



S9887 - Modernize Digital Workspace to Meet the Modern Workforce Demand

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Evolution of the Workspace

Workspace of the past



Workspace today

Mobile & Temp workforce

Work is not a place any more

Layered architecture where IT needs to maintain control (Cross public and private cloud)

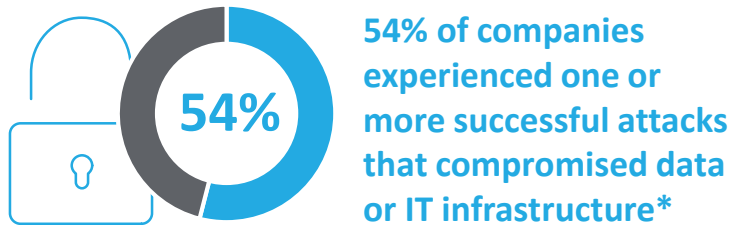
Large Workstations are now moving in to the Datacenter (GPU is now part of the datacenter design)

Workspace is now virtual and no longer pin to one device or location.

Forces of change

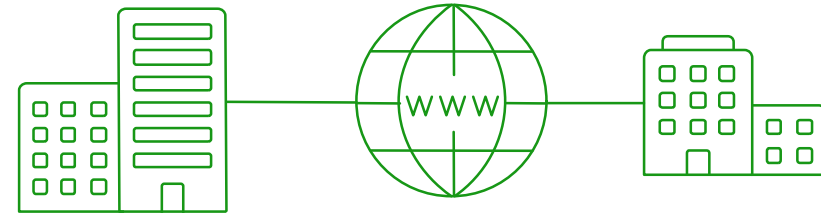
Security Risks

The total cost of a successful cyber attack is over \$5 million, or \$301 per employee.*



Remote Access

From mergers and acquisitions to global expansion to disaster recovery, your users need access to their apps and data from anywhere at any time:



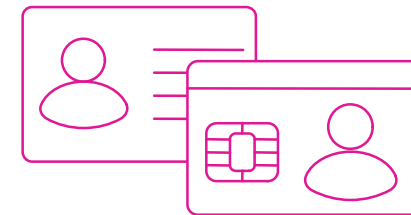
Cloud Adoption

Forrester predicts that more than 50% of global enterprises will rely on at least one public cloud platform to drive digital transformation and delight customers



Identity

The need for entitlements to provide specific authorizations for identity-based computing.



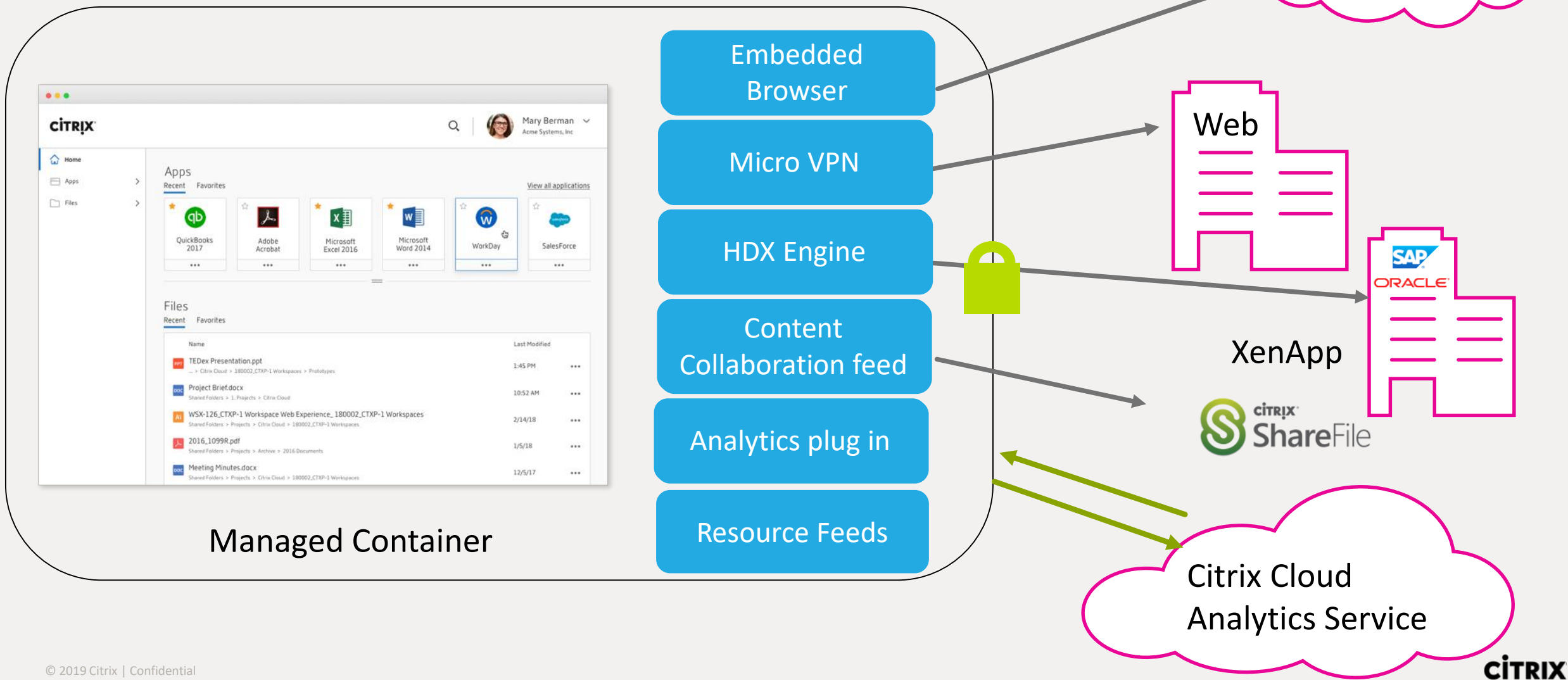
A woman with long dark hair, wearing a blue and white striped shirt and a headset, is sitting at a desk in an office. She is looking towards the right. In the background, another person is visible, and there are computer monitors and office equipment.

What is limiting productivity?

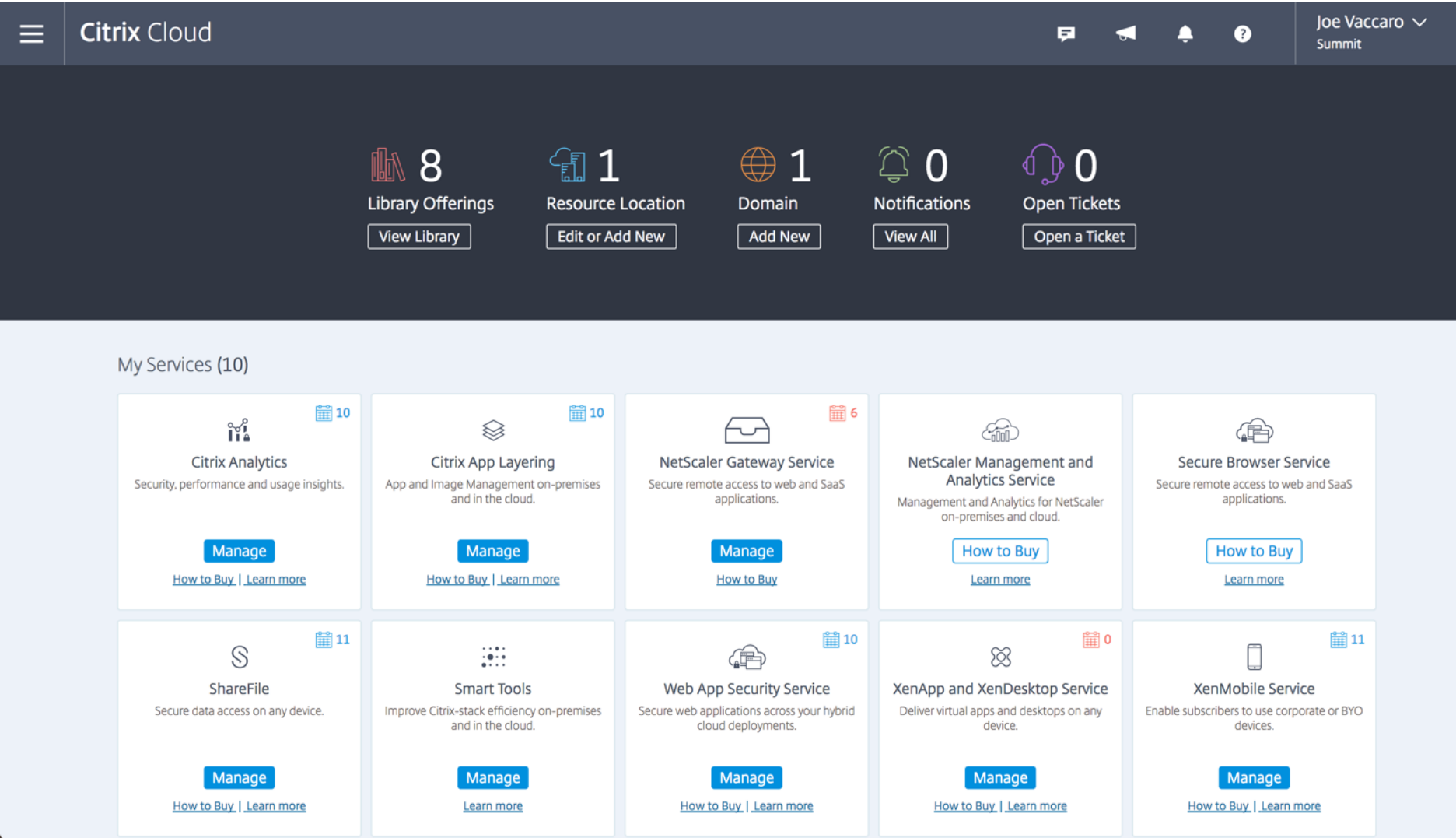
- 51% of senior corporate executives say lack of access to data prevents their employees from making data-driven decisions.¹
- Employees spend 20% of their time searching for information.²
- 60% of executives say their employees have trouble getting the information they need when they need it.³
- 44% of employees want their enterprise apps to perform more like consumer apps.⁴
- For 80% of all business applications, employees use just 4 or 5 key functions.⁵

