Committee Secretary
Senate Environment, Communications, Information Technology and the Arts
References Committee
Department of the Senate
Parliament House
Canberra ACT 2600
Australia

ATTENTION: LOUISE GELL

Dear Louise

RE: Inquiry into the performance of the Australian telecommunications regulatory regime.

Thank you for the opportunity to submit the attached document titled "The Future of the Emergency Call Service" for the attention of the above committee.

The document was developed on behalf of the National Emergency Communications Working Group by
Mr. R.E.Barker
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And
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The purpose of the document is to bring to the attention of relevant authorities, concerns raised by the National Emergency Communications Working Group (NECWG) regarding the future development, funding, management and security of the Emergency Call Service (EOOO), for the benefit of the Australian community.

As a matter of history NECWG is a group consisting primarily of Emergency Service Organisations and has representation from Police, Ambulance and Fire Services in all States and Territories.

This group was formed in 1995 in order for Emergency Service Organisations to have some level of input into the proposed changes to the communications legislation as it related to emergency call taking and the Emergency Call Service at that time.

The group has continued its work in an endeavor to ensure continual improvement to, and the security of, the Emergency Call Service and welcomes this opportunity to provide further input.
If it is of benefit to the committee in its deliberations NECWG would be happy to provide an appropriate member or members to address them regarding the contents of this submission or any issues that may arise as a consequence of it.

Arrangements can be made by contacting
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R.E.BARKER
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THE FUTURE

OF THE

EMERGENCY CALL

SERVICE

PURPOSE OF THIS DOCUMENT

Community and personal safety is often collectively called public safety. Public safety is one of the most fundamental requirements of today's society and is high on most political agendas. There is a clear community expectation, reinforced at all levels of government, that when police, fire or ambulance assistance is required in an emergency, the communication of that need for, and the delivery of that assistance, must occur with high priority and as rapidly as possible. Wide access and reliable priority communication as well as prompt reaction by Emergency Services Organisations (ESOs) are critical.

The purpose of this document is therefore to consider the future of the current Emergency Call Service (ECS) with a view to ensuring the provision of a fast and reliable end-to-end service, available to all Australians and visitors to Australia.

This document considers options for the future direction of the ECS, including:

- structure;
- management;
- funding; and
- technology.

These are issues for the telecommunications industry, ESOs, the community and government, jointly to address.

OBJECTIVE OF THE ECS

The objective of the ECS is to provide a robust communications capability that enables individuals to rapidly and reliably be connected to the appropriate ESO (police, fire, ambulance) to assist those individuals in times of an emergency.

For long-term viability, the ECS must:

- have a robust, independent governance structure that is representative of all contributors to such an ECS;
- have a secure, preferably independent, base that is sufficient to allow for its effective operation and its future development;
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- be simple to understand and use in an emergency;
- operate uniformly and independent of approved end-user equipment employed;
- be universally accessible;
- have no barriers to its use; and
- have the obligation to continue to develop its infrastructure and technology in a manner that will allow it to continue to provide the most effective and efficient system available at the time.

BACKGROUND

For many years in Australia, Triple Zero (000) has been the dedicated emergency number to call in time-critical emergencies requiring the urgent attendance of police, fire or ambulance. Time-critical events include those that are life threatening.

With the introduction of mobile phones based on GSM standards emanating essentially out of Europe, the number '112' needed to be introduced because of the features incorporated in the standard. More recently, the number '106' was introduced to produce the same result as 000 for community members who have voice or hearing disabilities.

000 has a particularly high recognition rate within the community, but its meaning and special limited purpose needs ongoing promotion.

It is critical to the successful delivery of this service that a single nationally-recognised number be used for this purpose. Exceptions and variations cause complication and confusion in an area where clarity and simplicity are required. It is important that there be a concerted on-going effort to achieve this key outcome. It is recognised that for a number of reasons, such an outcome may take time, but it is important that pressure be maintained for it to be in the shortest practical time by locking that aim into the forward program for all contributors.

Technological developments, like GSM in the past and the more recent internet telephony, are putting pressure on a system that requires high recognition, clear focus and simplicity to ensure its ongoing successful operation.

