Delivering Microsoft Skype for Business to XenApp and XenDesktop Users
# Table of Contents

Purpose of this document ........................................................................................................... 3

Optimized versus Generic delivery of Microsoft Skype for Business ........................................ 4

Choosing the right Skype for Business optimization for your environment ................................. 5

Citrix HDX RealTime Optimization Pack for Microsoft Skype for Business .............................. 6
  Pros of using HDX RealTime Optimization Pack for Skype for Business ............................... 6

Installation Guide .......................................................................................................................... 6
  Windows client device - HDX RealTime Media Engine 2.0 install ........................................ 10
  MAC OSX client device - HDX RealTime Media Engine 2.0 install ..................................... 14
  Linux client device - HDX RealTime Media Engine 2.0 install ........................................... 19

Upgrading from RealTime Optimization Pack 1.8 to 2.0 ............................................................ 22

Troubleshooting ........................................................................................................................... 22

Common deployment related tips and questions ........................................................................ 25

Microsoft Lync VDI 2013 plugin .................................................................................................. 28

Citrix HDX Generic Delivery ....................................................................................................... 29

Special Considerations for Remote Users with NetScaler Gateway ........................................ 30

Citrix HDX Local App Access ..................................................................................................... 30
  Local App Access – Published Shortcuts .................................................................................. 31
  Local App Access – Published Application .............................................................................. 34

O365 and Skype for Business ....................................................................................................... 38

Summary ...................................................................................................................................... 39

About the authors ........................................................................................................................... 40
Delivering Microsoft Skype for Business to XenApp and XenDesktop Users

**Purpose of this document**

This document serves as a guide to prepare an IT organization for incorporating Unified Communications (UC) into desktop and application virtualization environments. Microsoft Skype for Business, formerly known as Lync has become an enterprise standard “must have” application for desktop users. In years past, it was acceptable to use Lync for chat and presence only. However today, 90 of the Fortune 100 companies are running Microsoft Skype for Business for media rich video calling, voice calling, conferencing, and screen sharing. Over 100 million people are using Skype for Business to communicate for work, as of March 2015. 79% of U.S. enterprise customers use or plan to use Skype for Business for telephony, according to Microsoft. Skype for Business is now the leader in PBX sales for enterprises of more than 400 lines and #3 PBX in America. Over 75% of surveyed customers have budget for Unified Communications. More over 3 out of 4 Citrix customers adopting UC have chosen Skype for Business.

Without proper consideration and design for optimization, virtual desktop and application users will very likely find the Microsoft Skype for Business experience to be subpar. Citrix and Microsoft both provide technologies to optimize this experience, to make Skype for Business responsive with crisp video and audio, even when working remotely in a virtual desktop. However, with multiple combinations of Skype for Business infrastructures, clients, endpoint types, and user locations one must find the right “recipe” to deliver Skype for Business optimally.

The Citrix® HDX™ RealTime Optimization Pack for Microsoft® Skype for Business® offers clear, crisp high-definition video calls an optimized architecture. Users can seamlessly participate in audio-video or audio-only calls to and from other Skype for Business users, Optimization Pack users and other standards-based video desktop and conference room systems.

Please note that – as of HDX RealTime Optimization Pack 2.0 we support Microsoft Skype for Business Server 2015 and the Skype for Business 2015 client in its native UI. Support for Skype for Business 2016 is currently being worked on.

This document is meant to guide architects and administrators in choosing the right Skype for Business delivery solution for their Citrix environment.
Optimized versus Generic delivery of Microsoft Skype for Business

This is often what causes the most confusion about delivering a Microsoft Skype for Business experience in a Citrix environment. Most Citrix administrators are well aware of how the ICA protocol, a key element of Citrix’s HDX (high definition experience) software stack works. ICA is made up of many virtual channels that allow the end user to interact with and receive content from the server host. Among these are the most common, an interactive video display such as Thinwire (which offers an h.264-enhanced supercodec), bi-directional audio, and webcam video compression to deliver a webcam experience. While there are a lot of tuning options to deliver a reasonably good experience in this manner (see CTX133024), it is usually not the most optimal method for delivering Skype for Business. The main reason is that the media must “hairpin” from your client to the server in the data center and then back to the endpoint. This can put significant load on the server (especially for video) and can cause delay and an overall degraded experience, especially if the other party in a Skype for Business call is originating from a user in a similar virtualized experience. This method for delivering a Microsoft Skype for Business experience is referred to as “Generic” delivery.

