



Lync Server 2010 Troubleshooting

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About Me

- Been working at Atea Norway since 2006
- Focus - Microsoft Unified Communication
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#NIC2012
#Lync



Troubleshooting

- Understand the symptoms
- Narrow the scope
- Select appropriate tools
- Collect and analyze data



Understand the symptoms



Understand the symptoms Understand the technology



Understand the symptoms Understand the technology

How does Lync SIP work?



Session Initiated Protocol

- Session Description Protocol (SDP)
- Real-Media Transport Protocol (RTP)
- Real-Media Transport Change Protocol (RTCP)



Content of Invite

- From:.....Tag
- To:.....Tag
- CallID:
 - Is always unique, can sort using CallID
- Contact:
 - Show actual source
- Via:
 - Every SIP client adds his FQND
 - Client, Front End, Edge



Symptoms?

- P2P Media connectivity failures
- One way audio



Understand the symptoms Understand the technology

How does Lync Edge work?



Interactive Connectivity Establishment (ICE) Protocol



RTP in NAT environment

- ICE is the methodology can be used to discover the optimal means of connectivity
 - Use TURN as a last resort only
 - Preferring other mechanisms
 - STUN
 - Direct connectivity



Why is this interesting?



Two Scenarios:

- You hear a delay before you can establish internal Lync calls
- Users between two subnets can not Lync each other



