Open Source P25 ISSI Switch and Trunking Controller – Call for discussion

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03/11/2008 – This article has generated a surprising amount of interest resulting in the formation of an informal alliance of manufacturers, system integrators, consultants and software developers. Additional information is available at http://OpenP25.org/.

The Issue

P25 trunking is clouded by major manufacturers attempts to substitute proprietary variants so that it will not be practical for customers to competitively purchase subscriber equipment from other manufacturers. Even though P25 is mostly an open standard, the major system manufacturers have been able to keep prices unreasonably high because of proprietary software. Poor system performance and reliability have plagued many digital trunked radio systems, often because the manufacturers have insufficient incentive to provide better solutions. Manufacturers successfully hold customers captive with proprietary products and technology. The public-safety community would benefit from increased open competition.

Serious ethical issues are raised in most trunked radio system procurements, and many are just plain dirty deals. In many cases, manufacturers successfully coerce unwitting customers to forgo open standards for highly proprietary solutions to eliminate future competition.

I propose a disruptive innovation to overturn the existing trunked radio system controller marketplace by providing equal access to a fully open (and free) reference implementation of the P25 trunking standard. The framework for this implementation may already exist and is extremely reliable, well-documented, and robust. It is known as Asterisk.

The Asterisk Framework

Asterisk is the world's leading open source PBX, software telephony engine, and telephony applications toolkit. Offering flexibility unheard of in the world of proprietary communications, Asterisk empowers developers and integrators to create advanced communications solutions…for free.

Asterisk® is released as open source under the GNU General Public License (GPL), and it is available for download free of charge. Asterisk® is one of the most popular open source software packages available, with the Asterisk Community being the top influencer in VoIP.

Asterisk can be configured as the core of an IP or hybrid PBX, switching calls, managing routes, enabling features, and connecting callers with the outside world over IP, analog (POTS), and digital (T1/E1) connections. Complex multi-site analog radio systems have been interconnected using the Asterisk platform.

It can also be built out as the heart of a media gateway, bridging the legacy PSTN to the expanding world of IP telephony. Asterisk's modular architecture allows it to convert between a wide range of communications protocols and media codecs (vocoders).

I believe that extending Asterisk to function as a P25 ISSI switch and trunked radio system controller is achievable and affordable. My preliminary research shows that a P25 trunking controller can be constructed that is codec

(vocoder) agnostic. IMBE license issues need to be considered only if the P25 controller transcodes between codecs or provides an analog console or logging recorder interface.

Call for Discussion

The open source concept provides a way for competitors to ethically collaborate and it reduces the barrier to entry for smaller firms to provide complex products. The end result will be improved performance, reliability and functionality of systems that support critical communication for public-safety. Increased competition in the public-safety trunking sector will eventually minimize or eliminate the proprietary systems. Let's make P25 trunking controllers as ubiquitous and affordable as LTR controllers.

I can't think of a better use of grant funds than to develop an open source, reference implementation of a P25 switch and trunked radio system controller.

There are a few well-known and highly respected non-profit organizations with expertise in developing mission-critical open source software, such as the Internet Systems Consortium. There are organizations such as the SRI International and countless universities that will accept contractual assignments for projects like this.

What are the obstacles to this concept? Do you think it's achievable? Would the major manufacturers of trunked radio system controllers be able to kill the concept?

Click here to send me your thoughts and ideas.