



# Microsoft

## MCSE: Communication Certification Courseware

Version 2.1

[www.firebrandtraining.com](http://www.firebrandtraining.com)

## 70-336 Core Solutions on Lync Server 2013

Lync can be installed on:

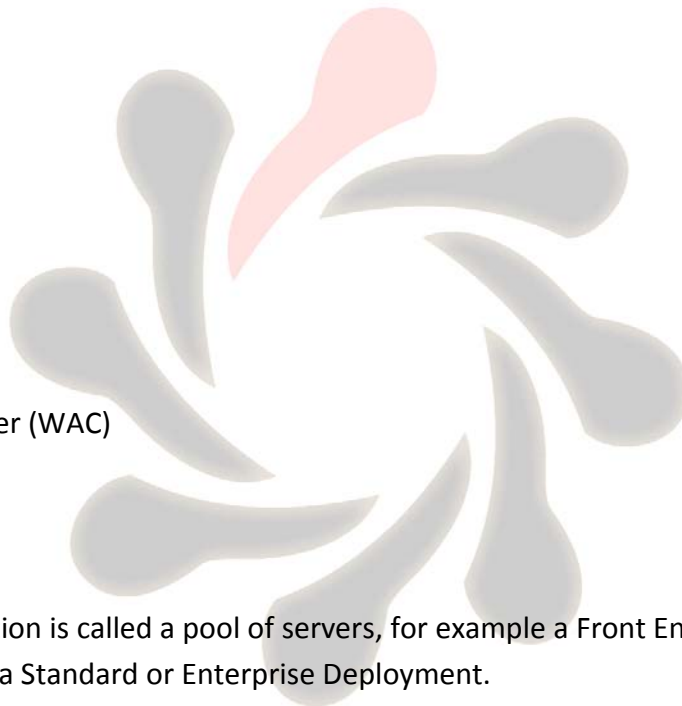
- Windows 2008R2 SP1
- Windows Server 2012

No Core Support.

SQL Server 2012 and 2008R2 are the only supported versions for Lync 2013.

All Servers running Lync Servers are called Lync Roles. There are all Lync roles you can deploy in your Infrastructure

- Front End
- Mediation
- Monitoring
- Archiving
- Persistent Chat
- Office Web Apps Server (WAC)
- Edge
- Director



Every Lync Role installation is called a pool of servers, for example a Front End Pool. The Front End Pool can be installed as a Standard or Enterprise Deployment.

A Standard Pool has the following limitations

Only one Front End Server can exist in this pool and the SQL Instance which contains your configuration databases is installed on that machine too.

Conclusion: No High Availability

An Enterprise Pool contains up to 12 Front End Servers. You are able to deploy the SQL Instance with the Configuration Databases on an existing SQL Server.

Important: One Lync Enterprise Deployment per SQL Server. SQL Clustering is not supported at the moment.

Given these two deployment scenarios for the Front End Pool it is obvious, that a Lync Infrastructure requires a lot of servers. Therefore you can collocate some of these Roles on the same server.

### Standard Pool Collocation

- Front End
- Mediation
- Monitoring
- Archiving
- Persistent Chat

If Persistent Chat is installed in a Standard Deployment, you will require another machine, because this feature comes with additional Databases but they require their own SQL Server.

### Enterprise Pool Collocation

- Front End
- Mediation
- Monitoring
- Archiving

Persistent Chat in an Enterprise Deployment requires its own server. You can use your existing SQL Server which is containing all the configuration databases, but the Persistent Chat cannot coexist on the Front End.

### Roles with no Collocation

- Office Web Apps Server (WAC)
- Edge
- Director

A Front End Enterprise Pool requires during the installation 3 FQDN's.

- Pool FQDN
- Internal Web Services FQDN
- External Web Services FQDN

In big environments it is common to use DNS Load Balancing for the Pool FQDN and a Hardware Load Balancer for the Internal - and External Web Services FQDN.

This is an example for an IP Configuration of a Lync Enterprise Deployment before DNS and Hardware Load Balancing:

- Server1.firebrand.local 10.0.0.1
- Server2.firebrand.local 10.0.0.2
- HLB.firebrand.local 10.0.0.10

DNS Configuration with DNS Load Balancing for the Pool and Hardware Load Balancing for the Web Services. The Enterprise Pool FQDN is LyncPool01.firebrand.local, the Web Services FQDN is LyncWeb01.firebrand.local.

