# Complete Guide to Understanding The Citrix Logon Process

## A Technical How-To Guide for Proactively Troubleshooting & Resolving Citrix Logon Issues





"This is a superbly technical document provided by Goliath to simplify and explain the many, complex steps composing the logon process. There is a lot to learn in this document for novices to experts alike."

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### I. Technical Summary

Troubleshooting and permanently resolving Citrix logon duration issues is an excruciating challenge for most Citrix Engineers. Unfortunately, obstacles to troubleshooting are further accentuated by the fact that many tools on the market are either ill-equipped to provide the level of detail necessary to determine root cause, or simply provide inaccurate metrics based on flawed calculation methodology.

For instance, many products advertising that they provide logon duration present values for each stage of the logon process that neatly break down and add up to the sum of overall logon time. On the surface this seems to make sense intuitively, but is actually completely inaccurate. The Logon Duration in a Citrix environment is famously intricate, with many of the stages occurring simultaneously and overlapping – meaning that the total logon time will almost never equal the sum of its parts. In fact, there are 33 stages in the overall logon process just to get a user session brokered to its session host.

This guide will review the complexities of the Citrix logon process, how it actually works, and the explicit micro stages of the logon process. Then we will discuss how Citrix Administrators use this level of detail to pinpoint root cause of logon duration issues, and how they use a combination of technology and analysis to troubleshoot and resolve these performance issues for end users.

### II. What is the Citrix Logon Process?

While the Citrix logon process (when configured correctly) may only take a couple seconds to launch, its execution comprises a complicated sequence involving the Citrix Receiver, Citrix Brokering Architecture/NetScaler, StoreFront,

Delivery Controller, and the Session Host/App Server, or VDI. Before we begin understanding how to identify the root cause of a logon duration issue, we need to first understand at a high level what actually occurs, and in what sequence, during the logon duration process. The diagram below presents the sequence of events that occur during the logon process from the time when a user clicks on the icon for an app or desktop, to when it fully launches:



### A. Description

As you can see, there is no straight line in this process marching neatly forward towards the launched desktop. Instead, the process takes a series of steps back and forth from the user's end point to the session host before the user ends up seeing their desktop and application.

To better understand what is happening at each stage, you can map the process step to what's happening by referencing each line below to its step in the diagram above:

- 1. End user clicks on a desktop or application (in this example, StoreFront) to launch it
- 2. Storefront requests a session host from the Delivery Controller
- 3. Delivery Controller selects a session host
- 4. Delivery Controller sends session host hostname & IP address to Storefront
- 5. Storefront creates the ICA File and sends it to Citrix Receiver
- 6. Citrix Receiver launches the ICA file
- 7. Citrix Receiver determines and then checks that the connection to the session host can be established
- 8. Citrix Receiver establishes an ICA connection to the session host
- 9. Delivery Controller creates a user session
- **10.** Delivery Controller processes Citrix policies
- 11. Session is brokered by the Delivery Controller to the session host
- 12. User Authentication between domain controller and session host
- 13. End User sees the Citrix session window open and the Windows welcome screen
- 14. Profile Load, Group Polices (GPO) and script execution take place
- 15. Application/Desktop is fully launched

The fact that this process can be achieved in less than 10 seconds is quite amazing, and in this document we're going to show you how to perform an autopsy on a user's poor logon process to identify why that happened.

### III. Logon Duration Stages

In order to understand exactly what is happening and troubleshoot, we need to break out the sequence to each of the executions that Citrix is processing during the logon process. This is functionally categorized into three different aspects of the logon process – the brokering process that the Delivery Controller facilitates, Citrix Receiver's process to establish the ICA Connection, and desktop load process for the application or desktop on the session host.

Here is what the real time dashboard looks like (see below image.) We will break down each part of this screen shot in the sections below.



### A. Logon Duration Breakdown by Stages – this will vary per environment

To help grasp where the logon sequence is slowing down, <u>Goliath Performance Monitor</u> provides a simple, high level break down of each major stage during the logon process for a user.

This allows the person troubleshooting to quickly facilitate identifying, first, which stage is responsible for the slowness. Here's a partial screenshot of the real time display of how that breaks down:

							Logon Durat	ion Breakdow	n by Stages				Desktop
Connect D/T	Client Address	Reconnect	Logon	Brokering	VM Start	Client Valid	Server Valid	HDX	Auth	GPO	Scripts	Profile	Load
2016-03-31 10:59:42	10.20.100.83	No	13.45 secs.	0.05 secs.		6.45 secs.	6.52 secs.	0.73 secs.	0.28 secs.	1.71 secs.		0.37 secs.	20.27 secs

- I. **Logon**: How long it took to logon to an application or desktop.
- II. Brokering: The time taken to complete the process of brokering the session.
- III. VM Start: In case the session required a machine to be started, the time taken to start the VM.
- IV. Client Valid (Client Validation): The time taken to complete the client side Session validation.
- V. Server Valid (Server Validation): The time taken to complete the server side Session validation.
- VI. **HDX**: The time taken to complete the steps required in setting up the HDX connection from the client to the VM.
- VII. Auth (Authentication): The time taken to complete authentication to the remote session.
- VIII. **GPO** (Group Policy): In case any Group Policy settings have been enabled on the machine, the time taken for the GPOs to be applied.
- IX. **Scripts**: In case any logon scripts are configured for the session, the time taken for the logon scripts to be executed.

- X. **Profile**: In case profile settings are configured for the user or the machine, the time taken for the profile to be loaded.
- XI. **Desktop Load** (not part of the LOD): the time taken to handoff keyboard and mouse control to the user.

### B. Citrix Receiver Start-up Stages – this will vary per environment

This aspect of the logon process includes the earliest time in the logon process, starting from when the user gets to the StoreFront or Web Interface and is waiting to see the applications enumerate, until the actual mouse click that initiates the logon process. Here is a partial screenshot:

					C	itrix Receiver	Start-up Stage	es					
AECD	BUCC	CFDCD	COCD	IFDCD	LPWD	NRCD	NRWD	RECD	REWD	SCCD	SCD	SLCD	TRWD
					0.19 secs.		0.16 secs.			0.74 secs.	0.79 secs.	0.001 secs.	0.001 secs.

