

Getting Over the Jitters

Voice-over IP a foreseeable choice as retailers boost bandwidth

By Angel Abcede

The Jitterbug was a 1930s dance craze. Derek Jeter is a shortstop for the New York Yankees. And in the world of high-tech telecommunications, a jitter is when the voice at the other end goes in and out.

The last jitter is one of the hurdles that has kept the technology of voice-over IP (Internet protocol), or VOIP, warming up in the bullpen but never asked to take the mound. That high-tech limbo (at least in this industry) may end soon, however, as more retail petroleum and convenience store operators install high-speed broadband connections and consider the switch from analog voice to digital.

"We sliced several thousand dollars off our long-distance bill by using VOIP," says Kym Howe, vice president of information technology for Krause Gentle Corp., a West Des Moines, Iowa-based retailer with roughly 430 stores. Howe says the company, known for its Kum & Go brand name, began using VOIP four years ago after implementing a high-speed, wide-area network

(WAN). Today, all but a few of the company's c-stores are linked via VOIP.

"Since the initial rollout, we've had to take a few out due to a lack of [service quality]," Howe says. "Quality of service is not guaranteed on certain types of our DSL [digital subscriber line] connections. Ninety-eight percent of the VOIP to our stores is over an internal network using frame relay, the remaining 2% use private DSL and a few do use the Internet."

VOIP is the technology that slices analog signals or waves of sound into electronic "packets," which flow digitally through either the public Internet or private networks. At the other end, these packets get rearranged into the proper order so all the listener hears is a continuous voice.

Benefits to the technology generally include decreased phone lines, a reduction in long-distance charges and the ability to manipulate the digital data to improve call management.

Unfortunately, little data exists for how many petroleum retail and c-store

chains have VOIP today. NACS does not include VOIP in the technology portion of its annual State of the Industry Report, nor are studies available that specifically cover the industry.

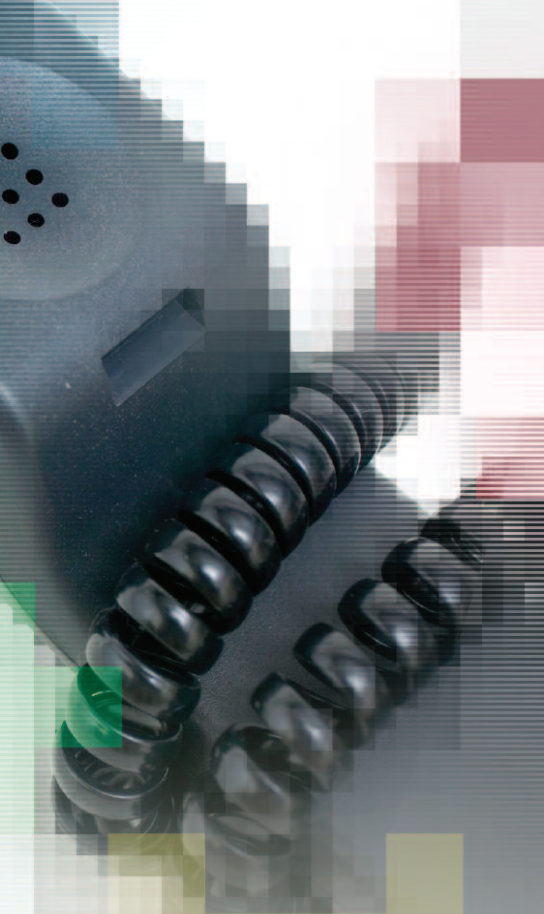
Shape of Things to Come

However, the big picture is prophetic. Researchers say that at least within U.S. households, VOIP as a local and long-distance option is set to explode. According to data compiled by New York-based JupiterResearch, VOIP use will grow to 20.4 million households by 2010 from an estimated 1.2 million last year.

"VOIP is something we have had on our technology strategy for many years," says Scott Hartman, president of Rutter's Farm Stores, York, Pa. "It is an area everyone should look into as they build their WAN strategy."

The reasons for the VOIP buzz are clear:

- High-speed broadband expansion and installation at businesses and residences have made VOIP a logical next step.



