



# Kodiak Broadband PTT *Capability Guide*

## Introduction

Avtec's Scout VoIP console system integrates seamlessly with Kodiak's next generation push-to-talk (PTT) platform to provide console access to advanced features supporting cellular PTT subscribers.

Built upon the latest mobile communication technologies, Kodiak's Broadband PTT platform is based on the global Open Mobile Alliance (OMA) PTT over Cellular (PoC) version 2.0 standard. The OMA PoC standard is accepted as a good baseline for further enhancements to meet Public Safety use cases and ensures interoperability between networks.

Broadband PTT combines the operational advantages of PTT with the interference resistance and other virtues of mobile phones. Broadband PTT is a way of communicating via cellular phone within or between one or several groups of users, allowing customers to use cellular phones in a way similar to a walkie-talkie. By simply pressing a key on the phone, every member of a group can hear the talker simultaneously and immediately. Any phone or computer capable of IP communication can operate as a Broadband PTT client.

Broadband PTT has the potential to reach millions of end users, supporting PTT over 3G, 4G LTE, and Wi-Fi networks. IP-based Broadband PTT transmits voice as data packets over the data channel of a cellular network. It can be deployed across multiple devices and platforms and can integrate with existing Wi-Fi, IP-enabled PBX, and Land Mobile Radio (LMR) systems. Its interoperability with existing two-way radio systems can ease the transition from LMR systems to cellular solutions.

Avtec's Scout console is the first dispatch console partner to integrate with Kodiak's CSSI-based interoperable gateway providing direct IP connectivity between the console and the Broadband PTT infrastructure. This integrated business-critical end-to-end dispatch and Broadband PTT offering provides instant voice communication with employees in the field.

This capability guide describes Scout's capabilities in Kodiak's Broadband PTT network.

## Capabilities-at-a-Glance

Capability	Description
Interface Method	The Kodiak driver and Avtec's Trunking Gateway together with Kodiak's Broadband PTT gateway provide a VoIP connection between the Scout console and the Broadband PTT network. This interface is available on AT&T's Enhanced Push-to-Talk (EPTT), Verizon's Push-to-Talk Plus (PTT+), and Motorola's WAVE™ OnCloud and Nitro™ CBRS Private LTE Network.
<b>Controls</b>	
Group Call	Allows a dispatcher to establish voice communication with a group of subscriber radios or consoles. All members of the group hear the conversation.
Emergency Call/State	Notifies a dispatcher of an emergency situation in the field using a unique ring and visual indication. When a subscriber presses the emergency button, the endpoint generates an emergency call and activates the emergency state. Until the emergency state is cleared by the dispatcher, no further emergency calls from that subscriber can generate an Emergency Call.
Permanent Patch	The Avtec Scout system can be configured to utilize software permanent patches between PoC and LMR talkgroups. The resulting permanently patched talkgroups appear to the dispatcher as a single talkgroup on the console and enable communications across LTE and LMR talkgroups. <b>Note:</b> Software permanent patches are enabled through Scout's "Audio Bridge" which is an optional licensed Avtec product.
Tone Generation	Allows a dispatcher to send tones or to send tone specifications when WAV files cannot produce the desired output. For example, a dispatcher could send an alert tone to announce bad weather or other alarm conditions. These tones include: <ul style="list-style-type: none"> <li>• Alert Tones</li> <li>• Paging Tones</li> <li>• Channel Marker Tones</li> <li>• Keying Tones</li> <li>• Guard Tones</li> <li>• Function Tones</li> <li>• DTMF Tones</li> </ul>
Console Priority	Depending on how the radio system is configured, allows a dispatcher with a higher priority level to take over a transmission from a subscriber on a different talkgroup when there are no resources available, or allows a dispatcher with higher priority level to be placed higher in the queue for the next available resource. <p><b>Note:</b> By convention, all console transmissions have automatic priority over subscriber unit transmissions.</p>