- I. **AECD** (Application Enumeration Client): The time it takes to get the list of applications.
  - A. Consider if the cause is an overloaded XML Broker or Web Interface server.
- II. **BUCC** (Backup URL Client Count): The number of backup URL retries before success. Note that this is the only start-up metric that is a count of attempts, rather than a duration.
  - A. If the value is higher than 1, it indicated the Web Interface server is unavailable and the Citrix Receiver is attempting to connect to back-up Web Interface servers to launch the application.
  - B. A value of 2 means the WI server was unavailable but the receiver managed to launch the app successfully using the first back-up server that it tried.
  - C. A value higher than 2 means that multiple WI servers are unavailable.
- III. **CFDCD** (Configuration Obtention Client Duration): The time it takes to get the configuration file from the XML server.
- IV. **COCD** (Credentials Obtention Client): The time it takes to get the user credentials.
  - A. Note that COCD is only measured when credentials are entered manually by the user.
  - B. Because this metrics may be artificially inflated if a user fails to provide credentials in a timely manner, it is subtracted from SCCD.
- V. **IFDCD** (ICA File Download): The time it takes the client to download the ICA file from the Web server for Program Neighborhood Agent or Web Interface.
  - A. If IFDCD is slow (but LPWD is normal,) the server-side processing of the launch was successful, but there were communication issues between the client device and the Web server.
- VI. **LPWD** (Launch Page Web Server Duration): The time it takes to process the launch page (launch.aspx) on the Web Interface server.
  - A. If this time is slow, there is a bottle neck on the Web interface server
- VII. **NRCD** (Name Resolution Client): The time it takes the XML Service to resolve the name of a published application to an IP address.
  - A. This metric is only collected for new sessions since session sharing occurring during startup if a session already exists.
  - B. Then this metrics is high, it indicated the XML Broker is taking a lot of time to resolve the name of the published application to an IP address.
- VIII. **NRWD** (Name Resolution Web Server): The time it takes the XML Service to resolve the name of a published app to a presentation server address. This metric is collected when the application is launched through the Program Neighborhood Agent or Web Interface.
- IX. **RECD** (RECONNECT\_ENUM\_CLIENT): The time it takes a client to get a list of reconnections.
- X. **REWD** (RECONNECT\_ENUM\_WEB\_SERVER): The time it takes the Web Interface to get the list of reconnections from the XML Service.
- XI. **SCCD** (STARTUP\_CLIENT): This is the high-level client connection startup metric. It starts as close as possible to the time of the request (mouse click) and ends when the ICA connection between the client device and server running Presentation Server has been established. In the case of a shared session, this duration will normally be much smaller, as many of the setup costs associated with the creation of a new connection to the server are not incurred.

- XII. **SCD** (Session Creation Client): New session creation time, from the moment wfica32.exe is launched to when the connection is established.
- XIII. **SLCD** (Session Look-up Client): The time it takes to query every ICA session to host the requested published application. The check is performed in the client to determine whether the application launch request can be handled by an existing session. A different method is used depending on whether the sessions are new or shared.
- XIV. **TRWD** (Ticket Response Web Server): The time it takes to get a ticket (if required) from the STA server or XML Service. This metric is collected when the application is launched via the Program Neighborhood Agent or Web Interface.
  - A. When this metric is high, it can indicate the Secure Ticket Authority (STA) server or the XML broker is overloaded.

### C. Delivery Controller Start-up Stages – this will vary per environment

During the logon process, the Delivery Controller is integral to the brokering process and facilitating the logon process. This aspect of the process also provides us with an important method of understanding common sources of delays during brokering, such as potential wait time for the session host to be ready and accept an inbound user session, or how long it is taking the session to facilitate the logon script execution, and profile policies.

The challenge when looking at the value for each step of the logon sequence is that they are both synchronous and sequential, this is indicated below for each listed step.

	Citrix Delivery Controller Start-up Stages													
CASD	CONSD	COSD	DMSD	DMSD LESD PCSD PLSD PNCOSD SCSD										
0.28 secs.			0.41 secs.	cs. 4.91 secs.		4.91 secs.		1.61 secs.	13.05 secs.					

- I. **CASD** (Credentials Authentication): The time spent on the application server authenticating the user credentials.
- II. **CONSD** (Credentials Obtention): The time spent by the server performing network operations to obtain credentials for the user.
  - A. This only applies to a Security Support Provider Interface (SSPI) logon (a form of pass-through authentication where the client device is a member of the same domain as the server and Kerberos tickets are passed in place of manually entered credentials.)
- III. **COSD** (Credentials Obtention Network Server): The time taken for the server to obtain the user credentials.
  - A. This is only likely to be a significant amount of time if a manual logon is used and the serverside credentials dialog is displayed (or if a legal notice is displayed before the logon commences.)
  - B. Because this metric may be artificiality inflated if a user fails to provide credentials in a timely manner, it is not included in the Session Start-up Server Duration (SSSD.)
- IV. **DMSD** (Drive Mapping): The time spent on the server mapping the user's client drives, devices, and ports.
- V. LSESD (Logon Script Execution): The time the server needs to run the user's logon script(s).
  - A. Consider if you can streamline this user or group's logon scripts. Consider if you can optimize any application compatibility scripts or user environment variables instead.
- VI. **PCSD** (Printer Creation): The time spent on the server synchronously mapping the user's client printers.
  - A. If the configuration is set such that this printer creation is performed asynchronously, no value is recorded; it does not affect the completion of the session startup.
  - B. Excessive time spent mapping printers is often the result of the printer auto creation policy settings. The number of printers added and printing configuration can directly affect session startup times.
- VII. **PLSD** (Profile Load): The time spent on the server loading the user's profile.

- A. If this metric is high, consider your roaming profile configuration.
- VIII. **PNCOSD** (Program Neighborhood Credentials Obtention): The time taken for the server to cause the Program Neighborhood instance running on the client (Program Neighborhood Classic) to obtain the user credentials.
  - A. Like the COSD metric, this metric is not included in SSSD because it may be artificially inflated if the user does not enter credentials efficiently.
  - B. This credentials dialog is displayed and managed by the client side, but the duration is measured on the server.
- IX. **SCSD** (Session Creation): The time spent on the server creating the session. This should not be confused with the overall Session Startup Server duration (SSSD.)The duration starts when the Presentation Server Client connection is opened and ends when authentication begins.
  - A. The session start time issue occurs between when the client connection is established and authentication begins.
- X. **SSSD** (Session Start-up): This is the high-level server connection startup metric that encompasses the time XenApp / XenDesktop takes to perform the entire startup operation.
  - A. In the event of an application starting in a shared session, this metric is expected to be much smaller, as starting a completely new session involves potentially high-cost tasks, such as profile loading and logon script execution.
  - B. When this metric is high, it indicates that there is a server-side issue increasing session start times.

### D. Logon Duration Session Launch – this will vary per environment

Once the session is launched and established to the session host that is delivering the Application or Desktop, there is a series of additional steps necessary before the end user can begin using their Citrix session. Where the previous stages generally execute in a matter of seconds, this is commonly where users <u>find the root cause of a majority of long logons</u>.

	Action         Time         Duration         Session Launch													
Action	Time	Duration	Details											
Brokering & Client Validation	2016-03-31 10:59:33	6.5 secs.	ZDC / DDC Broker: SVR-XDDC02											
Get Account Data	10:59:38.755042800	0 secs.	Account details: Account Name : CN=Raja Jadeja; OU=Goliath; DC=corp; DC=goliathtechnologies; DC=com Account Doman Name : CORPGOLIATHTECHNOLOGIES.COM DC Name : \NSWR-DC02.corp.goliathtechnologies.com DC Domain Name : CORPGOLIATHTECHNOLOGIES.COM											
Domain Controller Data	10:59:38.752313500	0.36 secs.	Domain Controller details: Domain Controller I Padices : 10.20.30.6 Domain Controller IP Address : 10.20.30.6											
LDAP Calls	10:59:39.165140400	0.05 secs.	List of applicable Group Policy objects: Local Group											
File Accessed	10:50:30 530581600	0.001 secs	The following Group Policy objects were not applicable because they were filtered out : Making system calls to access specified file.											
Registry Extensions	08:49:37.649223800	27.37 secs.	\\corp.goliathtechnologies.com\sysvol.corp.goliathtechnologies.com\Policies\(31B2F340-016D-11D2-945F-00C04FB984F9)\gpt.ini Starting Registry Extension Processing.											
Citrix Group Policy Extensions	08:49:38.753711000	0.23 secs.	W7 XD Loopback Oser Starting Citrix Group Policy Extension Processing.											
Folder Redirection Extensions	08:49:39.934898700	0.29 secs.	Starting Folder Redirection Extension Processing.											
Scripting Extensions	08:49:40.395101700	0.11 secs.	Starting Scripts Extension Processing.											
Folder Extensions	08:49:41.929111700	0.97 secs.	Starting Group Policy Folders Extension Processing. W7 XD Loopback User											
Folder Options Extensions	08:49:44.521588600	0.32 secs.	Starting Group Policy Folder Options Extension Processing. W7 XD Loopback User											
Registry Extensions	08:49:44.981791600	0 secs.	Starting Group Policy Registry Extension Processing. W7 XD Loopback User											
Group Policy Environment Extension	08:49:39.029832800	0.41 secs.	Starting Group Policy Environment Extension Processing. W7 XD Loopback User											
Group Policy Drive Maps Extension	08:49:39.536056100	1.36 secs.	Starting Group Policy Drive Maps Extension Processing. W7 XD Loopback User											
Group Policy Files Extension	08:49:40.318401200	1.03 secs.	Starting Group Policy Files Extension Processing. W7 XD Loopback User											
Group Policy Ini Files Extension	08:49:40.548502700	0.25 secs.	Starting Group Policy Ini Files Extension Processing. W7 XD Loopback User											
Windows Search Group Policy Extension	08:49:43.002918700	0.05 secs.	Starting Windows Search Group Policy Extension Extension Processing. W7 XD Loopback User											
Group Policy Shortcuts Extension	08:49:44.107405900	0.2 secs.	Starting Group Policy Shortcuts Extension Processing. W7 XD Loopback User											
Estimated network bandwidth on one of the	connections: 0 kbps													

