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Microsoft® Lync Server 2013 with Patton SmartNode PSTN Gateway

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Table of contents

1 Introduction

This application note is a general overview of requirements and configuration basics to interconnect Patton SmartNode VoIP Gateways and Microsoft® Lync Server 2013.

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 2013
- 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

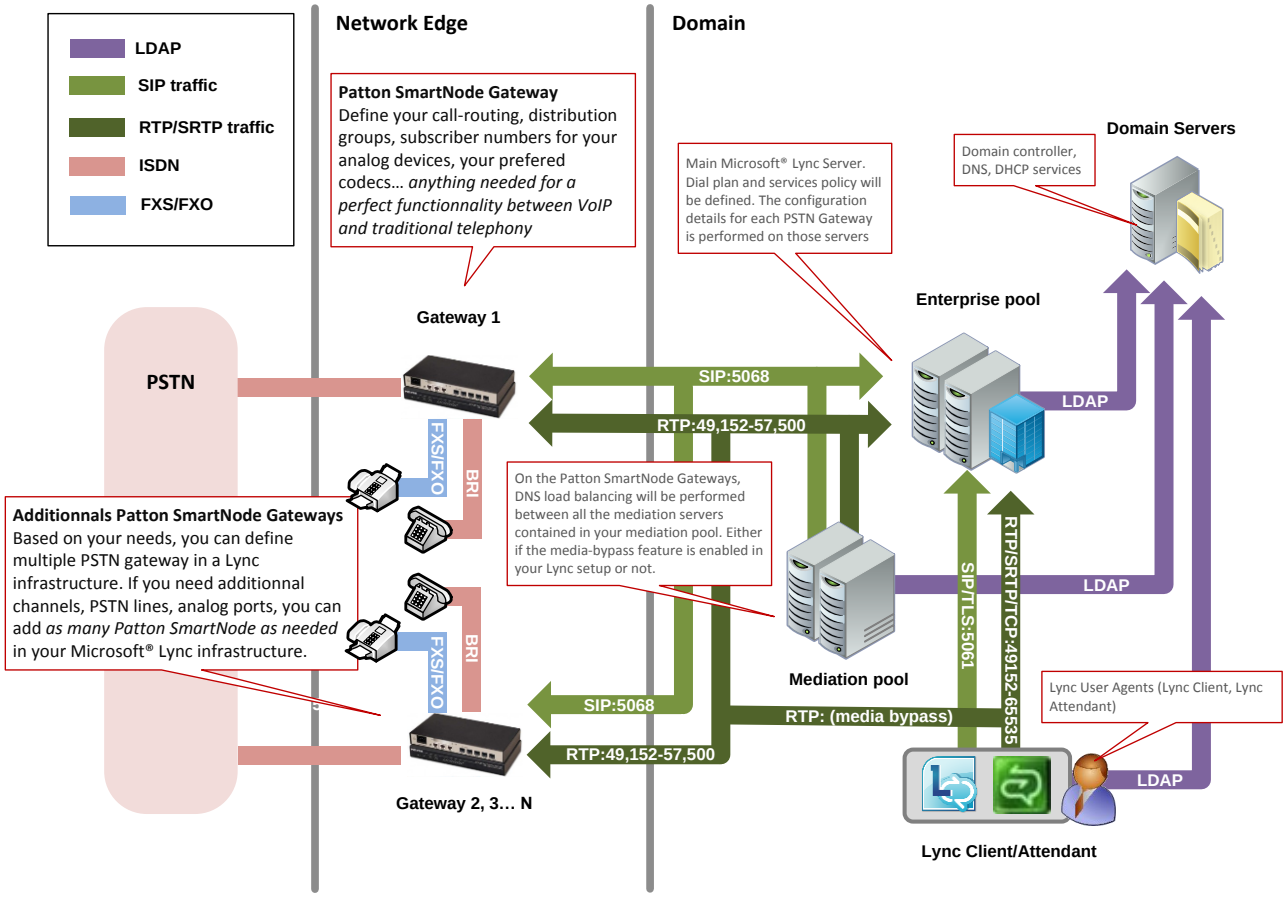
3 Limitations

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 2013.



