



Side by side, step by step

The time for FirstNet to foster data and application interoperability is now, as it begins designing its nationwide broadband network for first responders

By Rick Burke and Joe Ross

The public-safety community welcomed the Middle Class Tax Relief and Job Creation Act of 2012 with open arms, because it made possible the first nationwide wireless broadband data network for first responders. However, this network is much more than a wireless data pipe. Consumers don't buy the latest smartphones to simply pass packets across the Internet. They acquire these tools because they provide mobile access to essential information and are convenient devices for sharing their own information.

Information is what guides and benefits our lives. So, while the network that will be designed and built by the First Responders Network Authority (FirstNet) eventually will be the foundation of great things to come, it is the data and applications that will ride on it that will drive dramatic leaps forward in public-safety communications. This network will deliver applications more reliably and, as a result, they will be more conducive to public-safety operational requirements. While the Act envisions a nationwide, interoperable public-safety

broadband network, it is essential to advance interoperability beyond the network to the data itself, and that means application interoperability.

Nationwide data interoperability is not required by all in public safety. So, where do we draw the lines for where interoperability is necessary? Clearly, most incidents are local and usually will not require someone on the West Coast to share information with someone on the East Coast. However, a nationwide interoperable framework fully benefits local incident information-sharing and application interoperability.

Moreover, it will be more challenging to develop applications to restrict their geographic range than to support national operations. So, developing applications that will be interoperable nationwide is prudent.

Also prudent is the notion that nationwide interoperability requires standards-based solutions and applications.

An added benefit is that standards also drive economics, resulting in lower costs and superior options for

public safety. It will be difficult for public-safety agencies to afford the devices and applications needed to fully benefit from broadband service; therefore, application standards are needed to facilitate cost management.

Undeniably, applications will be a “main attraction” that will drive public safety’s adoption of the FirstNet service in lieu of current commercial and private systems, which in turn will enhance the network’s business model.

Many have discussed the interesting concept of an “app store” approach to capitalize on the opportunity. However, an app store does not fully address the opportunity. Granted, it will be a convenient repository for available applications, but that will mean very little if they are not reliably operable and interoperable. Unless applications are designed to industry interoperability standards and common program interfaces, the app store approach will fall short of delivering the objective.

The primary opportunity is to identify public safety’s underlying information-sharing needs — regardless of whether the objective is local, regional, state or national. Critical applications that have wide public-safety market appeal, or which facilitate data interoperability and multi-agency, multi-jurisdiction information-sharing, deserve national application framework consideration. Because FirstNet has a responsibility to foster interoperability well beyond the network level, the application-development effort also must encompass data and application interoperability.

State, local, and tribal entities certainly should define, buy and operate their own applications over the nationwide network. Without the independent flexibility to address their unique application requirements, agencies will reject the FirstNet service. But defining and deploying interoperable applications represents a significant opportunity to address unmet data needs with national standards.

In other words, it is imperative that FirstNet create a nationwide framework for connecting myriad applications and developing a hosted environment that can be leveraged by those agencies that lack the IT infrastructure and resources to operate the apps themselves. Many rural jurisdictions simply do not have the human and capital resources to deploy and operate critical applications.

There are dozens of potential applications that could benefit public-safety operations and interoperability, and which ultimately would better serve, protect and enrich the community. The graphic on the next page depicts application interest identified through a public-safety survey conducted in the state of Minnesota. It indicates that there are some applications — e.g., mapping/geo-

spatial data — where the number of users will rival that of e-mail and Web browsing. Many of these applications require interoperability among agencies to capitalize fully on their operational benefit. For example, real-time streaming video is among the most anticipated applications for the broadband network and is fast becoming a prominent multi-agency, multi-jurisdiction information-sharing tool.

Potential uses for video in the public-safety environment seem unlimited. Helicopter video can assist law enforcement in a suspect chase or provide firefighters with infrared images to support emergency response. Video from traffic cameras and from inside buildings can enhance situational awareness and provide invaluable information to support a multitude of purposes.

Meanwhile, next-generation 911 will let the general public share incident video with public safety, providing yet another invaluable source of situational awareness that does not exist today. Public safety also will benefit from handheld and vehicle-based video sources that stream vital content to dispatch facilities, command centers and emergency responders. However, there is one fundamental problem with all of these video solutions today—they are not seamlessly interoperable.

Through the Video Quality in Public Safety (VQIPS) program activities being advanced by the NTIA’s Public Safety Communications Research (PSCR) agency and other initiatives, the sector has expended substantial energy to study video quality and attempt to standardize video codecs (application elements that convert packets to content on a screen). While advancing video quality certainly is important work, it does not enable “Jurisdiction A” to share its video content with “Jurisdiction B” when they operate disparate systems.

