



Avaya Solution & Interoperability Test Lab

Configuring Avaya one-X[®] Agent 2.0 R2 with Citrix[®] XenApp[™] 6.0 on Microsoft Windows 2008 R2 (64-bit) Server – Issue 1.0

Abstract

This Application Note describes the configuration, performance, and capacities of Avaya one-X[®] Agent 2.0 on the Citrix[®] XenApp[™] 6.0 on Windows 2008 R2 (64-bit) server.

- Configuration of one-X[®] Agent 2.0 R2 on Citrix[®] is presented for telephony capabilities only. Presence and Instant Messaging are not covered.
- Avaya one-X[®] Agent 2.0 R2 was tested in Desk Phone and Other Phone Modes, as audio via My Computer Mode is not supported on Citrix[®].
- Performance and capacities of one-X[®] Agent 2.0 on a standard server consisting of dual 2.8GHz quad core processors with 16GB of RAM.

1.	Introduction	3
1.1.	Interoperability Testing	3
1.2.	Product Descriptions.....	3
1.3.	Avaya one-X® Agent 2.0 Features Not Tested.....	4
1.4.	Support.....	4
1.5.	Acronyms.....	4
2.	Reference Configuration.....	5
2.1.	Assumptions	5
3.	Equipment and Software Validated.....	6
4.	Configure Avaya one-X® Agent on the Windows 2008 R2/Citrix® XenApp™ Server 7	
4.1.	Citrix® XenApp™ 6 Server	7
4.1.1.	Citrix Services and Web Access.....	8
4.1.2.	Add the Avaya one-X® Agent to the list of published applications	9
4.1.3.	Starting the Avaya one-X® Agent Application	22
4.2.	Avaya Aura™ Communication Manager.....	25
5.	Test Scenarios.....	25
5.1.	Scenario 1 – Basic ACD Call	25
5.2.	Scenario 2 – Transfer ACD Call	26
5.3.	Scenario 3 – Conference ACD Call	26
6.	Results.....	26
6.1.	RAM Utilization	27
6.2.	Processor Occupancy (CPU).....	28
6.3.	Observations	28
7.	Test Summary and Recommendations for Sizing.....	29
8.	Additional References.....	29

1. Introduction

The tested configuration consisted of a Windows 2008R2 (64-bit) server with Citrix XenApp™ 6. Citrix® XenApp 6 is configured to deliver Avaya one-X® Agent 2.0 as an on-demand, server-hosted application. Avaya one-X® Agent was configured to leverage the ACD features from an Avaya Aura™ Communication Manager 5.2.1, Service Pack 1.

Agent call scenarios for performance measurements consisted of typical Automatic Call Distributor (ACD) calls, agent transferred calls, and agent conference calls, with the intention of providing a set of realistic conditions for a typical contact center. The distribution of call types was 70% ACD, 20% transfer, and 10% conference.

To support the large number of Avaya one-X® Agents during testing, both a virtual infrastructure and automated tools were utilized. The virtual infrastructure provided windows client sessions for the Citrix® XenApp™ users running Avaya one-X® Agent, and supported the automated tools. Caller and agent phones were provided by internal Avaya automation tools as well as many real phone types typically used in call centers.

1.1. Interoperability Testing

Several test scenarios, were tested to provide a reasonable mixture of normal ACD agent activities. The details of each test scenario are outlined in **Section 5**. Preliminary testing with Avaya one-X® Agent and the Citrix XenApp™ 6 revealed that the maximum number of agents that the server could manage was 100. Typical ACD call scenarios were utilized to determine impacts on CPU occupancy and RAM utilization.

1.2. Product Descriptions

The following describes the components used for Avaya one-X® Agent 2.0 R2 with Citrix XenApp™ 6 on Windows 2008R2 (64-bit) Server.

Avaya one-X® Agent 2.0: <http://www.avaya.com/usa/product/avaya-one-x-agent>

Avaya one-X® Agent is an integrated telephony soft phone solution that provides seamless connectivity to at-home agents, remote agents, outsourced agents, contact center agents, and agents interacting with clients having vocal and hearing impairment.

- Desk Phone Mode: Desk Phone mode leverages an agent's ability to control his desk phone from his PC. This is also known as shared control as the desk phone can be used with the PC control.

- Other Phone Mode: Other Phone mode leverages an agent's ability to utilize a phone at another location leveraging all the same features as if the desk phone was nearby. This is also known as telecommuter.

Citrix® XenApp™ 6:

XenApp™ enables on-demand self service, by delivering applications instantly to users anywhere, from any device running any of over 30 operating systems.

XenApp™ ensures that users receive a better than installed experience by leveraging **application virtualization**, session virtualization, and the unique Citrix® HDX™ technology. HDX adapts **virtual application** delivery and access based on each user device, network, and location to ensure the optimal experience.

For more information about Citrix® XenApp™, please visit:

<http://www.citrix.com/xenapp>

1.3. Avaya one-X® Agent 2.0 Features Not Tested

- Presence and Instant Messaging
- Audio via "My Computer," Video via Avaya AVTS and Soft TTY – not supported for Citrix®

1.4. Support

Technical support for the Citrix® solution can be obtained by contacting:

- URL – www.MyCitrix.com
- Citrix® Technical Support: 1-800-424-8749

1.5. Acronyms

ACD	Automatic Call Distributor
AVTS	Avaya Video Telephony Solution (AVTS) – enables videoconferencing for desktop applications and group video communications
CM	Avaya Aura™ Communication Manager
CPU	Central Processing Unit
IM	Instant Messaging
MR	Modification Request
PC	Personal Computer
RAM	Random Access Memory
SIL	Solution & Interoperability Test Lab
TTY	Text Telephone (use of telephones for the hearing impaired)
VDN	Vector Directory Number

2. Reference Configuration

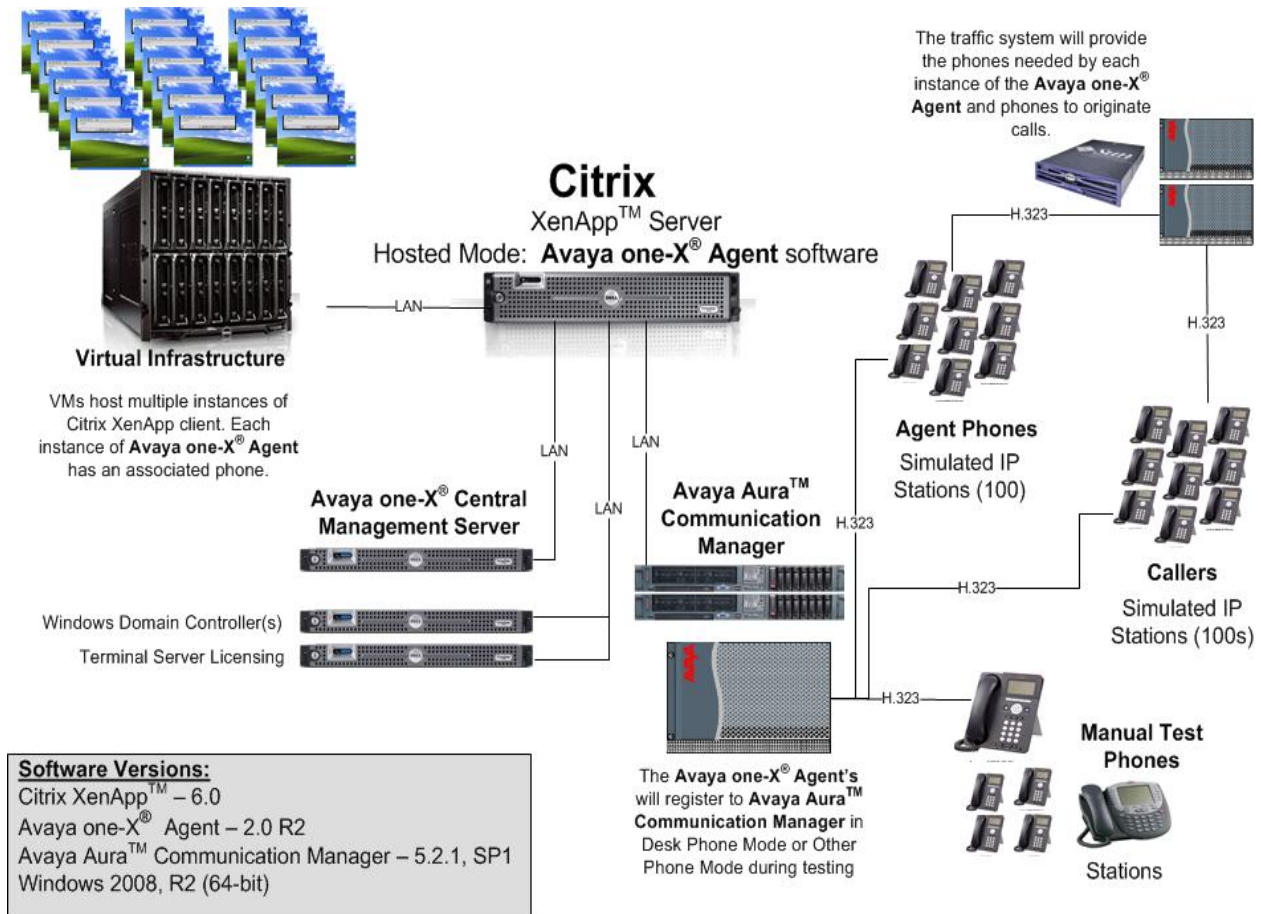


Figure 1

2.1. Assumptions

- Avaya one-X® Agent Central Management server is installed and configured.
- Avaya Aura™ Communication Manager has been configured and is operational.
- Agents and their respective stations are configured on Avaya Aura™ Communication Manager.
- Citrix® XenApp™ Server is installed, configured and operational on Windows 2008R2 server.

3. Equipment and Software Validated

The following equipment and software/firmware were used for the reference configuration provided:

Equipment	Software/Firmware
Avaya S8720 Servers (Duplex Mode, Processor Ethernet Enabled)	Avaya Aura™ Communication Manager 5.2.1 (R015x.02.1.016.4)
Avaya G650 Media Gateway	
TN2312BP IP Server Interface	HW12 FW22
TN799DP C-LAN Interface	HW1 FW32
TN2302AP IP Media Processor	HW21 FW118
Avaya one-X® Agent Dual 2.83GHz Quad Core Processor 16GB of RAM 135GB SATA drive	Release 2.0 R2 (Build 2.0.0.0.07610) Microsoft Windows 2008 Server R2 64-bit
Avaya 4600 and 9600 Series IP Telephones	
4621 (H.323)	3.1
9620 (H.323)	3.1
9630 (H.323)	3.1
9650 (H.323)	3.1
Citrix® XenApp Server™ Dual 2.83GHz Quad Core Processor 16GB of RAM 135GB SATA drive	Release 6.0 Microsoft Windows 2008 R2 Server 64 bit

4. Configure Avaya one-X[®] Agent on the Windows 2008 R2/Citrix[®] XenApp[™] Server

Avaya one-X[®] Agent was installed on the Windows 2008 server in the default installation location, C:\Program Files\Avaya\Avaya one-X Agent. This would be the shared application for all agents. No additional configuration is required on the server.

