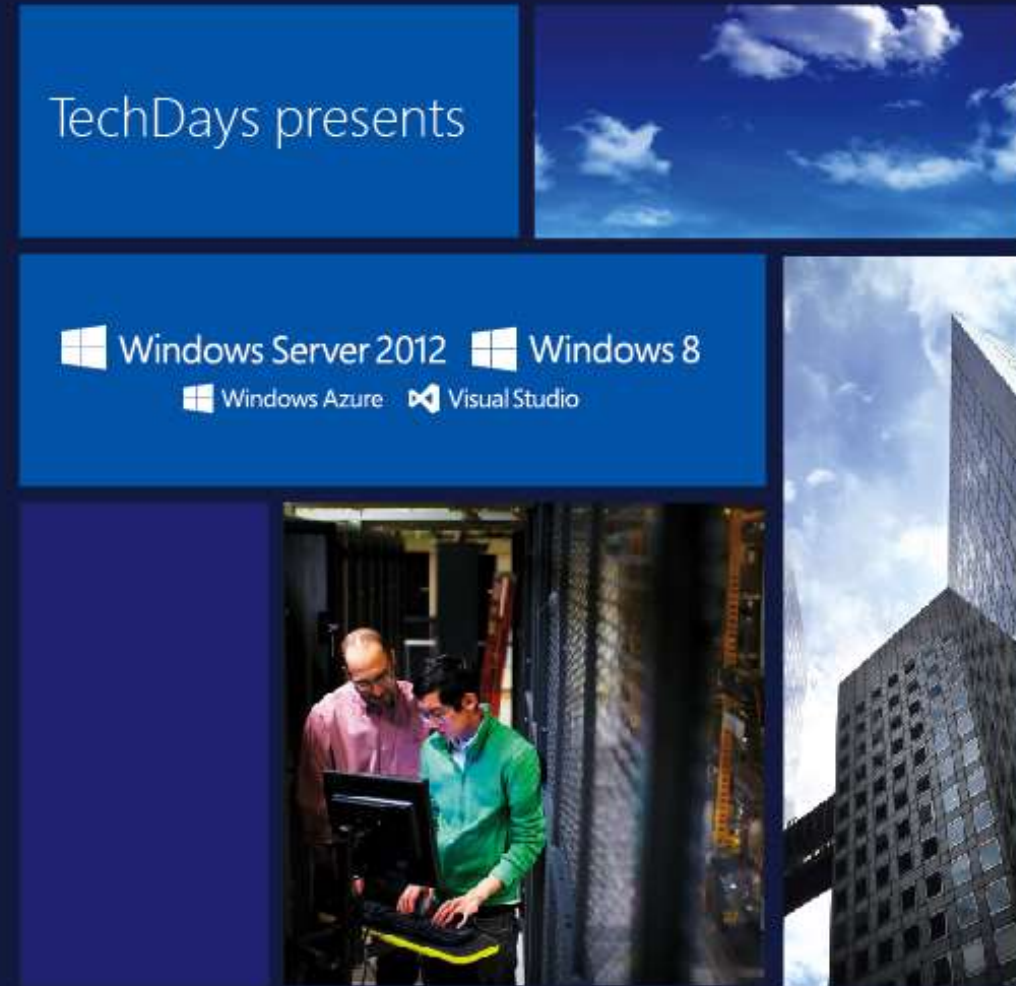
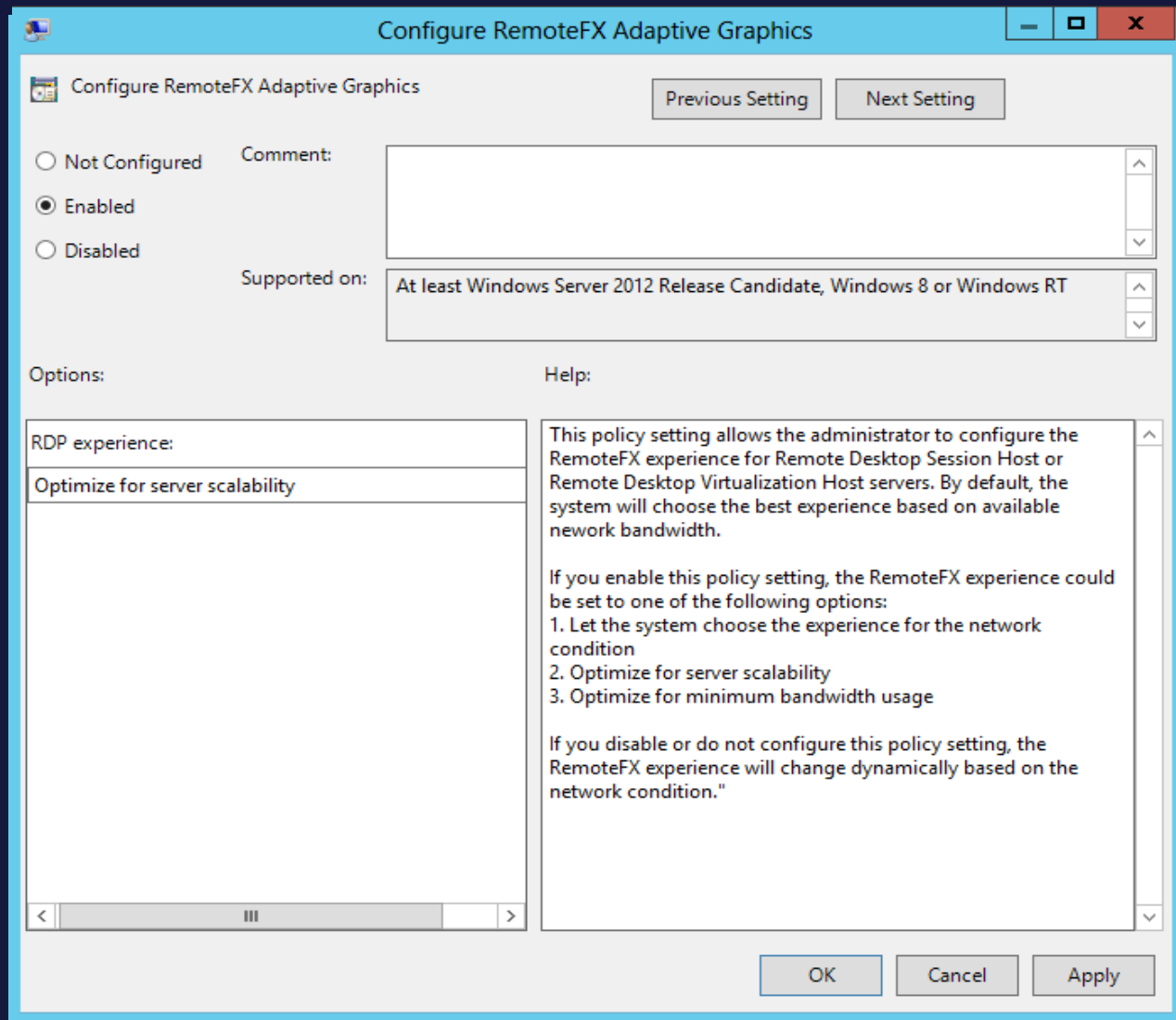


