Making Trunked Radio Systems and Intercommunication Systems Work Well Together

If radio communication is part of your job, you have undoubtedly encountered trunked radio systems. Although highly attractive options to free up spectrum resources, trunked radio systems create several problems when used with intercommunication systems: latency and failure. Both of these problems are due to aspects of channel acquisition inherent to trunked radio systems.

Global can solve these problems.

**Talk Permit Tone Detection with Adaptive TX Delay**

Also in this issue:

**What is a virtual module?**

We talk a lot about our virtual modules because they are an important part of what gives Global systems their scalability and overall readiness for implementation in a variety of sectors and industries. Just what is a virtual module?

**Global Is Expanding**

We remain firmly committed to bringing affordable, highly scalable and versatile intercommunication equipment to communities around the world. That’s why we’re excited to announce that Global is teaming up with dealers in Latin America.
If radio communication is part of your job, you have undoubtedly encountered trunked radio systems.

Unlike conventional radios where users manually tune into a specific channel, trunked radio systems allow administrators to set up logical talk-groups, allowing actual frequencies to be assigned dynamically when users want to speak. This methodology significantly frees up spectrum resources, making trunked radio systems highly attractive in industries ranging from public safety to event planning.

However, trunked radio systems come with their own set of problems. One problem is that each time a user keys up the radio to transmit, they have to wait for a talk permit tone to let them know a channel is available. When one isn’t available, the user hears a failure tone, indicating they need to re-key the radio to try again.

If you use intercommunication equipment to patch other audio sources into your trunked radio system, you’ve probably experienced both the delays and outright failures caused by insufficient channel acquisition management. What causes this?

Since it can take several seconds to acquire a channel on a trunked radio system, technicians often set a long transmit delay (TX Delay). This intercommunication system feature causes the system to key up the radio for some amount of time before audio is sent to it, which gives the radio time to acquire a channel.

In other words, if I am on a phone that is being patched to a trunked radio system, what I’m saying isn’t sent right away. It’s buffered, often up to five seconds, and then sent. It may not sound like much, but watch a second hand on a clock tick off five seconds. It’s actually a fairly long time. Worse yet, most of the time it’s not even necessary because the channel is acquired sooner. The system just doesn’t know it, so it waits and waits.

Even worse, there are times when trunked radio systems are oversubscribed or exceptionally busy and channel acquisition simply fails. A human listening would hear the failure tone and re-key the radio, but intercommunication systems haven’t been able to do that, and simply play out the audio without a channel. The audio is effectively unheard and the speaker is often not even aware of it.

How do Global intercommunication systems solve the problem of delays and failures?
Global’s unique approach to trunked radio systems.

Global’s solution is simple.

- Let the intercommunication system learn what a radio system’s Talk Permit Tone sounds like.
- Replace a static TX Delay with an Adaptive TX Delay that plays out audio as soon as the system receives the Talk Permit Tone.
- Give the system the option to re-key the trunked radio and try again if a channel was not acquired.

Now that the Global system knows the trunked radio’s Talk Permit Tone, when an audio source – like a phone or another radio – is patched to it, the TX Delay only has to be as long as it takes to acquire a channel, and no longer. Simply put, audio comes into the Global system from the other source. The Global system immediately keys up the trunked radio and starts listening for the Talk Permit Tone. Similar to standard TX Delay, the audio is buffered during this step. However, unlike standard TX Delay, which is predefined and static, Global’s Adaptive TX Delay reacts to the Talk Permit Tone and plays out the audio as soon as the tone is received.

Commonly, this means that instead of waiting some unnecessarily long preset of five seconds for the audio to start playing out, the delay is only exactly as long as it needs to be. This unique Global system capability significantly reduces latency.

That’s not all.

It can also re-key the radio.
Since trunked radio systems inherently risk being oversubscribed, Global systems are designed to do exactly what you’d do if you got a failure tone on a radio: **try again.**

Thanks to our Talk Permit Tone Detection capability, the system knows when it doesn’t get a channel and is able to re-key the radio. **As soon as the Global system receives the Talk Permit Tone – even if it has had to re-key the radio to acquire a channel – it plays out all the buffered audio.** With a large TX Delay Buffer of up to 10 seconds, Global systems provide you with the options to prevent channel acquisition failure and make sure your audio is heard.

**Global’s Talk Permit Tone Detection with Adaptive TX Delay effectively eliminates the problems of latency and failure when trunked radios are patched to intercommunication systems. From easily training the system to detect the radio’s Talk Permit Tone, to sending audio as soon as a channel is acquired, to re-keying the radio and trying again, Global systems provide a truly unique solution to improve channel acquisition management.**

Talk Permit Tone Detection with Adaptive Transmit Delay is available on Global systems like the G-400 Series that support radio modules, and the G-202 Remote Radio Unit that has two radio interfaces. For information on these systems, and all Global has to offer, visit [http://www.global-comm-tech.com](http://www.global-comm-tech.com).

