



Avaya Solution & Interoperability Test Lab

Application Notes for NetSocket Service Visibility Solution Suite (SVSS) in an Avaya IP Telephony Environment that includes Avaya Aura® Communication Manager, Avaya Aura® Session Manager, Avaya Aura® System Manager and various Avaya Telephones – Issue 1.0

Abstract

These Application Notes describe the steps for configuring NetSocket Service Visibility Solution Suite (SVSS) in an Avaya IP Telephony Environment that includes Avaya Aura® Communication Manager, Avaya Aura® Session Manager, Avaya Aura® System Manager, and various Avaya Telephones.

NetSocket is used by enterprises and providers to provide a real-time perspective of the end-user experience for real-time interactive services such as UCaaS, VoIP, Video, Telepresence, and data services. The SVSS utilizes passive taps or port mirroring from switches to collect signaling and RTP information and has a proprietary method of interacting with routers to obtain hop-by-hop path views on a session-by-session basis.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe the steps for configuring the NetSocket Service Visibility Solution Suite (herein referred to as SVSS) in an Avaya IP Telephony Environment that includes Avaya Aura® Communication Manager, Avaya Aura® Session Manager, Avaya Aura® System Manager, and various Avaya Telephones.

The NetSocket SVSS provides real-time IP service assurance in enterprise voice/video applications. Typical applications include hybrid and private cloud deployments for assurance of mission critical services such as Trader Voice, enterprise wide VoIP, Telepresence, Video, and interactive data services. This is accomplished by simultaneously and passively monitoring and correlating in real time, critical parameters in the signaling, media, and network planes for each VoIP/Video session initiated.

The solution consists of three rack-mounted server appliances:

- The Service Visibility Manager (SVM) is an element management system for the SVPs and SVAs. The SVM provides a web based GUI, and is used to monitor the NetSocket Service Visibility Solution and is single point of administration for the system.
- The Service Visibility Point (SVP) is a server appliance that monitors the layer-3 IP network and the layer-4 session signaling. Additionally, the Session2Topology (S2T) correlation engine is embedded to correlate the RTP metrics from the SVA with signaling and network metrics to provide the end-user experience on a per session basis.
- The Service Visibility Analyzer (SVA) is a server appliance that monitors and analyzes RTP media streams associated with the voice/video sessions monitored by the SVP.

2. General Test Approach and Test Results

All test cases were performed manually. The general approach was to place various types of calls (SIP to SIP, SIP to H.323) to and from stations through a SIP trunk. During the feature testing, a network impairment tool was used to inject network packet drop and latency. For feature testing, the types of calls included inbound and outbound calls through the SIP trunk, transferred calls, conferenced calls.

For serviceability testing, failures such as cable pulls, and resets were applied.

2.1. Interoperability Compliance Testing

The interoperability compliance test included feature and serviceability testing.

The feature testing evaluated with inbound, outbound, transfer, and conference.

The serviceability testing introduced failure scenarios to see if the NetSocket SVSS could resume operating after failure recovery.

2.2. Test Results

All test cases passed. During the compliance test, network packet drop and latency were verified.

2.3. Support

Technical support on the NetSocket SVSS can be obtained through the following:

- **Phone:** (214) 427-7300
- **Web:** <http://support.netsocket.com>

3. Reference Configuration

Figure 1 provides the test configuration used for the compliance testing.

