Bringing emergency communications together

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A new University of Adelaide research project aims to improve emergency operations through integrated communications systems for police and the emergency services.

Funded under a three-year Australian Research Council linkage grant, the researchers plan to develop a prototype system - software and tools - that will provide robust, easy-to-use integrated communications for emergency situations.

"The lack of compatibility between services is a problem with emergency communications worldwide," says Dr Hung Nguyen, Research Fellow with the University's Teletraffic Research Centre.

"There have been some high profile cases, such as September 11 when firefighters didn't receive the latest updates from the police, and again more recently in the 2013 Tasmanian bushfires when the Tasmanian Fire Service and Tasmania Police operated on incompatible communication channels.

"It's not a new problem. The root cause is that emergency communications have been built up over time using different technologies and using proprietary devices that are mostly incompatible with each other."

Dr Nguyen says there are projects in Australia and the United States working to overcome the incompatibility issue but that is only one factor

in good emergency communications.

"Nowadays for emergency communications it's not just voice we rely on, we need multimedia for imaging, positioning and data communications," he says. "There is also a need for the network to be resilient and robust in challenging environments where equipment may be destroyed, conditions change and people are moving about."

He says integrated emergency networks also need to be able to prioritise the most important information when networks become congested, and they need to be easy to use by emergency workers and volunteers in a stressful environment.

Working with fellow University of Adelaide colleague Professor Matthew Roughan from the School of Mathematical Sciences and industry partner Dr Sanjeev Naguleswaran, from QSPectral Systems, Dr Nguyen will be using emerging technology called software-defined networking (SDN).

"SDN allows us to separate the communications equipment from the software that controls it," says Dr Nguyen. "With SDN, the hardware supports an open and standardised protocol which makes integrating multiple networks easier."

Currently, however, SDN is not built for emergency environments where lines of communication and equipment are vulnerable and dynamic.

Dr Nguyen says the first task will be talking to emergency services organisations nationally to better understand their communication needs - what sorts of information they need to be able to share and what devices they need to use.

"By the end of this project, we hope to provide a reliable and adaptive

integrated communication system that helps our [emergency](#) services do the best possible job they can."

Provided by University of Adelaide