OPERATION OF THE SYSTEM

When a caller makes a 000 call (also read 112 and 106), their call is collected across the fixed and mobile networks and referred to specialised emergency call-takers at designated emergency service answer points. These services are currently provided by Telstra for 000 and 112, and Australian Communications Exchange for 106, under a particular Determination of the Telecommunications (Emergency Call Services) Act 1997. The answer point operator asks the caller which emergency service is required and the call is then referred to the specific ESO call answering point in the area associated with the origin of the call.

This emergency call-taker role is essentially that of a 'switching agent', whose task it is to identify the required ESO and connect that call as quickly as possible. These calls are recognised by the carrier infrastructure and given priority access over specific redundant routes. The call paths have extremely high reliability and certainty of connection attached to them. They have priority in any required reconfiguration. This performance is regularly monitored by the regulating authority, the Australian Communications Authority. Specific legislation is in place concerning a number of aspects of this service as well as various Determinations and Industry Codes pertaining to its operation.

This service operates as a community service at no cost to the particular caller. Calls from public coin phones do not require coins for those calls to be placed. As the recognised Emergency Call Person, Telstra provides these services to customers of all carriers via interconnection to the Telstra network.

CHALLENGE

The present system was essentially established in 1961 as an initiative of the then sole Australian telecommunications provider, and was progressively enhanced to become an essential network-wide community service until its operation became a licence condition for Telstra in 1997 under the then new telecommunications legislation.

The system employs particular technology that, while it operates to particularly high levels of effectiveness, will not always be able to do so without substantial redevelopment. The system also remains exposed to new era technology developments that provide for new capabilities. These alternative technologies are likely to be driven off new communication platforms, taking advantage of other communication mechanisms that move away from the traditional methods. Much of this is based around computer switching and data messaging, whereby the previous predictability, certainty and traceability of voice communication comes under considerable doubt, and the reliance and certainty that the ESOs have had in the existing framework arrangements is progressively challenged and probably weakened.

This means that there is a point in the future as yet undefined, but more likely sooner than later, where reappraisal and recommitment to the underlying rationale for this ECS is needed. A significant investment or development may be necessary for which there can be no guarantee it will occur.

The major challenge is that the attractive functionality that new technologies are delivering in the higher orders of the consumer society, are not yet being matched by an equivalent highly predictable capability for emergency messaging, including location identification. This stands to put the certainty available from the present system at progressively increasing risk.

Unless parallel or balanced development can and does occur, and is positively encouraged or mandated, there is growing concern that a two or even multi-tier system might develop, requiring the old predictable technology for guaranteed passage of emergency calls. The higher order less predictable technology would provide a lower order of performance in this area. Those relying on the latter will be exposed potentially without their knowledge to an inferior service, potentially with no guarantee that the call will be received let alone the service required to be delivered.

It is unlikely that the new technology itself could or would provide, or even be interested in providing, the critical elements of the ECS. It is important to indicate that these developments are not confined to Australia but are largely world-wide, driven off the dramatic developments occurring in the internet and related space.

Therefore the challenge for Australia is how this technology evolution can be managed or harnessed to ensure the community's public safety expectation is assured when it is required. The question which arises is how this can be done within the existing policy and management framework or whether it is appropriate to begin to develop other frameworks or arrangements under government sponsorship, which will assure the availability of this fundamental ECS into the future. Under either case, it is imperative that the ECS presented to the caller appears as a single national emergency call service.

ISSUES WITH THE CURRENT ARRANGEMENT

As the largest carrier at the time and the then provider of the service, Telstra was tasked to continue to operate that facility. Other than any inter-connect considerations at the network boundaries, the service operates essentially as an operational cost to Telstra. Given the market share changes, the new providers and new services since 1997, the question of ongoing cost-contribution/sharing in any significant redevelopment will arise.

