Using Sangoma Vega 60G Gateway for Migrating POTS Services

Application Note

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Overview

Analog telephone lines are sometimes known as Plain Old Telephone Service (POTS). They have co-existed with other telephone network technologies for many years. In recent years, traditional networks such as POTS and later circuit-switched networks have been supplemented and sometimes replaced by packet networks. As the analog phone lines are retired, many companies still want to support various safety and security devices such as elevators and fire panels which were designed to work over these analog networks. In this application note, we'll show how customers can migrate these services to make use of the newer packet-based networks by using specific features and configurations of the Sangoma Vega 60G gateway.

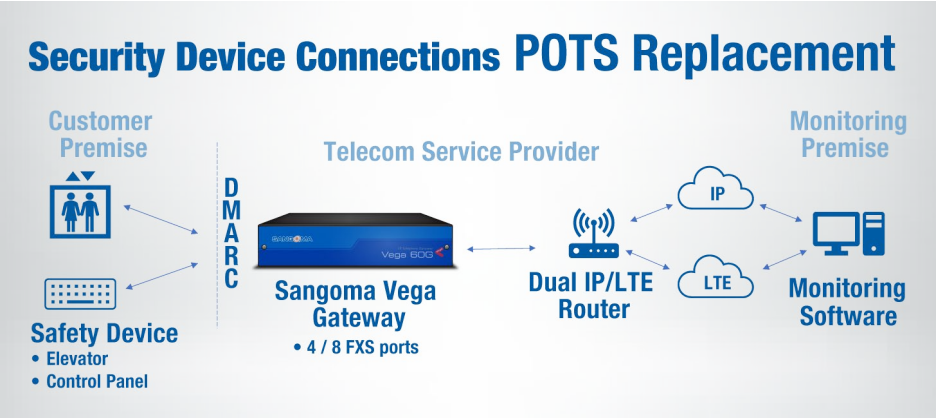
Application Description

There are numerous challenges to be addressed in any migration scenario for the support of security and safety devices which have been designed to work over analog networks, First, these devices provide critical business services and need to work in a reliable manner. In addition, the devices have typically been integrated over the service provider's telephone network to connect to internally or externally

managed monitoring systems. These monitoring systems use data communications protocols which need to be supported and understood both by the individual security devices and by the monitoring system. In summary, from a business perspective, it will be valuable if the end point security devices and the monitoring systems can both be maintained "as is," but still find a way to connect via more modern network technology.

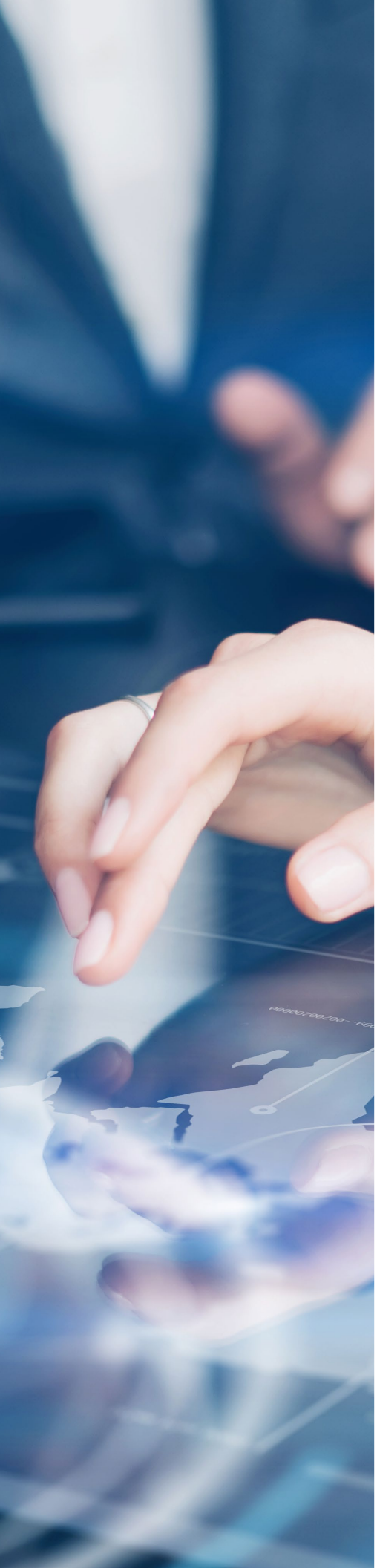
Let's look at an example of how an analog security device, such as an elevator or control panel, can connect to an analog media gateway, such as the Vega 60G gateway, and still be able to connect to an associated monitoring system using data communications (see Figure 1).

