



When **NOT** to Invest in VOIP

A RAH Technology White Paper

One of the Series of White Papers on
Voice over IP (VOIP)

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No doubt, you have heard the *hoopla* around Voice over IP (VOIP) and wondered: Is this for my organization? Can we benefit from VOIP?

Possibly, but with some caveats.

In order to evaluate the promise of VOIP lets first understand what it is and what it offers. Traditionally voice and data traffic and services existed in two separate worlds. Most organizations had separate voice and data infrastructures and services: separate voice and data wiring, separate voice and data equipment, separate voice and data maintenance teams, separate voice and data support systems, separate voice and data service providers. Your organization may have a voice PBX, desktop phone units attached to RJ11 jacks attached to telephony wire pairs, a telephony wiring closet, an attendant station, access to the Public Telephone Network through PBX trunks to a local Service provider, typically the Incumbent Local Exchange Carrier (ILEC). If you are a multi-location organization, you may have private trunks between PBXs at the various locations in order to save per minute charges on high volume switched call traffic.

To support this telephony infrastructure you have a telephony support staff and a number of systems that provide telephony operations functions. As people move, or are hired or depart, PBX information must be changed so that the telephone works at the new location or for the new employee. The PBX and its services must be monitored; employees' problems and questions must be resolved.

Parallel to this universe, your organization may have a number of data infrastructures. Your desktops, the same ones with telephones, typically hold PCs connected to RJ45 connectors wired into an Ethernet LAN (CAT 5 cable or perhaps fiber). Your wiring closet has routers and switches. Your Data Center, sometimes just a room with a number of servers, may have fiber interconnections. And you are connected to the Internet via IP through an Internet Service Provider (ISP) using high-speed connections such as T1 or T3, while your interconnections with other locations may utilize Frame Relay or ATM.

To support this data infrastructure you have a data support staff and a number of systems that provide data operations functions. The LAN and equipment must be monitored and maintained; security must be managed; capacity must be engineered and monitored; employees' questions and problems must be resolved.

It is clear that the overwhelming similarity and redundancy of these two infrastructures cries out for *convergence*. The urge to converge is not a new one; it has been on the drawing board for twenty or thirty years in the guise of technologies such as Integrated Services Digital Network (ISDN). With ISDN, the data network would converge into the telephony network.

ISDN and that form of convergence never occurred, partly because it required the deployment of technologies not well suited to the direction data networking was heading, the Internet. The advent of the Internet drove the ubiquity of the Internet Protocol (IP) and the rapid development of high-speed capabilities drove convergence in the other direction: the voice network would now converge into the data network. The result is Voice over IP (VOIP).



With VOIP, telephony traffic is now carried over the data infrastructure, rather than on its own separate voice infrastructure. Clearly, this saves something. But is it enough to warrant your effort to install VOIP in a new location or convert to VOIP in an existing location?

It all depends on the how much actual convergence takes place. For example, although with VOIP a voice PBX may no longer needed at an enterprise, it may need to be replaced by an IP PBX. Is that less costly? It depends on where the industry is on the cost curve for each technology; with IP PBX prices falling as VOIP technology becomes accepted and the products more mature, while traditional PBXs may be found at the fire-sale prices.

It would appear that wiring must represent a sure saving, as there is the need for only one wiring infrastructure. This may be true if only one cable is pulled to every desktop and some device on the desktop (telephone, PC, hub) serves to integrate traffic from the various desktop devices. If two cables are pulled, one could just as easily be the traditional phone wire pair.

The key to value therefore is the level of guaranteed convergence. Therefore do NOT invest in VOIP if:

- Your wiring infrastructure is already in place or you plan to pull multiple cables from the desktops to the same wiring closet for both services AND
- You have plenty of room in your wiring closet or Data Center for equipment required for two different networks AND
- You do not have multiple location that would benefit from integrating all traffic onto IP connections AND
- You have a small organization (<50 people) with no PBX (business phone capabilities provided by your local provider) and your local provider does not offer a comparable VOIP access capability AND
- The same people support both data and telephony services in your organization, so there is no distinction between the skill sets AND
- Your systems already manage both infrastructures or you do not need systems to manage one or the other or both infrastructures

Again, in the short term the value of VOIP to your organization depends on the level of integration you can achieve across the entire network and operations infrastructure. Looking at network and service saving may not be sufficient; savings in the support infrastructure of people and systems may be more important.

Clearly, the value of VOIP to your organization must be evaluated for your specific circumstances. However, the above should give you some heuristic guideline for when VOIP can and cannot provide value to your organization.



About RAH Technology

RAH Technology provides telecom and IT solutions to service providers, enterprises and healthcare providers, with a focus on Voice over IP, WiFi, Security and Operations. RAH Technology provides a fresh approach for its customers, zeroing in on their major business benefits and ignoring hype, bloat and smokescreens. We help our clients cut through the complexity of technology, operations and systems and maximize their value.