



Australian Government
Department of Communications

Review of the National Triple Zero (000) Operator



Submission on behalf of:

 	University of Melbourne Center for Disaster Management and Public Safety
	Victorian Spatial Council
	APCO Australasia

22 August 2014

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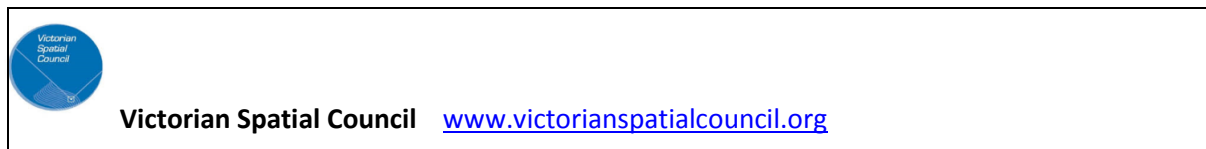
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Collaboration

This Submission has been prepared by collaboration between the following organizations:



The Center for Disaster Management and Public Safety (CDMPS) is focused on conducting multi-disciplinary research and training on disaster management and public safety both nationally and internationally.



The Victorian Spatial Council was established in September 2004 under the Victorian Spatial Information Strategy 2004-07. Its members represent the peak spatial information associations for business, government, academia, the professions, and key interest groups.



The Association of Public-Safety Communications Officials Australasia (APCO Australasia) is a professional not-for-profit membership association connecting government and private sector companies. APCO Australasia represents all sectors of public safety and emergency management through communications and technology innovation and provides extensive networking and professional development opportunities through a range of events and communications channels.

Review of the National Triple Zero (000) Operator

Summary

In July 2014 the Australian Government's Department of Communications released a Discussion Paper titled "Review of the National Triple Zero (000) Operator".

The Discussion Paper is understood to be part of a consultation process seeking information to provide advice to the Federal Minister for Communications in March 2015 regarding a competitive Tender to be issued by 23 June 2016 for the performance of the role of Emergency Call Person delivering the Triple Zero Service. Telstra currently performs the role of Emergency Call Person under an agreement made in 2012 for up to 20 years subject to the outcome of this Tender.

The University of Melbourne's Centre for Disaster Management and Public Safety (CDMPS), the Victorian Spatial Council (VSC) together with APCO Australasia, have partnered to prepare this Submission in recognition of the role the Triple Zero Service performs to contribute to the security and well being of all Australians and the contribution an enhanced service can make to community resilience.

The Department's Discussion Paper seeks information about the Triple Zero Service of the future. In this Submission the term "future" has been taken to mean the year 2034 consistent with the timeframe for the current agreement with Telstra. The long term nature of this time frame means that the Triple Zero Service of the future will need both the flexibility and agility to account for the changing demographics of the Australian population and hence community assumptions and expectations of the Service during this period.

Examination of the Triple Zero Service of the future aligns with the University of Melbourne's CDMPS Research Area No 5: "Mission Critical Communications" enabling on-going consideration of the future of the Service in the context of applied research.

This Submission provides responses to the specific questions posed in the Department's Discussion Paper but takes the opportunity to firstly raise key points about the Triple Zero Service of the future for further consideration and discussion. These points are intended to develop a better understanding of what the content of the Tender for the Triple Zero Service of the future will need to address in the broader context of a mission critical public safety communications echo system and its major components.

Key Points For Further Consideration

The following are the key points that the partnership wishes to raise with the Department to seek a continuing conversation regarding advice to be provided to the Minister for Communications regarding the Triple Zero Service of the future.

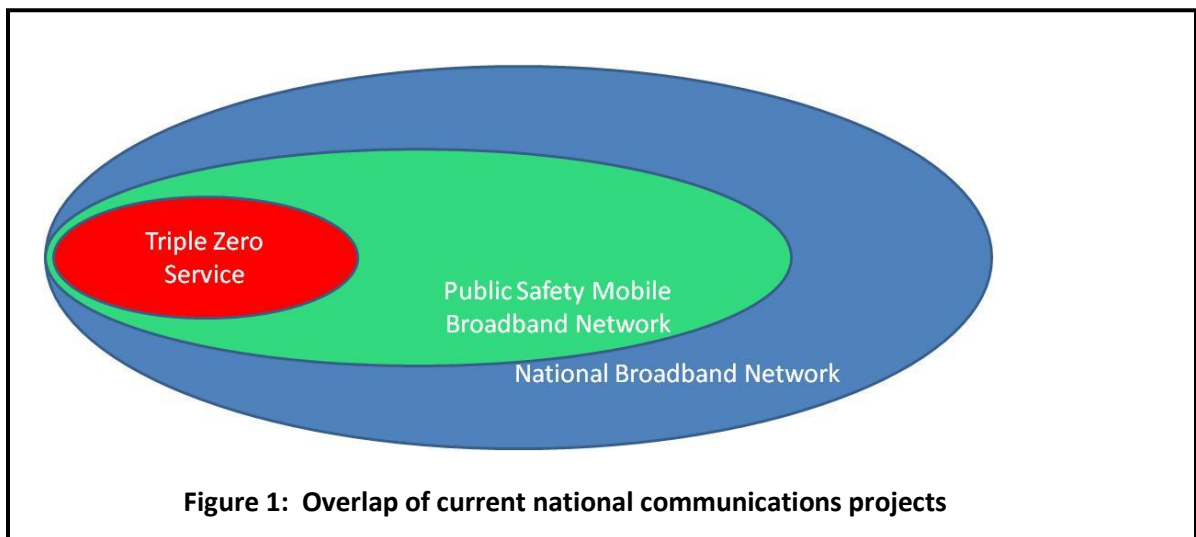
- (a) Australia's Triple Zero Service is consistent with international approaches taken to providing access to Public Safety Agencies (police and emergency services) via a three digit emergency

telephony service e.g. 911 in the United States of America and Canada, 999 in the United Kingdom and 112 in Europe.

- (b) The ability to share information, experiences and lessons learned between the providers of these international three digit emergency telephony services needs to be recognized and fully utilized in the development of the specification for the Triple Zero Service of the future. This process should include public safety communications advocacy groups like the Association of Public Safety Communications Officials (APCO) Partners, the National Emergency Number Association (NENA) and the National Public Safety Telecommunications Council (NPSTC).
- (c) The providers of three digit emergency telephony services are currently considering the implications of the way in which the general public is using broadband technologies in anticipation that the assumptions and expectations established by the general public around service delivery will ultimately be applied to triple digit emergency number services of the future.
- (d) Australia's Triple Zero Service cannot be treated as a silo and still be compliant with the demands of an increasingly mobile global society. The Triple Zero Service of the future needs to be recognized as a key component in a fully integrated and interoperable mission critical public safety communications echo system.
- (e) The Triple Zero Service of the future will comprise both voice and data as complementary components emerging from the transformation of the existing service from a one way voice only communications service to a fully integrated two way multimedia communications capability that embraces the evolving importance of social media to the Australian community.
- (f) The Triple Zero Service of the future needs to be built upon the development of an open standards based Technology Roadmap. This Roadmap needs to clearly identify the strategic direction to be taken to ensure a successful transition from circuit switched technology to an IP based highly resilient platform treated as a secure part of mainstream Information Communication Technology (ICT) services.
- (g) The providers of three digit emergency telephony services need to work collaboratively with international Standards Development Organizations (SDOs) to develop an open standards based approach to ensure the streamlined exchange of voice and data across all components of the mission critical public safety communications echo system.
- (h) The Triple Zero Service of the future needs to be both flexible and agile to adapt to rapid technological advances in ICT expected over the contract period arising from the Tender process e.g. the emergence of quantum computing and quantum communications.