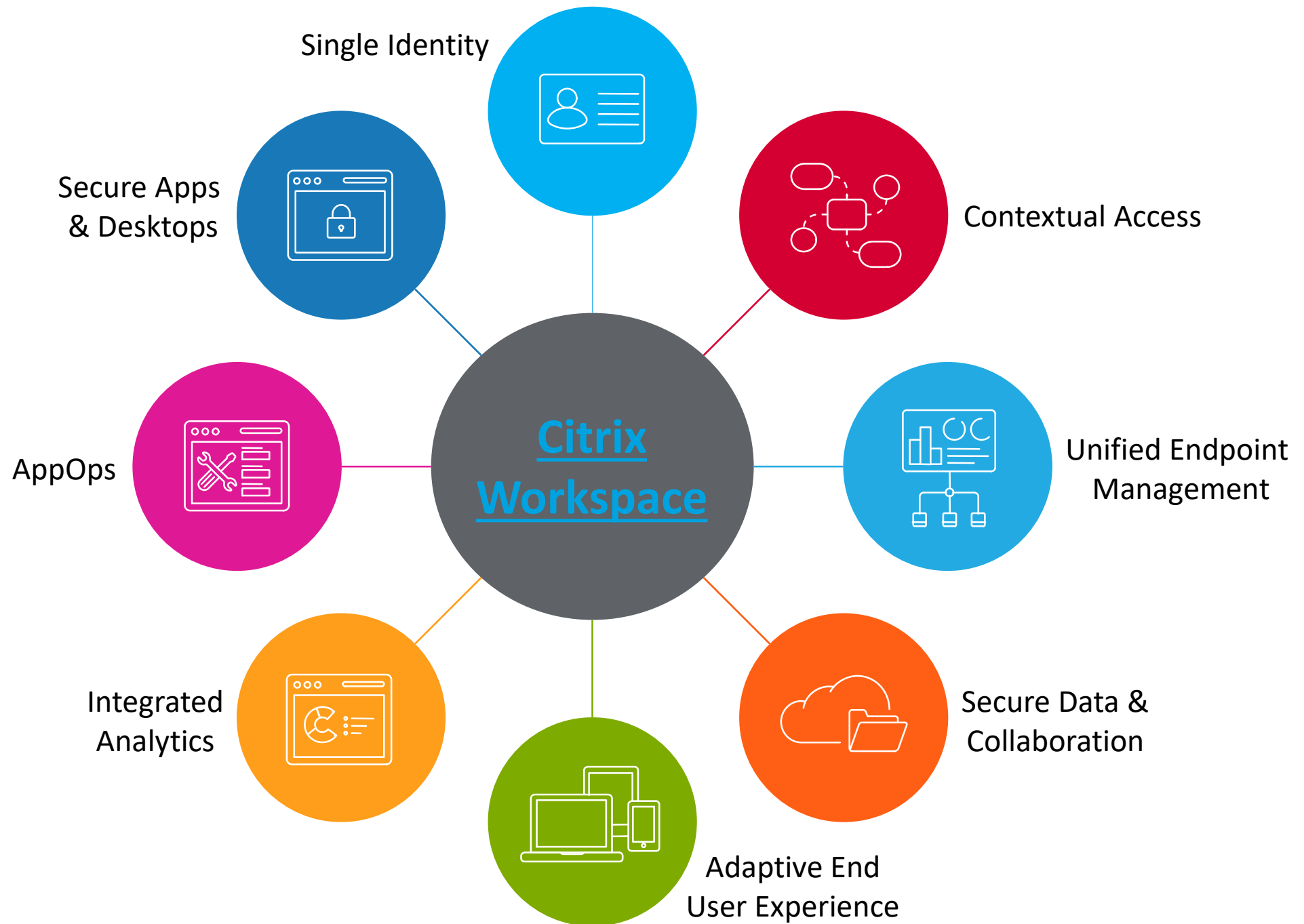
**People-centric solutions
for a better way to work**