Understand the symptoms

Closing note



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Narrow the scope



Voice Quality Issues

Call Reliability

Audio Quality

Dropped Calls

Failed Calls

Broken Up Audio

Delayed Audio

Distorted Audio

Low Volume

Noise

Echo

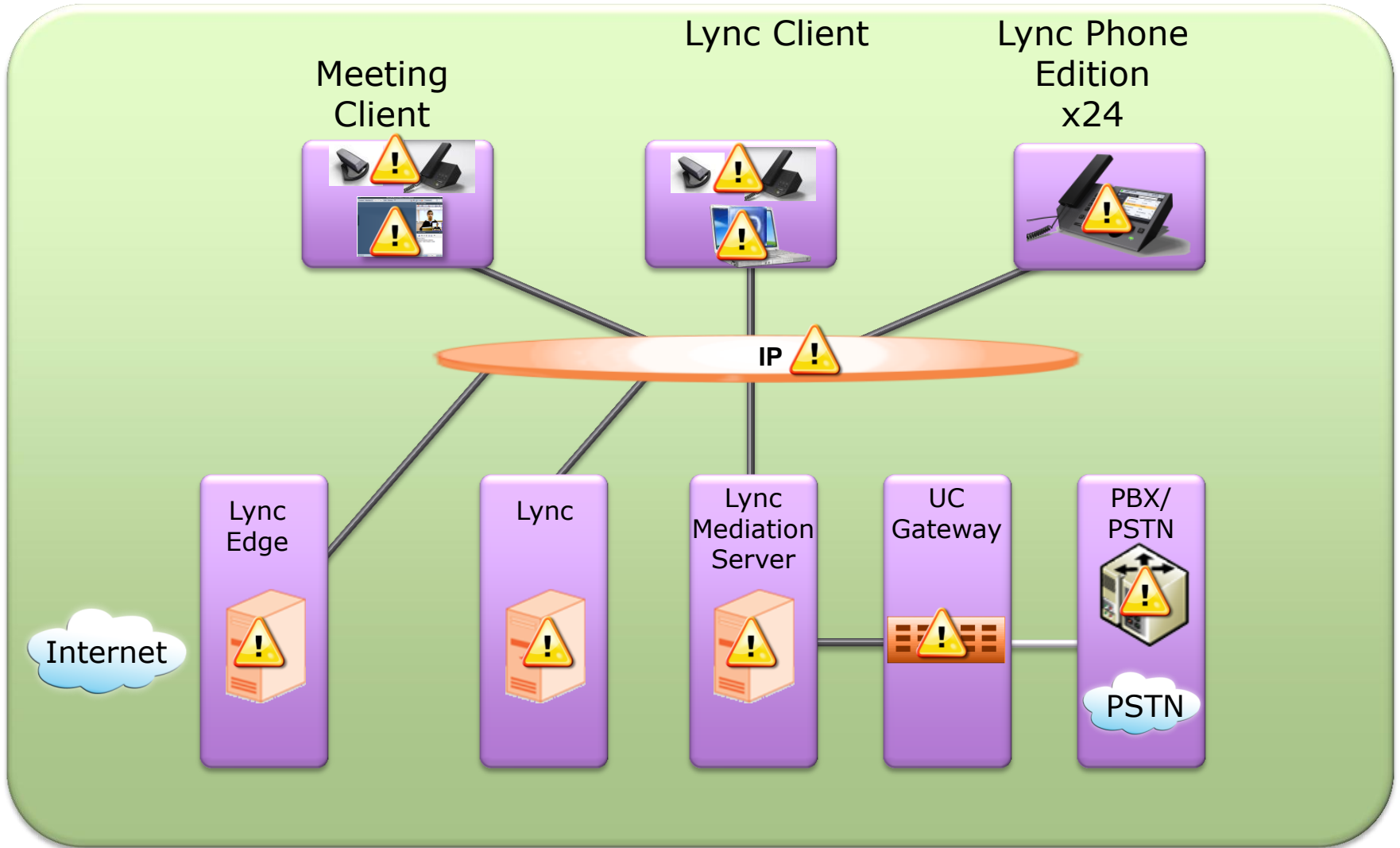
One Way Audio

Network

Core Performance

Gateways

Devices





Know when you have a Windows Server problem

- **Event Viewer**
- Security logs
- Process Monitor
- Task Manager
- Resource Monitor
- **Performance Monitor**
- NetStat

