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Thread: [How can telecom network congestion affect OTP message delivery?](#)

1stShepherd - March 25, 2026, 6:52 pm

Telecom network congestion significantly impacts OTP delivery over SS7 due to its reliance on real-time signaling and SMS routing. OTP messages are processed through the SMSC using SS7 MAP operations such as MAP_FORWARD_SM. During congestion, SMSCs experience queue saturation, causing delays or message drops, which often results in OTP expiration before delivery.

At the signaling level, congestion in SS7 (MTP and MAP layers) introduces latency, packet retransmissions, and timeouts. Critical operations like SendRoutingInfoForSM, used to query the HLR for subscriber location, may fail or be delayed, preventing proper message routing. Additionally, HLR/VLR lookup delays further disrupt delivery accuracy.

Interconnect congestion between networks, especially in international scenarios, can lead to throttling or deprioritization of SMS traffic, affecting OTP reliability. Retry mechanisms worsen the issue, as delayed retries may deliver OTPs outside their validity window or exceed retry limits.

From a security perspective, attackers can exploit congestion by triggering bulk OTP requests, effectively creating a denial-of-service condition. Overall, congestion leads to delayed, failed, or expired OTPs, undermining authentication systems and user trust.