A fast link was detected. The Estimated bandwidth is 0 kbps. The slow link threshold is 0 kbps.

- I. **Brokering & Client Validation**: The time taken to complete the client side session validation and brokering of the session.
- II. Get Account Data: The time taken to obtain the Citrix account details.
- III. **Domain Controller Data**: The time taken to connect to the domain controller.

- IV. **LDAP Calls**: The time taken to obtain the Group Policy objects and whether or not they are applicable.
- V. **File Accessed**: The time taken to access the specified file(s).
- VI. **Registry Extensions**: The time taken to complete the Registry Extension processing.
- VII. **Citrix Group Policy Extensions**: The time taken to complete the Citrix Group Policy Extension processing.
- VIII. **Folder Redirection Extensions**: The time taken to complete the Folder Redirection Extension processing.
- IX. Scripting Extensions: The time taken to complete the Group Policy Registry Extension processing.
- X. Folder Extensions: The time taken to complete the Group Policy Folders Extension processing.
- XI. **Folder Options Extensions**: The time taken to complete the Group Policy Folder Options Extension processing.
- XII. **Group Policy Environment Extension**: The time taken to complete the Group Policy Environment Extension processing.
- XIII. **Group Policy Local Users and Groups Extension**: The time taken to complete the Group Policy Local Users and Groups Extension processing.
- XIV. **Group Policy Drive Maps Extension**: The time taken to complete the Group Policy Drive Maps Extension processing.
- XV. **Group Policy Scheduled Tasks Extension**: The time taken to complete the Group Policy Scheduled Tasks Extension processing.
- XVI. **Group Policy Files Extension**: The time taken to complete the Group Policy Files Extension processing.
- XVII. **Group Policy Ini Files Extension**: The time taken to complete the Group Policy Ini Files Extension processing.
- XVIII. Windows Search Group Policy Extension: The time taken to complete the Windows Search Group Policy Extension processing.
- XIX. **Group Policy Shortcuts Extension**: The time taken to complete the Group Policy Shortcuts Extension processing.
- XX. **IE Zone Mapping Extensions**: The time taken to complete the Group Policy Internet Explorer Zone Mapping Settings Extension processing.
- XXI. **IE Settings Extensions**: The time taken to complete the Group Policy Internet Settings Extension processing.
- XXII. **Citrix Profile Management Extension**: The time taken to complete the Citrix Profile Management Extension processing.

### IV. Correlate Stages to Logon Process

So how does this all fit together? Because of the overlap of each stage during the logon process, it is necessary to understand how the logon process breaks down and layers together. The stages we have covered and how they interrelate with each other is depicted in the image below, and the stages indicated match back to what you see above.

When troubleshooting logon times affecting the first two phases especially, this diagram should be used as a primer to understand how a phase that took an extended period of time fits into the rest of the process, and the server responsible for the slowness.

Stages	Step A	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8	Step 9	Step 10	Step 11	Step 12	Step 13	Step 14	Step 15
BUCC	BUCC															
AECD	AECD															
LPWD	LPWD															
SCCD							SCCD									
CFDCD		CFDCD														
TRWD			TRWD													
COCD				COCD												
RECD				RECD												
REWD				REWD												
IFDCD						IFDCD										
SCD									SCD							
NRCD								NRCD								
NRWD								NRWD								
SLCD								SLCD								
PNCOSD								PNCOSD								
SCSD									SCSD							
SSSD												SSSD				
CONSD												CONSD				
COSD												COSD				
CASD													CASD			
LSESD														LSESD		
PLSD														PLSD		
DMSD															DMSD	
PCSD															PCSD	

### V. How to Use It

When working with individuals who administer/support/manage Citrix environments, it has become the general understanding that logon issues typically are found to manifest in one of two ways:

- Isolated Users: Logon slowness which only impacts isolated users or location.
- Entire User Base: Where the slowness impacts a larger subset of the user base, or possibly the entire user base.

In order to better determine the root cause for each of these situations, we typically recommend following a troubleshooting process which caters to the scenario at hand. By doing so, you provide yourself with the means to not only gain visibility into the issue, but you will also allow yourself the best opportunity for objective evidence, which you'll need for root cause analysis.

Below are some examples on how a Citrix Engineer/Administrator would be able to utilize a monitoring solution to troubleshoot longer than normal logon durations. We will break these into the two scenarios as mentioned above (individual user vs entire user base.)

### A. How to Troubleshoot Isolated User Logon Duration Slowness:

### Awareness:

- a. The biggest challenge in the case of individual user logon slowness is knowing when the problem is occurring. To do so, you need to have alerts so you're not waiting to hear from the end user. The first step is to configure alerts so you know when and how often the logons take longer than the acceptable duration for your environment. Once you configure the rule, you would then need to apply that threshold to your entire user base. Goliath Performance Monitor will allow you to set a custom threshold if, for example, the logon duration exceeded 1 minute or 90 seconds for a user. It will then automatically send a notification by email, text message, or via your enterprise monitoring solution.
- b. Secondly, we will want to schedule one of the 66 out-of-the-box reports available within the technology which can provide a historical view of the logon durations for your user base. We would typically recommend that this report is sorted by the logon duration time, and in ascending order so that you are able to view the highest logon durations at the top of your report. If you set the report to run on a daily basis, for example, every morning at 10 AM, you will have a report listing out the logon durations for your entire user base prepared for your review. Goliath Performance Monitor provides this type of

reporting, and will also allow you to report on a subset (such as the top 20 logon durations) of users, as well as break down / drill into each specific user's logon process to determine the exact timings for each step of their logon process. This is beneficial when determining root cause for logon duration slowness issues.

### Troubleshooting Process:

- a. Assuming you've configured the alert notifications surrounding logon duration times, you may have received an alert already, or a ticket or call may have been escalated to the Citrix support team.
- b. Navigate to the XenApp / XenDesktop session display, where you can then search for the user and bring up their session details, including the breakdown of the user's logon process.
- c. Drill into the user's logon duration breakdown.