- LyncPool01.firebrand.local HOST(A) 10.0.0.1
- LyncPool01.firebrand.local HOST(A) 10.0.0.2
- LyncWeb01.firebrand.local HOST(A) 10.0.10.10
- Server1.firebrand.local HOST(A) 10.0.0.1
- Server2.firebrand.local HOST(A) 10.0.0.2

If there is already an Enterprise Deployment and you want to change the FQDN's for the Web Services, during implementation of Load Balancing, you can change these names inside the properties of you Enterprise Pool configuration.

Lync 2013 uses RBAC to delegate administration tasks to specific users. To setup an RBAC role you need to consider three things:

- Who ?
- Where ?
- What ?

Let's put it all together:

Who ? Create a Universal Group in Active Directory Users and Computers and populate the group with the future admins.

Where ? What ? Run the Power Shell Command: New-CsAdminRole

New-CsAdminRole Example:

New-CsAdminRole -Identity „Firebrand Helpdesk“ -Template „CsVoiceAdministrator“ -ConfigScopes „Site:London“

New-CsAdminRole has 3 scopes

- Global
- Site
- OU

To use Hard Phones in Lync 2013, the first thing you need is an Enterprise Voice enabled user with a valid line URI. A DHCP Server is required to provide the settings to the phones during boot. You can add these options manually or you can use the DHCPUtil.exe tool. There are the required DHCP Options for Lync Phones:

DHCP Options for Lync Phones:

- 42 Time
- 43 Certificate Provisioning URL
- 120 Sip Server

Enterprise Voice function examples:

A Dial in Meeting number requires a Region configured in the DialPlan.

- A user dials the number 122 and the call must be routed to a phone with the extension 0911 is a Normalization Rule.
- If a user dials 0911 the call must be routed to the phone at the security desk is a Normalization Rule as well.
- Forwarding a call to the security number in a specific office only can be accomplished with a contact object.
- The security phone must be able to forward calls only to the emergency number is a voice policy.

There are a lot of different Lync Clients:

- Lync Mobile
- Lync Desktop Client
- Lync Basic Client
- Lync Attendant
- Lync Attendee

You can even deploy Lync in a Virtual Desktop Environment running on Citrix Xen Desktop or Microsoft RDS.

This setup requires the following components:

On the Thin Clients:

- Windows 8 RDS Client
- Microsoft VDI plug-in

VDI Template

- Lync 2013

All Lync Clients, except phones are using DNS Records for configuration. There is the list and the order the clients tries to find the DNS Records:

lyncoverinternal	HOST(A)	Autodiscover service on the internal Web Services
lyncover	HOST(A)	Autodiscover service on the external Web Services
_sipinternaltls._tcp	SRV	Record for internal TLS connections
_sip._tls	SRV	Record for external TLS connections
sip	HOST(A)	Record for the Front End Pool or Director on the internal network, or Access Edge Services when the client is external

The settings above are valid for all clients except phones and the Lync Windows Store App. There are the settings for the Store App:

lyncoverinternal	HOST(A)	Autodiscover service on the internal Web Services
lyncover	HOST(A)	Autodiscover service on the external Web

The Lync Address Book is stored on the Lync File Share. When you are connecting with a Lync Client it can take between 1 or 60 minutes, before the client starts downloading the address book using the Lync Web Services. you can force that mechanism too:

- On the Lync Server run Set-CsUser to make the bulk user changes
- Run Update-CsAddressBook to Update the Address Book.
- On the Client delete the GalContacts.db file and sign back in

In Lync we differentiate between 2 kinds of policies. The Inband Provisioning and the Bootstrap Policy. The Bootstrap Policy is an Administrative Template for a GPO and the Inband Provisioning Policies are configured inside the Lync Control Panel.

To administer your Lync Client you can use the Client Policy. Within that Policy you can for example disable emoticons, deny file transfer, enable hotdesking or even customize your help menu.