Their operation involves redundant switching centres in Sydney and Melbourne servicing all Australian locations. All calls are directed to one of these centres and then referred back to the requested ESO in the State of origin of the call, and specifically to the ESO communication centre identified to deal with such calls from that location. These ESO communication centres rely on receiving not only the voice call but also location details that assist them to accurately identify the calling locations. For fixed services, the location provided is the details of the subscriber service. This works well for domestic premises but is complicated in the business area involving PABX, especially covering multiple locations. This aspect relies on accurate up-to-date subscriber details. For mobile facilities, details vary across carriers with most working towards identifying cell detail. Future further refinement depends upon available technology which, as it becomes commercially viable, can expect to derive the required refined location data while the call is in progress, which is important to ESOs in many emergency situations.

Carriers, other than Telstra, are obliged to carry emergency calls to the point of Telstra interconnect. Otherwise they have no responsibility for the Emergency Call System. They are expected to cooperate in the identification and facilitation of the call from the originator to the interface point. However, Telstra as the ECP carries the responsibility for all other aspects of the service. Telstra provides all of the call-takers and management for the system, and manages the database containing details of ESO communications centres identified to receive emergency calls from subscriber numbers. Telstra receives no specific contribution from other carriers, and operates this service as a condition of its licence.

As such, Telstra has no specific interest or obligation to develop or enhance the operation or ability of this service outside ensuring that it operates it to no less a standard than is defined in the relevant determination. That said, Telstra has made a number of helpful and practical refinements to the system's operation mainly in the area of seeking to reduce the number of unwelcome calls its operators have to process. These benefit operations overall including reducing impact on ESOs, but by their nature reduce the impact on Telstra's resources.

A number of these have also had the positive cooperation of other service carriers. These efforts are welcomed in that they also benefit the community as a whole in taking away from the overall processing of calls that are clearly not emergency calls. Of the calls made to emergency numbers, periodic surveys indicate that less than 10 percent of them are for actual emergencies.

COST ISSUES

Telstra's responsible operation of this service belies every indication that it would prefer not to be obliged to do it. It has little interest in its proactive enhancement. With the self regulated philosophy that exists under the Commonwealth legislation as it exists in 2004, the Australian Communications Authority carries responsibility for the regulatory framework, relying essentially on industry cooperation and mutual development to effect the developments that occur.

Telstra has indicated in recent times that its estimation of functions involved in this service exceeds $20 million. Calls to this service are free. This is defined in the 1997 legislation. This carried through on historical practice. All parties associated with this service agree that there should be no actual impediment to a call being able to be made from an operating telephone service; eg a coin-operated service should not require coins for a 000 call to be made. GSM mobile phones permit 112 calls to be made, even though the phone is otherwise locked. 112 calls are recognised by the system and carried as 000 calls.

An argument can be made that for considerably less than $10 per service (number), sufficient funds would be available annually to fund the full operation of this service, including adequate capital to ensure its continued development. It would give an opportunity for a specialist provider other than Telstra to develop and operate such a service. Telstra could alternatively be permitted to sub-contract its obligation based on an adequate funding package made up as above; with a further extension of a levy on carriers for the number of services they operate. This would introduce some equity across the industry. The practical difficulty in amending legislation to make emergency calls chargeable has to be recognised. The above approach would not require the full call status to be changed. It does need to be recognised that from a small number of telephone services, a significant number of calls to the emergency number are made, even though there is no emergency, simply because such calls are free.

In 2004, it remains difficult to secure a successful prosecution for repeated unwelcome calls to this service and, as such, ESOs are generally reluctant to pursue such action. It is hoped that the Criminal Code will be amended to introduce a specific offence against repeated misuse of this essential service. A service that has one tenth of the number of calls to service is clearly a less costly operation.

EMERGENCY CALL NUMBERS

While the 106 number provides a parallel capability to 000 and 112, it is tailored to a specific element of the community who, as such, receive a similar service. This is a justifiable equity issue. Little cross-over between such groups is likely.

However, the existence of two emergency numbers (000 and 112) can and does create confusion even among those involved in the ECS process. The technology features introduced by GSM telephony introduced useful additional capabilities to facilitate calls in an emergency. For this reason, 112 had to be introduced as an emergency number in Australia. The number 000 is unique to Australia with other countries having adopted quite different sequences for the same purpose.