View > XenApp/XenDesktop	w > XenApp/XenDesktop Sessions Sign Out   Settings   Help												
					App Servers	Published	Apps & Desktops	😑 Virtual 🛙	Desktops	loggie i	Jetween environme	ants	
XA Server Name	Session	State	UserA	ccount Client Name	Client Address	Version	Logon	ICA Latency	Avg. ICA Latency	App Name	Farm / Group Name	Connect D/T	Disconnect D/T
SVR-XA76/MN1201     SVR-XA76/MN120     SVR-XA76/MN	HDX - Application	LoggedOff	Heather Hanlon	SVR-TS02	10.20.30.102	14.3.0.5014	106 secs.	634 ms.	389.9 ms.	YouTube - Chrome	Dev Apps	2015-11-24 08:03:46	2015-11-24 11:30:32
SVR-XA76MIN1201     SVR-XA76MIN120     SVR-XA76MIN120     SVR-XA76MIN120     SVR-XA76MIN120     S	HDX - Application	LoggedOff	Heather Hanlon	SVR-TS02	10.20.30.102	14.3.0.5014	60.3 secs.	6 ms.	31.8 ms.	Google Chrome, Internet Explorer	Dev Apps	2015-11-23 14:00:18	2015-11-23 15:05:51
* SVR-XA76MIN1203	HDX - Application	LoggedOff	LOSTEST01	GLS-EP01	10.20.100.225	14.3.0.5014	22.1 secs.	0 ms.	0.0 ms.	SAP	HSA - LOS TEST	2015-11-23 14:03:27	2015-11-23 14:05:19
SVR-XA76/4N1201	HDX - Application	LoggedOff	David Jones	Key session m	etrics 10 <mark>0.22</mark>	14.3.0.5014	17.6 secs.	0 ms.	0.0 ms.	YouTube - Chrome	Dev Apps	2015-11-24 05:33:15	2015-11-24 05:49:21
SVR-XA76/4N1201	HDX - Application	LoggedOff	David Jones	GLS-EP03	10.20.100.22	14.3.0.5014	16.4 secs.	0 ms.	0.0 ms.	Google Chrome	Dev Apps	2015-11-23 16:00:53	2015-11-23 16:04:14
SVR-XA76/4N1203	HDX - Application	LoggedOff	LOSTEST01	GLS-EP01	10.20.100.225	14.3.0.5014	15.8 secs.	0 ms.	0.0 ms.	SAP	HSA - LOS TEST	2015-11-23 17:33:40	2015-11-23 17:35:35
SVR-XA76MIN1202	HDX - Application	LoggedOff	David Jones	GLS-EP03	10.20.100.22	14.3.0.5014	15.7 secs.	0 ms.	0.0 ms.	Google Chrome	Dev Apps	2015-11-24 08:49:57	2015-11-24 08:53:17
SVR-XA76MIN1203	HDX - Application	LoggedOff	LOSTEST03	GLS-EP02	10.20.100.226	14.1.200.13	15.7 secs.	0 ms.	0.0 ms.	Microsoft Outlook 2013	HSA - LOS TEST	2015-11-24 04:11:44	2015-11-24 04:13:51
SVR-XA76MIN1201	HDX - Application	LoggedOff	David Jones	GLS-EP03	10.20.100.22	14.3.0.5014	15.7 secs.	0 ms.	0.0 ms.	YouTube - Chrome	Dev Apps	2015-11-24 10:12:21	2015-11-24 10:28:27
SVR-XA76MIN1203     SVR-XA76MIN120     SVR-XA76MIN1203     SVR-XA76MIN120     SVR-XA76MIN1203     SVR-XA76MIN120	HDX - Application	LoggedOff	LOSTESTO	GLS-EP02	10.20.100.226	14.1.200.13	15.7 secs.	0 ms.	0.0 ms.	Microsoft Outlook 2013	HSA - LOS TEST	2015-11-23 18:57:07	2015-11-23 18:59:14
E SVR-XA76/4N1203	HDX - Application	LoggedOff	LOSTEST02	GLS-EP02	10.20.100.226	14.1.200.13	15.7 secs.	0 ms.	0.0 ms.	Microsoft Excel 2013	HSA - LOS TEST	2015-11-24 08:37:12	2015-11-24 08:39:19
SVR-XA76/401203	HDX - Application	LoggedOff	LOSTEST02	GLS-EP02	10.20.100.226	14.1.200.13	15.6 secs.	0 ms.	0.0 ms.	Microsoft Excel 2013	HSA - LOS TEST	2015-11-24 02:17:38	2015-11-24 02:19:45
SVR-XA76/401203	HDX - Application	Logged01C	ick to view	a user's session	10.20.100.226	14.1.200.13	15.6 secs.	0 ms.	0.0 ms.	Microsoft Excel 2013	HSA - LOS TEST	2015-11-24 12:06:53	2015-11-24 23:54:24
SVR-XA76/4N1203	HDX - Application	LoggedOff	LOSTEST01	GLS-EP01	10.20.100.225	14.3.0.5014	15.6 secs.	0 ms.	0.0 ms.		HSA - LOS TEST	2015-11-24 11:39:06	2015-11-24 11:40:59
SVR-XA76MIN1201	HDX - Application	LoggedOff	David Jones	GLS-EP03	10.20.100.22	14.3.0.5014	15.6 secs.	0 ms.	0.0 ms.	YouTube - Chrome	Dev Apps	2015-11-23 14:51:40	2015-11-23 15:07:46
SVR-XA76MIN1203	HDX - Application	LoggedOff	LOSTEST03	GLS-EP02	10.20.100.226	14.1.200.13	15.5 secs.	0 ms.	0.0 ms.	Microsoft Outlook 2013	HSA - LOS TEST	2015-11-24 11:42:09	2015-11-24 11:44:15
SVR-XA76MIN1203	HDX - Application	LoggedOff	LOSTEST02	GLS-EP02	10.20.100.226	14.1.200.13	15.5 secs.	0 ms.	0.0 ms.	Microsoft Excel 2013	HSA - LOS TEST	2015-11-24 05:22:22	2015-11-24 05:24:27
SVR-XA76MIN1203	HDX - Application	LoggedOff	LOSTEST02	GLS-EP02	10.20.100.226	14.1.200.13	15.5 secs.	0 ms.	0.0 ms.	Microsoft Excel 2013	HSA - LOS TEST	2015-11-24 08:52:18	2015-11-24 08:54:25
			Inve	stigate real or si	nulated	end ι	iser ses	sions	in real	time or histori	cally		

d. Identify the root cause of the user's logon duration slowness. This typically will either originate from the server side or the client side, but rarely both.

