PTT over Cellular Solutions
Why PoC Solutions Make Sense for Critical Communications

By David Krebs, Executive Vice President
Push to talk (PTT) communications solutions have been ubiquitous among mission and business critical mobile frontline workers with the technology first introduced in the 1930s. From police officers to construction workers and from customer service agents to hospitality coordinators, the benefits provided by instant one-to-one and one-to-many communications represent a vital and irreplaceable mode of communication. Today, PTT communication is primarily supported over private LMR (Land Mobile Radio) networks.

Although PTT solutions over public commercial cellular networks have been available since 1996, thanks to the robustness, reliability, and reach of LMR solutions, these continue to represent the primary network for mission critical communications, in particular among first responders. However, with the rapid pace of development of wireless networks and the massive proliferation of smart mobile devices, broader opportunities for PTT over cellular (PoC) solutions are emerging. Today this opportunity is manifesting itself primarily as an augmentation to existing LMR-based PTT solutions. Backed by unique research conducted by VDC Research in this paper, we will explore the evolution of PTT communications among today’s mobile workforce and discuss the opportunity for POC solutions specifically.

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**Exhibit 1: PoC Solutions as a Viable PTT Alternative to LMR**
(Source: VDC Research, 2016)

Do you consider PoC solutions a viable alternative to LMR solutions for PTT communications? (Percent responding “Yes”)

88%
Key research findings:

- Although overall capital investments already made in LMR solutions represent a migration barrier for some, the expense of maintaining legacy infrastructure is a critical burden.

- Delivering a PTT solution that can be installed on almost any device and will work across different commercial networks as well as Wi-Fi networks is significant benefit. WiFi support in particular is critical as many locations have strong in-building WiFi solutions where cellular coverage often lags.

- The opportunity for PoC-enabled solutions and devices in the US is growing and is expected to reach almost 3 million unit shipments by 2019. Over the forecast period, the installed base of PoC end users is expected to grow from over 3 million active users in 2015 to almost 6 million users by 2019.

- Decision makers view PoC solutions as a viable opportunity to augment their existing LMR users and extending PTT functionality to more workers.

- Demand for broadband data applications is a significant catalyst for the adoption of smart mobile devices among today’s workforce.

- The development of open interoperability standards and the improved quality of service and scalability offered by carrier-based PTT solutions are challenging the limitations of legacy PoC solutions.
Per the request of AT&T, VDC Research conducted a survey of critical communication decision-makers across a broad spectrum of industries and use cases. VDC received data from 130 qualified respondents with critical communication solution purchase, specification, and/or support responsibilities. The survey sample included both large and mid-sized organizations spanning a mix of industries. Key industries represented in the survey are Manufacturing, Logistics/Trucking, Public Services, Construction, Transportation, Utilities, Hospitality, and Local Government (excluding First Responders). The research was conducted in Q1 2016.

**Study Objectives**
- Determine the market size and forecast growth in target user markets for legacy LMR terminals and next generation PoC (PTT over Cellular) solutions
- Measure the likelihood of migrating target customers from legacy LMR to PoC solutions and the key drivers and end user considerations
- Identify the key solution requirements for next generation PoC customers by target vertical market

**Study Respondents**
- Sample size of 130 respondents
- Targeting qualified individuals – key business critical communications decision making responsibilities
- Split between large and mid-sized organizations
- Industries represented by respondents include Manufacturing, Public services, Transportation, Hospitality, Logistics/Trucking, Construction, Utilities and Local government.