The preferred method of delivery is the “Optimized” method. In this case the architect and/or administrator chooses to deploy either a Citrix or Microsoft optimization solution. The “Optimized” method is basically like splitting the Skype for Business client in two, as illustrated in the following comparison diagram. The user interface lives inside the virtual host, and is seen completely in the virtual desktop or application display. However, the media rendering, or media engine is separated off to run on the endpoint. This allows for a very rich rendering of the audio and video experience.
Choosing the right Skype for Business optimization for your environment

Skype for Business (SfB) optimization is not a “one size fits all” technology. You must consider your Skype for Business environment and the endpoints users will be using. A recommended solution for each scenario is outlined in the following matrix. Additionally this document offers greater detail on the pros/cons and things that must be considered for each optimization or delivery technology.

<table>
<thead>
<tr>
<th></th>
<th>Windows</th>
<th>Macintosh</th>
<th>Linux</th>
<th>Chrome/HTML5</th>
<th>Android</th>
<th>iOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SfB 2015 Server / SfB 2015 client on host</td>
<td>☑️</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lync 2013 Server/Lync 2013 client on host*</td>
<td>☑️</td>
<td>☑️</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lync Online Office 365/Lync 2013 client on host</td>
<td>☑️</td>
<td>☑️</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* - Microsoft VDI Plugin only supports VDA, workstation OS hosts, no XenApp delivery

- Citrix HDX RealTime Optimization Pack, version 2.0
- Microsoft VDI 2013 plugin
- Citrix HDX RealTime Optimization Pack, version 1.8
- Generic ICA/HDX Delivery
Delivering Microsoft Skype for Business to XenApp and XenDesktop Users

1 - Windows client versions supported by the Optimization Pack: 10, 8.x, 7, Vista, XP, XPe, Server 2012, WES7, WES 2009. Thin PC
2 - Macintosh client versions supported: OS X 10.7 through 10.11
3 - Linux Client versions supported: Red Hat Enterprise 6.2, Ubuntu 14.04, 12.04 and 10.04, Suse Enterprise SP1, SP2 & SP3, HP ThinPro, Unicorn eLux RP 4.3.0 (only 32-bit versions are supported.) Dell Wyse ThinOS 8.2 is currently supported only on Linux RTME 1.8

It should be noted that optimization packs have not been developed yet for mobile OS’s. Typically mobile users who desire access to Skype for Business on their devices will leverage Skype for Business native apps from the appropriate app store. The new release of the HDX RealTime Optimization Pack, version 2.0 supports optimized delivery of the Skype for Business 2015 client to Linux, Mac and Windows devices.

Citrix HDX RealTime Optimization Pack for Microsoft Skype for Business.
Whenever possible, best practice is to use an optimized architecture for delivering Skype for Business to end users.

Pros of using HDX RealTime Optimization Pack for Skype for Business

- Richest experience, all media rendered on endpoint
- No hair-pinning effect, media communications go point to point between clients
- Less resource impact on the XenApp/XenDesktop hosts
- Less ICA bandwidth consumed over “generic” approach
- Allows for use of high tech Skype for Business optimized headsets and handsets
- Supports delivery with XenApp using Windows Server OS’s
- Simple installation on client devices, minimal prerequisites
- Can be used remotely from the enterprise network in conjunction with Skype for Business Edge Services (users making Citrix connections via NetScaler Gateway)
- Wide choice of supported thin client devices (see list at: http://docs.citrix.com/en-us/hdx-optimization/2-0/hdx-realtime-optimization-pack-system-requirements.html)
- Support provided by both Microsoft and Citrix support
- Supported method for delivering Skype for Business 2015 as seamless app from XenApp
- No requirement for both the sides of the optimized architecture to authenticate to the backend
- Requires no modification to the Skype for Business server back end

The Citrix HDX RealTime Optimization Pack 2.0 supports the following Citrix environments, read Release Notes for more information:

- XenDesktop 7, 7.5, 7.6, 7.6 Feature Packs 1, 2 and 3, 7.7 and 7.8
- XenApp 6.0, 6.5, 6.5 Feature Packs 1, 2 and 3, 7.5, 7.6, 7.6 Feature Packs 1, 2 and 3, 7.7 and 7.8

Installation Guide
Delivering Microsoft Skype for Business to XenApp and XenDesktop Users

Prerequisites

Note - The version 2.0 applies to Windows, Mac and Linux Endpoints.

