

**Report to Emergency Management
Australia**
**Analysis of the potential impact of an
emergency warning system on the
capacity of the telecommunications
network**
By Gibson Quai AAS
Extract

ABOUT THIS DOCUMENT

TITLE: Extract of Analysis of the potential impact of an emergency warning system on the capacity of the telecommunications network (November 2008)

ABSTRACT: Documentation of a discussion between *network carriers* Emergency Management Australia (EMA), Department of Broadband, Communications and the Digital Economy (DBCDE) and GQ-AAS on the capability of telecommunication carriers to carry emergency warning traffic to telephone numbers obtained from the Integrated Public Number Database (IPND).

1 INTRODUCTION

Emergency Management Australia (EMA) has commissioned Gibson Quai – AAS Pty Limited (GQ-AAS) to assist with an analysis of the potential impact of an emergency warning system (EWS) on the capacity of the telecommunications network.

EMA and GQ-AAS, accompanied by officers from the Spectrum Allocations and Emergency Services Branch of the Department of Broadband, Communications and the Digital Economy (DBCDE) interviewed staff of *telecommunications carriers* on this topic. These discussions were guided by a structured questionnaire and were documented in previous reports of this project.

This report analyses the relevant issues arising from these interviews in order to provide:

- a) conclusions on whether an EWS using fixed-line telephony would have adverse operational, technical or commercial and cost implications for the provision of current communications services to consumers or the integrity of communications networks or in any other way, and
- b) recommendations relating to technical requirements that may be needed in any development of a system, any further actions and other matters for further consideration or further work.

2 OUTCOME OF INTERVIEWS

Introduction

Carrier and *Carrier* were interviewed.

Proprietary information and comment on carrier networks removed

Common Concerns

A number of common concerns were raised by staff of the carriers. These include (extract):

- a) Location of the EWS at points where the carriers have sufficient duplicated capacity to connect it into their backbone networks.
- b) Lead time and design considerations to connect the EWS to the network including:
 - i) Ensuring that the host exchange can manage the expected pattern of call connection attempts,
 - ii) Determining the carriage interface between the EWS and the PSTN with enough lead time to install any cabling required,

- iii) Determining the signalling protocols between the EWS and the carrier.
- c) The need to understand the traffic patterns which the EWS will generate in terms of call number, call rate and duration. These metrics must be provided to the carrier to allow the local exchange to be correctly dimensioned.
- d) The EWS must be able to detect congestion signals from each network to which any called party is connected. This will be problematic if the various carriers deliver different congestion messages and so this issue must be investigated.
- e) The need for formal, real time communication between the EWS operator and the carrier to allow the carrier to request changes to the EWS traffic patterns if these are causing unanticipated issues in the carrier's network.

Implications for other local carriers was removed as it contains proprietary information about telecommunication carriers' networks

3 CONCLUSIONS

This section draws conclusions on whether an EWS using fixed line telephony would have adverse operational, technical or commercial and cost implications for the provision of current communications services to consumers or the integrity of communications networks or in any other way. These conclusions are stated in terms of the carrier connecting the EWS to the fixed network and the carriers connecting the call recipients to the network.

3.1 EWS-Connecting Carrier

(extract)

This raises the issue of how the EWS-connecting carrier will be compensated for providing the connection and for carrying the calls to the customer or to the point of interconnect with the terminating carrier. Cost modelling would potentially improve EMA's understanding of this issue.

3.2 Local Carrier

(extract)

The EWS must be designed to accommodate or avoid any congestion that could occur if it attempts to send a large number of calls to a local area.

Alternatively the carriers could be requested to build additional capacity in the local area.

4 RECOMMENDATIONS

This section provides recommendations relating to technical requirements that may be needed in any development of a system, any further actions and other matters for further consideration or further work (extract).

4.1 Ensuring that the specification is stated in functional terms

(extract)

This raises a broader issue, which is that telecommunication service provision is in a state of continuous change. Any Statement of Requirements (SOR) for such services must avoid assumptions about underlying technologies and be expressed only in terms of function and performance.

4.2 Management of congestion in the local carrier networks

A subproject on congestion in the local carrier networks is needed. This project will examine each carrier's local network, assess the likelihood of congestion and review the potential methods of avoiding or reducing this congestion.

4.3 Quantification of EWS traffic

Information on likely traffic patterns is needed for several reasons. These reasons include assuring the project that the exchanges connecting the EWS can carry the traffic, assessing the amount of traffic that will transit points of interconnect to alternative local carriers, determining the amount of congestion that will occur in contention based local carrier networks and informing the modelling of how to recompense carriers for installing capacity and carrying calls.