Workspace app delivers ALL apps

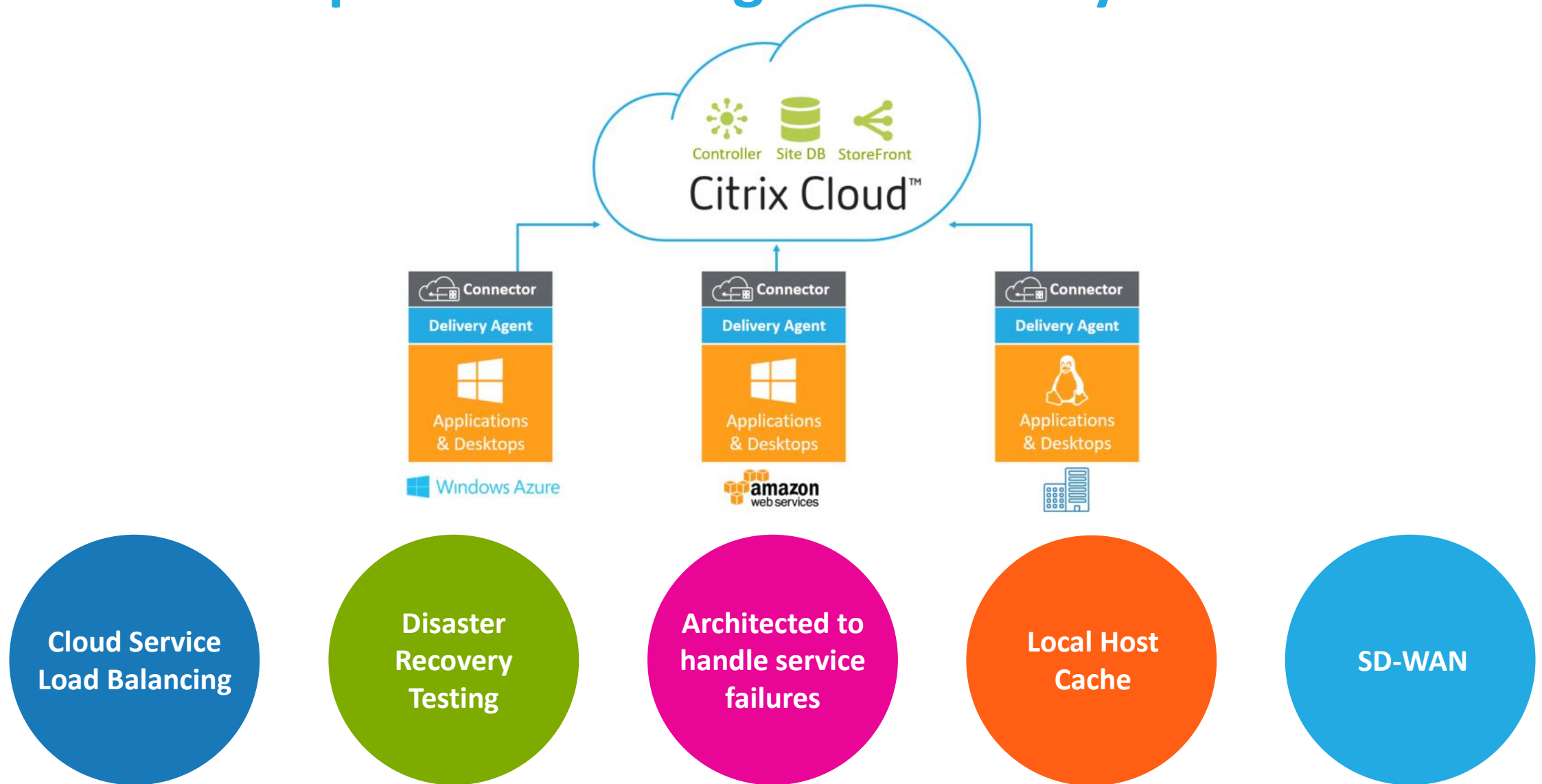


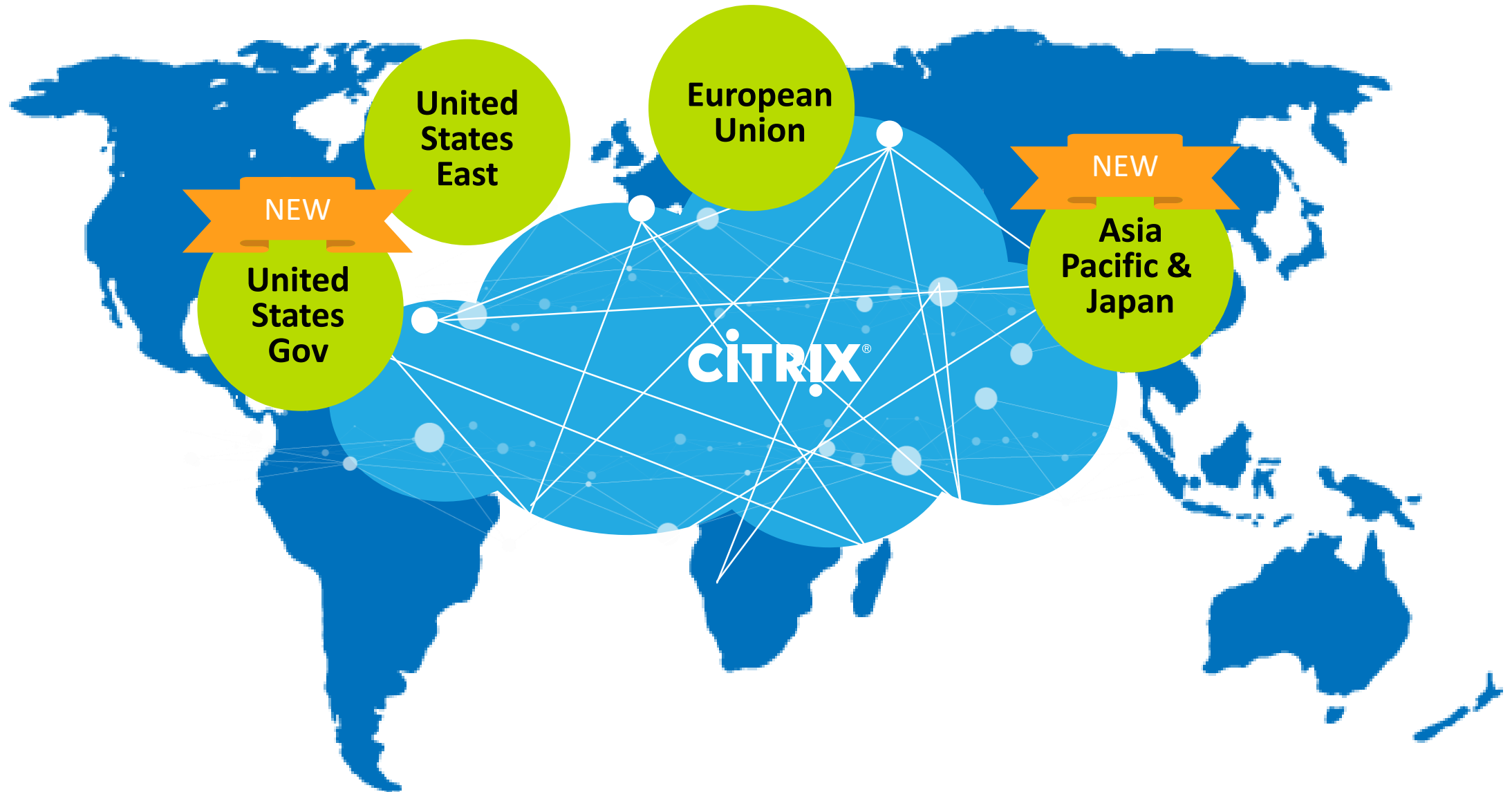
Workspace Platform – A simplified IT experience