- (i) The Triple Zero Service of the future, as part of the mission critical public safety communications echo system, will need to be protected by appropriate cyber security measures consistent with those measures being taken with other components of the ecosystem and mainstream ICT generally.
- (j) The Triple Zero service of the future will require sufficient scalable capacity and capability comprising both technology and human resources to meet the varying level of community and Public Safety Agency demand for service. This demand will relate to the management of everyday business and also the augmentation to provide the surge capacity required by Public Safety Agencies to manage the complexities of major emergencies and disasters resulting from both human intervention and the natural environment.
- (k) The Triple Zero Service of the future will have an impact on the staff employed by the Emergency Call Person and the staff in State and Territory Public Safety Agencies Communications Centers. A Human Factors analysis will be an important component of the Technology Roadmap for the future Triple Zero service.
- (l) The Triple Zero service of the future will need critical infrastructure to ensure that the transition in technology and transformation in service delivery capability and capacity can be achieved. The critical infrastructure components of the Triple Zero Service of the future and the broader mission critical public safety communications echo system will be:
- Highly resilient commercial mobile broadband networks;
 - Mission critical public safety Land Mobile Radio Networks;
 - Mission critical public safety Mobile Broadband Networks;
 - Mission critical access to the National Broadband Networks;
 - Mission Critical Sensor Systems;
 - Mission Critical Spatial Data Infrastructure;
 - Highly resilient public safety specific software applications.
- (m) These critical infrastructure components of the Triple Zero Service of the future will need to be complemented by access to dedicated public safety spectrum with guaranteed priority and quality of service to meet the requirements of the Public Safety Agencies for any and every event at any time anywhere in Australia.
- (n) The Triple Zero Service of the future will be focused on data and not voice in the same way that public safety mobile broadband networks are currently focused on data and not voice to be able to support multimedia service delivery. There is currently no definition for “mission critical data” even though community assumptions and expectations would be that Public Safety Agencies have at least a matching understanding of the capabilities and capacity that broadband technologies now provide as part of everyday life.
- (o) The Triple Zero Service of the future will be highly if not totally dependent on the ability to spatially manage data, information and knowledge effectively and efficiently particularly in periods of high demand associated with major emergency events and natural disasters.

- (p) The readiness of the Triple Zero Service of the future to receive data from multiple sources has to be matched by the readiness of the Public Safety Agencies' Communications Centers in the States and Territories to receive this data from the Triple Zero Service. The readiness of these Communications Centers needs to be assessed on a national basis as part of the planning for the Triple Zero Service of the future. The capability to exchange data seamlessly between Centers will ensure that governments at all levels, Federal, State and Local, will be provided with timely, accurate and relevant information consistent with the concept of building resilient communities.
- (q) The Triple Zero Service of the future is explicitly linked to the National Broadband Network and the Public Safety Mobile Broadband Project as the latter will need to facilitate the transfer of data from Public Safety Agencies Communication Centers to the field. This process will include data integration and information retrieval on mobile devices using the public safety mobile broadband infrastructure. This relationship is demonstrated in Figure 1.



- (r) The Triple Zero Service of the future will require a change in thinking and culture driven by a new model based upon data analysis to consider Patterns, Prediction, Presentation and Personalization (PPPP). This model will drive a paradigm shift in mission critical public safety communications to ensure there are no gaps between community assumptions and expectations and the services being delivered by both the Triple Zero Service and Public Safety Agencies.
- (s) The Triple Zero Service of the future will also need to manage non-emergency calls and non-mission critical data which may involve the transfer of both calls and data to a non-emergency service agency to meet a community need.

This Submission notes the advice provided at Section 2(c) of the Terms of Reference in the Department's Discussion Paper i.e. that the Department shall have regard to work being undertaken by New South Wales Police to develop an Emergency Communications Services (Triple Zero) Policy Framework and Standards to Address Current and Future Community Expectations.

It is assumed that the work referred to relates to the 2013 – 14 National Emergency Management Program Grant to the New South Wales Police Force. At the time of making this Submission access to this work has not been possible therefore there may be some overlap between the matters raised in the Submission and the outcome of the work being undertaken by the New South Wales Police.

The Triple Zero Service of the Future

Question 1: Community Expectations

It is commonly accepted that community expects the Triple Zero service to be contactable anytime, anywhere, easily, quickly and free of charge.

Are these your expectations of the Triple Zero service now and into the future? Are your expectations currently being met? Why or why not?

RESPONSE:

The community expectations proposed in the Question relate to the current voice based Triple Zero Service and the community expectations associated with traditional land line voice telephony service formed over many years and generations of users of the service.

Community expectations evolving from the use of mobile phone services will be based upon growing familiarity with the increasing range of services being accessed. Community expectations of the Triple Zero Service of the future are therefore likely to be based upon a growing familiarity with a range of services that can be provided through use of constantly changing types of devices such as Smartphones and Tablets using high speed broadband networks providing multimedia capacity and capability in real time.

The Triple Zero Service of the future will therefore need to monitor the relationship between an increasingly technology literate population and the changing demographics of the Australian community to ensure the Service Provider understands the assumptions and community expectations of the service at all times. Figure 2 demonstrates how the triple digit emergency telephone service has evolved in the United States of America.

