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# Microsoft® Lync Server 2010 with Patton SmartNode PSTN Gateway

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## 1 Introduction

This application note is a general overview of requirements and configuration basics to interconnect Patton SmartNode VoIP Gateways and Microsoft® Lync Server 2010.

**Discussed in this document:**

- Presentation of the Patton SmartNode VoIP Gateway concept
- Basics for a simple setup
- Provide a sample SmartNode configuration file working with Microsoft® Lync

**NOT discussed in this document:**

- Detailed configuration of Microsoft® Lync Server 2010
- Detailed configuration capabilities of Patton SmartNode VoIP Gateways

For more technical details, please visit the Patton SmartNode webpage (<http://www.patton.com/smartnode>). More configuration notes, samples and manuals are available.

## 2 Supported features

Patton's SmartNode support the following Microsoft® Lync relevant features:

- REFER calls
- DNS load balancing
- Media bypass (enabled or disabled)
- Music-on-hold
- Trust/untrust mediation server

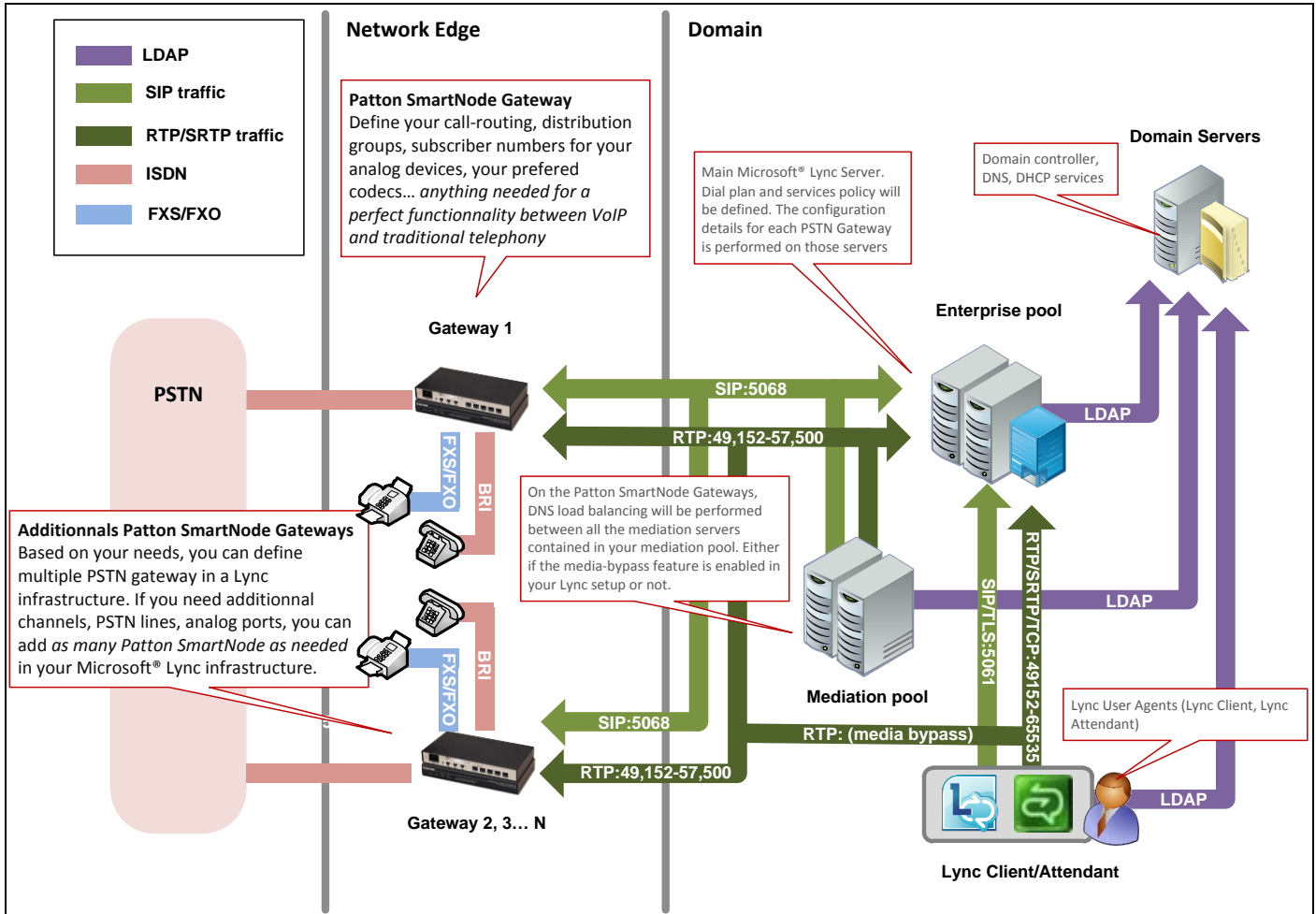
## 3 Limitations

Patton SmartNode does not support TLS or SRTP. Configure the Lync topology to use SIP over TCP to the PSTN Gateway.

