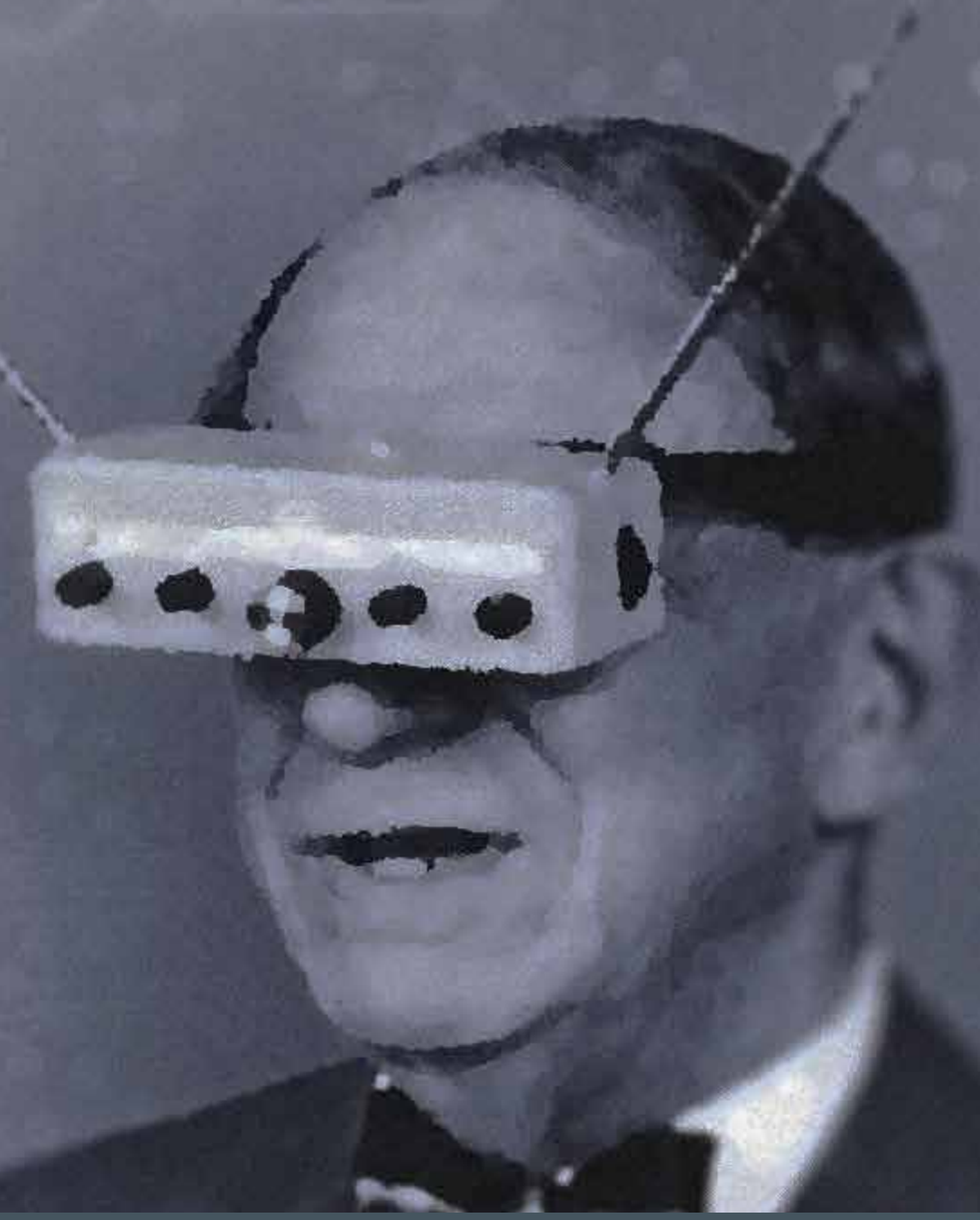
The trend to virtualisation



highlight
see clearly

Key concepts

Desktop virtualisation describes the process of separating or abstracting a personal desktop environment (including its operating system, applications, user profile and data) from the physical hardware on which it is usually deployed

Virtual Desktop Infrastructure (VDI)

The desktop virtualization concept where a “virtualized copy” of the desktop is hosted on a server in the data centre, running as a virtual machine on a hypervisor, instead of on the local PC.

Access from anywhere

This enables users to remotely access these virtual desktops on any end-point device, such as a PC, laptop, or mobile client from anywhere.

Why go virtual?

Organisations adopt Virtual Desktop technologies for many compelling reasons...

Compliance and data security
In a VDI environment, all data and intellectual property is protected in the data centre, and never on a user's local device

Lowering TCO of IT equipment
VDI environments extend PC lifecycles and analysts estimate TCO is reduced by up to 40%

Greening IT
VDI environments reduce the power requirements for each desktop, lowering energy consumption and reducing costs

Mobile working and BYOD
VDI environments enable people to work securely from any location, and using their own preferred computer or mobile device.

