



TECHNICAL GUIDE

Complete Guide to Understanding the Citrix Logon Process

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

Written By: Goliath Technologies Technical Team

Updates By: George Spiers, Citrix CTP

Contents

Technical Summary	3
What is the Citrix Logon Process?	3
A. Description	4
Logon Duration Stages	4
A. Logon Duration Brokering Stages	6
B. Delivery Controller Stages.....	6
C. Citrix Workspace App Startup Stages	7
D. Logon Stage Details	9
Correlate Stages to Logon Process.....	10
How to Use It	10
AI:	11
A. How to Troubleshoot Isolated User Logon Duration Slowness:	13
B. How to Troubleshoot Entire User Base Logon Duration Slowness:	15
Use Cases - How Goliath Customers Use the Technology	16
Logon Slowness due to Drive Mapping Execution	16
AD Group Membership/Logon Script/Registry Extension Mappings Causing Logon.....	18
Slowness	18
Print Driver Support and Missing Print Drivers Causing Long Logons.....	19
Logon Script Improperly Coded	21
Summary	22

Technical Summary

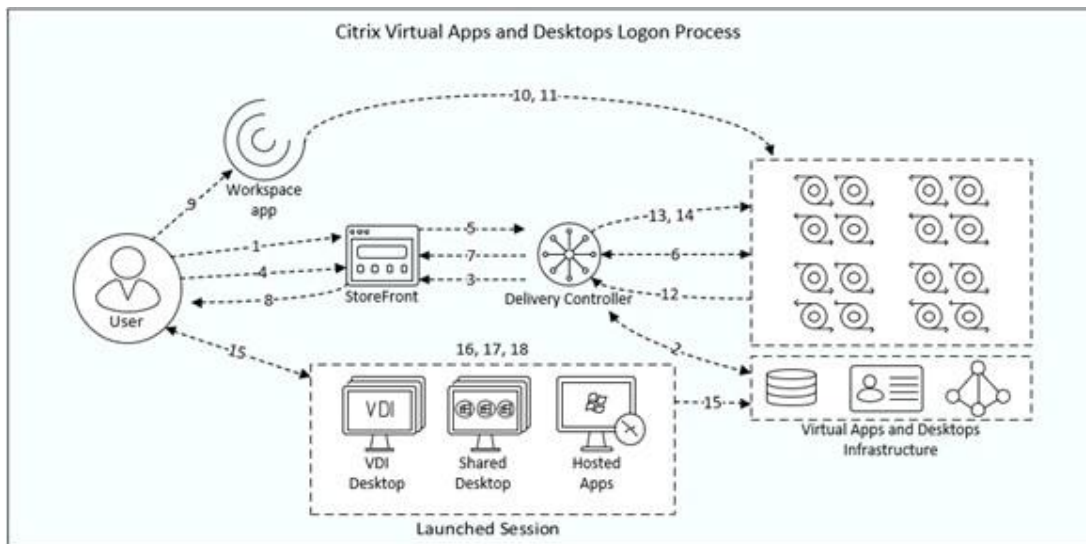
Troubleshooting and permanently resolving Citrix logon duration issues is an excruciating challenge for most Citrix Engineers. Unfortunately, obstacles to troubleshooting are further accentuated by the fact that many tools on the market are either ill-equipped to provide the level of detail necessary 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 more than 33 stages in the overall logon process just to get a user session brokered to its session host. If you are in health IT, there is an extra layer of complexity in that any issue in the Citrix logon process impacts EHR speed & reliability.

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.

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 Workspace app, Citrix Brokering Architecture/ ADC, 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 endpoint to the session host before the user ends up seeing their desktop or 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 logs on (in this example, to StoreFront)**
2. **Delivery Controller contacts SQL for a list of resources to present to the end user**
3. **StoreFront enumerates the desktops and/or applications the user is entitled to**
4. **End user clicks on a desktop or application (in this example, from StoreFront) to launch it**
5. **StoreFront requests a session host from the Delivery Controller**
6. **Delivery Controller selects a session host**
7. **Delivery Controller sends session host hostname & IP address to StoreFront**
8. **StoreFront creates the ICA File and sends it to Citrix Workspace app**
9. **Citrix Workspace app launches the ICA file**
10. **Citrix Workspace app determines and then checks that the connection to the session host can be established**
11. **Citrix Workspace app establishes an ICA connection to the session host**
12. **Delivery Controller creates a user session**
13. **Delivery Controller processes Citrix policies**
14. **Session is brokered by the Delivery Controller to the session host**
15. **User Authentication between domain controller and session host**
16. **End User sees the Citrix session window open and the Windows welcome screen**
17. **Profile Load, Group Policies (GPO), and script execution take place**
18. **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.