## 4 Configuration

### 4.1 General setup

Here is a basic setup for a traditional telephony access along Microsoft® Lync Server 2010.



The key points for a good configuration are separated as follows:

#### Patton SmartNode

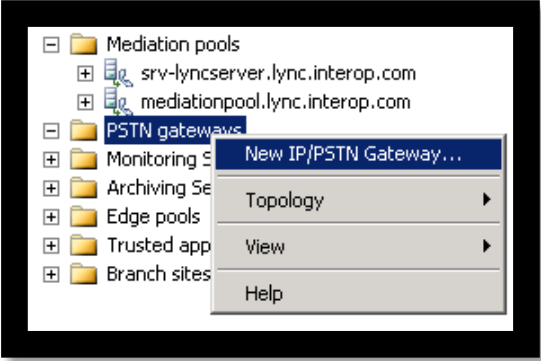
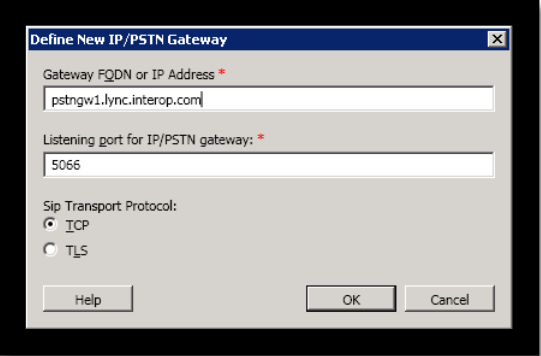

- Define your call routing
- Define distribution groups, hunting groups
- Add security with the trust/untrust server and ACL feature
- Modify called/calling party numbers and any other relevant call parameters
- Define your codecs and other key point for a perfect functionality between VoIP and traditional telephony

#### Microsoft® Lync Server 2010

- Define your dial-plan
- Define trunks to PSTN
- Define call routing to PSTN
- Define voice policy
- Enable/disable call transfer (REFER)
- Enable/disable media-bypass (RTP traffic flowing between UAs and the PSTN gateway)

## 4.2 Lync Server

### 4.2.1 Topology builder

Task	Screenshot
<p>In the Lync topology builder, add a new IP/PSTN Gateway.</p>	
<p>Select TCP as transport protocol. Choose the desired port to be used on the gateway.</p>	
<p>You can add multiple gateways on this panel.</p>	
<p>Publish the topology.</p>	

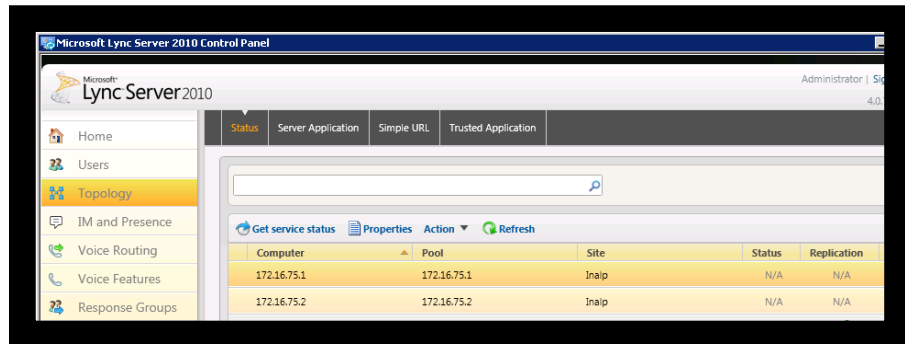
## 4.2.2 Management console

Task	Screenshot
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### Topology > Status.

You should be able to see all the gateways listed.