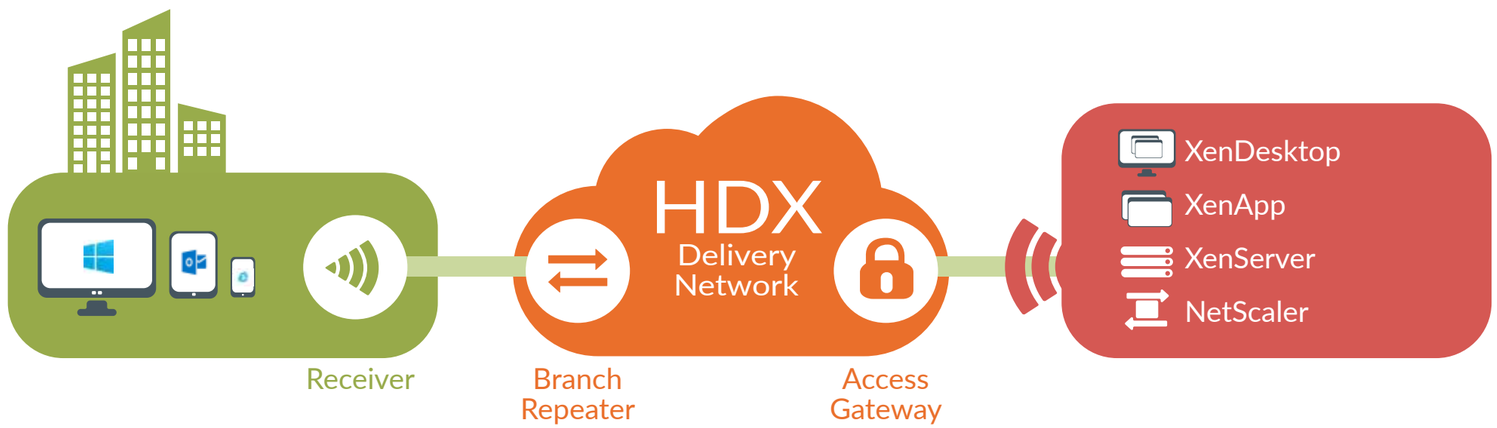
Of the vendors of Virtual Desktop technologies, those with greatest share of the market are **Microsoft**, **VMware** and **Citrix.**

The technologies, and concepts are similar across vendors, but this paper will focus on Citrix XenDesktop services hosted on Citrix servers in the datacentre.

CITRIX XenDesktop

How is Citrix XenDesktop delivered

Delivery of Citrix Virtual Desktop is dependent on several key components in the delivery architecture



At a high level, the Citrix architecture for Virtual Computing is represented as follows

- A user on the company network will gain access the Citrix systems through an HTTP web-page, known as the StoreFront, or via a pre-configured ‘Receiver’ application on their PC or mobile device.
- External users will access the server via a secure gateway, known as a Netscaler.
- A Delivery Controller authenticates users and browkers connections to the Citrix servers providing the Virtual Desktop service.
- A Citrix License server keeps check of licenses available for users.
- Individual Virtual Desktop sessions are hosted on one of a number of servers in the Citrix server farm.
- Citrix ICA/HDX protocol traffic is carried across the delivery network to the end user device.

Delivery Network

Typically contains:

Routers

Switches

Wide Area Networks (WANs)

Traffic classifications
(as part of Network Quality of Service (QoS) configuration.)

The Challenges

The more complex the components of a solution, the greater the challenge to monitor it. All the components listed above, if failing, or performing poorly can impact the user experience of the Citrix Virtual Desktop

A poor user experience leads to reduced productivity, profitability, and employee morale, and negatively affects the corporate brand image. The challenge of assuring delivery of Citrix VDI to users revolves around effective monitoring of the service from a user's perspective.

"I went round our UK offices and saw people were having problems, but the IT team said the CPU was fine and storage was fine. This is when we started thinking about experience monitoring."

Chris Hunter, Service Delivery Director at JLT

IT monitoring is an essential part of ICT delivery. Without effective monitoring, Operations teams are severely hampered in discovering the causes of problems with digital services. Monitoring is generally accepted as a necessary overhead aiding the smooth running of ICT infrastructure. But how effective is monitoring?

Historically and traditionally, ICT monitoring is both technology specific and reactive. Meaning that commonly, within an IT team or department, the server team have their tools, as do the network team, and also the application team. These tools will generate alarms to alert IT personnel of failures in their technology silo, or to investigate issues once a support call has been raised. Often this leads to Operations teams investigating reactively, after the users have already experienced disruption. Further, this separation of different technology streams into siloes fails to deliver an understanding of the service as a whole, in this case Citrix VDI.

The Citrix Virtual Desktop service

Highlight encourages an understanding of the role each of the architectural components shown above plays in the delivery of any given digital service, and enables an understanding of the service from the user's experience

Looking at Citrix VDI from a user's perspective, the following critical assurances need to be assessed:

- The user must be able to access the StoreFront page or Netscaler to gain access to Citrix VDI.
- When logged in, the virtual desktop must be provided over the delivery network within performance delay tolerances.
- If either of these conditions cannot be met, why not?

