



Improving visibility to user login experience with Citrix EdgeSight



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Introduction

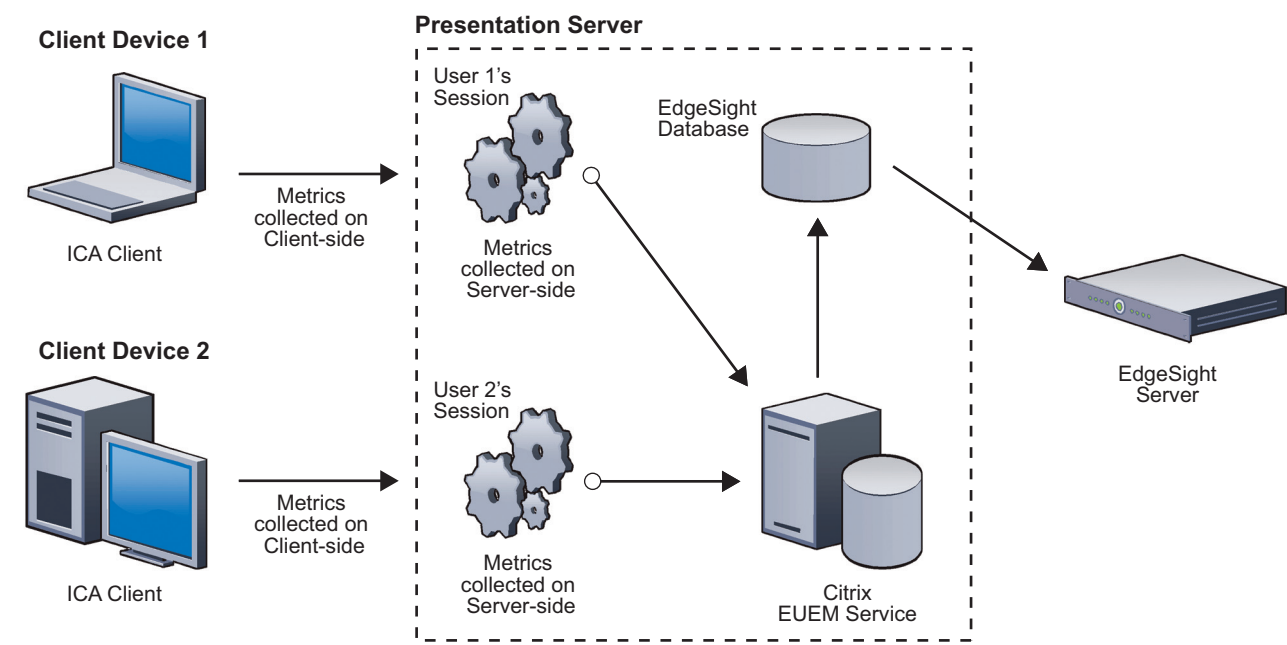
When a user clicks on an icon to launch an application delivered by Citrix Presentation Server™, the first change that they see on the screen is a dialog box with Citrix in the title and a description of the processes that are taking place to launch the requested application. Any problem experienced in the launch process — within the Presentation Server infrastructure or the supporting infrastructure components — can result in a poor user experience. Inevitably, these issues result in service desk calls and complaints that “Citrix is slow.”

Diagnosing login problems has traditionally been a difficult, time-consuming, manual process due to the large number of steps involved, many of which are external to the Presentation Server infrastructure. Critical operations such as user login script execution and profile loading can significantly elongate the overall login experience for a Presentation Server user. Gaining visibility into these steps has been a reactive process of manually exploring the size of the user’s profile or execution of the login script, and watching for errors or delays.

Citrix EdgeSight™ for Presentation Server 4.5 now enables visibility into each individual step involved in the login process and the time required for each step to finish. With 22 new and unique metrics provided by EdgeSight for Presentation Server, administrators can quickly diagnose performance problems and identify the specific causes of slow logins. This visibility enhances the performance of applications delivered by Citrix Presentation Server, resulting in a better user experience.