You can also watch a video of Talk Permit Tone Detection with Adaptive TX Delay in action on the Global Communications Technology website. [http://www.global-comm-tech.com/videos.html](http://www.global-comm-tech.com/videos.html)
You may not be able to hold virtual modules in your hands, but that doesn’t make them lightweights. Virtual modules increase your communication capacity and versatility in truly important ways. Just like all of Global’s hardware modules, virtual modules provide you with the options, features and configurations you need. Since virtual modules are flexible network streaming options, they simplify system operation and management. That means you can do more with Global intercommunication systems – and you can do more, easily.

Consider GCT Streams, which provide enhanced audio streaming features with multiple setup options for streaming audio between Global systems. These powerful virtual modules benefit from Global’s advanced audio priority features to make half-duplex devices work better over a network. Global’s GCT Streams help you make the most efficient and logical use of your resources today, and give you the confidence you’ll be ready to welcome tomorrow’s expanding communication needs.

Another of Global’s virtual module types is Session Initiation Protocol (SIP). SIP is used to make Voice over IP (VoIP) phone calls possible. We offer SIP for free with system purchase, and let you configure any of your system’s virtual modules for SIP audio calls over a network.

You might be wondering whether Global systems require you to “tie” each of your virtual modules to a hardware module. Well, you can if you want, but it’s not necessary. Global systems’ virtual modules can be used “tied” to hardware modules, or used as standalone first-class modules. You decide. No matter which types of virtual modules you use, you’ll find they add value to your Global intercommunication systems by making them more scalable and adaptable to your preferences and needs.

Did you know that the G-SMU Management Unit and the Expanded System configuration on a G-408, G-408R or G-404 system do not require you to use up your virtual modules unnecessarily? That’s right, when using a G-SMU or an Expanded System configuration, audio communication is automatic and does not affect your virtual modules! Global systems let you keep those resources available for your own use while we handle the system-to-system communication behind the scenes.
Dime con quien andas y te diré quién

When it rains, it pours. *Llueve sobre mojado. Jamais deux sans trois.* In any language, the adage rings true because no matter what language we speak, we have all experienced the sentiment behind the words. We have hoped for rain, only to get a flood.

Natural disasters have plagued humanity throughout our collective memory. Our relationship with this planet we inhabit has, over time, changed as we’ve become better at reshaping our environment. However, we are still unable to conquer weather and geology, and that means we must be prepared to react to natural disasters on nature’s schedule and in less than ideal circumstances.

Take, for example, the massive 2007 flood in Tabasco and Chiapas, Mexico. Or consider the 2017 Chiapas, Puebla and Morelos earthquakes. How about the spring 2017 floods in Quebec, followed by the devastating wildfires in British Columbia and Alberta, Canada? Or again turning to Latin America, consider the geographic exposure of Colombia, Venezuela, Panama, Costa Rica, Nicaragua, El Salvador, Honduras, Guatemala and Southern Mexico. These areas are some of the most prone to hurricanes, landslides, floods, earthquakes and sinking lands, all of which come with devastating economic and social costs.

We at Global Communications Technology continue to hold firm to our commitment to bringing inexpensive, highly scalable and adaptable intercommunication systems to communities around the globe. **That’s why we’re excited to announce we’re teaming up with dealers in Latin America to make it easier to put Global’s system solutions in the places they can do the most good.**

Whether you use one of our G-202s as a repeater to make a remote location less remote, a G-404 or G-408 to patch phones and radios (and more), a G-SMU to manage a wide area or for lightweight dispatch, or our G-110 and G-120 dispatch units that can stand alone or be part of a larger system, we remain firmly committed to you.
1. Many different individuals have been credited with proposing daylight saving time, or something similar. Which of the following is not one of the reasons that has been given for supporting daylight saving time? (A) Collecting bugs (B) Enjoying the morning light (C) Increasing farm efficiency (D) Saving energy resources

2. In the US, the Uniform Time Act was passed in 1966 to establish consistent use of Daylight Saving Time. However, not all of the states accepted it. Due to its closer proximity to the equator, Hawaii did not. Which other US state did not accept DST?

3. What do these three areas have in common? The Navajo Reservation in Arizona, the first twenty km into Mexico along the US-Mexico border, parts of Saskatchewan?

4. What is the Tehuantepec gap?

5. What are the Tehuantepecer Winds?

6. When did the word virtual assume the meaning it has today in technology? (A) 1949 (B) 1959 (C) 1969 (D) 1979

Remember, you can find all the answers to our Fun Facts on our website, along with past newsletters and fun facts.