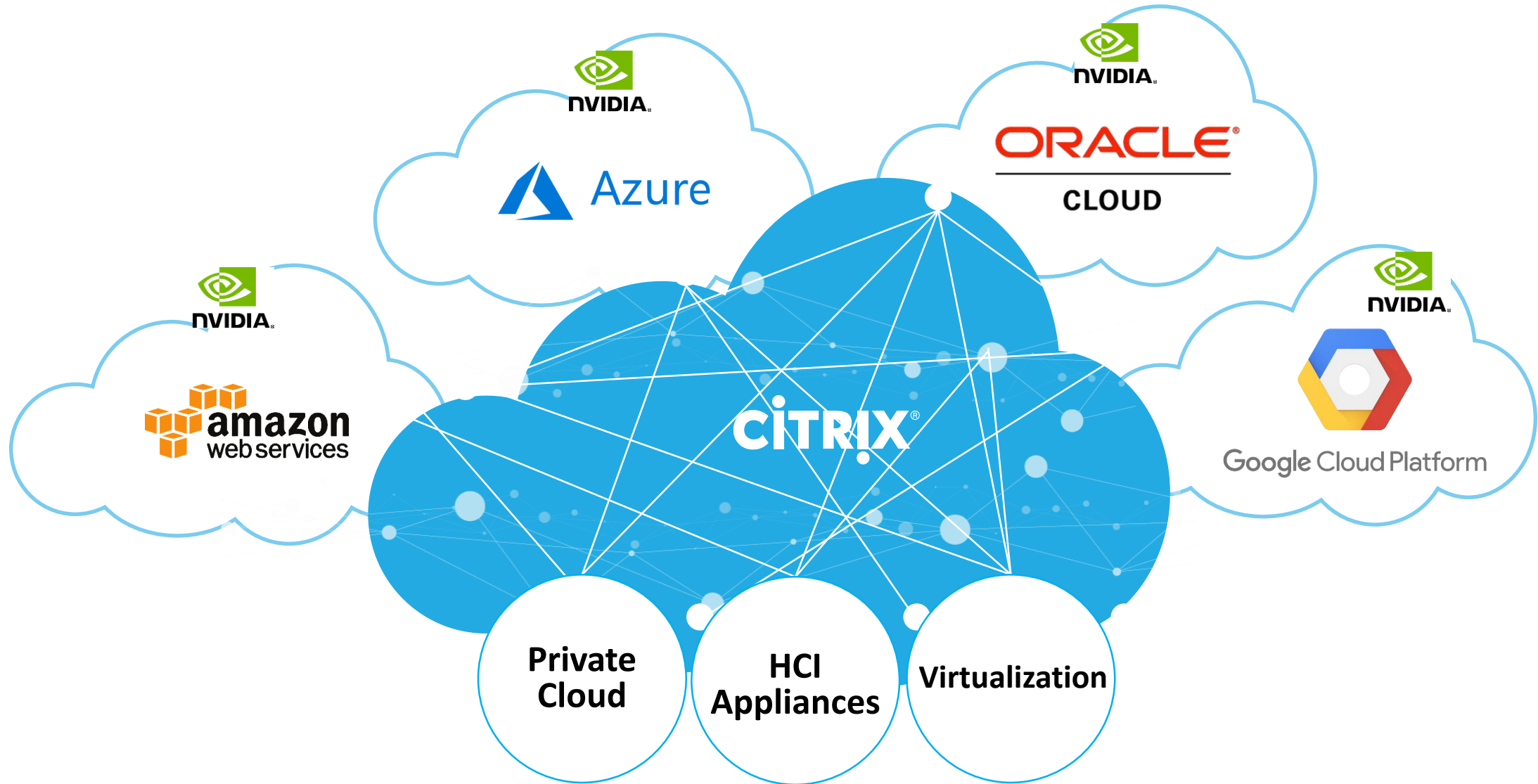


Citrix Cloud Optimized for high availability





Citrix Cloud: Hybrid-cloud, multi-cloud strategy

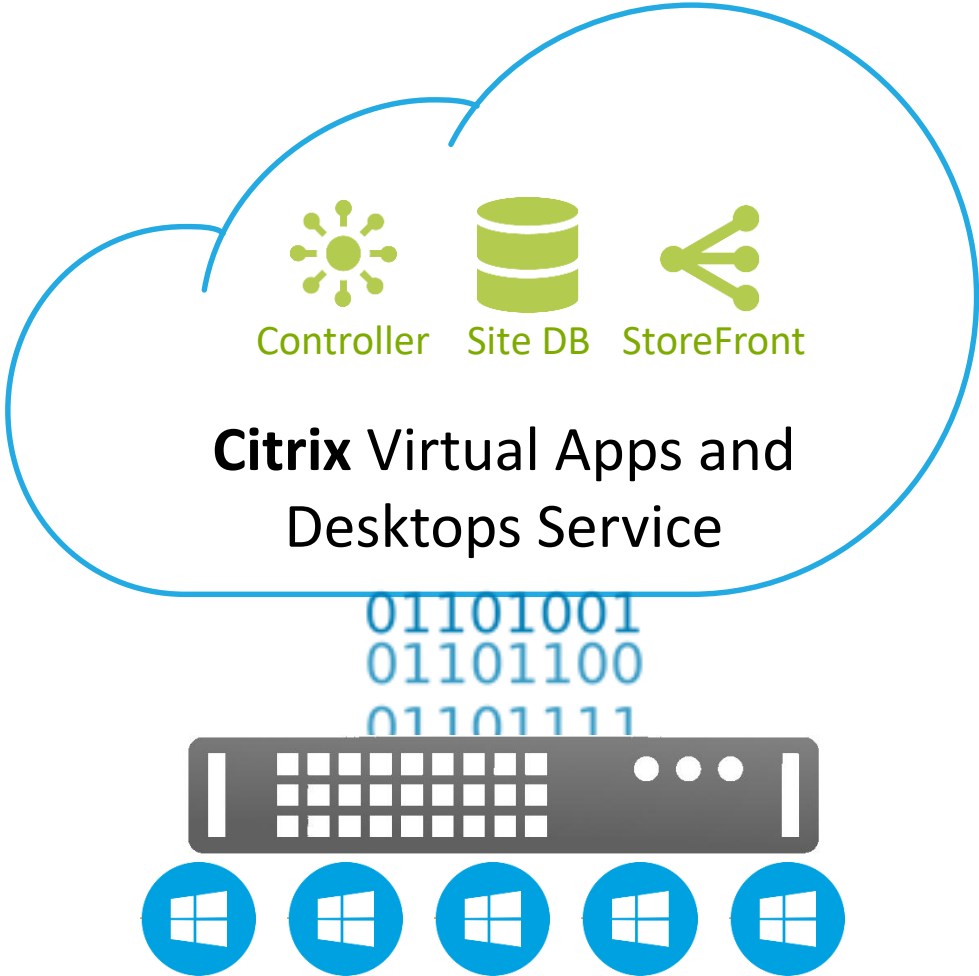




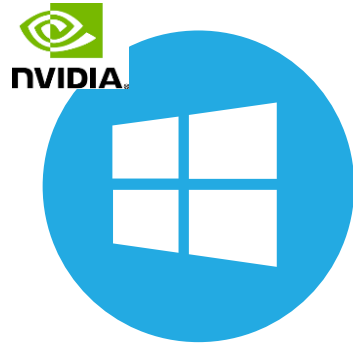
Ready

HCI Workspace Appliance Program

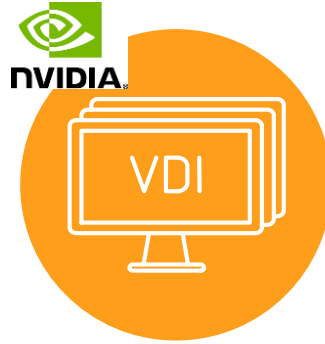
The simplest and fastest way to deploy hybrid cloud VDI that is scalable & secure



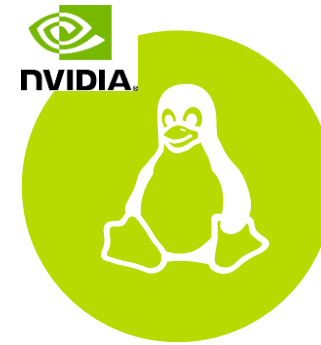
Virtual Apps and Desktops Delivery Options



Windows Server
Apps & Desktops



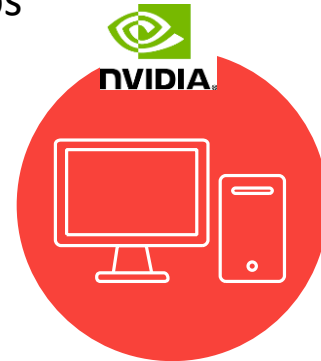
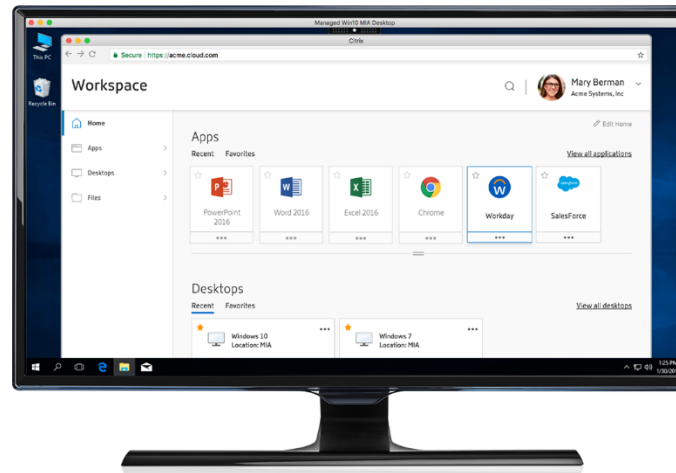
Persistent & non-persistent
Virtual Desktops



Linux
Apps & Desktops

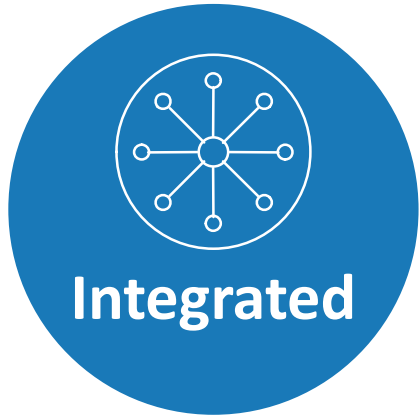


Web & SaaS Apps



Remote PC

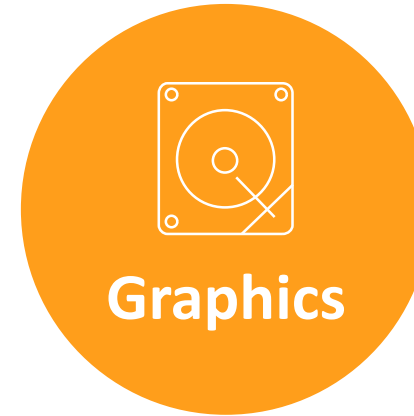
Citrix Hypervisor



- PVS-Accelerator
- MCS-Accelerator
- Windows Continuum
- Product Lifecycle aligned with Citrix Virtual Apps and Desktops