			Monitor	7®									
Configure Monitor View Re	eport Log Management												
Performance Graphs SNMP Traps	Registry XenApp/XenDesktop	Sessions											
View > XenApp/XenDesktop Sessio	ons					demo - Sign Out   Settings   Help							
Session Performance Logon Dura	ation ICA Channel vC	GPU Performance Server Performance	Application Performance Session Prop	erties		×							
			Logon Duration Details for:	and provide the second s									
				Logon Duration Breakdown by Stages		Desktop							
	Connect D/T	Client Address Reconnect Logon	Brokering VM Start Client Valid	Server Valid HDX Auth	GPO Scripts Profile	Load Real-time end user logon							
	2015-06-24 14:17:5	5 10.20.30.101 No 20.07 se	cs 0.05 secs. 7.1 sec	. 6.49 secs. 0.88 secs. 0.47 secs.	4.92 secs. 1.25 secs	13.47 secs. experience by stage							
	Θ	с	lient / Server Start-up Details for:	Rep rates in Martin and Mr.									
Delivery Cor	ntroller &	CONSD	Citrix Delivery Controller	start-up Stages	1008D 808D 8880								
Receiver bro	okering 0.47	secs.	0.06 secs. 6.19 secs.	6.19 secs.	3.06 secs. 22.	J8 secs.							
process	Receiver procests 0.19 sets. 3.00 sets. 22.00 sets.												
	AECD	BUCC CFDCD COCD	IFDCD LPWD NRCD I	RWD RECD REWD §	SCCD SCD SLCD TR	wo							
			0.27 secs.	0.2 secs. 0	0.88 secs. 0.001 secs. 0.0	D1 secs.							
	8		Logon Duration Ses	ion Launch									
	A	ction Time	Duration	Details	1								
	Brokering & Client Validation	2015-06-24 14:18:02	7.2 secs. DC / DDC Broker: SVR	XDDC02		_							
			count Name : CN+Flog	d Roberts; OU=Goliath; DC=corp; DC=goliathtechno CORP.GOLIATHTECHNOLOGIES.COM	ologies; DC+com								
Drill down into	Get Account Data	14:18:08.5795445	0 secs. C Name : NSVR-DC02. C Domain Name : COR	orp.goliathtechnologies.com P.GOLIATHTECHNOLOGIES.COM									
each of the			omain Controller details omain Controller Name	NSVR-DC02.corp.goliathtechnologies.com									
profile loading	Domain Controller Data	14:18:08.5483439	0.98 secs. It of applicable Group F seal Group Policy	bicy objects:									
stages			te following Group Polic	y objects were not applicable because they were filty	ered out :								
	LDAP Calls	14:18:09.6559652	0.05 secs. aking system calls to ac orp.goliathtechnologies	ess specified file. com/sysvol/corp.goliathtechnologies.com/Policies\{3	31B2F340-016D-11D2-945F-00C04FB984F9}\gpt.in								
	File Assessed	4440-00 2002020	arting Citrix Group Policy scal Group Policy	/ Extension Processing.									
	File Accessed	14:18:09.7807676	U SECS. arting Citrix Profile Mar	agement Extension Processing.									
	Citrix Group Policy Extensions	14:18:10.4515805	0.95 secs. 500 kbps.										
	Citrix Profile Management Exten	ision 14:18:11.4031988	1.98 secs.										
	Lico tho	Logon Duration P	roakdown to Ido	tify the Deat Car	use of Logon Slow	up o c c							
	Use the	Logon Duration B	reakdown to idei	itily the Root Cat	use of Logon Slov	mess							

e. Once you identify the root cause of the issue, take action toward mitigating the issue (update / remove broken logon scripts, resolve incorrect drive mappings, or if client side, provide recommendations to user on why they may be experiencing latency on their connection, etc.)

f. Configure an automated report which will track the user's logons for a week. This will allow you to easily view the report, and verify whether this user is still experiencing any logon duration slowness now that you've taken the appropriate actions.

### B. How to Troubleshoot Entire User Base Logon Duration Slowness:

#### Awareness:

- a. While this scenario sometimes provides a quicker/easier way to gain visibility into the root cause and resolve an issue, it also means that you have an issue impacting the entire organization. (All eyes are on you!) In this instance we will want to focus on configuring a report which can be sorted by the logon duration time. Once configured, we can see our entire user base and their logon durations sorted from highest to lowest.
- We can then spot check a sample group of users, which should help us in determining which stage the latency is occurring at, and at which point the high logon duration times are oriented for the users.
   Within Goliath Performance Monitor, you would then want to run a report which is sorted by stage to confirm the stage at which the problem is occurring.

### Troubleshooting Process:

a. Now that we are aware of the stage at which the issues are occurring across the user base, we can begin to troubleshoot the root cause of the problem. By viewing the logon duration report, we can now drill down into users' sessions and analyze exactly what activity is taking place. Based on your findings from the report which was sorted by stage, you should already know which logon stage you need to identify the issue in.



b. Once you locate the exact problem, for example, there was a logon script which wasn't necessary, you can then make the appropriate adjustments which will fix the issue and remove the problematic logon script.

- c. Using a test account configured with the same baseline as your typical user would be, apply the fix to your test user, and launch a few test sessions. Once you have launched a few sessions, you can then use the XA / XD session display within Goliath Performance Monitor to confirm the fix has worked as expected, and the issue is in fact resolved.
- d. Once resolution is tested and confirmed, you can apply the fix to the remainder of your user base so the issues they have been experiencing will be fixed.
- e. To confirm the issue doesn't persist after the fix has been implemented, we would then recommend configuring a daily report which runs every morning (perhaps at 9 AM, so you can review while having your second cup of coffee.) This report will allow you to easily track and verify that the issue has been resolved over the course of the days following the aforementioned fix being implemented.

### VI. Use Cases – How Goliath Customers Use the Technology

In working with customers and helping them <u>troubleshoot logon slowness</u>, we have seen a number of different ways in which slowness manifests. The following use cases illustrate the most common ones we have seen customers encounter, and include how they used Goliath Performance Monitor to resolve their condition.

### 1. Logon Slowness due to Drive Mapping Execution

#### Issue:

A global retailer's <u>end users were experiencing logon times exceeding 5 minutes</u>. Prior to using Goliath Technologies logon duration breakdown, they had been investigating, and attempting to manually find the root cause of this issue.

The process which the retailer's system engineers used was to first schedule a time with the end user(s) experiencing the problem, and they would conduct a remote session and attempt to manually time each stage of a user's logon as they watched the user log in. This troubleshooting process wasn't very successful, and the issues persisted for nearly eight months.

### **Resolution:**

Once the Goliath Performance Monitor was implemented into their XenApp environment, the team of engineers was able to easily gain the visibility into the root cause of the issue in real time, using the <u>Logon Duration report</u>. By drilling into sessions for users complaining of the slow logon process, they were able to determine the issue was actually due to drive mapping (logon) scripts.

These scripts were, in turn, mapping 30+ errant drives to the user's profile. The retailer's engineers were able to reduce the number of logon scripts down to a single script, and removed the problematic as well as incorrectly linked GPOs. In the end, by determining the root cause and applying the aforementioned actions in their environment, the system engineers were able to reduce logon times down to an average of 45 seconds.