The introduction of 112 into Australia and a number of coronial findings have resulted in decisions and consequent actions that have created and then subsequently increased confusion regarding the way to access the ECS. While 000 operates on all forms, 112 does not. 112 has capabilities that 000 does not. The difficulty is that in emergency circumstances, all possibilities arguably should be available to provide every opportunity for assistance to be provided. It can be the difference between life and death. Unfortunately, in such crisis times, which occur for most rarely, cool logic does not apply. Complexity causes errors to be made.

Therefore, it is of utmost importance that every effort be made to apply, if not mandate, technology to overcome this problem.

Some years back, a move was made to change Australia's primary emergency number from 000 to 112 for these reasons. That proposal failed because a trial of 112 on the fixed network produced a large number of 'phantom' calls, and was rapidly abandoned. Since then, other number sequences which caused misdial confusion in respect of 000 have been changed. Introductory sequences like 008 and 005 were altered, reinforcing the position of 000 in Australia.

However, 000 still does not have all of the capabilities available to 112. One important one is the capacity to roam across carriers that 112 has in the mobile area. Interestingly, on CDMA technology which carries the capacity to handle a 112 call like a 000 call, 112 does not roam to other carriers because it does not have that capability within the CDMA specification. This variation adds to more potential confusion.

New technology produces new capability. It is recognised that the Australian market size is not significant and therefore a specific requirement around 000 deemed necessary in Australia is more likely to be ignored in the bigger scheme of things. However, other nations face their own variant of the same problem. The ACA and the Commonwealth Department need to be more positive in their operations to achieve these important outcomes as soon as possible.

The telephone market continues to grow and be refreshed with surprising rapidity. Positive influence exercised by ACA and others can considerably shorten the time this growing confusion continues to occur.

OTHER FOCUS ISSUES

In recent years there has been growing positive cooperation between all contributors to the ECS to seek to continue to refine its operation. The operation is still largely burdened by what remains as an abnormally high rate of 'unwelcomed' calls to the emergency numbers which flow-in across the network to the emergency call-takers. Many of the recent initiatives have involved actions to filter out calls that are clearly not emergency calls and these are no longer received by the ESOs. The most significant in recent times is action taken on 'no-voice' calls which, in the main, relate to calls initiated on mobile phones without the person being aware, and the call-taker receiving no response when answering the call. Some 60 percent of calls that were previously passed to police for handling were able to be removed in this action. A further initiative to use each carrier network to eliminate 000 calls carrying additional digit sequences is in progress. These are clearly misdials because the caller has continued dialling beyond three zeros with the expected intention of reaching a different destination.

NEW TECHNOLOGY

In 2004, transmission and switching technology is now well developed offering a radically new basis to that on which traditional telephony has occurred for more than 100 years and putting at considerable risk many services that were solidly based upon it. The ECS is one such service.

This new technology uses well established computer data transmission techniques, now focussing upon multi-media, text and data as well as voice, to address the growing demand for communication capabilities driven off the back of Internet Protocol (IP) technology and in particular IP telephony. Examples of these exist operationally today and they will become progressively more popular and widespread as business and consumers seek out less expensive communications options or ones that provide inherently far wider, more rapid, reliable and faster forms of overall communication between individuals based around data terminal devices.

This same technology is being widened to include full voice communication as an alternative to that of the traditional switched circuit or line. In essence it enables voice communication over computer data networks with a service of increasingly acceptable quality, and fully interconnecting to traditional networks.

The nature of this new technology is such that communication path, and location of origin in particular, are no longer able to be ascertained. Voice calls could be carried anywhere across networks via servers in other countries before being returned to their final destination.

This puts at complete risk the concept of an Emergency Call over IP technology networks. With the current IP technology, the location of origin of the call is not able to be ascertained and, as such, one of the fundamental requirements for targeting an emergency call is effectively lost.

Those developments are beginning to progress to a stage where IP telephony becomes somewhat ubiquitous replacing circuit switched, and this is beginning to occur in some advanced residential and business estate broad-band applications. This means that the distinction between public and private networks becomes less clear.