- Hypervisor Introspection
- Revolutionary security capabilities only available with Citrix and Bitdefender



- Industry leading graphics virtualization technology
- Broadest range hypervisor GPU choice, including:
 - NVIDIA
 - AMD
 - Intel



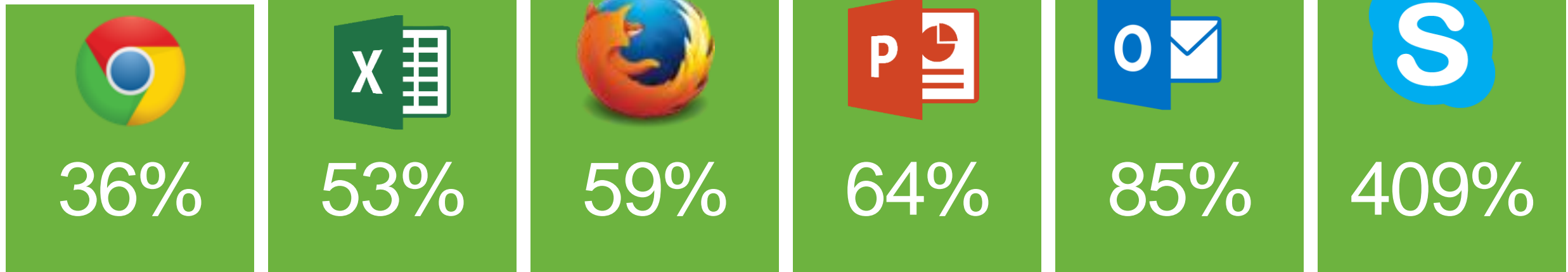
- Eliminates expensive Hypervisor costs (vTax)
- Entitlement of Citrix Virtual Apps and Desktops & Citrix Workspace

**5,000 seats of Citrix
Hypervisor over 3 years, using
vSphere, will cost \$680k extra**

Or you could use Citrix Hypervisor
under Citrix Hypervisor and save
that \$136 per desktop



GPU Increase Windows 7 to Windows 10



Enhanced high availability of GPU-accelerated VMs

Only Citrix Hypervisor can move GPU-accelerated VMs between hosts with NVIDIA vGPU live migration



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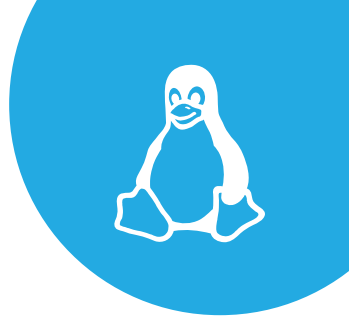


“We’re big fans of Citrix Hypervisor: we abuse it, and it works.”

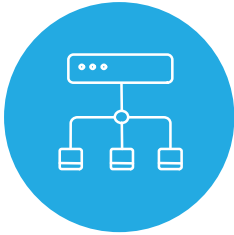
Neil Bailey

Head of IT Infrastructure
Red Bull Technology

Linux Virtual Apps and Desktops



What's New



Adaptive Transport



Smartcard Support



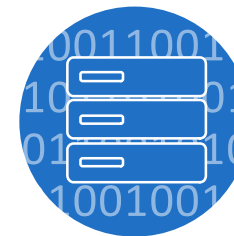
Hardware encoding



NVIDIA SDK



Federated
Authentication



Machine Creation
Services

Citrix HDX technologies

Optimizing the virtual access experience



- Peripheral plug-n-play technology – USB, printers, scanners
- Next generation Thinwire with Adaptive Display
- Adaptive Transport and Framehawk
- HDX 3D Pro
- HDX Mobile
- Voice, video and multimedia performance
- Unified communications
- WAN acceleration
- Adaptive orchestration
- Citrix X1 Mouse
- Universal printing

The High Definition eXperience



HDX Broadcast

ICA and RDP protocol support for access from any device, anywhere



HDX Plug-n-Play

Access to local resources and peripherals, including USB devices and printers



HDX MediaStream

Video and audio playback



HDX RichGraphics

2D/3D graphics incl. Adaptive Display, HDX 3D Pro and Microsoft RemoteFX



HDX RealTime

Voice and video for real-time collaboration



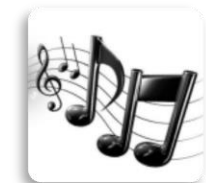
HDX WAN Optimization

Performance and bandwidth optimizations for branch offices with Citrix CloudBridge



HDX Mobile

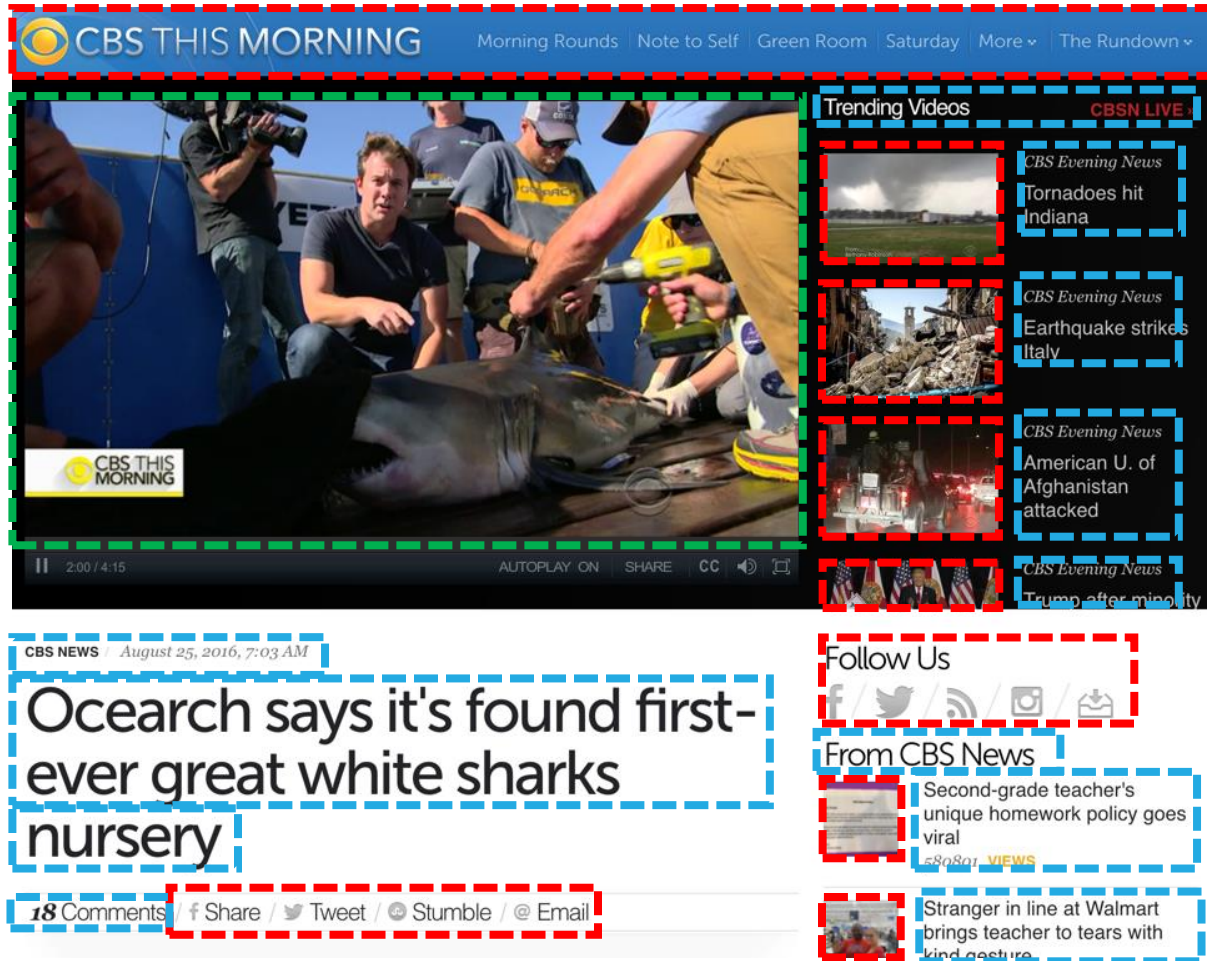
Touch navigation for Windows apps; local device features