1. Download the HDX RealTime Optimization Pack 2.0 for Microsoft Skype for Business. On Citrix.com, select the Downloads Tab. Select XenApp or XenDesktop as the product and select Product Software as the download type. Select XenApp or XenDesktop 7.7, it will be under Components.

2. Ensure that any Lync 2013 servers are updated to Skype for Business 2015 servers and/or have the latest Microsoft Office updates installed.

3. Ensure Skype for Business client 2015 is installed in the Virtual Desktop Agent hosts or base image as well as XenApp servers which may be used to deliver Microsoft Skype for Business. As of RTOP 2.0 Skype for Business 2016 support is on the roadmap, please do not install client versions 16.x.xxxx.xxxx.
   a. Prerequisites (in this order) – Office 2013 SP1, KBs 2863908, 2889853 Security Updates 1 & 2
   b. Ensure the minimum version is 15.0.4805.1000 with KBs 3114351, 3114502 installed.

4. The client endpoint must have one of the following Receivers installed:
   a. Citrix Receiver for Windows 4.x
   b. Citrix Receiver for Mac 12.x
   c. Citrix Receiver for Linux 13.x

If windows receiver is not installed, you can install both the Citrix Receiver and the RealTime Media Engine using a single installer available from the download page.

b. Citrix Receiver for Mac 12.x
c. Citrix Receiver for Linux 13.x

The installation procedures are simple:

1) Install the HDX RealTime Connector 2.0 on Virtual Desktop Agent (VDA) hosts or base image as well as XenApp servers which may be used to deliver Skype for Business.

Note: On each of the VDA hosts, if a previous version of the Citrix HDX RealTime Connector is installed you will need to uninstall the connector before installing the Citrix HDX RealTime Connector ver 2.0

Run the installer. If Skype for Business client is already running on the VDA, you will be asked to close it before proceeding with the install. Click OK. The installer will exit.
Exit Skype for Business client by clicking on **Settings > File > Exit**

Run the installer again.
Accept the License Agreement and select the folder you wish to install the application in. Click Next.

Click Install on the next screen and the install will begin.

Install Citrix HDX RealTime Connector 2.0 to:
C:\Program Files (x86)\Citrix\HDX RealTime Connector\ 

Click Next to continue or Cancel to exit the Setup Wizard.

Please wait while the Setup Wizard installs Citrix HDX RealTime Connector 2.0.

Status:
Once the installation is complete click Finish.

Using this image please create the appropriate machine catalogs and delivery groups in Citrix Studio before trying to establish sessions and accessing the Skype for Business client.

Windows client device - HDX RealTime Media Engine 2.0 install

2) If you have only Windows clients and you have already installed the RTME bundled with the Receiver already you can skip directly to the next section here. The bundled Receiver and RTME package can be downloaded from here. If you have Mac or Linux clients in your environment you can skip to the following sections - Mac and Linux. If you already have Receiver installed then you can follow the below steps to get the HDX RealTime Media Engine 2.0 installed. From the components downloaded, on each endpoint client install the appropriate. In this section we install version 2.0 for Windows. To see how to get the webpage please refer to the Mac client section here.

Note: If you already have the Microsoft VDI Plugin or an older version of the Citrix RealTime Optimization Pack installed on your endpoint, uninstall them, before proceeding to the next step. If you have a Citrix session running in Receiver you will have to disconnect or close it in order to complete the following steps.
Run the installer. Click **Next** on the welcome screen.

Accept the License Agreement and click **Install**.

---

**Welcome to the Citrix HDX RealTime Media Engine 2.0 Setup Wizard**

It is strongly recommended that you exit all Windows programs before running this setup program.

Click Cancel to quit the setup program, then close any programs you have running. Click Next to continue the installation.

**WARNING:** This program is protected by copyright law and international treaties.

Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.

---

**Ready to Install the Application**

Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.
Once the installation is complete, click **Finish**

**Note:** you will have create a Machine Catalog and Delivery group(s) from this image and then be able to deliver the same to your users.

After connecting, one can quickly confirm that optimization is working. Open Skype for Business in the virtual desktop. Now that both the Skype application and the **HDX RealTime Optimization Pack for Skype for Business** are communicating over ICA virtual channels for command and control functions. Look for the **RTOP** icon in the systray.
Select the “About” page and confirm connection attributes (versions of the components and OS this is deployed on). The following screenshot shows the correct connection values.

