

Synthetic Application Monitoring

A R G E N T
ENCYCLOPEDIA



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End User Experience Monitoring - Synthetic Transactions

Synthetic transactions are used to test the performance of your systems and applications to provide an end-to-end network monitoring strategy. Synthetic transaction-level tests are able to do more than check the availability of critical systems - Synthetic transactions simulate the user experience, making it easier to isolate issues within the application infrastructure.

As an Example many applications are multi-tiered and rely on client, application and database layers – different access methods are used by the application at each layer. It requires all of these components to function correctly in order for the user to access the application.

If the monitoring system had only been set it up to monitor availability of the servers hosting these layers, finding the root cause of the application problem is difficult. However, with synthetic transaction-level monitoring properly configured, an administrator would be notified of the exact subsystem causing the issue.

Synthetic transaction-level monitoring helps ensure that your mission-critical systems and applications are always available, responding as required and achieving the maximum performance and reliability necessary to deliver optimal Quality of Service to your end-users.

Argent and Synthetic Transactions

Before you create the monitoring settings for Argent XT to use synthetic transactions, you should plan the actions that you want the synthetic transaction to perform, this involves understanding how the user accesses the application and what resources and access methods the application employs.

For example, if you want to create a synthetic transaction that measures the performance of a Web site, you can plan actions that are typical for a customer, such as logging on, browsing Web pages, and completing a transaction, such as placing an item in a shopping cart and making a purchase.

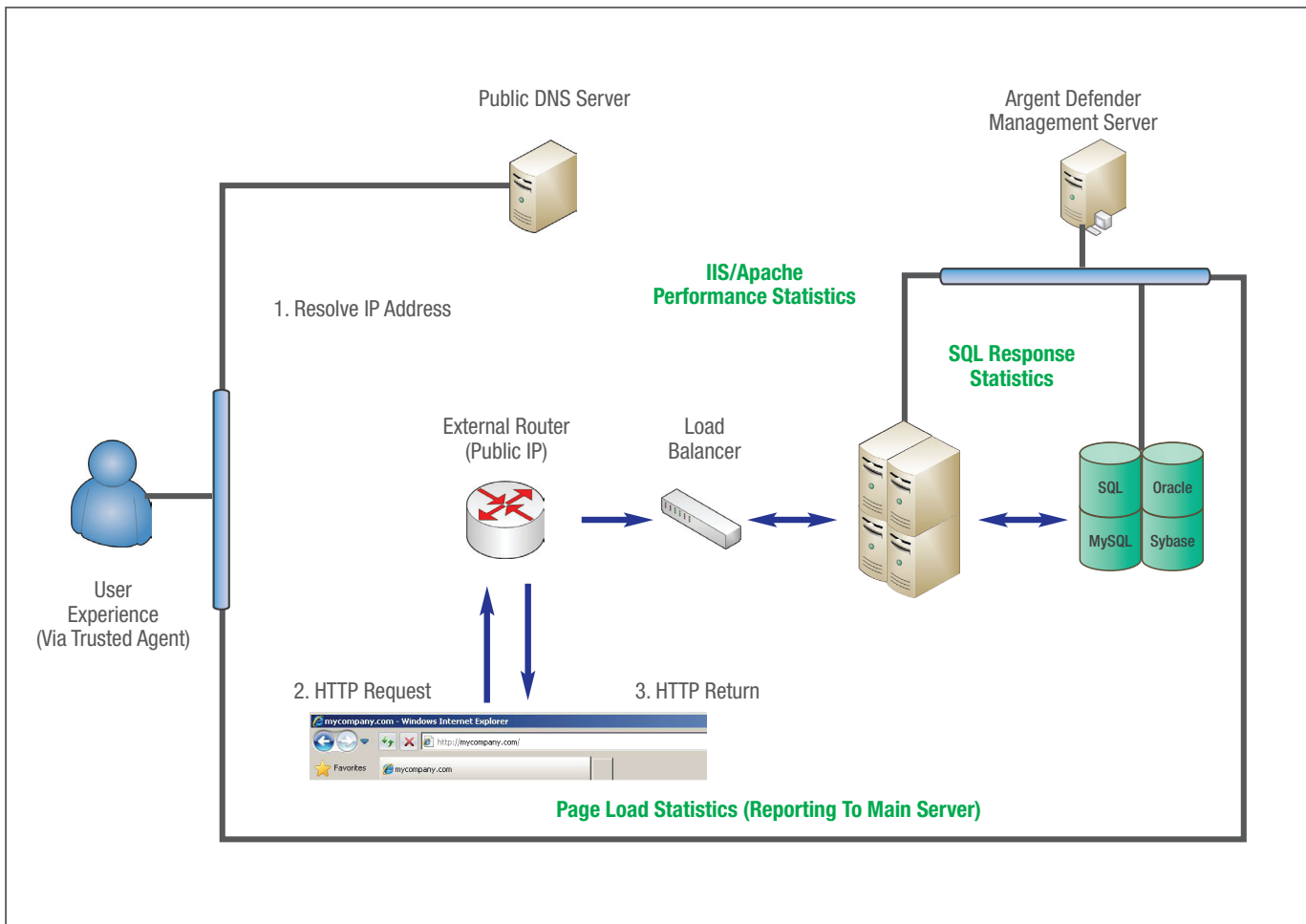
The following pages describe some types of Synthetic Transactions that Argent can utilise to create a complete simulated application monitoring system.