**Study Methodology**
- Fielded an online survey among critical communications technology decision makers in the United States
- Survey fielded in Q1 2016

**Key Study Topics**
- Current investment in critical communications solutions
- Technical and operational challenges faced and addressed
- Next generation communication investment plans and key influencers
- Key benefits and technology challenges of PoC solutions over legacy LMR technology
The variety in how mobile workers communicate continues to grow, spanning traditional voice, texting, and email, among others. In addition to these, Push to Talk (PTT) represents a critical approach, supporting one-to-one and one-to-many group communications. While PTT might be viewed as a functionality or technology in decline, the over 4M first responder users and over 40M LMR/PMR other public and commercial sector users suggest that this line of communication remains very much critical to support these organizations’ operations. PTT becomes more valuable and important to organizations the more important it is for their employees to communicate with one another in near-real time.

Consequently, PTT is heavily deployed by utilities, delivery services, hotels, and other hospitality venues, such as conventions or sporting stadiums, and generally anywhere dispatchers must keep track of mobile resources and direct their positioning. In fact, according to VDC’s research on this topic, nearly eight in ten respondents agreed that PTT communications remains critical to their operations. However, much of this PTT traffic has been on existing legacy LMR solutions, which in many cases does not satisfy emerging user requirements. As organizations look to drive ever-increasing levels of productivity and collaboration among their workforce, PTT represents a critical functionality to reach new performance benchmarks. This is being confirmed by VDC’s research as organizations are looking to augment their existing LMR networks and extend PTT functionality to a new group of users.

Exhibit 2: Key Factors Driving LMR Migration  
(Source: VDC Research, 2016)
Carrier-based PTT over cellular (PoC) services fill that void. Although PoC services are not new – in fact, services have been available dating back to 1996 – many of these original services have been phased out. In addition, the quality of service and user experience of others fell short of requirements, in particular, concerning the proprietary nature of many of these solutions and limited interoperability standards.

Now, with the advent of next-generation 4G/LTE networks and the continued proliferation of smart mobile devices, the opportunity to provide PTT services across these and in-building WiFi networks is becoming a reality. However, this is still very much a niche solution, and one that has been limited to the existing user base of PTT over LMR networks. While augmenting those legacy PTT users with PoC users represents a significant opportunity and is expected to drive adoption of these solutions, the potential for PTT capabilities extends to a much larger share of the 140 million-plus mobile workers in the US today.

*Exhibit 3: Use of Smartphones Among LMR Radio End Users*  
(Source: VDC Research, 2016)

Given the characteristics of this user base, integration of PoC with existing LMR solutions to ensure seamless communication across these platforms is critical. This not only extends PTT capabilities to a larger portion of the workforce, but with the majority of today’s workforce already carrying a smartphone, it eliminates the need for some workers to carry two devices thereby delivering a clear cost of ownership benefit. There are many types of workers both within the public safety sector who are not first responders, and across other commercial sectors who would benefit from this capability to drive greater collaboration and productivity.
Today there are many PoC options for organizations to consider. However, not all solutions are created equal. There is more to PoC than rolling out an app. More specifically – and perhaps most importantly – the quality of service in terms of call quality and speed of setting up the connection and response time is a critical requirement for any PoC solution. PoC solution requirements across most use cases are particularly rigorous, especially when it comes to management, reliability, solution ease of use and uptime, IT integration, ability to audit, and support.

Exhibit 4: PoC Investment Drivers
(Source: VDC Research, 2016)
Some of the more critical requirements include:

**Standards support and LMR interoperability.** The availability of LMR interoperability solutions, including ISSI and CSSI support and support for standards-based mobile and web APIs, is a critical benefit to PoC solutions and eliminates the need for many workers to carry multiple communication devices.

**PTT Experience.** Today’s PoC solutions are designed to meet the most critical PTT performance requirements, including voice quality, quality of the user experience, latency and optimization of the carrier’s network.

**Broadband applications.** Demand for more sophisticated applications supporting frontline mobile workflows is pushing the limits of legacy LMR networks. Organizations looking to future-proof investments are increasingly considering cellular networks for their critical communications and broadband application needs.

**Device and accessory portfolio.** Although PoC can be supported on virtually any smart mobile device, some use cases require more specialized solutions, such as rugged and potentially hazardous rated devices, high performance speakers, and external/wearable speakers and receivers.