**Note:** The "N/A" in the Status and Replication column is normal.

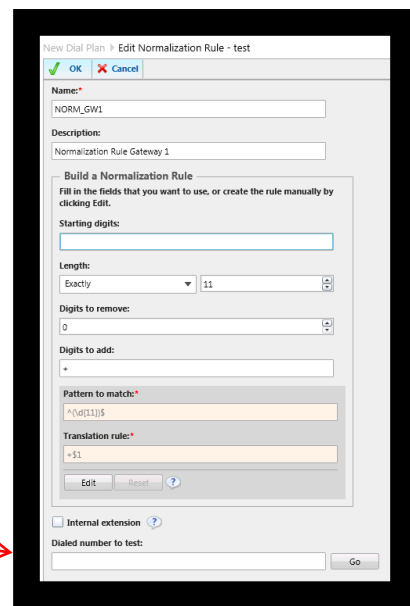
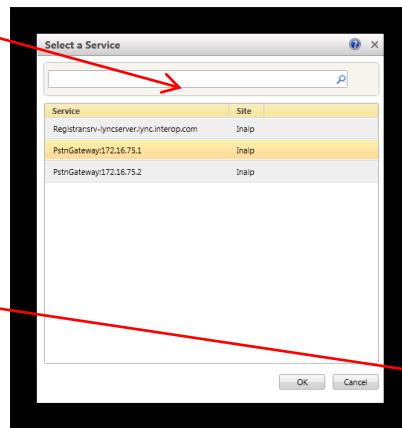


### Voice Routing > Dial Plan (New Pool Dial plan)

Select the wanted Gateway.

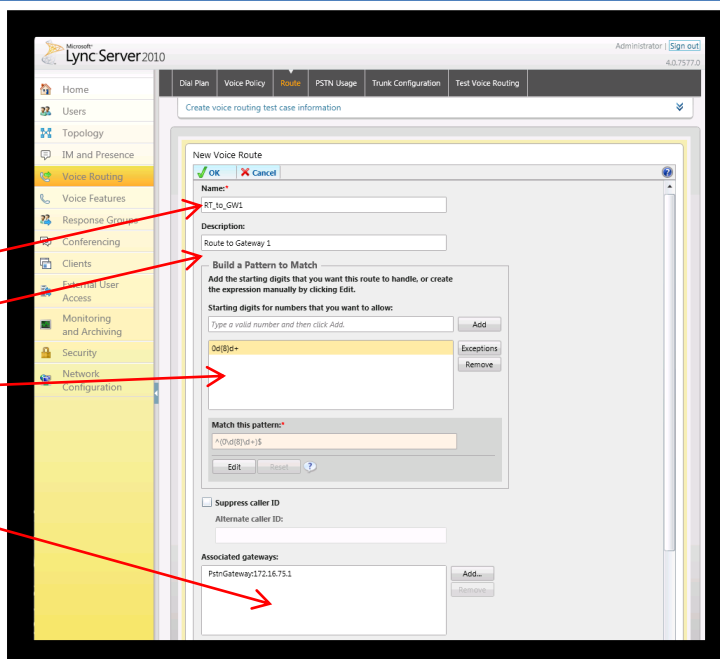
Add a new **Associated Normalization Rule**.

**Note:** You can decide if you need a specific dial plan for each gateway by defining a **Site Dial Plan**.



### Voice Routing > Route (New route)

1. Define a name
2. Add a description
3. Define the rule/pattern
4. Associate an existing Gateway



### 4.2.3 Analog device configuration

In order to add either analog phones or faxes in your network, the only way to do it in Microsoft® Lync is via commands in the Lync CMDlet. In the sample commands below, you will have to change the highlighted parts.

#### Analog phones:

```
New-CsAnalogDevice -AnalogFax $false -Gateway x.x.x.x/FQDN -LineUri  
tel:+xxxxxxxxxxxx -OU "CN=Users,DC=lync,DC=com" -SipAddress  
sip:+xxxxxxxxxxxx@lync.com -RegistrarPool lyncserver.lync.com
```

