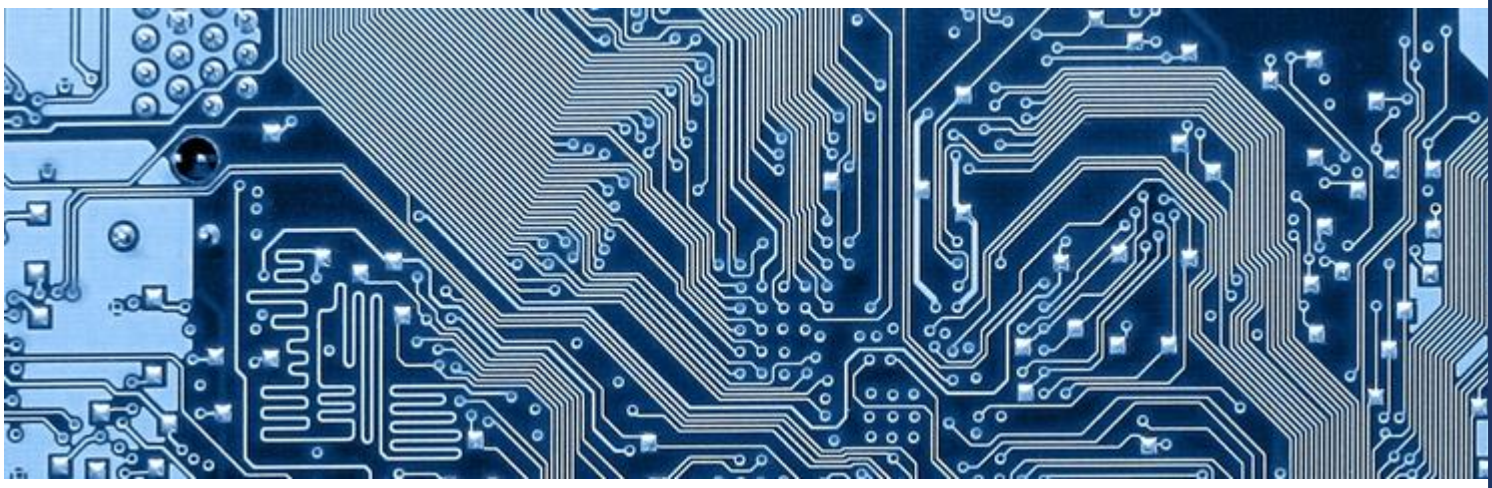
Complete Guide to Understanding The Citrix Logon Process

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.

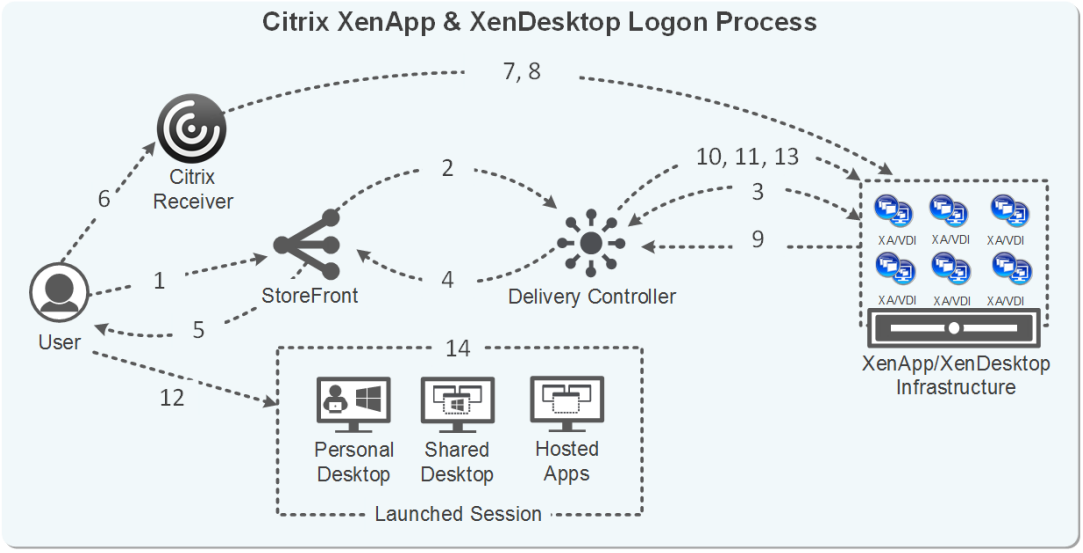
For instance, many products advertising that they provide logon duration present values for each stage of the logon process that neatly break down and add up to the sum of overall logon time. On the surface this seems to make sense intuitively, but is actually completely inaccurate. The Logon Duration 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:

