

# Effectively Manage and Monitor Your VDI with Citrix Desktop Director and ControlUp

The ability to effectively manage a VDI environment hinges on having the right tool(s) to cover the important use cases. Some of the most common use cases include; VDI monitoring, VDI management, end-user support trending analysis and capacity planning. Not only are these key use cases different in scope and context; oftentimes they belong to different teams tasked with covering the issues that arise.

So perhaps a better question to consider is whether your organization needs a VDI management tool, a VDI monitoring tool, end-user support tool or some combination of these.

Although it's easy to assume that VDI management is essentially the same thing as VDI monitoring, nothing could be further from the truth. VDI management and monitoring have completely different goals from one another.

- VDI monitoring is based around the collection of performance metrics with the goal of using those metrics to detect and remediate performance problems. In the past this meant focusing on individual performance metrics such as storage I/O and memory consumption. But today this trend is largely giving way to user experience monitoring and application monitoring.
- Management on the other hand, is focused on maintaining the individual virtual desktops and the backend infrastructure that is being used to host them. This encompasses the day-to-day tasks that must be performed in any virtual desktop environment; including applying software updates, pushing registry keys, managing operating system services, or troubleshooting OS or application issues. A good VDI management tool must reduce the amount of time that it takes administrators to perform common maintenance tasks.
- Trending analysis, reporting and capacity planning are other important dimensions of monitoring and management tools. Having extensive reports which cover multiple aspects such as user activity, user experience, application activity, resource consumption licensing and system health to name a few categories is critical.

## About ControlUp and Director

### Citrix Desktop Director Overview

Citrix Desktop Director is a real-time web tool that allows administrators and help desk teams to monitor, troubleshoot and perform support tasks for end-users. Director's dashboard can be configured based on the needs of the user using it. For help desk administrators, Director searches for the user reporting an issue and displays activity associated with that user, such as the status of the user's applications and processes. Help desk teams can quickly resolve issues by performing actions such as ending an unresponsive application or process, shadowing operations on the user's machine, restarting the machine, or resetting the user profile.

For sysadmins, Director's dashboard provides an overview of the key aspects of a deployment, such as the status of sessions, user logons, and the site infrastructure.

### ControlUp Overview

ControlUp Real-time is a powerful VDI management and monitoring solution providing a bird's-eye-view of the entire VDI environment from hypervisors to individual processes. ControlUp provides performance visibility and end-user experience metrics allowing Citrix admins to easily detect, troubleshoot and remediate issues in real-time and within context.

ControlUp Real-time dashboards are organized, high-performance grids that allow VDI Operations sysadmins to search and sort through a multitude of views including: folders, hosts, computers, sessions, processes, user accounts and executables. With a click of a button easily sort, group, filter, search and customize the information providing a deep-dive in real-time.

Built-in incident triggers make sure that administrators are notified in time when an issue affects their VDI farm or end-user experience. Alerts are available by both email and push notifications via the ControlUp mobile app.

## ControlUp Complements Desktop Director to Cover Key Use Cases

### Extensive Monitoring Done Right

#### 1. 360° VDI Monitoring

With Director and ControlUp together, the Core Desktop virtualization team gets a full 360° view which allows admins to monitor their farm on each and every level of IT: hypervisor connection, data stores, Windows (via a lightweight agent), XenDesktop\XenApp metrics (on both VDA level, and Citrix components - License server, DDC, Store front, etc.). ControlUp also allows admins to monitor some important end-user experience metrics like a specific user logon duration showing the breakdown of the logon duration to certain levels and even sub levels.

## 2. End-User Experience Monitoring

By providing a great deal of useful information for end-user metrics, both tools are an excellent choice. Director (especially with XD Platinum/NetScaler Enterprise or Platinum edition) provides a plethora of protocol related metrics. Both products provide statistics around logon duration, albeit using a different approach to calculate these stats. ControlUp also provides drill down capabilities into login duration elements via PowerShell script based actions.