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

Patton SmartNode

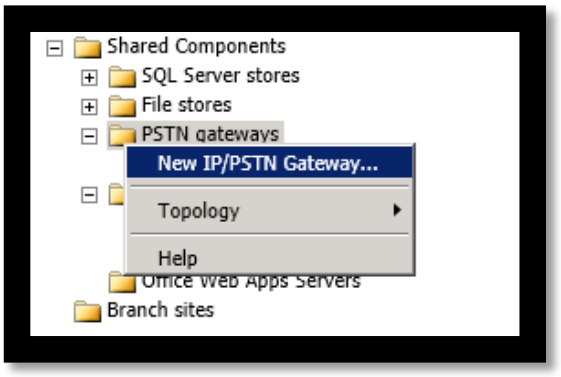
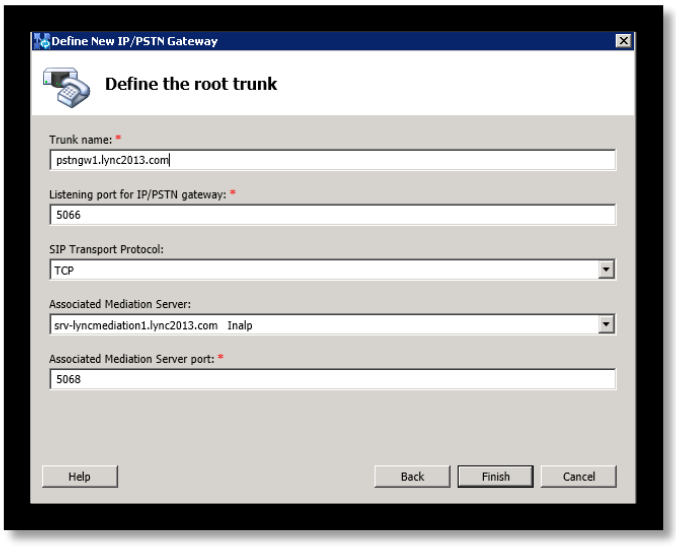
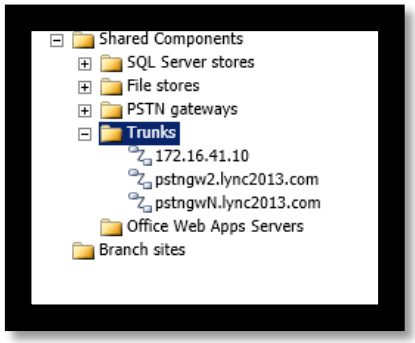
- Define your call routing
- Define distribution groups, hunting groups
- Add security with the trust/untrust server and ACL feature
- Modify called/calling party numbers and any other relevant call parameters
- Define your codecs and other key point for a perfect functionality between VoIP and traditional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