Example to customize your Client Help Menu using a Client Policy:

```
Set-CsClientPolicy „MyClientPolicy“ -CustomizeHelpURL „http://web01.firebrand.local/lynchelp.htm“  
-EnableEnterpriseCustomizedHelp $true
```

You can even assign a Client Policy to a Common Area phone. The most common scenario is the hotdesking feature. To enable hotdesking for a Common Area phone:

- Create a per-user client Policy
- Assign the policy to the phone object

You can configure all Inband Provisioning Policies with Power Shell too:

- Legal disclaimer is added to all meeting invitations Set-CsMeetingConfiguration
- Ensure that only Lync 2013 clients can login Set-CsClientVersionPolicy
- Meeting organizers can manually admit remote attendees Set-CsMeetingConfiguration

The Meeting Configuration Policy and the Conferencing Policy can both be used to configure PSTN and Web Conferencing settings. The Web Conferencing Policy configures everything before the conference starts and the Conferencing Policy configures all the settings and variables inside of a meeting for example Pools, File Upload, Non Enterprise Voice enabled users call back, etc. The Meeting Configuration Policy can be used for example to add a legal disclaimer or a Help Desk URL to your meeting website.

To Provide External Connectivity you need to install an Edge Server with is as discussed a Lync Role and a Reverse Proxy, TMG or ARR for example. If you want to add an additional layer of security you can deploy a Director as well.

The Director resides in your Intranet. The Edge Server resides in your DMZ and must have to network cards configured. This server hopefully is not part of your domain, so we need to create the A record on the internal DNS manually and also append the DNS Suffix in the advanced configuration tab in the computer settings.

To deploy an Edge server in your topology do the following:

- On the Front End Server modify the topology by using the Topology Builder and add the Edge Pool.
- Publish the topology.
- Run Export-CsConfiguration and copy the zip file to the Edge server.
- Run the Server Deployment Wizard and select the zip file.

When you have installed an Edge Server and you see a replication issue when typing Get-CsManagementSotreReplicationStatus, it is mostly a Certificate issue.

Deployment Scenarios for Edge:

If you are using a Hardware Load Balance, NAT is not allowed. NAT Scenario with 2 Edge Servers using DNS Load Balancing:

- Assign one Public IP to each Edge service on each Edge Server.

Scenario with 2 Edges and Hardware Load Balancer:

- Assign one public IP to each Service on each Edge Server and 3 Public IP addresses on the Hardware Load Balancer.

The most common deployment scenario is to use 3 public ip addresses for the Edge Services. There are 3 SRV records which must be set on your providers DNS for example GoDaddy.

_sip._tls	443	<a href="http://sip.yourdomain.com">sip.yourdomain.com</a>
_sipfederationtls._tcp	5061	<a href="http://sip.yourdomain.com">sip.yourdomain.com</a>
_xmpp-server._tcp	5269	<a href="http://sip.yourdomain.com">sip.yourdomain.com</a>

Given the following situation:

Sip.firebrand.com	Access Edge Service	133.102.2.1
webconf.firebrand.com	Web Conferencing Edge Service	133.102.2.2
av.firebrand.com	A/V Edge Service	133.102.2.3



If you want to enable Federation you have to open the following ports:

sip.firebrand.com 443 / 5061

wc.firebrand.com 443

Corresponding SRV records for Federation:

_sip._tls	443	<u><a href="https://sip.firebrand.com">sip.firebrand.com</a></u>
_sipfederationtls._tcp	5061	<u><a href="https://sip.firebrand.com">sip.firebrand.com</a></u>
_xmpp-server._tcp	5269	<u><a href="https://sip.firebrand.com">sip.firebrand.com</a></u>

For Peer-to-Peer calls between remote and internal users you need the following services:

For Peer-to-peer calls between Remote and internal users you need the following services:

- Access Edge Service
- A/V Edge Service

Chat Mobile devices:

- Reverse Proxy

There are 3 simple URL's. To keep the entry list in your certificate small for the meeting URL's you can change the simple URL schema.

For example you got 4 companies:

- Adatum
- Firebrand
- Contoso
- Northwind

This is best practice to keep the amount of entries small in your certificate

- <https://meet.contoso.com/adatum.com>
- <https://meet.contoso.com/firebrand.com>
- <https://meet.contoso.com/contoso.com>
- <https://meet.contoso.com/northwind.com>

To deploy mobility run the following commands:

- New-CsAllowedDomain
- New-CsHostingProvider
- Set-CsPushNotificationConfiguration

To ensure the proper functionality inside of conferences you can for example low the video quality or change the used codec etc. Lync can configure these features in Lync with the following functionalities:

- CAC
- QoS
- Conferencing Policy

A Response Groups consists out of 3 components:

- Agent Group
- Queue
- Workflow

For Agents Groups there are 2 Participation Policies:

- Formal
- Informal

If you are informally signed in into a group you as an agent cannot remove yourself from the group from the Lync Client.