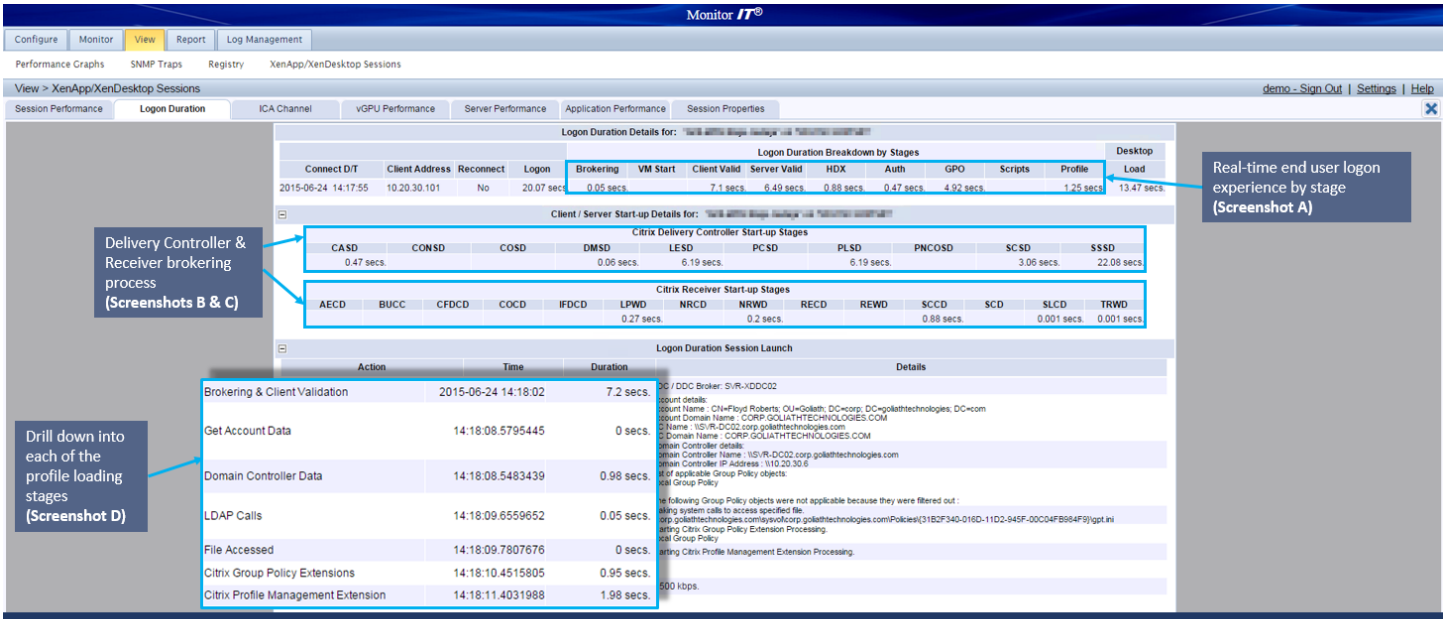
1. **End user clicks on a desktop or application (in this example, StoreFront) to launch it**
2. **Storefront requests a session host from the Delivery Controller**
3. **Delivery Controller selects a session host**
4. **Delivery Controller sends session host hostname & IP address to Storefront**
5. **Storefront 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.



Real-time logon slowness troubleshooting for real or simulated users

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

To help grasp where the logon sequence is slowing down, Goliath Performance Monitor 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 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
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:

Citrix Receiver Start-up Stages													
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	LESD	PCSD	PLSD	PNCOSD	SCSD	SSSD
0.28 secs.			0.41 secs.	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 server-side 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 find the root cause of a majority of long logons.

Logon 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 Domain Name : CORP.GOLIATHTECHNOLOGIES.COM DC Name : \\SVR-DC02.corp.goliathtechnologies.com DC Domain Name : CORP.GOLIATHTECHNOLOGIES.COM
Domain Controller Data	10:59:38.752313500	0.36 secs.	Domain Controller details: Domain Controller Name : SVR-DC02.corp.goliathtechnologies.com 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 The following Group Policy objects were not applicable because they were filtered out : Making system calls to access specified file. \\corp.goliathtechnologies.com\sysvol\corp.goliathtechnologies.com\Policies\{31B2F340-016D-11D2-945F-00C04FB984F9}\gpt.ini
File Accessed	10:59:39.539581600	0.001 secs.	Starting Registry Extension Processing. W7 XD Loopback User
Registry Extensions	08:49:37.649223800	27.37 secs.	Starting Citrix Group Policy Extension Processing. Local Group Policy
Citrix Group Policy Extensions	08:49:38.753711000	0.23 secs.	Starting Folder Redirection Extension Processing. W7 XD Loopback User
Folder Redirection Extensions	08:49:39.934898700	0.29 secs.	Starting Scripts Extension Processing. W7 XD Loopback User
Scripting Extensions	08:49:40.395101700	0.11 secs.	Starting Group Policy Folders Extension Processing. W7 XD Loopback User
Folder Extensions	08:49:41.929111700	0.97 secs.	Starting Group Policy Folder Options Extension Processing. W7 XD Loopback User
Folder Options Extensions	08:49:44.521588600	0.32 secs.	Starting Group Policy Registry Extension Processing. W7 XD Loopback User
Registry Extensions	08:49:44.981791600	0 secs.	Starting Group Policy Environment Extension Processing. W7 XD Loopback User
Group Policy Environment Extension	08:49:39.029832800	0.41 secs.	Starting Group Policy Drive Maps Extension Processing. W7 XD Loopback User
Group Policy Drive Maps Extension	08:49:39.536056100	1.36 secs.	Starting Group Policy Files Extension Processing. W7 XD Loopback User
Group Policy Files Extension	08:49:40.318401200	1.03 secs.	Starting Group Policy Ini Files Extension Processing. W7 XD Loopback User
Group Policy Ini Files Extension	08:49:40.548502700	0.25 secs.	Starting Windows Search Group Policy Extension Extension Processing. W7 XD Loopback User
Windows Search Group Policy Extension	08:49:43.002918700	0.05 secs.	Starting Group Policy Shortcuts Extension Processing. W7 XD Loopback User
Group Policy Shortcuts Extension	08:49:44.107405900	0.2 secs.	
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.