Additionally, a user can make changes to the settings available from the Settings panel.
MAC OSX client device - HDX RealTime Media Engine 2.0 install
For Mac end points the procedure to follow is:
The installation procedures are simple:

From the Citrix downloads page, search for XenDesktop, under XenDesktop 7.7, select the Components drop down.

Select HDX RealTime Optimization Pack 2.0 for Microsoft Skype for Business.

Scroll to the bottom of the page and download the HDX RealTime Media Engine 2.0 for MAC file onto the Mac end point machine.
Double click the downloaded file. In the resulting dialogue select **Install HDXRealTimeMediaEngine.pkg**. Click **Continue** on the Introduction Screen of the installer.
Delivering Microsoft Skype for Business to XenApp and XenDesktop Users

Click **Continue** and in the resulting pop up click **Agree**.

Click **Install**.
You will be asked to enter the password for the machine. Type it in and click **Install Software**.

Once the installation completes you will see this in the dialog. Click **Close**.
Launch a Citrix session that has the Skype for Business Client and the RealTime Connector installed. Start the Skype for Business application. When everything is configured correctly you will see the notification in the bottom left.

After connecting, one can quickly confirm that optimization is working. Look for the RTOP icon in the systray. Select the “About” page and confirm connection attributes (versions of the components and OS this is deployed on). The following screenshot shows the correct connection values:
Linux client device - HDX RealTime Media Engine 2.0 install

For Linux end points the procedure to follow is:
The installation procedures are simple:

1) From the XenDesktop 7.7 downloads page select HDX RealTime Optimization Pack 2.0. On this page click on the HDX RealTime Media Engine download link. Scroll to the bottom of the page and download the HDX RealTime Media Engine 2.0 for Linux zip file onto the Linux machine. (To see how to get this page please refer to the Mac client section here.)

Note: On a 64-bit Linux device install the 32-bit version of Citrix Receiver 13.x and update various 32-bit libraries are required to support the 32-bit Linux Receiver and the RTME, before you begin the installation of HDX RealTime Media Engine 2.0 for Linux.

Once you download the file you will get an open dialog. Click OK.

Extract the zip file and save it in a desired location.
Open **terminal** and login as root. Traverse to the file location. **chmod 777 HDXRTME_install.sh** file and **execute install script**

Once the installer begins. Type **1** to install and press enter.

Type **Yes** and hit **Enter** at the copyright message.

Accept the EULA by typing in **YES** and hitting enter.
The installer will then install the RealTime Media Engine for Linux.

Once the installation is complete then launch a Citrix session as you would normally and start Skype for Business within the Windows session and you should be able to use it just as you would on a Windows end point.
Upgrading from RealTime Optimization Pack 1.8 to 2.0

The update process for the pieces are as follows:

1. On each of the Windows guest operating systems, you will need to uninstall the Citrix HDX RealTime Connector ver 1.8 before installing the Citrix HDX RealTime Connector ver 2.0.
2. On each of the client machines the Citrix HDX RealTime Media Engine must be upgraded to 2.0 at the same time. The Citrix HDX RealTime Connector 2.0 cannot be used with Citrix HDX RealTime Media Engine 1.8.

Troubleshooting

Your users may sometimes arrive at a situation where they don’t get the desired status, connection type and mode as shown above. Here are a few ways to resolve the issues they may face:

1. Citrix HDX RealTime Connector systray shows status as Un-optimized.

Resolution: The setup is missing either the HDX RealTime Connector component on the VDA, or the HDX RealTime Media Engine on the client machine. Ensure the VDA has the HDX RealTime Connector installed and the client endpoint has the Media Engine installed on it.
2. Skype for Business client throws a “Can’t sign into Skype for Business" error message.

**Resolution** - There are multiple reasons for this, the Connection settings may need to be checked and changed from Automatic to Manual to verify the settings are correctly set in the VDA / base image. Click Settings and select Change Sign-In Address

Click on Personal in the left pane and click Advanced
Select Manual Configuration and enter the Internal / External Server name correctly and check if the same error occurs.

If this does not resolve the issue follow this link to the Microsoft Skype for Business troubleshooting page.