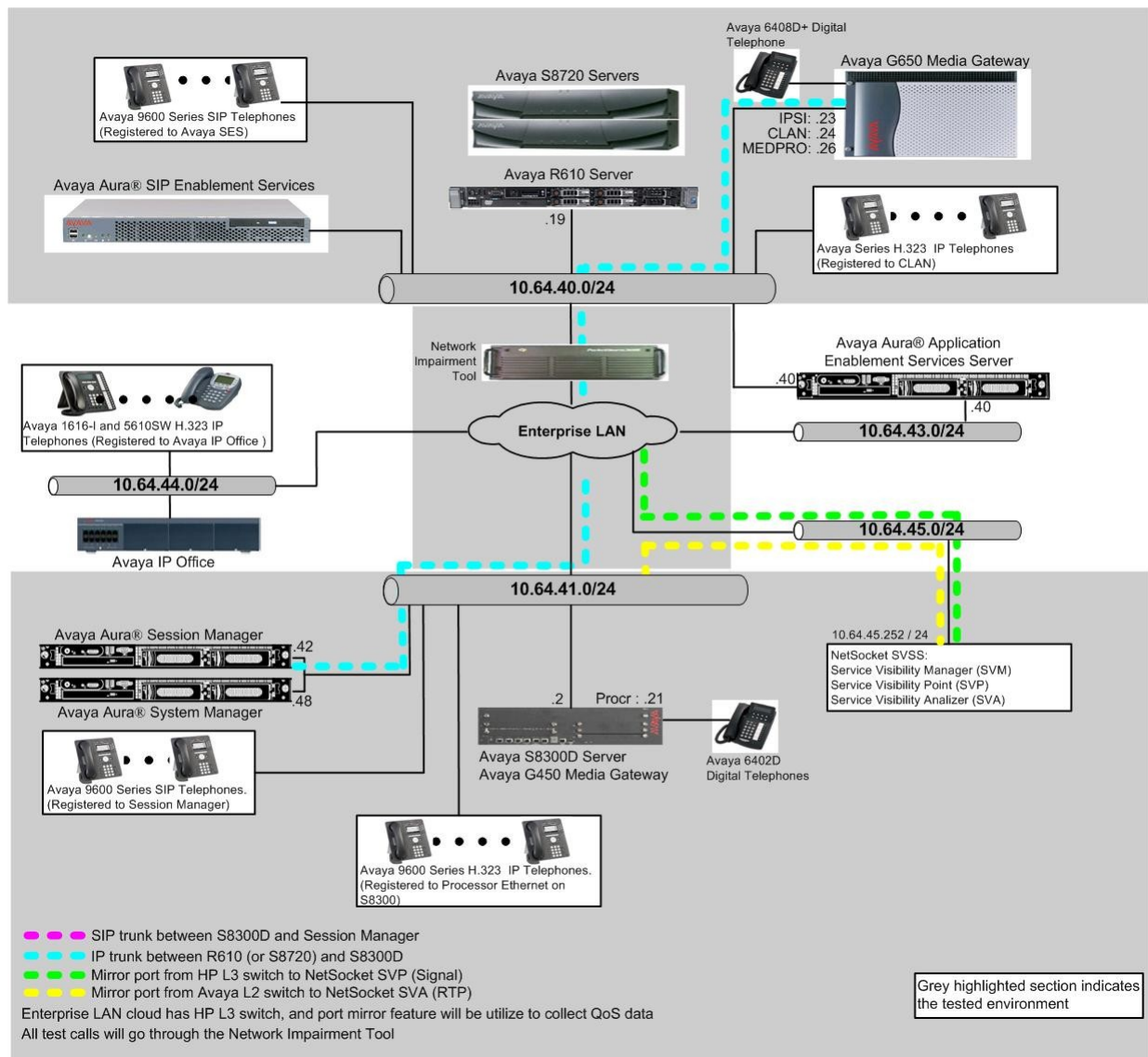


Figure 1: NetSocket SVSS in an Avaya Telephony environment.

4. Equipment and Software Validated

The following equipment and software/firmware were used for the sample configuration:

Equipment		Software/Firmware
Avaya S8300D Server with Avaya G450 Media Gateway		6.0.1(R016x.00.1.510.1) w/ patch 00.1.510.1-18860
Avaya Aura® System Manager		6.1.5.0
Avaya Aura® Session Manager		6.1.5.0
Avaya S8720 Servers with Avaya G650 Media Gateway		Avaya Communication Manager 5.2.1 (R015x.02.1.016.4)
Avaya 9600 Series IP Telephones		
	9620 (H.323)	3.1
	9630 (H.323)	3.1
Avaya 9600 Series SIP Telephones		
	9630 (SIP)	2.6.4
	9640 (SIP)	2.6.4
	9650 (SIP)	2.6.4
Avaya 6400 Series Digital Telephones		N/A
Avaya C363T-PWR Converged Stackable Switch		4.5.14
Extreme Networks Summit 48		4.1.21
NetSocket Service Visibility Manager		1.8
NetSocket Service Visibility Point		1.8
NetSocket Service Visibility Analyzer		1.8

5. Configure Avaya Testing Environment

This section describes the configuration for the Avaya Telephony testing environment, shown in **Figure 1**. All calls between lab1 and lab2 go through the SIP trunk. The main focus of the testing was comparing the Packet Drop and Latency values between Avaya IP (H.323 and SIP) phones (**Menu → Network Information → Audio Parameters**) and the NetSocket SVSS.