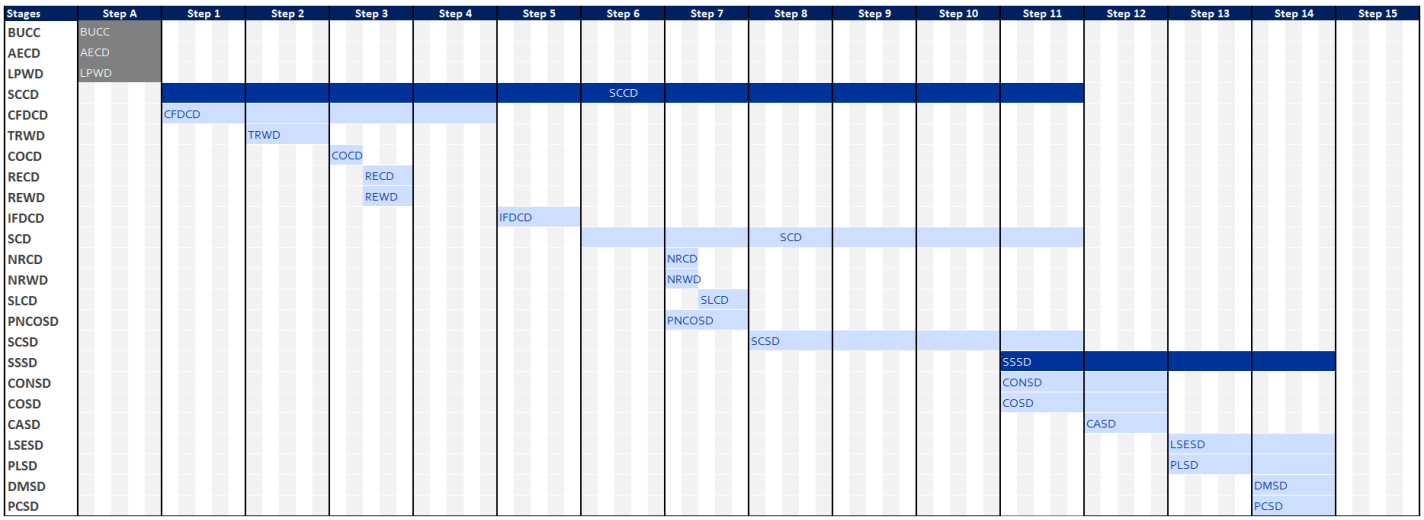
III. **Domain Controller Data**: The time taken to connect to the domain controller.

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.



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:

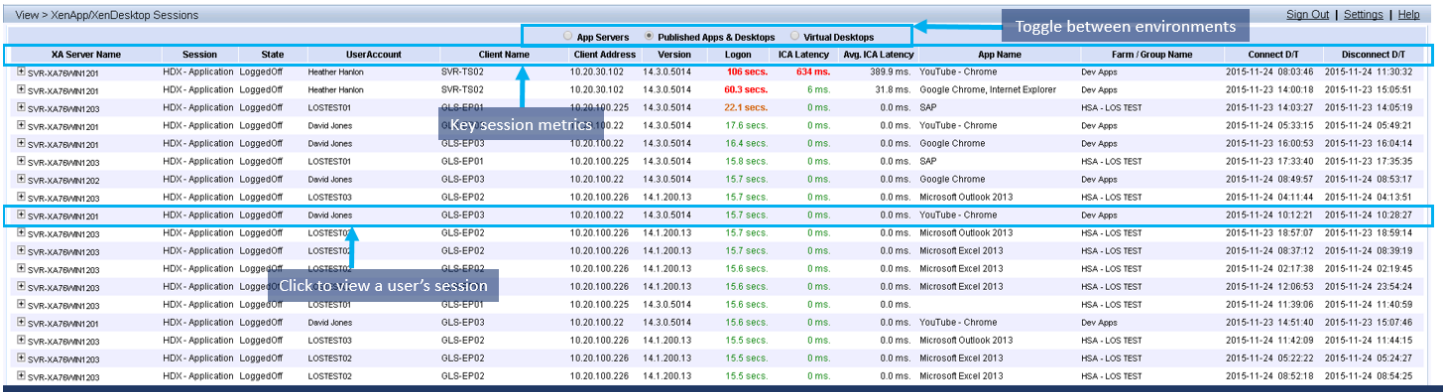
a. The biggest challenge in the case of individual user logon slowness is knowing when the problem is occurring. To do so, you need to have alerts so you're not waiting to hear from the end user. The first step is to configure alerts so you know when and how often the logons take longer than the acceptable 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.

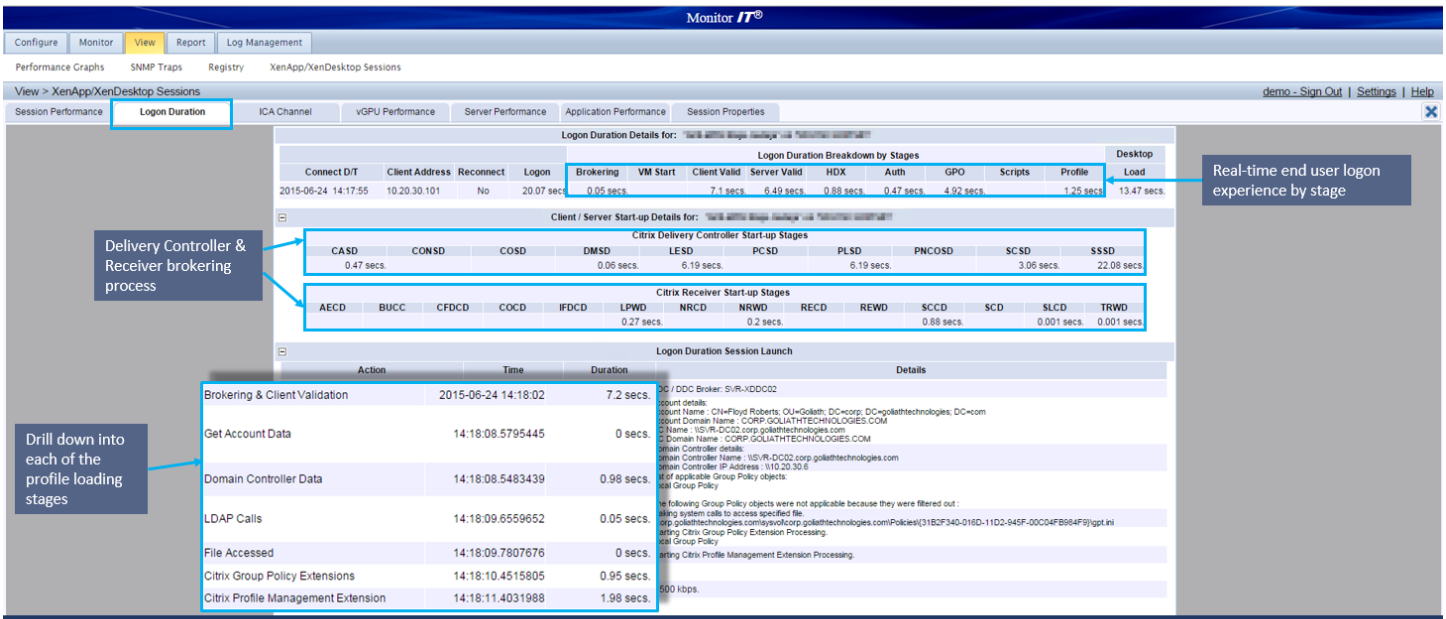
Troubleshooting Process:

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.



Investigate real or simulated end user sessions in real time or historically

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.



