FT.com
FINANCIAL TIMES

Thomas W. Hazlett: Katrina's radio silence

Published: October 24 2005 15:08 | Last updated: October 26 2005 11:42

Hurricane Katrina blew emergency communications away, crippling relief efforts. Now public safety radio reforms are being floated from every think tank.

It was the same after "9/11", when 121 New York City firefighters lost their lives in the collapse of the North Tower 29 minutes after being sent an order to evacuate – over radios that were not working.

Reed Hundt, former Federal Communications Commission chair, recommends $1bn for "self-healing" Wi-Fi networks, where each radio user functions as a relay node. US congressional leaders are calling for television band frequencies to be shifted to public safety communications. Another prominent suggestion has been for the nationalisation of all fire and police radios. The consensus is that technology offers a magic bullet. Hundt writes: "Fixing this is not difficult… The pieces to put together a national emergency response are well understood."

Apparently not. The short-hop wireless devices Hundt rallies around, for instance, could easily be swamped by a category four storm and rendered useless with area power cuts. Satellite phones with back-up batteries offer a potentially more resilient alternative.

Police and fire departments, on the other hand, have been trying to gain access to broadcast television spectrum since at least 1986. Despite over-crowding on public safety bands, most agencies use old-fashioned FM analog, hogging bandwidth. Capacity could be increased several-fold with standard digital upgrades. But blaming broadcasters is, in the political world, easier.

Throwing money, frequencies or technology at public safety radio will do little to improve the situation. To save lives, federal policy makers must resist the temptation to impose "apartheid", treating public safety networks as so special that they must be quarantined on frequencies of their own. Emergency radio services need to exit their government technology ghetto and get onboard advanced networks – as smart customers, not Soviet-style suppliers.

Today, each county sheriff's department fancies its own network and the slice of spectrum it occupies. That its radios don't connect with local fire stations is of less concern. Incentives of each agency (and, particularly, each agency's 'radio chief') are to protect turf. There are 50,000 such agencies scattered across the US, and some fire or police officers carry five or more phones. This is an expensive and dangerous way to 'standardise' communications.

Local control over networks is productive in one dimension, allowing users to tailor radios to their demands. But it is grossly inefficient in another, sacrificing powerful scale economies. Imagine shipping each police department tons of steel, plastic and rubber to make them responsible for constructing their own patrol cars. This is the path we take in allocating public safety spectrum, expecting each agency to produce efficiently.

Worse yet is to reserve the spectrum exclusively for public safety, eliminating market incentives for digital upgrades and innovative spectrum sharing. Local radio chiefs, vested in vintage technologies, also oppose digitisation as a threat to their authority. We are stuck in a hole familiar to managers of state owned enterprises.

The solution is to buy public safety radio service just as police cars are purchased from automakers. Private sector operators or system aggregators should bid to supply public safety networks. Airwaves should not be quarantined. This would open up shared use of frequencies, leveraging network economies.

Jon Peha, Carnegie Mellon engineering professor, writes: “Public safety spectrum is lightly used most of the time, but when the spectrum is needed, that need may be critically important. Peak demand from cellular customers and peak use by emergency responders often occur at different times. By allowing these organizations to share some spectrum and giving pre-emptive priority to public safety…. the carriers and public safety could all see an effective increase in available capacity.”

TV band spectrum is squandered. But pencilling in a transfer under spectrum apartheid would constitute yet another social planning blunder. Suppose that public safety users could sell access to the four TV channels (24 MHz) being considered for their estimated market value, about $15bn. The funds could be used to provide far better service for emergency radio users than the bandwidth, replacing analog systems and perhaps financing Hundt’s pick, mesh networks.

Competitive bidding for services opens up a world of efficient opportunities, as opposed to the Balkanised mini-nets of today. Standard police and fire communications could cheaply piggyback on cellphone networks, which sell minutes by the billions to “virtual” networks (Virgin Mobile is the largest, with over 3m subscribers). Crisis situation back-up could be provided via satellite networks. Innumerable twists are conceivable. Innovative services will result.

Three aspects are key. First, network sharing must be legal. Building tiny castles for each department is ridiculously expensive. Second, public safety spectrum must be available to the marketplace. Agencies benefit from selling airwave access during non-emergency moments, enabling (financially and functionally) the sharing of advanced networks. Finally, local radio fiefdoms must be conquered. Only with regional or perhaps state-wide systems will police in one town achieve mission critical coordination with police in the next.

Throwing money – or radio spectrum – at police and fire departments will not prevent the next unnatural disaster in radio communications. Turning first responders from uncompetitive network providers into smart shoppers of advanced technology, will. “Waving around internet buzz words and hinting that there is a tech fix,” writes Gerry Faulhaber, Wharton economist, “is not only not helpful, it is counterproductive.”

The writer is professor of law economics at George Mason University, where he is director of the Information Economy Project of the National Center for Technology and Law