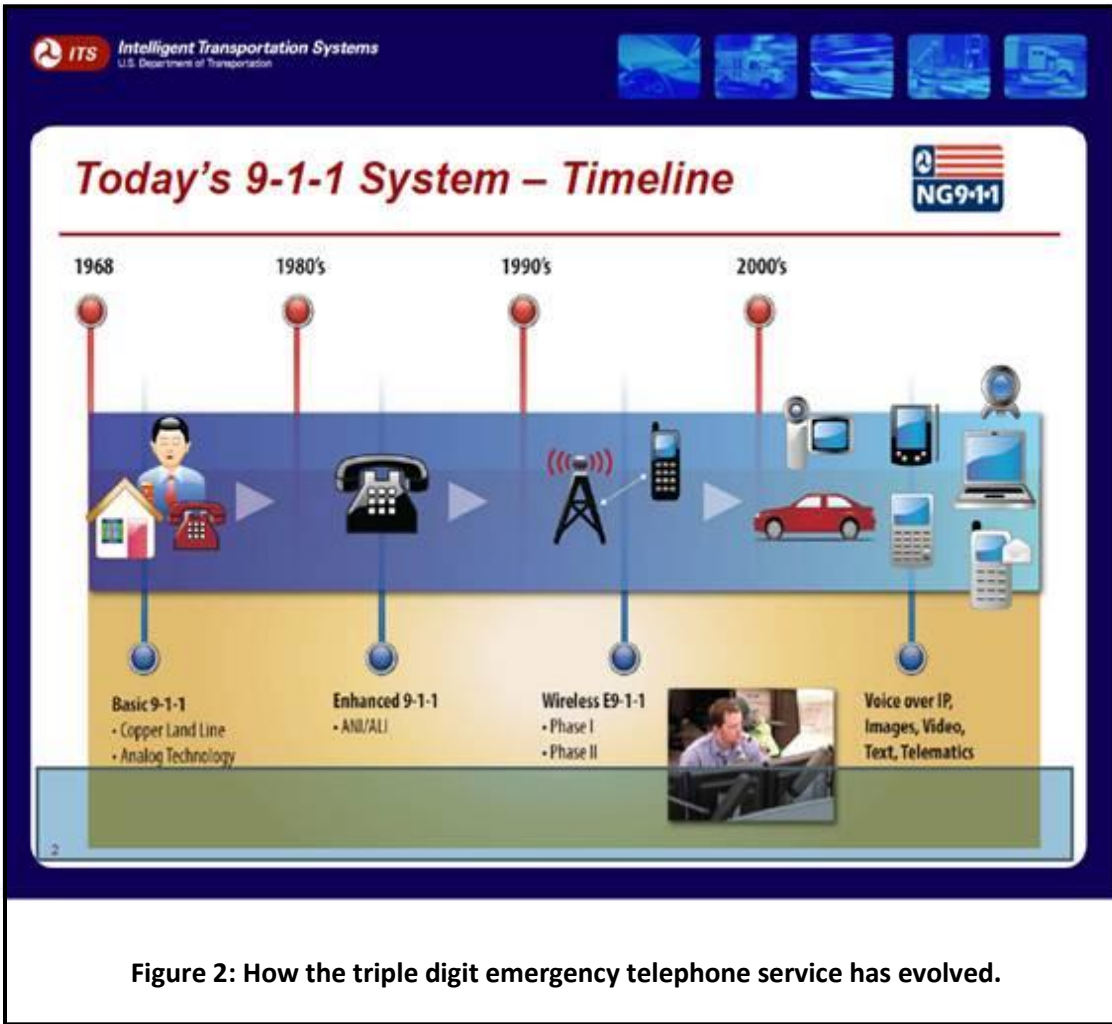


Figure 2: How the triple digit emergency telephone service has evolved.

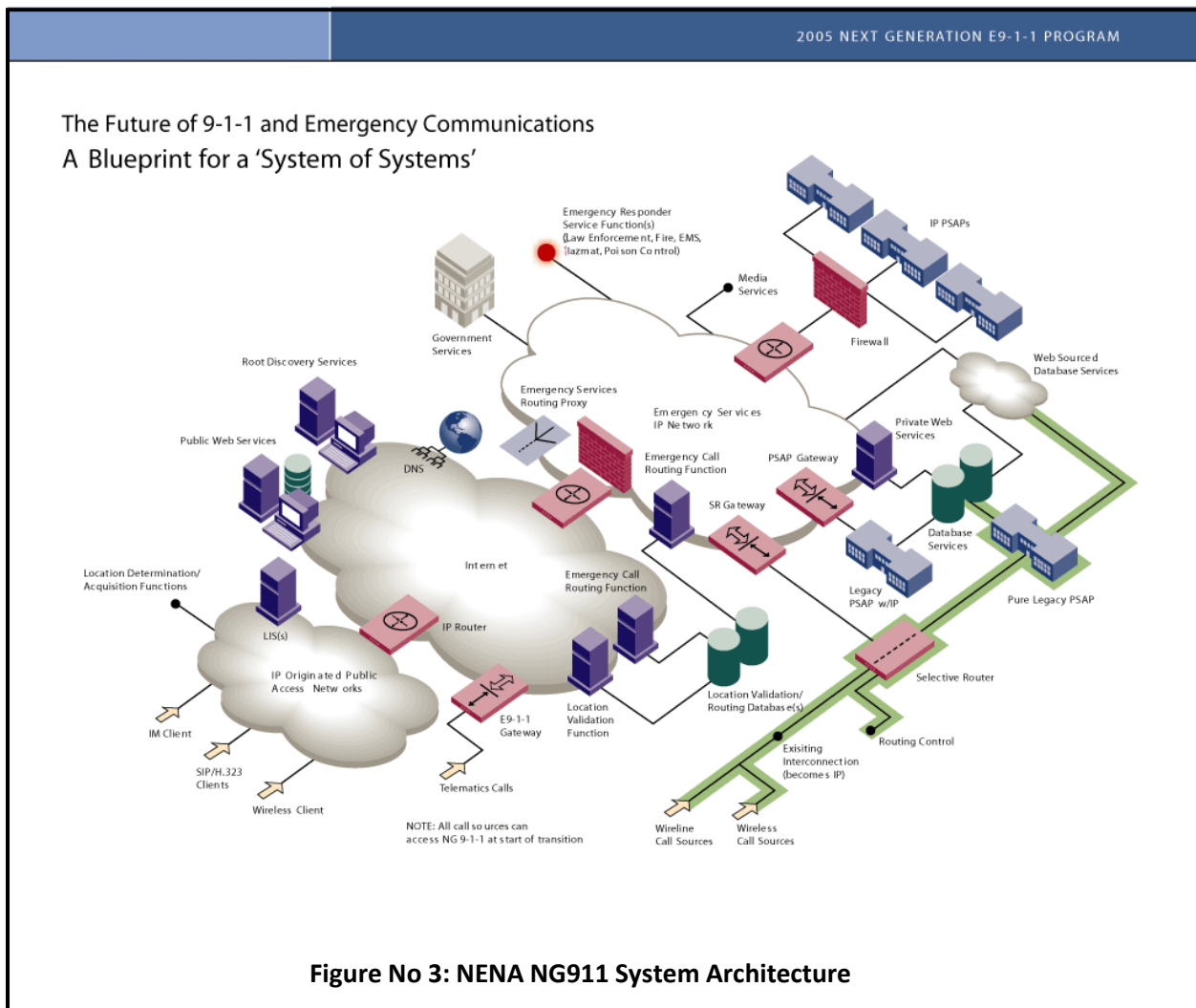
Consideration of the Triple Zero Service of the future should therefore be based on the following key assumptions underpinning the ability to deliver the service rather than community expectations of the service:

- The infrastructure necessary to ensure Australians have continuous access to the Triple Zero Service has sufficient redundancy and resilience to provide this access.
- The Triple Zero Service will be capable of identifying the location of the point of origin of the request for assistance. The location information of the caller will be embedded in the metadata associated with the particular call record and associated data received.
- The Triple Zero Service will be capable of ensuring the request for assistance from Public Safety Agencies is securely transferred to the appropriate Agency for response.
- The Triple Zero Service will be capable of receiving both voice and multimedia data including automated data exchange with sensor networks.