You can integrate Exchange 2013 with Lync 2013. This provides the archiving feature and the Unified Contact Store. To Integrate Lync with Exchange:

- `.\Configure-EnterprisePartnerApplication`      On Exchange 2013
- `New-CsPartnerApplication`                      On Lync 2013

To Enable to Unified Contact Store, run the 2 commands from above and one additional command:

- Set-CsUserServicesPolicy On Lync 2013

You can use older Lync and Outlook Clients to access the Unified Contact Store. The only Clients who can modify objects in the Contact Store are:

- Lync 2013
- Outlook 2013
- Outlook Web Access 2013

A Persistent Chat Server Pool can have until to 8 servers, but there can be just 4 active at max. Before you reach 4 servers all of them are active. One server can handle 20.000 concurrent connections. There is no quorum vote as it is on the Front End Pool. This means to provide the smallest installation with HA you need to have 2 servers. For 50.000 users for example, you need 4 Chat servers.

There are 4 different chat room types

Open	Everybody can search and enter the room
Closed	Everybody can search for the room but only assigned people can access
Secret	Same as closed but he is not appearing in the searches
Auditorium	Same as secret but just the presenters can talk

Create an Auditorium using Power Shell Example:

```
Set-CsPersistentChatRoom -identity chatpool.fb.com\techtalk -Presenters  
@{add="sip:jens@fb.local"} -Type Auditorium -Members @{add="sip:chris@fb.local"}
```

Failover Clustering is with the Lync 2013 not the best choice for Redundancy anymore. Instead you can use a Mirror. But be sure that the Editions for the servers except the witness are the same. SQL 2008 is not supported. For Example:

```
SRV1 SQL Server 2012 Standard  
SRV2 SQL Server 2012 Standard  
SRV3 SQL Server 2008 R2 Witness
```

In this example we can setup the mirror with SRV1 and SRV2 and use SRV3 as the mirror.

To create a Front End Pool with Database Mirroring:

- From the Topology Builder create a new Enterprise Pool enabling mirroring and select the witness.
- From the Topology Builder, publish and create the Databases

You have two paired pools:

SRV1 pool1.fb.local Front End Server

SRV2 pool1.fb.local Front End Server

SRV3 pool2.fb.local Front End Server

SRV4 pool2.fb.local Front End Server

SQL1 pool1.fb.local SQL Server (Principal,Primary)

SQL2 pool1.fb.local SQL Server (Mirror)

SQL3 pool2.fb.local SQL Server

You configure pool pairing and SQL Database mirroring. SQL 1 fails. You discover that the failover has failed you need to run: `Invoke-CsDatabaseFailover -PoolFQDN pool1.fb.local -DatabaseType User -NewPrincipal Mirror`

Configure Front End Pool Pairing:

- In the Topology Builder associate the backup pool
- Publish the Topology
- Run the Bootstrapper on both servers and start the Lync Server Backup Service
- Run `Invoke-CsBackupServiceSync`

You have two Enterprise Edition Pools, Pool 1 and Pool 2 in the main data center. In a remote data center you have pool 3 deployed. To ensure that all users can access Lync Server if a data center fails do the following:

- Create a new pool named pool 4 in the branch data center. Pair Pool 2 and 4. Pair Pool 1 and Pool 3 too.

When you have a branch Office with for example 300 Users and you need to provide basic Lync with a PSTN Gateway and you want to reduce costs use a Survivable Branch Appliance.

To back up the Central Management Store Database File open SQL Management Studio and backup the XDS database.

Important Service for Backup and Recovery:

The Lync File Transfer Agent is responsible for replicating the CMS to all your servers in the topology. When `Get-CsManagementReplicationStatus` displays the `UpToDate` status "false" go to the FrontEnd which is hosting the CMS and the first service you need to check is the File Transfer Agent.

When a Lync server was offline for some time and you want to force replication when he is back online, run `Invoke-CsManagementStoreReplication` from him.

