

## VOIP: Reality over Fiction

By: Alexander Adler

Voice over IP (VOIP) is taking over the business and consumer's fantasy. The industry is a buzz and the consumer's is excited by the possibilities of this technology. As with all booms, what is the potential boom or bust for this technology?

The interest is due to the following promises by phone system vendors:

- Savings for internal or external communication cost.
- Lower cost of phone system maintenance
- Reduced cost of placing calls intra office.
- For new offices, reduced cost of cabling due to only one cable run which will service both voice and data on the same cable.

On external communication, you will receive promises from the carrier:

- Lower cost local and long distance calls.
- Drastically reduced pricing for international calls.
- Reduced communication cost by consolidation of voice and data lines.

When does it make sense and when not? Will you get the return on investment (ROI) you were promised?

Firstly, there must be a clear distinction between external and internal VOIP. External VOIP will translate into the local phone company providing you with only one data circuit for your voice and data communications. There are no hidden costs or surprises. It is important to note, the following disadvantages:

- You are "putting all your eggs in one basket." When your voice and data is traveling over the same circuit, trouble in one will affect the other.
- Voice quality must be implemented by the carrier or when you download a large file, you will see degradation in the sound quality while on a phone call.

### **How the Telco Provides you the VOIP:**

*Here is an example of how the local phone company provides you VOIP service: The \*carrier will install a data T1 to your premises. Once the T1 is on your premises, they can split it for voice and data via a Cisco 1760 router with the \*DSP option. The router will hand off a \*PRI, port to the phone system for voice and an Ethernet port to your HUB or Switch for you data.*

*\*A standard PRI is a T1 with up to 23 voice channels.*

*\*DSP is the electronic circuitry that provides the translation between voice and data.*

*\*Carrier – **CTVI** is an agent for **Xchange Telecom** (<http://www.xchangetele.com>). We recommend their services and we have already implemented these solutions successfully.*

- The uptime and reliability is by no means equal to the 99.999% uptime achieved by normal voice communication.

Nevertheless, this type of VOIP is flourishing. More and more carriers are offering this service. When implemented properly the savings can outweigh the risks. (See box below "A local number in every state!") You can minimize the risks of "putting all your eggs in one basket," by asking the carrier to implement alternate routing over backup analog lines.

Note that external VOIP does not always require equipment upgrade on your part. You can receive the service in either analog or digital T1 flavors. Since you can reduce the number of analog lines you have now, you can reuse those lines with analog VOIP lines. If you have a T1, the same T1 card will now be used for the VOIP T1 handed off by the Telco in ready to plug in condition.

### **A local number in every state via VOIP?:**

*One of the powerful combinations of VOIP internally and externally is as follows:*

*Imagine you would like the following:*

- *Open a local sales office in every state! With a local number in every state.*
- *You want the sales reps to take advantage of all the headquarters' resources.*
- *You want the sales reps to be able to transfer phone calls between themselves and headquarters.*
- *You want to provide backup while the sales rep is on the road or even just at lunch.*
- *You want to maintain control over the phone number if the sale rep quits.*

*Here are the ingredients: Get a VOIP PRI from a local carrier. Ask the local carrier for local phone numbers for each locality where you have a sales rep. Get a DSL for each sales and VOIP phones for each sales rep.*

*You will now have a local number ringing at HQ. Through DID programming, the phone number will ring at the remote office. The sales rep can transfer back and forth to HQ, use the HQ voicemail and transfer to another sales reps at no charge. HQ will also act as a backup. If the sales rep leaves, HQ can just direct the number to a backup sales rep.*

**CTVI has implemented this solution with the IPS NEC phone system and Xchange Telecom.**

What about intra office? This is a more tricky question. On the face value, it is our firm opinion that no company should be implementing VOIP within the HQ. The benefits are mostly for small remote offices and not for your main HQ.

Here are some of the reasons why we do not recommend VOIP for your HQ:

- You will have to purchase expensive layer 3 switches to guarantee VOIP quality of service QoS.

- If you have latency or degradation in your voice quality, it is difficult to manage. If someone in the office has a bad network card which is flooding the network with broadcasts or if someone is downloading a large file you will get degradation in the voice quality.
- The savings you are promised in a new office due to cabling one data run instead of dual cable runs is not recommended. It is easier to troubleshoot and easier to set up when the voice and data is kept completely separate. This recommendation is with one caveat: the IP phone normally comes with a small hub: One port will go to the source and one port will go to your pc. If this hub is sophisticated enough to act as a layer 3 switch and can do QoS, then we shall withdraw our objection to one cable run. However, the cautious consumer will still run dual runs for backup and growth reasons.
- Another savings promised is the ability to save on "moves adds and changes" MAC. This is also untrue. If this is an issue, you can implement the NEC IPS system with which your vendor can program up a feature code to swap extensions so moves are not an issue. Adds and changes will be no different with or without an IP phone system.
- Today there is little or no advantage in the VOIP station. In the near future, the station will have greater integration with your pc. Your station will link to your contact manager or outlook. Your station will be able to be loaded through softphone software to your internet capable Cell phone, at that time, VOIP at the station level will be sometimes recommended.

I have spent over 13 years on the telecom industry. I have seen boom and bust in many technologies over my 13 years. My overall voice and data communication experience came from working with Sprint. When I left in 1995, I worked as a dedicated voicemail expert installing Callware Unified messaging voicemail for fortune 100 firms like Qwest, Xerox, and Forrest Labs.

While I was introduced to the intricacies of over 18 PBX manufacturers, I selected NEC as the best phone system I would recommend for any size business. It was and is the best phone system for its scalability, it is feature rich, NEC leads in implementing new technology and it is committed to the customer's investment. For example, the same phone set installed on a small key system can be used on the large switch going over to 80,000 ports.

I look forward to talking to you more about VOIP and how it can fit your needs.

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