

DSB Production Root Cause Analysis

For Production Outage on 8th January 2020

Prepared by: Technical.Support@anna-dsb.com
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Revision History

Version	Date	Reason
1.0	17 th January 2020	RCA

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IMPACT ASSESSMENT & CATEGORIZATION

Major Impact (Severity Two - S2)

Start: 10:21

Resolved: 10:26 (33% of the DSB FIX Client sessions were affected)

Total: 5 minutes

Post event remediation

Start: 10:26

Resolved: 11:13 – a few remaining DSB FIX sessions (<1%) required manual intervention / client coordination where automatic reconnection was not in effect.

Total: 47 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 FIX service disruption encountered by clients in the DSB Production environment on 8th January 2020 between the hours of 10:21 UTC and 11:13 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 Service Provision Partner (Rackspace) and Cloud Infrastructure Provider (Amazon Web Services) to ascertain the primary root cause that contributed to this issue.

EXECUTIVE SUMMARY - FINDINGS AND ROOT CAUSE

Wednesday 8th January 2020

The root cause has been identified as a network connectivity issue experienced by Amazon Web Services (AWS) between 10:21 AM UTC and 10:27 AM UTC between one or more availability zones in the EU-WEST-1 Region which had affected a number of DSB internal services. The root cause of the FIX outage related to shared file system faults. The DSB Production FIX service was able to recover and stabilize due to its resilient design and users who were disconnected were able to immediately reconnect after the AWS network connectivity issue has been resolved.

CORRECTIVE ACTIONS TAKEN & PLANNED

- DSB-170 - Requested AWS to improve incident notifications to the DSB and to Service Provision Partner (Rackspace)
- DSB-171 - DSB to Review resiliency of the shared files system configuration
- DSB-172 - DSB to improve network monitoring of this type of issue

DETAILED EVENT DESCRIPTION

On 8th January 2020 at 10:21 am UTC, the production FIX instances experienced network connectivity issues, causing established FIX connections to drop. This took place at 10:21 AM UTC and 10:27 AM UTC. Clients utilizing the Production FIX service reported disconnections at 10:24 AM UTC.

Between 10:25 AM UTC and 10:29 AM UTC, majority of the DSB Production FIX client's connectivity recovered and reconnected successfully to the FIX service.

At 11:13 AM UTC, the DSB Production FIX service was fully recovered and all remaining users were confirmed reconnected and DSB technical support assisted some clients who needed assistance in their reconnection.

TIMELINE OF EVENTS

Wednesday 8th January 2020

10:21 AM UTC – Wednesday 8th January 2020

FIX alerts were triggered on Production FIX services. Technical support started investigation

10:24 AM UTC – Wednesday 8th January 2020

DSB started to receive reports from FIX clients about session disconnections to the Production FIX Service and DSB advised impacted FIX clients of the ongoing incident.

10:26 AM UTC – Wednesday 8th January 2020

The Production FIX service started to recover as confirmed via monitoring alerts and majority of the FIX sessions affected were observed to have reconnected successfully to the service.

10:29 AM UTC – Wednesday 8th January 2020

Out of the 33% of the DSB FIX Client sessions affected, all had reconnected successfully as verified via FIX event and messages logs with an exception of <1% remaining FIX client sessions that had not reconnected automatically.

11:13 AM UTC – Wednesday 8th January 2020

DSB Production FIX related alerts had stopped and service has stabilized. FIX users who had reported disconnection confirmed are able to connect successfully to the service, including those remaining FIX sessions that had not reconnected automatically which required the DSB and Client intervention.

11:15 AM UTC - Wednesday 8th January 2020

FIX validation checks are passed

14:42 PM UTC – Wednesday 8th January 2020

Service disruption notification email sent to all DSB Production FIX clients

APPENDIX 1

Classification of Incidents

Severity	Definition
Critical (S1)	<p>Critical production issue that severely impacts the DSB Service for all Users. The situation halts business operations and no procedural workaround exists.</p> <p>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.</p>
Major (S2)	<p>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.</p> <p>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.</p>
Minor (S3)	<p>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.</p>
Cosmetic (S4)	<p>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.</p>

Reference: [DSB Service Level Policy 2020](#)