Having Your Number

Retailers investigating voice-over IP (VOIP) alternatives to regular, analog phone service need as many hard numbers as possible to cost justify the change. Bill Baldwin, vice president of sales, LogiTel Corp., Vancouver, Wash., provides a few numbers associated with VOIP:

\$8,000

Cost for a medium-sized business VOIP system, including hardware but not the price of phones and other incremental costs involved in wiring and installation

From 10 to 3

The number of phone lines reduced in a c-store by switching to broadband and VOIP

27%

The estimated percentage in taxes and surcharges saved from reducing traditional phone service

\$200–\$400

The cost of an IP, or Internet protocol, phone

■ Technological advances have made service more reliable.

■ Benefits are tangible. In addition to a reduction in phone lines and long-distance charges, VOIP offers a host of neat things that people, and especially those in business, can take advantage of to better manage phone use.

For companies with the right amount of bandwidth already installed at corporate and remote sites, VOIP is a no-brainer, says Bruce Yuille, president and owner of Quick Connect USA, Clarkston, Mich. His VOIP-based company offers long-distance and local calls for both IP phones and phones with regular analog connections. If a retailer's network can already handle video feeds from security cameras, then that retailer more than likely has enough bandwidth for VOIP, he says.

So why don't more retailers with

WANs switch to VOIP? Yuille says a disconnect (pun intended) occurs when retailers don't mentally link the broadband they've installed for high-speed video transmission with the idea of using the same broadband pipeline for VOIP. "They'll hear a pitch from a security camera company but won't link together the data applications for inventory control [with VOIP]," he says. "Most owners are uninformed."

Knowing the Basics

Not making the mental tie between loss prevention requirements and VOIP is just the beginning of the misconceptions surrounding VOIP, says Bill Baldwin, vice president of sales, LogiTel Corp., Vancouver, Wash., a supplier of equipment for VOIP and wireless communications solutions.

Many people associate VOIP with

its initial incarnation about 10 years ago. The communication method was touted as a way to make "free" phone calls by using the Internet. News accounts would showed people directing their speech to the computer screen. The calls were scratchy but audible.

"What people found out was that the technology was not ready for prime time," Baldwin says, noting that issues ranged from jittering to totally losing calls. Fast forward to today, and according to Baldwin and Yuille, certain technologies have come into play that open the door for stable, reliable VOIP service.

These advancing technologies begin with what's known as data compression techniques. New VOIP science developed in the past two years can now compress voice packet data much in the same way image technology allows video to fly across the Internet, Yuille says. With video technology, computers isolate moving elements of the image from stagnant background elements. The computers then send

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SCOTT HARTMAN *Rutter's Farm Stores*



NO TELLING: For employees, VOIP is no different than regular phone lines, especially with technological advancements improving service quality.

data from the moving elements over the pipe while simply assembling the stagnant elements from pieces already at the other end.

Another technology smooths out the jitters created when latency issues or other obstacles actually lose packets of data. Baldwin of LogiTel says devices on either end of the call can smooth out audible jitters by “concealing” lost data packets.

Yet another technology allows data lines to prioritize voice packets. Yuille says these programs pull out voice packets and make certain they travel faster than non-voice packets. This further ensures that the voice-related packets arrive quickly enough to provide a smooth conversation between callers.

Employing these advances results in improved service quality, a critical element that allows retailers to consider the cost-saving potential of VOIP. While Yuille says monthly VOIP billing rates are probably comparable to those of traditional, analog service providers, guaranteed savings come from not having to pay state use or sales taxes as well as federal excises taxes. “In Michigan, where we are, that’s 6% in state taxes,” he says. “Then there’s the federal excise tax of 3%.”

Also, all phone calls within the retail chain and through corporate, if within the internal broadband umbrella, are free, he says. For many companies these location-to-location calls can be 30% of a monthly phone bill, he says.

Remaining Hurdles

With the technology behind VOIP progressing, the remaining challenge is the quality of the DSL service that a retailer has. To understand how important that speed is, Yuille of Quick Connect says VOIP software will take a “sample” of someone’s speech 100 times in a second, breaking continuous speech into 100 different packets that then fly in multiple directions (possibly even overseas) before the software reassembles those same packets into the right order. (The brain connects the dots so that the sampling is all that’s necessary, similar to how the brain assembles pixels on a TV screen to understand the image.)