#### Analog fax:

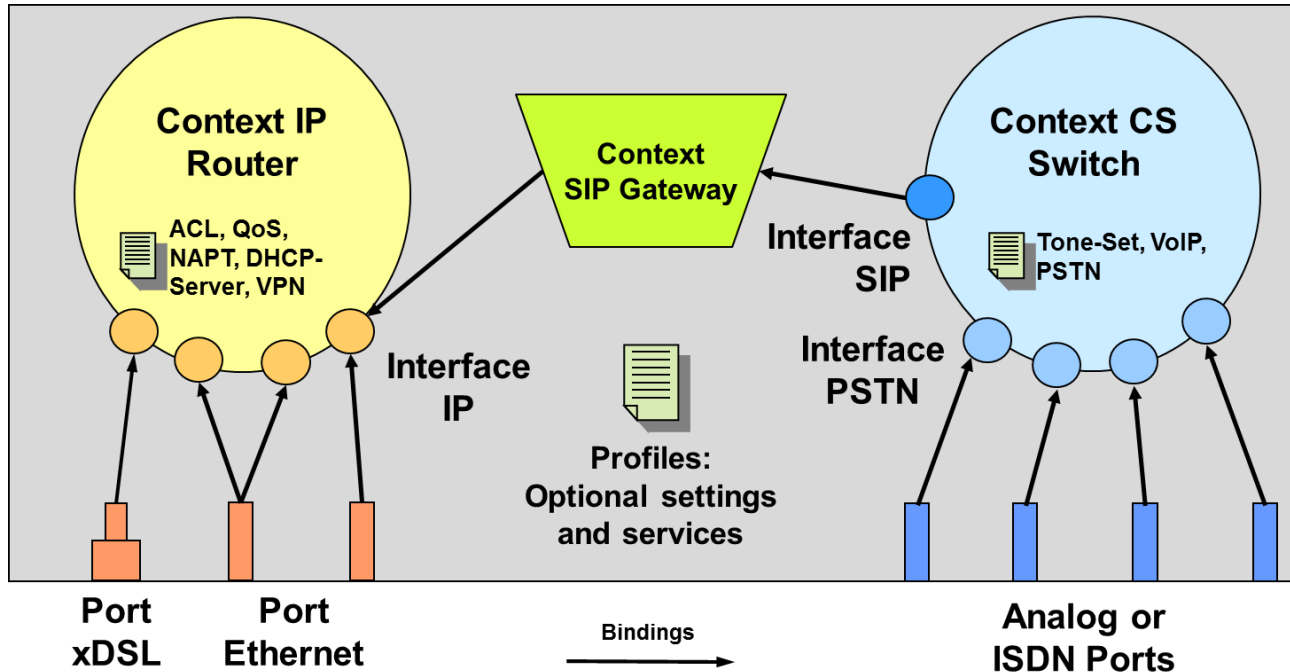
```
New-CsAnalogDevice -AnalogFax $true -Gateway x.x.x.x/FQDN -LineUri  
tel:+xxxxxxxxxxxx -OU "CN=Users,DC=lync,DC=com" -SipAddress  
sip:+xxxxxxxxxxxx@lync.com -RegistrarPool lyncserver.lync.com
```

**Note:** Fax implementation is not really complete in Microsoft® Lync. You might prefer to by-pass Microsoft® Lync for your fax setup.

## 4.3 Patton SmartNode

### 4.3.1 Concept

This schema describes briefly the configuration concept of the Patton SmartNode PSTN gateway:



For more information on how to configure your Patton SmartNode PSTN Gateway, please refer to the official software configuration guide.

### 4.3.2 Required information

In order to configure your Patton SmartNode correctly, be sure to have all the required information:

- IP addresses
- DNS servers
- NTP server and port
- Subscriber numbers per FXS ports
- Routes for ISDN ports



### 4.3.3 Configuration sample

**Note:** To make this configuration sample works with your current infrastructure, you will have to change the highlighted parts of it. This configuration was generated for a SN4671/4BIS4JS4JO12V2GS/EUI.

```

#-----#
#                               #
# SN4671/4BIS4JS4JO12V2GS/EUI  #
# R6.T 2012-04-23 H323 RBS SIP  #
# 2012-04-30T10:30:39          #
# SN/00A0BAXXXXXX             #
# Generated configuration file   #
#                               #
#-----#

cli version 3.20
gui type basic
banner "Banner text"
dns-client server x.x.x.x
dns-client cache-max-age 3600
webserver port 80 language en
snmp-client
snmp-client server primary x.x.x.x port 123 version 4
system hostname Device-name

system

    ic voice 0

system
    clock-source 1 bri 0 0

profile ppp default

profile tone-set default

profile voip default
    codec 1 g711ulaw64k rx-length 20 tx-length 20
    codec 2 g711alaw64k rx-length 20 tx-length 20
    dtmf-relay rtp
    silence-suppression

profile pstn default

profile ringing-cadence default
    play 1 1000
    pause 2 4000

profile sip default
    no autonomous-transitioning

profile aaa default
    method 1 local
    method 2 none

context ip router

    interface eth0
        ipaddress x.x.x.x m.m.m.m

context ip router
    route 0.0.0.0 0.0.0.0 x.x.x.x 0

context cs switch

    routing-table called-e164 RT_ISDN_to_CDPN
    route default dest-interface IF_SIP MT_CONVERT_CDPN

    routing-table called-e164 RT_TO_SIP
    route .T1 dest-interface IF_SIP

    routing-table called-e164 RT_CDPN_to_PORT
    route .T1 dest-interface IF_ISDN_00
    route 3000 dest-interface IF_FXS_00
    route 3001 dest-interface IF_FXS_01
    route 3002 dest-interface IF_FXS_02
    route 3003 dest-interface IF_FXS_03
    route 1000 dest-interface IF_ISDN_00
    route 1001 dest-interface IF_ISDN_01
    route 1002 dest-interface IF_ISDN_02
    route 1003 dest-interface IF_ISDN_03

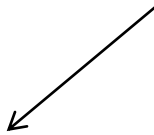
    mapping-table called-e164 to called-e164 MT_CONVERT_CDPN
    map default to 200

interface isdn IF_ISDN_00
    route call dest-table RT_ISDN_to_CDPN
    call-reroute accept
    call-reroute emit
    call-hold disable
    inband-info accept force call-setup call-proceeding

interface isdn IF_ISDN_01
    route call dest-table RT_TO_SIP
    call-reroute accept
    call-reroute emit
    call-hold enable