HDX Adaptive Orchestration

Best user experience based on server, network connection and user device

Adaptive Display

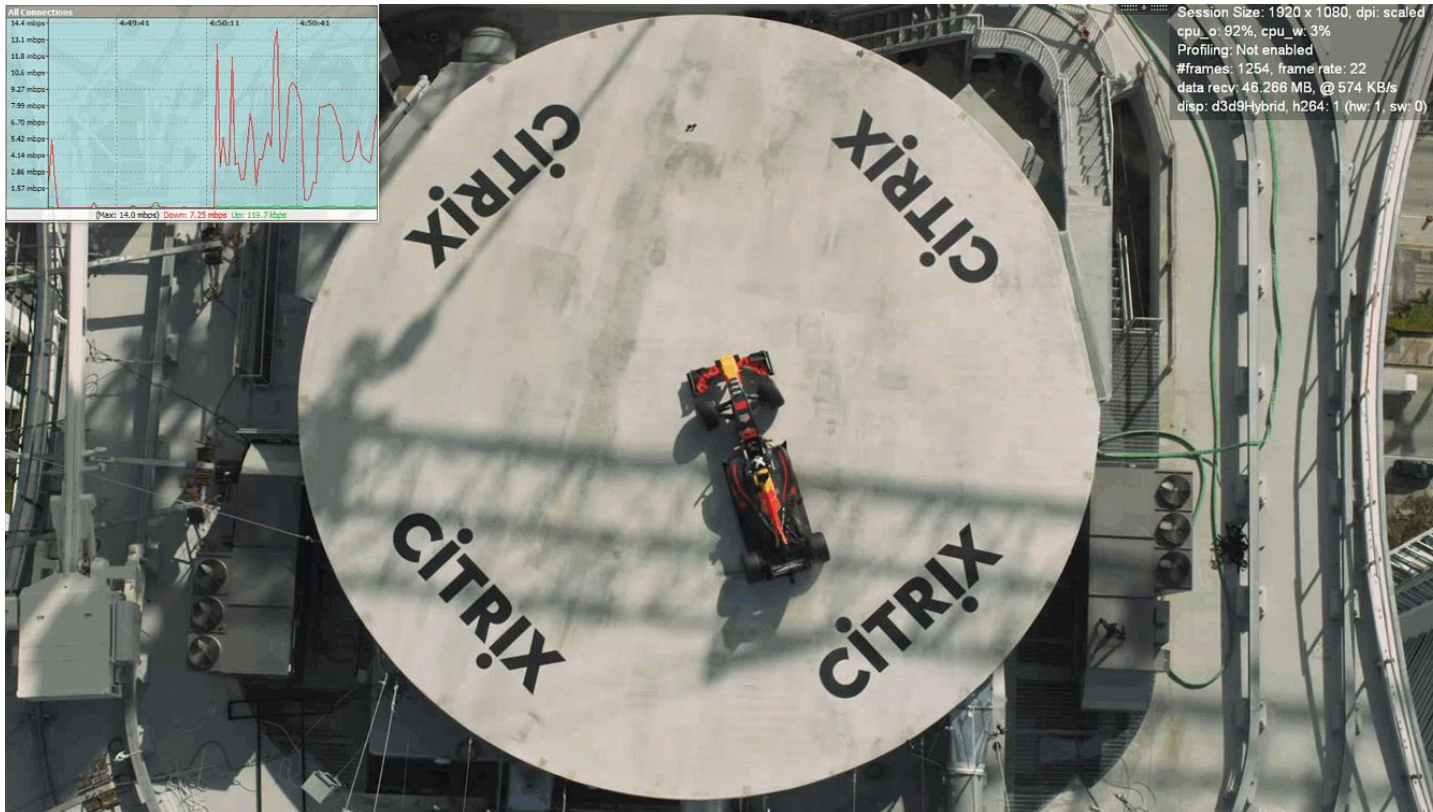


- **Green** = Video / 3D graphics
H.264 = Most efficient for video and 3D graphics, but with higher CPU usage
- **Red** = JPEG / Images
Thinwire = Most efficient for static images with low CPU usage
- **Blue** = Text
Overlay lossless = Most precise for text to avoid blur

H.264/H.265 Video Codec can leverage NVENC when NVIDIA GPU is available

HDX Adaptive Throughput

Improved session interactivity, better multi-media playback, enhanced throughput consumption, better user experience

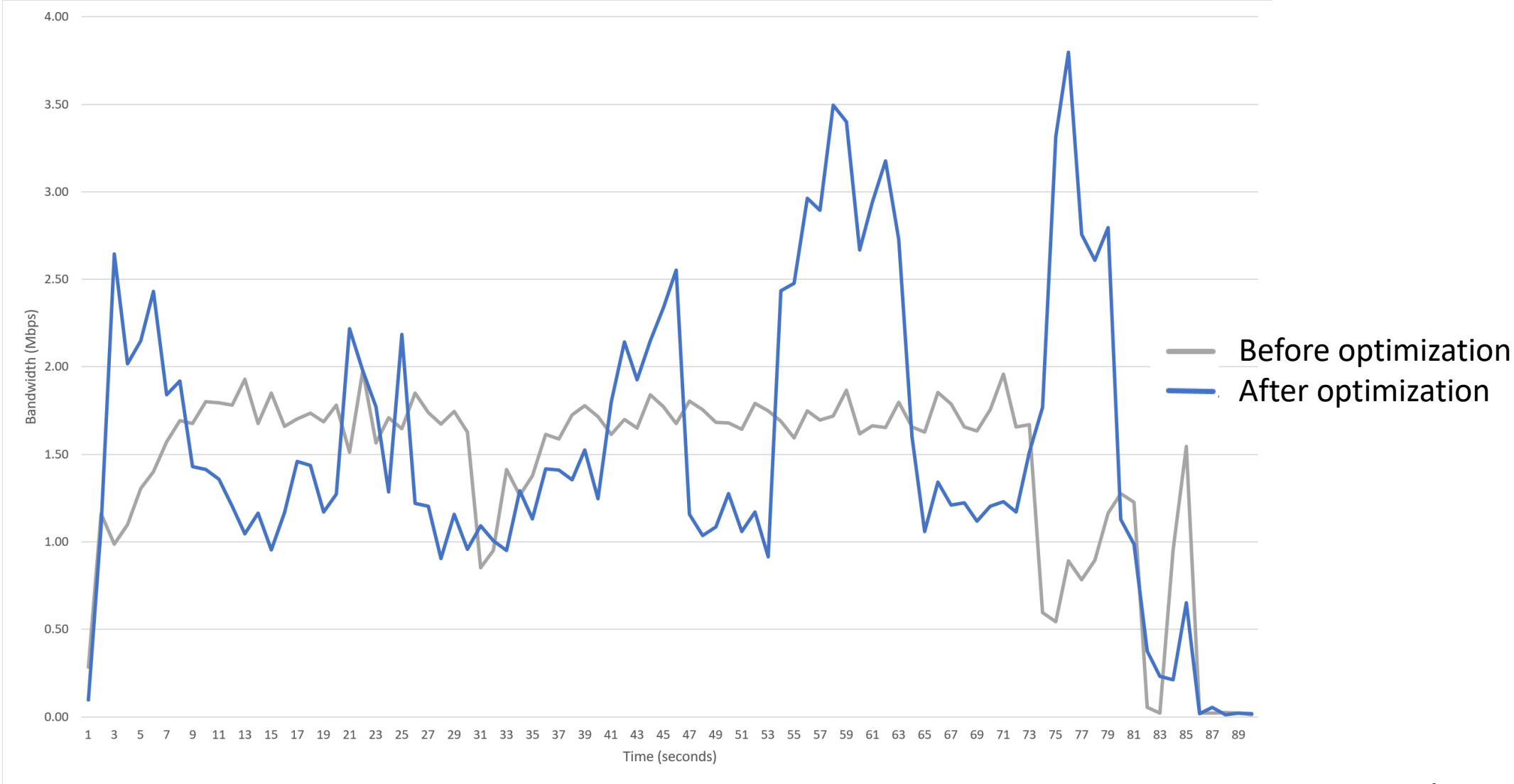


400% increase in peak throughput from 7.15 LTSR with intelligence to monitor session performance to throttle back throughput if needed to maintain session interactivity