Instant Messaging and Presence Services: Avaya one-X Agent Instant Messaging code-enabled remote desktop sharing capabilities, resulting in incompatibility issues for Citrix[®] XenApp[™], and therefore was not evaluated.

Presence Services: Presence Services was not tested. Presence Services requires Instant Messaging capabilities that were not enabled.

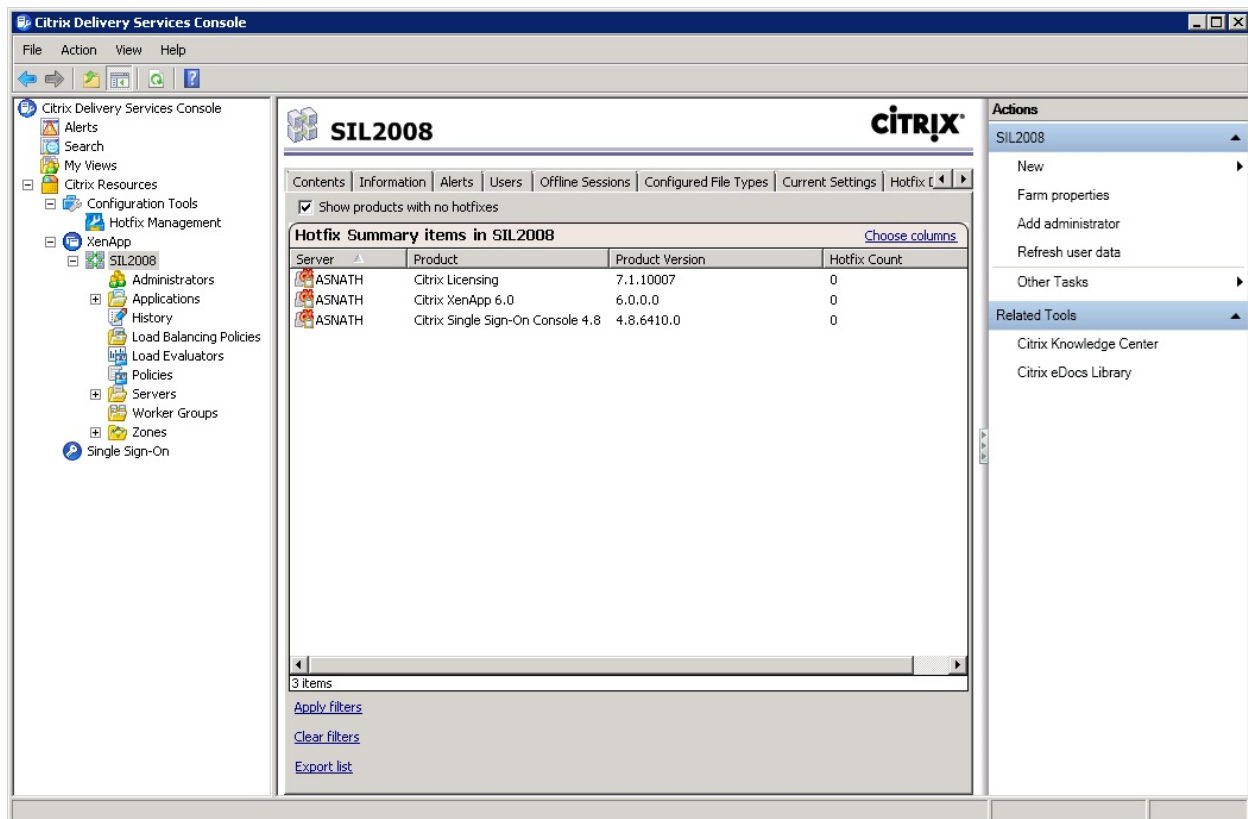
Central Management: Avaya one-X[®] Agent was evaluated with Central Management enabled and not enabled.

4.1. Citrix[®] XenApp[™] 6 Server

The following section provides more details on the reference configuration. Server configurations will vary depending on the entire Citrix solution being deployed. For this configuration, the Citrix[®] XenApp[™] 6 server was on a single server farm and application hosting.

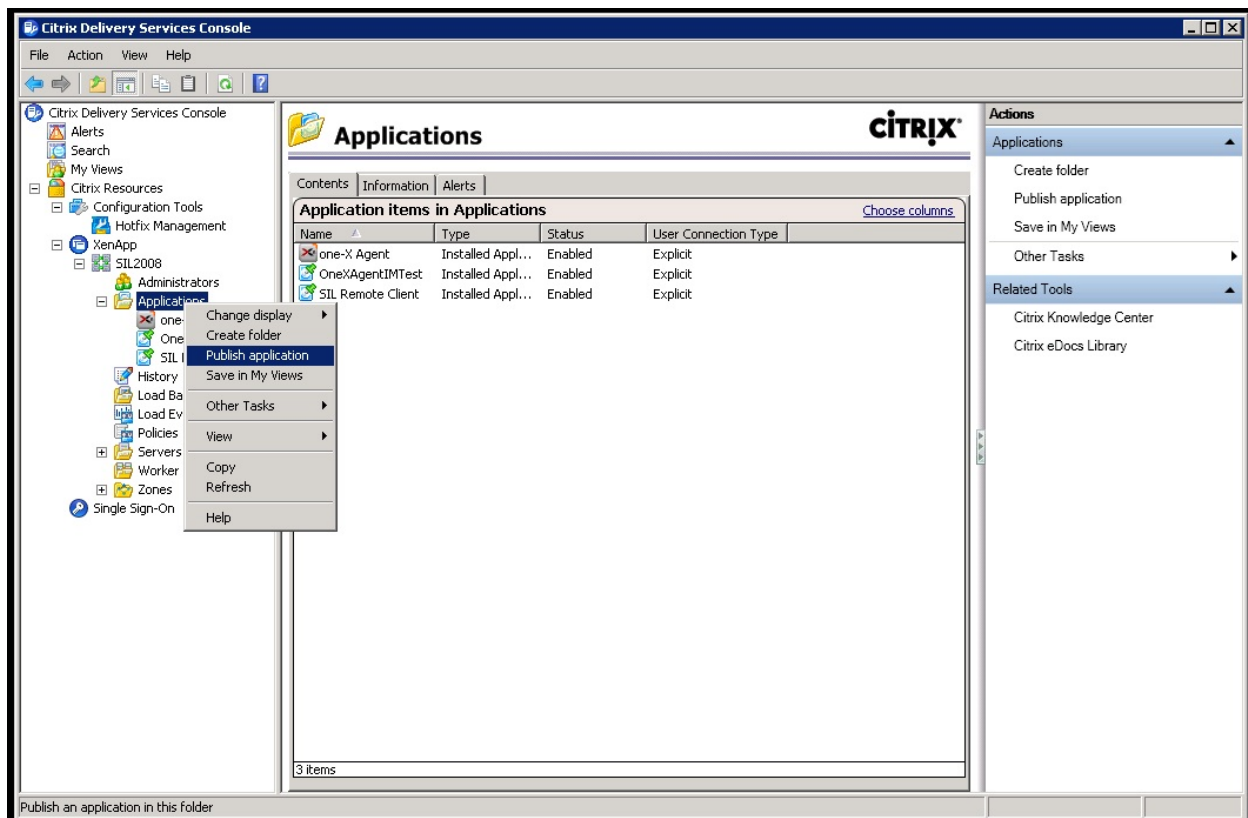
4.1.1. Citrix Services and Web Access

The Solution Interoperability Test Lab (SIL) Windows Domain was configured to support terminal services and provide authentication for the 100 Avaya one-X® Agents. The domain was configured as the root of the windows domain forest and supports over 1,000 users. Citrix® was installed and configured to provide XenApp™ Service and XenApp™ web access. The web access is configured by creating/adding them to the Citrix Resources under the Web Interface section of the Citrix Delivery Services Console; refer to Citrix® XenApp™ documentation for details. The web portal was used to gain access to the server and launch the one-X Agent applications.



4.1.2. Add the Avaya one-X® Agent to the list of published applications

Using the menu options from the Citrix® Delivery Services Console, add Avaya one-X® Agent as a new published application by right-clicking to bring up the menu. Then select **Publish application**. The next few screens show the steps to complete the configuration.



*Give the application a **Display name**, i.e. one-X Agent, and Click **Next**.

The screenshot shows the 'one-X Agent - Publish Application' window. The title bar is dark blue with the Citrix logo. Below the title bar is a white area with the word 'Name'. The main area is divided into two sections. On the left is a 'Steps' sidebar with a tree view. The 'Basic' section is expanded, and 'Name' is selected. The right section contains the 'Enter the name and description that you want to be displayed to clients for this application.' text. Below this text are two text boxes: 'Display name:' and 'Application description:'. Both boxes contain the text 'one-X Agent'. At the bottom right of the window are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted with a dark border.

one-X Agent - Publish Application

CITRIX

Name

Steps

- ✓ Welcome
- Basic**
 - ▶ **Name**
 - Type
 - Location
 - Servers
 - Users
 - Shortcut presentation
 - Publish immediately

