



Time Warner Cable Business Class
Peter Eckhart
Sales Engineer - East Region Verticals
2620 West Henrietta Road
Rochester, NY 14623

RE: BCP and VoIP

Dear Mr. Eckhart:

This letter is in response to a recent request of a commercial property to change the fire alarm control panel communication methods. I have reviewed the request and have prepared the following response to the request to eliminate the POTS (Plain Old Telephone System) and transition to cable or fiber for primary fire alarm signal communication.

Wherever you have a fire alarm control panel in a building, you commonly have POTS phone lines running to it. POTS typically refers to Plain Old Telephone Service. The fire alarm control panel has an analog dialer that dials a monitoring service to report fire, supervisory and trouble; that service might be an in-house monitoring station or a third party that you pay for monitoring services.

Either way, most existing fire alarm control panel dialers will not function correctly over a VoIP system or analog gateway. The reason is that, when they (fire alarm signal) are converted to digital and compressed, analog signals are optimized for voice — not data — so a fire alarm control panel is unable to send correct signals to a listed and approved monitoring station.

VoIP varies its compression based upon the available bandwidth. These problems will adversely affect VoIP conversion by alarm system owners since failure of these systems could potentially result in loss of their property and in some cases their life.

The National Fire Protection Association – Chapter 72 / 2007 Edition requires that both communications and fire alarm equipment “be UL listed for its purpose”. On-premises voice equipment is UL listed under Telecommunications (UL® 60950). Fire alarm equipment is UL listed under Fire Alarm Systems (UL® 864). Every piece of equipment on the premises that is needed to get the signal offsite must be approved (Listed) for that purpose.

A number of businesses have either switched or are planning to switch over to VoIP phone systems. Those businesses who have switched have usually had to keep two POTS phone lines in order to meet the monitoring requirements of their fire alarm systems. Some businesses may not have even noticed that their fire panel is no longer reporting to their central monitoring station, as they did not know most VoIP systems won't work with their fire alarm systems.

I had a very detailed discussion with the National Fire Protection Association – Chapter 72 technical support personnel and found that most of the VOIP providers install a single box that provides two phone lines for the Digital Alarm Communicator Transmitter (DACT) to use. Per NFPA, each phone line must have its own interface.

The National Fire Protection Association – Chapter 72 / 2007 - Section 5-5.2 requires a DACT to be connected to two independent means of communications to a supervising station, the first of which must be a telephone line.

The telephone line must be a loop start line, and may not be a ground start line commonly found on a Private Branch Exchange (PBX). Loop start telephone lines always have voltage present and therefore can be monitored for integrity.

The second method of communication may be a cellular telephone, active multiplex, derived local channel, one-way private microwave, one-way RF or two-way RF.

An article I read as I completed my research on this topic specifically asked and addresses this question.

Q. How does Comcast Digital Voice® service work with monitored home alarm systems?

A. Comcast Digital Voice works with most modern, home alarm systems that use tone dialing and standard data protocols. Comcast does not guarantee that the Comcast Digital Voice (including, without limitation, the feed between the alarm panel and the Comcast-supplied eMTA) will be uninterrupted or compatible with each and every make or model of home alarm systems.

The service provider company needs to provide a means of transferring the signal from the fire alarm communicator to their network and provide the required backup power supply on any interface equipment. Every piece of equipment on the premises that is needed to get the signal offsite must have battery standby equal to that provided for the fire alarm system

It is also important to understand that the telephone service provider's communications equipment is expected to provide 8 hours of standby power for equipment installed on the premises or located in the field. It appears the equipment proposed does not meet the required back up power requirements. MFVNs can be used provided that they certain features. In addition to the these features, the Office of the Fire Marshal shall verify line seizure and the successful transmission of signals to the supervising station by an approved licensed New York State Fire Alarm Contractor.

National Fire Protection Association – Chapter 72 (2010 Edition)

“Section 3.3.141, further defines a Managed Facilities-based Voice Network (MFVN) as “A physical facilities-based network capable of transmitting real time signals with formats unchanged that is managed, operated, and maintained by the service provider to ensure service quality and reliability from the subscriber location to public switched telephone network (PSTN) interconnection points or other MFVN peer networks.”

The MFVN installers can't offer this service unless they have an employee who is approved to perform fire alarm system work within New York State.

Before the existing approved transmission service is disconnected, the MFVN provider must notify the subscriber that an approved fire alarm contractor must be present for the installation of the new service to make certain that all signal transmission features have remained operational.

Once the conditions of NFPA 72-2010 are met and the communications of the required signals to the monitoring company are verified, the MFVN connection is acceptable.

Please refer to the enclosed New York State Codes Division Technical Bulletin – Dated December 28, 2010 - Fire Alarm Signal - FCNYS Section 907 & BCNYS Section 907.

In closing, the use of VoIP and most proposed variation of internet based fire alarm signal transmission methods do not comply with the standards set forth by the National Fire Protection Association – Chapter 72 / 2007 Edition and the codes adopted by New York State.

This proposed equipment is not tested and listed for specific use with fire alarm control equipment.

Furthermore, the signal reliability and required power supply backup appears not to meet the detailed requirements as well.

If you have any questions or wish to discuss this matter in detail please feel free to contact me directly.

A handwritten signature in black ink that reads "Christopher A. Roth". The signature is written in a cursive style with a large, stylized initial 'C'.

Christopher A. Roth
Chief Fire Marshal