Microsoft® Lync Server 2013

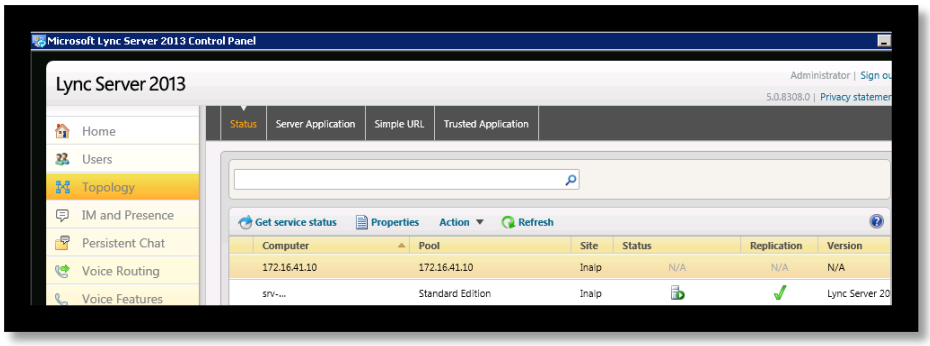
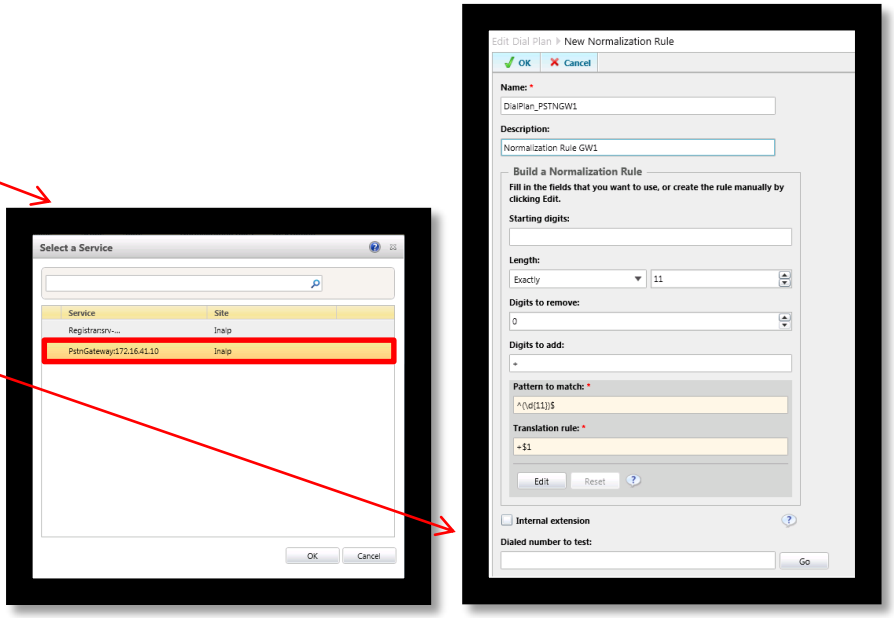
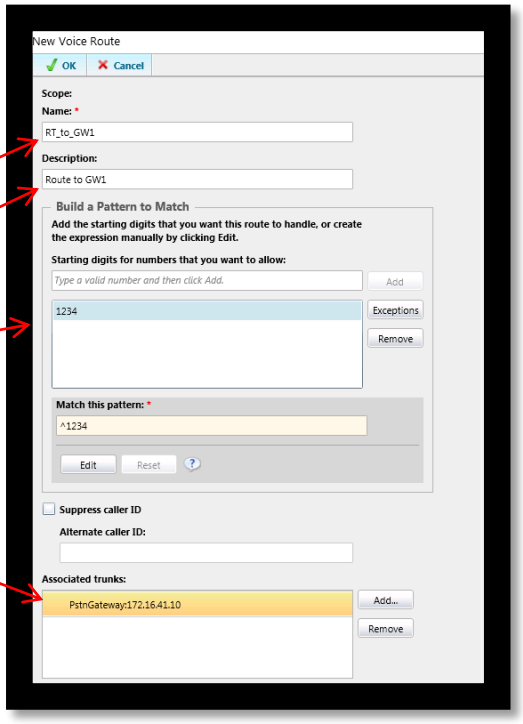
- Define your dial-plan
- Define trunks to PSTN
- Define call routing to PSTN
- Define voice policy
- Enable/disable call transfer (REFER)
- Enable/disable media-bypass (RTP traffic flowing between UAs and the PSTN gateway)

4.2 Lync Server

4.2.1 Topology builder

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

4.2.2 Management console

Task	Screenshot
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) Add a new **Voice Route**. 1. Define a name 2. Add a description 3. Define the rule/pattern 4. Associate an existing trunk	