3. If you are running a Lync 2013 server in your environment and using Skype for Business clients then the users may see the following pop up, stating their UI is going to be reverted.
Resolution – It is strongly recommended that your users use the Skype for Business UI in conjunction with Citrix HDX RealTime Optimization Pack, as the UI integration and testing has been conducted with the latest version. The issue can be resolved by running the following command on your Lync 2013 server. For more information follow this [link](#).

Set-CsClientPolicy -Identity Global -EnableSkypeUI $true

Then **restart the Lync Server Front-End** service on your Lync servers.

4. Citrix HDX RealTime Connector is not seen in the systray of the session, even after the Skype for Business Client has been launched within the VDA.
   **Resolution** – this issue occurs if the VDA doesn’t have the required Skype for Business update as described in the [KB3114351](http://support.microsoft.com/kb/3114351) installed in it.


**Note:** Media Bypass is not supported by HDX RealTime Optimization Pack 2.0. Please disable the Media Bypass feature following the instructions [here](http://support.microsoft.com). This potential future enhancement will be considered during our joint roadmap planning with Microsoft.

**Common deployment related tips and questions**

**Call Statistics:**
During a call, users can view information about network health by selecting the Call statistics option in the connector systray.
The Call Statistics window appears, as shown in the following example. Values in red indicate potential problems with the network. To write the values to a text file whose default name is call_statistics_<date>.txt, click Save Statistics.

![Call Statistics Window]

What are the bandwidth requirements for the RTOP? Does the RTOP observe the bandwidth policies set on the SfB/Lync server?

Bandwidth consumption with the HDX RealTime Optimization Pack is consistent with native Skype for Business. Bandwidth guidelines:


The HDX RealTime Media Engine will obey bandwidth restrictions configured on the SfB/Lync server, applying them to both RT Video and H.264.

If the customer already provisioned their network for "fat desktop" Skype for Business / Lync users with voice and video conferencing, the Optimization Pack will work with that bandwidth as it adds very little network overhead; the only additional traffic is the low bandwidth virtual channel control interactions between the RTC on the VDA and the RTME on the user device.
How does the HDX RTOP support Quality-of-Service (QoS)?

It is possible to configure alternate UDP ports for audio and video to manage QoS. Port ranges are configured with a server-side policy on the Lync server, using the Set-CsConferencingConfiguration cmdlet:

[Links to Microsoft documentation]

Optimization Pack 2.0 supports the same parameters as native SfB:
ClientAudioPort/ClientAudioPortRange/ClientVideoPort/ClientVideoPortRange.

If using Office 365 / Skype for Business Online, use remote administrative access to manage these parameters, as described here:
[Links to Schertz blog and Microsoft documentation]

Citrix RealTime Optimization Pack 1.8 supported only the legacy parameters ClientMediaPort and ClientMediaPortRange. It was possible to configure the port range for media, but not possible to configure separate port ranges for audio and video.

The RTOP also supports DSCP marking for media packets. This provides another solution for QoS. For Windows this is possible by pushing out QoS policies to the endpoints. For Linux and Mac OS X, we provide registry settings that need to be applied in the user’s profile on the server.

Remote Access

[Link to Citrix support article]

The HDX RTME uses Microsoft Edge servers only for media connectivity, i.e. to obtain ICE candidates using STUN and TURN protocols during call setup, and to relay media streams if direct connectivity is not possible. In the v2 architecture, SIP signaling is handled exclusively by the Skype for Business client on XenApp/XenDesktop.
Delivering Microsoft Skype for Business to XenApp and XenDesktop Users

Microsoft Lync VDI 2013 plugin

This is a v1 approach from Microsoft aimed at avoiding the “hairpinning” effect and offloading the media rich Skype for Business functions to the endpoint. This method was suggested by Microsoft to be used for Lync access in a VDI scenario before the Citrix Real Time Optimization Pack 2.0 was released. It is now a Microsoft recommended best practice to use the RTOP 2.0 over the Microsoft plugin in all environments.