Use the Logon Duration Breakdown to Identify the Root Cause of Logon Slowness

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:

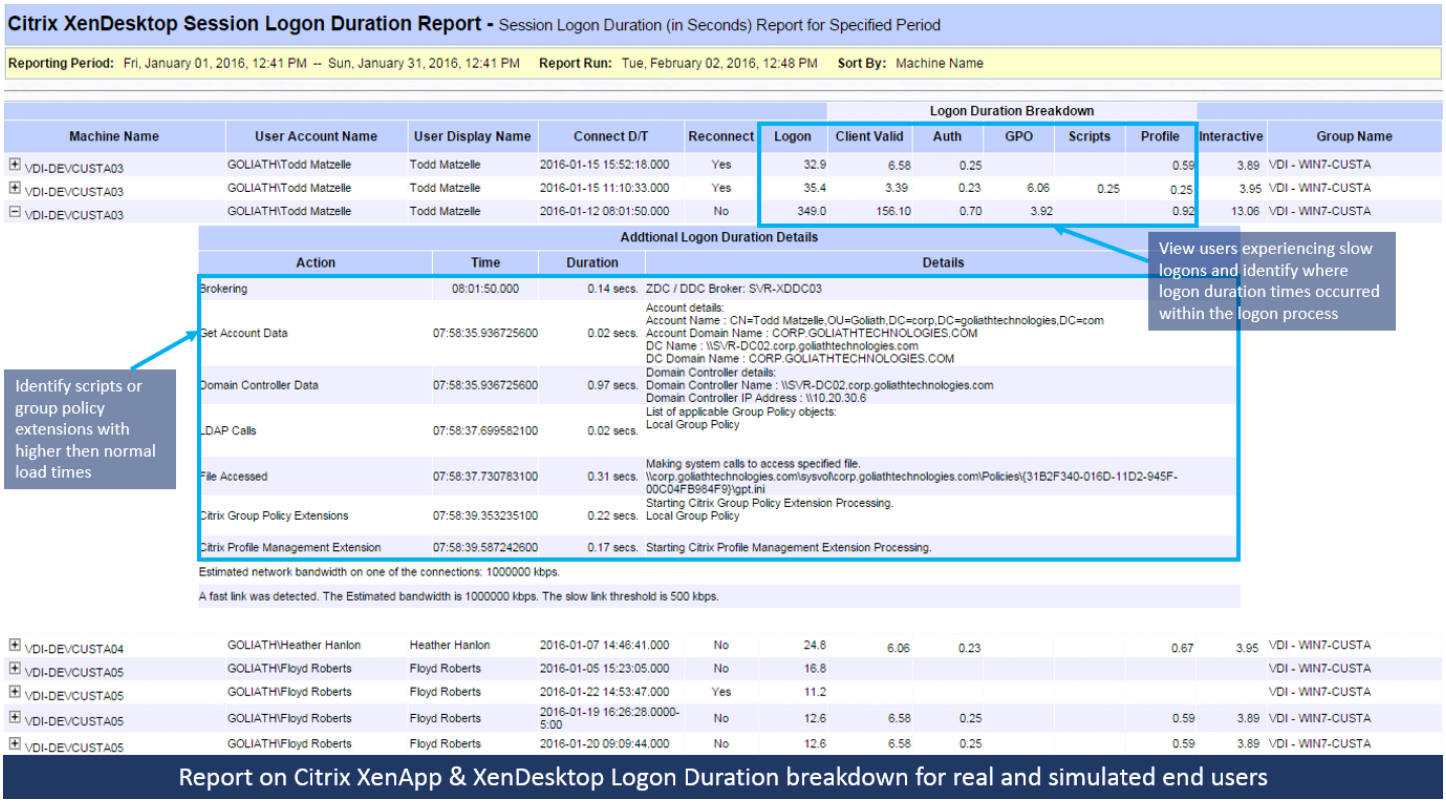
Awareness:

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.

b. 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 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.