Session Performance	Logon Duratio	ICA/HDX Channel			el vGPU Performance Server Performance Ap			Applic	ation Perform	ance Sess	sion Prop	erties			×		
				Logor	Duration D	etails for:	1010 APR 10	a ana an		1979							
				_				Logon Durat	ion Brea	kdown by Sta	ges					Desktop	
Connect D/T	Client Address	Reconnec	Logon	3ro	kering V	/M Start	Client Valid	Server Valid	HDX	aut Aut	h GF	0	Scripts	Profi	le	Load	
2016-03-31 10:59:42	10.20.100.83	No	288.4 s	ecs. <sup>0</sup>	.05 secs.		6.45 secs	6.52 secs.	0.73	secs. 0.28	secs 190	.2 secs.		0.37	secs.	20.27 secs.	
Ξ			(	Client / Se	erver Start-u	ip Details fo	or:	a the sector of	a natari	10000							
					Ci	trix Deliver	y Controller	Start-up Staros									
CASD	CONSD	С	OSD	DN	1SD	LESD	1 secs	PCSD	PL	.SD	PNCOSD		SC SD 1.61	L SACS	\$\$\$E	)5 secs	
0.20 5605.					0.41 3803.	4.5	1 3803.			180.2 secs.			1.0	3603.	15.0	13 3803.	
1500						Citrix Re	ceiver Start	-up Stages									
AECD BU	JCC CFD	CD C	OCD	IFDCD	0.19 s	O NR Secs.	CD N	IRWD RE 0.16 secs.	CD	REWD	0.74 secs	SC 0.79	D 9 secs.	SLCD 0.001 secs.	0.0	WD 01 secs.	
						Logon Dur	ation Sessio	on Launch									
Action		Т	me	D	uration	Details											
Brokering & Client Validatio	n	2016-03	-31 10:59:33		6.5 secs.	ZDC / DDC Broker: SVR-XDDC02 Account details:											
Get Account Data		10:59:38	8.755042800		0 secs.	Account Nar Account Dor DC Name : DC Domain	ne : nain Name : \SVR-D Name :				Analogia, 20 m						
Domain Controller Data		10:59:38	3.752313500		0.36 secs.	Domain Con Domain Con Domain Con	troller details: troller Name : troller IP Addre	SVR-DC02.		and the second second							
LDAP Calls		10:59:39	9.165140400		0.05 secs.	List of applic Local Group	able Group Po	licy objects:	unliantela t		- Other and and a						
File Accessed		10:59:39	9.539581600		0.001 secs.	In e rolowing Group Policy opecits were not applicable because they were titlered out : Making system calls to access specified file. Vcorp											
Registry Extensions		08:49:37	.649223800		27.37 secs.	Starting Reg	jistry Extension back User	on Processing.		.com one	03101021 040-0	100-110.	2-3431-00	004 0004 0	gpt.in		
Citrix Group Policy Extensio	ons	08:49:38	8.753711000		0.23 secs.	Starting Citr	ix Group Poli Policy	cy Extension Pro	cessing.								
Folder Redirection Extensio	ins	08:49:39	.934898700		0.29 secs.	Starting Fol W7 XD Loop	der Redirectio back User	on Extension Pro	cessing.								
Scripting Extensions		08:49:40	.395101700		0.11 secs.	Starting Scr	ipts Extension back User	n Processing.									
Folder Extensions		08:49:41	.929111700		0.97 secs.	Starting Gro	up Policy Fo	Iders Extension F	rocessin	g.							
Folder Options Extensions		08:49:44	.521588600		0.32 secs.	Starting Gro W7 XD Loop	up Policy Fol back User	der Options Exte	nsion Pro	cessing.							
Group Policy Printer Mappin	ig Extension	08:49:44	.981791600		0.97 secs.	Starting Gro W7 XD Loop	up Policy Re back User	gistry Extension I	Processin	g.							
Group Policy Environment E	0.41 secs.	Starting Gro	up Policy En	vironment Extens	ion Proce	essing.											
Group Policy Drive Maps Ex	180.6 secs.	Starting Gro	up Policy Dri back User	ve Maps Extensio	n Proces	sing.											
Group Policy Files Extension	n	08:49:40	0.318401200		1.03 secs.	Starting Gro	up Policy File back User	es Extension Pro	cessing.								
Group Policy Drive Maps Extension 08:49:39.53605						00	180.6	secs. Slicy Ex	Processin tension E	g. Extension Proc	essing.						
Group Policy Shortcuts Exte	nsion		0.2 secs.	Starting Gro	up Policy Sh back User	ortcuts Extension	Processi	ng.									
Estimated network bandwidt	th on one of the o	connections	: 0 kbps.														

A fast link was detected. The Estimated bandwidth is 0 kbps. The slow link threshold is 0 kbps.

### 2. AD Group Membership/Logon Script/Registry Extension Mappings Causing Logon Slowness

#### Issue:

A leading law firm based out of New York City, was <u>experiencing logon duration problems impacting the end</u> <u>user performance</u> for their remote workforce of attorneys. Without the visibility into what actually was the root cause of the issue, the law firm's system administrators found themselves playing pin the tail on the donkey, and not knowing where to begin.

#### **Resolution:**

Once the <u>Goliath Performance Monitor</u> was installed in their environment, the systems administrators were able to leverage the logon duration report, drill down into a the logon duration breakdown for a few spot checked users, and determined that there were logon scripts being applied to incorrect user groups.

The users in these respective AD groups didn't require, or have access to applications which the respective logon scripts had been attempting to map. Additional registry extensions were also being applied to the user groups which was extending the logon duration. By removing the keys for the users who didn't require this access, logon duration times were lowered by more than 40 seconds.

					Logon Dura	tion Details	for:	and the second second	1000							
					-			Logon E	uration Break	down	GPO					
	Connect D/T	Client Address	Reconnec	Logon	Brokering	VM Start	Client Valid	Server Valid	HDX	Auth	0.0	Scripts	Profile	Interactive		
2016	-04-06 05:46:48	128.1.4.5	No	82.6 sec	6. 0.17 secs.		3.46 secs.	5.45 secs.	0.34 secs.	0.73 secs	46.8 secs.		0.44 se	S.		
=					Client / Server	Start-up Def	tails for: 1	a second second	Contraction of the	r (						
						Citrix Delive	erv Controller S	Start-up Stages								
	CASD	CONSD		COSD	DMSD	LES	D	PCSD	PLSD	PI	ICOSD	SC SD		SSD		
	0.38 Secs			0.01 secs.		43	3.7 secs.					1.19	Secs.	115.2 secs.		
						Citrix F	Receiver Start-	up Stages								
	AECD E	BUCC CFD	CD	COCD II	FDCD LPV	VD N Risecs	IRCD N	RWD RE	CD RE	WD S	SCCD SC	CD	SLCD 0.001 secs	TRWD		
					0.2	0 0000.	Ŭ	.20 0000.			2.00 0000.		0.001 0000.	0.001 0000.		
=						Logon Du	ration Session	Launch								
	Action		1	Time	Duration					Details						
Broke	ring & Client Validation	on	2016-0	4-06 05:46:51	0.2 sec	s. ZDC / DDC	Broker:	K003								
Get A	ccount Data		05:47:0	04.214150100	0 sec	Account de Account N 5. Account D DC Name DC Domai	etails: ame : omain Name : n Name :		productionally 10	the films						
Doma	in Controller Data		05:47:0	04.214150100	0.31 sec	Domain Co 5. Domain Co Domain Co	ontroller details: ontroller Name :	ss : 172.18.102.9								
LDAP	Calls		05:47:0	04.526672700	0 sec	List of app Local Grou S. The followi	licable Group Poli up Policy ing Group Policy (	icy objects:	onlicable because	they were filte	ered out :					
File A	ccessed		05:47:0	04.886040000	0 sec	Proline Recurst calls to access specified file. Making system calls to access specified file. Waking system calls to access specified file. Making system calls to access specified file. Prolicies(3):7BA3660-17C0-44E8-9FB8-33A208BF5413):gpt.ini Making system calls to access specified file. Veolicies(6):15DE:17-7DE-4884-995D-EB15A46DB820):gpt.ini Making system calls to access specified file. Making system calls to access specified file. Making system calls to access specified file.										
Regi	stry Extensions			05:47:05.120	403200	12.8 se	Policiesi(9F5A5BF9-C2D5-40DC-8F6F-C0E825B77DEB)\gpt ini 12.8 secs. / Extension Processing. key									
						Citrix_7_6	_Drive	Extension Process	ing							
Citrix	Group Policy Extensi	ons	05:47:0	05.636033700	0.22 sec	<ol> <li>Local Grou</li> <li>Starting Int</li> </ol>	up Policy	pomonoing Extern	tion Processing							
IE Zoi	ne Mapping Extension	ns	05:47:0	05.870401700	0 sec	S. Citrix_7_6	Drive Mapping	memapping Extens	son Frocessing.							
Folde	Redirection Extension	ons	05:11:4	1.543386900	0.2 sec	DEFAULT Xendeskto	GPO p User Se									
Group	Policy Ini Files Exte	nsion	05:11:4	3.543386900	0 sec	IE Setting Gr DEFAULT Xendeskto	GPO GPO Diser Settings	ry Extension Proce	essing.							
IE Set	tings Extensions		05:11:5	0.020386900	0.31 sec	<ol> <li>Starting Gr</li> <li>IE Settings</li> </ol>	oup Policy Interne	et Settings Extensi	on Processing.							
Citrix	Profile Management	Extension	05:11:4	1.770386900	0.16 sec	5. Starting Cit	trix Profile Manag	ement Extension P	rocessing.							
Group Policy Drive Maps Extension 05:11:41.939386900 1.11 s							oup Policy Drive I ia Network Drives	Maps Extension Pr	ocessing.							
Group	Policy Files Extension	on	05:11:4	3.052386900	0.09 sec	Starting Gr Xendeskto	oup Policy Files E p Admin/General	Extension Processi Office Settings	ng.							
Group	Policy Scheduled Ta	asks Extension	05:11:4	3.182386900	0.33 sec	Starting Gr Exclaimers DEFAULT	oup Policy Sched SignatureManager GPO	luled Tasks Extens	ion Processing.							
	D-1		AE-44-4	4.00400000	E 00	Starting Gr	oup Policy Shorto	uts Extension Proc	cessing.							
Scrip	Cripting Extensions 05:47:05.636033700 30.9 secs. Ision Processing.															
Estim	ated network bandwi	dth on one of the o	connections	: 43740598 kbp	S.											
A fas	link was detected. T	he Estimated band	dwidth is 34	9924 kbps. The	slow link threshol	d is 500 kbps	S.									
						Ref	resh Pr	int								