These assumptions will allow community consultation regarding expectations of the Triple Zero Service of the future. The gap between the assumptions and community expectations will provide input to the development of a Technology Roadmap for the Triple Zero Service of the future.

The complexity of the infrastructure required to provide the enhanced services that will be possible in the Triple Zero Service of the future are illustrated in Figure No 3 showing the National Emergency Number Association (NENA) “System of Systems” Architecture for a Next Generation 911 system.

Continuing community consultation and education raising awareness of both the capabilities and limitations of the new Triple Zero Service of the future will need to be undertaken as it is progressively introduced.



Question 2: Challenges facing the Triple Zero Service

Ongoing changes in the communications landscape, and certain expectations in the community regarding the nature of the service, present challenges for the Triple Zero service. These challenges include locating callers, the quality and prioritisation of VoIP calls, extreme call volumes during disasters and non-emergency calls.

What are your views on these challenges and what further steps could be taken to address them? What other challenges need to be considered?

RESPONSE:

The Triple Zero Service of the future is described in the United States, Canada, the United Kingdom and Europe as Next Generation or “NG” applied to the existing three digit emergency number e.g. NG9111, NG999 and NG112. The Triple Zero Service of the future will be Australia’s NG000 in the international context.

The concept of “Next Generation” has been the subject of much research, planning, and standards development over recent years and is only now starting to move into the implementation stage. The United States has commenced the initial implementation of the “Text To 911” service as the first step towards full Next Generation capability in the years to come. In a voluntary joint agreement with APCO International, NENA, the major Carriers AT&T, Sprint, T-Mobile, and Verizon committed to provide text-to-911 service by 15 May 2014 in all areas of the United States served by their networks where a 911 Public Safety Answering Point is prepared to receive texts.

The information regarding the “lessons learned” to date from the initial implementations of Text To 911 presented during the recent APCO International Conference in August 2014 provides an indication of the complexity of introducing this service; the technology challenges to be overcome; the opportunity for innovation; and the need for the global sharing of experiences.

The following summarizes just some of the challenges that will need to be faced with the implementation of the Triple Zero of the Future:

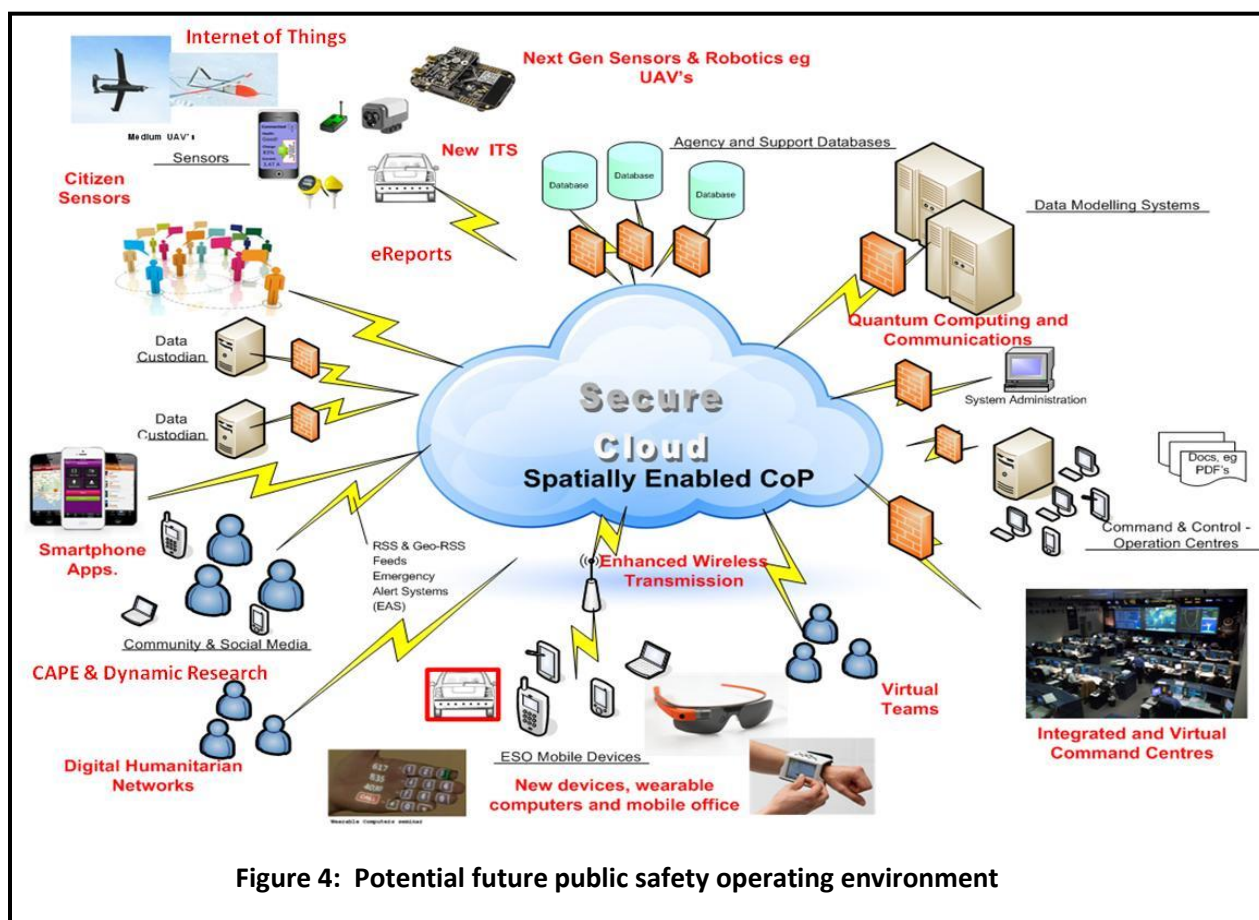
(a) Timeframe

One of the major challenges for the current Triple Zero Service is that for the first time in history members of the public possess better communications capability than the Public Safety Agenciesⁱ and are using this communications capability to access an ever increasing range of data based services and information in real time.

This experience will result in the public expecting to be able to use this new found capability to access the Triple Zero Service of the future and request assistance from Public Safety Agencies. This will mean short term community expectations not being met, accompanied by increasing frustration, if transparent community consultation, education and planning do not commence to enable the progressive implementation of the Triple Zero Service of the future over the medium to long term.