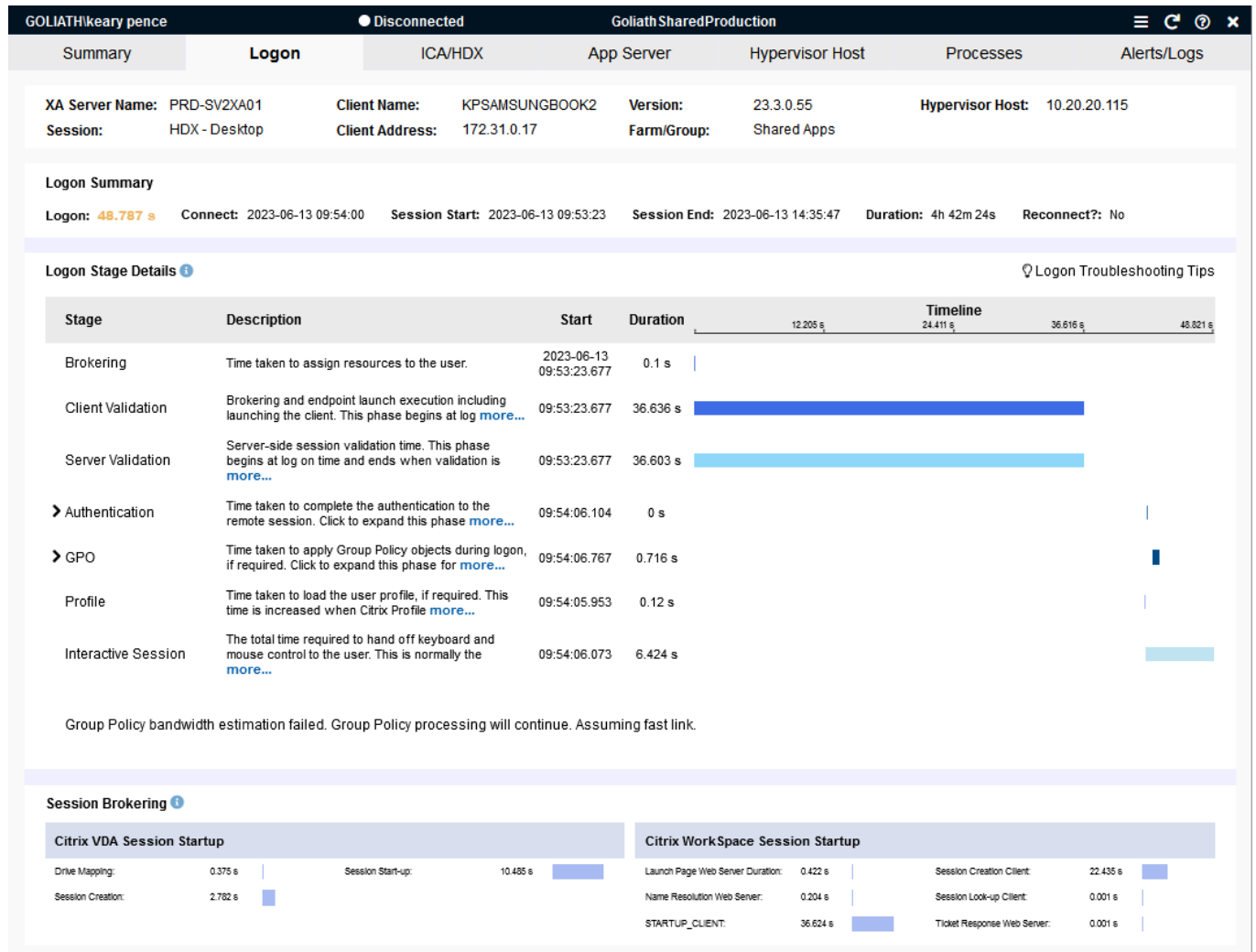
Logon Duration Stages

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 Workspace app's process to establish the ICA Connection, and desktop load process for the application or desktop on the session host.

Combining in-depth Citrix data and Windows OS logging data, the Logon tab breaks down the user's login from start to finish, providing the administrator with actionable metrics to reduce troubleshooting times.

The Logon tab is comprised of four main sections displaying a wide variety of data to assist in diagnosing slow logon times. Each of the logon stages is presented with easy to identify graphs to quickly see where the majority of time is spent in the process, saving you time in getting to the root cause of potential problems.

Fig. 1 Session dialog - the Logon tab at a glance:



From the top of the dialog, the first section presents general session information. This information will differ if you're reviewing a Published app or desktop session versus a Virtual Desktop. The example in Figure 1a, below, displays a Virtual Desktop session, which includes the Delivery Group name, the endpoints IP address, the Citrix broker responsible for the connection and the version of Citrix Workspace app the endpoint has installed.

Fig. 1a Virtual Desktop session information



The next area is a Logon summary where you can find actual logon duration time as well as session start, duration, and end time if applicable.

Fig. 1b Logon summary

Logon Summary

Logon: **48.787 s** Connect: 2023-06-13 09:54:00 Session Start: 2023-06-13 09:53:23 Session End: 2023-06-13 14:35:47 Duration: 4h 42m 24s Reconnect?: No

A. Logon Duration Brokering Stages

The middle section of the Logon tab displays the logon duration brokering stage data for both the Delivery Controller and the Citrix Workspace app startup stages.

B. Delivery Controller Stages

Fig. 1c Delivery Controller Stages



► Credentials Authentication:

- The time spent on the server authenticating the user credentials against Active Directory.

Tip: A slow authentication stage may indicate an improper site configuration. An example would be if your user is logging into a datacenter in one location and is being authenticated by a domain controller in another physical location. This would indicate misconfiguration in Active Directory Sites and Services.

Another point to consider would be a site DNS issue, or simply overloaded Domain Controllers.

► Credentials Obtention:

- The time taken for credentials to be passed through to the server.

► Credentials Obtention Network Server:

- Network credential retrieval for passthrough authentication.

► Drive Mapping:

- Client passthrough drives, port and device mapping.

Tip: Create policies to disable unnecessary ports, drives, and devices to reduce bandwidth and resource consumption.

► Login Script Execution:

- Time spent executing user login scripts.

Tip: Find scripts executed by the user and manually run them to observe how long they take to execute and observe failures in execution that may cause delays. We would recommend using a test account which is in the same set of AD Security Groups as the affected user to ensure you have a similar permission set for testing, which can be useful, then testing scripts that map network drives etc.

► **Printer Creation:**

► The time spent mapping the user's client printers.

Tip: Check the health of mapped printers and print servers and make sure they are online, otherwise logons may be impacted.

► **Profile Load:**

► The time spent loading the user's profile.

Tip: Check the size of the user's roaming profile. Find large folders or folders with many small files, and work on creating policies to reduce the number of folders and files included in the profile.

► **Program Neighborhood Cred Obtention:**

► The time needed for the server to cause the Program Neighborhood instance running on the client to obtain the user credentials.

► **Session Creation:**

► The time the server spends creating the session.

► **Session Startup:**

► This is the high-level server-side connection start-up metric that encompasses the time Virtual Apps and Desktops takes to perform the entire start-up operation. When an application starts in a shared session, this metric is normally much smaller than when starting a new session, which involves potentially high-cost tasks such as profile loading and login script execution.

C. Citrix Workspace App Startup Stages

Fig. 1d Citrix Workspace app Startup Stages



► **Application Enumeration Client:**

► Application enumeration is one of the issues slowing down session start times.

Tip: Check the health and performance of your Delivery Controllers and SQL infrastructure.

► **Backup URL Client Count:**

► If this metric has a value higher than 1, it indicates the StoreFront server is unavailable and the Workspace app is attempting to connect to back-up StoreFront servers to launch the application.

► **Configuration Obtention Client Duration:**

► The time it takes to get the configuration file from the XML server

▶ **Credentials Obtention Client:**

- ▶ The time it takes to obtain user credentials when the user credentials are manually entered by the user.

▶ **ICA File Download:**

- ▶ The time it takes for the client to download the ICA file from the server.

▶ **Launch Page Web Server Duration:**

- ▶ Review the information for IFDCD. The LPWD metric is only used when Web Interface is the application launch mechanism.

▶ **Name Resolution Web Server:**

- ▶ When this metric is high, there could be an issue with the StoreFront server, the XML Service, the network link between the two, or a problem in FMA.

Tip: Like Name Resolution Client, this metric indicates how long it takes the XML service to resolve the name of a published application to a Virtual Delivery Agent IP address. However, this metric is collected when a StoreFront server is performing this process on behalf of a launch request it has received from either the Workspace app client (previously known as Citrix Receiver) or from a user clicking a published resource from the StoreFront web page. This metric applies to all sessions launched through StoreFront or Citrix Workspace app (formerly Citrix Receiver).

▶ **Reconnect Enum Client:**

- ▶ The time spent for the user's client to get a list of reconnectable sessions.

▶ **Reconnect Enum Web Server:**

- ▶ The time it takes the StoreFront to get the list of reconnections for this user from the XML service.

▶ **Session Creation Client:**

- ▶ The time it takes to create a new session, from the moment wfica32.exe is launched to when the connection is established.

▶ **Session Lookup Client:**

- ▶ The time it takes to query every session to host the requested published application.

