Technology Milestones
Talk Group Naming Conventions

January 2025

As a future capability from carriers and vendors, the ability to edit and set the talkgroup URI could yield a number of new capabilities. It could be made visible to power users when they "drill down" through their user interfaces, could be used to embed additional geographic, role, organization information, and could be used to enhance capabilities like our Interop-format naming convention (described below). On deployed systems, the URI looks like a random number, not unlike a telephone number, but without even the concept of an "area code" or "exchange".

The Catalyst Interop Format

Catalyst has invented a way to construct a Display Name for interoperability talkgroups such that it tells both our Interop Administrative Tools as well as humans using the PTToB system what the talkgroup interoperates with.

1.   There will be "free format" talkgroup names for a given agency (e.g. these are actual names from a Catalyst customer; we'll call it Springfield) that may have been in place for many years:
a.   Corey T7
b.   CL_FIRE
c.   VIPERFD

2.   To automatically create interoperability with a different agency or a different carrier, the administrator for the other agency or carrier would add via their MCPTT portal new talkgroups in Catalyst Interop-format. For example:

a.   Corey T7@(Springfield)
b.   VIPERFD@(Springfield)

3.   The purpose of this Interop talkgroup is to be a "patched" reflection of the free-format, main talkgroup on the other system. Users on this system who see the new Interop talkgroup can see that they are interoperating with Corey T7 on the Springfield radio system. It also conveys which is the established, main talkgroup and which one has been created to provide interoperability.

The Interop-format talkgroup name method provides the following advantages:
•   Administrative tools know how to build the patches automatically
•   Administrators and dispatchers instantly know they are Interop talkgroups and not the main talkgroups themselves
•   Administrators and dispatchers know what they are patched to just by looking at the Interop-format talkgroup name.
Gateway Administration Tools

In 3GPP MCPTT-compliant systems, one of the exceptional features that the client interface has access to is that, when connecting to the PPToB system, a wealth of information is downloaded to the client at connection time. This information includes other users on the system, talkgroups that the user has access to, and even the users that are members of each of those talkgroups. By contrast, this information is generally not available in an LMR system, even when connecting to trunked P25 systems via a wireline interface like CSSI. Further, proprietary PTToB systems do not supply this level of information through standards-based interfaces either. Because the administrator on each system sets up this information and has a large degree of freedom in defining talkgroup names (and, to some degree, user names) these names can be used to provide structure and implicit information for interoperability through the Catalyst naming convention.

As Catalyst leveraged its existing interworking product, it needed to make some extensive changes to how it manages talkgroup channels in MCPTT-compliant systems. Some of these changes are unique to how the Catalyst product implements talkgroups and how it allocates licensing for the number of talkgroups a given customer purchases, but the overall concept is extensible and should be applicable to others who market interoperability technologies.

Assigning Talkgroups Automatically

When Catalyst MCPTT gateways are initialized, each licensed talkpath on the gateway computer receives the full list of all talkgroups retrieved from the carrier's MCx servers. Enhancements to Catalyst's eco-system make it easier for dynamic changes in talkgroups to be promptly handled on both the gateway and administrator side for these wireline systems. Each talkpath instance on the gateway side is connected to a corresponding UI resource on the Interop Administrator Console side. This includes talkpaths which may not have a talkgroup currently assigned. This overall change in gatewayside behavior regarding talkgroups and talkpaths is a necessary conceptual change to allow the Interop Administrator Console to work for Wireline resources.

Rapid-Configuration

The Catalyst MCPTT gateway requires initial configuration before it can be accessed by the Interop Administrator Console and used for Interop between other Catalyst gateways. Many of the configuration items used for initial setup could also be misconfigured, causing the Catalyst MCPTT gateway to not operate correctly. Therefore, an important element was devising a way of automating the setup process for Catalyst MCPTT gateways so that an administrator would be able to quickly configure a new MCPTT user along with its provisioned talkgroups.

Once the user credentials, Mission Critical Exchange (MCX) provider, and networking information are configured within the MCPTT application, it can then automatically create and launch a specific number of talkpaths based on input from the user configuring the software. Those newly created talkpaths are then automatically populated with the MCPTT user's provisioned talkgroups as defined in the previous section. This drastically reduces the amount of time required to setup a new instance of a Catalyst MCPTT gateway and its associated

talkpaths. This rapid configuration process has simplified and streamlined the initial setup process, which also reduces the chance of misconfiguration.

Administrator/Dispatcher Tools

Administrator tools have been prototyped to take advantage of both the rapid configuration modifications that have been made and the automation of Interoperability that is possible when using Interop-format talkgroup names. Although our testing uses Catalyst's MCPTT gateway product and works specifically with it, the concepts are much more scalable and could be adapted for a general Broadband Interoperability Platform (BIOP).
The central concept is that the one thing that all of the PTToB systems can do is add and configure the membership and names of talkgroups. This is even true of proprietary PTToB systems so the concept of leveraging talkgroup naming for determining interoperability can be extended to proprietary systems. The primary limitation for proprietary systems is that Catalyst has no standards-based way of retrieving talkgroup information from these systems. Not only is retrieval of this information available in 3GPP MCPTT, the MCX server immediately notifies all users who are given access to the new talkgroup. In this way, BIOP products are notified of new talkgroups, can retrieve the information for the new talkgroup, and can immediately create interoperability between the new talkgroup and existing "freeformat" talkgroup names.

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