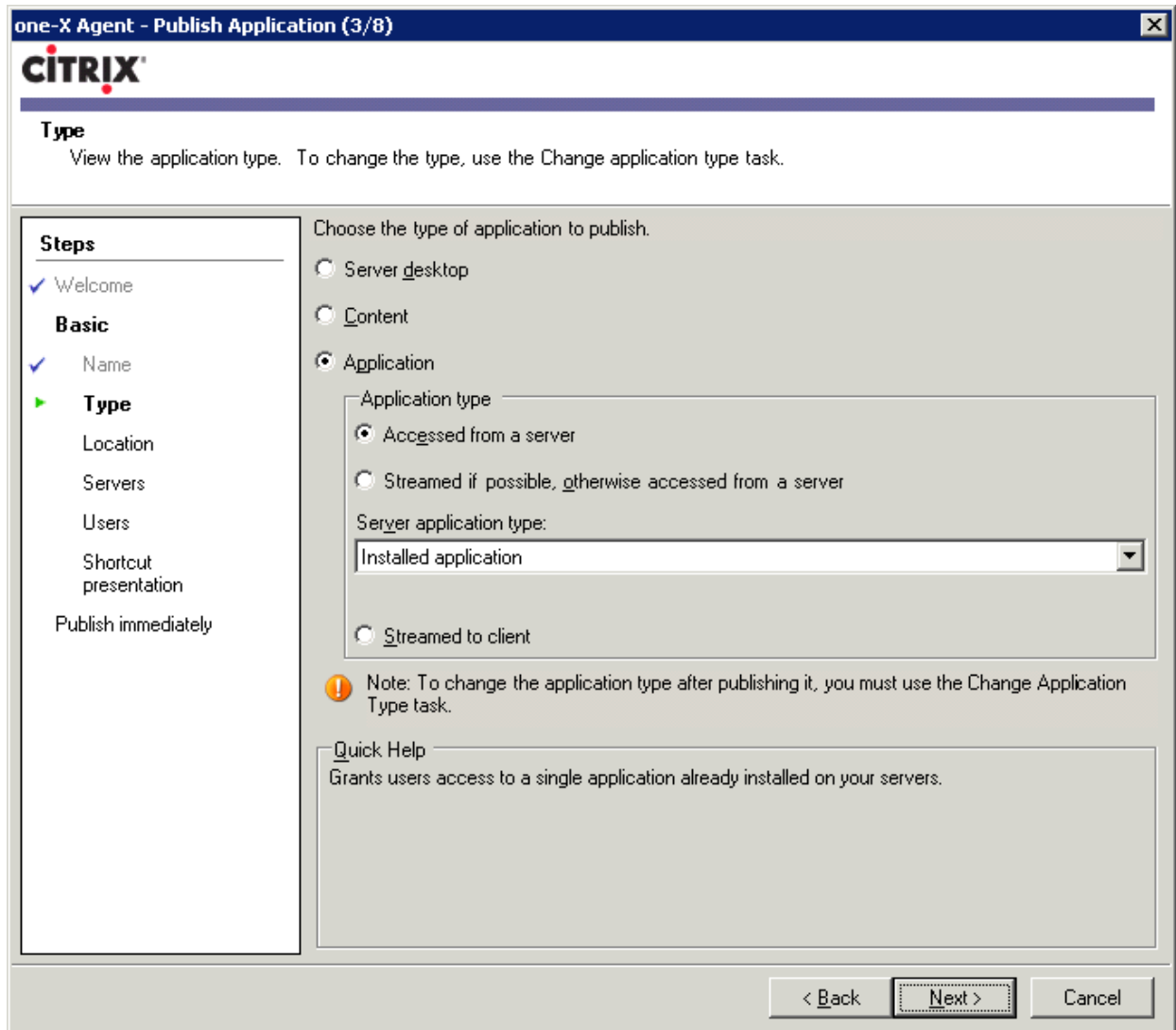
Enter the name and description that you want to be displayed to clients for this application.

Display name:
one-X Agent

Application description:
one-X Agent

< Back Next > Cancel

*Select **Accessed from a server**. This would be a server located within the Citrix® farm. Accept defaults for other fields and Click **Next**.



The image shows a Citrix one-X Agent window titled "one-X Agent - Publish Application (3/8)". The window has a Citrix logo at the top left. Below the logo, the word "Type" is displayed, followed by the instruction: "View the application type. To change the type, use the Change application type task."

On the left side, there is a "Steps" pane with a list of steps: "Welcome", "Basic", "Name", "Type", "Location", "Servers", "Users", "Shortcut presentation", and "Publish immediately". The "Type" step is currently selected and highlighted with a green arrow.

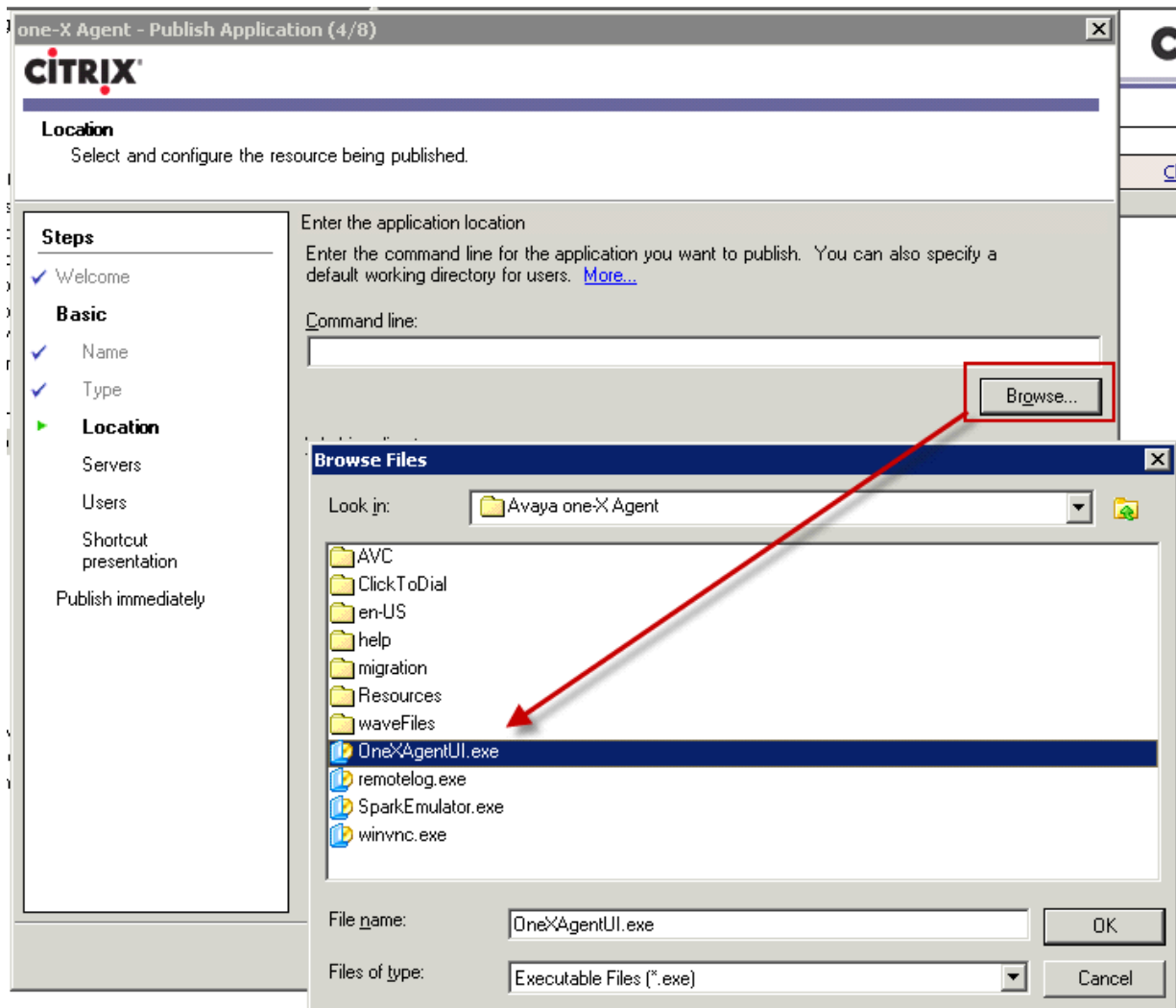
The main area of the window is titled "Choose the type of application to publish." and contains three radio button options: "Server desktop", "Content", and "Application". The "Application" option is selected. Below these options, there is a section for "Application type" with two radio button options: "Accessed from a server" (selected) and "Streamed if possible, otherwise accessed from a server". Below this, there is a "Server application type:" label and a dropdown menu showing "Installed application". At the bottom of this section, there is a radio button option for "Streamed to client".

Below the application type options, there is a note with an orange warning icon: "Note: To change the application type after publishing it, you must use the Change Application Type task."

At the bottom of the window, there is a "Quick Help" section with the text: "Grants users access to a single application already installed on your servers."

At the bottom right of the window, there are three buttons: "< Back", "Next >", and "Cancel". The "Next >" button is highlighted with a dashed border.

*Using the **Browse** button on the wizard, navigate to the folder location containing the Avaya one-X Agent executable. This is typically located in C:\Program Files\Avaya\Avaya one-X Agent. Select the OneXAgentUI.exe. This is the executable that starts the Avaya one-X[®] Agent and is the executable that will be launched from a Citrix session. After locating the executable, click **OK**.



*View of the final selections for the application location in the wizard. Click **Next** to continue.

The screenshot shows the 'one-X Agent - Publish Application (4/8)' wizard window. The title bar includes the Citrix logo and the window title. The main area is titled 'Location' with the instruction 'Select and configure the resource being published.' On the left, a 'Steps' pane shows a list of steps: 'Welcome' (checked), 'Basic' (expanded), 'Name' (checked), 'Type' (checked), 'Location' (selected with a green arrow), 'Servers', 'Users', 'Shortcut presentation', and 'Publish immediately'. The 'Location' step is active, showing instructions to 'Enter the application location' and 'Enter the command line for the application you want to publish. You can also specify a default working directory for users. [More...](#)'. The 'Command line' field contains the text '"c:\program files\avaya\Avaya one-X Agent\OneXAgentUI.exe"' and has a 'Browse...' button to its right. The 'Working directory' field contains the text 'c:\program files\avaya\Avaya one-X Agent' and also has a 'Browse...' button to its right. Below these fields, there is a checkbox labeled 'Isolate application' which is currently unchecked, and a 'Settings...' button. At the bottom of the window, there are three buttons: '< Back', 'Next >', and 'Cancel'.

one-X Agent - Publish Application (4/8)

CITRIX

Location
Select and configure the resource being published.