▶ **Ticket Response Web Server:**

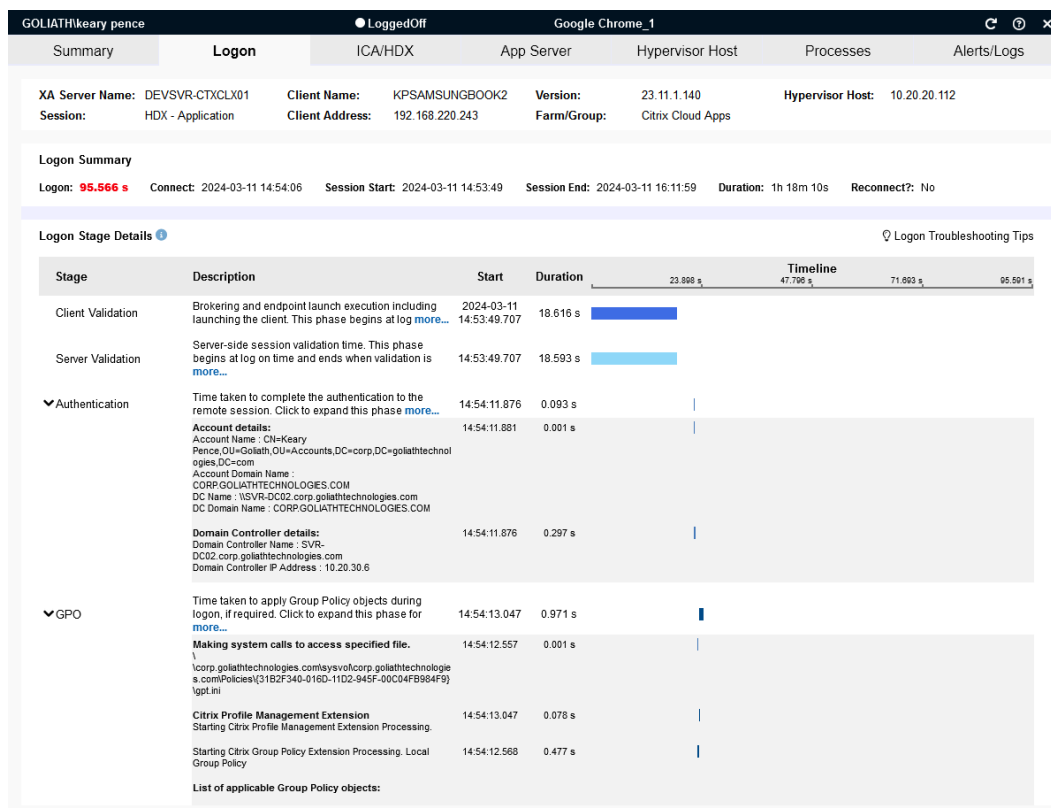
- ▶ The time it takes to get a ticket from the STA server or XML service.

Tip: This can indicate that the Secure Ticket Authority server is overloaded.

D. Logon Stage Details

The Logon Stage Details section of the Logon tab is unique to Goliath Performance Monitor. It presents a granular breakdown of the login process by combining all of the above metrics with information included in the Goliath logs. This approach saves time and testing efforts by highlighting specific details during the login process that an administrator would normally have to dig through logs and other areas to obtain.

Fig. 5 Logon Stage Details



As seen in the image above, some of the stages of the logon process can be expanded to drill in to specifics about the individual logon stage process.

The Authentication section is key to determining which domain controller processed the login as well as the time it took to read group policy objects. One of the key metrics here is the domain controller's location. An improper site configuration could have a client authenticating through a domain controller not local to the client. Another key metric would be the client's ability to read the Group Policy file and how long that read takes.

Active Directory Sites and Services should be correctly configured so that authentication and Group Policy processing occurs with a local domain controller for best performance.

The GPO section displays the amount of time to process each group policy object. Long GPO processing could indicate invalid printer mapping or network drive mapping.

In summary, Goliath Performance Monitor's Logon tab provides administrators with a unique view into the login process by combining data from Citrix as well as Windows log information to assist in troubleshooting slow logons and getting to root cause much faster.

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.



How to Use It

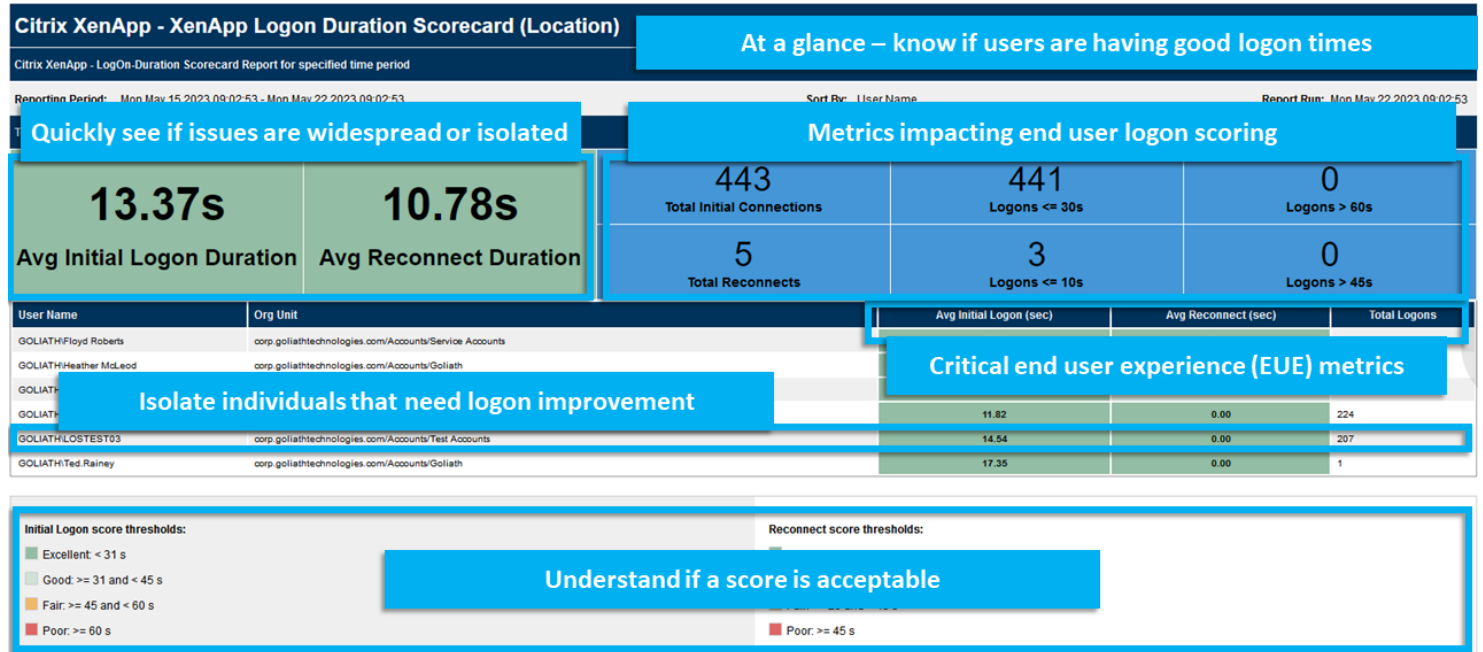
When working with individuals who administer/support/manage Citrix environments, it has become the general understanding that logon issues typically are found to manifest in one of two ways:

- ▶ **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.

