

Gateway Applications

Applications Note



1 INTRODUCTION

Entel's E PoC / P1 Gateway that can be used to:

- **Extend Reach:** Connect users beyond the limits of your current radio system coverage;
- **Unify Networks:** Seamlessly link disparate radio systems together and bridge communication silos;
- **Embrace the Future:** Integrate smartphones into your communication ecosystem, enabling flexible and convenient team collaboration; and
- **Enhance Control:** Add dispatchers, recorders, and other critical functionalities to your existing radio infrastructure.

2 E-POC GATEWAY HARDWARE

Entel's E PoC / P1 Gateways comprises an IP interface (WiFi or wired Ethernet) that is connected to a two-way radio that is either internal (Figure 1 left) or external (Figure 1 right) to the E PoC Gateway itself. The gateway is typically installed within the coverage area of the radio system it connects to the PoC server over IP, enabling it to cross-connect on-site radio conversations to internet/intranet-connected resources and remote radio systems.



Figure 1: Entel's E PoC Gateway Variants

The “Combined” E PoC / P1 Gateway variant with an internal VHF or UHF radio operates in one of the following modes:

- Analogue FM; or
- DMR.

The “Universal” E PoC / P1 Gateway variant requiring an external radio connects via analogue audio, PTT and Carrier Operated Relay (COR) lines, thereby allowing virtually any radio protocol and frequency band to be connected to the internet/intranet:

- Analogue AM (Air-to-ground);
- NXDN™ (JVCKENWOOD / Icom);
- dPMR;
- P25;
- TETRA;
- Capacity Plus™ (Motorola);
- Etc.

Both hardware variants can operate using either simplex or half-duplex channels.

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3 ARCHITECTURE

Figure 2 below shows a generalised E-PoC / P1 Gateway architecture.

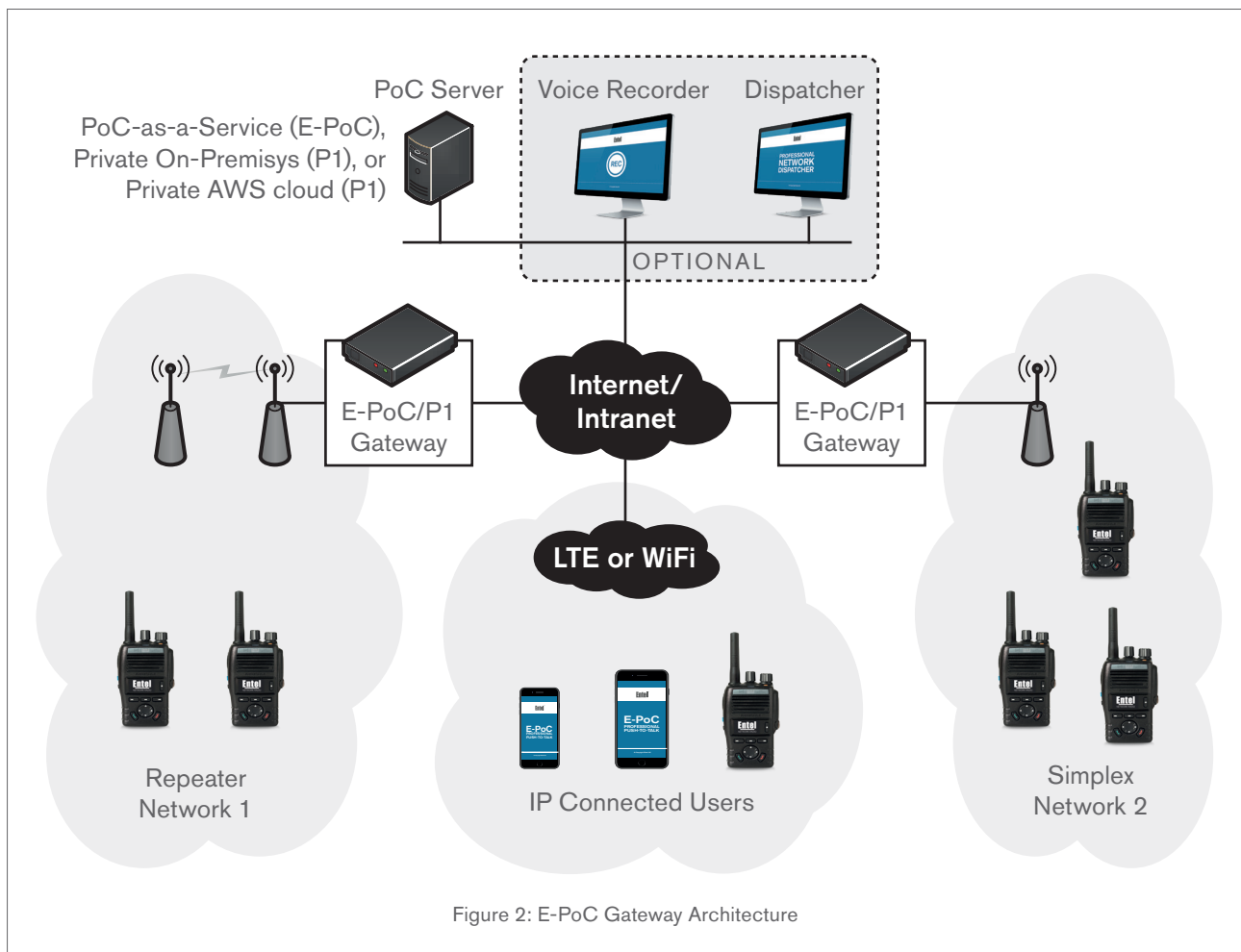


Figure 2: E-PoC Gateway Architecture

The E-PoC / P1 Gateway cross-connects audio between the local radio network in which coverage area it has been installed, and either a shared PoC server in the cloud (E-PoC), or a dedicated PoC server (P1) located either on-premises or in the AWS cloud. From there, the PoC server can stream such audio to:

- Another E-PoC / P1 Gateway in a different location, thereby unifying the geographically separated radio networks;
- Another E-PoC / P1 Gateway in the same location, thereby unifying co-located radio networks utilising dissimilar radio protocols;
- An Entel Android / iOS application, thereby integrating smartphones and tablets into the radio communication network;
- An Entel DN495 LTE/Wi-Fi portable radio; and
- An internet-connected voice recorder or dispatcher, thereby enhancing control and audit trails.