Steps

- ✓ Welcome
- Basic**
 - ✓ Name
 - ✓ Type
 - ▶ **Location**
 - Servers
 - Users
 - Shortcut presentation
 - Publish immediately

Enter the application location

Enter the command line for the application you want to publish. You can also specify a default working directory for users. [More...](#)

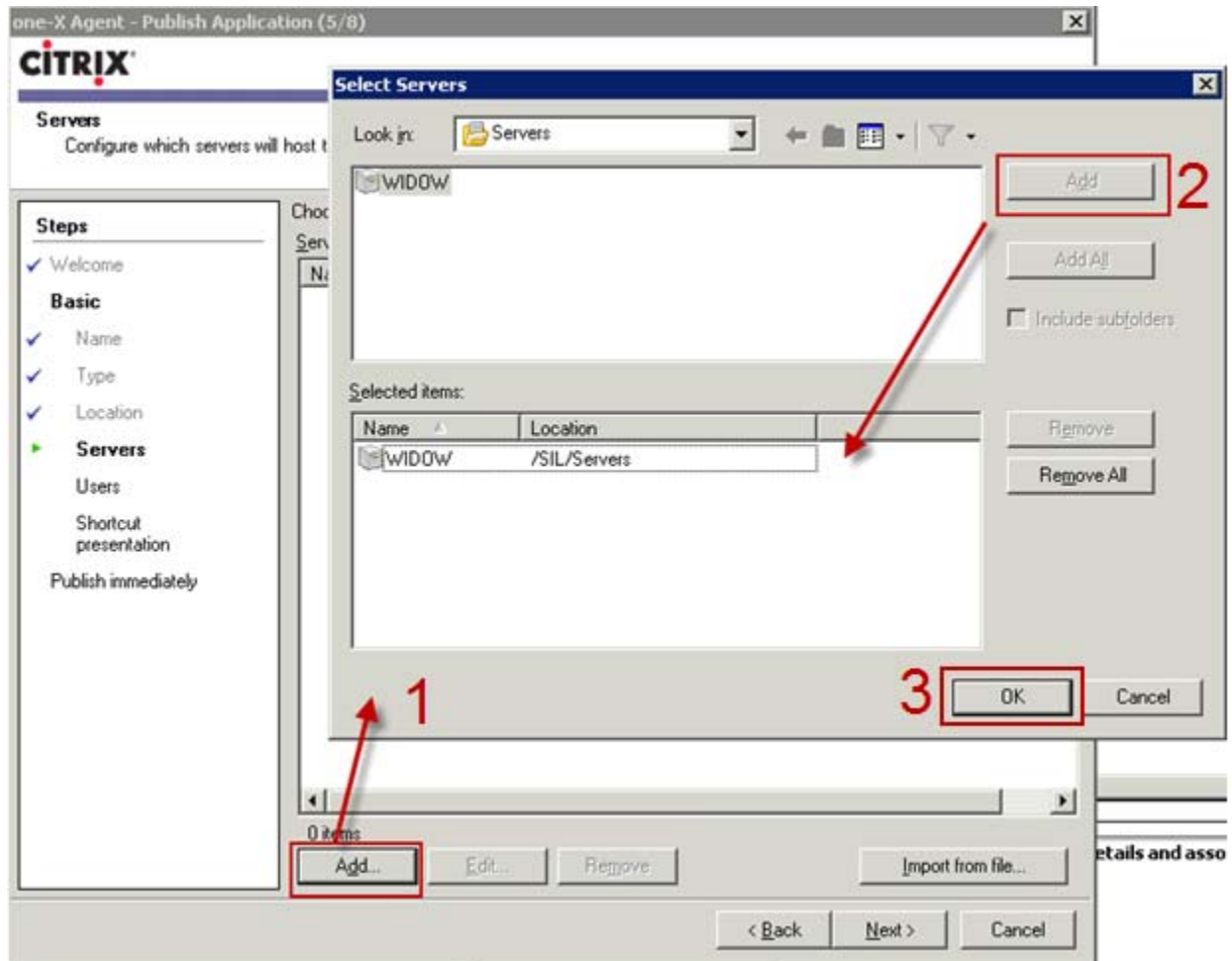
Command line:
"c:\program files\avaya\Avaya one-X Agent\OneXAgentUI.exe" Browse...

Working directory:
c:\program files\avaya\Avaya one-X Agent Browse...

☐ Isolate application Settings...

< Back Next > Cancel

*Select the server that will be used to execute the Avaya one-X[®] Agent application. In a Citrix server farm, there may be more than a single server. For this test configuration, only one server was used. First select **Add** from the wizard dialog, which will start a new window allowing for selection of the server. Select the server and then **Add**, which will add the server to the lower section of the window. Select **OK** to complete adding a server.



*Shown below is the view of the wizard after adding the server Click **Next**.

one-X Agent - Publish Application (5/8)

CITRIX

Servers
Configure which servers will host the application.

Steps

- ✓ Welcome
- Basic**
- ✓ Name
- ✓ Type
- ✓ Location
- ▶ **Servers**
- Users
- Shortcut presentation
- Publish immediately

Choose the servers on which this published application will run when being delivered via ICA.

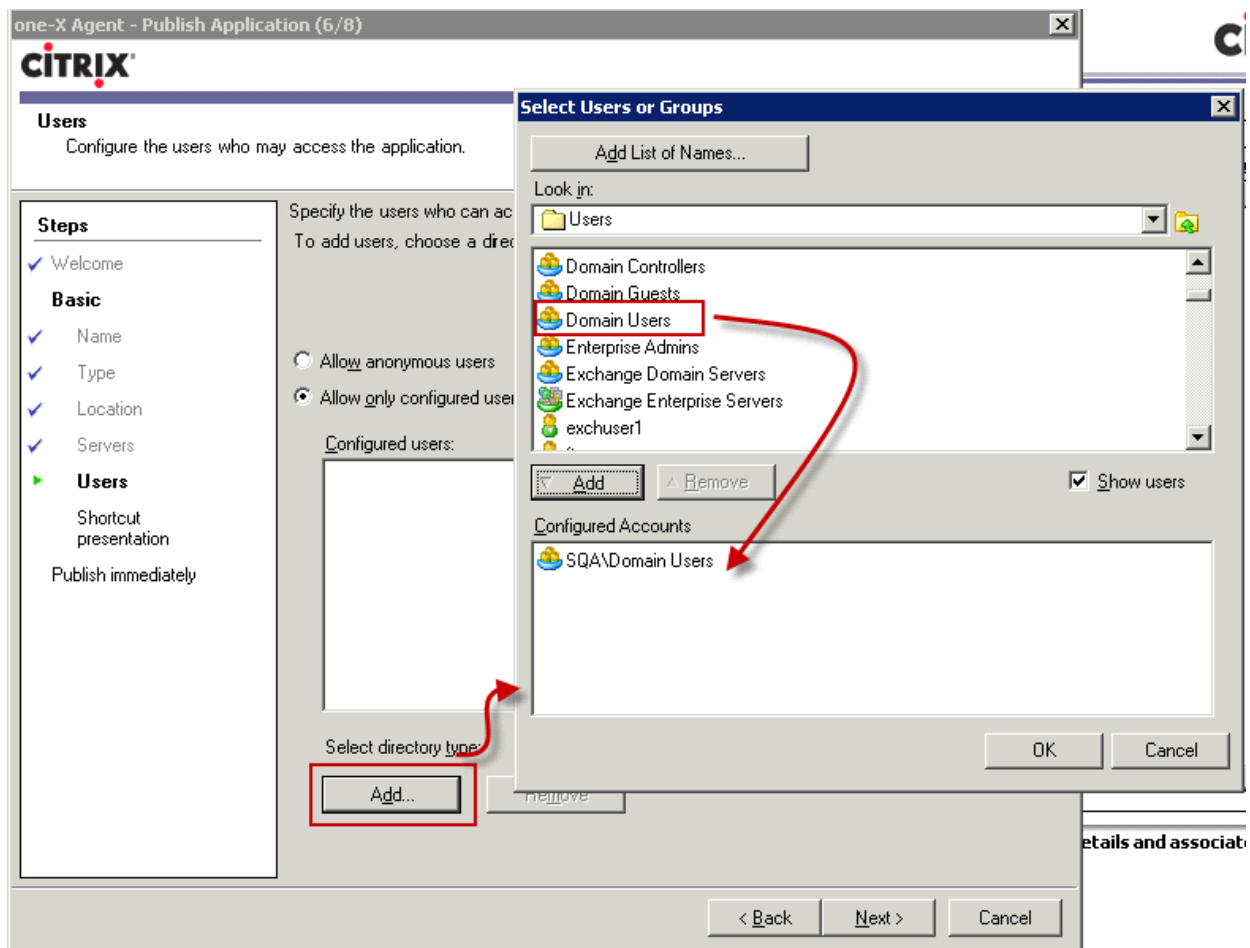
Servers:

Name	Relative location	Application location
WIDOW	Servers	Default

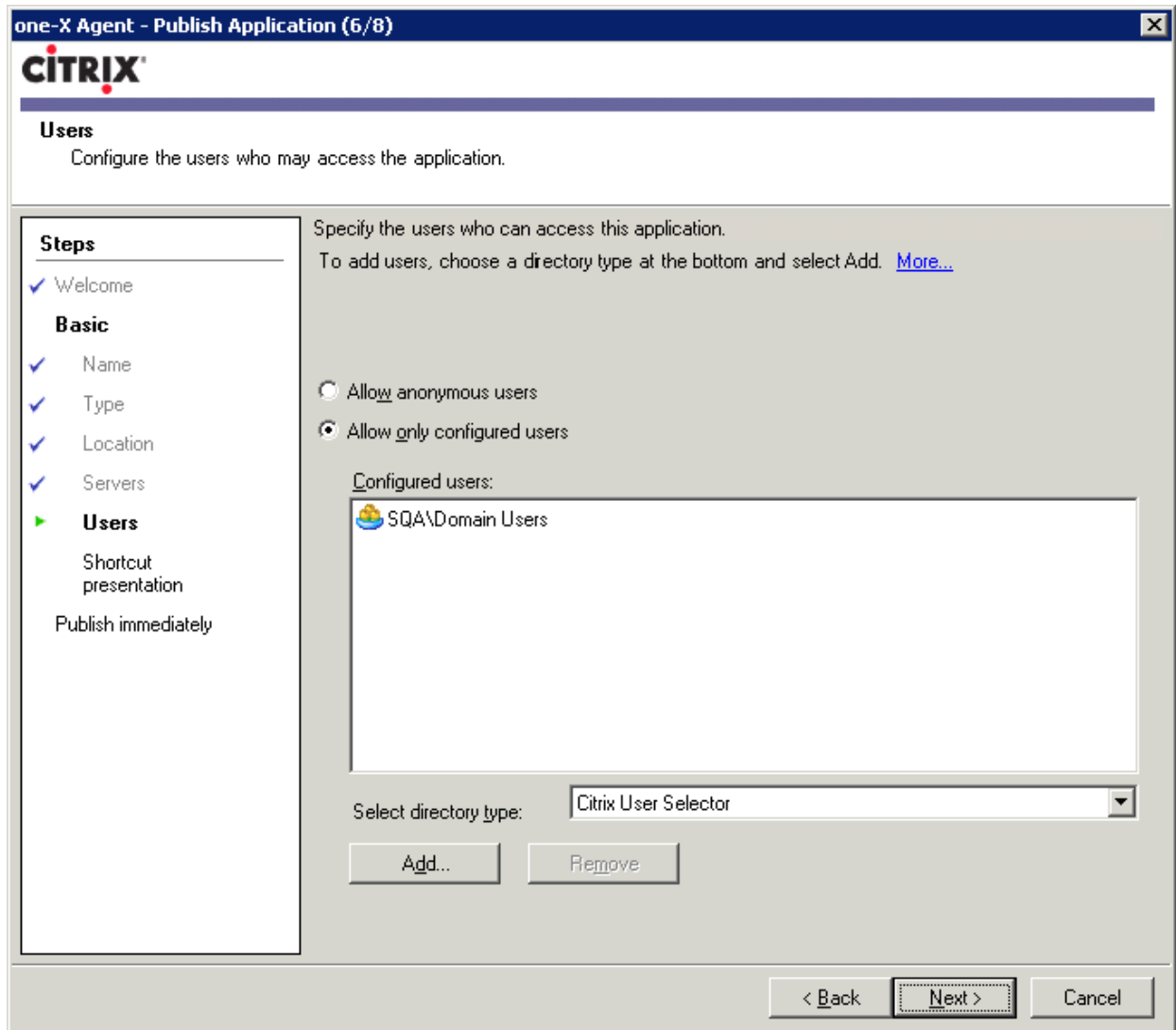
1 item

< Back Next > Cancel

*Select the users that are allowed to execute the application by selecting **Add**. Within the **Select Users or Groups** dialog, select the users for whom you're granting access. For the reference configuration, access to all Domain Users was granted. Click **OK**.