Citrix end-user experience monitoring service overview

EUEM Metric Collection & Aggregation



Citrix Presentation Server 4.5 includes a new service called Citrix End-user Experience Monitoring (EUEM). This service resides on each Presentation Server and is the collection point for client-side and server-side EUEM performance metrics for applications deployed by that Presentation Server.

The EUEM service provides no caching or storage of EUEM data. Information is passed to the local EdgeSight for Presentation Server agent where it is stored in the agent database. This information is available to administrators in real time via the EdgeSight Console and is passed on a scheduled basis to the centralized EdgeSight Server where aggregation, storage and reporting take place.

Because EUEM utilizes code on both the client and the server, this feature is a negotiated capability. Both the ICA® client and Presentation Server ends of a session must be enabled with the EUEM service for the full set of metrics to be available. For Presentation Server 4.5, the Win32, WinCE, WBT, and Linux v10 clients are EUEM-enabled. Other client releases will not provide any EUEM monitoring at this time.

If the Web Interface for Citrix Presentation Server™ or Program Neighborhood® Agent is involved, the corresponding components in the Presentation Server farm must also be EUEM-enabled. No separate install is required for these components; however they must be version 4.5 or above.

The Presentation Server login process

The login process, or session start-up process, can be categorized into two key areas:

- Client Start-up
- Server Start-up

The total time required for these two areas to complete will directly affect the experience of the user while waiting for their application to become ready. EdgeSight for Presentation Server records detailed metrics that can be viewed on a per-session basis in the EdgeSight Console. The following is an explanation of those metrics:

Client start-up

These metrics are concerned with timing the operations that occur from the point when the user requests an application, e.g., by clicking an icon, to the point at which an instance of the ICA client has finished opening a connection to Presentation Server. While connection-brokering mechanisms, such as Web Interface for Citrix® Presentation Server or Program Neighborhood® Agent, involve components that are not on the physical client device, the tasks these systems perform have a direct impact on the performance of the connection start-up and are recorded as part of the client-side process.

SCD: Start-up Client Duration

This is the high-level client-side connection start-up metric. It starts at the time of the request (mouse click) and ends when the ICA connection between the client device and Presentation Server has been established. In the case of a shared session, this duration will normally be much shorter, as many of the set-up costs associated with the creation of a new connection to the server are not incurred.

At the next level down, there are a number of detailed metrics available:

AECD: Application Enumeration Client Duration

Used when Program Neighborhood Agent is the application launch mechanism. It measures the time needed to retrieve the list of applications from the Web Interface service.

BUCC: Back-up URL Client Count

Used when Program Neighborhood Agent is the application launch mechanism. It records the number of back-up URL retries before a successful launch. Note that this is the only start-up metric that is a measure of attempts, rather than time duration.

CFDCD: Configuration File Download Client Duration

Used when Program Neighborhood Agent is the application launch mechanism. It measures the time it takes to retrieve the configuration file from the XML server.

COCD: Credentials Obtention Client Duration

Used when Program Neighborhood Agent is the application launch mechanism. It measures the time required to obtain the user credentials. Note that COCD is only measured when the credentials are entered manually by the user. Because this metric may be artificially inflated if a user fails to provide credentials in a timely manner, it is subtracted from the Startup Client Duration (SCD). This consideration is especially important if the metric is to be used for threshold alerting.

IFDCD: ICA File Download Client Duration

Used when Program Neighborhood Agent or Web Interface is the application launch mechanism. This is the time it takes the client to download the ICA file from the web server.

LPWD: Launch Page Web Server Duration

Used when Web Interface is the application launch mechanism. It measures the time needed to process the launch page (launch.aspx) on the Web Interface server.

NRCD: Name Resolution Client Duration

Used for new sessions only, when the ICA file doesn't specify a connection to a Presentation Server. The NRCD is the time it takes the XML service to resolve the name of a published application to an IP address.