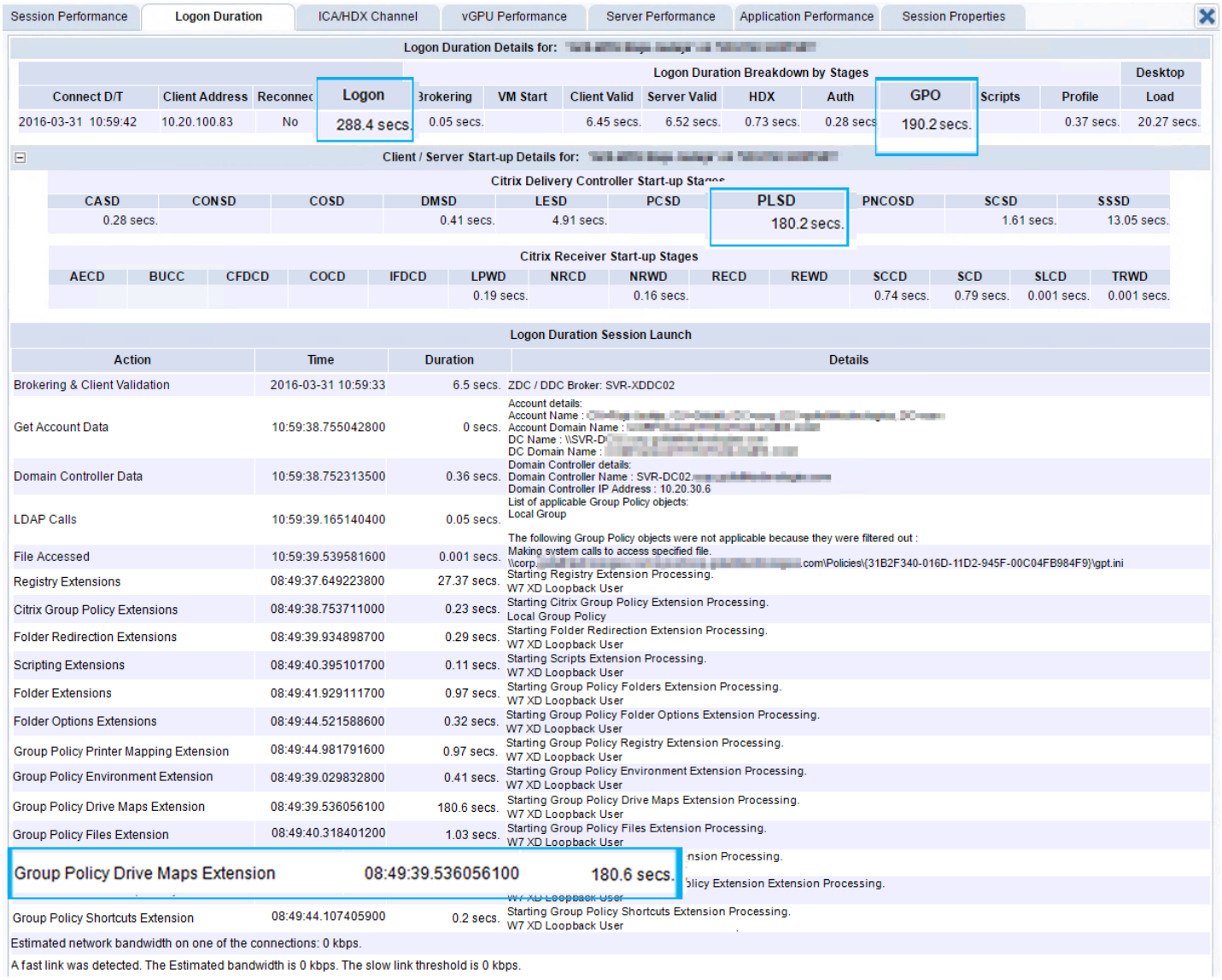
1. Logon Slowness due to Drive Mapping Execution

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 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 Logon Duration report. 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.