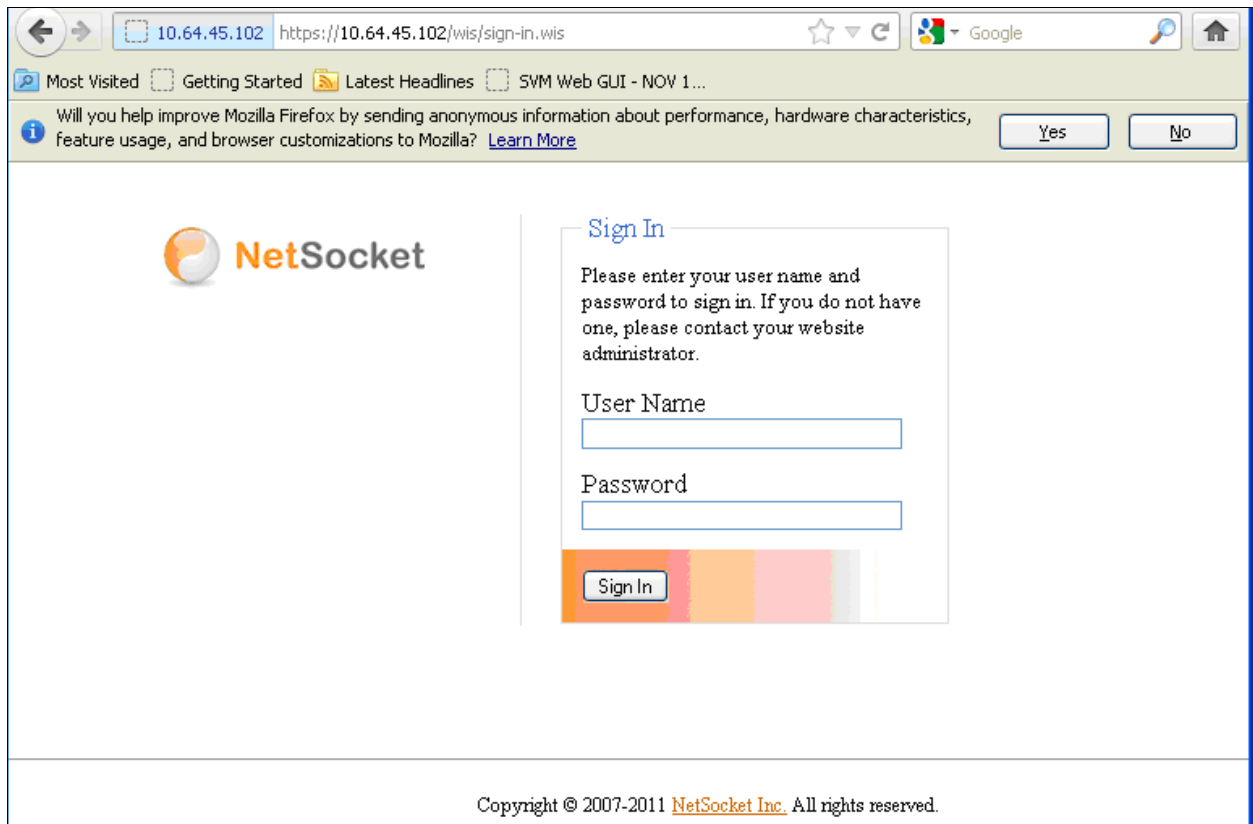
Since the NetSocket SVSS collects values from switches, and not directly interface with Communication Manager and/or Session Manager, configuration steps of Avaya devices will not be discussed in these Application Notes.

6. Configure NetSocket SVSS

This section describes the configuration for the NetSocket SVSS in **Figure 1**. As mentioned in **Section 1**, the SVP and SVA were physically connected to switches, and collected the real time data from each switch.

