

# LMR+LTE

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# Dispatch and LTE PTT Integration

By Randy Richmond

There are several options for integrating dispatch consoles with commercial carrier push-to-talk (PTT) services. This article overviews radio dispatch-broadband PTT integration capabilities and how mission-critical communications users can benefit.



Zetron's MAX dispatch and AcomNOVUS console systems can both integrate with the AT&T Enhanced Push-to-Talk (EPTT) solution. This integration capability — the result of a collaboration between the two companies — connects LMR dispatch consoles to the world of commercial network broadband PTT communications, also known as PTT over cellular (PoC). Other examples of broadband initiatives in command and control include the addition of text to 9-1-1 in the MAX call-taking platform and the addition of AVL tracking in dispatch mapping systems.

PTT integration should be built with the future of public safety in mind by being based on Third Generation Partnership Project (3GPP) industry standards for mission-critical PTT. The standards are slated to be applied to the First Responder Network Authority (FirstNet) and other public-safety broadband networks.

The console interface connects users on smart devices with workers on LMR systems. In addition, the consoles interoperate with nearly every LMR system, including Project 25 (P25), Digital Mobile Radio (DMR), NXDN, OpenSky, EDACS, SmartNet/SmartZone and analog FM. The technology operates over 3G, Long Term Evolution (LTE) and Wi-Fi and uses the P25 Console Subsystem Interface (CSSI). Dispatcher-controlled LMR interoperability prevents overloading of LMR systems with unnecessary cellular PTT traffic.

The call features of the console and PTT integration include talker (PTT) ID with alias, group and individual calls, call alert, pre-emptive dispatch, broadcast call from dispatch console and candidates for broadband PTT integration.

Users who can benefit from broadband PTT integration include mission-critical users needing backup to LMR for indoor or extended-range coverage; non-mission-critical users such as utilities, transportation agencies, public works departments and schools; agency supervisors and administrators; and undercover agents.

### Carrier-Integrated Services

AT&T EPTT service is fully integrated into the AT&T network and is not dependent on an internet data connection. The service can be given higher quality of service (QoS) to help ensure instant communications when and where needed with AT&T's dynamic traffic management. This also improves latency, which in most cases is not unlike the latency of digital LMR systems.

The interface between Zetron's dispatch consoles, P25 radio systems and AT&T EPTT service takes place via the open-standard CSSI protocol, which has been widely adopted throughout the LMR industry. The integration requires a software license that is an add-on to the CSSI license. Once the integration has been completed, dispatchers can communicate with AT&T EPTT users just as they would any other LMR system.

This integration supports group calls supporting up to 100 talkgroups and individual calls supporting up to thousands of unit IDs and up to 250 users per talkgroup. Dispatchers can control patching of broadband PTT talkgroups to any other LMR network, talkgroup or user on the console system.

While AT&T also supports direct LMR interfaces, such as radio over IP (RoIP) via LMR donor radios and the P25 Inter RF Subsystem Interface (ISSI) to LMR radio fixed-network equipment, Zetron's console-based integration offers several advantages over direct LMR-to-broadband interfaces. Console operators see broadband PTT traffic just like they see LMR traffic. Using the same standard operating procedure (SOP) as LMR ensures that important broadband traffic is heard. When a console is used as the interoperability gateway from broadband PTT to LMR, there is no need to add or license new LMR interfaces to the radio network(s). Interoperability is provided through existing LMR interfaces that are already connected to the console system.

Using a console as the gateway allows console operators to decide when and with whom to patch broadband PTT groups and users to LMR groups and users, whereas with direct interface methods, interoperability is controlled by field users selecting common talkgroups. This prevents field users from accidentally selecting the wrong talkgroup and causing traffic on one system to load the other system. This is particularly important if there is

a high number of broadband PTT users whose traffic could potentially swamp an LMR system. Thus, while under dispatcher control, interoperability will only occur if and when it is needed.

Zetron AcomNOVUS consoles can provide special provisions when patching between the AT&T EPTT solution and a P25 system. The patched audio is maintained in its native digital format rather than transcoded, preserving rather than degrading the original audio quality. The originator's talker ID, rather than the ID of the console system, is sent to the destination user or group, regardless of whether the direction of the call is LMR to broadband or broadband to LMR.

The consoles support network-integrated, broadband PTT interoperability with additional carriers, as well as interoperability with over-the-top (OTT) PTT solutions such as ESChat. A new map-based dispatching capability will soon be able to use location information of FirstNet PTT users.

In addition to supporting a variety of voice call types, including emergency, the consoles can serve as an LMR-to-LTE and LTE-to-LTE interoperability gateway, enabling cross-carrier PTT operation, with preservation of traffic priority, regardless of solutions used on those carriers. This enables FirstNet PTT users to communicate with commercial PTT users on other carriers.

### Benefits of Adding Broadband PTT

Many organizations that use LMR systems can reap great benefits from adding broadband PTT capabilities.

Agency administrators using broadband PTT can stay in touch with dispatchers and other LMR users, even while traveling outside of their LMR system coverage areas. Noncritical users, such as schools and public works, can be issued inexpensive cellular smartphones with low monthly fees instead of expensive LMR handsets and can still maintain interoperability with dispatchers and LMR users when needed. These same devices can also host workforce applications.

Undercover police can carry unobtrusive consumer devices rather than conspicuous LMR radios and still interoperate with dispatchers and LMR users. Critical users such as first responders who rely primarily on LMR radios can use their smart devices running the PTT app as a backup in areas where the LMR coverage is poor such as inside buildings or beyond LMR coverage areas. ■

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