VOIP Enabled Phone Systems Versus IP Centrex – Is there a Correct Choice

Still believe that **Voice over Internet Protocol** (VoIP) is not coming quickly to a phone near you? Simply search the topic and the sheer number of "hits" generated is overwhelming. Surprising how quickly "radical" technology becomes cemented into the mainstream. When or where to incorporate VoIP is no longer the discussion — now talk is both familiar and more contemporary, asking which is best, IP-Phone Systems (IP-PBX) or IP-enabled Centrex? Although VoIP has served to modernize the debate, the answer that has endured the test of time still remains: it really "all depends."

WHERE ARE WE TODAY?

PBX manufacturers remain consummate marketers of technology, adept at appealing to basic telecommunications cost management and containment drivers within the enterprise. Their respective "evergreen" approaches reassure and reaffirm the virtues of PBX connectivity, VoIP being no exception. Persuasive, short-term benefits of IP-PBXs include accommodation of growth, as well as support faster and more reliable connections. VoIP provides all this while supporting a greater number of users and managing and/or reducing administrative Moves, Adds and Changes ("MAC") overhead. Most manufacturers emphasize ability to embrace legacy analogue hardware, through the appropriate integrated access devices (IAD) and/or media gateways. Much like the ISDN technology that preceded it, VoIP has notably compelling relevance. Convergence of voice and data communications can generate cost efficiencies never before attainable or realized. Yet, Phone systems (PBXs) by their namesake, are private, representing real resource commitments on the part of the enterprise in terms of personnel, technology, and hardware, whether leased or capitalized.

Centrex as the classic hedge against significant short-term capital commitment, both in terms of operating costs and susceptibility to technology obsolescence, has equally compelling capabilities and benefits within an IP environment. While the ultimate success of competitively retrofitting legacy incumbent Centrex currently remains suspect, the opportunity for a major paradigm shift within incumbent service delivery costs is clearly present. Elimination of the copper wire tether to the central office can and will occur with the substitution of the shared IP "pipe." Whether incumbent execution of truly innovative services like VoIP Centrex will be predictably slow remains the fundamental question. VoIP is yet another initiative eroding the incumbent revenue main stay: dial tone lines. Hope, nevertheless, springs eternal that incumbents will also participate in the VoIP revolution.

Most exciting are major rejuvenations of "Centrex" emanating from the alternative carrier and ISP community. These nimble platforms are the benefactors of the likes of Vonage and Skype who blazed the trail and continue to legitimatize voice over the public Internet. As companies roll out and mature "Virtual Centrex" through increasingly robust IP-enabled softswitch and application server platforms, the distinction between PBX and Centrex voice features will rapidly fade. Over time, virtual Centrex services may actually surpass those once exclusively PBX-centric capabilities. Unique to virtual Centrex, the subscriber phone may not be a phone at all, but rather a "soft" phone application residing on the PC. Enter a whole new advantage of portability: the ability to take your "phone" and its features with you for seamless plug-and-play connectivity anywhere. In the world of virtual Centrex, financial and/or technological commitment is significantly minimized. alternative carriers, ISPs, and ASPs theoretically represent the ultimate in both "evergreen" architecture and risk avoidance with their reincarnation of virtual Centrex.

To a varying degree, the Internet and even VoIP are diminishing their connotation with "technology." To paraphrase Ed Zander, chief executive officer of Motorola, "the Internet will have arrived when you don't talk about it anymore and like electricity, it is just there." The reframing of the VoIP debate, now in the context of Centrex versus PBX, represents a very positive and much needed demonstration of this behavioural shift.

BASIC CONSIDERATIONS & PRAGMATISM

Core attributes that have historically differentiated PBX from Centrex still remain today. Within the contemporary framework of the "which is better" argument, some metrics are becoming neutralized, while others, new to the list, are of paramount relevance to both architectures. The following topics are a short list of considerations that the informed IT director should consider when infusing the enterprise with VoIP.