NRWD: Name Resolution Web Server Duration

Used when Program Neighborhood Agent or Web Interface is the application launch mechanism. It is the time it takes the XML service to resolve the name of a published application to a Presentation Server address.

SLCD: Session Look-up Client Duration

The time it takes to query every ICA session to host the requested published application. The check is performed on 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 session is new or shared.

SCCD: Session Creation Client Duration

New session creation time, from the moment wfica32.exe is launched to the establishment of the connection.

TRWD: Ticket Response Web Server Duration

Used when Program Neighborhood Agent or Web Interface is the application launch mechanism. This is the time it takes to get a ticket (if required) from the STA server or XML service.

A matrix showing which connection start-up metrics should be expected under which start-up conditions is provided in Appendix B.

Server Start-up

In order to create a new session on a Presentation Server, the user must first be authenticated. After authentication, the session

creation process will perform client device mapping tasks (printers, drives), load the user's profile, execute any login scripts, and then start the user's application (in the case of a desktop this will be explorer.exe). If a session already exists and a new application is being started through session sharing, only the application start stage will occur.

SSSD: Session Start-up Server Duration

This is the high-level server-side connection start-up metric. It includes the time spent on the Presentation Server to perform the entire start-up operation. In the event of an application starting in a shared session, this metric is normally much smaller than when starting a completely new session, which involves potentially high-cost tasks such as profile loading and login script execution.

At the next level down, there are a number of detailed metrics available:

COSD: Credentials Obtention Server Duration

The time taken for the server to obtain the user credentials. This time is only likely to be a significant if manual login is being used and the server-side credentials dialog is displayed (or if a legal notice is displayed before login commences). Because this metric may be artificially inflated if a user fails to provide credentials in a timely manner, it is not included in the Session Start-up Server Duration (SSSD).

CONSD: Credentials Obtention Network Server Duration

The time spent by the server performing network operations to obtain credentials for the user. This only applies to a Security Support Provider Interface login (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).

PNCOSD: Program Neighborhood Credentials Obtention Server Duration

This is the time needed for the server to cause the Program

Neighborhood instance running on the client (“Program Neighborhood Classic”) to obtain the user credentials. As in the case of the COSD metric, because this metric may be artificially inflated if a user fails to provide credentials in a timely manner, it is not included in the Session Startup Server Duration (SSSD).

CASD: Credentials Authentication Server Duration

The time spent by the server when authenticating the user’s credentials against the authentication provider, which may be Kerberos, Active Directory® or an SSPI.

PLSD: Profile Load Server Duration

The time required for the server to load the user’s profile.

LSESD: Login Script Execution Server Duration

The time needed for the server to run the user’s login script or scripts.

PCSD: Printer Creation Server Duration

The time required for the server to synchronously map the user’s client printers. If the configuration is set such that printer creation is performed asynchronously, no value is recorded for PCSD as it is does not impact completion of the session start-up.

DMSD: Drive Mapping Server Duration

The time needed for the server to map the user’s client drives, devices and ports.

SCSD: Session Creation Server Duration

The time spent by the server in creating the session. This should not be confused with the overall SSSD. The SCSD duration starts when the ICA client connection has been opened and ends when authentication begins.

A matrix showing which server start-up metrics should be expected under which start-up conditions is provided in Appendix C.

Special Start-up Cases

A start-up may not complete for a number of reasons — interruption of the network, failure to authenticate, failure to license, or a manual abort from the end user. In these cases, Citrix EdgeSight for Presentation Server may provide partial metrics that it has managed to gather before the abort occurred. The exact number of metrics that are available will depend on when the connection was aborted.

In the case of a re-connection to an existing session, a “transitory” session is created for the new connection. This transitory session is discarded after passing the new connection over to the user’s previous session. EdgeSight for Presentation Server automatically handles this condition by re-associating the new start-up metrics with the original session.