Advanced Analytics:

Advanced Logon Analytics provide a holistic view of Citrix logon times and experience across the organization, and automatically compares performance against internal SLAs and industry best practices. Data can be filtered by location, AD/OU, time period, users, or specific machines.



AI:

Goliath has introduced AI in the form of a Citrix troubleshooting assistant. Leveraging AI is a good jumping off point for IT teams to troubleshoot issues before they need to be escalated to Citrix Engineers. It effectively adds additional Citrix expertise earlier in the escalation path.

The screenshot shows the Citrix Logon Summary and Logon Stage Details. The Logon Summary shows a total logon time of 53.023 s. The Logon Stage Details table shows the following stages:

Stage	Description	Start	Duration	Timeli
Brokering	Time taken to assign resources to the user.	2024-05-20 09:15:54.177	0.437 s	
Server Validation	Server-side session validation time. This phase begins at log on time and ends when validation is more...	09:15:53.930	45.753 s	
Authentication	Time taken to complete the authentication to the remote session. Click to expand this phase more...	09:16:44.980	0.326 s	
GPO	Time taken to apply Group Policy objects during logon, if required. Click to expand this phase for more...	09:16:45.651	1.271 s	
Profile	Time taken to load the user profile, if required. This time is increased when Citrix Profile more...	--:--	0.223 s	
Interactive Session	The total time required to hand off keyboard and mouse control to the user. This is normally the more...	--:--	10.767 s	

Estimated network bandwidth on one of the connections: 0 kbps.
A fast link was detected. The Estimated bandwidth is 28706 kbps. The slow link threshold is 500 kbps.

The Session Brokering section shows the following details:

Citrix VDA Session Startup		Citrix WorkSpace Session Startup	
Credentials Authentication:	0.157 s	Profile Load:	11.969 s
Credentials Obtention:	3.765 s	Session Creation:	1.313 s
Drive Mapping:	0.172 s	Session Start-up:	20 s
Logon Script Execution:	11.969 s	Launch Page Web Server Duration:	2.532 s
		Name Resolution Web Server:	0.969 s
		STARTUP_CLIENT:	44.669 s
		Session Creation Client:	0.876 s
		Session Look-up Client:	0.001 s
		Ticket Response Web Server:	0.001 s

An AI assistant overlay (KIP Goliath AI Assistant) is present on the right side of the screenshot, providing troubleshooting advice for long logon times:

Server validation stage is creating long logon times. How do I determine if it is server side or network side?

To determine whether the server validation stage, which is causing long logon times, is a server side or network side issue, you can perform the following steps:

1. Check the Server Performance: Monitor the server's CPU, memory, and disk usage. If these are consistently high, it could indicate that the server is overloaded, which can cause slow logon times.
2. Network Latency: Use network monitoring tools to check for high network latency. High latency or packet loss can cause slow logon times.

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:

» 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.

» 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:

» 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.

» Navigate to the Citrix Virtual Apps & Desktops display, where you can then search for the user and bring up their session details, including the breakdown of the user's logon process.

» Drill into the user's logon duration breakdown.

User Account	App Server	Session	State	Client Name	Client Address	Version	Logon	ICA Latency	Avg. ICA Lat.	Delivery Group	Connected	Logon/Disconnected
...	Active	SATB-D17KJ52	10.12.22.46	14.11.0.17061	123.4s	...	...	EAS Desktop 2016	2019-12-03 15:20:50	...
...	Active	SATB-QUB3F21	10.12.22.26	14.2.0.10	72.5s	...	...	EAS Desktop 2016	2019-12-03 15:20:45	...
...	Active	TOPDE00603	10.97.49.95	10.9.0.21	35s	...	...	EAS Desktop 2016	2019-12-03 15:20:17	...
...	Active	SCD-HLSD73	127.0.0.1	10.12.0.12	25.9s	...	...	EAS Desktop 2016	2019-12-03 15:20:13	...
...	Active	SATP-BVSPW51	10.12.21.43	10.9.0.19526	37.7s	...	...	MARS 2016 Desktop	2019-12-03 15:20:11	...
...	Active	D-113166415	10.102.35.62	14.9.0.2059	3s	...	...	Rackwood Developer	2019-12-03 15:20:06	...
...	Active	NVC-C789F2	127.0.0.1	10.12.0.12	153.7s	...	...	EAS Desktop 2016	2019-12-03 15:19:44	...
...	Active	PCRL-HFFJUT3	10.30.25.10	14.10.1.22	95.2s	...	...	Insurance Desk 2016	2019-12-03 15:19:10	...
...	Active	D-113166223	10.102.35.134	14.7.0.13011	3s	...	...	ACSP Desktop 2016	2019-12-03 15:18:45	...
...	Active	BRZ-SWFGMD	127.0.0.1	10.12.0.12	138.8s	62ms	...	Bract 2016 Desktop	2019-12-03 15:18:42	...
...	Active	SATP-BVSPW51	10.12.21.43	10.9.0.19526	37.7s	...	...	Bract Developer Desktop	2019-12-03 15:18:40	...
...	Active	RIC-6A2032	10.31.20.41	14.4.0.9014	16.7s	...	...	EAS Desktop 2016	2019-12-03 15:18:37	...
...	Active	RIC-DJKT232	10.31.21.36	14.4.0.8914	42.4s	...	...	EAS Desktop 2016	2019-12-03 15:18:13	...
...	Active	TOPDE00606	10.97.49.66	10.9.0.21	119.2s	...	...	EAS Desktop 2016	2019-12-03 15:17:40	...
...	Active	SATP-BVSPW51	10.12.21.43	10.9.0.19526	37s	...	...	Bract 2016 Desktop	2019-12-03 15:17:10	...
...	Active	SATP-BVSPW51	10.12.21.43	10.9.0.19526	37.7s	...	...	Dev	2019-12-03 15:16:42	...
...	Active	SATL-BBRJL32	10.207.134.10	14.8.0.1010	42.2s	142ms	157ms	IBM J 2016 Desk	2019-12-03 15:15:40	...
...	Active	CEH180-ET475	102.168.0.71	14.11.0.17061	30.6s	...	...	EAS Desktop 2016	2019-12-03 15:15:06	...
...	Active	LAPN4006022	10.190.42.148	14.8.0.1010	34.9s	...	...	EAS Desktop 2016	2019-12-03 15:15:01	...
...	Active	Yuyang's MacBook P	102.168.0.160	10.10.0.13	13.3s	...	...	EAS Desktop 2016	2019-12-03 15:15:00	...
...	Active	Genevieve's MacBook	102.168.0.11	10.1.0.0	137.6s	...	...	EAS Desktop 2016	2019-12-03 15:14:33	...
...	Active	SATP-BVSPW51	10.12.21.43	10.9.0.19526	36.6s	...	...	Juraska Desk 2016	2019-12-03 15:14:13	...
...	Active	SATB-CRKHQ2	10.12.22.42	10.9.0.21	10.5s	...	...	EAS Desktop 2016	2019-12-03 15:13:52	...
...	Active	David's MacBook Ai	102.168.0.101	10.10.2.41	87.4s	...	...	EAS Desktop 2016	2019-12-03 15:13:41	...
...	Active	SATL-HK1GRG2	10.12.21.39	10.9.0.21	17.1s	...	...	EAS Desktop 2016	2019-12-03 15:13:27	...