(b) Shared Vision

The rapid advancement of technologies is forcing Public Safety Agencies to continually re-conceptualize business practice. To fully understand how the Triple Zero Service of the future might operate within a fully integrated mission critical public safety communications echo system there is a need to identify what the future may look like from a systems perspective. Without articulating a shared vision of the future the current Triple Zero Review is at risk of creating a siloed process which limits future opportunities. Figure 4 demonstrates what the echo system might look like in the near future. A key challenge is to determine how the Triple Zero Service of the future as illustrated in Figure No: 4 fits into this picture.



(c) Location

At its heart, the Triple Zero Service is a location based service which connects a caller with the most appropriate response agency. As a result determining the location of the caller is a critical factor in any Triple Zero Service of the future. Determining the location of the source of a request for assistance and the location of the emergency event itself will remain key challenges for the Triple Zero service of the future. This continuing location challenge is evidenced by the experience being gained with the implementation of Text To 911 in the United States.

The urbanization trends in Australian society, especially with multi-storey dwellings, will require the location of the source to be expressed in terms of their 3D location (x, y and z co-ordinates), rather than the current 2D location (x and y co-ordinates). Figure 5 demonstrates the importance of geographic information systems (GIS) and spatial data infrastructure (SDI) to ensure that the most appropriate resource is assigned to a given emergency event or location of a person requesting assistance.

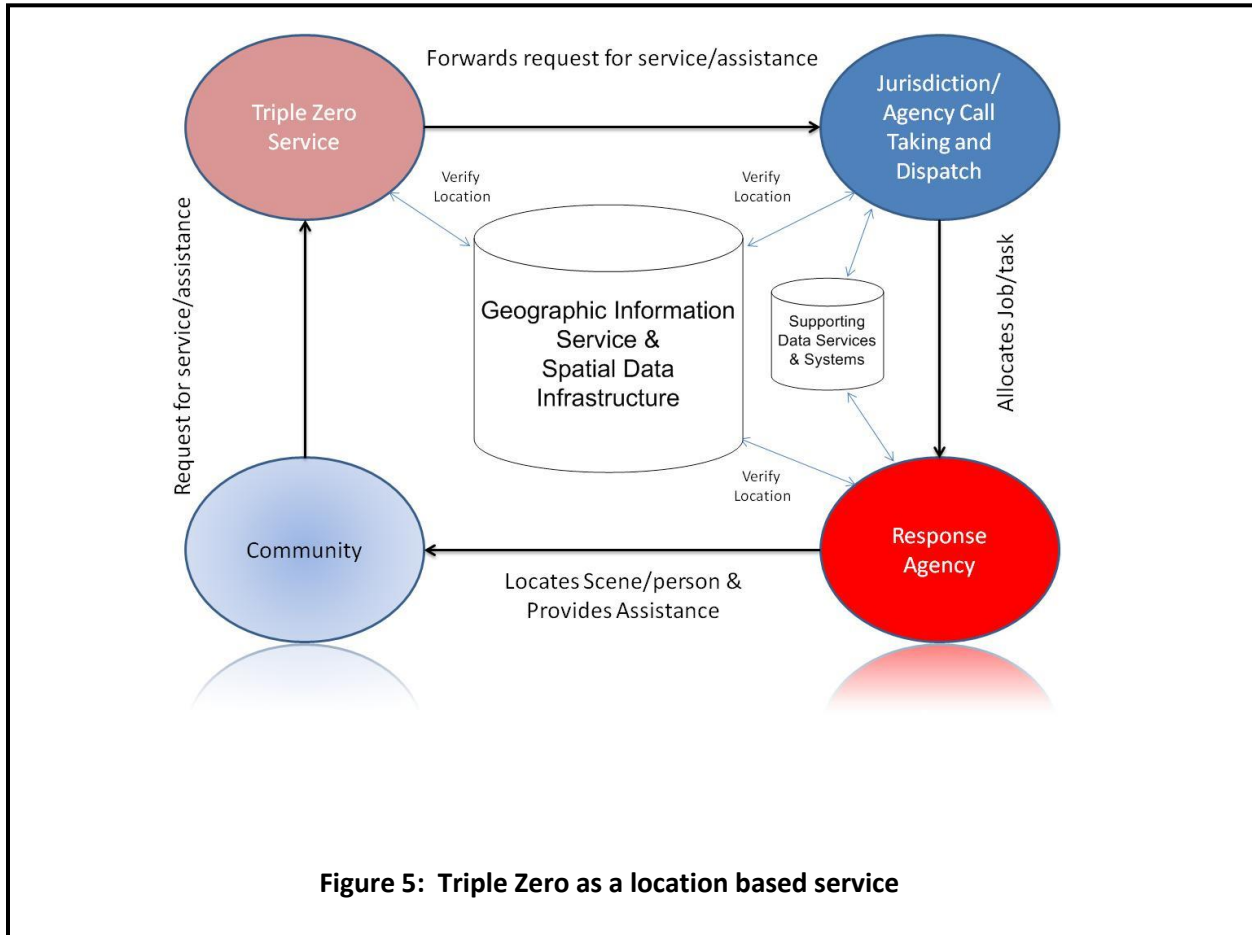


Figure 5: Triple Zero as a location based service

As previously mentioned this particular challenge would seem to be an opportunity for innovation by industry to produce solutions to overcome this problem noting the work currently being done to provide indoor location services and the “z” co-ordinate or height dimension to location capability.

The University of Melbourne’s Centre for Spatial Data Infrastructures and Land Administration (CSDILA) is conducting cutting edge world class research and development in 3D location services. The CSDILA is in a position to provide further assistance in developing the Triple Zero Service of the future’s capabilities in relation to 3D location services.

The Public Safety Communication Research (PSCR) Laboratories in Boulder Colorado USA have just commenced the development of a Research and Development Roadmap for “Location Based Services” for public safety communications highlighting the importance of “location “capability. The University of Melbourne’s’ CDMPS is participating in the development of this Roadmap.

(d) Data

As is the case with Public Safety Mobile Broadband Networks in the United States, Canada, the United Kingdom and Europe Next Generation Triple Digit Emergency Number Services are about data and not voice. Therefore the challenges to be faced by the Triple Zero Service of the Future and the Public Safety Agencies are those challenges more generally recognized under the heading of “Big Data”.

The Triple Zero Service of the future will be further hampered by the volume, variance and variety of data being received. It is assumed that the Triple Zero Service of the future will receive large volumes of multimedia data both from the public and from a wide range of sources such as autonomous vehicles and buildings and sensor’s increasingly embedded in infrastructure that supports our everyday lives. This raises the option of identifying what data will add value to the Triple Zero Service of the future i.e. what data complements traditional voice calls allowing other data to be redirected for further analysis reducing the overall workload on the Service while enhancing the awareness of the nature and importance of the call.

The associated challenge will be the development of the ability to analyze this data, which will be both authoritative and non-authoritative, structured and non-structured and streamed in real time so that it can be used to enhance decision making processes associated with emergency and disaster management and communication with communities.