Improved Multi-media playback

HDX Adaptive Throughput

Why



HDX Adaptive Throughput

Why

400 MB Server to Client	Before Optimization	After Optimization	Improvement
Latency 50 ms	424	186	2.27 X
Latency 150 ms	1203	520	2.31 X

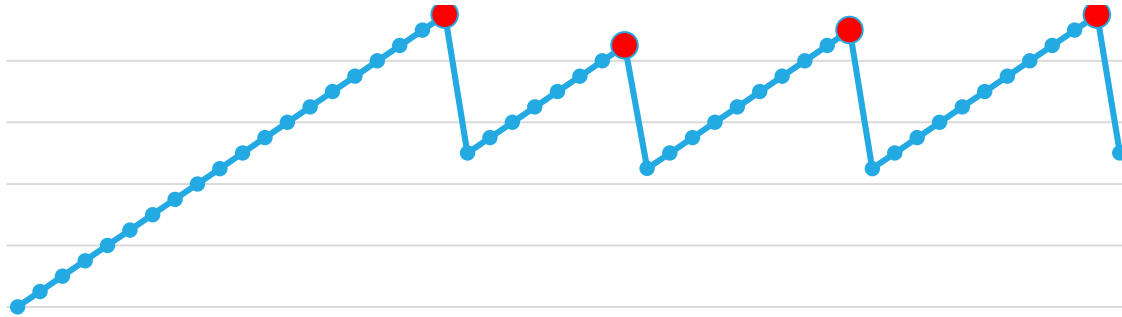
400 MB Client to Server	Before Optimization	After Optimization	Improvement
Latency 50 ms	315	45	7 X
Latency 150 ms	903	52	17.36 X

HDX Adaptive Throughput

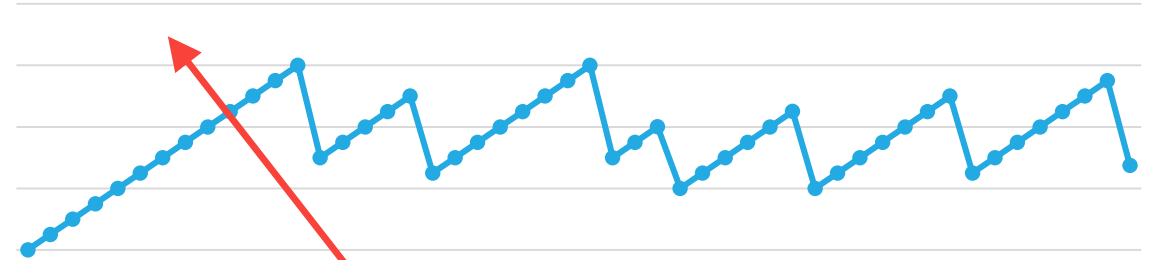
Why

Output buffers too high

Poor Network



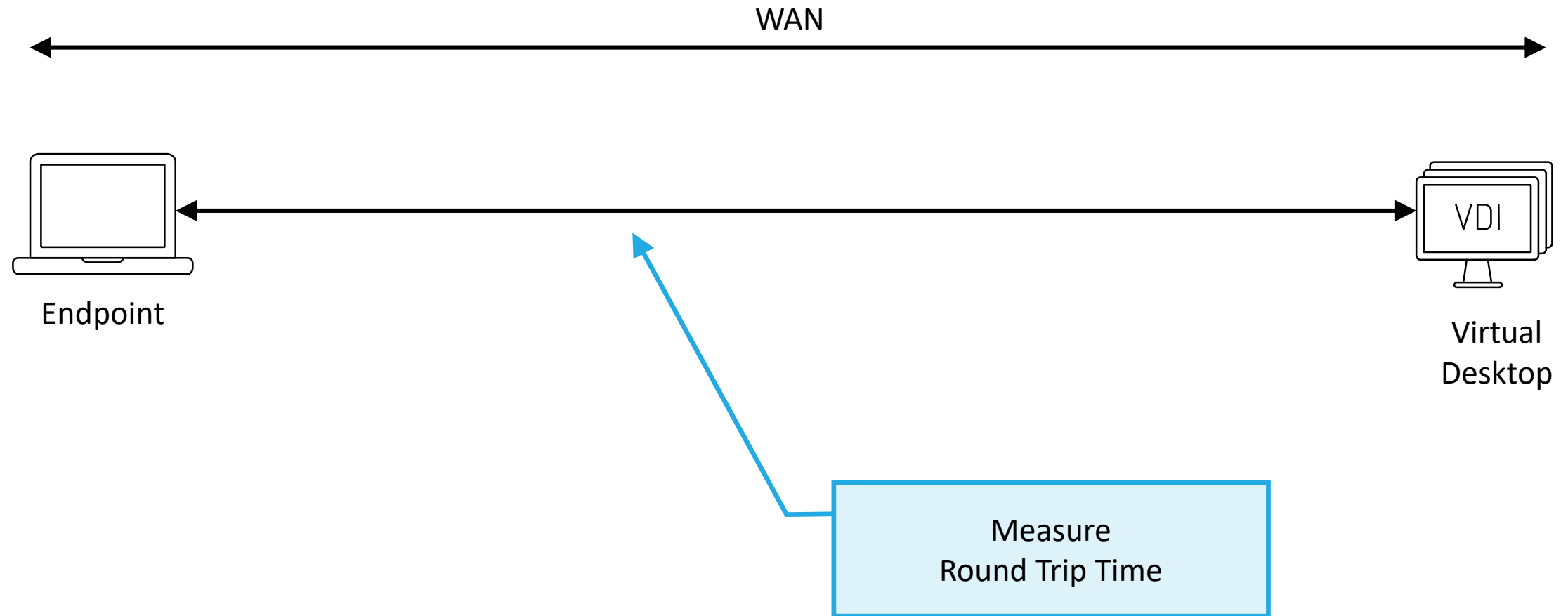
Good Network



Output buffers too low

HDX Adaptive Throughput

Overview



HDX Adaptive Throughput

Configuration

- Supported on CVAD – Workspace App for Windows 1811 and VDA version 1808 or higher
- Both the limits for the checks can be modified in registry but we will **NOT** be making these public.
 - [HKEY_CURRENT_USER\SOFTWARE\Citrix\ICA\Session]
"OutBufLimit"=dword:0000012c
"OutBufThinwireRttThreshold"=dword:00000190
- To validate the current session's OutBufLimit see the registry key
 - [HKLM\SOFTWARE\Citrix\Ica\Session\<sessionNumber>\Connection]
EffectiveOutBufLimit

