DSB Production
Root Cause Analysis

<u>For Production Outage on 31st March 2020</u>

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Date: **30th April 2020**

Revision History

Version	Date	Reason
1.0	30th April 2020	RCA

<u>Table</u> <u>of Contents</u>

IMPACT ASSESSMENT & CATEGORIZATION

Major Impact (Severity Two - S2)
Start: 09:49 UTC
Resolved: 11:10 UTC (Out of the 47 who were actively utilizing DSB GUI and REST API during the time frame, 40% (21) unique legal entities were affected)
** Please note that DSB Production FIX API services were unaffected by this incident.
Total: 81 minutes

For details of classification of Incidents please see **Appendix 1** on page 7.

INTRODUCTION

The purpose of this Root Cause Analysis (RCA) is to determine the cause that contributed to the recent GUI and REST API service disruption encountered by clients in the DSB Production environment on 31st March 2020 between the hours of 09:49 UTC and 11:10 UTC. This RCA determines what happened during the event, how it happened, and why it happened. An investigation took place internally during and after the incident by the DSB technical support, the DSB DevOps Team and DSB Development team to ascertain the primary root cause that contributed to this issue.

EXECUTIVE SUMMARY - FINDINGS AND ROOT CAUSE

Tuesday 31st March 2020

The root cause has been determined to a bug on our Webserver (Nginx) configuration resulting from the load balancer scaling up/down. All Production Shared Webserver (Nginx) instances were unable to update their target list of IP addresses due to this bug and this meant load balancer autoscaling caused connection errors to some endpoints. This resulted in DSB GUI being unresponsive during logon and REST API users encountered gateway timeouts.

CORRECTIVE ACTIONS TAKEN & PLANNED
- A potential fix is being tested on DSB testing environment and will be deployed first in the UAT environment, and once the issue has been confirmed resolved it will be deployed to Production environment.
- Improve application monitoring of this type of issue.

DETAILED EVENT DESCRIPTION

On 31st March 2020 at 09:49am UTC, The DSB Production GUI became unresponsive and eventually encountered a timeout during logon process and DSB Production REST API users had encountered a connection timeout error e.g. 504 Gateway Timeout.

At 11:10 AM UTC, services stabilized after DSB technical support performed a rolling reload/restart of the web service configuration. DSB technical support have verified that the DSB GUI and REST API services are back to normal after the workaround has been performed.

TIMELINE OF EVENTS

Tuesday 31st March 2020

10:21 AM UTC – Tuesday 31st March 2020
FIX alerts were triggered on Production FIX services. Technical support started investigation.

09:49 UTC – Tuesday 31st March 2020
First instance of the error was caught in monitoring.

09:50 UTC – Tuesday 31st March 2020
Monitoring detected that the same error is no longer persisting per its latest check in the logs.

09:54 UTC – Tuesday 31st March 2020
Monitoring detected the same error, which is continuously occurring every minute, but the same error will no longer be detected on the next round of monitoring checks.

09:55 - 11:00 UTC – Tuesday 31st March 2020
Support is still seeing intermittent alert which was misdiagnosed and resulted to support not performing the known workaround related to this error.

11:00 UTC – Tuesday 31st March 2020
DSB received notifications from two clients who experienced connectivity issues via REST API in which the first report was received at 11:00 UTC and the second report was received at 12:19 UTC.

11:04 UTC – Tuesday 31st March 2020
All the Production Shared Webserver instances experienced the error which resulted in DSB GUI being unresponsive during logon and REST API users are encountering gateway timeouts.

11:07 UTC – Tuesday 31st March 2020

Support restarted NGINX services on all Production Shared Webserver instances to resolve the issue.

11:10 UTC – Tuesday 31st March 2020
Services stabilized and the same error is longer being seen in the logs and monitoring.

14:52 UTC – Tuesday 31st March 2020
Notification email was sent to the DSB PRODUCTION GUI and REST API Users.

APPENDIX 1

Classification of Incidents

Severity	Definition
Critical (S1)	Critical production issue that severely impacts the DSB Service for all Users. The situation halts business operations and no procedural workaround exists. DSB Service is down or unavailable. Major data elements are corrupted or lost and must be restored from backup. A critical documented feature / function is not available.
Major (S2)	Major functionality is impacted or significant performance degradation is experienced and is not a Critical Incident. The situation is causing a high impact to some Users' business operations and no reasonable workaround exists. DSB Service is operational but highly degraded performance to the point of major impact on usage. Important features of the system offering are unavailable with no acceptable workaround; however, operations can continue in a restricted fashion.
Minor (S3)	There is a partial, loss of use of the DSB Service with a medium-to-low impact on your business, but your business continues to function that is not a Critical Incident or a Major Incident. Short-term workaround is available, but not scalable.
Cosmetic (S4)	Inquiry regarding a routine technical issue; information requested on application capabilities, navigation, installation or configuration; bug affecting a small number of users. Acceptable workaround available.

Reference: DSB Service Level Policy 2020