Web Based Application Monitoring

Argent Defender

Web site monitoring uses synthetic transactions to perform HTTP requests to check availability and to measure performance of a Web page, Web site, or Web application.

Argent Defender allows the full testing of a web application by simulating a user session and recording it and then replaying at predetermined intervals from different locations (Trusted Agents) or points on the network to simulate real user access. See the following diagram of an example of what a simulated user test can achieve.



The test can have the following achieved as part of the simulated transaction:

- Set the conditions that cause an error or warning during a synthetic transaction (HTTP return)
- Record the response time of the simulated transaction (Page Load Statistics)
- You can also choose to generate an Alert when a condition is met.
- Certain performance metrics are to be collected on specific devices during the simulation (SQL Response Statistics)

Argent Sentry

This can perform a limited Web Application synthetic test – For example, if your transaction includes a request to a specific Web page

- You can generate an alert if the website is not available

Windows Internet Connectivity APIs

- You can generate an Alert if the page is unavailable. This is done by breaking the Rule when the HTTP status code is 404.

Rule Is Broken If Following Conditions Are True

Contains String "HTTP 404"

- You can generate an Alert if the page takes longer than a preset time to load (Response Time).

☐ Do Not Check Base URL

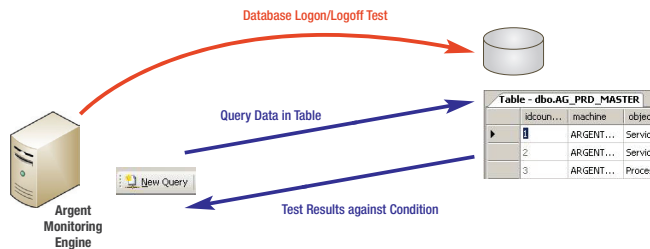
☒ Rule Is Broken If Response Time Is Over Seconds

Scanning Web Page Method:

☒ Save Performance Data To The Argent Predictor

Database Application Monitoring

Where the application is not web based but uses a client that reads/writes data to a database then it is possible to simulate the access of data from the database. Database monitoring using synthetic transactions can monitor the availability of a database and to mimic a user accessing data in the database.



The Query could access real data or a dummy table could be setup to be queried.

SQL DB Synthetic Test (Similar Tests for Oracle)

Test that can be performed on SQL Server from the end-user perspective by using synthetic transactions to:

- Test login ability

☒ Logon To SQL Server Of Instance

- Perform a query
- Retrieve data
- Analyze Query results for correctness

Check SQL Database

☐ Default (Specified In Licensed Server Manager)

☒ This Specific Database (Wildcard '*' And '?' Are Allowed)

Run Following SQL Query Or Stored Procedure

☒ SQL Statement ☐ Stored Procedure ☐ Transact-SQL

select * from dbo.test where type = 'reseller'

Instance Name:

SQL Timeout: Seconds (Value 0 for default timeout)

Check Option:

Comparison Column: (Used When Firing Events Separately)

Rule Is NOT Broken If The Following Conditions Are True:

String(\$1) Is Not Empty

☒ Rule Is Broken If Failed To Connect To SQL Server

☒ Include The Complete Query Result

TCP Port Monitoring

A TCP port synthetic transaction measures the availability of your Web site, service, or application.

Most applications will be either a windows service or a UNIX/Linux Daemon these typically will be listening on a particular TCP/IP port for connections from Application clients. So when a user starts an application it will try to create a connection to the Application Listener before the application can transfer data.