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:+xxxxxxxxxxx -OU "CN=Users,DC=lync,DC=com" -SipAddress
sip:+xxxxxxxxxxx@lync2013.com -RegistrarPool srv-
lyncmediation1.lync2013.com
```

Analog fax:

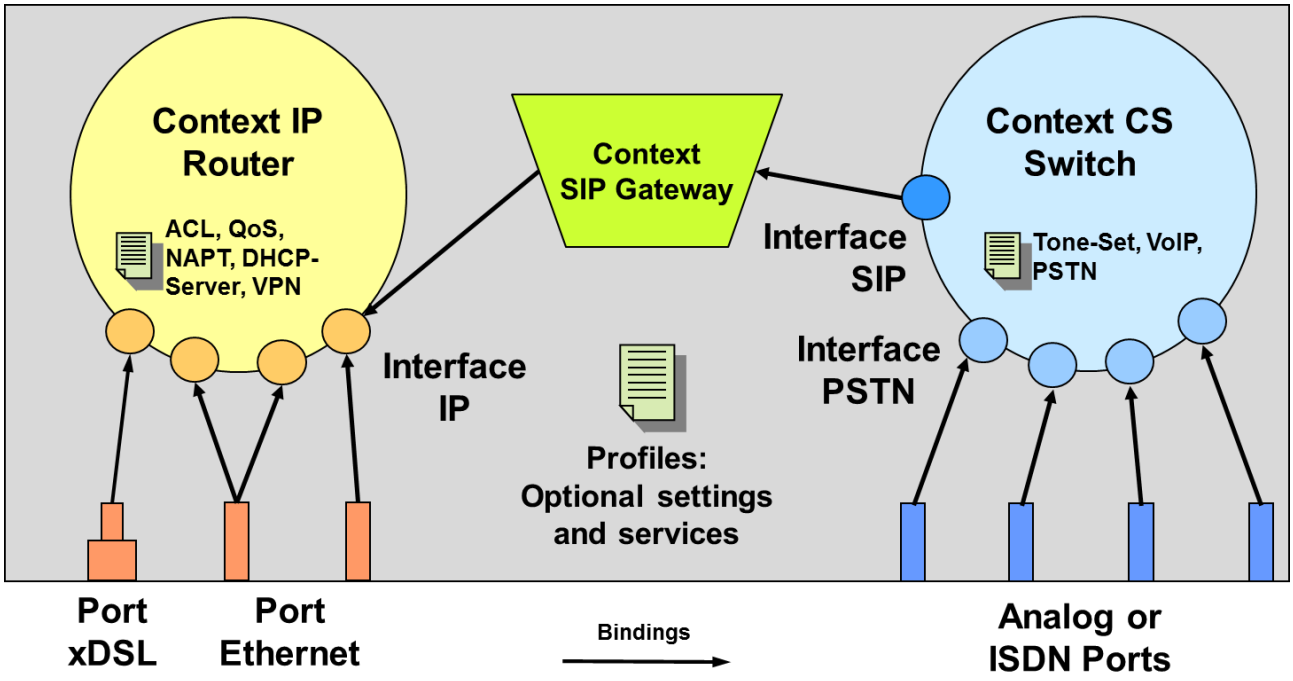
```
New-CsAnalogDevice -AnalogFax $true -Gateway x.x.x.x/FQDN -LineUri
tel:+xxxxxxxxxxx -OU "CN=Users,DC=lync,DC=com" -SipAddress
sip:+xxxxxxxxxxx@lync2013.com -RegistrarPool srv-
lyncmediation1.lync2013.com
```

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 2013-06-26 H323 RBS SIP                                    #
# 2013-07-05T13:35:38                                             #
# SN/00A0BAXXXXXX                                                 #
# Generated configuration file                                    #
#                                                                 #
#-----------------------------------------------------------------#

cli version 3.20
banner "GW – Lync BGW 2013"
clock local default-offset +00:00
dns-client server x.x.x.x
dns-client cache-max-age 180
webserver port 80 language en
sntp-client
sntp-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
  sdp-ptime-announcement
  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 LAN
    ipaddress x.x.x.x m.m.m.m
    tcp adjust-mss rx mtu
    tcp adjust-mss tx mtu

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_SIP_to_ISDN
    route .T1 dest-interface IF_PSTN_Provider
    route 3000 dest-interface IF_FXS_00

  routing-table called-e164 RT_ISDN_to_SIP
    route .T1 dest-interface IF_SIP MT_CONVERT_CDPN

  mapping-table called-e164 to called-e164 MT_CONVERT_CDPN
    map (.%) to 250

  mapping-table called-e164 to called-e164 MT_CONVERT_CDPN_INALP
    map (.%) to 03198525xx

  interface isdn IF_PSTN_Provider
    route call dest-table RT_ISDN_to_SIP
    call-reroute accept
    call-reroute emit
    call-hold enable
    no call-waiting
    inband-info accept force call-setup call-proceeding

  interface sip IF_SIP
    bind context sip-gateway GW_SIP_LYNC
    route call dest-table RT_SIP_to_ISDN
    remote srv-lyncsmediation1.lync2013.com 5068
    hold-method direction-attribute inactive
    early-disconnect
    call-reroute accept
    call-reroute emit
    prack accept required
    prack emit supported
```

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.

```
    session-timer 3600
    trust remote

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


context cs switch
  no shutdown

location-service LS_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 LAN context router port 5066

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

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

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

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

port fxs 0 1
  shutdown

port fxs 0 2
  shutdown

port fxs 0 3
  shutdown

port fxo 0 0
  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 user
    encapsulation q931

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

port bri 0 0
  no shutdown

port bri 0 1
  clock auto
  encapsulation q921

  q921
    uni-side auto
    encapsulation q931

    q931
      protocol dss1
      uni-side net
      bchan-number-order ascending

port bri 0 1
  shutdown

port bri 0 2
  clock auto
```

```
  encapsulation q921

  q921
    uni-side auto
    encapsulation q931

    q931
      protocol dss1
      uni-side net
      bchan-number-order ascending

port bri 0 2
  shutdown

port bri 0 3
  clock auto
  encapsulation q921

  q921
    uni-side auto
    encapsulation q931

    q931
      protocol dss1
      uni-side net
      bchan-number-order ascending

port bri 0 3
  shutdown
```