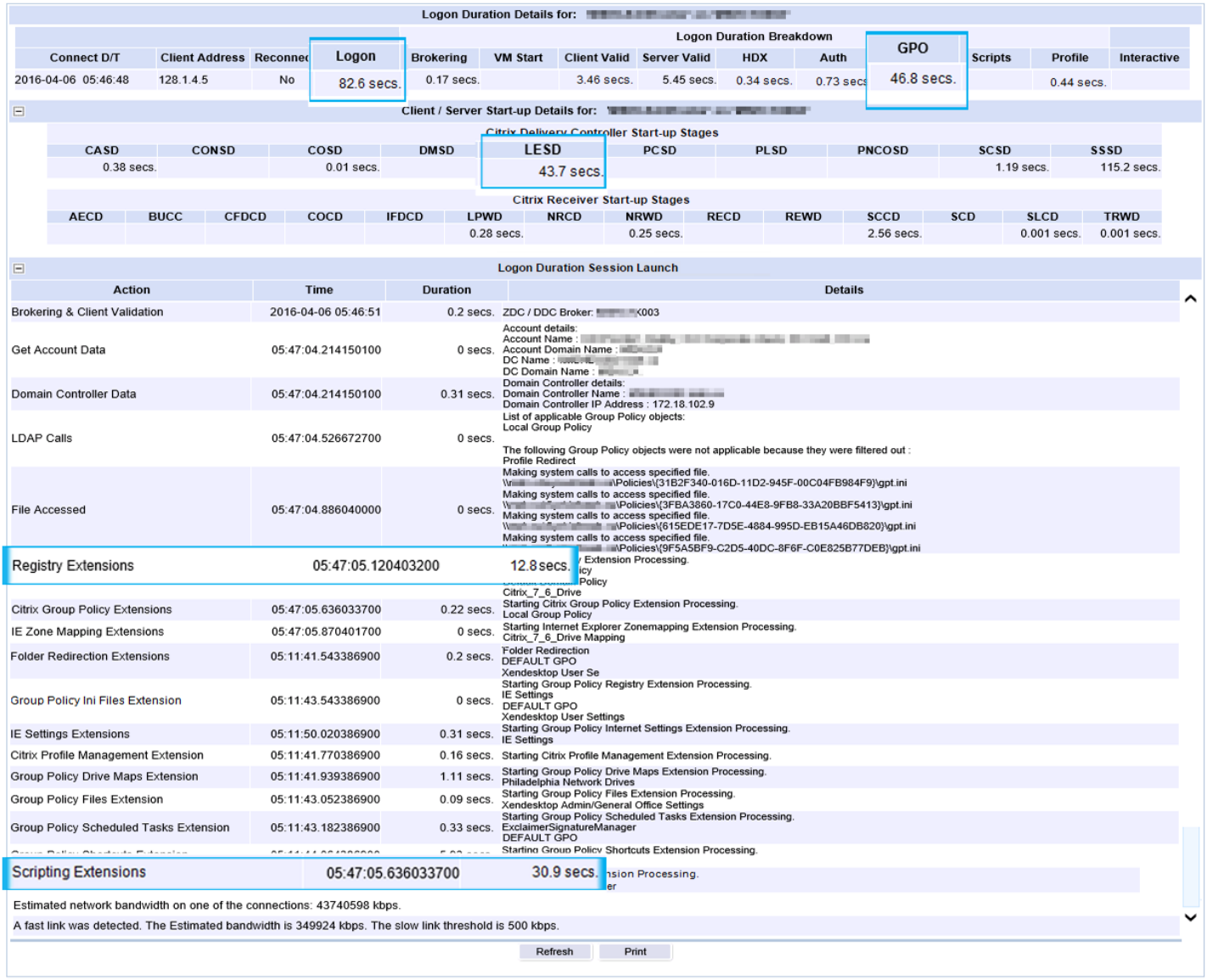


2. **AD Group Membership/Logon Script/Registry Extension Mappings Causing Logon Slowness**

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 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.



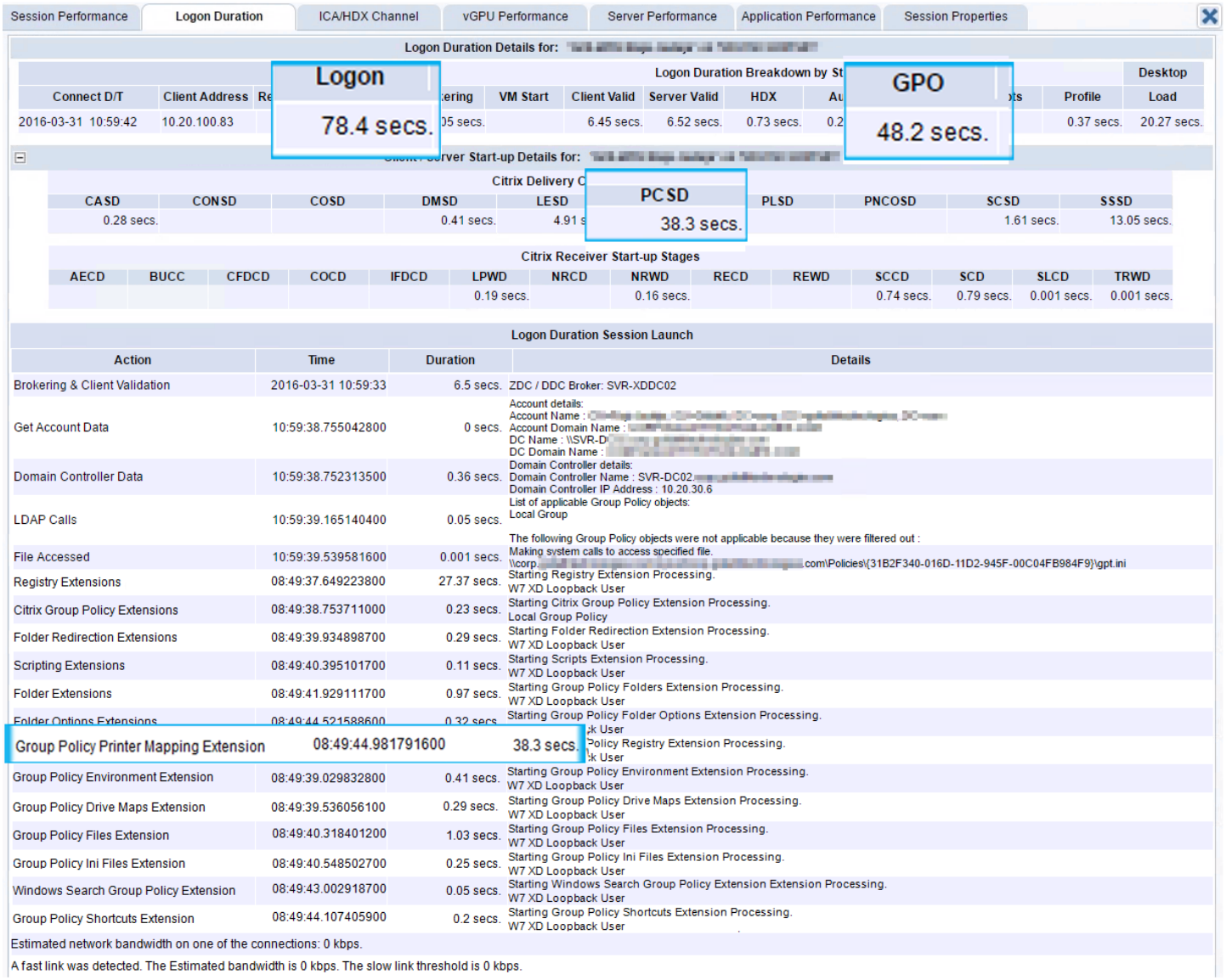
3. Print Driver Support and Missing Print Drivers Causing Long Logons