The SVM provides a web based GUI, and provides QoS of each call, utilizing the data gathered from the SVP and SVA.

Using a web browser, go to <http://<IP address of the SVM>> and log in with the appropriate credentials.



The NetSocket main page is displayed. Select **Quick Views** → **Session Query**.




Click the **Run** button from the **Session Query** page.

The Session Query dialog box contains the following fields and controls:

- Source Address:
- Destination Address:
- From:
- To:
- Start Date (yyyy:mm:dd):
- Start Time (hh:mm:ss):
- End Date (yyyy:mm:dd):
- End Time (hh:mm:ss):
- Session Type:
- Termination Reason:
- Event Type:
- Buttons: Run (highlighted with a red box), Clear, Cancel.

The **Session Query Result** page is displayed. In the **Session Query Result** page, click any line that needs to be viewed. Using the right mouse button, select the **Show Detail**.



NetSocket

Welcome admin,

[Current Log in:]

[Last Log in: Mor

Session Query Result

5 Records Found.

Table Options

Result

Graph

<< first < prev 1 next > last >>

From ID	To ID	Session Type	Start Time Stamp	Duration	MOS	Source IP	Destination IP	Terminat	pcap	RTP p	Cong	Path	Jitter D
72021@avaya.com	22002@avaya.com	Call	JAN 12, 2012 3:43:09 PM	00:00:39	4.19M	10.64.41.205	10.64.40.102	407 Proxy Authentication Required	Y	N	N	N	1071
72021@avaya.com	2200@avaya.com	Call	JAN 12, 2012 3:43:02 PM	00:00:00		0.0.0.0	0.0.0.0	404 Not Found*	Y	N	N	N	0
72021@avaya.com	72021@avaya.com	Registration	DEC 21, 2011 4:20:52 PM	527:08:49		10.64.41.205	10.64.41.42	Normal	Y	N	N	N	0
72023@avaya.com	72023@avaya.com	Registration	DEC 21, 2011 4:16:36 PM	527:13:05		10.64.41.207	10.64.41.42	Normal	Y	N	N	N	0
72022@avaya.com	72022@avaya.com	Registration	DEC 21, 2011 4:16:25 PM	527:13:16		10.64.41.206	10.64.41.42	Normal	Y	N	N	N	0

Following shows the Detail Information page.

Detail Information

Id: 5696879792902635520 Call 2012:01:12:15:43:09 to 2012:01:12:15:43:48
 Termination Reason: 407 Proxy Authentication Required
 From Id: 72021@avaya.com
 To Id : 22002@avaya.com
 Post Dial Delay: 357 ms Disconnect Delay: 25 ms
 SrcPort: 10.64.41.205:5004 DstPort: 10.64.40.102:2238
 SigSrc: 10.64.41.205 SigDst: 10.64.41.42
 Session bw: 80 Kbs Priority: 0
 Experienced Congestion: n Path Change: n Routing Loop: n No Route: y

Source to Destination Path

Media Path 0: 01/12/12 15:43:09 to 01/12/12 15:43:48
 SVP: Avaya-SVP
 No Route Found
 Media Status SrcPort: 10.64.41.205:5004 DstPort: 10.64.41.2:2572
 SVA: Avaya-SVA RtrIp: 10.0.0.10 IntfIp: 10.0.0.10
 RTP Stream Endpoints or Codec Changed 01/12/12 15:42:50
 Codec: G.711u PLC Nominal MOS: 4.19, R-factor: 93 MOS: 4.19
 Packets Received: 196. Average bandwidth 64344 bps
 Network Packet Loss: 0.00%, 0 Packets
 Jitter Stats: Buffer Discards 0.00%, 0 Packets, Avg Jitter 0.29ms Max IPD: 4.957ms
 Media Status SrcPort: 10.64.41.205:5004 DstPort: 10.64.40.102:2238
 SVA: Avaya-SVA RtrIp: 10.0.0.10 IntfIp: 10.0.0.10
 RTP Stream Endpoints or Codec Changed 01/12/12 15:42:50
 Codec: G.711u PLC Nominal MOS: 4.19, R-factor: 93 MOS: 4.19
 Packets Received: 37. Average bandwidth 65777 bps
 Network Packet Loss: 0.00%, 0 Packets
 Jitter Stats: Buffer Discards 0.00%, 0 Packets, Avg Jitter 0.46ms Max IPD: 0.328ms
 SVA: Avaya-SVA RtrIp: 10.0.0.10 IntfIp: 10.0.0.10
 Call Terminated 01/12/12 15:43:48
 Codec: G.711u PLC Nominal MOS: 4.19, R-factor: 93 MOS: 4.19
 Packets Received: 1499. Average bandwidth 64042 bps
 Network Packet Loss: 0.00%, 0 Packets
 Jitter Stats: Buffer Discards 0.00%, 0 Packets, Avg Jitter 0.62ms Max IPD: 0.328ms