This panacea of flexibility, multiple providers and widening multi-faceted applications puts at complete risk one of the fundamental legislative tenets that carriage services need to provide some fundamental service of social and community importance. The present Standard Telephone Service is defined in its minimum state as being required to effect an emergency call. These new services in all forms will not expect to meet the full range of regulatory requirements leaving the question of how those services are provided. By the same token, any mandating of these social capabilities will severely limit, if not put in some jeopardy, new capabilities for which there is clear growing demand.

How this will develop and the nature of the final services which emerge are unclear. The technology is developing to a point that any attempt in one area to unduly regulate, could expect to result in alternative arrangements developing that do not have or can avoid those restrictions.

There are a range of competing developments of component services which will vie for position.

Whereas previously many of the key services were provided under the regulatory frameworks that exist under the traditional networks, many if not most of the future ones will be in the hands of the user for them to exercise their choice. The user largely can control the type of service selection employed and use that to interact with others to achieve their desired outcome. Some devices or suppliers may need to carry warnings that emergency calls can not be guaranteed via its particular service arrangement.

These technologies will, in large part, be driven by market requirements with service offerings finding degrees of favour based around usability, function and cost. Australia's market generally will be influenced by performance experience in other larger markets. Many of the new capabilities arguably do not fit within the current Australian regulatory framework and therefore, as stated earlier, put some of these traditional social-based offerings at considerable risk.

WAY FORWARD

These developments could completely prejudice the ECS as we know it in Australia unless it is possible to develop a suitable regulatory framework that somehow balances the competing issues into something which is workable and broadly accepted by the market.

The developments which occur in this section need to be very closely monitored by the influential players who have to assess and strike the required balance for Australia between public good and demand for new technology- based services. Where such arrangements are likely to settle is completely unknown. However, the risk that is identified and could arguably increase, needs to be closely monitored so that any necessary and practical regulatory framework can operate in sympathy with this widening range of technological opportunities.

SOME OPTIONS

For example, in an environment where new technology does not facilitate an effective emergency service, a requirement could also exist for an old technology service to coexist within the same facility, so that the emergency service is 'guaranteed'. Users would have to be warned of the risks associated with the new technology implementation and possibly a mandated service might also need to be provided in conjunction with the new service.

For example, in the same way as building construction codes now require certain service features; eg smoke alarms, the building code might somehow require the provisions for a guaranteed emergency service connection.

Whereas in the past, this service has been made available via the public telephone service, in future it may be delivered by a quite differently controlled vehicle.

How this will develop and new capabilities emerge is yet to be seen. Those responsible for legislative developments covering communications services have a range of challenges in providing for public safety in all of its forms. Governments will need to keep a clear eye on these technological developments as they emerge in other countries and assess their applicability and impact into the Australian scene.

The only basis of assurance for the community is that these challenges face every other country to varying degrees, with Australia currently possessing and having generally good experience with its present implementation.

The risk is that that may not always continue to be so. Therefore Governments, regulating authorities and industry must collectively ensure that public interest remains high on these agendae and be continuously monitored as these developments rapidly ensue.

The objective of the ECS as detailed earlier in this paper needs to stand out above these competing developments and remain a fundamental requirement to be satisfied across the Australian community.

CONCLUSION /POINTS FOR CONSIDERATION

Therefore there are a number of areas which need varying degrees of consideration and desirably a determination for future direction to achieve particular outcomes.

1. That there needs to be an affirmation that "the future development of the Emergency Call Service (Emergency Triple Zero) and the Triple Zero Network is a critical part of public safety in Australia".

2. That Triple Zero be the single nationally recognised and promoted number for Australia as soon as possible and that the issues of network roaming and caller location be a mandatory early requirement in the continual development of this service.

3. That early and preferably urgent consideration be given to parallel development of the ECS that will take advantage of the features of new technologies while providing certainty of access to the current system coupled with enhanced location information.

4. That early and preferably urgent consideration be given to how the ECS be delivered in future, including policy, management and funding models. Key to the future development of the ECS will be the development of a suitable funding stream sufficient to cover its ongoing operation and the flow-on on new technological developments.

5. That all contributing parties to the ECS continue to apply efforts to the reduction/elimination of unwelcome calls to the ECS.