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:

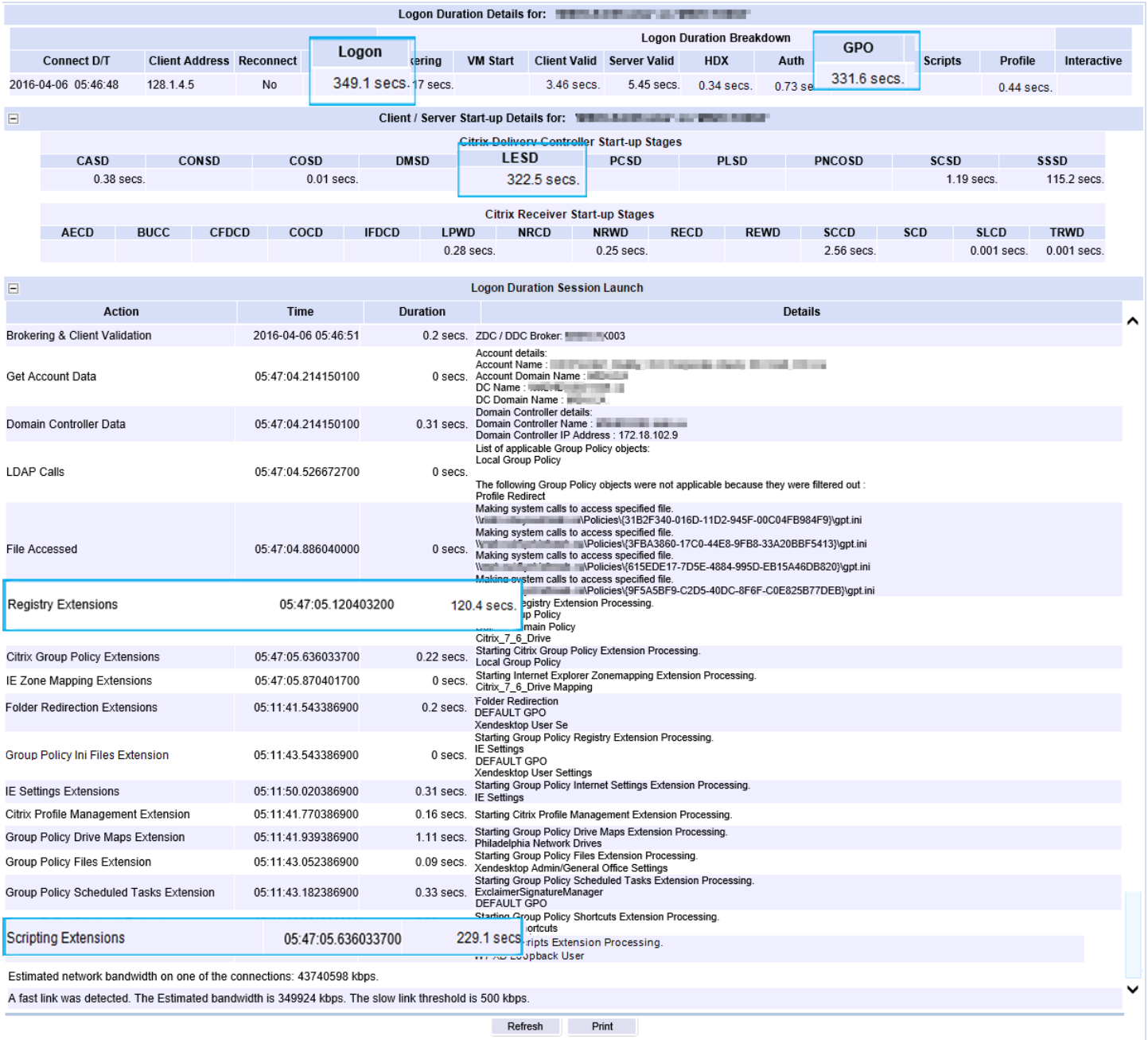
With the help of Goliath Performance Monitor, the Citrix team was able to determine printer mapping was exceeding the normal thresholds they would expect. This was due in fact that there were print drivers missing and or unsupported by Citrix. In turn, this caused long delays in the logon times primarily 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.



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.



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 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 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 30-day trial of Goliath Performance Monitor here or click here to schedule a personal demo 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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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.