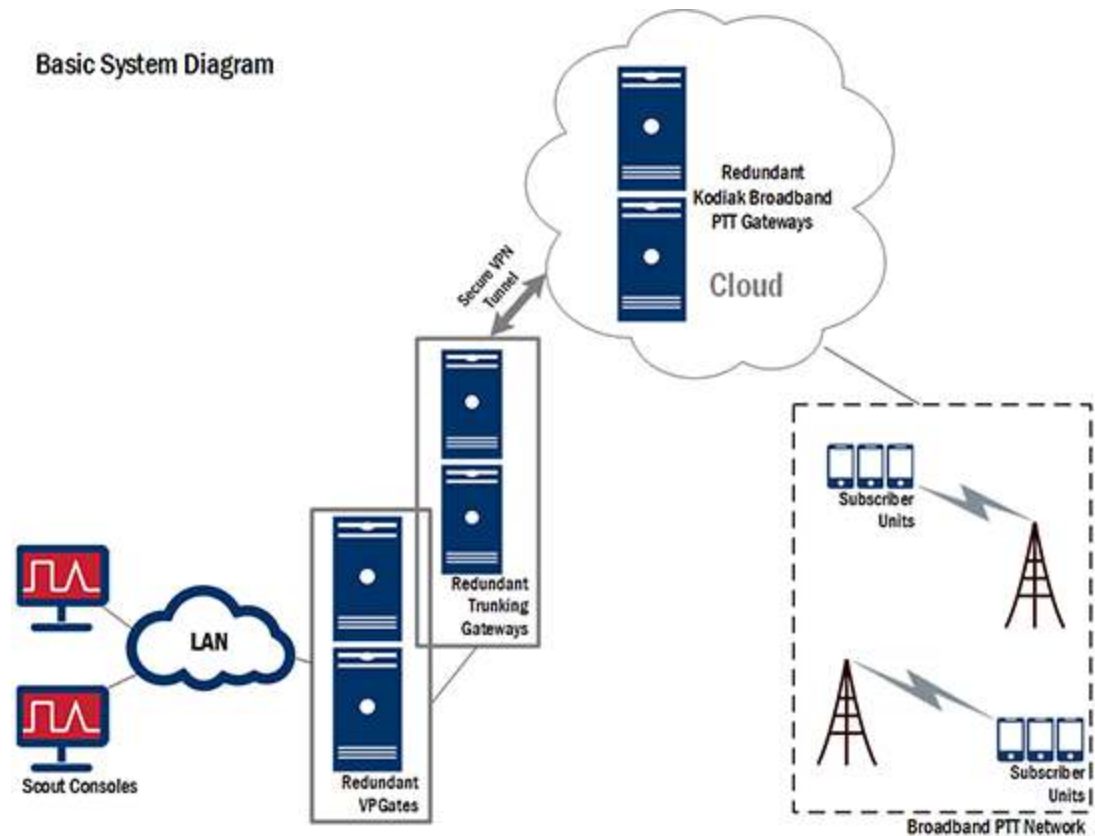
Capability	Description
PTT ID with Alias (ANI)	Gives a dispatcher a visual indication of the identity associated with the last voice transmission. An identity can represent the raw subscriber unit ID (PTT-ID) or an alphanumeric string representation of it (ANI Alias). The identity can display in the Activity History and on the associated endpoint pad using the ANI pad extender. For example, a PTT ID of 2527 can be aliased to "Fire 1."
Unit Call	Allows a unit to send and receive a direct voice call to and from a single unit. Units can be either dispatchers or subscribers in the system.
Unit Alert	Allows a unit to send or receive a request for another unit to call them back. Units can be either dispatchers or subscribers in the system.

## Connections

Setting up the connection in the Scout console system includes setting up both the Kodiak driver and Avtec's Trunking Gateway. The Kodiak driver, which is located in VPGate, Scout's audio gateway, connects to Scout's Trunking Gateway (the Console RFSS).

