



Performance from Experience

Telcordia Notes on the Networks

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Telcordia Notes on the Networks

SR-2275 replaces SR-2275, *Bellcore Notes on the Networks*, Issue 3, December 1997.

Related documents:

SR-NOTES-SERIES-01, *Telcordia Notes on the Synchronous Optical Network (SONET)*

SR-NOTES-SERIES-02, *Telcordia Notes on Dense Wavelength-Division Multiplexing (DWDM) and Optical Networking*

SR-NOTES-SERIES-03, *Telcordia Notes on Number Portability and Number Pooling*

SR-NOTES-SERIES-04, *Telcordia Notes on the Evolution of Enhanced Emergency Services.*

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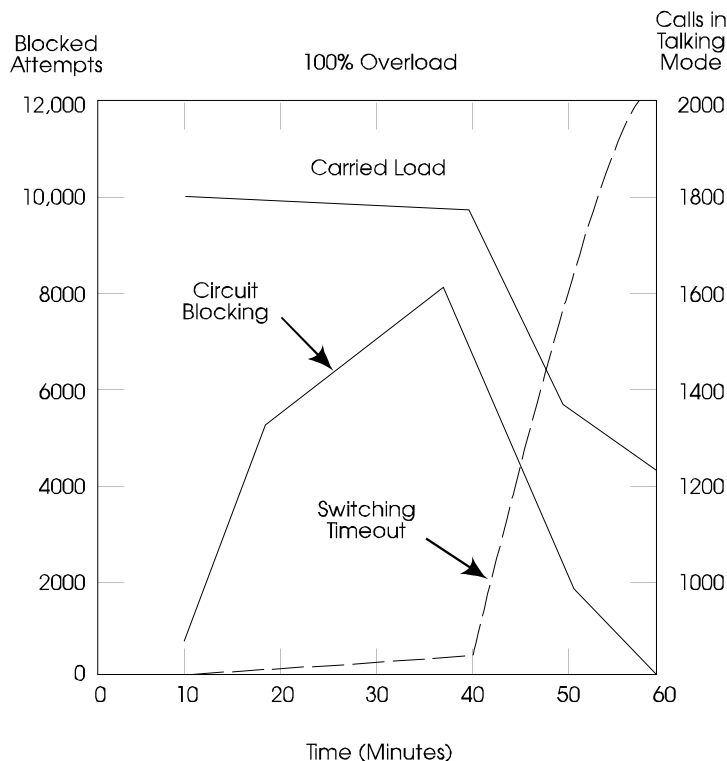


Figure 10-2. Network Congestion

At the onset of the overload, also known as circuit shortage, the dominant cause for customer blockage is the failure to find an idle circuit. Circuit blocking alone limits the number of extra calls that can be completed but does not cause a significant loss in the call-carrying capacity of the network below its maximum. As the overload persists and the network enters a congested state, regenerated-calling pressure changes customer blockage from circuit shortage to switching delays.

Switching delays cause timeout conditions during call setup and occur when switching systems become severely overloaded. Timeouts are designed into switching systems to release common-control components after excessively long delay periods and provide the customer with a signal indicating call-attempt failure. Switching-congestion timeouts with short holding-time attempts on circuit groups replace normal holding-time calls. Switching delays spread quickly throughout the network.

- A *trunk-group overload* usually occurs during general or focused overloads and/or atypical busy hours. Some of the overload causes not discussed above are facility outages, inadequate trunk provisioning, and routing errors. The results of a trunk-group overload can be essentially the same as those previously discussed for general overloads. However, the adverse effects are usually confined to the particular trunk group or the apex area formed by the trunk group and those groups' alternate-routing to the overloaded trunk group.