



Citrix Application Monitoring

I. Introduction

Citrix Access Suite™ supplies a complete solution for providing secure, on-demand access to any business information resource – from anywhere, with a broad array of devices device, over any network. The Access Suite unifies the key access points, capabilities and technologies in a single solution that eliminates the disadvantages of using individual access products from different vendors: fragmented management, performance degradation, security gaps, incomplete visibility, vendor support issues, training issues for the IT team, and sizeable custom-integration costs.

II. Citrix Metrics and Foglight

Foglight is designed and implemented as a flexible, highly scalable application management platform. The design of the solution provides for a centralized collection of application performance data with rules based alerting and historical reporting. In a similar manner, the Citrix Resource Manager stores all user-selected metrics from the select metric set at a user-defined frequency in what it calls its Summary Database. The Citrix monitoring methodology described in this document provides a mechanism for Foglight to query, via JDBC, the data stored in the Summary Database. The data is then mapped with the Foglight standard collection set to provide deep data, reporting, graphing, correlation and complex rules triggering.

III. Application User-Experience Monitoring

Foglight's FTR Advanced is specifically designed to drive and monitor applications running under Citrix. Using FTR Advanced, specific aspects of the users experience are modeled (logging in, report-generation, database lookups, etc) and each aspect of the modeled interaction is timed. These timings are then stored in a database and used to create a clear picture of the user's experience.

This user experience monitoring provides additional insight into true application performance. This end-to-end view combined with Foglight's deep monitoring of Citrix Metrics, provides application administrators with the tools to proactively manage application performance and availability increasing service levels.

IV. Configuring Citrix for Metrics Collection

The Citrix Resource Manager is the central metrics collection application. It is made up of a series of background processes which retrieve, correlate, and store performance monitoring data on the server farm, and a GUI application process which allows you to select which servers and applications will be monitored, which metrics will be stored in the summary database, and how often these metrics will be retrieved.

It is recommended that the Resource Manager be configured on a separate host. This setup is recommended so as to avoid any negative impact on application performance as a result of the data collected by the resource manager. In many scenarios it is possible to run the Foglight Server and the Citrix Resource Manager together, thereby providing the most impact and creating a central collections hub.

Citrix Monitored Metrics

I. Citrix Resource Manager Metric Set

Data Store Connection Failure

The # of minutes since the server last successfully connected to the datastore, informing you if communications between a MetaFrame server and the IMA data store fails.

Logical Disk

Percent Disk Time

Gives an indication as to how busy the disks are. The disk can become a bottleneck if the server has too little physical memory, if a user is running an application or process that makes extensive and rapid use of the disk, or many users are performing large amounts of disk activity.

Percent Free Space

The server is running out of disk space, which can be caused by a lack of remaining disk space due to installed OS and applications, a large number of users have logged in and their configuration data, settings and files are taking up too much space, or a rogue process or user is consuming a large amount of disk space.

Memory

Available Bytes

Informs you if too much memory is being used. This could be caused by too many users being logged on, applications being memory-hungry, or some user or process is using a large amount of memory.

Pages per Second

A large amount of paging indicates that either the system is low on physical memory and the disk is being used extensively as virtual memory, or an active process or processes are making large and frequent memory accesses.

Network Interface

Bytes Total per Second

Gives a good indication of how much network activity this server is generating/receiving.

Paging File

Percent Usage

A high page file usage indicates that the server's page file size should be increased, and possibly to add more physical memory.

Processor

Percent Interrupt Time

The processor is spending a large amount of time responding to I/O rather than user processing. A large value for interrupt time indicates a hardware problem or a very busy server.

Percent Processor Time

A high processor time for a long period of time indicates that the processor(s) is the bottleneck of the server, too many users are logged on, or there is a rogue user or process.

System

Context Switches per Second

A large # of threads and/or processes are competing for processor time.

Terminal Services

Active Sessions

A large # of users are logged on and running applications. The server may begin running out of memory or processor time and performance for users may deteriorate.

Inactive Sessions

There is a large # of disconnected sessions, which are taking up virtual memory. Remove some disconnected sessions or reduce the length of time for which disconnected sessions can persist until they are automatically removed.

It should be noted that additional information and metrics may be available from the Citrix environment. The consulting and development team at SMA welcome the opportunity to extend this methodology to suit the needs of individual organizations.

About Systems Management Associates

Founded in 1997, Systems Management Associates continues to serve as one of the nation's leading developers and integrators of Enterprise Management infrastructure. The explosive growth in the number of distributed systems has created the need to ensure the availability of those systems and the applications that reside therein.

In response to the growing need to manage these environments, we have created relationships with organizations that provide solutions in the areas of Application, System, Network and Service Management. Our model is unique. The ability to partner with the industries leading suppliers, and the consumers of that technology, put us in a unique position to understand the latest technologies and recommend the ones that will continue to provide our customers with value. Our goal, simply stated, is to provide our customers with the best solutions and highest quality of service available.

SMA understands that in order to insure effective application management, collecting metrics on a standard set of operating systems and standard applications is required. SMA adds value by building solutions to extend our strategic partners' offerings, and supporting customer needs for specific business activity and custom application monitoring.

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