*Shown below is the view after adding users to execute the application within the wizard. Click **Next**.



The image shows a screenshot of the Citrix one-X Agent 'Publish Application' wizard, step 6 of 8, titled 'Users'. The window has a blue header bar with the Citrix logo and the title 'one-X Agent - Publish Application (6/8)'. Below the header, the 'Users' section is active, with the instruction 'Configure the users who may access the application.'.

On the left, a 'Steps' pane shows the progress of the wizard. The steps are: Welcome (checked), Basic (checked), Name (checked), Type (checked), Location (checked), Servers (checked), **Users** (highlighted with a green arrow), Shortcut presentation, and Publish immediately.

The main area of the wizard contains the following elements:

- A heading 'Specify the users who can access this application.' followed by the instruction 'To add users, choose a directory type at the bottom and select Add. [More...](#)'.
- Two radio buttons: 'Allow anonymous users' (unselected) and 'Allow only configured users' (selected).
- A section labeled 'Configured users:' containing a list box with the entry 'SQA\Domain Users'.
- A 'Select directory type:' label next to a dropdown menu currently set to 'Citrix User Selector'.
- 'Add...' and 'Remove' buttons below the directory type dropdown.
- Navigation buttons at the bottom: '< Back', 'Next >' (highlighted with a dashed border), and 'Cancel'.

*An icon can be selected for display on the browser and then click **Next**.

one-X Agent - Publish Application (7/8)

CITRIX

Shortcut presentation


Steps

- ✓ Welcome
- Basic**
 - ✓ Name
 - ✓ Type
 - ✓ Location
 - ✓ Servers
 - ✓ Users
- ▶ **Shortcut presentation**
 - Publish immediately

Configure the appearance and location of the application shortcut.

These settings function differently on different clients. [More...](#)

Application icon

Icon:  [Change icon...](#)

Client application folder:

Application shortcut placement

☐ Add to the client's Start menu

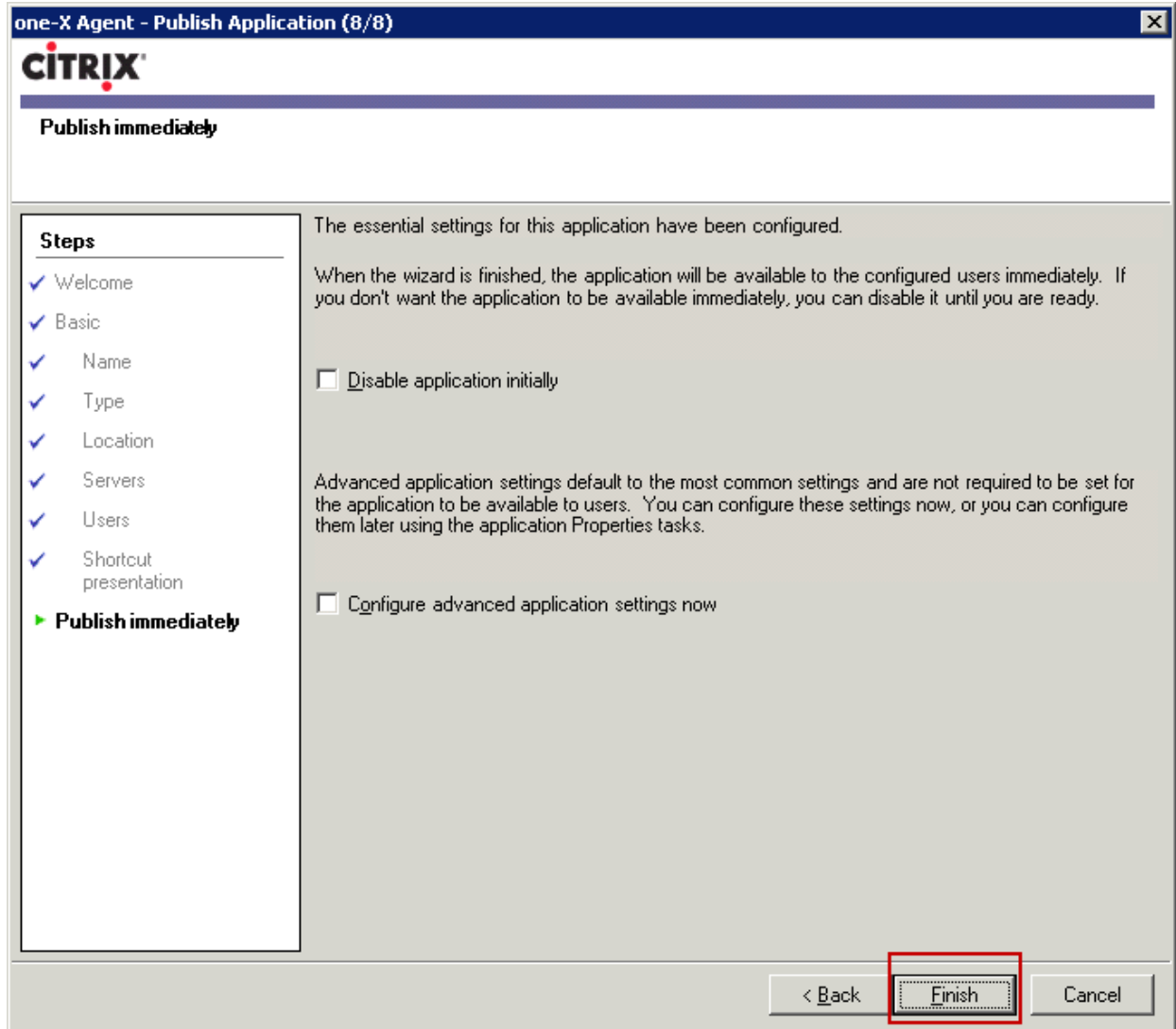
☐ Place under Programs folder (Program Neighborhood Agent only)

Start menu folder (Program Neighborhood Agent only):

☐ Add shortcut to the client's desktop

< Back Next > Cancel

*Select **Finish** to complete publishing the application.



The image shows a Citrix one-X Agent window titled "one-X Agent - Publish Application (8/8)". The Citrix logo is at the top left. Below it, the text "Publish immediately" is displayed. On the left side, there is a "Steps" list with the following items: Welcome, Basic, Name, Type, Location, Servers, Users, Shortcut presentation, and Publish immediately (which is highlighted with a green arrow). The main area of the window contains the following text: "The essential settings for this application have been configured." followed by "When the wizard is finished, the application will be available to the configured users immediately. If you don't want the application to be available immediately, you can disable it until you are ready." Below this text is a checkbox labeled "Disable application initially". Further down, there is another paragraph: "Advanced application settings default to the most common settings and are not required to be set for the application to be available to users. You can configure these settings now, or you can configure them later using the application Properties tasks." followed by a checkbox labeled "Configure advanced application settings now". At the bottom right, there are three buttons: "< Back", "Finish" (which is highlighted with a red rectangle), and "Cancel".

one-X Agent - Publish Application (8/8)

CITRIX

Publish immediately

Steps

- ✓ Welcome
- ✓ Basic
- ✓ Name
- ✓ Type
- ✓ Location
- ✓ Servers
- ✓ Users
- ✓ Shortcut presentation
- ▶ **Publish immediately**

The essential settings for this application have been configured.

When the wizard is finished, the application will be available to the configured users immediately. If you don't want the application to be available immediately, you can disable it until you are ready.