Packets have to travel from point A to point B within 150 milliseconds; otherwise the transmission will sound garbled, show some form of degradation or produce echoes. These problems can escalate to the point where the signal just drops.

What can affect speed? Baldwin says a DSL provider can oversell the bandwidth on its line, so if a surge occurs (think the overload of calls that happens on Mother’s Day and the inevitable “All circuits are busy” message), the result is DSL speed slowing down.

Another hurdle actually occurs within a company’s own management structure. With most communication setups today, companies have two separate networks: one handling data and the other telecommunications. These networks typically have different people in charge within the company. For the data network, many companies employ specialized individuals focused on IT (information technology) and overall corporate automation. For telecom, the network typically falls under the purview of an administrator, who would handle the office phones and other utility bills.

That dichotomy typically leads to a “we vs. they” atmosphere. “We do data only, and the telecom side is handled in another part of the house,” Baldwin says. “What VOIP causes is a need for a convergence of those two players.”

Retailer Reasoning

For Kum & Go, the convergence was instantaneous. Howe says that the company went to VOIP four years ago when its WAN was implemented. The company’s communications setup uses what is called “frame-relay” service for both high-speed data and voice transmissions. Today, not only are the sites hooked up to VOIP over the WAN, but district managers also have VOIP-equipped phones in their homes.

Much of the savings occurred by cutting down on local- and long-distance expenses between sites and dis-

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DON FULLER 123 SECURE.NET

connecting an 800 number that had leaked out to suppliers and other trading partners. The company has set up a new 800 number and has given it only to the parties it was intended for.

The VOIP setup does not eliminate a regular phone line into Kum & Go stores, but it cuts the number of calls substantially. Store employees actually have the added benefit of essentially having two phone lines, one for company use and one for customers to call.

While retailers such as Howe have found benefits to back the VOIP transition, others have not. Scotty Creason, director of information services, MAPCO, Franklin, Tenn., says the company estimated costs for VOIP two years ago, but felt the deal that their long-distance provider offered was so cost-effective that it undermined any savings they would have seen by switching. The company operates 381 stores in Tennessee, Alabama and Virginia.

Hartman of Rutter's also has yet to install VOIP. While plans exist for a potential changeover in the beginning of 2006, he says that payback for the effort and the potential hassle of new equipment did not push the change to the top of Rutter's "to-do" list.

"[VOIP] is just a lower payback and lower priority for us vs. the data connection paybacks," Hartman says. Rutter's has 50 stores in Pennsylvania and Maryland.