- 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.

The screenshot shows the Citrix Studio interface for a user named 'SITyler.Robinson'. The 'Logon' tab is selected, displaying a logon summary with a total duration of 32.553 seconds. Below this, the 'Logon Duration Brokering' section is expanded to show two tables of stages.

Delivery Controller Stages		Citrix Receiver Startup Stages	
Credentials Authentication:	0.125 s	Printer Creation:	0 s
Credentials Obtanion:	0.018 s	Profile Load:	0 s
Credentials Obtanion Network Server:	0 s	Program Neighborhood Cred. Obtanion:	0 s
Drive Mapping:	0.172 s	Session Creation:	9.562 s
Logon Script Execution:	0 s	Session Start-up:	21.877 s
		Application Enumeration Client:	0 s
		Backup URL Client Count:	0 s
		Configuration Obtanion Client Duration:	0 s
		Credentials Obtanion Client:	0 s
		ICA File Download:	0 s
		Launch Page Web Server Duration:	0.157 s
		Name Resolution Client:	0 s
		Name Resolution Web Server:	0.094 s
		RECONNECT_ENUM_CLIENT:	0 s
		RECONNECT_ENUM_WEB_SERVER:	0 s
		STARTUP_CLIENT:	4.218 s
		Session Creation Client:	2.918 s
		Session Look-up Client:	0.001 s
		Ticket Response Web Server:	0.001 s

Logon Stage Details

Stage	Description	Start	Duration	Timeline
Brokering	Session brokering time	2019-12-03 14:12:29.433	0.017 s	0.142 s
Client Validation	Brokering and Endpoint Launch execution including launching the client	14:12:29.433	3.74 s	10.254 s
Server Validation	Server-side session validation time	14:12:29.433	3.727 s	24.426 s
HDX	HDX connection from client to VM	14:12:30.723	2.28 s	32.558 s
► Authentication	User authentication, Policy Retrieval, and logon script determination at the session host	14:12:49.248	0.125 s	
▼ GPO	Group Policy Execution	14:12:51.601	5.43 s	
	Starting Registry Extension Processing.	14:12:51.601	2.631 s	
	Name: Local Group Policy			
	Starting Citrix Group Policy Extension Processing. Local Group Policy:[S24] Site Policies - AGICTXPROD-DCECTX_XA71 - User	14:12:52.429	0.168 s	
	Starting Folder Redirection Extension Processing. [S24] CTX - Redirection-DCE_V3	14:12:52.604	0.291 s	
	Citrix Profile Management Extension			
	Starting Citrix Profile Management Extension Processing	14:12:52.905	0.016 s	
	Starting Internet Explorer Zonemapping Extension Processing. CTX - Internet Explorer 10	14:12:52.989	0.062 s	
	Group Policy Drive Maps Extension			
	Starting Group Policy Drive Maps Extension Processing. Name: CTX_XA71 - User Tuning	14:12:53.091	0.202 s	
	Starting Group Policy Folders Extension Processing. [S24] CTX - Profile Management-DCE_V3	14:12:53.348	0.117 s	
	Starting Group Policy Folder Options Extension Processing.	14:12:53.488	0.071 s	
	Group Policy Scheduled Tasks Extension			
	Starting Group Policy Scheduled Tasks Extension Processing. Name: CTX - Adobe Default	14:12:53.576	0.172 s	

- 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 the user on why they may be experiencing latency on their connection, etc.

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.

- ▶ 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.
- ▶ 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 I XD session display within Goliath Performance Monitor to confirm the fix has worked as expected, and the issue is in fact resolved.
- ▶ 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.
- ▶ 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.

Use Cases - How Goliath Customers Use the Technology

In working with customers and helping them troubleshoot logon slowness, 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.

Logon Slowness due to Drive Mapping Execution

Issue:

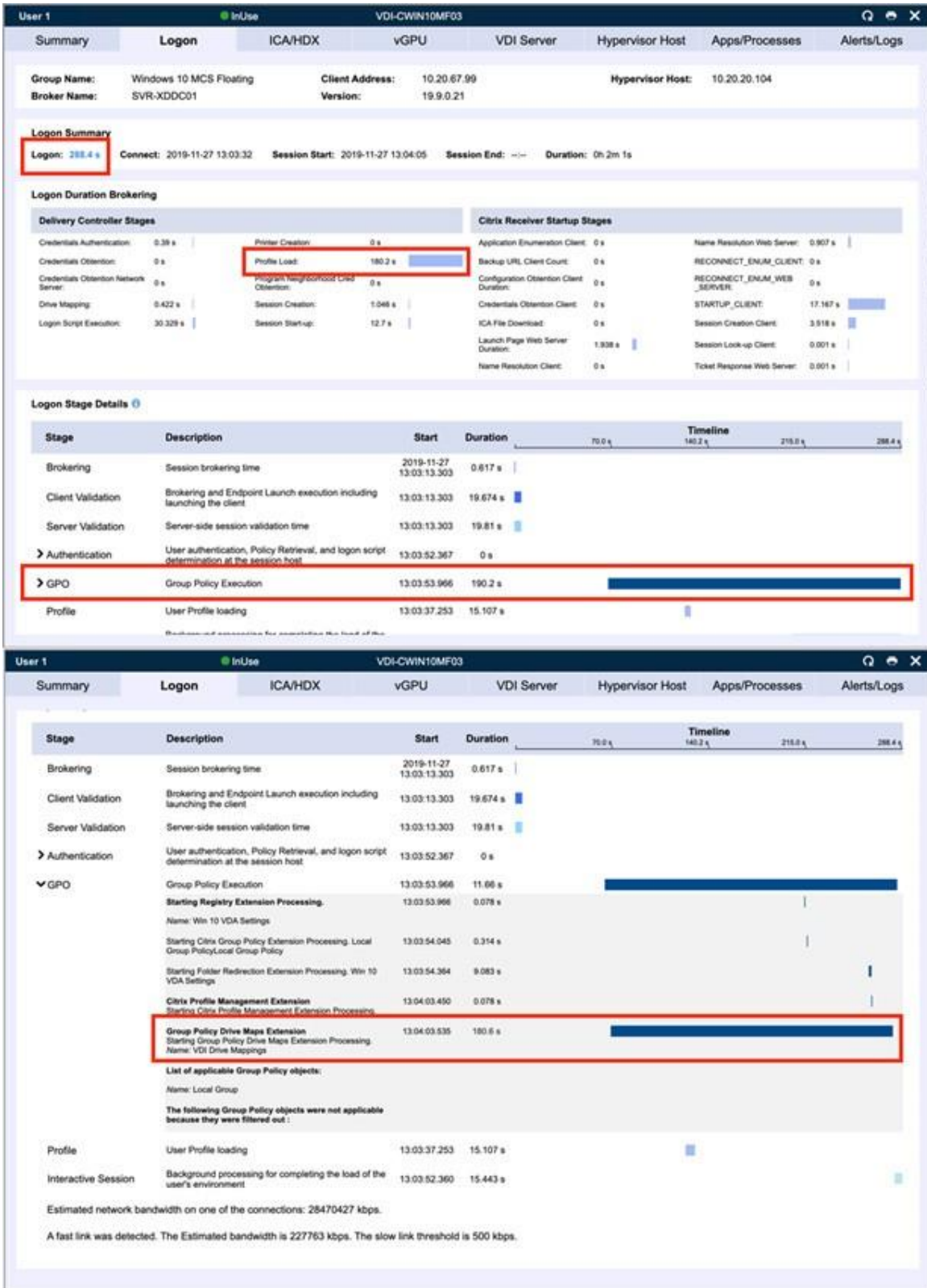
A global retailer's end users were experiencing logon times exceeding 5 minutes. Prior to using Goliath Technologies logon duration breakdown, they had been investigating, and attempting to manually find the root cause of this issue.