Vendor / Functionality	ControlUp	Citrix Director	Notes
<b>Session Response Time</b>			
ICA Latency - Last Recorded	✓	✓	
Avg. ICA Latency	✓	✓*	* Director - XD Platinum / NetScaler Enterprise or Platinum
ICA RTT	✗	✓	
HDX Channels State	✓*	✓	* Using Script based action
Avg. ICA Bandwidth / Jitter	✓*	✓**	* Using Script based action ** Director - XD Platinum / NetScaler Enterprise or Platinum
<b>Logon Duration</b>			
Overall Logon Duration	✓	✓	
Logon Duration Breakdown	✓	✓	
Advanced Logon Duration Breakdown	✓*	✗	*Show breakdown of advanced phases like Network Providers and UserInit
GPO Processing Breakdown	✓	✗	
Logon Simulator	✓	✗	ControlUp Logon Simulator add on
<b>Application Load time</b>			
Application Load time	✓	✗	

## 3. Real-Time Monitoring and Alerts

Detailed real-time monitoring – with ControlUp admins get a real-time view of all the interesting metrics related to server (CPU status, Memory Utilization, IOPS consumption, etc.) and configuration data for specific applications like XenApp (load evaluators), XenDesktop (Registration status) and PVS (cache size).

Real time alerts – ControlUp allows admins to customize incident triggers, and be notified in real-time when a specific event occurred in their environment. Incident triggers can be configured to track multiple types of incidents with fine grain capabilities. A follow-up alert can be sent by e-mail or mobile push notification as well as integrated with external systems by writing a log of the incident to that system.

Vendor / Functionality	ControlUp	Citrix Director	Notes
<b>Trigger Types</b>			
Failed Server / Desktop Machines	✓	✓	
Citrix Licenses Status	✓	✓	
Infrastructure Status	✓	✓	
Performance Metrics	✓	X	
Windows Events	✓	X	
Process Events	✓	X	
User Session Events	✓	X	
Logon Duration Metrics	✓	X	
User Connection Failures	Partial*	✓	*Based on event log entries
<b>Alert Types</b>			
E-mail (Cloud Based)	✓	X	
E-mail (SMTP)	✓	X	
Mobile Push Notifications	✓	X	
Event Log	✓	X	

#### 4. Multiple Version/Farm Support

With ControlUp the operational team can monitor and manage multiple farms of XenApp, XenDesktop and even Horizon View with multiple versions from one console.

Vendor / Functionality	ControlUp	Citrix Director	Notes
<b>RDSH / VDI products</b>			
XenApp 5.0	✓	X	
XenApp 6.5	✓	Partial*	*Only some Director features are supported in XA 6.5
XenApp 7.x	✓	✓	
XenDesktop 5.x	✓	Partial*	*Only some Director features are supported in XA 6.5
XenDesktop 7.x	✓	✓	
Horizon View 5.x	✓	X	
Horizon View 6.x	✓	X	
<b>Hypervisors</b>			
XenServer 6.x	✓	Alerts Only*	*See Citrix Blog on Director Hypervisor Alerts
VMware vSphere 5.x	✓	Alerts Only*	*See Citrix Blog on Director Hypervisor Alerts
VMware vSphere 6.x	✓	Alerts Only*	*See Citrix Blog on Director Hypervisor Alerts
Hyper-V 2012 R2	✓	X	*ControlUp Hyper-V Support is planned for Q1 2016

## Powerful Management Capabilities

Both Citrix Desktop Director and ControlUp provide built-in management capabilities.

ControlUp is first and foremost an operational tool for the key Citrix team and as such it provides a wide array of contextual management actions for resources at any layer of the stack. Citrix Desktop Director primarily serves the help desk team support end-users by providing some very important management actions both at the VM and the session level.