You got a 2 Lync Servers paired together. LyncF1 hosts the CMS and it fails caused by a hard drive problem. The CMS fail over to the second server. When you have resolved the hardware problem on FE1 to fail-back the CMS do the following:

- `Install-CsDatabase -CentralManagementDatabase -sqlserverfqdn lyncf1 -SQLInstanceName RTC -clean`
- `Invoke-CsPoolFailback -PoolFQDN lyncf1`
- `Move-CsCentralManagementStore`

Lync Monitoring provides a lot of reports to get information out of your Lync infrastructure. To monitor the codec a user is using in audio conferences you have to deploy a monitor server first. Then check the User Activity Report in the section Call Diagnostics. To get a list of all your phones with firmware etc, use the Phone Inventory Report.

You can use Synthetic Transactions to perform tests against your Lync infrastructure. The first step is to create dummy users and Lync enable them. Then use the `New-CsHealthConfiguration` command to enable these two users for testing. Then you can run all the test commands. The most common ones are:

<code>Test-CsRegistration</code>	Client Sign in
<code>Test-CsGroupIM</code>	Communication when using IM Conferencing
<code>Test-McxP2PIM</code>	Connectivity when using mobile clients

Lync 2013 supports the integration with Microsoft System Center Operations Manager (SCOM). Besides an existing SCOM Infrastructure you need to provide a computer called the watcher node who probes the Lync infrastructure against the Thresholds you have configured.

In this example we call the watcher node Monitor 1. You have to do these tasks on Monitor 1:

- Install SCOM Agent
- Run watchernode.msi on Monitor 1.
- Install Lync Core on Monitor 1

The Lync Centralized Logging Agent collects all the data based on a preconfigured scenario from your Lync Servers and puts it into a log file you can then read with snoopers.

This service uses the port range from 50001 - 50003 TCP outbound, so open this for your Edge Servers in the DMZ. There is a Power Shell and a DOS version of this tool.

DOS Version:

Using Clscontroller.exe in the AllwaysOn Scenario:

- Clscontroller.exe –start
- Login with the client
- Clscontroller.exe –stop
- Clscontroller.exe –flush
- Clscontroller.exe –search

PowerShell Version:

- Start-CsClsLogging
- Reproduce the problem
- Stop-CsClsLogging
- Search-CsClsLogging
- Open the file in snoopers

## Lync 2010 to Lync 2013 Migration

Front End Setup:

Prepare Active Directory  
Deploy Front End Server

User Admin:

Move-CsUser -MoveConferenceData

Get-CsUser -OnLyncServer | Move-CsUser -Target ... is moving the users too

You can move your users in the Control Panel too. During migration always use the 2013 tools like Topology Builder and Control Panel.

Move CsConferencingDirectory to move the hive over the 2010 Lync Pool to the new 2013 pool.

Move existing Response Group Configuration to the new Lync Pool. Response Groups can only be moved in one operation. The Power Shell Command is: Move-CsRGSConfiguration.

### **Move the Central Management Store during a Lync migration:**

- On the 2013 run Install-CsDatabase
- On the 2013 run Enable-CsTopology
- On the 2013 run Move-CsManagementServer

Decommissioning old Front End Server

### **Office Communication Server 2007 R2 to Lync 2013**

The OCS 2007 Client cannot join conferences hosted on a Lync 2013 without installing additional Software. One option is upgrade to Lync 2010.

Presence can be disabled in a mixed environment with OCS and Lync via Client Policy.

If a user has problems with scheduling meetings in Outlook or doesn't have Outlook he can use the Web Scheduler. To access open: <https://pool.firebrand.local/scheduler>.

You have an existing OCS 2007R2 environment and you want to migrate to 2013. You install the new server. Then you have to perform the following actions:

- Prepare Active Directory
- Create and Publish the Topology
- Install Lync on the new Server
- Merge and publish the Topology

To decommission an OCS Deployment after moving the users do the following:

- On the Lync 2013 move the Meeting Directories
- Deactivate all the OCS components on the OCS Server
- On the OCS uninstall all OCS Software
- On The Lync 2013 remove the BackCompSite

### **Power Shell commands overview from the last 3 days:**

- Set-CsCDRConfiguration configures the CDR Parameters on the Monitoring Server flush interval etc.
- Set-CsConferencingConfiguration configures the client audio port range for meetings.
- Invoke-CsManagementStoreFailover fails over the CMS, when Pool Pairing is configured.
- Export-CsUserData is backing up the user database.
- Export-CsRgsConfiguration is backing up the Response Group configuration database.
- Invoke-CsManagementServer Failover is for failover the Central Management Store when pool pairing is configured.
- Set-CsCdrConfiguration defines parameters for CDR Monitoring.
- Set-CsConferencingConfiguration defines Port Range for Conferencing
- Set-CsMobilityPolicy defines policies for mobiles for example just allowing video calls when connected to a WAP

### **Training scenario for the exam**

The lowest client version for joining Meetings with limited functionality is OCS Communicator 200 R2 on Windows XP.