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4 EXAMPLE APPLICATIONS

Figure 2 below shows a generalised E-PoC / P1 Gateway architecture.

	<h4>Highway Maintenance</h4>	<p>Highway maintenance teams often operate in geographically separated pockets with remote supervision. E-PoC / P1 Gateways can be used to interconnect these maintenance teams, and place them under the control of a remote dispatcher.</p>
	<h4>Education</h4>	<p>Educational institutes (and their service providers) that operate across multiple or very large campuses can use E-PoC / P1 gateways to connect teams across geographically separated operational areas, as well as interface to off-site support personnel.</p>
	<h4>Shop Watch</h4>	<p>Shop Watch schemes can use E-PoC / P1 gateways to:</p> <ul style="list-style-type: none">▪ Connect out-of-town retail parks to city centre systems;▪ Create a wide-area group or channel to use alongside local channels; and▪ Integrate smartphones and tablets as alternative communication devices to radios.
	<h4>Airports</h4>	<p>E-PoC / P1 Gateways can be used to give dispatch, operational and maintenance personnel at airports the ability to monitor or communicate with aircraft over PoC channels cross-connected to AM air-to-ground radio systems.</p>
	<h4>Migration and Interoperability</h4>	<p>Users operating hybrid radio / PoC systems, or migrating from radio to PoC systems, can use E PoC / P1 Gateways to interoperate between the two technologies.</p>

Table 1: E-PoC Gateway Applications

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5 BENEFITS

The hybrid communication modes that Entel's E-PoC gateway unlocks brings the following benefits:

- **Improved Efficiency:** Streamline operations and enhance coordination across teams and locations;
- **Enhanced Safety:** Ensure reliable communication in remote areas and during emergencies;
- **Seamless Migration:** Migrate seamlessly and gradually from a radio-only based communications system to a hybrid or PoC-only based communications system;
- **Increased Productivity:** Boost workforce efficiency and reduce downtime;
- **Cost-Effectiveness:** Optimize your communication investments by leveraging existing infrastructure; and
- **Enhanced Control and Audit:** Record conversations and/or place your mobile workforce under the control or monitoring of an office-based dispatcher.

6 FREQUENTLY ASKED QUESTIONS

A. Where is the best location to install the E PoC Gateway?

Powered indoor locations with both excellent radio coverage and excellent internet/intranet connectivity (WiFi or Ethernet) are the best locations for installing the E-PoC gateway.

B. How do I select which Channel or Talk Group to connect to PoC/remote repeaters?

Universal E-PoC / P1 GW: By selecting the appropriate channel/talk group on the gateway radio connected to the E-PoC Gateway upon installation.

"Combined" E-PoC / P1 Gateway: By programming the appropriate channel or talk group into the E-PoC gateway upon installation.

C. Does the gateway need a license?

An E-PoC Gateway needs an annual license to operate on Entel's cloud PoC server.

A P1 Gateway operates from either an on-premises server or a dedicated server in AWS, and therefore does not need a recurring license.

D. How much latency does the gateway added to interconnected audio?

The gateway adds approximately 250ms latency to interconnected calls (excluding gateway radio(s) and network latency).

E. Who is responsible for AWS when a P1 Server is deployed in the cloud?

For a private AWS PoC deployment, the customer / dealer is responsible for providing and maintaining the AWS server.

F. How does the gateway translate between different audio codecs and modulations?

The radio connected to the E-PoC gateway converts audio to analogue before feeding it to the PoC interface. This approach ensures protocol and technology independency.

G. Which Smartphones and Tablets are supported?

Entel provides E-PoC applications for both Android and iOS smartphones.

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7 WEB LINKS

For more information, refer to the following web links:



E-PoC / P1 Gateway:

- E-PoC / P1 GW425: <https://www.entel.co.uk/products/land/gateway-3-0/>
- E-PoC / P1 GW485: <https://www.entel.co.uk/products/land/gateway-3-0-3/>
- E-PoC / P1 GW-UNI: <https://www.entel.co.uk/products/land/gateway-3-0-1/>



E-PoC / P1 App:

- https://www.entel.co.uk/products/land/ios_android_software_acc/



DN495 Series Portable Radios:

- <https://www.entel.co.uk/products/land/dn495/>



Dispatcher:

- PC Basic: <https://www.entel.co.uk/products/land/basic-pc-dispatcher/>
- PC Advanced: https://www.entel.co.uk/products/land/pc_dispatcher_software_acc/
- Android: https://www.entel.co.uk/products/land/android_dispatcher_software_acc/



Voice Recorder:

- https://www.entel.co.uk/products/land/rec_software_acc/



P1 Private Server:

- <https://www.entel.co.uk/products/land/p1-private-server/>

Table 1: E-PoC Gateway Applications