



Voice over Internet Protocol (VoIP) – What it means to the Electronic Security Industry in Canada.

Prepared by: Rick Snook
Canadian Alarm & Security Association
Director of Education
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The recent release of phone service over the Internet is really nothing new. However, to Canadians, this is a major breakthrough in cost reduction for those homes and businesses with existing high-speed Internet connections in place. The phone service over high-speed Internet allows those consumers who currently subscribe to high-speed Internet or high-speed lite users to install a no charge interface to allow for standard telephones to be used at a lower cost than traditional phone service. This service has been available through computers for some time but not using conventional telephone sets. The launch of this new service allows consumers to add additional lines or replace their primary service at a lower cost with the ability to keep their current phone number in limited areas across Canada. The interface box can travel with you and be plugged into a high-speed connection allowing for local calling to your home area. Therefore, if you are traveling within Canada or outside the country, plugging the interface into a high-speed connection will allow you to call your home area code at no charge. The units can be ordered with various area codes across Canada and shipped all over the world to allow them to call the local exchange (area code) with no long distance charges.

The net effect of this service is to offer a lower cost line using a regular telephone set that includes all of the features from a Telco provider with the exception of 911 services. The telephone numbers are currently limited to Toronto, Calgary, Edmonton, Hamilton, Montreal, Ottawa and Vancouver. Anyone within Canada can obtain a phone number from one of these calling markets (example: a satellite office in any city or country where a high-speed connection exists could purchase a Toronto number and enjoy free unlimited local calling in the Toronto exchange).

Sounds great, so what does it mean for our industry?

The Canadian Alarm & Security Association in its endeavor to keep our members up to date on issues affecting our industry conducted some tests on the VoIP technology using the service offered from Primus. This recent launch has kept many busy analyzing the effects of the service not only from the security industry side but also the telecommunications providers and regulators. In our study we have completed tests using the VoIP connection from not only the best case scenario of a T1 Trunk with no traffic, but also from a residential cable modem at peak service time. The following are the results and comments of our testing.

Please remember that results will vary for each service provider and area in which you reside. This publication only releases the findings of the test using the above mentioned services and provider.

Successful Communications

The test of pulse formats was completed for 10, 20, and 40 pulse per second with and without parity showing complete success in transmission on the first attempt. The pulse format transmission was programmed using hex digits in the account number to ensure transmission of all programmed values. The SIA format also transmitted successfully on the standard Broadband Voice Gateway as well as the unit modified for use with Facsimile.

Downloading was completed for two products successfully; demonstrating that transmission speeds of 110 to 300 baud is supported over this service.

Caller ID from the phone number of the Gateway was also transmitted to the station on every test transmission successfully.

Unsuccessful Communications

The test with Contact ID and DTMF Express formats failed on all attempts. This failure condition existed due to an echo of what is believed to be of retransmission of the signal packet at a slower rate, thus causing the signal to scramble and not recognize the DTMF (touchtone tones) data packet by the receiver. Further testing with a digit grabber will be required to further analyze the issue.

Pulse Dialing failed thus raising the issues of older panels that switch to pulse dialing after unsuccessful communication attempts.

Other Tests

A current consumption test was reviewed on the Broadband Voice interface to determine the standby current of the unit for backup calculations. The unit we tested required 12 Volts DC with an operating current requirement peaking at just over 400 milliamps. The unit could run from a back up power supply with standby battery and be integrated into the alarm system for supervision of power. However, the Cable modem tested had a dual voltage requirement of 5 volts and 7.5 volts DC. This therefore requires the need of a UPS to be installed to provide backup power for the modem. A UPS (Uninterrupted Power Supply) to carry power to the modem and VoIP interface for a period of 4 hours will add an additional cost of \$150-\$300.

Benefits and Disadvantages

There are a number of benefits for this service and some real troublesome and costly issues.