Typical Application Listeners include

- SMTP Port 25
- Citrix ICA Port 1494
- FTP Port 21
- BEA Tuxedo Ports 7000-7030
- Windows Terminal Server Port 3389

You can specify the server and TCP port for Argent XT to monitor the rule is setup as following and by default will check that the application is listening on that TCP port – see below.

☒ Scan Specific TCP/IP Port Number

If the test requires checking the application listener in more detail then we can send data to the listener and look for an expected response – see below.

TCP Service Handshake Script

G11D

You do not need to specify the scripts of send/expect pairs if you just want to do the simple port scanning.

Scripts:

Script Line

G11E

Options

☒ Send ☐ Expect

OK

Cancel

Keywords:

☐ Match Case

☐ Match Whole Words Only

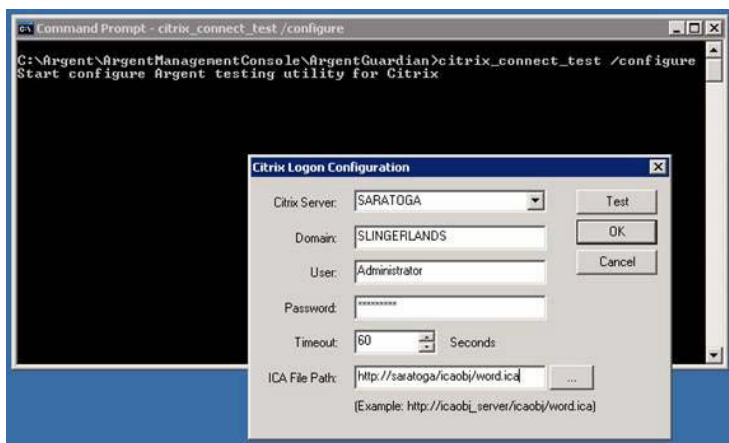
☐ Text Ended With LF/CR

Citrix Connectivity

Testing of Citrix Client can be performed from any Argent Monitoring Engine to simulate a user launching a Citrix Session from any point on the network. The Citrix connectivity test allows customers to specify the specific published desktop or application.

It also provides a GUI to specify the logon parameters by starting with the parameter '/configure'.

Note: Like all Argent passwords, the password saved is fully encrypted.



Email Applications

Test the ability of your SMTP server to receive and distribute email, as well as the ability of your end-users to log in from a MAPI-enabled email client and manage their email.

Using the Argent Exchange Monitor can achieve the following to simulate Email Application usage.

- Mailbox Availability

Execute A MAPI Logon/Logoff

Any MAPI mailbox can be used for this test as long as a MAPI profile is mapped for the Argent Service Account

- Mail Round Trip

Log On Incoming Mail Server Using	
MAPI Profile:	Outlook
Password:	XXXXXXXX
Synthetic Test Email Information	
To:	RTT@test.com
Subject:	Round Trip Testing
Attachment:	
Message:	message for Exchange Round Trip testing
Check Incoming Mail Every	30 Seconds
Alert If Round Trip Exceeds	5 Minutes 0 Seconds

An email is sent with a unique message ID from an Argent Controlled internal MAPI Mailbox to an external Mail provider where the emails are forwarded back to the Argent MAPI Mailbox where Argent checks for the Unique message ID to confirm a match against what was sent.

FTP Applications

The Argent FTP Site Rules test the existence of a file by downloading files from an FTP server. The Rule is broken if one of the specified files doesn't exist, or optionally does exist, depending on the Rule settings.

Files At FTP Site To Download For This Test (Wildcards Allowed):

/pub/SOME_VITAL_FILE

Toggle "rule is broken if file exists"

☐ Check File Existence Only

This Rule will simulate a user logging on to FTP site and downloading a file and logging out.

DNS Application Queries

Test the ability of a Primary and Secondary DNS server to respond to a record query.

If this is a Windows Domain then the following AD rule can be applied.

Only W200X Domain Controllers Can Be Associated With Active Directory Rules

☒ Check DNS By Resolving

As Record Type Of

The DNS Server Associated With The Domain Controller Is Used

A standard nslookup can be used to do DNS query test and checked for status by utilizing an Argent Guardian System Command.