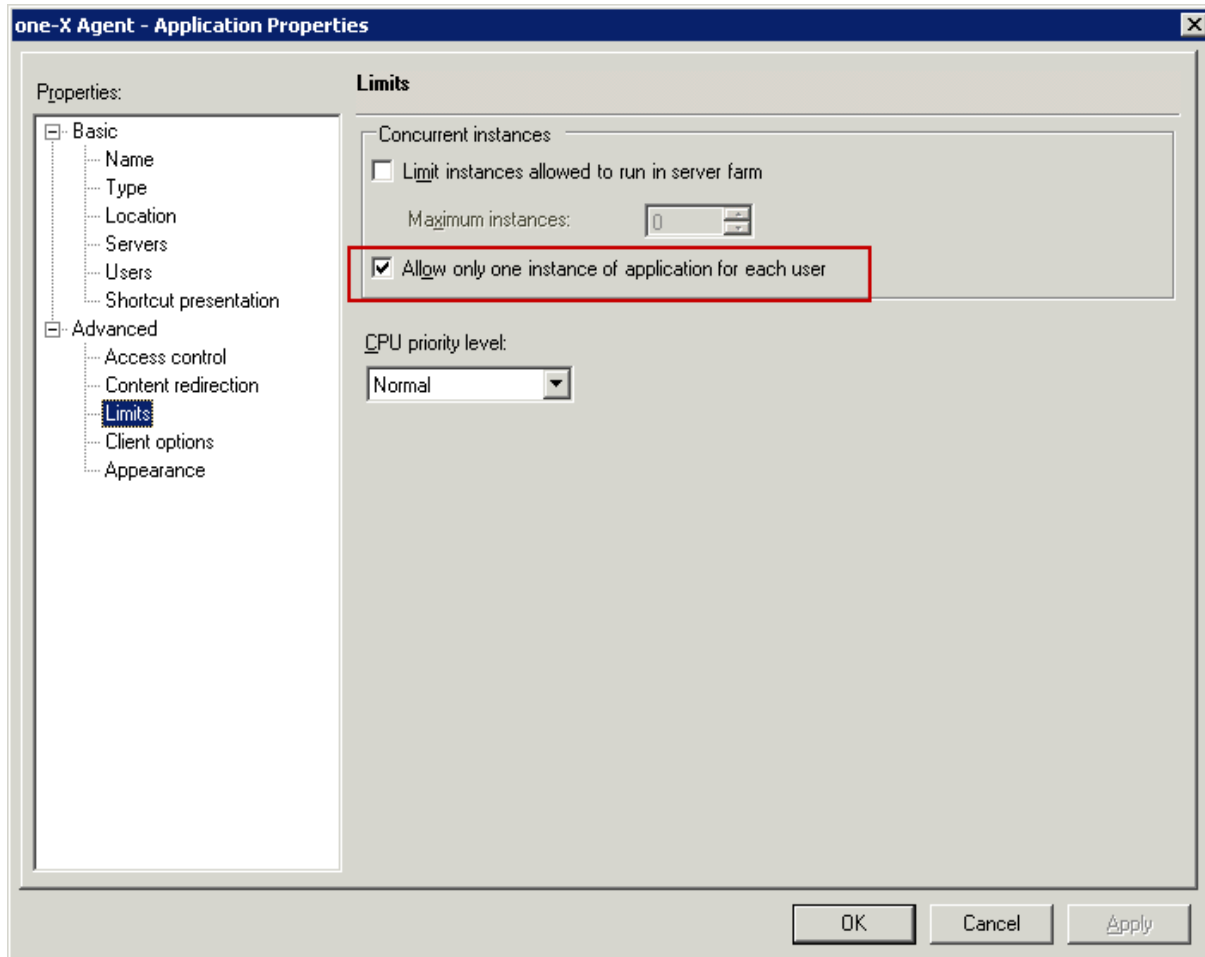
☐ Disable application initially

Advanced application settings default to the most common settings and are not required to be set for the application to be available to users. You can configure these settings now, or you can configure them later using the application Properties tasks.

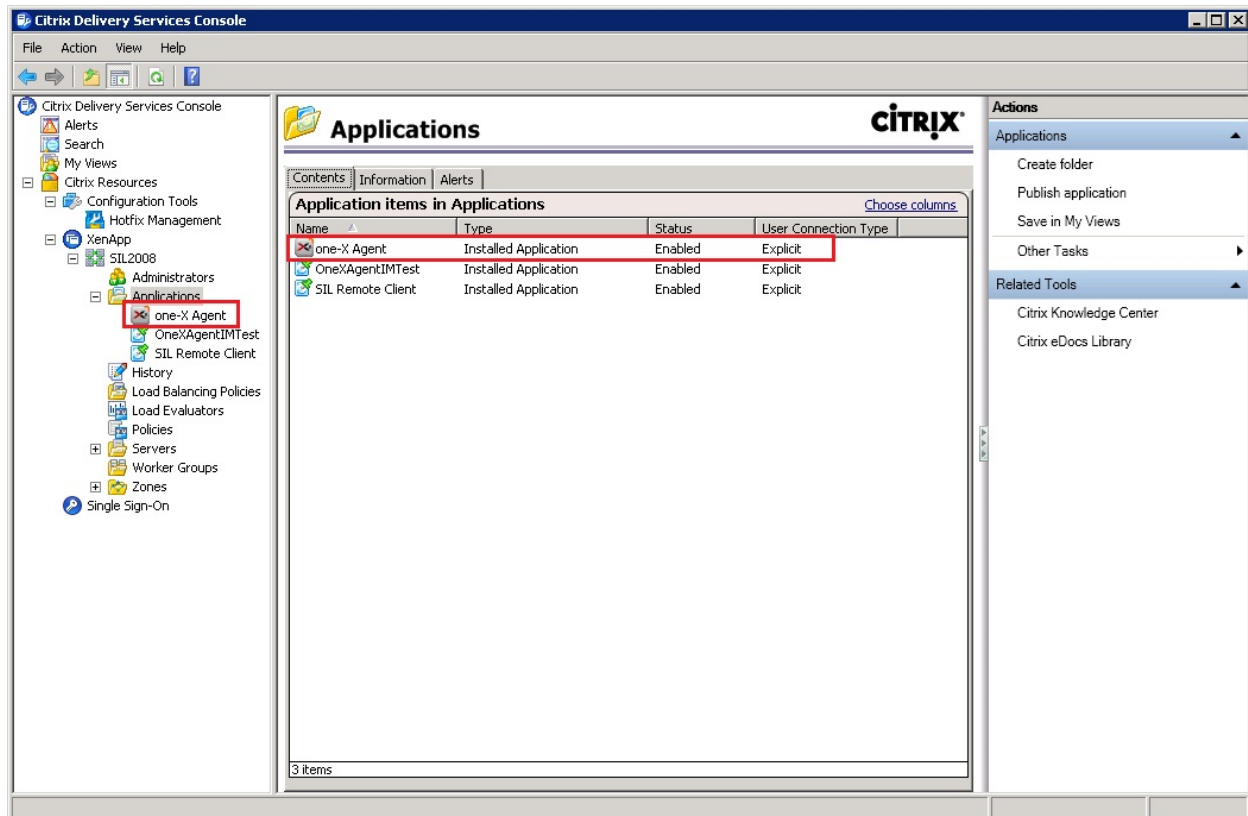
☐ Configure advanced application settings now

< Back Finish Cancel

***Optional Advanced Setting.** Because an agent can login to the ACD only once, it is recommend that the application be set to allow only one instance for each user. This property is set by selecting the properties of the published application from the Citrix Delivery Services Console.

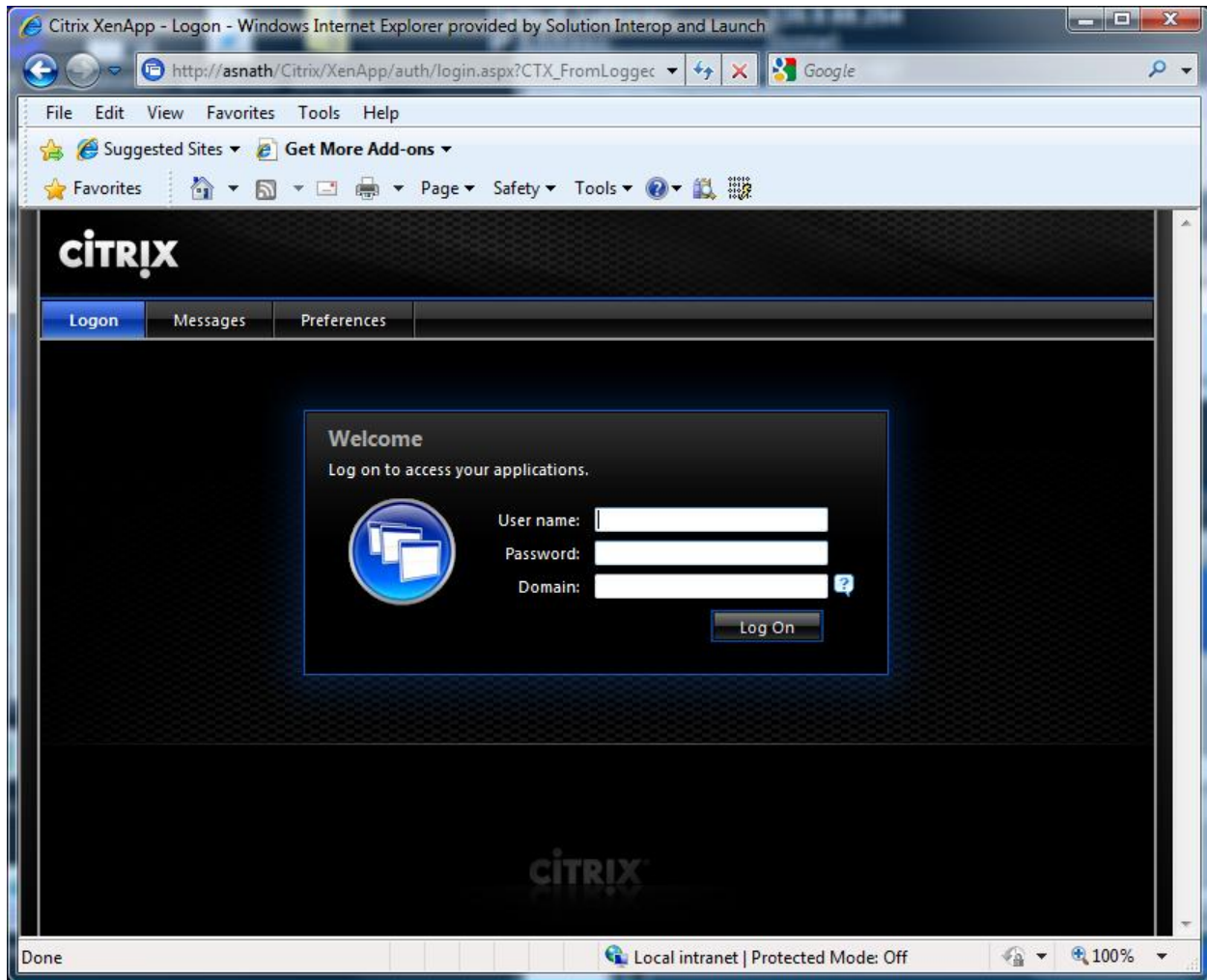


*Shown below is the view from the Citrix Delivery Services Console. Note the newly created Avaya one-X Agent® application is listed here.