Give the following scenario with this requirements:

- Presence and Chat
- QoE
- Small Costs

You have to deploy a Standard Server and an additional SQL Server Database.



## 70-337 Enterprise Voice & Online Services with Lync Server 2013

### Enterprise Voice and Exchange

To activate a user for Enterprise Voice, use the Lync 2013 Control Panel or Power Shell, Set-CsUser.

The DHCPUtil.exe is not running on a 32 Bit DHCP. Run the DHCPUtil on the Lync Server. Copy the runconfigsript to the 32Bit DHCP and run it there.

If a manager must get calls even if he is on DnD configure a private line

Import a Certificate in the Exchange procedure:

- Import the Root Ca Cert
- Generate a certificate request
- Process the certificate request to CA1
- Run Import-Exchange Certificate
- Run Enable-Exchange Certificate

If you want to deploy on Premise Lync with Exchange UM Integration:

- Run ExchUcUtil.ps1 on the Exchange Server
- Run OcsUMutil.exe on the Front End Server

Recreate Attendant Contact in On Premise Exchange:

- Run Exchucutil.ps1
- Run OcsUmUtil.exe

Lync on Premise and Exchange 2013 on Premise Dial Plan security configuration:

- URI Type: SIP URI
- Security: Secured

With Set-UmDialPlan you can permit a user to change his call answering rule.

You need to configure a personal auto attendant for the new employees in Exchange 2013, do the following:

- Run New-UMCallAnsweringRule

You can allow or deny the use of the call answering rules inside of a dial plan.

In Exchange 2013 each language for UM requires his own access number and Dial Plan.

You should implement 2 CAS Servers and a Mailbox DAG in Exchange 2010 to provide HA.

You need to ensure that only the users in the research department can use the Play on Phone feature in Exchange 2010 SP2, The current permissions are set to allow all. Configure the following:

- Modify DialPlan.
- Create a new hunt group.

Policy Examples Exchange:

A user must be able to use the play on phone feature  
Administrators must be able to configure calls to be redirected  
A User must be prevented from navigating with Voice

UmMailboxPolicy  
DialPlan  
UmMailboxPolicy

To deploy E911:

- Configure the location database
- Create location policies.
- Create Voice Route (PSTN Usage)

As part of the E911 configuration run

- New-CsVoiceRoute
- Set-CsPSTNUsage

You plan to deploy E911 services. You need to prevent the users from being prompted for their location information when they sign in to Lync on the internal network. Do the following:

Change your E911 configuration and run Publish-CsLisConfiguration

Create Announcement

- Create the mp3 files
- Run Import-CsAnnouncementFile
- Run New-CsAnnouncement
- Create unassigned number range

Assign announcement to unassigned numbers:

- Import 2 announcement files
- Create 2 announcements
- Create number ranges
- Change user URI

If you got an IP PBX which is not supporting mediation bypass you can deploy an own Mediation Server pool with 2 servers

You configure all users to use the following LineURI:  
tel:+12345 <4digitextension>;ext=<4digitextension>

You need to ensure that the IP-PBX only receives the four-digit extension of a user when a call is placed to the IP-PBX. To configure this, modify the trunk configuration.

An outbound translation rule can be used to display the companies main number for example for meetings.

To recover response groups:

- Run Export-CsRgsConfiguration
- Restore Central Management Store on new Server
- Run Import-CsRgsConfiguration
- Instruct the Agents to Sign in

Response Group Managers can configure properties of existing response group agents and groups. Response Group Administrator can edit existing and create and delete new objects inside the Response Group Management.

Activate DiffServ:

- Set the Differentiated Services Code Point (DSCP) values used for audio as a priority
- Configure Lync 2013 to use a specific port range for audio.
- Configure a QoS policy to use a specific port range for audio.

Tools Overview

Limit the amount of bandwidth for audio and video	CAC
Reduce traffic on Mediation Server	Mediation Bypass
Prioritize Lync Audio traffic	DiffServ

Have purchased a new Gateway for your company. You have created a DNS Record called mg.fb.com On mg.fb.com, you generate and install a certificate from an internal certification authority (CA).