### 3. Print Driver Support and Missing Print Drivers Causing Long Logons

#### Issue:

An engineering firm with an expansive remote work force utilizing XenApp/XenDesktop had an increasingly high number of users complaining of long logon times. While inconsistent, the logon duration times were directly impacting the end users' ability to perform their duties while working remotely.

#### **Resolution:**

With the help of Goliath Performance Monitor, the Citrix team was able to determine printer mapping was exceeding the normal thresholds they would expect. This was due in fact that there were print drivers missing and or unsupported by Citrix. In turn, this caused long delays in the logon times primarily when the end users were working from home, or a remote site location. The Citrix engineering team was able to install/update any problematic print drivers which required such driver changes, and then configure a policy which would block any unsupported printers from being mapped to their users' desktops/applications.

Session Performance	Logon Duration	ICA/HDX Ch	nannel vGPU	nel VGPU Performance Server Performance			Application	Performar	nce Session	Properties			×		
			Logon Duration	Details for:	and the state of the										
		Logon			L	ogon Duratio	n Breakdowr	n by St	GPO				Desktop		
Connect D/T C	Client Address F	le C	ering	VM Start Clie	ent Valid Se	rver Valid	HDX	Αu	OFU		ots Pi	ofile	Load		
2016-03-31 10:59:42 10	0.20.100.83	78.4 s	ecs. <sup>05 secs.</sup>		6.45 secs.	6.52 secs.	0.73 secs.	0.2	48.2 s	ecs.	0	.37 secs.	20.27 secs.		
Θ			rver Star	t-up Details for:	101.000	a second as	NUMBER OF	nan -							
				Citrix Delivery C	DC	e 10									
CASD	CONSD	COSD	DMSD	LESD	PC	SD	PLSD		PNCOSD	SCS	D	SSS	D		
0.28 secs.			0.41 secs	. 4.91 s		38.3 secs				1	.61 secs.	13.	05 secs.		
				Citrix Recei	ver Start-up S	Stages									
AECD BUG	CC CFDCI	D COCD	IFDCD LPV	VD NRCD	NRWE	D REC	D RE	WD	SCCD	SCD	SLCD	TF	RWD		
			0.1	9 secs.	0.103	secs.			0.74 secs.	0.79 secs	. 0.001 se	cs. 0.0	UT SECS.		
				Logon Duratio	on Session La	unch									
Action		Time	Duration					Deta	ils						
Brokering & Client Validation	ı	2016-03-31 10:59:33	6.5 sec	ZDC / DDC Broker: SVR-XDDC02											
Get Account Data		10:59:38.755042800	) O sec	Account details: Account Name : i S. Account Domain DC Name : \\SVF DC Domain Nam	Name : R-D ne :		inalia Maria	-	ningina, 20-mari						
Domain Controller Data		10:59:38.752313500	0.36 sec	Domain Controlle S. Domain Controlle Domain Controlle	er details: er Name : SVR- er IP Address : 1	DC02.	and a stage								
LDAP Calls		10:59:39.165140400	0.05 sec	List of applicable Local Group The following Group	Group Policy ob	ojects: ts were not ann	licable because	they were	e filtered out						
File Accessed		10:59:39.539581600	0.001 sec	Making system calls to access specified file. Vcorp. com/Policies/(31B2F340-016D-11D2-945F-00C04FB984F9)\gpt.ini											
Registry Extensions		08:49:37.649223800	27.37 sec	Starting Registr W7 XD Loopbac	y Extension Pr ck User	ocessing.									
Citrix Group Policy Extension	ns	08:49:38.753711000	0.23 sec	Starting Citrix G	Froup Policy Ex	tension Proce	ssing.								
Folder Redirection Extension	ıs	08:49:39.934898700	0.29 sec	Starting Folder	Redirection Ex	tension Proce	ssing.								
Scripting Extensions		08:49:40.395101700	0.11 sec	s. Starting Scripts W7 XD Loopbac	Extension Pro	cessing.									
Folder Extensions		08:49:41.929111700	0.97 sec	s. Starting Group I	Policy Folders ck User	Extension Pro	cessing.								
Folder Ontions Extensions		08:49:44 521588600	0.32 sec	Starting Group Policy Folder Options Extension Processing.											
Group Policy Printer Map	ping Extension	08:49:44.98	31791600	38.3 secs. Policy Registry Extension Processing.											
Group Policy Environment Ex	xtension	08:49:39.029832800	0.41 sec	Starting Group F	Policy Environ	ment Extensio	n Processing								
Group Policy Drive Maps Exte	ension	08:49:39.536056100	0.29 secs	Starting Group I	Policy Drive Ma	aps Extension	Processing.								
Group Policy Files Extension	1	08:49:40.318401200	) 1.03 sec	Starting Group I	Policy Files Ex	tension Proce	ssing.								
Group Policy Ini Files Extensi	ion	08:49:40.548502700	0.25 sec	Starting Group I	Policy Ini Files	Extension Pro	ocessing.								
Windows Search Group Polic	cy Extension	08:49:43.002918700	0.05 sec	Starting Window W7 XD Loopbac	ws Search Gro ck User	up Policy Exte	nsion Extensi	on Proces	ssing.						
Group Policy Shortcuts Exten	nsion	08:49:44.107405900	0.2 sec	Starting Group I	Policy Shortcut ck User	ts Extension P	rocessing.								
Estimated network bandwidth	h on one of the co	nnections: 0 kbps.													