It is important to note that Microsoft Lync VDI 2013 plugin only supports Windows client endpoints. Unlike Citrix optimization packs there is no support for Macintosh or Linux clients. Furthermore the list of Windows OS’s supported is limited. (Source) These include:

Windows Embedded Standard 7 with SP1, Windows 7 with SP1, Windows 8, Windows 8.1 Embedded and Windows 10 Embedded

Additionally there are fewer supported options for Skype for Business delivery with the Microsoft Lync VDI 2013 plugin. VDI delivery from Windows Workstation hosts are fully supported from Microsoft. Delivery from XenApp using Windows Server 2008R2 published desktops does work successfully, and is supported by Citrix. However, this method is not supported by Microsoft. Additionally publishing Skype for Business seamlessly on XenApp does not work with the Microsoft Lync VDI 2013 plugin. The Microsoft Lync VDI 2013 plugin is supported in the following Citrix environments:

XenDesktop 5.6 with Windows 7 VDA’s for delivery
XenDesktop 7.x with Windows 7 or 8.1 VDA’s for delivery
XenDesktop/XenApp 7.x with Windows Server 2008R2 VDA’s for delivery*
XenApp 6.x with Windows Server 2008R2 VDA’s for delivery*
    *server based desktop delivery supported by Citrix but not by Microsoft

The installation and configuration procedures are as follows:

1. Ensure a supported Citrix Receiver is installed on each endpoint device.
2. Download the Microsoft Lync VDI Plugin directly from Microsoft. You will need to choose the 32 bit version for a Citrix environment.
3. Install the Microsoft VDI Plugin on all client machines that will use Lync optimization and that meet the Windows OS prerequisites stated above.
4. A Lync Server certificate must be installed on each user device as well as on the desktop hosts.
5. On Lync Server 2013, ensure that EnableMediaRedirection is set to $True for all VDI users. (see screen shot below)

![Screen Shot](image)

After connecting, one can quickly confirm that optimization is working. If it is possible to connect directly with the VDI desktop using RDP it is recommended to try this first to confirm pairing. However, if one tests with RDP, the bitness of the RDP client must be 32 bit to match the version of the Microsoft Lync VDI 2013 plugin. Obviously testing can be done directly with the Citrix Receiver. However, it is common to test with RDP when troubleshooting errors, pairing issues, or in support exercises with Microsoft.

Once connected you should see the icons at the bottom of the Lync 2013 UI to change slightly and show that pairing is complete.

![Icons](image)

If pairing does not complete for some reason the icon on the lower left will indicate no audio devices are available by issuing an exclamation icon warning. It is also common for the icon on the lower right to blink during the pairing process. If it disappears completely, pairing was unsuccessful and optimized Lync calls will not occur.

![Icons](image)

**Citrix HDX Generic Delivery**

The Generic HDX RealTime technologies for media-over-ICA provide a valuable fallback when optimized delivery of the Skype for Business client is not possible. Over the years, Citrix has introduced numerous HDX technologies to deliver a good user experience when this approach is used, such as:

- Optimized-for-Speech audio codec (quick encode, 16-32 Kbps per channel)
- Webcam Video Compression (300-600 Kbps)
- UDP/RTP Audio transport (resilient to network congestion and packet loss)
• Adaptive Display (video quality and frame rate self-adjust to the network)
• Multi-stream ICA with packet tagging (DSCP and WMM) for QoS
• Jitter buffering and echo cancellation in Citrix Receiver for Windows
• Audio plug-n-play
• Audio device routing (e.g. ringtone to speakers, audio to headset)

Go through the following pages for more information:

Special Considerations for Remote Users with NetScaler Gateway

The information about the deployment best practices for Skype for Business in environments that have NetScaler present or where NetScaler is being introduced can be found here - https://www.citrix.com/products/netscaler-application-delivery-controller/tech-info/deploy.html.


Citrix HDX Local App Access

Local App Access, a platinum edition feature, seamlessly integrates users’ locally installed Windows applications into a hosted desktop environment without changing from one computer to another.

With Local App Access, you can:

• Access applications installed locally on a physical laptop, PC, or other device directly from their virtual desktop.

Provide a flexible application delivery solution. If users have local applications that you cannot virtualize or that IT does not maintain, those applications still behave as though they are installed on a virtual desktop.
• Eliminate double-hop latency when applications are hosted separately from the virtual desktop by putting the shortcut to the published application on the user’s Windows device.

With the feature parity that we have achieved with RTOP 2.0, there are but a couple of features that necessitate the usage of the Local App Access. The 2 features are gallery view & client-side recording.

