

availability of the mission routers be 99.75%, equivalent to an average outage of just under 2 hours per month. From this, the required number of spares is calculated to be 44 or a required sparing level of approximately 33%. If the MTTR is reduced to 4 hours, the required number of spares becomes 15 or 13%. Note that the spares may be located at a vendors site, but must be available such that a failure may be resolved within 24 hours.

- d. It may not be intuitive why reducing the Mean Time to Repair reduces the required sparing level when the failure rate remains constant. Consider that the repair exercise requires qualified personnel, a replacement component, and possibly travel; with a long mean time to repair, the probability of suffering simultaneous failures increases and therefore simultaneous repair actions will need to be supported.
- e. Estimated spare levels for the SIGNET Internetwork components are provided in Appendix 2 under Sparing Considerations. **Final analysis of sparing will be completed subsequent to the network element RFP award. The final sparing analysis will be completed on a per region basis plus head quarters.**
- f. The option of providing alternate back up facilities to reduce the impact of a single failure, and therefore reduce the required number of spares, is under evaluation.