Public safety requires a solution to share video content with authorized personnel using standard video codecs and delivery mechanisms. And, because a video source is likely to be periodically available — e.g., video from a police cruiser streamed only during traffic stops — the solution must support ad-hoc video sources, as well as variability in those accessing the sources. Given the sensitivity of most video content, the solution demands mechanisms for the video owner to control who can view it, for how long, and under what circumstances.

The need for application interoperability is not restricted to video. Efforts already are underway in the 3GPP — the global body that establishes LTE standards — to develop mission-critical push-to-talk (PTT)

voice. Moreover, NPSTC’s Public-Safety Communications Assessment identified 11 other applications where standards were required to meet interoperability needs. They encompassed such diverse needs as radiological and biometric telemetry, as well as hospital availability. It is likely that many other applications will be identified that will require standards development.

While FirstNet and the vendor community initially must focus on the network itself, the effort to advance applications standards can and should begin now; it is essential that the two initiatives be conducted in parallel, so that public-safety agencies can reap the full benefit of operable and interoperable applications from the very first day that they join the network.

The NTIA’s State and Local Implementation Grant Program (SLIGP) presents an ideal, near-term program and

opportunity for public safety to articulate the most beneficial applications and to define the best method for making them available to first responders. The nation and FirstNet will derive considerable value from public safety defining these applications as a SLIGP deliverable. Because the applications will drive the FirstNet network’s architecture and throughput requirements, the SLIGP can help public safety determine data interoperability early in the deployment lifecycle.

FirstNet doesn’t have to build these standards or the products that use them; that task can remain within the public-safety standards bodies and with the technology vendors.

Instead, FirstNet can assist these entities in their efforts to introduce standards-based solutions to the market and to serve as the “data exchange hub” for interoperable transactions where appropriate. It also could offer data-center access for vendors to host applications (or application components), or to resell hosted services — both would provide FirstNet with an opportunity to add value in the public-safety application space that goes far beyond an app store.

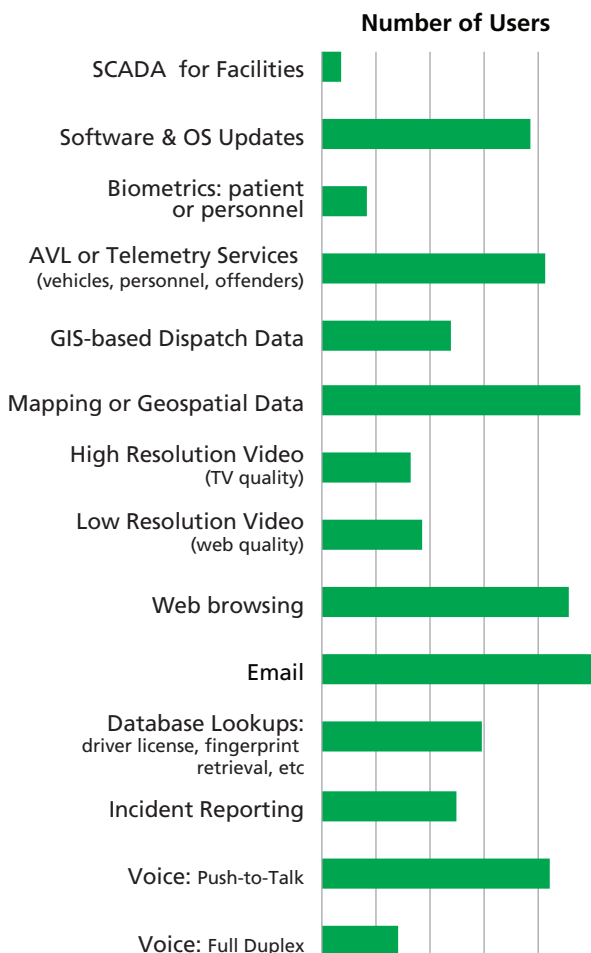
Alternatively or concurrently, it may be more appropriate for states or locals to host the applications themselves. The bottom line is that the SLIGP represents the right time and opportunity to understand how public safety can benefit fully from the nationwide network and how those application benefits will be realized. Importantly, the states need to define the role that they think is most appropriate for FirstNet to play in helping to achieve nationwide application interoperability.

FirstNet, public safety and the vendor community can best promote application interoperability by first recognizing the overall magnitude of the requirement. In the absence of specialized interoperable applications, public safety will be challenged to fully benefit from the promise of the nationwide network. In the absence of standardized applications, essential information-sharing will be limited, which will place lives at risk and minimize the benefits envisioned by the network.

Instead of patching together stove-piped systems, we now have the opportunity to create a nationwide framework for application interoperability. The work to define critical public-safety application requirements can be facilitated through the SLIGP, and this insight will provide valuable information to FirstNet and the industry to best drive and develop the required standards. ■

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PUBLIC SAFETY MOBILE APPLICATIONS OF INTEREST



Source: Televate/State of Minnesota