A fast link was detected. The Estimated bandwidth is 0 kbps. The slow link threshold is 0 kbps.

### 4. Logon Script Improperly Coded

#### Issue:

Providers and nurses at a large healthcare organization were experiencing longer than normal logon times, especially when first starting their shift on the ICU floors. Prior to working with Goliath Technologies, the issue was causing frustration with the employees, as well as directly impacting the patient care itself.

#### **Resolution:**

Once Goliath Performance Monitor was implemented and configured, the IT infrastructure team was able to determine there were improperly coded logon scripts being applied to the ICU team, which had been delaying logons. As these scripts didn't execute properly, they would eventually time out, but they took 60 seconds to do so. Not only were the staff receiving application level issues due to the scripts not "kicking off" properly, the excessive timeout period was taking 60 seconds for each script to "fail/quit." The logon duration was increased at times in excess of 6 minutes, however once the script related issues were mitigated, logon times averaged out to 37 seconds.

	Logon Duration Details for: Logon Duration Breakdown														
								Logon	Duration Br	eakdown	GPO				
	Connect D/T	Client Address	Reconnect	Logon	l cering	VM Start	Client Valid	Server Valid	HDX	Auti	GPU	Scripts	Profile	Interactive	
2016-	04-06 05:46:48	128.1.4.5	No	349.1 s	ecs. 17 secs.		3.46 secs.	5.45 secs.	0.34 sec	s. 0.73	se 331.6 sec	s.	0.44 se	CS.	
Ξ					Client / Server S	Start-up Def	ails for:	a a serie a serie a							
					4	Citrix Dolivo	vrv-Controller	Start-up Stages	3						
	CASD	CONSD	CO	SD	DMSD	LES	SD	PC SD	PLSE	)	PNCOSD	SCSD		SSSD	
	0.38 secs.		(	0.01 secs.		32	2.5 secs.					1.19	ecs.	115.2 secs.	
						Citrix F	eceiver Start-	up Stages							
	AECD BU	JCC CFD	CD CO	CD IFE	DCD LPV	D N	IRCD N	IRWD R	ECD	REWD	\$CCD	SCD	<b>S</b> LCD	TRWD	
					0.28	secs.	(	0.25 secs.			2.56 secs.		0.001 secs.	0.001 secs.	
-						Logon Du	ration Session	Launch							
	Action		Tim	e	Duration					Det	ails				
Broker	ing & Client Validation	ı	2016-04-06	6 05:46:51	0.2 secs	. ZDC/DD	Broker:	K003							
						Account details: Account Name :									
Get Ac	count Data		05:47:04.2	14150100	0 secs	<ol> <li>Account D DC Name</li> </ol>	omain Name :								
						DC Domai Domain Co	n Name : main and the second sec	A.							
Domai	n Controller Data		05:47:04.2	14150100	0.31 secs	<ol> <li>Domain Co Domain Co</li> </ol>	ontroller Name : i ontroller IP Addre	ss : 172.18.102.9							
						List of app Local Grou	licable Group Pol Ip Policy	licy objects:							
LDAP	Calls		05:47:04.5	26672700	0 secs	The follow	ng Group Policy	objects were not a	applicable beca	ause they we	re filtered out :				
						Profile Red Making sys	lirect stem calls to acce	ess specified file.							
						\\r Making sys	stem calls to acce	icies\{31B2F340-0 ess specified file.	16D-11D2-94	5F-00C04FB	984F9}\gpt.ini				
File Ac	cessed		05:47:04.8	86040000	0 secs	CS. Making system calls to access specified file.									
_						Making ov	stem calls to acce	licies (615EDE17- ess specified file.	-7D5E-4884-9	5D-EB15A4	5DB820}\gpt.ini				
Regis	try Extensions		05:47	:05.1204032	00 12	0.4 secs. agistry Extension Processing. In Policy									
						Citrix 7.6	main Policy								
Citrix 6	Group Policy Extension	ns	05:47:05.6	36033700	0.22 secs	Starting Ci	trix Group Policy	Extension Proces	sing.						
IE Zon	e Mapping Extensions	3	05:47:05.8	70401700	0 secs	Starting In	ternet Explorer Z	onemapping Exter	nsion Processi	ng.					
Folder	Redirection Extensior	IS	05:11:41.5	43386900	0.2 secs	Folder Red	lirection								
						Xendeskto Starting Gr	p User Se	to, Extension Drog	aceina						
Group	Policy Ini Files Extens	sion	05:11:43.5	43386900	0 secs	IE Settings		ary Extension Proc	Jessing.						
						Xendeskto Starting Gr	p User Settings	et Settings Extens	tion Processin	n					
IE Sett	ings Extensions		05:11:50.0	20386900	0.31 secs	IE Settings				y.					
Citrix P	rofile Management E	tension	05:11:41.7	70386900	0.16 Secs	<ul> <li>Starting Cr</li> <li>Starting Gr</li> </ul>	trix Profile Manag oup Policy Drive	gement Extension Maps Extension F	Processing. Processing.						
Group	Policy Drive Maps Ext	lension	0.00	<ul> <li>Philadelphi</li> <li>Starting Gr</li> </ul>	a Network Drives	s Extension Process	sing.								
Group	Policy Files Extension	1	05.11.43.0	52386900	0.09 secs	Xendeskto Starting Gr	p Admin/General oup Policy Scheo	Office Settings duled Tasks Exten	- Ision Processir	ıq.					
Group	Policy Scheduled Tas	ks Extension	05:11:43.1	82386900	0.33 secs	Exclaimers DEFAULT	SignatureManage GPO	r		-					
Carlot	in a Foderaniana					Starting G	oup Policy Short	cuts Extension Pro	ocessing.						
Script			05:4	7:05.636033	700 2	29.1 Secs	ripts Extension opback User	Processing.							
Estima	nated network bandwidth on one of the connections: 43740598 kbps.														
A fast	link was detected. The	e Estimated band	dwidth is 34992	4 kbps. The s	low link threshold	l is 500 kbp	3.								~
						Ref	resh P	rint							J

### VII. Summary

As you can see, the Citrix Logon Process is a very complex set of technical hand offs between 33 different stages, with some of them being inter-dependent. It really is quite an amazing technical feat.

To truly be proactive, and get ahead of logon issues before end users complain, it is important to have a real time, granular drill down into each of the stages, along with an understanding of how to utilize them. In addition, because we need objective evidence from time to time so we can defend Citrix, or show the true root cause, it is critical to have robust <u>out-of-the-box reporting</u>.

<u>Goliath Performance Monitor</u> is, in essence, a comprehensive logon duration monitoring, alerting, and analysis technology. Goliath Performance Monitor delivers each of the features you will need to encompass the troubleshooting needs in a Citrix environment.

# Schedule A Personal Demo Or Try Goliath Performance Monitor Free for 30-Days – Includes Full Support from Goliath Tech Ops

You can instantly download a free fully supported <u>30-day trial of Goliath Performance Monitor here</u> or click <u>here to schedule a personal demo</u> of Goliath Performance Monitor.

If you have a question, you can reach out to the Authors regarding Citrix logon issues and improving end user experience:

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**Goliath Technical Support Team** 

The team members collaborated to bring together this How-To Guide by calling on their past Customer Experiences and Expert Knowledge of Citrix Troubleshooting. Beyond writing technical documents this team supports Goliath Customers and provides product feature/function guidance to development.