You need to ensure that Lync Server 2013 can use both PSTN gateways to make calls on the PSTN.

Follow these steps:

- From the Topology builder create a new PSTN Gateway
- Publish
- Create an new Trunk configuration for the Gateway and configure the encryption support with Required.
- Add the trunk to the voice route.

Sites can be configured in the Network Configuration Section in the Control Panel.

Set-CsUnassignedNumber can be used to configure an announcement for an unassigned number block.

To deploy call park:

- Create a Call Park orbit.
- Modify the global voice policy.

Office 365 and External Access

Lync Online is not supporting any kind of Enterprise Voice Features and room based video systems.

Ports:

XMPP Requires two Ports:

- 5269 on your Firewall facing the intranet
- 23456 on your Firewall facing the DMZ

Port Ranges required for PowerPoint Sharing and Desktop Sharing during conferences:

- https 443



- Audio Port Range: 49152 – 57500
- Video Port Range: 57501 – 65535

To test the connectivity and quality to Lync Online, use the TRIP Tool.

Tools Overview:

View Lync Logs	Snooper
Testing external DNS	Remote Connectivity Analyzer
Test Lync Online Quality	TRIP Tool
Collect Client System Info	MOSDAL Tool

Outlook can be used to schedule meetings in Lync Online.  
For Lync Online SSO deploy

- ADFS RTW
- DirSync

You need to enable Microsoft Lync Online to meet the following requirements:

- Users must use the same credentials for on-premises Exchange Server and Office 365.
- Users must be able to invite other company users to online meetings by using Microsoft Outlook 2010:
- Deploy ADFS and DirSync. Install Lync Client

You need to ensure that you can use Unified Messaging (UM) features between the Lync Server 2013 infrastructure and the Office 365 subscription. Configure these Parameters:

- In the public DNS zone, create a service location (SRV) record named [\\_sipfederationtls.\\_tcp.fb.com](#)
- From the Lync Server 2013 Control Panel, add a hosting provider named [exap.um.outlook.com](#).
- From the Lync Server 2013 Control Panel, click the Enable Communications with Federated Users check box.

Manage phone numbers in Lync Online is on Premise AD Users and Computers.

Setting up federation with Office 365

- New-CsHostingProvider
- New-CsAllowedDomain

Lync Mobile and Legacy Client DNS Configuration for Office 365

lyncover.fb.com	<u><a href="#">webdir.online.lync.com</a></u>
Sip.fb.com	<u><a href="#">sipdir.online.lync.com</a></u>

To enable Lync Online Users to communicate with other platforms like MSN, turn on Public IM Connectivity

To configure Hosted Exchange UM, run New-CsExUmContact on the Lync on Premise. For example:



```
new-csexumcontact -displaynumber +44203XXXXX -sipaddress  
SIP:EX_UM_365_SA@yourdomain.com -registrarpool yourpool01.yourcompany.com -ou  
"OU=User,DC=yourcompany,dc=com"
```

After been migrated from Lync 2013 to Lync Online you can't connect. To fix the problem delete the EndPointConfiguration.cache file from your profile.

You need to ensure that the pilot users can perform the following actions:

- Join meetings.
- Use a SIP address that has the @online.contoso.com suffix.
- Communicate with users who are hosted on Lync Server 2013.

Configure:

- From the Lync Server Control Panel, update the user SIP addresses of the users to @online.contoso.com.
- From the Lync Online Control Panel, set up federation to contoso.com. From the Lync Server Control Panel, set up federation to online.contoso.com.

For Office 365 you can configure the following options in the following tools:

- |   |                  |
|---|------------------|
| • Configure hosted voice mail policy            | Lync Server 2013 |
| • Set external Access number for Voicemail      | Exchange Online  |
| • Enable a user for Unified UM                  | Exchange Online  |
| • Configure contact object for hosted voicemail | Lync Server 2013 |
| • Define UM IP Gateway                          | Exchange Online  |

New-CsSipProxyCustom is used to assign a custom realm (SIP Communications Service) to a collection of proxy configuration settings. Realms (also known as protection domains) are used to authenticate user credentials during logon.

You got an Office 365 subscription. To setup dial in conferencing with Lync Online, set up an account with a third-party audio conferencing provider.