### 1. In Context Management Actions

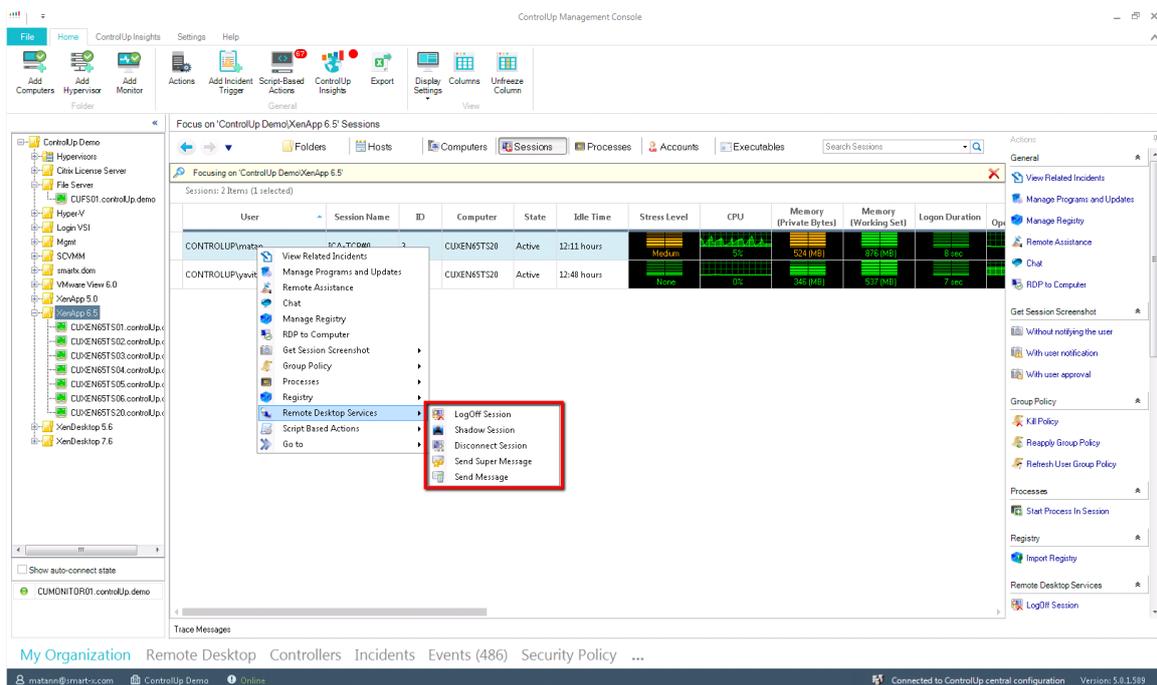
ControlUp has an advanced management interface which allows systems administrators to apply management actions on multiple computers in parallel. At the same time it compares and manages Windows registry, services, file system, and installed software. Investigating an irregularity or a misconfiguration, ControlUp provides a unique aggregated view of computers and manages many computers with the ease of managing a single one.

Vendor / Functionality	ControlUp	Citrix Director	Notes
<b>Computer Actions</b>			
Power Control	✓	✓	
Enable / Disable Maintenance Mode	✓	✓	
Reset vDisk	✓*	✓	* ControlUp - via a Script Based Action
Flush DNS	✓	✗	
Refresh Group Policy	✓	✗	
RDP to Computer	✓	✗	
Disable / Enable Process Execution	✓	✗	
Import Registry Hive	✓	✗	
Registry Controller	✓*	✗	*Manage Registry on multiple targets: comparison and batch management of Windows Registry on selected computers
File-system Controller	✓*	✗	*Manage File System on multiple targets: comparison and batch management of file system on selected computers
Services Controller	✓*	✗	*Manage Services on multiple targets: comparison and batch management of Windows Services on selected computers
Programs and Updates Controller	✓*	✗	*Compare programs and updates on multiple computers: comparison of installed programs and OS updates on selected computers
<b>User Session Actions</b>			
Logoff / Disconnect	✓	✓	
Shadow / Remote Assistance	✓	✓	
Send Message	✓	✓	

