



Root Cause Analysis Report

Issue Description	Messages delivery failure towards multiple networks
1 st Incident Start Time	08 August 2022 at 09:38 GMT+8
2 nd Incident Start Time	08 August 2022 at 14:03 GMT+8
1 st Incident End Time	08 August 2022 at 10:20 GMT+8
2 nd Incident End Time	08 August 2022 at 14:26 GMT+8
Priority	1 (URGENT)
Business Impact	Multiple customers were impacted by SMS delivery failure towards all networks.
Case Summary	<p>Incident #1: 8 Aug 2022 09:38 GMT+8</p> <ol style="list-style-type: none">8x8 team started to receive multiple alerts:<ol style="list-style-type: none">Spike of rejected messages towards multiple networksTechnical alarm about high error rate in routing serviceAt the same time, 8x8 team received some complaints from customers that they got rejected messages status.Due to criticality of the issue, case was escalated to the highest level of 8x8 Technical Support.8x8 Engineering team investigated the issue and found that significant portion of configuration data in one of database tables was flagged as deleted. It caused massive failure in SMS routing.Data was immediately recovered and relevant services was restarted. Normal operations of incident #1 resumed at 10:20 GMT+8.8x8 Technical Support team conducted the tests, and the messages were able to deliver without any issue. We can see all the traffics have been successfully delivered.Root cause of issue was not identified at this moment. Internal investigation was kept ongoing.

	<p>Incident #2: 8 Aug 2022 14:01 GMT+8</p> <ol style="list-style-type: none"> 1. 8x8 Technical Support team received similar alerts similar to incident #1 triggered again. 2. Case was escalated to highest level of 8x8 Technical Support for investigation. 3. 8x8 Engineering team started a deeper investigation of root cause. 4. Similar nature with previous incident was confirmed. 5. Data was recovered, relevant services was restarted. Normal operations of incident #2 resumed at 14:25 GMT+8. 6. 8x8 Technical Support team conducted the tests again, and the messages were able to deliver without any issue.
Root Cause	<p>Release to internal SMS admin service was deployed to production environment.</p> <p>Critical software bug was discovered - in certain sequence of normal user actions, soft-delete of unnecessary records was triggered. However, due to introduced error in the code, larger subset of records was deleted.</p> <p>Release passed testing on development and staging environment, but this scenario was not covered.</p>
Resolution	Permanent bug fix deployed.
Recommendation & Preventive Measurement	<ul style="list-style-type: none"> • Regression test cases updated. • Additional platform monitoring alerts added for faster discovery of the source of failure.