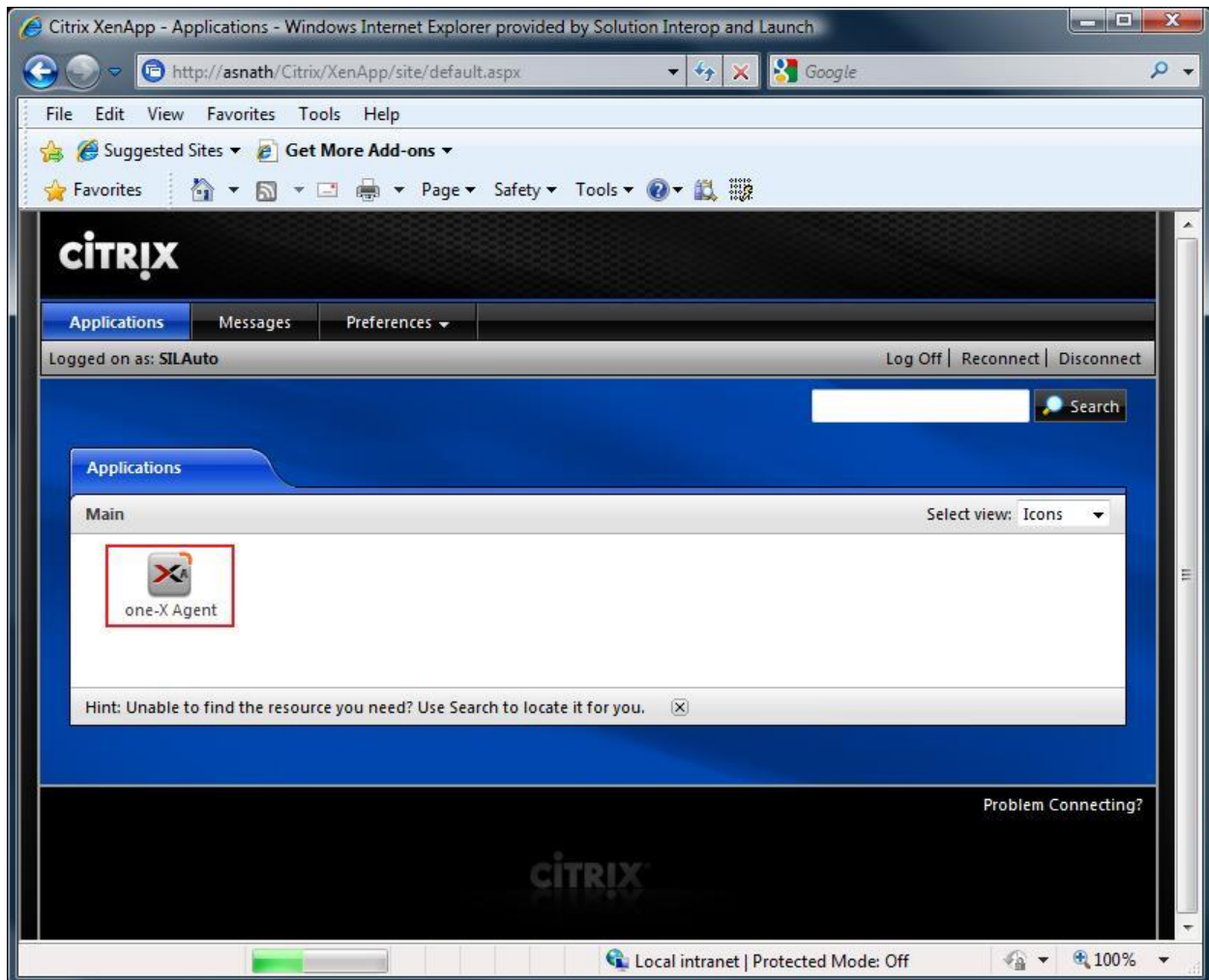


4.1.3. Starting the Avaya one-X® Agent Application

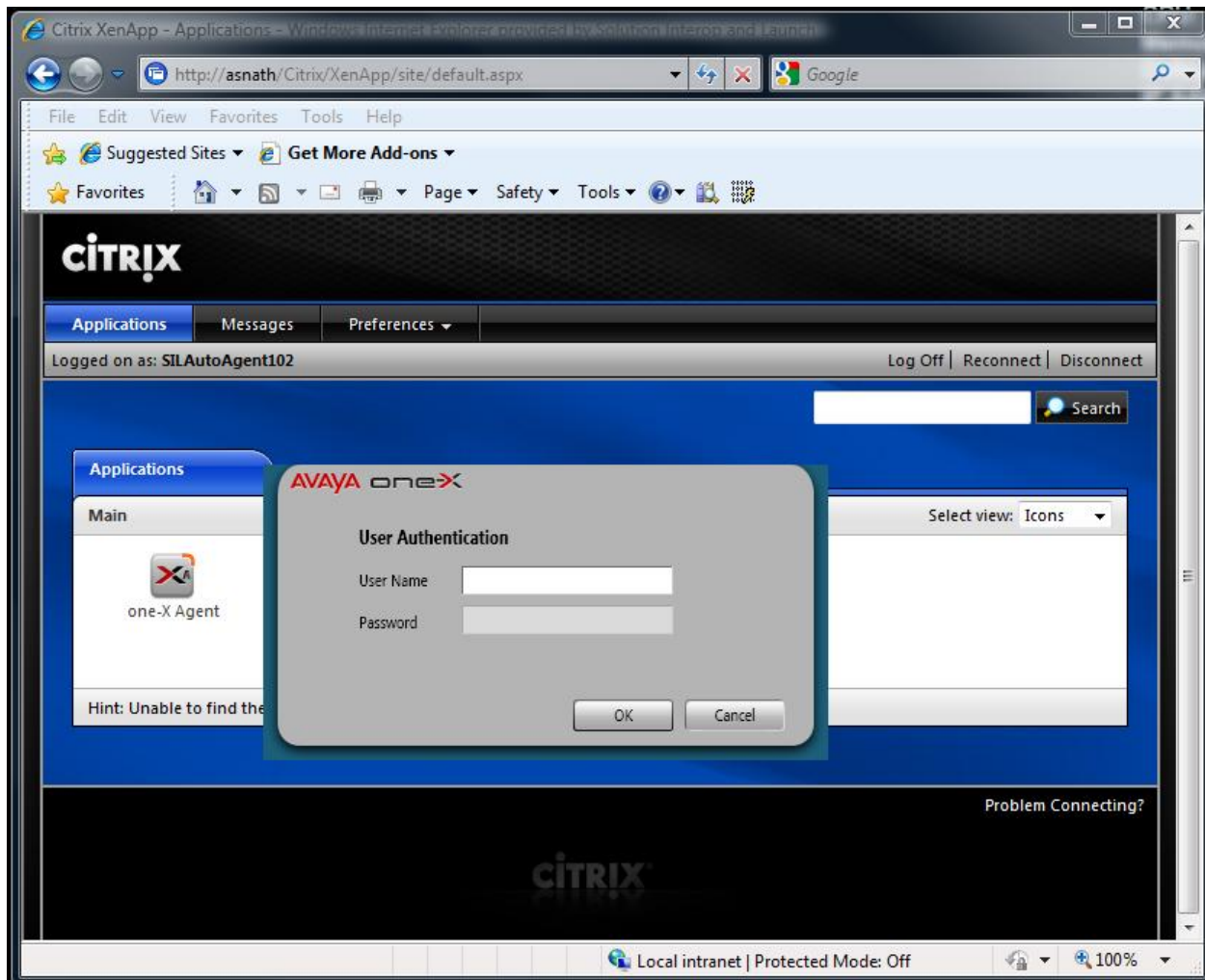
*To start the one-X Agent Citrix session, start a web browser session and type the URL for the Citrix® XenApp™ server. Once the browser has refreshed, a login can be accomplished as shown below. This is the standard Citrix browser client login.



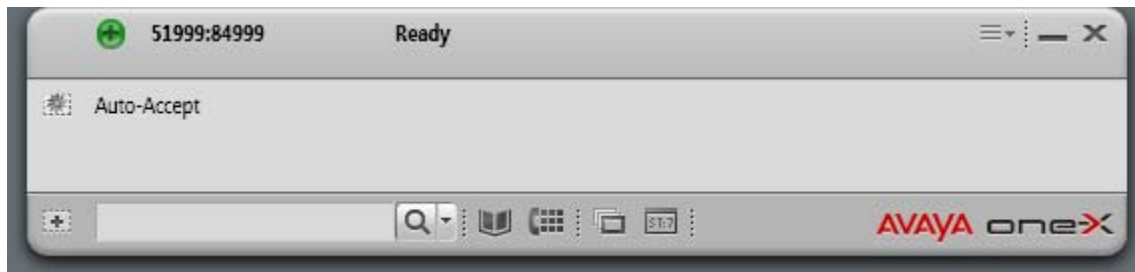
*After completing the login authentication process, the list of applications is presented. Note the published Avaya one-X® Agent Application.



*After selecting the Avaya one-X[®] Agent Application icon, the application starts and the user is presented with the login prompt.



*After completing login, the user is presented with the Avaya one-X[®] Agent application and is able to perform normal agent activities as if the application was installed on his local PC.



4.2. Avaya Aura[™] Communication Manager

No specific configuration is required on Communication Manager to support Citrix XenApp[™] Server to provide Avaya one-X[®] Agent 2.0 as a hosted application. It is assumed that agents, skills queues, VDNs and vectors are all configured and in-place to support Avaya one-X[®] Agent 2.0.

5. Test Scenarios

The test configuration for Call Center Software leveraged many features, including Skills, Queuing, VDNs, Vectors, Variables in Vectors, and UI. This was intended to provide validation of realistic complex customer scenarios. The reference configuration validated many capabilities and covered many functional aspects of Call Center Software.

The following section describes the test scenarios, which were designed to provide a reasonable mixture of normal ACD agent activities. The details of each test scenario are outlined with goals for each test sequence. Preliminary testing with Avaya one-X[®] Agent and the Citrix XenApp[™] 6.0 server revealed that the maximum number of agents that the server could manage was 100. Typical ACD call scenarios were utilized to determine impacts on CPU occupancy and RAM utilization.

5.1. Scenario 1 – Basic ACD Call

70 agents were logged in through Avaya one-X[®] Agent to process typical ACD calls. The details of the basic ACD call scenario are presented below.

Call Scenario: Basic ACD Call

- Calls arrive at a VDN, are queued to a skill, and then delivered to an agent.
- Caller and agent are connected for 3 minutes
- Caller disconnect from agent and agent become available for next call.

- <Repeat>

5.2. Scenario 2 – Transfer ACD Call

20 agents were logged in through Avaya one-X[®] Agent to process typical ACD transfer calls. There was essentially no difference in performance for Avaya one-X[®] Agent to process a blind transfer or a consultative transfer, as the phone interactions are the same. With a blind transfer, Avaya one-X[®] Agent performs the same functions as a consultative transfer in an automated fashion. The detailed transfer call scenario is presented below.

Call Scenario: Transfer ACD Call

- Agent receives call.
- Agent talks on call for 3 minutes.
- Agent transfers caller to another number (i.e. VDN)
- <Repeat>

5.3. Scenario 3 – Conference ACD Call

10 agents were logged in through Avaya one-X[®] Agent to process typical ACD conference calls where one agent conferences in another agent. The detailed transfer call scenario is presented below.