Virtual Display Layout

Why

Layers combine to give the user a personalized desktop experience

Virtual Display Layout

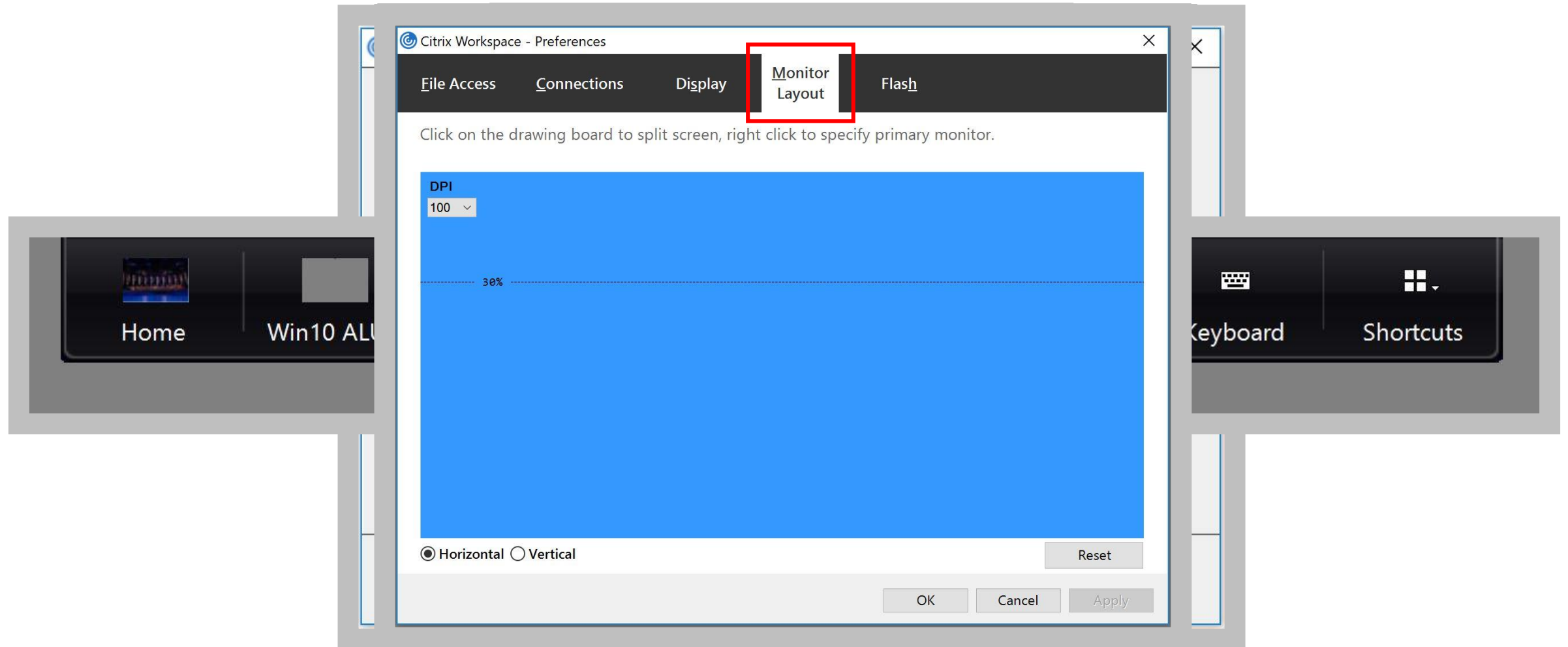
Overview

Virtual Display Layout

Citrix Virtual Apps and Desktops 1811

Virtual Display Layout

Configuration



Virtual Display Layout

Design Consideration

- The monitor layout can be split into following percentages: 20, 25, 30, 40, 50, 60, 70, 75, 80
- This feature currently works only for a single monitor.
- The monitor layout remains in the same setup for all subsequent sessions on the client for any desktop until reset by the user from the Preferences > Monitor Layout page
- Requires Citrix Workspace App for Windows 1811 or higher
- Virtual Apps sessions are not affected by these settings

High-performance experience, low-cost devices



SAMSUNG DeX



**Citrix Ready
workspace hub**

Windows 10 S



**Workspace app
for UWP**



Chromebooks



**Workspace app
for Chrome**

Citrix Ready workspace hub management

- Managed by Citrix Endpoint Management from Citrix Cloud
- Auto discovery based enrollment of Citrix Ready workspace hub devices
- Admin controlled security actions such as firmware update, restart and reset
- Citrix Endpoint Management configures Citrix Casting secure session roaming from a mobile device to Workspace hub connected display

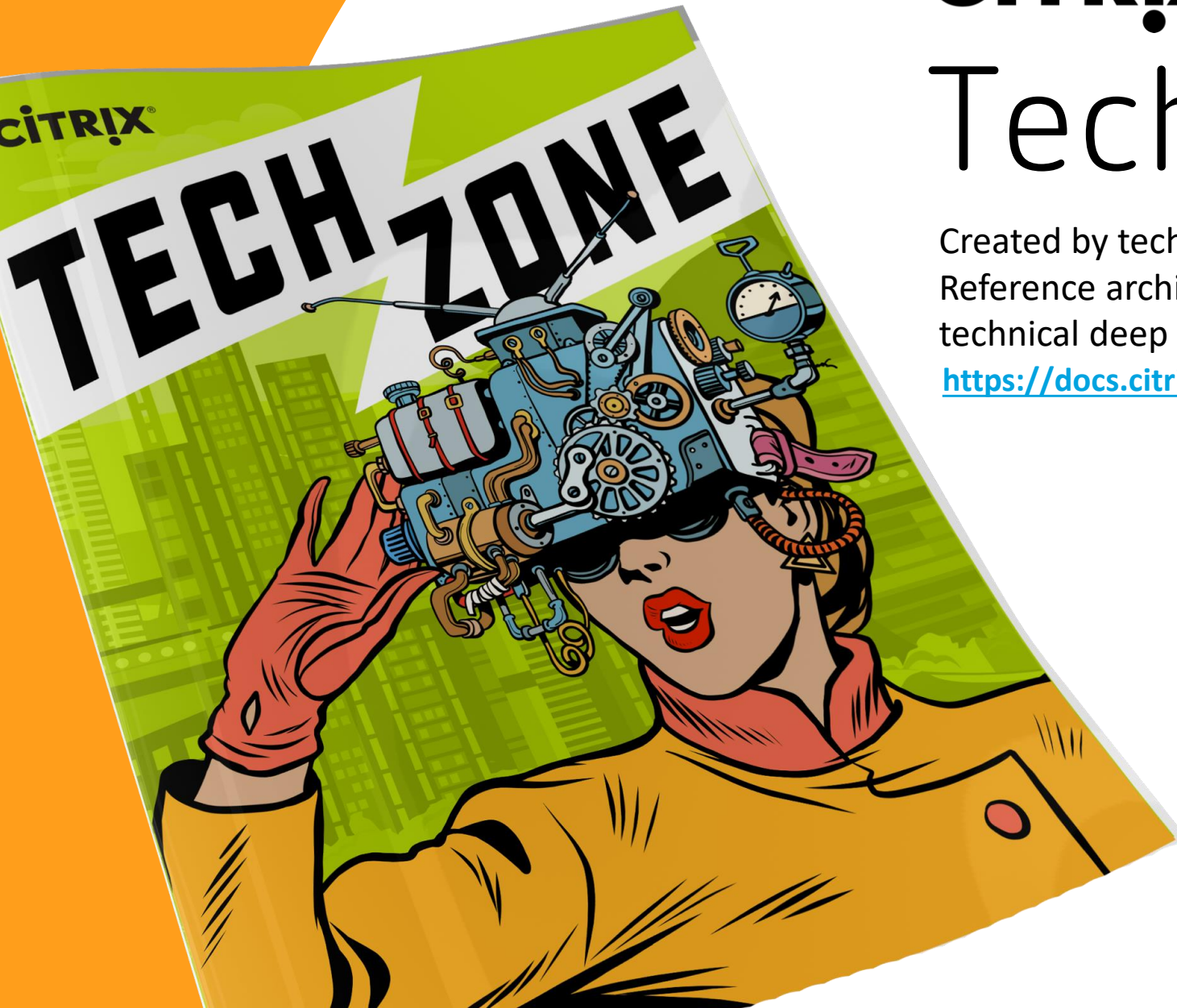


Citrix Optimizer (CTX224676)

- **Optimizer 2.0 (18/12/2018)**

- Optimization tool to get the best performance from various operating systems
 - Disable unnecessary services and scheduled tasks
 - Remove built-in applications
 - Various other tweaks (Registry/PowerShell)
- Supported operating systems
 - Windows 7 / 8.1
 - Windows 10 – builds 1607, 1703, 1709, 1803, 1809 ^{NEW}
 - Windows Server 2008 R2 / 2012 R2 / 2016 / 2019 (1809) ^{NEW}
- Version 2.0 enhancements
 - Marketplace for custom made template
 - Template builder
 - Template auto-selection





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