**Ease of support.** Beyond ease of use, ease of support is of equal importance. Key support requirements include mobile device and application management, help desk services, depot, and advanced maintenance and repair services.

**Group management functionality.** Flexibility surrounding the ability to define groups – within one’s organization and also with external partners – the size of the groups and the number of groups one can create are all critical requirements.

**Security.** Especially as more mission critical and sensitive data is being managed, it is critical for decision makers to ensure that security decisions do not become an afterthought.

**Location service.** Considered a key differentiator among PoC solutions is the ability to provide location services, including the real-time location of individual group members and the ability to track their movements.
Organizations with mobile workforces are leveraging IT investments more strategically, especially in the context of their operational mandates and customer initiatives. In this context, mobile solutions are especially valuable, considering the distributed nature of the workforce and the need to be connected to workers at all times. Advances in mobile computing and communications solutions, such as PoC solutions, are enabling organizations to exceed benchmarks in productivity, customer service, collaboration, and decision-making.

Organizations are realizing strong returns tied to overall productivity and operating cost improvements. In addition, the ability to collaborate better and make decisions faster – especially in times of emergency – are areas where organizations greatly benefit from mobile solutions. The availability of ubiquitous and reliable commercial broadband networks is being leveraged by PoC solution providers to enhance the services they are able to extend to customers. As PoC solutions are built on broadband infrastructure, solution providers are able to provide a variety of solutions and applications that cannot be delivered by LMR systems today.

*Exhibit 5: Leading Factors Driving Investments in Broadband Mobile Applications (Source: VDC Research, 2016)*
Mobility is transforming how organizations are operating and responding to the growing challenges. Mobile solutions represent a crucial channel for interfacing and interacting with customers and employees, especially as the US mobile workforce scales to over 140 million workers over the next five years. Considering the recent advances we have witnessed in mobile device, network, and application sophistication, opportunities for PoC to provide business and mission critical voice services for one to one and group communications solutions are scaling rapidly.

Although existing LMR solutions will continue to represent vital communications solutions for a variety of organizations – especially first responders – the ability to extend this functionality and augment these users with integrated PTT solutions over today’s modern commercial networks represents a critical opportunity moving forward. PoC solutions have proven themselves as viable PTT options for critical communications meeting customers voice quality and latency, solution scalability, carrier network optimization, and ease of support requirements. Moreover, with their seamless integration with existing LMR networks and growing portfolio of dedicated devices and accessories, PoC solutions are well positioned to support the communications requirements of today’s mobile workforce, ushering in a new era of productivity.
About the Author

David Krebs has more than 10 years of experience covering the markets for enterprise and government mobility solutions, wireless data communication technologies, and automatic data-capture research and consulting. David focuses on identifying the key drivers and enablers in the adoption of mobile and wireless solutions among mobile workers in the extended enterprise. David’s consulting and strategic advisory experience is far reaching and includes technology and market opportunity assessments, technology penetration and adoption enablers, partner profiling and development, new product development, and M&A due diligence support. David has extensive primary market research management and execution experience to support market sizing and forecasting, total cost of ownership (TCO), comparative product performance evaluation, competitive benchmarking, and end-user requirements analysis. David is a graduate of Boston University (BSBA).

About VDC Research

Founded in 1971, VDC Research provides in-depth insights to technology vendors, end users, and investors across the globe. As a market research and consulting firm, VDC’s coverage of AutoID, enterprise mobility, industrial automation, and IoT and embedded technologies is among the most advanced in the industry, helping our clients make critical decisions with confidence.

Offering syndicated reports and custom consultation, our methodologies consistently provide accurate forecasts and unmatched thought leadership for deeply technical markets. Located in Natick, Massachusetts, VDC prides itself on its close personal relationships with clients, delivering an attention to detail and a unique perspective that are second to none.

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