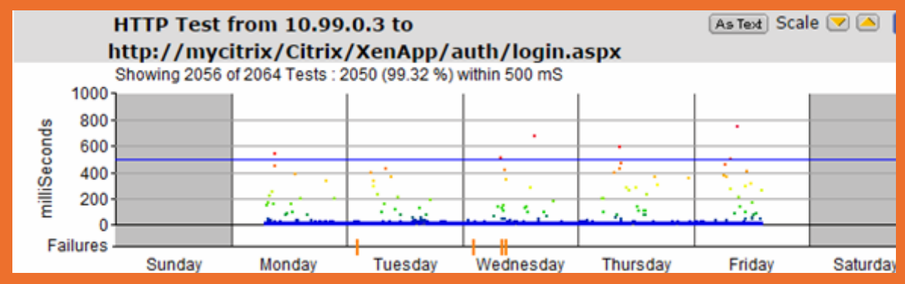
Highlight provides the tools to proactively test delivery and monitor the components of a digital service across large scale IT infrastructures. This is accomplished utilising features like Cisco's IPSLA and Juniper's RPM, inherent in the devices and operating systems of the 'Delivery Network'.

1

Test location

First, for Citrix, it starts proactively testing the ability of each location on the WAN to load the HTTP StoreFront.

An SLA is established where performance above this level is deemed unacceptable from a user perspective.



2

Test delay

Secondly, Highlight tests round trip delay across network paths to the datacentre alongside application traffic. Meaning, Highlight displays a true measurement of delay affecting application traffic as it carries the same classification, and therefore is given the same priority in the QoS configuration.

Citrix do not advise a recommended maximum acceptable round trip delay, so an SLA is fine-tuned in Highlight to alert where levels are impacting user experience

3

Test responsiveness

Third, Highlight tests the responsiveness of the Citrix Server estate, including the Delivery Controller, the License Server, and all servers hosting Virtual Desktop sessions.

- **Citrix License Server** should be listening on TCP ports 27000 and 7279
- **Delivery Controllers commonly** use TCP ports 80 and 8080.
- **Citrix common communication ports** are TCP 1494 (ICA / HDX) and TCP 2598 (Session Reliability)

So from the datacentre routers, Highlight will test the response on these ports for each and every server in the estate, alerting to any server which may be failing to respond due to an application crash, or revealing servers under load where response time is degraded.

4

Monitoring enabled

Finally, server health metrics of the Citrix Server estate are gathered via Simple Network Management Protocol (SNMP), enabling Highlight to monitor CPU utilisation, Memory allocation (physical and virtual), and available disk space. Tuneable thresholds enable warnings to be raised and acted upon before a user's experience is adversely affected.

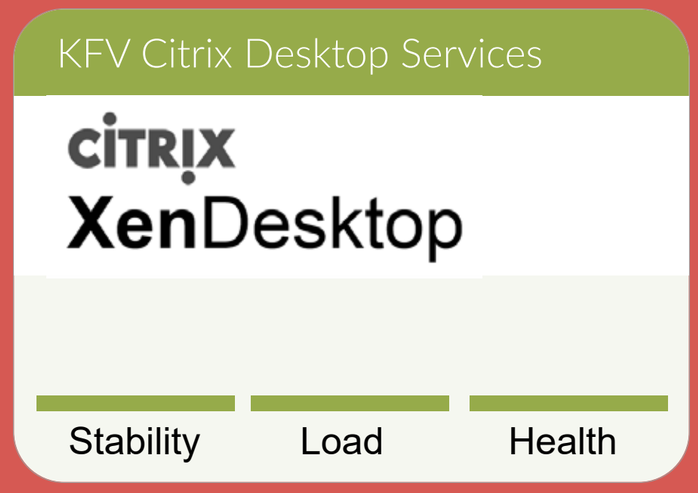
An easy to understand view

Highlight's 'Service Tiles' feature allows for the most complex of digital services to be viewed in the most straightforward way.

Heat tiles

For Citrix, the components of Virtual Desktop delivery, from the network delay of application traffic to the CPU load on individual XenServers, are linked together and presented in a single 'Service Tile'.

Issues that may affect User Experience are alerted visually in the Highlight Web UI, where the tile's colour, and that of the Stability or Health gauges will turn Amber or Red, in accordance with severity.



Automated alerting

Generate emails or SNMP Traps to auto-generate support tickets.

Reduce mean time to restoration,

Drill down immediately to reveal the component at risk or at fault. The correct personnel resources can be allocated immediately to affect resolution, or better still, take pre-emptive action before users are aware there is a problem.

Summary

The primary purpose of an enterprise's IT infrastructure is to deliver the applications and services that enable you to do business and be successful. Performance degradation impacts profitability, corporate image, employee morale and competitive edge

With the drive to virtualise, and the increasingly complex make up of how business critical IT services like Citrix VDI are delivered, a new breed of monitoring solution is needed.

"With Highlight, we are able to put ourselves in the seat of our colleagues and see our services through their eyes"
Chris Hunter, Service Delivery Director at JLT

Get in touch

If you are a service provider and want to improve your ability to satisfy, delight and retain customers more effectively, contact Highlight for more details.

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