Economies of scale

Classic PBX assertions of greater economies through high per station-to-shared trunk talk path ratios. In contrast to legacy Centrex, which requires one dial tone line per phone, these metrics evaporate across IP-enabled voice platforms. PBX switch modules give way to shared high-speed links, connecting packet switches, and/or routers. Virtual Centrex, inclusive of call director routers, can likewise mediate shared access for each IP phone across similar high-speed IP connections. The contemporary difference now being Virtual Centrex's reliance on softswitch, and application server platforms residing in "the cloud," while PBXs retain their premises-based orientation. The end result is historical cost-per-station evaluation tools are rapidly becoming obsolete. As more implementations invoke power over Ethernet, even the structured cabling aspects of these costing models will need

to be fundamentally retooled to permit purposeful comparative cost analysis.

Current backbone infrastructure and potential for miscalculated paths of least resistance

As broadband access continues to proliferate the reality remains that connectivity, regardless of price, still represents real costs to the enterprise. Correctly gauging what is now in place against what will be required to support new sites, more users and/or bandwidth intensive applications, often is as much an art as a definitive science. This discipline is a discussion in and of itself. However, in the context of implementing a private IP-enabled PBX, most VoIP experts agree that one mandatory prerequisite for serious VoIP consideration is the network assessment. The fundamental concern: the current enterprise data network must be evaluated for delay, packet loss and jitter, as well as the ability to absorb the additional VoIP payloads, compressed or not. With the advent of Class of Service (CoS) and Quality of Service (QoS) enablement of dedicated IP networks, ISP, ASP and alternative carrier virtual Centrex services are gaining attention, acceptance, and credibility. All considered, having an in-place enterprise private voice and/or data backbone should not be the exclusive motive for embracing VoIP within a PBX architecture. Likewise, serious consideration and reliance on virtual Centrex, provided by "carriers" of perhaps lesser notoriety, should not be based on simple price point procurement.

Geography and its diminishing influence

With the sheer explosion of broadband and associated commodity-based pricing, the element of geography and its cost implications are becoming neutralized within both IP- PBX and virtual IP-enabled Centrex solutions. If the preference is to connect remote IP-PBX nodes via dedicated IP links, these links are becoming increasingly easier to afford and justify. As receptiveness to virtual IP-Centrex increases, very similar economies of scale become evident, as the physical IP connections associated with virtual Centrex are quite similar in comparison to the PBX alternative.

Standards

What technology can ever be discussed without the holy grail of standardization? Despite the maturation of IP to date, voice applications over IP must proceed with caution. Session Initiated Protocol (SIP) should be of particular interest. The true promise of VoIP resides with SIP and the ability to create and access innovative applications resident on servers peripheral to the switching fabric. By their heritage, PBX manufacturers focus their "evergreen" philosophy on switching expertise, less upon application server and/or processor proficiency. Those who embrace open network (IP) architecture and solicit externally developed applications and interfaces represent PBX vendors having the genuine interest of the enterprise at heart. Manufacturers relegated to proprietary signalling schemes for IP voice and/or telephony, regardless of their "five 9's" reliability, should be viewed with extreme due diligence and scrutiny. In contrast alternative carrier, ISP and ASP virtual Centrex providers are arguably most reliant upon open network architectures. Their go-to-market strategies obligate extremely agile application and service creation environments. Ultimately only the enterprise can evaluate within which category their current PBX implementation fits. Based on that assessment, the IP-PBX versus IP-enabled Centrex will, "all depend."

CONCLUSION

The immediate challenge for the enterprise, when considering VoIP migration, is to resist temptation. Short-term telecommunications expense management, while necessary, cannot be the sole VoIP driver. Per station costs, ease of MAC administration, as well as the minimization of local and/or long distance usage, while all relevant, are tactical not strategic. This being the focus, IP-enabled PBXs may well once again thwart Centrex in its IP reincarnation. However virtual Centrex with its increasingly robust feature sets, complemented by limitless geographical presence, should at minimum, obligate greater deliberation between the two choices.

Innovative information managers should propose and implement VoIP not just within a simplified "evergreen" TDM-to-packet switched environment. Rather, a broader and more holistic view, inclusive of new and revolutionary applications, unique to the enterprise and its business model, must be embraced.

How the enterprise can functionally differentiate itself from the competition, increasing market share while also reducing telecommunications (and data communications) overhead, is certainly the more complex task. Total cost of ownership must include the opportunity costs of having made the less optimized decision. The more strategic selection should yield greater return on investment over time.

change your requirements as your business needs change

Adapted from Ray Kriss internet telephony September 2004

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