(e) Spatial Information Management

The ability to accurately locate the source of a call to the Triple Zero Service and the location of the emergency event itself is fundamental to the quality of the response provided by Public Safety Agencies. The Triple Zero Service of the future will be able to contribute to the enhancement of this quality based upon the ability to spatially manage data that will complement the Triple Zero call.

The ability to manage information spatially will emerge to be crucial to meeting both assumptions and community expectations of the services that are delivered by both the Triple Zero Service of the future and Public Safety Agencies.

The emergence of this capability coupled with matching analytical capabilities can be seen now in predictive modeling which could ultimately be extended to the prediction of emergency events and the mitigation of risks associated with these events. This prediction capability will contribute to the continuing swing from response to intervention and mitigation as essential components of building community resilience.

(f) Critical Infrastructure

The Triple Zero service of the future will depend on governments being able to meet the greater challenge of providing the following critical infrastructure in a timely manner based upon open standards to meet inter-agency interoperability requirements:

- Highly resilient commercial carrier networks;
- Spatial Data Infrastructure (SDI);
- The Public Safety Mobile Broadband Network (PSMBN) for mission critical data;
- The National Broadband Network (NBN) for both voice and data;
- Land Mobile Radio (LMR) for mission critical voice;
- Mission Critical Sensor Systems;
- Highly resilient public safety specific software applications.

Neither the Triple Zero Service itself nor any of these core components are currently recognized and classified as “critical infrastructure” under Australia’s National Disaster Resilience Strategy.

(g) Spectrum

Spectrum is a scarce finite and unseen resource that increases in value as communities become more dependent on the use of services based upon broadband technologies.

Consumer demand for broadband based services will continue to grow well past the point of full market penetration of smart devices and will be driven by consumer demand and community expectations for value added services that contribute to the social, economic and environmental wellbeing of Australia. The internet of things or machine to machine capture and exchange of data will generate information and create knowledge about trends and events that will shape the way our future communities exist.

In the same way that high speed mobile broadband networks require spectrum to meet consumer demand the Triple Zero Service of the future and the Public Safety Mobile Broadband Network will require access to suitable spectrum. There is ongoing debate about the quantity and location of spectrum to be allocated to Australia’s Public Safety Agencies.

This matter is to be addressed in the review of spectrum for public safety communications by the Minister for Communications and the results of this review must be taken into account in the Technology Roadmap for the Triple Zero Service of the future.

(h) Consultation

The concept of community safety has driven the recognition of the importance of community involvement in the preparation, preparedness, response and recovery from major emergencies and disasters and led to the current focus on community resilience.

In this context communities must be included in the mission critical public safety communications echo system as this system transforms itself to provide the capability and capacity for Public Safety

Agencies to seek information from and share information with communities to improve their resilience.

Consultation about the Triple Zero Service of the future needs to commence raising awareness within the community about how the service is provided, the positioning of both the service and communities in the echo system and provide the opportunity to continue discussion about the challenges and limitations previously mentioned.

(i) State and Territory Readiness

The Departments' Discussion Paper excludes consideration of the Public Safety Agencies' Communications Centers in the States and Territories. The readiness of the Triple Zero Service to receive multimedia data from a wide range of sources has to be matched by the readiness of the Public Safety Agencies' Communications Centers to receive data whether from the Triple Zero Service or other sources.

Likewise the State or Territory Communications Centers must also be able to transfer the information to field resources which means the Triple Zero Service of the future is explicitly linked to the Public Safety Mobile Broadband Project.

The current state of readiness of the States and Territories Communications Centers to receive data transferred from the Triple Zero Service of the future or other sources needs to be assessed on a national basis. This assessment of readiness should also address whether the Triple Zero Service of the future needs to be the single point of receipt of data and the option for some or all of this data to be diverted directly to alternative separate specialist Data Centers.

Question 3: Other ways of requesting emergency assistance

The only way of contacting Triple Zero is with a voice call and this is likely to remain the primary way of requesting emergency assistance. However, people use a range of other ways to communicate, including SMS, email, instant messaging, video calls and social media.

In addition to voice calls, is it desirable to have other ways of requesting emergency assistance? If so, what ways and what challenges do you foresee?

RESPONSE

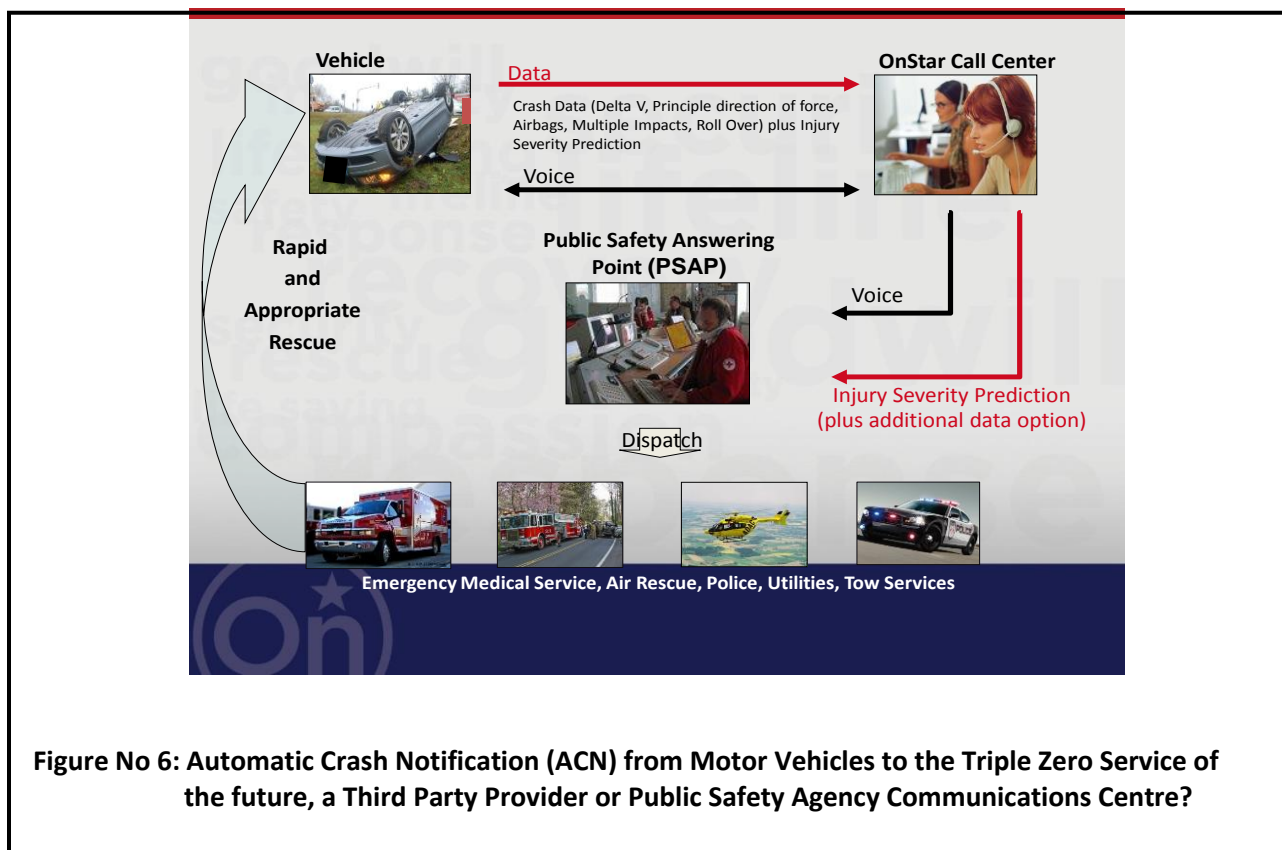
The future generation of consumers will expect to have choice in the way they access services matched to their personal needs. The Triple Zero Service of the future will need to be able to provide choice and personalization by being able to receive multimedia information from a range of devices and sources in addition to the traditional voice call. It should be assumed that voice communication will remain the pre-eminent form of redundancy for requesting assistance from Public Safety Agencies.