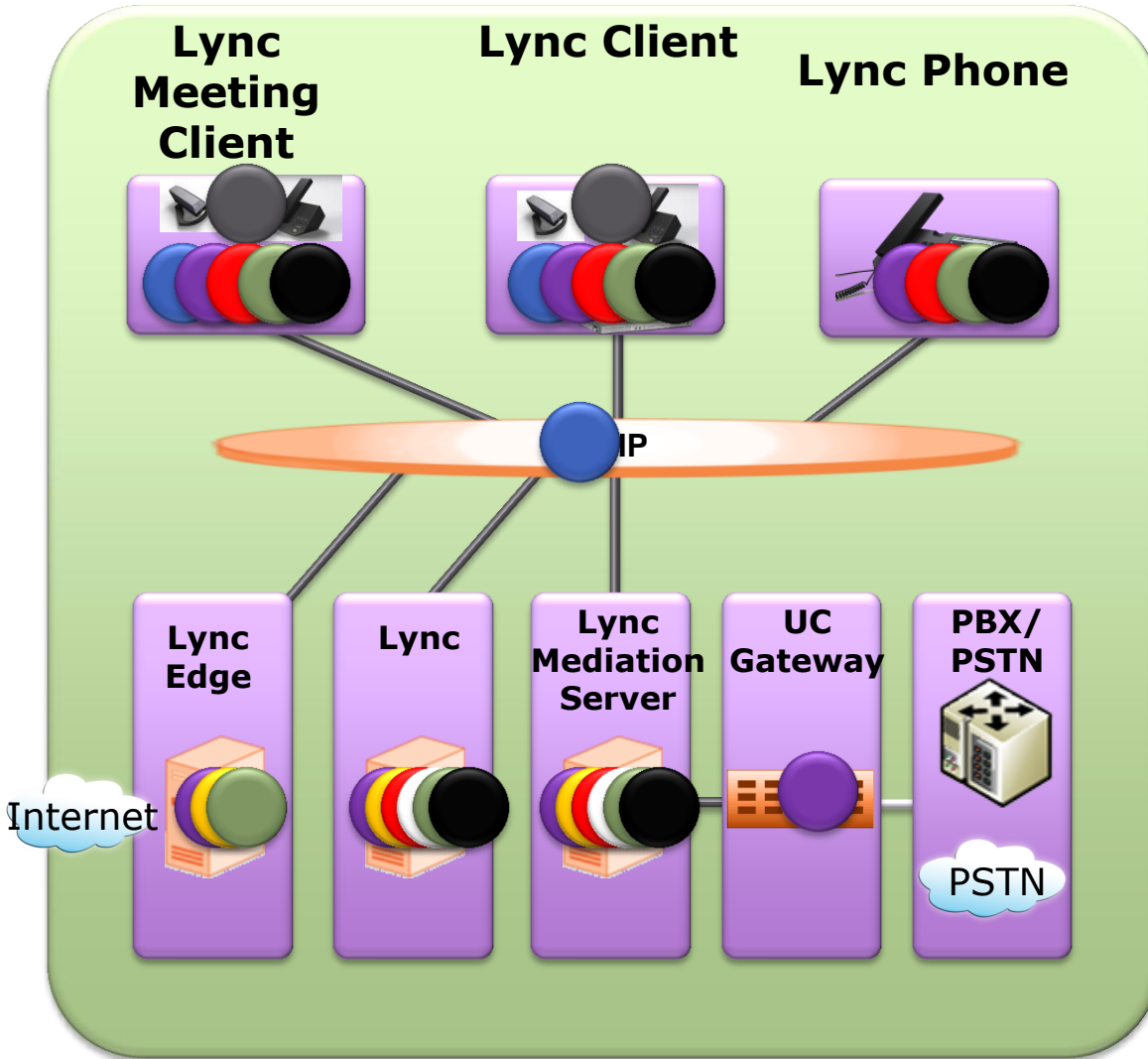





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Select appropriate tools



-  A/V Tuning wizard
-  Audio Test Service
-  Logs
-  Logging Tool
-  RouteHelper
-  Synthetic Transactions
-  SCOM
-  Snooper
-  (QoE) Monitoring Server



Don't forget the Lync Server Best Practices Analyser



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Collect and analyze data



Snooper

- Part of the Lync Server Resource Kit tools
- Shows sip messages from Lync 2010 debug logs captured with Lync Logging Tool

```

OCSLogger_2010_12_09_07_40 - Notepad
File Edit Format View Help
(PowerShell,ocscmdlet.ProcessRecord:ocscmdlet.cs(163))(0000000030E75A9)Cmdlet Enable-
CsUser:ProcessRecord
TL_INFO(TF_COMPONENT) [0]023C.16D4::12/09/2010-15:40:03.703.000003e8
(PowerShell,ADTask<TObject>.GetDataObjects<TDataObject>:adtask.cs(501))(0000000030E75A9)
ADTask:GetDataObjects
TL_VERBOSE(TF_COMPONENT) [0]023C.16D4::12/09/2010-15:40:03.727.000003e9
(PowerShell,ocscmdlet.writeverbose:ocscmdlet.cs(405))(0000000030E75A9)
CN=Administrator,CN=Users,DC=contoso,DC=net
TL_INFO(TF_COMPONENT) [0]023C.16D4::12/09/2010-15:40:03.775.000003ea
(PowerShell,GenericSetADTask<TDataObject>.GetCurrentObjectScope:genericsetadtask.cs(51))
(0000000030E75A9)objectId= CN=Administrator,CN=Users,DC=contoso,DC=net
TL_INFO(TF_COMPONENT) [0]023C.16D4::12/09/2010-15:40:03.776.000003eb
(PowerShell,GenericSetADTask<TDataObject>.GetCurrentObjectScope:genericsetadtask.cs(53))
(0000000030E75A9)Current object OU = CN=Users,DC=contoso,DC=net
TL_INFO(TF_COMPONENT) [0]023C.16D4::12/09/2010-15:40:03.777.000003ec
(PowerShell,ocsruntimeconfiguration.IsCmdletAllowedInScope:ocsruntimeconfiguration.cs
(358))(0000000019759D8)Applicable number of ConfigScopes:1, userScopes:1 for the cmdlet:
Enable-Csuser
TL_VERBOSE(TF_COMPONENT) [0]023C.16D4::12/09/2010-15:40:04.112.000003ed
(PowerShell,ocscmdlet.writeverbose:ocscmdlet.cs(405))(0000000030E75A9)
CN=Administrator,CN=Users,DC=contoso,DC=net
TL_ERROR(TF_COMPONENT) [0]023C.16D4::12/09/2010-15:40:04.440.000003ee
(PowerShell,ocscmdlet.writeError:ocscmdlet.cs(455))(0000000030E75A9)
ErrorId=EnableCsUser,Microsoft.Rtc.Management.AD.Cmdlets.EnableCsUserCmdlet,ErrorMessage=Ac
tive Directory operation failed on "DC.contoso.net". You cannot retry this operation:
"Insufficient access rights to perform the operation
00002098: SecErr: DSID-03150E8A, problem 4003 (INSUFF_ACCESS_RIGHTS), data 0".You do not
have the appropriate permissions to perform this operation in Active Directory. One possible
cause is that the Lync Server Control Panel and Remote windows Powershell cannot modify
users who belong to protected security groups (for example, the Domain Admins group). To
manage users in the Domain Admins group, use the Lync Server Management Shell and log on
using a Domain Admins account. There are other possible causes. For details, see Lync Server
2010 Help..StackTrace= at
Microsoft.Rtc.Management.AD.GenericSetADTask`1.InternalProcessRecord()
at Microsoft.Rtc.Management.AD.GenericSetADObjectTask`2.InternalProcessRecord()
at Microsoft.Rtc.Management.AD.Cmdlets.EnableCsUserCmdlet.InternalProcessRecord()

