NRIC Council Meeting

Focus Group 1A

Concentration Point Metrics and Timing Thresholds

October 19, 2005

"The Council shall present a report recommending:

- *a consistent set of thresholds for the time required to complete database queries, and the metrics/thresholds for determining unacceptably high traffic concentration points."*

Focus Group Structure and Report Process

- To develop this report, Focus Group 1A divided into two subcommittees
  - The E9-1-1 database timing subcommittee:
    - Evaluated existing technology for the delay in E9-1-1 network elements
    - Identified existing timing thresholds
    - Developed recommendations for database queries
  - The 9-1-1/E9-1-1 Network concentration threshold subcommittee:
    - Defined the difference between concentration and congestion
    - Identified the major concentration points and associated thresholds and metrics
- The full Focus Group reviewed recommendations from the two subcommittees and developed the final report

Key Definitions

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- **Concentration Point:** The point within the telecommunications network where the function of E9-1-1 related network infrastructure elements and/or networks converge.

- **Congestion**: Congestion occurs when concentration points experience a larger traffic load than their capacity. Traffic concentration must exist in order for traffic congestion to occur.

- **Major Concentration Point**: The concentration point where a single failure or interruptive incident could significantly delay or prevent the delivery of calls to the PSAP and/or diminish the adequacy or availability of data.

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Focus Group 1A has agreed that the following are the major concentration points in an E9-1-1 network:

- – Public Safety Answering Point (PSAP)
- – Automatic Location Identification (ALI)
- – Selective Router
- – SS7 Network Elements
- – Mobile Positioning Center (MPC)
- – Gateway Mobile Location Center (GMLC)
- – Position Determining Entity (PDE)
- – Serving Mobile Location Center (SMLC)

Results in Brief (continued)

The Focus Group determined 9-1-1/E9-1-1 traffic concentration to be unacceptably high when:

- 9-1-1 Network Concentration exceeds the design limits of the hardware/software

- Uptime of a single, non-redundant and non-diverse 9-1-1 network component fails to achieve 99.999%

Focus Group 1A agrees that there are no 9-1-1/E9-1-1 network concentration points where concentration is unacceptably high

- The 9-1-1network today appropriately manages concentration to avoid:

  - unnecessary 9-1-1/E9-1-1 call delay

  - failure to provide for the delivery of complete and accurate data to handle emergencies effectively

Focus Group 1A identified the following three areas that are involved in the timing of E9-1-1 database queries:

1. Routing query from Mobile Switching Center (MSC) to Mobile Positioning Center (MPC)/ Gateway Mobile Location Center (GMLC)
2. PSAP initial query to ALI for location of E9-1-1 caller
3. PSAP re-bids for updated caller location information

The Focus Group established recommended timing thresholds for Phase 1 and, where applicable, Phase 2 for the above areas

- Recommendation examples:
  - MSC query to MPC/GMLC for routing instructions is made in less than 1 second
  - MPC/GMLC responds to MSC immediately or no later than 4 seconds with cell sector routing information

Next Steps

- Final report to Council recommending ways and describing Best Practices to address near-term E911 issues