Requests for access to Public Safety Agencies for assistance will be received from a range of devices both static and mobile (M2M, autonomous vehicles, smart cars and smart buildings) that will be continuously monitoring their environments, both built and natural and identifying changes that provide advance warning of an emergency situation.

Commercial organizations such as General Motors subsidiary OnStar offer Automatic Crash Notification capability to its customers where in the event of an accident vehicle sensors send data to the OnStar Center Operators who attempt to contact the driver. The data received is used to predict injury severity and the OnStar operator is then able to provide this information (voice and data) to the appropriate Public Safety Answering Point for the dispatch of Public Safety Agencies. The OnStar service is shown in Figure No 6.

On 22 August 2014 the Ford Motor Company announced that the last series of Ford Flacon will be the first Australian locally produced vehicle capable of automatically calling the Triple Zero Service using a blue tooth connection to a mobile phone following a crash and provide the GPS co-ordinates sent via the phone.

The continuing progress of the development of services that potentially automatically connect to the Triple Zero Service illustrates the need for a decision on the point to which the data provided by these services needs to be delivered i.e. not all data will need to go to the Triple Zero Service of the future. The innovative use of technology has the potential to reduce the load on the Triple Zero Service through alternative routing channels.



Question 4: Improving information

It is important that emergency service organisations, as well as callers, have the information they need in an emergency. Changes in technology offer opportunities to improve the information available, however, these changes also present some challenges.

What information is essential to emergency service organisations and callers in an emergency and what information is desirable?

RESPONSE

The definition of mission critical voice capability for public safety communications has evolved over past decades based upon the use of land mobile radio by Public Safety Agencies. This definition is built upon the key criteria identified by these Agencies to meet community expectations. The National Public Safety Telecommunications Council (NPSTC) definition of Mission Critical Voiceⁱⁱ is generally accepted within the industry.

There is currently no matching definition for “mission critical data” even though community expectations and assumptions would be that the Public Safety Agencies would have at least a matching understanding of the capabilities and capacity that broadband technologies may provide as part of everyday life.

It is expected that a definition for “mission critical data” will evolve as Public Safety Agencies have the opportunity to become familiar with the use of broadband technologies and better understand the changes and benefits that will be required for new business models and operational doctrine. Certainly it would be expected that “location” will be a key element of this definition.

Recent research work done by the Royal United Services Instituteⁱⁱⁱ (RUSI) for British APCO and published in the document *“Emergency Services Communications: Resilience for the Twenty-First Century”* referenced the following eight categories of public safety data identified by the European Union Law Enforcement Working Party Expert Radio Communications Working Group which contribute to the development of such a definition:

- Automated Control System Data Exchange
- Facial Recognition
- M2M data collection sharing and telemetry
- Patient Record Access
- Picture information collection and distribution
- Remote administration and management
- Situations awareness
- Video streaming

It should be expected that those Public Safety Agencies that have experience with mobile data should also be able to contribute to identifying critical data categories.

The definition of mission critical data will also assist in the decision previously discussed about what data should be presented to the Triple Zero Service of the future to augment the traditional voice service and what data needs to be provided to specialist evaluation units for analysis and use in intelligence gathering and decision making.

This may mean that the voice call transferred from the Triple Zero service will coincide with the arrival of information generated from evaluated data (intelligence) that will assist the Public Safety Agency Communication Centre Calltakers make decisions in accordance with the protocols set by the Public Safety Agencies.

The availability of information essential for Public Safety Agencies needs to be supported by the right institutional arrangements. Changes in technology are important, but simply making information available is, by itself, unlikely to maximize the utility of the Triple Zero Service of the future.

A parallel Information Management Framework is essential. In particular,

- Information management must have strong and transparent governance.
- Adequate custodianship arrangements must be put in place and maintained.
- The “point of truth” must be maintained for every dataset involved.
- Adequate funding must be provided for core data to ensure that their quality and currency are maintained.
- The system of licensing must match the “volatility” of data maintenance.
- Data needs to be “fit for purpose” for a wide range of users (including the Public safety Agencies).
- The continuity of existing agreements between Government and others for data supply, maintenance and exchange must be ensured.

Determining How We Get There

Question 5: The role of the national Triple Zero operator

A tender for the national Triple Zero operator is required to be issued by June 2016. The aim of this review is to ensure that the arrangements for the national Triple Zero operator continue to support a world class Triple Zero service into the future.

What criteria should be used to determine the functions of the national operator?

RESPONSE

There is no current definition for a “world class” triple digit emergency number service. However the responses provided to Questions 1-4 provide an insight to the further research that will need to

be undertaken. This research will inform decisions made to define the Triple Zero Service of the future in the proposed Tender so that measurements can be determined to assess the quality of the service being delivered against assumptions and expectations of both the public and the Public Safety Agencies.

Question 6: The role of telecommunications providers

Telecommunications providers have regulatory obligations in relation to Triple Zero, recognizing their importance in the delivery of the service. However, it is important to consider whether the regulatory framework remains appropriate given changes in technology and the telecommunications industry, the likely direction of the Triple Zero service, and the Government's commitment to reduce the regulatory burden on industry.

Is the current regulatory and funding framework for the Triple Zero service appropriate now and for the future? If not, what changes should be made and why?

The Department welcomes information from the telecommunications industry, when responding to this question, on how much it costs industry to meet the existing regulatory requirements in relation to the Triple Zero service.

RESPONSE

Legislation and regulation applicable to broadband communications technologies is not keeping pace with the rate of evolution of these technologies to meet consumer demand for services. Experience would indicate there is no reason to think that current legislation and regulation applicable to the Triple Zero Service is any different.

The Department's Discussion Paper indicates that content of the Triple Zero Tender regarding Customer User Requirements (CURs) will be developed based on this Review and other information. It is essential that all authorized jurisdictional and community representatives be given an opportunity to review and endorse these CURs in a commercially sensitive and appropriate manner prior to the release of the Tender.