```



Synthetic Transactions

- Simulates end-to-end transactions as if performed by actual users
- Get available test cmdlets
 - `Get-Command Test-Cs* | Format-Table -Property Name,Definition -Auto`
- Some test cmdlets needs users with credentials
 - Use `New-CsHealthMonitoringConfiguration` to store test users for a spesific pool
 - `New-CsHealthMonitoringConfiguration -Identity -TargetFqdn pool01.lyncclab.org -FirstTestUserSipUri "sip:user1@lyncclab.org" -SecondTestUserSipUri "sip:user2@lyncclab.org"`
 - Then you only need to specify `TargetFqdn` when running the cmdlets
 - `Test-CsPresence -TargetFqdn pool01.lyncclab.org`



Tool – Topology Validator

Purpose – Provides Administrators a way to Provide a quick check on the state of the Environment.

Location – Lync Resource Kit Tools

```
=====
TEST RESULTS
=====
Service Installation Check Pass
dcpwplync01. [REDACTED]
  rtcsrc Running
  rtcimcu Running
  rtcdatacu Running
  rtcmeetingcu Running
  rtcasmcu Running
  rtcavmcu Running
  rtcmedsrv Running
  master Running
  fta Running
dcpwplync02. [REDACTED]
  rtcsrc Running
  rtcimcu Running
  rtcdatacu Running
  rtcmeetingcu Running
  rtcasmcu Running
  rtcavmcu Running
  rtcmedsrv Running
  master Running
  fta Running
dcpwplync03. [REDACTED]
  rtcsrc Running
  rtcimcu Running
  rtcdatacu Running
  rtcmeetingcu Running
  rtcasmcu Running
  rtcavmcu Running
  rtcmedsrv Running
  master Running
  fta Running
dcpwplync04. [REDACTED]
  rtcsrc Running
  rtcimcu Running
  rtcdatacu Running
  rtcmeetingcu Running
  rtcasmcu Running
  rtcavmcu Running
  rtcmedsrv Running
```



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Location – Lync Resource Kit
Tools

```
Register Pass
Peer to Peer IM Pass
Group IM Pass
Presence Pass
Peer to Peer AV Conference Pass
AV-Conference Pass
Peer To Peer PSTN Call Fail
PSTN Outbound Call Skip
Address Book Pass
Location Policy Pass
Location Information Service Configuration Pass
Dial-In Conferencing Pass
Address Book Web-Query Pass
ClientAuth Pass
Federation NotApplicable
Phone Bootstrap Fail
```



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Test one configuration modification at a time



Questions?