If you wish to make access of Skype for Business running on the client endpoint available for the users in the Citrix HDX session, you must enable the Local App Access feature, which is not enabled by default in the hosting and client environment.
Delivering Microsoft Skype for Business to XenApp and XenDesktop Users

There are two modes to enable the feature – Published Shortcuts or Published Application

**Local App Access – Published Shortcuts**

The entire set of shortcuts on the user’s desktop will be made available in the Citrix HDX session. Ensure that the Skype for Business shortcut is available on the user’s desktop.

The biggest challenge in delivering Skype for Business using Local App Access is that the Skype for Business client should co-reside with the Outlook client. Since in a XenApp/XenDesktop environment it is generally not desirable to install Office on the user device, this usually means configuring either a second instance of the Skype for Business client on the XenApp/XenDesktop server or an instance of the Outlook client on the user device.

Another limitation is with app sharing. While desktop sharing works fine when the Skype for Business client is delivered using Local App Access, app sharing does not work when the app is running on a different machine (i.e. not on the user device).

Follow the below steps to enable the Local App Access feature:

On the Desktop Delivery Controller, open Studio and select Policies in the left pane and select Create Policy in the Actions pane on the right.

1. **Search for Local App Access** in the search field and click **Select** for the “Allow local app access” policy.

   ![Create Policy](image)
Select the **“Allowed”** radio button and click **Ok**.

Assign the policy to the relevant delivery group or OU or the entire site based on your requirement.
In this example we set it to a particular Delivery group. Then click OK and Next.

Assign a name to the policy and Click Finish.

Once these changes are made the user will see the Skype for Business shortcut in the session and be able to launch the local instance of the app in the session.

**Local App Access – Published Application**

If you wish to make only the Skype for Business application available within the Citrix HDX session then you can follow the following steps:
On the Delivery Controller, open the Registry Editor and browse to the following path: HKLM\Software\Wow6432Node\Citrix\DesktopStudio

Add the following registry entry (of type REG_DWORD): ClientHostedAppsEnabled and add a value of 1 to enable Local App Access. (Using 0 disables Local App Access).

Restart Studio and navigate to the Applications tab of the Delivery Group that you wish to modify. Select the “Create Local Access Application” option that should have been added under the Actions pane.
Select the Delivery Group and add the path of the Skype for Business application that you can find from the Task manager by adding the command line option under the Processes tab. Click Next.

Set a name for the app short cut and a name that should be visible to admins and click Next.
Check the "Add shortcut to user's desktop" option and click Next

Click Finish
Launch the session from the delivery group to which changes were made. The app is present on the desktop.

O365 and Skype for Business

The Office 365 solution for Microsoft and Skype for Business in the office 365 suite is supported by the Citrix RTOP 2.0. The deployment method of the virtual desktop components described in this document is the same for O365 as it would do for an on premise Skype for Business deployment.


Note: that the guide is for an older version and will be updated shortly.

Please go through it for more information regarding setting up an Office 365 and Skype for Business setup with Citrix XenDesktop and XenApp.
Delivering Microsoft Skype for Business to XenApp and XenDesktop Users

Summary

There are a few ways of deploying Microsoft Skype for Business in your VDI environment:

1. Citrix HDX RealTime Optimization Pack for Microsoft Skype for Business.
2. Microsoft Lync VDI 2013 Plugin
3. Citrix HDX Generic Delivery
4. Citrix HDX Local App Access
5. O365 and Skype for Business.

We have walked through the deployment of the Citrix specific methods and pointed you to the resources for deploying the rest. The Citrix HDX RealTime Optimization Pack 2.0 for Microsoft Skype for Business greatly increases server scalability and offers zero degradation in audio-video quality and optimal network bandwidth efficiency. It is the Microsoft recommended solution for a VDI deployment. If there are Mac or Linux clients in your environment then it’s the only solution that supports them. It is jointly supported by Microsoft and Citrix.
About the authors

Scott E. Lane is a Citrix Certified Integration Architect for Virtualization, and a Citrix Certified Enterprise Engineer. The author is an eleven year veteran at Citrix, and currently the Enterprise Senior Architect for Citrix Americas.

Mayank Singh is a Citrix Certified Administrator and has been working with Citrix for 3 years. He has been in the virtualization industry for over 8 years and is currently working as a Product Marketing Manager in the Technical Marketing team for the Windows Application Delivery BU.

The concepts within have been validated through many field Proof of Concept trials by Scott and many other Systems/Sales Engineers in the Citrix Americas Geo.

Document update version 03-08-2016