



**SIP Trunk Test**

**between**

**HiPath 4000 V6 with  
Openscape SBC V7**

**and**

**BT GS One-Voice SIP Trunk UK  
Wholesale SIP Trunking (WSIPT)**

**Issue 1 : 26/03/14 Initial Release**

**Issue 2 : 11/04/14 Amended tones section after lab test**

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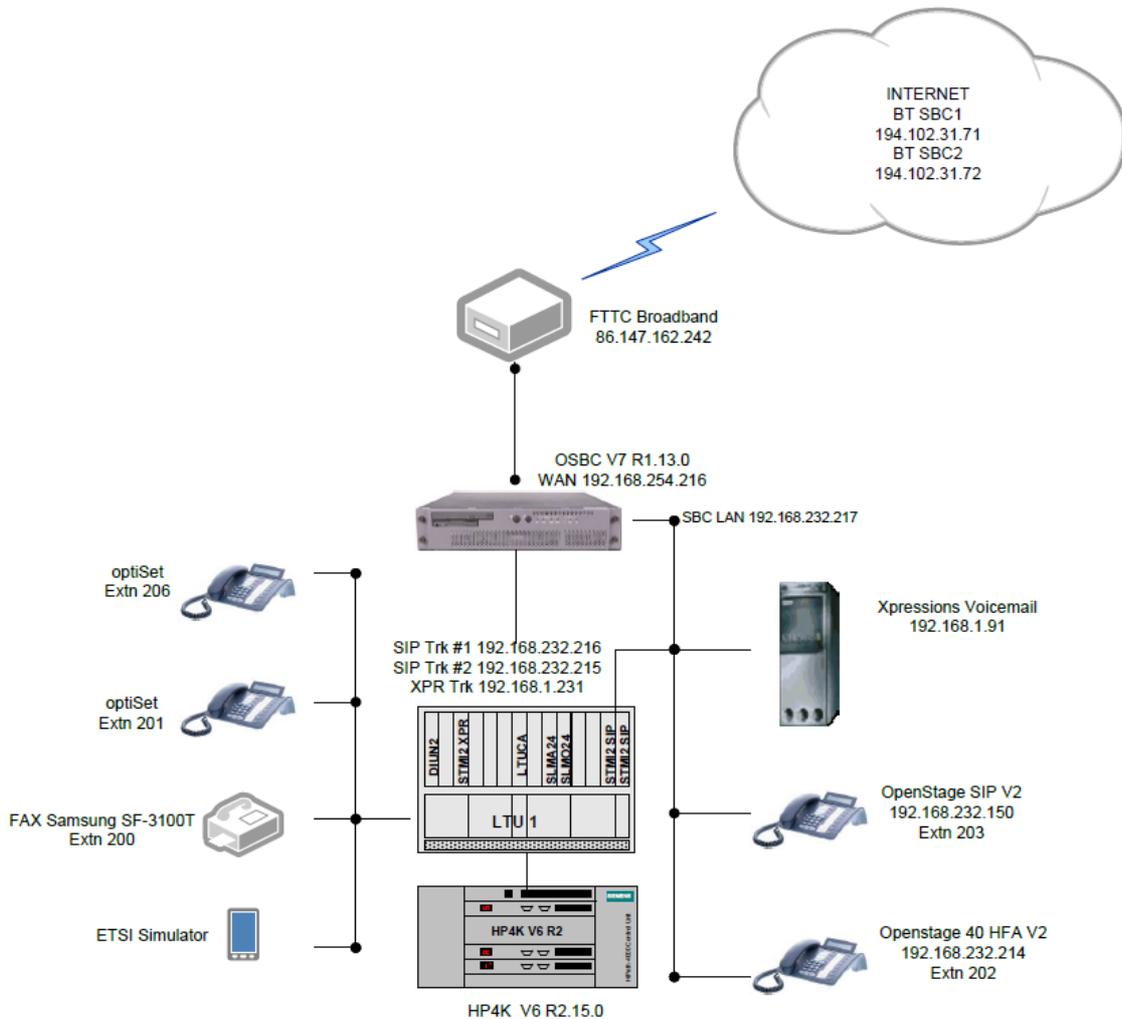
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## 1 Scope and overview of the SIP-Trunk tests:

The HiPath 4000 lab equipment was connected via two STMI Q2316-X cards to an Openscape Session Border Controller (OSBC) via Native SIP. The OSBC itself was installed on a Fujitsu-Siemens RX330 S1 server running VMware ESX. The OSBC was also connected to the BT One-Voice SIP service using FTTC broadband. No direct connection between BT and HP4K exists.

BT supplied the tests required to be performed via an Excel spreadsheet, now completed and attached to this document.