As part of the development of the Technology Roadmap for the Triple Zero Service of the future a legislative and regulatory review should be undertaken of each component of the mission critical public safety communications echo system and of the total system itself.

The United Nations recognizes spatial information as a global echo system like the mission critical public safety communications echo system. These two echo systems will need to seamlessly converge to create the ability to allow Public Safety Agencies to effectively manage the rapidly increasing volume of data being generated by broadband technologies. This core capability needs to be able to be built and rely on a well defined and documented legislative and regulatory framework. This framework must provide the flexibility to evolve with continuous change in technology and

provide confidence to the public regarding the treatment of information provided to or collected by the Triple Zero Service of the future.

In particular this review should also consider the type of legislation and regulation necessary to allow a consistent level of cyber security in line with community expectations around the receipt, storage and access to information.

The Victorian Spatial Council has developed and maintains the Victorian Spatial Information Strategy and the associated Victorian Spatial Information Management Framework which would be of assistance in considering the legislation and regulation necessary to apply to the Spatial Data Infrastructure identified as being a key component of the mission critical communications echo system.

Question 7: The role of innovators

Innovative ideas to improve emergency assistance may come from a range of parties such as app developers, device and car manufacturers, research organizations, community service providers and individuals.

What sorts of innovations would most improve the Triple Zero service? How can innovation and third party innovators be supported while ensuring the reliability and integrity of service?

RESPONSE:

Broadband technologies are driving innovation in the way services are delivered with the rapid development of “Apps” as a good example of the level of innovation possible and the community will expect that the same should apply to public safety.

APCO International and British APCO are providing the opportunity for the apps development community to consider the needs of public safety from both the perspective of Public Safety Agencies and the community.

APCO international has developed the “AppComm” website at www.appcom.org as a means of progressively identifying what will differentiate a “public safety” app from apps being developed for use by the general public.

Through this initiative APCO International has published a set of Guidelines for public safety apps and recently facilitated a workshop on the cyber security required by public safety apps the results of which will be published by the National Institute of Science and Technology (NIST).

In the United Kingdom British APCO is working with the 999 service provider, British Telecom, to determine how formal accreditation may be given by Public Safety Agencies to public safety apps for use on mobile networks. British APCO is continuing to work with industry to develop a software

application for Smartphones that will automatically deliver location information associated with 999 calls.

Telematics has emerged in the United States, Canada and Europe as a contributor to improving road safety. British APCO is taking the lead with the introduction of “eCall” in the United Kingdom as required by the European Union in Europe in 2015 which will deliver a form of Automatic Crash Notification from motor vehicles to nominated Emergency Call Answering Points. General Motors Subsidiary OnStar has recently established operations in the United Kingdom with plans to expand into Europe and it should be expected that OnStar will be offering its third party notification and support services to Emergency Call Answering Points as referenced earlier in this Submission.

Broadband technologies will drive innovation but in public safety communications this innovation needs to recognize and complement mission critical communications requirements which are different to the requirements of the commercial environment.

The ability to find a middle ground through collaboration on innovation between public safety, industry and academia to develop solutions to the challenges identified in this Submission could considerably shorten the time frame for the development and implementation of the Triple Zero Service of the future.

The Triple Zero Service of the future service needs to include a system or mechanism for supporting ongoing research and innovation during the term of the Contract awarded from the Tender process (i.e. to the year 2034).

Question 8: Cooperation and decision-making

There are a range of parties with interests and responsibilities in relation to Triple Zero. It is important that there are effective cooperation and decision-making arrangements in place amongst these parties so that the service can continue to adapt and respond to issues as they arise in the future.

What things do the current cooperation and decision-making arrangements for Triple Zero do well? What things do they not do well? What changes are needed so the service can better adapt and respond to issues in the future?

RESPONSE

As indicated earlier the United States, Canada, the United Kingdom and Europe are all in the process of planning for the transition to Next Generation Emergency Number access albeit at various stages.

In these countries public safety communications associations such as APCO International, British APCO, NENA, NPSTC and the European Emergency Number Association (EENA) are collaborating with government agencies, regulators and Public Safety Agencies to set Standards and share the lessons learned about Next Generation technologies.

These organizations document and publish their work which is available through their respective websites and conduct Conferences through which information is openly shared. These organizations are interested in supporting Australia in the development of the Triple Zero Service of the future and this willingness needs to be welcomed.

In Australia there are specific groups established to support the Triple Zero Service i.e. the ACMA Triple Zero Advisory Working Group and the National Calltaking Working Group (NECWG). The workings of these groups should be transparent as part of a public consultation process based upon collaboration with Advocacy Groups. This approach would support the development of community relevant research and innovation proposals.

The establishment of a “Triple Zero of the Future Project” would allow a greater focus to be applied to the development of the specification for the Triple Zero Service of the future and to undertake the action suggested in this Submission. It should also address the issues that surround an increasingly mobile global community and their expectation that they should be able to contact the emergency call provider no matter which country they are in.

The overall governance arrangements to be applied to the Triple Zero Service of the future and the associated leadership required to implement these arrangements will be key to the successful delivery of the enhanced service to benefit all generations of Australians.

Conclusion

The existing Triple Zero Service contributes to the security and well being of all Australians. The Triple Zero Service of the future will transform the existing service from a one way voice only communications service to a fully integrated two way multimedia communications capability presenting the opportunity to deliver an enhanced service to future generations of Australians.

To achieve this result the content of the Tender for the Triple Zero Service of the future needs to address the matters identified in this Submission and the partners contributing to this Submission look forward to discussions with the Department of Communications.

Related Web Sites

The following list provides the websites for organizations referenced in the Submission:

APCO International (USA):	www.apcointl.org
APCO International - AppComm:	www.appcomm.org
APCO Canada:	www.apco.ca .
APCO Australasia:	www.apcoaust.com.au
Australian Attorney General's Department:	www.triplezero.gov.au
British APCO:	www.bapco.org.uk
European Emergency Number Association (EENA):	www.eena.org
University of Melbourne CDMPS:	www.cdmps.org.au
National 911 Program (USA):	www.911.gov
National Emergency Number Association (USA):	www.nena.org
National Public Safety Telecommunications Council (USA):	www.npstc.org
OnStar	www.onstar.com
Public Safety Communications Research Laboratories (USA):	www.pscr.org
Royal United Services Institute (UK):	www.rusi.org
Victorian Spatial Council:	www.victorianspatialcouncil.org

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The Contacts for further information regarding this Submission are shown below:



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ⁱ FirstNet Board Member Jeff Johnson speaking at the June 2013 Public Safety Communications Research Laboratories Broadband Conference in Colorado USA

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<http://www.npstc.org/download.jsp?tableId=37&column=217&id=2024&file=Functional%20Description%20M%20CV%20083011%20FINAL.pdf>

ⁱⁱⁱ Royal United Services Institute United Kingdom - www.rusi.org