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 Virtual Apps environment, the team of engineers was able to easily gain the visibility into the root cause of the issue in real time, using the logon duration report. By drilling into sessions for users complaining of a 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.



AD Group Membership/Logon Script/Registry Extension Mappings Causing Logon

Slowness

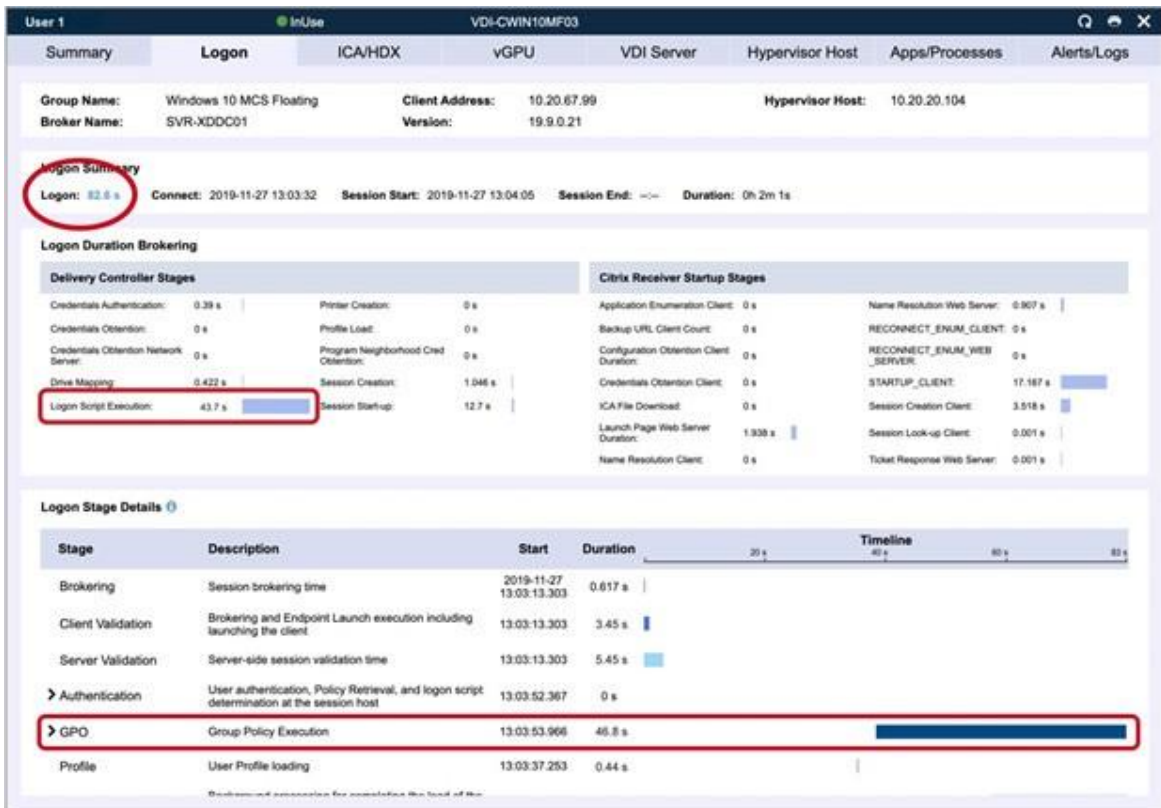
Issue:

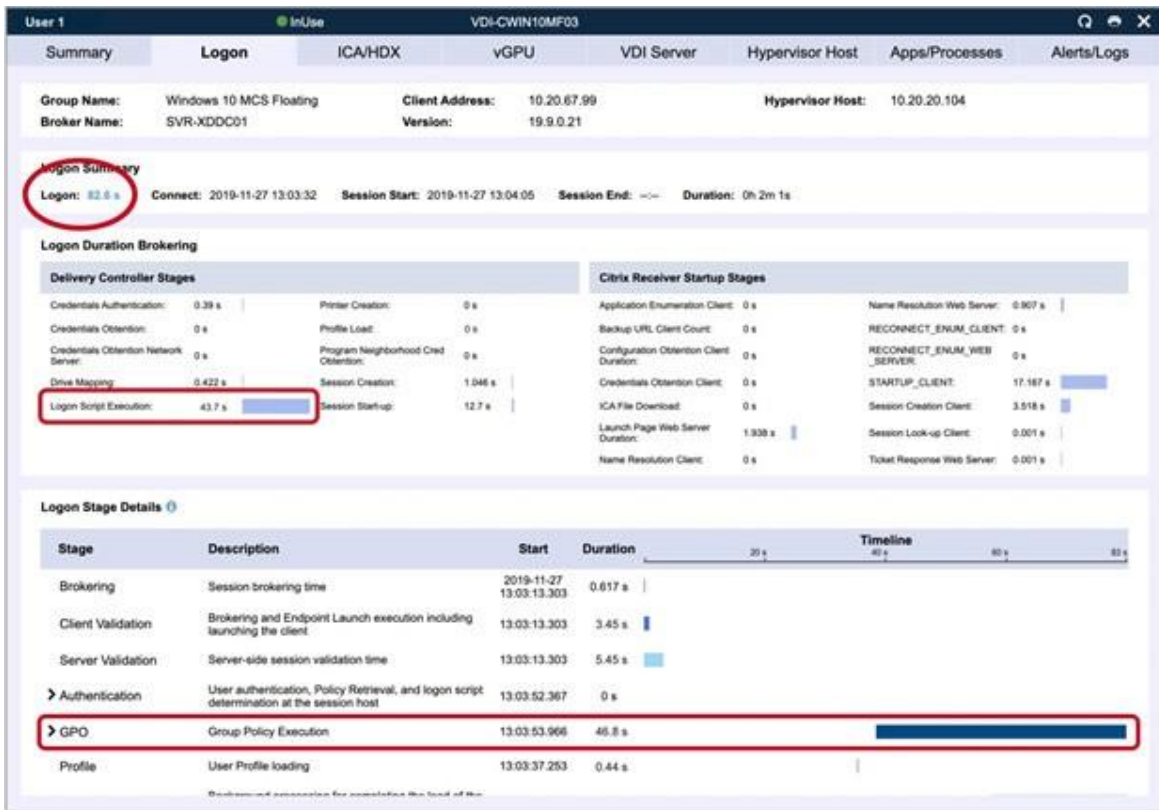
A leading law firm based out of New York City, was experiencing logon duration problems impacting the end user performance for their remote workforce of attorneys. Without the visibility into what actually was the root cause of the issue, the law firm's system administrators found themselves playing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

Resolution:

Once the Goliath Performance Monitor was installed in their environment, the systems administrators were able to leverage the logon duration report, drill down into 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.