Your Call

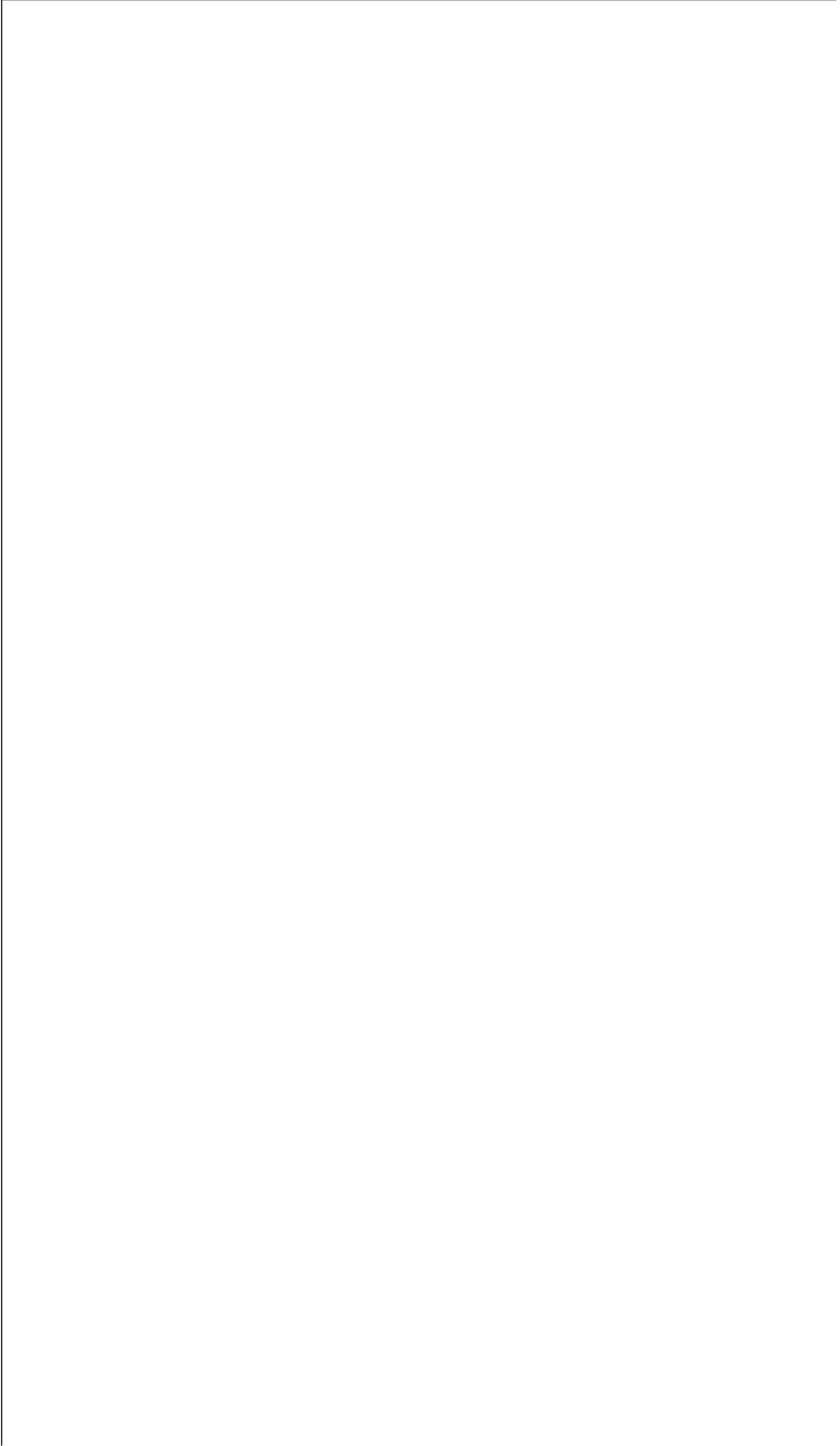


Clearly, retailers who have reviewed the VOIP option have made cost comparisons based on where they currently are and the potential savings that exist. As Hartman says, not every retailer will consider the savings substantial enough

to prioritize the change.

In time, however, people such as Yuille of Quick Connect believe that retailers will understand the unique

uses of VOIP and discover benefits tied to increased productivity. For instance, one of the advantages of having phone calls turned into digital elements is the



ability to identify the sources of incoming calls and end what for many businesses is an unseen drain on resources: employees who abuse personal phone-call privileges.

“People can play Texas Hold ‘Em for two hours online. They can talk to their moms or boyfriends for hours arguing about something,” Yuille says. “This way you can identify phone numbers and block calls or at least limit calls to 10 minutes.”

However, the problem of unmonitored, analog calls is only exacerbated by having an always-on broadband connection, says Don Fuller, general manager, 123 SECURE.NET, Royal Oak, Mich., a company that provides security features to broadband connections. Having that access to the Internet opens up opportunities for unsupervised employees to become absorbed in online distractions, possibly at the expense of customer service or store productivity.

“C-stores that jump on the bandwagon have not given thought to free-wheeling Internet surfing by employees,” Fuller says.

But with VOIP, retailers can access call records instantly and respond quickly to unwanted activity. Traditional, analog service providers will not identify long-distance call numbers until a month later when the bill comes in, and they will not identify local calls at all, Yuille says. On the other hand, retailers can manage digital calls to a high degree, not only flagging or limiting less desirable calls, but also opening up new options such as a “hot” list of 20 phone numbers, whereby all other calls are automatically forwarded to voice mail.

With issues of jittering and service

quality fading, people have a tendency to think of VOIP in the same way they think of traditional analog calls. But VOIP is data, Yuille says, and retailers

can manipulate data to not only cut costs but also focus employees on the task at hand. “That’s increased productivity,” he says. ■