Vendor / Functionality	ControlUp	Citrix Director	Notes
Reset User Profile	✓*	✓	* ControlUp - via a Script Based Action
Chat	✓	✗	
Get Session Screenshot	✓	✗	
Kill Policy / Reapply Policy	✓	✗	
Start Process in Session	✓	✗	
Registry Controller	✓*	✗	*Manage Registry on multiple user sessions: comparison and batch management of Windows Registry on selected users
Process Actions			
End Process	✓	✓	
Kill Process / Pskill Process	✓	✗	
Set Process Priority	✓	✗	
Set Process Affinity	✓	✗	
Start CPU Throttling	✓	✗	
Delegated Administration			
Built-in Roles	✓	✓	
Custom Roles	✓	✓	
Delegate Specific Actions	✓	✓	
Delegate Specific Folders / Silos	✓	✓	

## 2. End-User Support

Both Citrix Desktop Director and ControlUp allow the help desk to remotely connect to an end-user's computer. In addition to providing remote connectivity, ControlUp allow the help desk staff to correct any problems that they might encounter within the user's virtual desktop.



### 3. Expandable and Customizable Management Capabilities

ControlUp allows admins to infinitely expand the built-in management capabilities to cover their own needs and use cases. This Script Based Action feature, allows admins to write PowerShell, VBS or even regular batch files, and run those scripts from within ControlUp on one or multiple targets. Admins can use scripts that they write on their own or tap into a large and growing library that is developed by the community of ControlUp users and sanitized and tested before being published to ControlUp.

Vendor / Functionality	ControlUp	Citrix Director	Notes
<b>Script Based Actions</b>			
Supported Script Engines	✓*	✗	*PowerShell, VB, Batch Scripts
Multiple Execution Context	✓*	✗	*Console Computer, Local System Agent, 3rd Party Computer, User Session
Map Columns to Arguments	✓	✗	
Community based SBA's	✓	✗	
Sample Community Scripts	✓*	✗	*Get PVS Write Cache Size, Analyze GPO Extension Load Time, IE URL's

### Historical Reports and Trending

Desktop Director introduced many enhancements and simplified reports compared to its predecessor, Citrix EdgeSight. However when it comes to historical reporting use cases, Citrix admins have lost many reports and data with the move to Director. Luckily together with ControlUp Insights the operational team gets a plethora of VDI related historical reports. Even more important, generating these reports is very simple.

Out of the box ControlUp Insights reports include:

- User Activity Reports
- User Experience Reports
- Resource Consumption Reports
- Application Activity Reports
- System Health Reports
- Licensing Reports

Vendor / Functionality	ControlUp	Citrix Director	Notes
<b>User Activity</b>			
User Session Count	✓	✓	
User Session Activity	✓	✓	
User Session Details	✓	✗	
Client Version	✓	Custom*	*Uses custom code
Connection Failures	✗	✓	

Vendor / Functionality	ControlUp	Citrix Director	Notes
<b>User Experience</b>			
Logon Duration	✓	✓	
ICA Latency	✓	✓*	*XD Platinum/NetScaler Enterprise or Platinum
<b>Resource Consumption</b>			
Host Performance	✓	X	
Computer Performance	✓	X	
User Session Resources	✓	X	
Application Performance	✓	X	
Load Evaluator Index	X	✓	
<b>Application Activity</b>			
Application Usage Summary	✓	✓	
Application Usage Details	✓	✓	
<b>Licensing</b>			
Citrix License Usage	✓	X	
<b>Enterprise Features</b>			
Web and Mobile UI	✓	✓	
Data Retention - up to 1 Year	✓	✓	
Scheduled Reports via E-mail	✓	External Utility*	*Uses a custom non-supported tool
Export Reports to CSV and PDF formats	✓	✓	

## Conclusion

Citrix Desktop Director alongside ControlUp and ControlUp Insights provides the VDI operational teams, as well as the help desk team, a powerful combination covering all the typical use cases. Working together these solutions offer a great way to expand and take VDI monitoring and managing to the next level.