The Kodiak driver and the Trunking Gateway together with Kodiak's Broadband PTT gateway provide a VoIP connection between the Scout console and the Broadband PTT network. The VPGate Kodiak driver conveys voice using G.711 encoded packets between the subscriber unit and the console subsystem.

### Basic System Diagram



*The diagram above illustrates a basic setup between a Broadband PTT network and the Scout console system. Scout's VPGate software and its Trunking Gateway software run with redundancy to ensure connectivity to the Broadband PTT network through the Kodiak gateway.*

## Licensing

The direct IP interface between the Scout VoIP console subsystem and the Broadband PTT network is controlled by software licensing. Review the following information to learn more about the type and quantity of licenses required for an interface to a Broadband PTT network.

Avtec requires both a base VPGate license and a Push-to-Talk Over Cellular (PoC) supplemental subscription license to interface with a Kodiak Broadband PTT system. The following table lists the VPGate endpoint license options and the maximum number of endpoints allowed.

- **Base VPGate License** — The base VPGate license size represents the maximum number of endpoints that can be active at any one time on a single VPGate. The base license is available in several sizes: 24, 40, 80, or 160 endpoints. To use more endpoints, you need additional VPGate licenses.

VPGate License Model Number	Total Category A&B Endpoints	Maximum SIP Endpoints (Category B)	Redundant
SFW-VPG-L0-NR SFW-VPG-L0-NR-SK	24	12	No
SFW-VPG-L0 SFW-VPG-L0-SK	24	12	Yes
SFW-VPG-L1 SFW-VPG-L1-SK	40	20	Yes
SFW-VPG-L2 SFW-VPG-L2-SK	80	40	Yes
SFW-VPG-L3 SFW-VPG-L3-SK	160	100	Yes

Each endpoint, whether a talkgroup or a unit endpoint, uses one Type A license.

- **Supplemental Push-to-Talk Over Cellular (PoC) Subscription License** — PoC supplemental subscription licenses, supporting one redundant PoC endpoint each, are available under the following model number:

PoC Endpoint License Model Number	Description
SUB-VPG-POC-SK	<p>3-Year Subscription Term - AT&amp;T Enhanced PTT, Verizon PTT Plus, Motorola WAVE™ OnCloud, and Motorola Nitro™ CBRS Private LTE Network.</p> <p>Supports one redundant PoC endpoint.</p> <p>Requires Enterprise VPGate or Scout Select package.</p>

VPGate Category A, Level 3 is the maximum number of endpoints that one VPGate can support. Any number of endpoints over the maximum requires additional instances of VPGate and licenses. Refer to the VPGate Cut Sheet or contact your Avtec sales representative for more information about licensing for Scout and Kodiak endpoints.

*Network Requirements* To configure the network requirements for a Scout system with Kodiak endpoints, consider the following:

### VPN Tunnel

- The VPN tunnel must come up successfully. This requires accurate exchange of information on acceptable equipment. Acceptable equipment includes Cisco®, PaloAlto, WatchDog, and CheckPoint.
- Once you establish the VPN tunnel, you must allow network traffic on the inside of your network to pass down the tunnel to the other side of the tunnel. The same must exist with the VPN tunnel and Kodiak networks.
- Depending on your environment, you may need static routes pointing to the tunnel peer for the Kodiak networks.

### Kodiak Endpoint

Each conversation between a Scout console and a Broadband PTT network subsystem (talkgroup or unit call) requires 44 kilobits (kb) per second of bandwidth. A Broadband PTT network-to-Scout console call requires 35 kb/sec.

### Jitter

Scout allows jitter ranging from 60 ms to 2.5 seconds.

### QoS

Scout supports separate Differentiated Services (DiffServ) values for audio and control packets between the console subsystem and the Broadband PTT network subsystem. This allows the network administrator to provision the Ethernet network that ties the console subsystem to the Broadband PTT subsystem to give priority to the voice communication packets to reduce latency and provide an excellent Quality of Service.

For more information, see the *Architecture and Networking Design Considerations* document.

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