```

**Note:** The “context cs” part concerns the call handling of your configuration. For more information on how to configure the call routing on your Patton SmartNode PSTN Gateway, please refer to the official software configuration guide.



```
no call-waiting
inband-info accept force call-setup call-proceeding

interface isdn IF_ISDN_02
route call dest-table RT_TO_SIP
call-reroute accept
call-reroute emit
call-hold enable

interface isdn IF_ISDN_03
route call dest-table RT_TO_SIP
call-reroute accept
call-reroute emit
call-hold enable

interface sip IF_SIP
bind context sip-gateway GW_SIP_LYNC
route call dest-table RT_CDPN_to_PORT
remote mediationpool1.lync.interop.com 5068
hold-method direction-attribute sendonly
early-disconnect
call-reroute accept
call-reroute emit
session-timer 3600
trust remote

interface fxs IF_FXS_00
route call dest-table RT_TO_SIP
call-transfer
subscriber-number 3000

interface fxs IF_FXS_01
route call dest-table RT_TO_SIP
call-transfer
subscriber-number 3001

interface fxs IF_FXS_02
route call dest-table RT_TO_SIP
call-transfer
subscriber-number 3002

interface fxs IF_FXS_03
route call dest-table RT_TO_SIP
call-transfer
subscriber-number 3003

context cs switch
no shutdown

location-service SER_LYNC
match-any-domain

identity-group default

call outbound
preferred-transport-protocol tcp

call inbound

context sip-gateway GW_SIP_LYNC

interface SIP
bind interface eth0 context router port 5066

context sip-gateway GW_SIP_LYNC
bind location-service SER_LYNC
no shutdown

port ethernet 0 0
encapsulation ip
bind interface eth0 router
no shutdown

port dsl 0 0
service-mode 4-wire
annex-type a-b

port fxs 0 0
encapsulation cc-fxs
bind interface IF_FXS_00 switch
no shutdown

port fxs 0 1
encapsulation cc-fxs
bind interface IF_FXS_01 switch
no shutdown

port fxs 0 2
encapsulation cc-fxs
bind interface IF_FXS_02 switch
no shutdown

port fxs 0 3
encapsulation cc-fxs
bind interface IF_FXS_03 switch
no shutdown

port fxo 0 0
no shutdown

port fxo 0 1
shutdown
```

```
port fxo 0 2
shutdown

port fxo 0 3
shutdown

port bri 0 0
clock auto
encapsulation q921

q921
uni-side auto
encapsulation q931

q931
protocol dss1
uni-side user
bchan-number-order ascending
encapsulation cc-isdn
bind interface IF_ISDN_00 switch

port bri 0 0
no shutdown

port bri 0 1
clock auto
power-feed
encapsulation q921

q921
uni-side auto
encapsulation q931

q931
protocol dss1
uni-side user
bchan-number-order ascending
encapsulation cc-isdn
bind interface IF_ISDN_01 switch

port bri 0 1
no shutdown

port bri 0 2
clock auto
power-feed
encapsulation q921

q921
uni-side auto
encapsulation q931

q931
protocol dss1
uni-side net
bchan-number-order ascending
encapsulation cc-isdn
bind interface IF_ISDN_02 switch

port bri 0 2
no shutdown

port bri 0 3
clock auto
power-feed
encapsulation q921

q921
uni-side auto
encapsulation q931

q931
protocol dss1
uni-side net
bchan-number-order ascending
encapsulation cc-isdn
bind interface IF_ISDN_03 switch

port bri 0 3
no shutdown
```