

Priority Routing of Calls of person's engaged in 'response and recovery'

Communication plays a vital role during Emergency and Disaster situations. Emergency Routing is society's need more than requirement – timely intervention, rescue and recovery can save lives as well as infrastructure and may even lessen the extent of damage and as such is required to be the top priority under any and all circumstances. Prioritized communication services in the event of emergency, must be the top priority for any type of disaster management framework.

From the past experiences it can be easily observed that the networks get congested during emergency/disaster like earthquakes, floods etc. For example, when there was a serial Bomb Blast in Mumbai in 1992/93, the fixed line networks crashed, resulting in communication issues and more panic and chaos was created amongst the public.

During any disaster, communication system may crash either because of overload or because of actual physical destruction of supporting infrastructure; and the systems remains down/inactive, till the problems are resolved. Though, we cannot avoid actual physical destructions caused due to natural calamities, but we can certainly work upon framework that is robust enough to rule out artificial failure due to overload and has inbuilt contingencies to recognize emergencies.

Idea is to ensure right framework, structure and process to ensure that artificial crashing of system doesn't takes place and that communication systems aid in timely and synchronized recovery and response efforts.



Framework for Priority Routing Calling

In our view, Framework for Priority Routing Calling should be such that runs using enhancements based on existing commercial technology and network. Also, framework should be suitable for both landline networks and cellular network so that if telecom towers for wireless networks are destroyed, at least communication can be made through wire line networks and vice versa.

1. Intimation of Emergency – Toll free access

As a first step in priority routing, a toll free intimation mechanism must be built into the priority routing framework. There should be a centralized toll free number (such as USA 911) for intimation of emergency to central authority. Such number shall be used by general public to inform of any emergencies/disaster that has occurred or about to occur in a particular area. Similarly, another toll free pan-India number should be designated to know latest status of any emergency/disaster in a particular area. This number shall provide a centralized access to common public about status update.

2. Priority Calling

We are of the view that priority calling shall be built into the system. Priority levels from P0 to P7 (8 priority levels – 1 byte) shall form part of the calling framework, with P0 as normal (and lowest) priority and P1 to P7 in the increasing order of priority. This is similar to 3GPP based calling model. P1-P3 can be used for local medium level emergencies; P4-P5 for higher and eventually P6-P7 for national level emergencies such as war, terror attacks, etc. Also, during P6-P7 level priority, access to network shall be completely barred but access as mentioned in "Toll Free Access" shall continue to be provided.

We believe that restriction to access network in any other situation will only end up spreading chaos and shall be avoided. However, for P1-P5 emergencies, call time shall be restricted such that network can be more free; moreover some measures to ensure that same caller is not calling time and again and congesting network shall be built into the system. This

will be analogues to previous trunk dialling facilities, wherein call durations were fixed for say 2 minutes and a new call request was put at the end of the line. This will ensure access to network and lesser congestion.

3. **Emergency Situation**

There can be two types of emergency situations (i) Unpredictable emergencies like earthquake; and (ii) Predictable emergencies like flood.

I. **Unpredictable Emergency** – After knowing about the emergency, all the calls can be restricted for 2 minutes by building automated capacity in the system or service provider can cancel the calls after 2 minutes. This will allow high priority calls to be made without network congestion. Moreover, the system must be robust enough to identify the emergency. Though, we cannot avoid actual physical destructions caused due to natural calamities, but we can certainly work upon framework that is robust enough to rule out artificial failure due to overload and has inbuilt contingencies to recognize emergencies.

II. **Predictable Emergency** – If emergency is predicted before, then latest status update shall be available on toll free call-in numbers as described in step 1. And for this enough capacity must be built in the system to control the heavy traffic flow. Moreover, access to network may be restricted, if emergency is of the highest level.

4. Direction from Regulator - For the proper implementation of call routing during emergencies (Predictable and Unpredictable), it is important that network has necessary capacity available. Regulator must make sure that a set percent of capacity is kept aside and is free and unused for emergency routing all the times. Sufficient checks and balances shall be put in place to ensure that service providers do not use this buffered capacity for normal calling purpose. For example – if the minimum load is 100 then the capacity should be 110, that is extra 10% should be kept free for emergency routing all the times.



Conclusion

In our view, solution based on eMLPP would be best suited for implementation along with the borrowings from GETS (Call time shall be restricted such that network can be more free) and MTPAS (Access to network shall be completely barred but access as mentioned in "Toll Free Access" shall continue to be provided, in case of national level emergencies such as war, terror attacks).

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Issues for Consultation

- 1. Should there be a direction from regulator on the network dimensioning - both for operating in normal as well as emergency situations?**

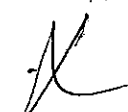
Yes, there should be good-to-have guidelines from regulator on the network dimensioning - both for operating in normal as well as emergency situations. For a proper implementation process, it's important to have extra capacity earmarked only for emergency/priority calling. Regulator must make sure that a set percent of capacity is kept aside and is free and unused for emergency routing at all the times. Sufficient checks and balances shall be put in place to ensure that buffered capacity is available all the times for emergency/priority calling. For example - if the minimum load is 100 then the capacity should be 110, that is extra 10% should be kept free for emergency routing.

- 2. In your opinion, which of the three possibilities as discussed in Chapter IV i.e. (a) Solutions based on combination of MTPAS of UK and GETS of US. (b) Solution based on MVNO concept (c) Solution based on eMLPP would be best suited for implementation in India and Why? In case there is any other methodology that is suggested, the details of the same may be provided?**

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3. Which organizations and government departments that are involved in 'response and recovery' during emergency situations do you think should be part of this scheme?

Agencies involved in identification, implementation, strategy formulations, Border Security Officers, District Magistrate, National Disaster Agencies, Law Enforcement, Senior Government Officials, grass root Recovery and rescue people, NGO's , and volunteers.

4. What mechanism should be followed to identify which personnel working in organizations identified in Q5.4 above should get priority routing?

Core group people basically administration, dynamic groups involved in rescue on dynamic or need basis.

5. In your opinion should there be a separate Unit/Division under DoT / TRAI to monitor the implementation of the scheme. If yes, what should be the structure and role of this unit?

Yes, there should be a separate team to monitor the implementation of the scheme to ensure speedy facilitation of work.

6. In your opinion what can be the major bottlenecks in service Delivery of priority call routing?

- Lack of infrastructure
- Infrastructure destruction because of natural calamity
- Artificial lack of capacity because of cyber warfare or virus attack

7. How should the service delivery model for implementing the priority call routing be designed? (Same as Answer number 2)

8. What charges, if any, should be levied from the users for availing the facility of priority call routing? Please justify your answer.

No charges should be levied from the users for availing the facility of priority call routing. The proposed framework aims for society's and nation's welfare.