Appendix A: Glossary of metrics

SCD (Measure): Start-up Client Duration (Milliseconds)

AECD (Measure): Application Enumeration Client Duration (Milliseconds)

BUCC (Measure): Back-up URL Client Count (Number of Events)

CFDCD (Measure): Configuration File Download Client Duration (Milliseconds)

COCD (Measure): Credentials Obtention Client Duration (Milliseconds)

IFDCD (Measure): ICA File Download Duration (Milliseconds)

LPWD (Measure): Launch Page Web Server Duration (Milliseconds)

NRCD (Measure): Name Resolution Client Duration (Milliseconds)

NRWD (Measure): Name Resolution Web Server Duration (Milliseconds)

SLCD (Measure): Session Look-up Client Duration (Milliseconds)

SCCD (Measure): Session Creation Client Duration (Milliseconds)

TRWD (Measure): Ticket Response Web Server Duration (Milliseconds)

SSSD (Measure): Session Start-up Server Duration (Milliseconds)

COSD (Measure): Credentials Obtention Server Duration (Milliseconds)

PNCOSD (Measure): Program Neighborhood Credentials Obtention Server Duration (Milliseconds)

CONSD (Measure): Credentials Obtention Network Server Duration (Milliseconds)

CASD (Measure): Credentials Authentication Server Duration (Milliseconds)

PLSD (Measure): Profile Load Server Duration (Milliseconds)

LSESD (Measure): Login Script Execution Server Duration (Milliseconds)

PCSD (Measure): Printer Creation Server Duration (Milliseconds)

DMSD (Measure): Drive Mapping Server Duration (Milliseconds)

SCSD (Measure): Session Creation Server Duration (Milliseconds)

Appendix B: At a glance — client start-up metrics to client launch mechanism mappings

	Custom Connection Shared Session	PN New Session	PN Shared Session	PNA New Session	PNA Shared Session	WI New Session	WI Shared Session
Start-up Client Duration: SCD	•	•	•	•	•	•	•
Back-up URL Client Download: BUCD				•	•		
Application Enumeration Client Duration: AECD				•	•		
Configuration File Download Client Duration: CFDCD				•	•		
Credentials Obtention Client Duration: COCD				•			
ICA File Download Duration : IFDCD				•	•	•	•
Launch Page Web Server Duration: LPWD						•	•
Name Resolution Client Duration: NRCD		•					
Name Resolution Web server Duration: NRWD				•	•	•	•
Session Look-up Client Duration: SLCD	•	•	•	•	•	•	•
Session Creation Client Duration: SCCD		•		•		•	
Ticket Response Web Server Duration: TRWD				•	•	•	•

These metrics are not guaranteed to be produced in all the cases indicated. The • indicates only the possibility that the metric will be produced. For example, in general, SLCD is only produced if the Connection Center is already running on the client.

Where metrics are not applicable, no result will be collected by EdgeSight for Presentation Server. If a measured metric is negligible, the value of 0 may be displayed.

Appendix C: At a glance — server start-up metrics to launch scenario mappings

The following table identifies which metrics can be expected to be produced in different connection start-up scenarios.

	Published App Using a New Session via SSO	Non-SSO New Session Launch	PN Classic Launch Using a New Session
Session Creation Server Duration: SCSD	•	•	•
Credentials Obtention Server Duration: COSD		•	•
Credentials Obtention Network Server Duration: CONSD	•		
Program Neighborhood Credentials Obtention Server Duration: PNCOSD			•
Credentials Authentication Server Duration: CASD	•	•	•
Profile Load Server Duration: PLSD	•	•	•
Login Script Execution Server Duration: LSESD	•	•	•
Drive Mapping Server Duration: DMSD	•	•	•
Printer Creation Server Duration: PCSD ¹	•	•	•
Session Start-up Server Duration: SSSD	•	•	•

¹ The Printer Creation duration will only be measured and reported for sessions that perform printer creation in a synchronous manner. Asynchronous printer creation will not be reported.

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