## 2 Test Lab Setup





### 3 Used Systems / Software versions

HiPath 4000 RMX :	V6 R2.15.0
HiPath 4000 Platform :	V6 R2.15.0
HiPath 4000 Assistant :	V6 R2.42.0
STMI loadware :	pzksti40.40.003-003
Openscape SBC :	V7 R1.13.0
VMware ESXi :	5.5.0 kernel release build 1331820

## 4 Configuration of HP4K and SBC

HP4K configuration is via both console and GUI. SBC config is GUI only.

The HP4K was configured for native SIP connections to SIP carrier via SBC as per the Unify E-Doku guide for V6, Section 4, IP Solutions. This requires configuration of a QSIG connection to the STMI and configuration of SIP profile “NatTrkWithoutRegistration” within the card GUI. The SBC was configured as per the attached document.



### HP4K STMI Profile Config

**HP 3500 V6**

Front panel | Wizard | Explorers | Maintenance | Help | Logoff

**SIP Trunk Profile**

Profile Name: NatTrkWithoutRegistration  
 Account/Authentication Required: No  
 Remote Domain Name:  
 SIP Transport Protocol: TCP

**Registrar**

Use Registrar: No  
 IP Address / Host name: 192.168.232.217  
 Port: 0  
 Reregistration Interval (sec) 120

**Proxy**

IP Address / Host name: 192.168.232.217  
 TCP/UDP Port: 50060  
 TLS Port: 50061

**Outbound Proxy**

Use Outbound Proxy: No  
 IP Address / Host name: 192.168.232.217  
 Port: 5060

**Inbound Proxy**

Use Inbound Proxy: No  
 IP Address / Host name:  
 Port: 0

**Security**

SIP Trunk Security Mode: No Security

6 R2.0.0 | HP4K-DEVEL | hq3500 | 03/20/2014 16:31:07  
 1-1-13 | HG 3500 | | 7d 20h 18m

## 5 Tests carried out

Test calls were made as per the attached excel spreadsheet. They included :

Basic incoming calls	Basic outgoing calls
Call hold behaviour	Music on hold
G.711a	G.729a
RFC compliance	Early media
Withholding CLI	Number formatting
T.38 accept and reject	Tones delivered
Pickup groups	Hunt groups
Conference	Transfers
Long calls	Keep Alive

See attached results spreadsheet in (6) for exact details

## 6 Results of test

Test case results are available in the attached spreadsheet "BTOneVoice HP4Kv6 SBCv7.xls"  
Wireshark captures are in the zip "UnifyHP4K-BT\_OneVoice\_PCAPS.zip"



UnifyHP4K-BT\_OneVoice\_PCAPS.zip



BTOneVoice HP4Kv6  
SBCv7.xls

## 7 Problem Discussion

- Initially BT returned 502 Bad Gateway to every incoming call from HP4K. This was resolved by entering the Public and Private IP's in the OSBC's "External Firewall" configuration (under "Security" tab), which forces the OSBC to put the public IP in the From/Contact/Via headers rather than the Private IP.

**External Firewall**

External Firewall

SIP ALG

Profile: Profile1

External IP address: 86.147.162.242

Internal IP address: 192.168.254.216

- With the firewall config above in place, outgoing calls were possible from HP4K but a call out and back in again, i.e HP4K calls itself, caused a no speech path fault. Trace showed UDP from SBC streaming to the local public IP instead of the local LAN IP. This was fixed by a patch from SBC development. The official release of this patch will be in SBC V7 R1.18.1.
- When testing failover to two BT SBC's, although failover worked successfully (HP4K routed to second choice when first choice failed/timed out), the double IP trunk config on the HP4K & SBC caused an issue when testing the unrelated T.38 rejection. The T.38 reinvite was delivered by the SBC to the 'other' 4K IP trunk, which knew nothing of the call attempt being made on the correct trunk, and the call failed. This was fixed by ticking the SBC config "Allow Register From Server". This button has been adapted to enable the SBC for load balancing, and will be renamed from SBC V8. It is nothing to do with server registration, and it's mandatory that it should be ticked on all HP4K installations.
- BT wanted to test they could upgrade a G.729a fax call to G.711 (i.e. T.38 disabled) but the STMI changes the SDP before the BT equipment and this cannot be disabled. When the STMI recognises fax/modem turns it immediately send a reinvite with new SDP for G.711 and it does it before BT have a change to do the same thing. The call proceeds successfully as G.711.
- The HP4K did not return the required tones in several cases. Some calls returned BUSY tone but "403 Forbidden" and "603 Decline" returned silence for 30 seconds and then BUSY (30 seconds of silence is caused by the HP4K connecting the call to the trunk for tones). Exact details in the tones section of the spreadsheet.

I'm confident the tone issue could be resolved but no time was available during the test to do so. (Update 11/04/14. Tones tested in Unify lab, PRODE AMO can be used to adjust tones to give NU as required)