Benefits

- Multiple offices can now enjoy the pleasure of lowering the costs associated with long distance calling by integrating a VoIP line into their office and connecting to the telephone system.
- VoIP is a lower cost, therefore allowing for an alternative backup source such as cellular or control channel radio to be added without increasing the current cost of service from the local Telephone Company, and increasing the client's security.
- There is an opportunity for security companies to assist in the installation of this service for clients to maintain the current infrastructure of the inside wiring of the home.
- There can be a reduced cost for 800 service requirements for customers outside the local calling area to the station. Installing the VoIP service into the customers' premises allows free local calling, thus allowing more enhanced test signals to be implemented (although costs for additional receiving and landline services would be required by the station).
- Open access for phone services from other providers other than the Telephone Company may bring the rising costs of communications downward.

Disadvantages

- Currently the service does not support 911 services, which is a threat to an individual's security in emergency situations. Back door numbers will now be a problem for the industry to obtain. So, how does the customer call for Police, Fire or Ambulance authorities in an emergency? The use of Panic alarms from the system is one solution, but this raises our calls for service to authorities, leading to further issues.
- There is no back-up power for the infrastructure wiring to the customers' premises. Therefore, power outages such as those that occurred last year in North Eastern US and Ontario, presents other issues. During the same period last year conventional phone lines worked without power; how did the infrastructure of high-speed Internet prevail?
- There is a requirement of backup power for the DSL/Cable modem that will increase the cost to the customer by 150-300 dollars to ensure a backup of 4 hours of standby time. Is this an acceptable back-up time allotment?
- The service varies between the US and Canada in how various formats work. If a VoIP provider changes service, this could affect hundreds of thousands of alarm clients if the transmission formats become unsuccessful.
- The service that we tested did not recognize pulse dialing (rotary dial) and therefore causes issues with older systems that may not reach the monitoring stations on first attempts during peak periods. The older model dialers cannot be programmed in some cases to only dial DTMF (touchtone) and will revert to pulse dialing after a specific number of attempts.
- Wiring of a system to a demarcation point may become more difficult and time intensive to retain the line seizure infrastructure due to the location of the VoIP interface. This box will reside near the DSL/Cable modem that, in some residential applications, is on the second floor of a finished home.
- Supervision of the service will be more important than ever. Remember the Centrex launch, when dialing a prefix number became cumbersome to the homeowner and the service was dropped without the knowledge of the customer. What if the customer changes service provisions for VoIP?
- The need for client education is going to be costly for the industry, as many may be unaware of the downside to the local cost service. We will need to increase client education to ensure that we are able to receive signals.
- Reliability of the service is questionable, as some have major problems with frequent service interruptions where repairs can take longer than standard telephone services.

Conclusions of Study

The VoIP brought some unexpected conclusions based on input that other industry members experienced in the United States. We were pleased that the major formats, currently existing in the industry, would be supported. However, we were equally disappointed by the failure of DTMF formats. It is certain that the industry will have to deal with, what is expected to be, the "Boom" for this new service. Tests should be conducted by all companies to obtain an understanding of what problems may exist within their service area and with each service provider who enters the market. The comparison of results of our tests with others clearly shows that there is no standard or protocol. The lack of regulations will bring no common standard to what requirements the service must meet.

The area of concern that haunts our industry with this new service offering is the issue of bandwidth availability and back-up infrastructure of the high-speed network.

The question must be raised that when the demand peaks for this service, will the bandwidth be available to support it? Would this be an issue as the cellular service was when demand of the system did not meet the infrastructure, thus resulting in difficulty completing calls in peak hours?

The other concern, although being addressed by other service providers, is allowance of the line voltage of the carrier signal to power the modem. This will relieve some of the concerns relating to the issue of back-up power but does not resolve the immediate issues.

Conclusions of Study – Continued

In conclusion, be prepared for this service and despite the service being proposed as a secondary incoming phone line, the consumer will resort to this service for a primary line because it meets their needs of enhanced features at a lower monthly cost.

CANASA will continue to endeavor to work with providers of this service and meet with company executives to address the liability and operational issues of this service. We will continue to publish information regarding this issue on a timely basis.

Disclaimer

The information provided in this document is intended to create awareness of a new technology that may affect our security industry. The tests conducted are not conclusive and should not be relied upon in any way, as there are many variables that can affect results. CANASA does not recommend nor reject the use of this service. CANASA will in no way be held liable for any loss, injury or damage incurred by readers that use this information.

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