Figure 1 - Security Device Connections – POTS Replacement



In Figure 1 above, the customer's existing analog security devices (such as a control panel) connect to an analog port of the Vega 60G gateway from the customer premise. The gateway is able to translate an analog data session for transport via the Session Initiation Protocol (SIP) and then the real-time data session is routed across either a fixed Internet Protocol (IP) network or a mobile network to connect to a monitoring device.

In this way, the customer's existing investment in their security equipment (such as a control panel) and access to their preferred monitoring system is maintained, but the fulfillment of the monitoring session takes place across newer network technology instead of over POTS lines. As a result, this kind of approach provides both customers and service providers a solution to migrate their safety applications from POTS phone networks to newer technologies.



Functions and Features – Vega 60G Gateway

The Vega 60G gateway has several features which are well suited for the migration of the safety applications described above. A Vega 60G Gateway can be equipped with either 4 or 8 analog ports. Customers have a choice of using these ports in either FXS or FX0 mode; the FXS mode is used for support of the safety devices which previously connected to analog (POTS) phone lines.

For the safety applications, the analog side of the gateway will need to recognize the low speed data protocols which are used. Examples could include protocols which use DTMF tones, FSK (Frequency Shift Key) oscillations or other low speed modem protocols. Usually the Vega 60G gateway will rely upon the data training process to switch to data mode, but some of the protocols may not be recognized as requiring data mode. For these cases, an FXS port on the gateway can be designated as defaulting to "data mode" and always run with applicable settings. These settings may include running G.711 to pass through the data session and turning off echo cancellation.

The Vega 60G gateway also comes equipped with a Gigabit Ethernet port, which can be used to run a SIP session on the IP side of the gateway. For the safety applications, the SIP side will typically be configured to run a G.711 session. This enables the tonal data content from the analog side to be preserved and passed over the network to a data monitoring system that will be able to process the information which is being transferred via the data protocol.

In summary, the Vega 60G will use FXS ports on the analog side to run data mode sessions and then pass-through the data session via SIP using a G.711 session. The real-time data session is then forwarded to the premise of the monitoring system, thus retaining the ability for the safety devices to be monitored using communications over a packet network in place of the POTS lines which have been retired.

Other System Elements

A solution for migrating safety solutions from POTS networks typically will include other system elements in order to provide a network which is reliable and meets the customers needs for connectivity. As shown in Figure 1, a router which includes connectivity to both IP and mobile networks can be a key element in providing access to packet networks for communications beyond the customer premise. Other elements in the network which provide resilience are Uninterruptible Power Supplies (UPS) which provide battery backup in the event of a power outage in order to keep the packet network running. Such additional system elements enable the solution provider or telecommunications service provider to offer a managed network service, which is sometimes referred to as a Managed Facilities based Voice Network (MFVN). In this way, a packet-based network provides new facilities which can replace an existing POTS network and support services to customers which can include safety services in addition to other services such as voice and facsimile phone calls.

Summary

In this paper, we have described an approach which can be utilized to enable customers to migrate safety services, such as control panels and elevators, from an analog POTS network to a more modern packet-based infrastructure. A key element of the solution described here is the Vega 60G analog gateway from Sangoma. The Vega 60G gateway enables customers to support existing investments in safety equipment such as control panels which rely upon analog phone connections and provide a pathway to communication over packet networks. The Vega 60G gateway can support the data communications protocols used to manage the safety equipment and this paper summarizes some of the key features and related settings that can be used to take advantage of data functions that are supported by the gateway. In turn, the Vega 60G gateway can be utilized as a key component within a managed network service such as a Managed Facilities based Voice Network (MFVN). This kind of network can be installed and set up by a solution provider as a replacement for the POTS network in order to support the safety services required by many customers.

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