Call Scenario: Conference ACD Call

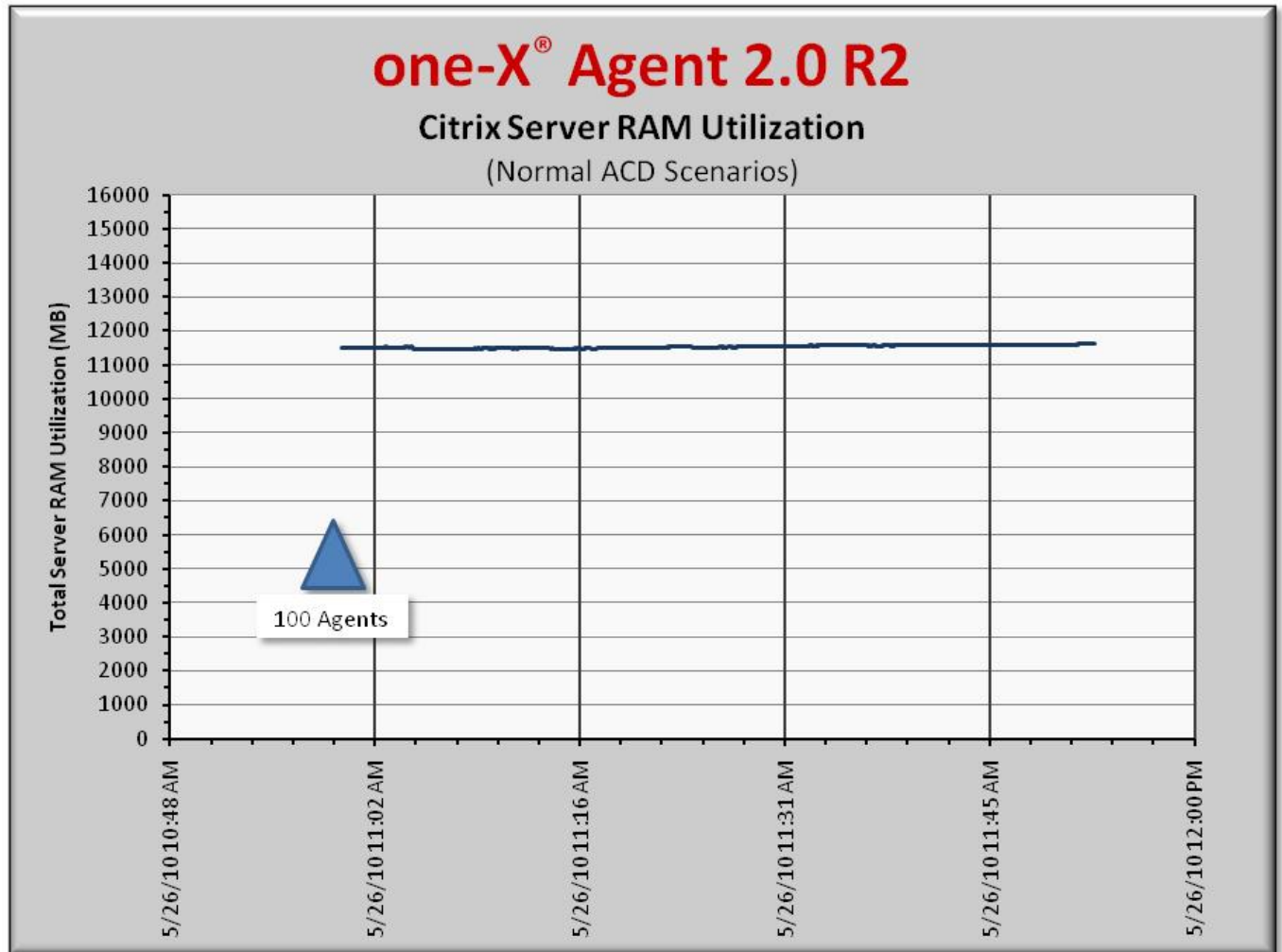
- Agent (1) receives call.
- Agent (1) talks on call for 2 minutes.
- Agent (1) places caller on hold and calls Agent (2)
- Agent (1) talks to Agent (2) for 1 minute
- Agent (1) conferences Agent (2) with caller
- Agent (1), Agent (2), and Caller talk for 3 minutes
- Agent (1) drops all parties
- <Repeat>

6. Results

Testing was performed with and without the Avaya one-X[®] Agent Central Management capabilities. There was no impact on server performance. The following sections provided detailed measurements obtained during the testing.

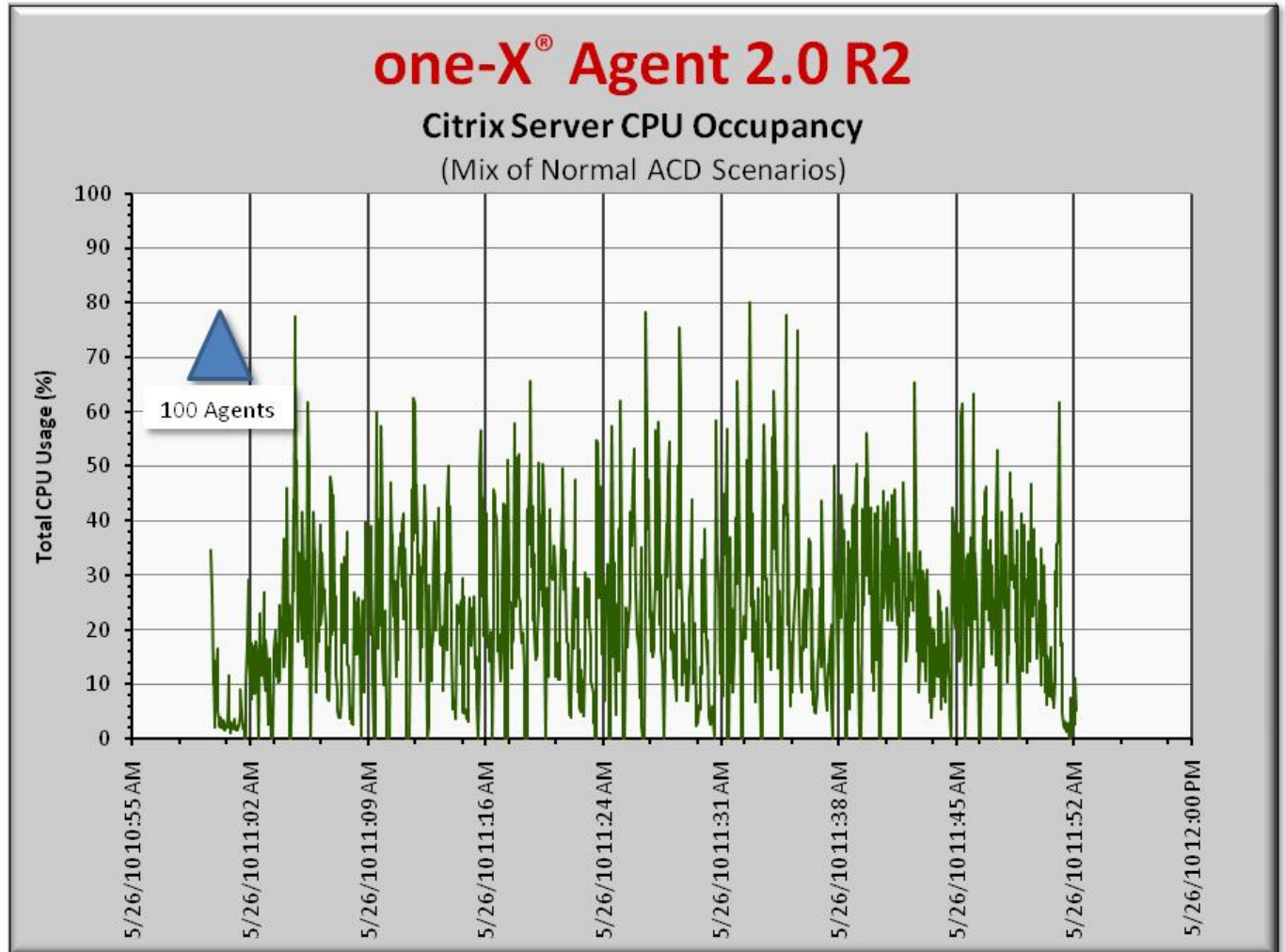
6.1. RAM Utilization

RAM utilization never exceeded the total RAM available in the server. Each Avaya one-X[®] Agent Citrix session takes ~100MB of RAM.



6.2. Processor Occupancy (CPU)

The chart below represents the overall CPU occupancies with 100 agents logged in processing basic ACD calls, transfers and conferences.



6.3. Observations

- Each of the Avaya one-X® Agent applications under a Citrix® XenApp™ session requires ~100MB of RAM.
- CPU occupancy with transfers in Other Phone Mode is very similar to transfers with Desk Phone Mode. No difference in performance observed.
- Occasional CPU spikes noted when performing transfers.
- Normal ACD inbound calls require very little CPU processing.

7. Test Summary and Recommendations for Sizing

The following list provides the key findings and recommendations based on the standard type server platform hosting Avaya one-X[®] Agent with Citrix XenApp[™] on Windows 2008R2 server with typical ACD call scenarios.

- The Citrix XenApp[™] server can host 100 instances of the Avaya one-X[®] Agent application with agents processing basic ACD calls, some transfers, and some conferences. Careful attention should be taken to observe call center activities to avoid performance issues when sizing a system.
- Transfer and conference scenarios result in higher CPU occupancy and should be considered when sizing a solution.
- Avoid creating a condition that results in high CPU occupancies (especially above 75%), as this will affect Avaya one-X[®] Agent application's performance.
- There was no impact on the Citrix[®] XenApp[™] server with or without the Avaya one-X[®] Agent Central Management enabled.

8. Additional References

This section references the product documentation relevant to these Application Notes.

- [1] **Avaya one-X[®] Agent 2.0:** <http://www.avaya.com/usa/product/avaya-one-x-agent>
- [2] **Configuring Avaya one-X[®] Agent 2.0 R2 with Citrix XenApp[™] on Microsoft[®] Windows 2003 (32-bit) Server– Issue 1.0**, available at <http://support.avaya.com>.
- [3] **Avaya Aura[™] Communication Manager**, available at <http://support.avaya.com>.

©2010 Avaya Inc. All Rights Reserved.

Avaya and the Avaya Logo are trademarks of Avaya Inc. All trademarks identified by ® and ™ are registered trademarks or trademarks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners. The information provided in these Application Notes is subject to change without notice. The configurations, technical data, and recommendations provided in these Application Notes are believed to be accurate and dependable, but are presented without express or implied warranty. Users are responsible for their application of any products specified in these Application Notes.

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya Solution & Interoperability Test Lab at interoplabnotes@list.avaya.com