Destination to Source Path

Media Path 0: 01/12/12 15:43:09 to 01/12/12 15:43:48
 SVP: Avaya-SVP
 No Route Found
 Media Status SrcPort: 10.64.41.2:2572 DstPort: 10.64.41.205:5004
 SVA: Avaya-SVA RtrIp: 10.0.0.10 IntfIp: 10.0.0.10
 RTP Stream Endpoints or Codec Changed 01/12/12 15:42:50
 Codec: G.711u PLC Nominal MOS: 4.19, R-factor: 93 MOS: 4.19
 Packets Received: 147. Average bandwidth 63522 bps
 Network Packet Loss: 0.00%, 0 Packets
 Jitter Stats: Buffer Discards 0.00%, 0 Packets, Avg Jitter 0.110ms Max IPD: 0.455ms
 Media Status SrcPort: 10.64.40.102:2238 DstPort: 10.64.41.205:5004
 SVA: Avaya-SVA RtrIp: 10.0.0.10 IntfIp: 10.0.0.10
 RTP Stream Endpoints or Codec Changed 01/12/12 15:42:50
 Codec: G.711u PLC Nominal MOS: 4.19, R-factor: 28 MOS: 1.46
 Packets Received: 30. Average bandwidth 68449 bps
 Network Packet Loss: 0.00%, 0 Packets
 Jitter Stats: Buffer Discards 70.00%, 21 Packets, Avg Jitter 42.18ms Max IPD: 188.501ms
 Gaps: 1 Avg Pkts 2 Density 0.00 Bursts: 1 Avg Pkts 28 Density 75.00
 Degradation Factors: Loss 0 Discard 10
 SVA: Avaya-SVA RtrIp: 10.0.0.10 IntfIp: 10.0.0.10
 Call Terminated 01/12/12 15:43:48
 Codec: G.711u PLC Nominal MOS: 4.19, R-factor: 28 MOS: 1.46
 Packets Received: 1514. Average bandwidth 63883 bps
 Network Packet Loss: 0.00%, 0 Packets
 Jitter Stats: Buffer Discards 70.73%, 1071 Packets, Avg Jitter 63.88ms Max IPD: 189.680ms

7. Verification Steps

7.1. Verification from NetSocket SVSS

- From the Service Visibility Point (SVP) – Verify that the SVP collects the signal information from a switch.
- From the Service Visibility Analyzer (SVA) – Verify that the SVA collects the RTP information from a switch.

7.2. Verification from Avaya Aura® Communication Manager

- “**status trunk xx**”, where xx is the relevant trunk group number, and verify the trunk is up.
- “**list trace tac yy**”, where yy is the relevant trunk access code, and verify the signaling and RTP can be crossed through the SIP trunk.

8. Conclusion

These Application Notes describe the procedures required to configure the NetSocket Service Visibility Solution Suite (SVSS) in an Avaya Telephony environment. The NetSocket Service Visibility Solution Suite (SVSS) successfully passed compliance testing.

9. Additional References

Product documentation for Avaya products may be found at <http://support.avaya.com>

[1] *Administering Avaya Aura™ Communication Manager*, Release 6.0, June 2010, Issue 6.0, Document Number 03-300509

[2] *Administering Avaya Aura® Session Manager*, Release 6.1, November 2010, Issue 1.1, Document Number 03-603324

[3] *Administering Avaya Aura® System Manager*, Release 6.1, November 2010

Product documentation for NetSocket products may be found at <http://support.netsocket.com>

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