Command File:

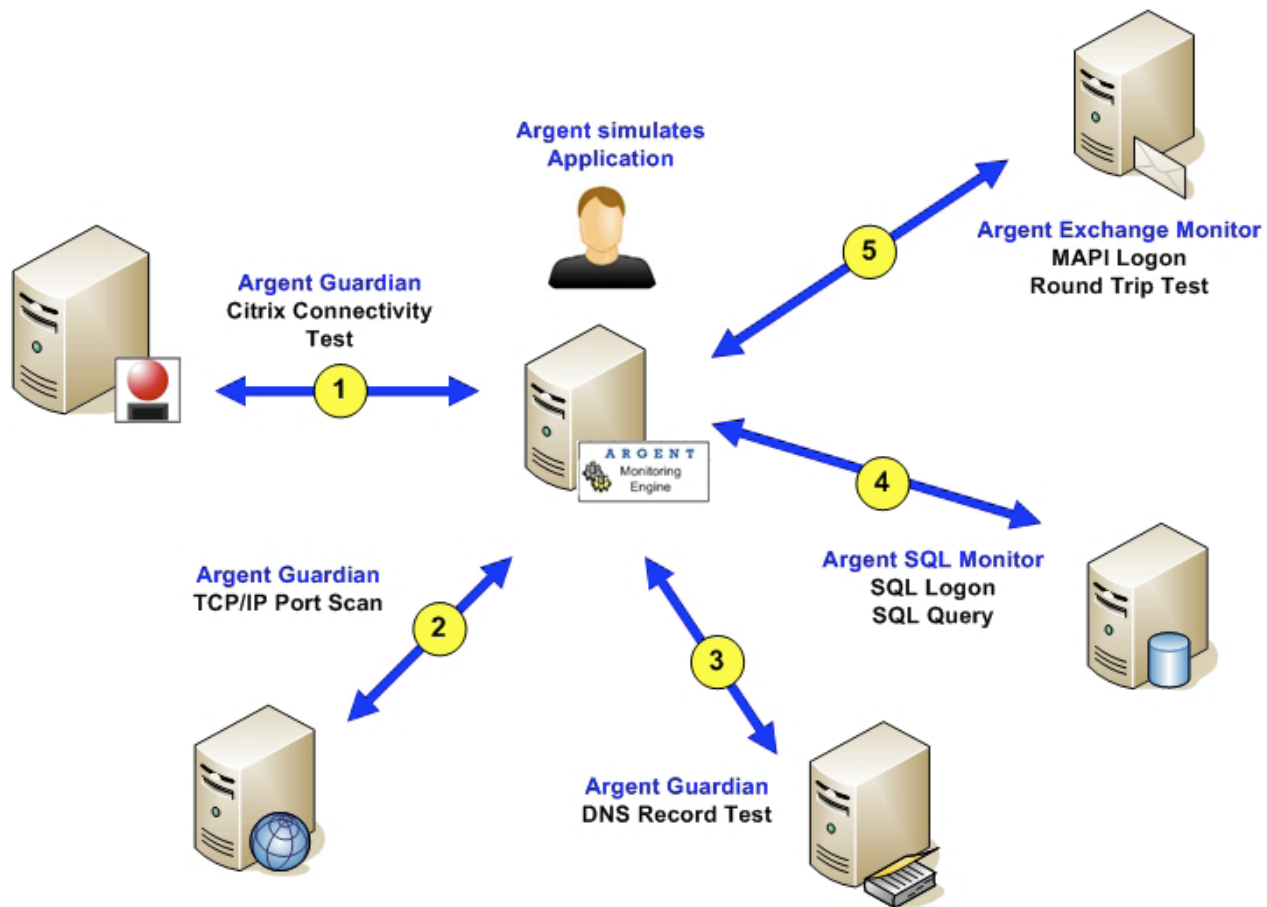
Rule Is Not Broken If By Running The Command

Content Of Command Line Output Contains String "Non-authoritative answer"

Synthetic Application Monitoring Example

The following describes a typical example of an application and how Argent would simulate the application data flow.

1. User Launches a Citrix Client
2. User starts application
3. Application makes DNS query to find resources
4. Application makes queries to retrieve data in a SQL Database
5. Application sends emails at user request



In this example all of the tests are performed from a single Argent Monitoring Engine this may provide enough, however any of these test could be performed from another Argent Monitoring Engine.

As an example

1. The Citrix Connectivity Test (1) could be performed by a Monitoring Engine at a Remote Location
2. While all other test could be performed by a monitoring engine installed on a citrix server

The point is the test could best represent where in the network the application is typically executed from – these tests can then be wrapped up into an Enterprise Application View to show the Status of each Critical Application.

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