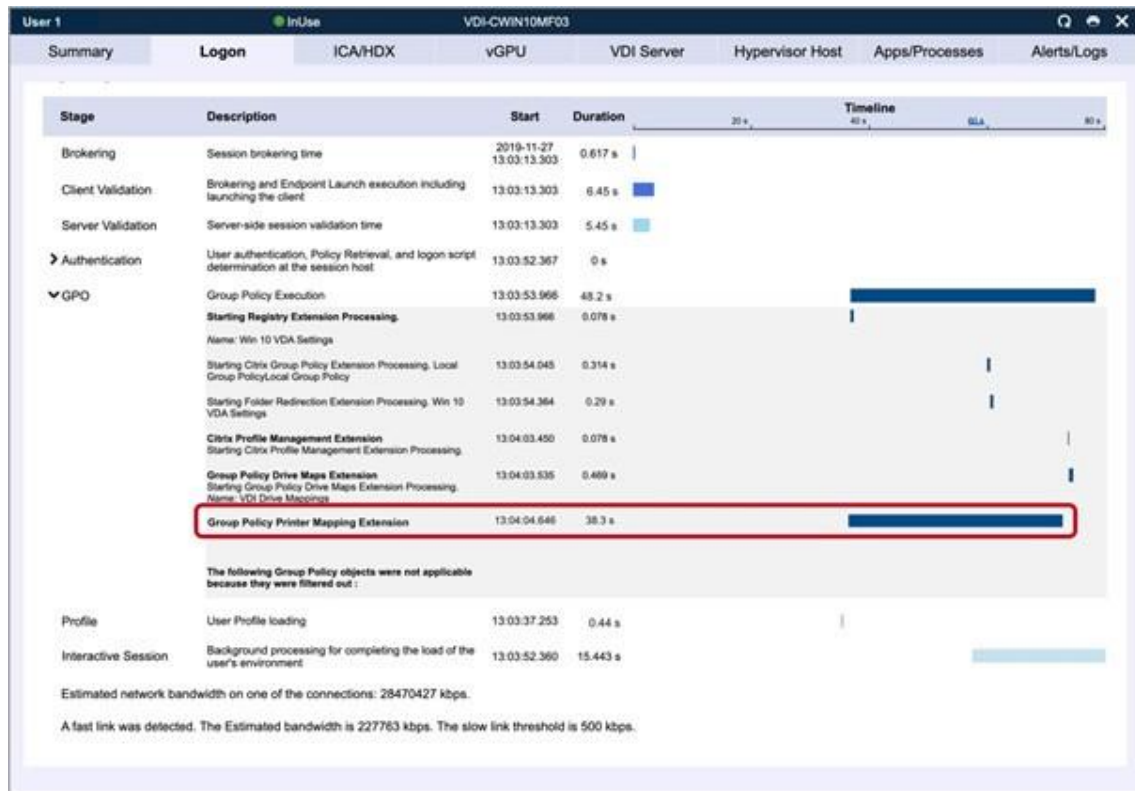
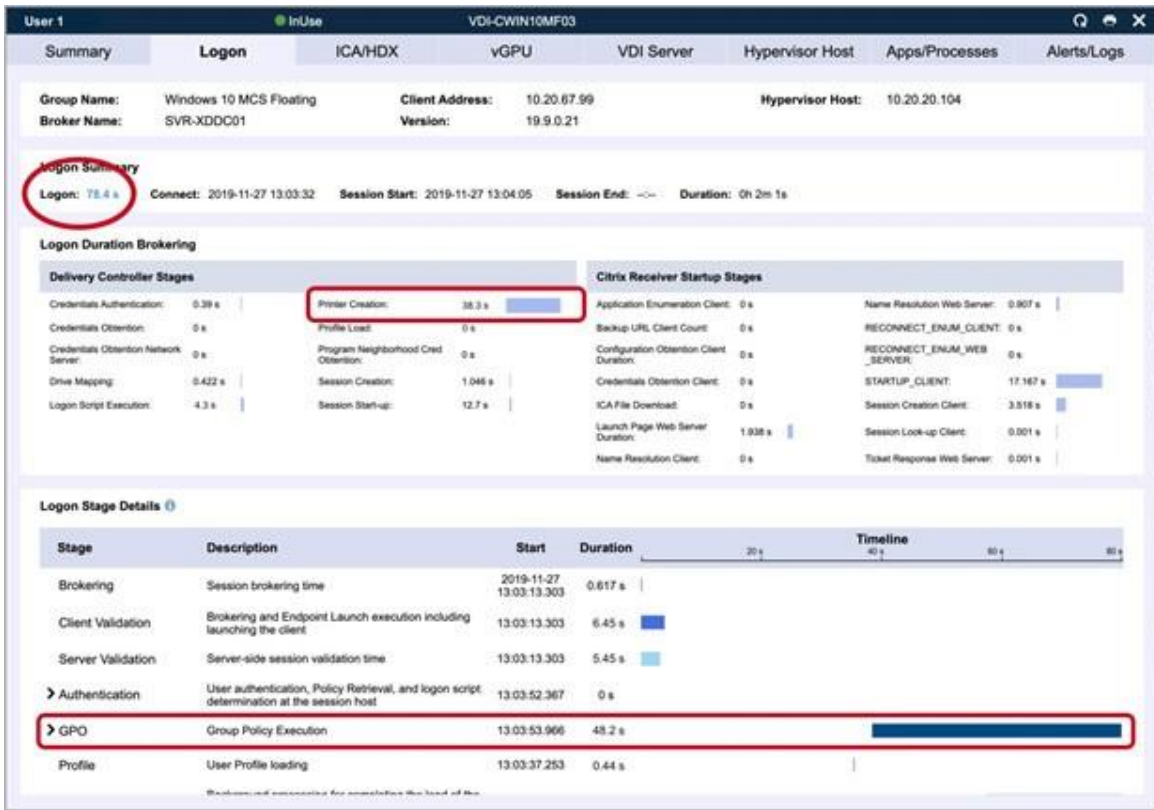
Print Driver Support and Missing Print Drivers Causing Long Logons

Issue:

An engineering firm with an expansive remote work force utilizing Virtual Apps and Desktops 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 to the 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.



