Remotely Accessible SIP System: SME Telephony Network using Rapid Implementation

Iwan Tjhin
Faculty of Business and IT
Whitireia New Zealand
Wineera Drive, Porirua 5022,
New Zealand
iwan.tjhin@whitireia.ac.nz

ABSTRACT

With increased demands to remain connected and accessible to business telephony networks regardless of geographical location, Small-Medium Enterprise (SME) businesses need a remotely accessible digital telephony system that can be quickly implemented and is scalable. A Session Initiation Protocol (SIP) system can be designed and implemented to accept remote connections, giving it remote access capability. With such capability, an SME business telephony network is accessible by users or employees from remote locations by means of Internet-connected compatible SIP clients. SIP servers are available across common operating system platforms, and SIP being non-proprietary protocol, SIP clients are independent from SIP servers.

Keywords
SIP, Telephony Network, SIP Remote Access, SME SIP

.

1. INTRODUCTION

SIP is an increasingly popular non-proprietary VoIP protocol. An SIP system can be designed and implemented to accept remote connections, giving it remote access capability. Access to a remotely accessible SIP system enables an SME business to scale its telephony network, allowing its employees to remain connected regardless of geographical locations. Employees can remain connected to the SME's telephony network while on the move. This also opens opportunity for partial or full remote calls attendance.

2. METHODOLOGY

A remotely accessible SIP system can be quickly configured and deployed using the Rapid Implementation approach. Similar methodology is often used in Enterprise Resource Planning (ERP) solution deployments.

An SME business can start to realize SIP system benefits quickly, spend less money and staff time on the project, and possibly have fewer business disruptions during the implementation.

3. SIP SOLUTIONS TRIALED

SIP servers trialed were Asterisk (on Linux), AXON Virtual PBX (on Windows), and 3CX Phone System (on Windows). SIP clients were compatible hardware-based and software-based SIP-capable phones.

4. SYSTEM DESIGN

The SIP server resides within an Internet-connected business network. SIP clients may connect from within business local networks (both wired and wireless) or from remote geographical locations by means of an Internet connection. The SIP server may use FXO adaptors and/or telephony boards to connect to a Public Switched Telephony Network (PSTN), where it receives calls from, and sends calls to, external phones.

The remotely accessible SIP system design is as shown in Figure 1 below.
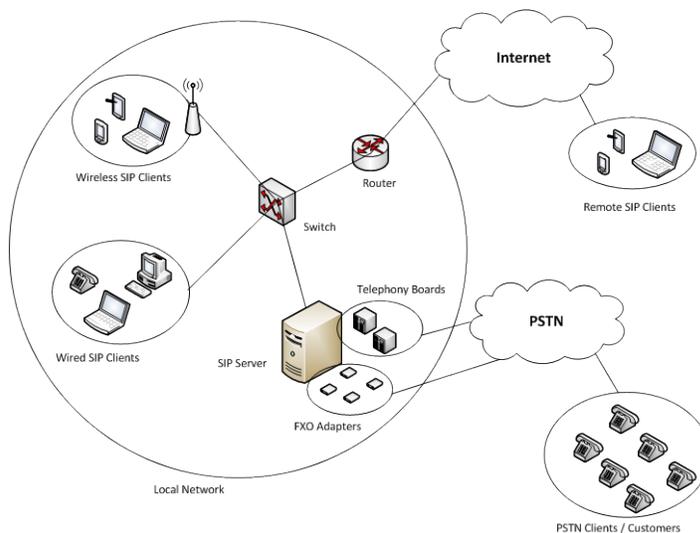

Figure 1: SIP System Design

5. RESULTS

Remote access was established from SIP clients to the SIP server regardless of geographical location. All connected clients behaved as if they were in the same location. Users remained connected and accessible through use of portable SIP clients while on the move.

6. CONCLUSION

An SIP system can be configured and deployed to accept remote connections, giving an SME business access flexibility and remote connectivity to its telephony network. This system can be quickly implemented and is scalable to enable expansion of its user base, regardless of geographical locations, through its remote access capability.

7. REFERENCES

3CX (2012). 3CX SIP Server software for Windows. Retrieved February 10, 2012, from http://www.3cx.com/phone-system/sip-server.html

Digium, Inc. (2012). AsteriskNOW Software PBX. Retrieved February 9, 2012, from http://www.asterisk.org/

Fleisch, E., Oesterle, H. & Powell, S. (2004). Rapid implementation of Enterprise Resource Planning systems without process redesign. *Journal of Organizational Computing and Electronic Commerce* 14(2), 107-126.

NCH Software (n.d.). Axon Virtual PBX Windows Software. Retrieved February 10, 2012, from http://www.nch.com.au/pbx/

Schulzrinne, H. & Rosenberg, J. (1998). The Session Initiation Protocol: Providing advanced telephony services across the Internet. *Bell Labs Technical Journal* 3(4), 144-160.

Wedlund, E. & Schulzrinne, H. (1999). Mobility support using SIP. Proceedings of the 2nd ACM international workshop on Wireless mobile multimedia, New York, 76-82.

Wedlund, E. & Schulzrinne, H. (2000). Application-layer mobility using SIP, service portability and virtual customer environments. IEEE Conference Publications, San Francisco, 29-36.

Zhang, Y. (2002). SIP-based VoIP network and its interworking with the PSTN. *Electronics & Communication Engineering Journal* 14(6), 273-282.