PSTN and VoIP: Coming Together for Quality and Reliability

First Appeared in The Bandwidth Desk, October 5, 2001.

It is a safe bet that corporate managers not just in New York City but far and wide are doing some hard thinking about the security and reliability of their telecommunications service these days, whether they were affected by the September 11 attacks or not. While it can and should be said that telecommunications and Internet services have come through this terrible period quite well, thousands of businesses were effectively shut down because they had no communications and tens of thousands of individuals and families lost their phone and computer lines and many are still without them.

Some reports have suggested that the Internet may have outshown the established public switched telecommunications network (PSTN) in some ways, as email messages sometimes got through when voice calls failed, or as some businesses found voice over Internet protocol (VoIP) calls a ready and quite acceptable backup for lost PSTN service. Are we seeing a new and perhaps persuasive argument for VoIP and for PSTN-Internet convergence in a business environment? A hybrid system that functions ordinarily on a traditional PSTN circuit-switched basis, but which can quickly and rather easily be shifted to VoIP provisioning if the telecommunications network is disrupted?

A lead article in The Desk last week described the success of Kiodex, a New York City company that provides Web-based risk management solutions for commodity markets, in maintaining its services to customers in the days after the World Trade Center horror. Although its regular phone service was knocked out for a week by the devastation, Kiodex had recently installed a VoIP fallback system and was able to reroute calls over the Internet. The company maintained service to customers through VoIP and, after its computer links to host servers were also cut off, through a hastily assembled virtual private network (VPN). Shoreline Communications of Sunnyvale, California, Kiodex's VoIP vendor, is not surprised that the service came through as it did. Shoreline describes its typical system architecture as distributing voice applications, including those to servers, across locations rather than concentrating the applications at a core, so there is no single failure point.

Ferguson Stewart, with WorldCom's D-Lab in Richardson, Texas, thinks that a VoIP fallback arrangement may or may not prove satisfactory for a business customer, depending upon the business requirements and how the system is set up. Typically, he notes, data traffic is routed through the same access lines as voice traffic so, if the VoIP network utilizes the data lines, both regular phone service and the VoIP fallback would be affected by any damage to the facilities. VoIP services can be routed separately from a customer's PSTN services, of course, but, if a customer wants truly reliable, high quality voice communications, Stewart believes it makes more sense to go with alternately routed PSTN. VoIP has improved, he agrees, but coding, compres-

TTI
TELECOMMUNICATIONS & TECHNOLOGIES INTERNATIONAL, INC.

RICHARD THAYER,PH.D.
President & CEO

7018 Beechwood Drive
Chevy Chase,MD 20815

T: 301.913.2883
F: 301.913.2884

Email: *info.tti@verizon.net*
http://www.ttinetwork.com

sion and prioritization standards still are not commonly in place and the result is that quality suffers.

A specialist in VoIP network equipment and services provisioning with another large telecom service provider, who prefers to remain anonymous, sees little or no advantage in going with VoIP until more progress is made. Her company is doing extensive testing of IP switching systems and she sees continued progress in switching and in the hand-offs between the Internet and the PSTN. But IP standards are still not where they need to be, she says, and customer applications remain limited

Philip Caughran, formerly with A.D. Little and Sprint, and now a telecommunications and business strategies consultant in Arlington, Virginia, argues that a VoIP backup may make sense, depending upon how the services are configured. In most cases, we just scratch the surface of possibilities in contingency planning, he says, whereas a number of important factors must be taken into account. These include quality of service and whether or not some degradation of service is acceptable so long as calls go through; and cellular or fixed wireless, laser, cable or satellite links to complement or back up the copper and fiber PSTN central office links. Gaining flexibility in local access is not a trivial matter, Caughran notes. Even such an apparently simple task as getting authorization for a rooftop dish can be fraught with considerable difficulty.

Broadreach Associates in Potomac, Maryland, has done market research on VoIP as an alternative for termination of international calls and as a possible choice for large and small organizations, local governments in particular. Considering VoIP as a backup for PSTN service, Broadreach president Stuart Mathison points out that business customers in large cities, such as New York, generally get higher quality and more satisfactory VoIP service than customers in smaller communities. Like others, Mathison notes that customers should pay close attention to the architecture and engineering of the services and provision separate access lines.

Another issue raised by observers is how directory numbers are handled when the primary system is disrupted. Technically, local number portability (LNP) can transition numbers from one service provider to another and reroute services transparently for incoming calls. Practically, however, LNP has been used only for transfers between carriers in the same locality, not between PSTN providers and VoIP providers. Transitioning calls in such an environment is not without problems and, once again, quality may suffer in the process.

At Gallery IP Telephony in Annandale, New Jersey, vice president Michael Flitterman describes the company's new CAssiopeia softswitch as a "Class 6" switching system that not only meets but goes well beyond the revered Class 5 ESS in quality, features and reliability. Unlike previous devices, including advanced enterprise IP exchanges, the CAssiopeia, embodying Cable Labs' vaunted "Packet Cable" standards and specifications, is a self-managed, low-cost and low-maintenance system, routes calls transparently between the PSTN and the Internet, and reroutes normal call procedures automatically in case of a service disruption. When calls travel between softswitches, Flitterman adds, there are no LATA or interLATA boundaries and thus no long distance charges.

Phil Caughran has summed up the situation quite well. There are entrepreneurial opportunities in sorting though how a business customer might address such critical issues as quality, reliability and cost, he says, and the solutions should be developed creatively, considering both traditional and VoIP solutions.

Richard Thayer is President & CEO of Telecommunications & Technologies, International, Inc. www.ttinetwork.com, a telecom and IT consulting firm located in Chevy Chase, MD. Contact by email: rthayer.tti@verizon.net, or phone: 877.913.2883.

Copyright 2001, Richard Thayer and Scudder Publishing Group, LLC. www.scudderpublishing.com
Reprinted with the permission of the publisher.