# Optimize IOPS in Virtual Machine





# Optimize Bandwidth RemoteFX





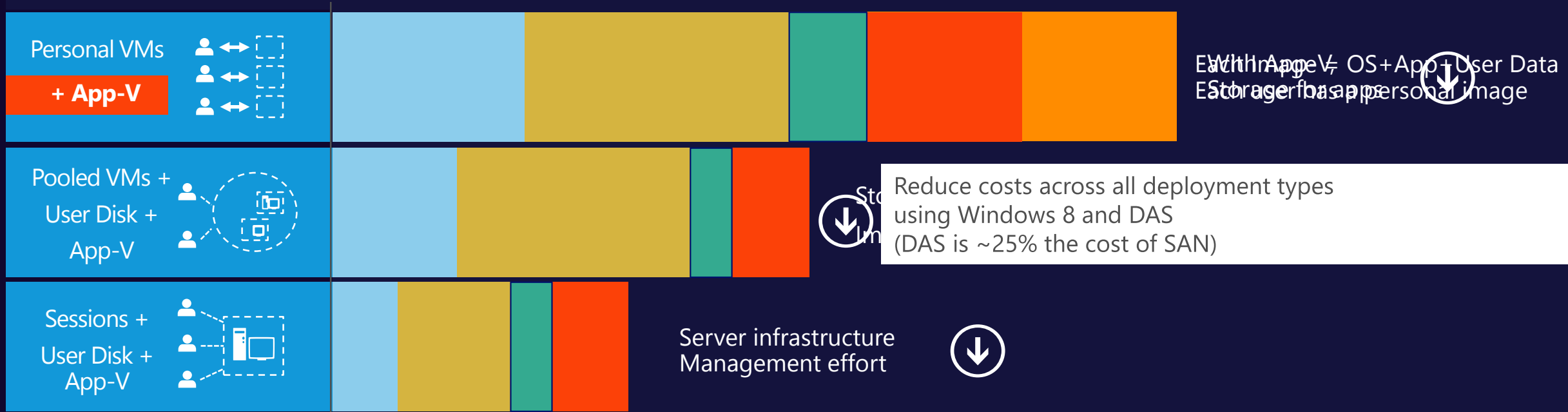
# Comparing and Reducing VDI Costs

Management Costs

Compute Costs

SAN Storage Costs

DAS Storage Costs



Costs

# Zero Client

## Pano G2 Zero Client

The heart of the Pano System is the Pano G2 Zero Client, a whole new class of desktop computing hardware. Pano endpoints are referred to as "zero clients" because, unlike traditional thin clients, they have no CPU, no memory, no operating system, no drivers, no software and no moving parts.

Pano Zero Clients simply connect peripheral input-output devices – a keyboard, mouse, up to two DVI and VGA displays, and audio output – along with other USB peripherals to a virtualized Microsoft Windows desktop virtual machine and the Pano Controller for VDI running on a hypervisor server in your data center.

Looking for our new Pano G2M Zero Client announced with the Pano System for Cloud? Please go to the [Pano G2M Zero Client product page](#)



Benefits

Specifications

Technology

Key benefits from the Pano G2 Zero Client include:

- **Efficient:** a Pano Zero Client using only 6.5 watts with dual monitors connected and less than .2 watts when in sleep mode. Pano G2 Zero Clients not only help you cut the costs of hardware and IT support - they also conserve electricity, using as little as 5% of the energy consumed by even an EnergyStar certified desktop PC.
- **Secure:** Pano Zero Clients are also stateless – in other words, they do not store anything at all about the user, the desktop virtual machine, or any data used by it. This provides both enhanced security, since they never contain data that might be lost or stolen, and productivity benefits, since no configuration is ever required.
- **Productive:** Pano Zero Clients save you time by never needing to boot up. You can immediately resume work with the same set of open applications and files – for example when moving from your office to a conference room to make a presentation or when finishing up work at home in the evening using Pano Remote.

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