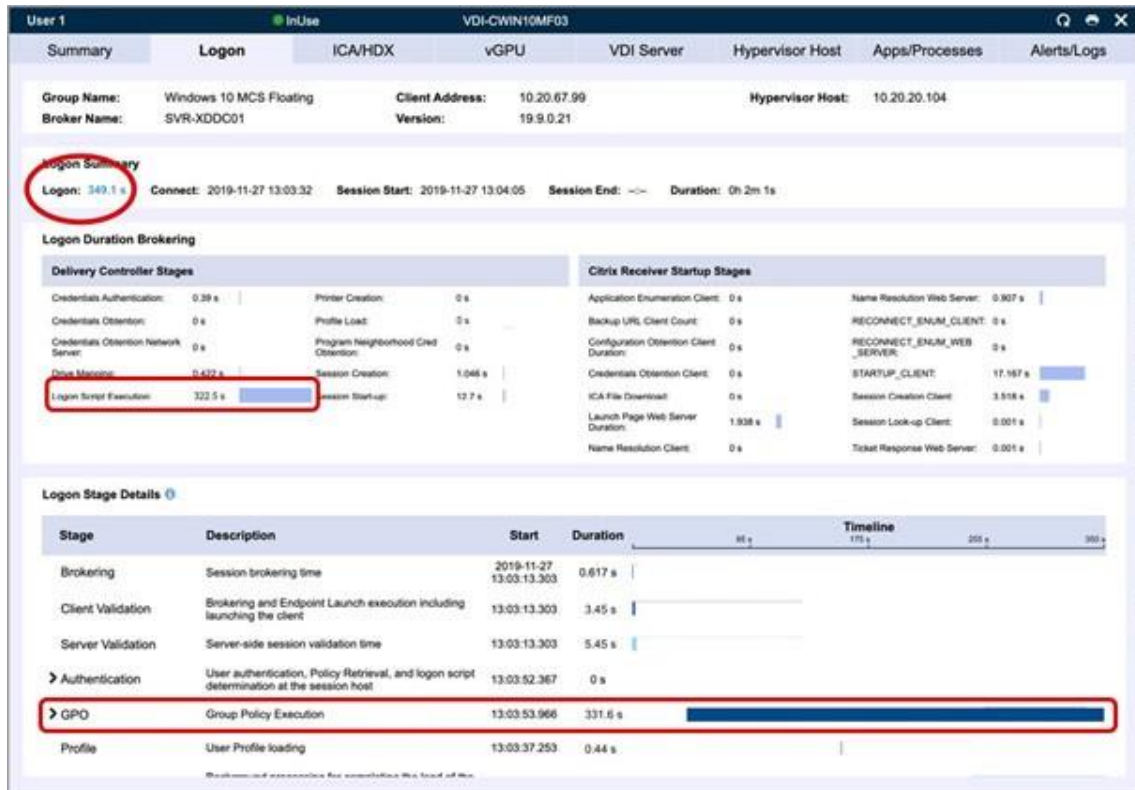
Logon Script Improperly Coded

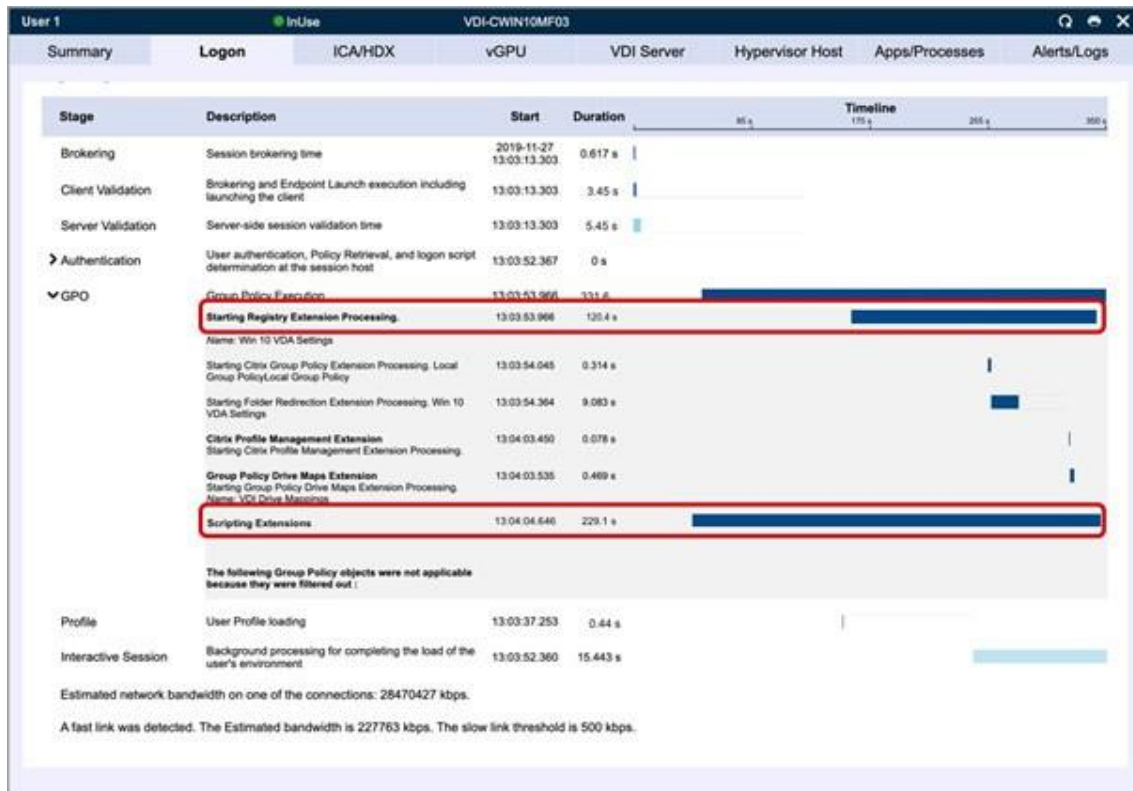
Issue:

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.





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 out-of-the-box reporting.

Goliath Performance Monitor 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 Demo Or Download a Free 30-Day Trial of Goliath Performance Monitor

Includes Full Support from Goliath Tech Ops

About the Authors

George Spiers



George has been a Citrix Technology Professional (CTP) since 2018 and is also a Citrix Certified Expert in Virtualization (CCE-V), a Citrix Certified Professional in Networking (CCP-N), a Microsoft Certified Solutions Expert and an Epic Certified Administrator. He has experience working with Citrix NetScaler, PVS, XenApp, XenDesktop and XenServer leveraging NVIDIA GRID technology for high-end graphical computing.

Goliath Technical Support Team



Our technical support team leverages their collective decades of Citrix experience and expertise in monitoring and troubleshooting end-user experience issues with the express purpose of assisting the IT professional. In addition to supporting our customers and providing critical feedback and insights to our product management and development teams, they also author helpful technical guides and share tips via our webinar and blog series.

Goliath Technologies (855) 465-4284
techinfo@goliathtechnologies.com
www.goliathtechnologies.com

Version: 20240605

©2024 Goliath Technologies. All Rights Reserved