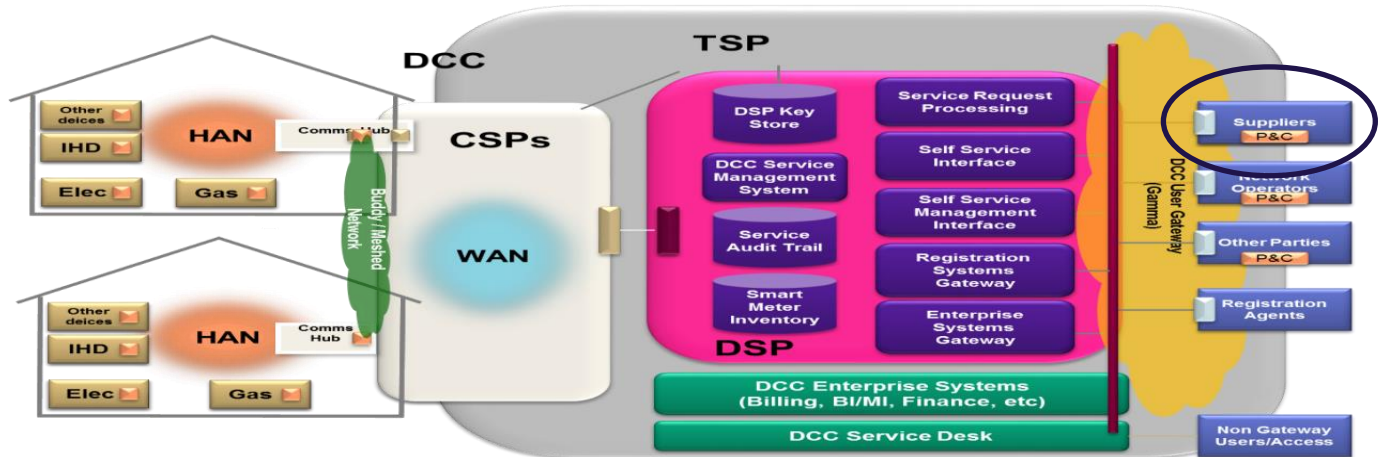


DCC Major Incident Summary Report

(Produced in accordance with Section H9 of the SEC)

Date of Incident	27/08/2020
DCC Incident Reference Number	INC000000623269
DCC Problem Reference Number	PBI000000121203
Service Impacted	SMETS1 Service Requests
Date/ Time Incident reported	27/08/2020 15:40 (Actual outage start time)
Date &time incident resolved	27/08/2020 16:25 (Outage restoration time)
Time taken to restore Service(s) (Hours)	45 minutes
Resolution within SLA (Y/N) [SEC 9.14(b)]	Yes

Nature of the Major Incident / Short Description



At 15:40 the heartbeat (a periodic signal generated to indicate normal operation) between the NDB (Network Database) cluster of nodes within the DCO (Dual Control Organisation) environment failed. This led to the database nodes to indicate communication failures. Connectivity to the nodes began to shut down due to the self-protection process in place. Once the paired nodes 1 and 3 had shut down the entire NDB effectively shut down as per the design to protect data integrity.

This resulted in connection failures for all traffic traversing the DCO infrastructure and a 100% outage of SMETS1 SRVs

DCO completed a restart of all database nodes to restore service and resiliency at 16:25. Connections into the NDB was restored as well as the heartbeat process.

Region / Location impacted

SMETS1, all regions

Summary of impact / Likely future impact of the Major incident

100% of SMETS1 Service Requests were failing between 15:40 and 16:25. This impact would have been seen by all DCC Users. Analysis shows a total of 40,278 Service Requests failed although a proportion would have gone through the retry process.

There was no impact to Migration activities (completed for the day by time of outage) or SMETS2 Service Requests

Resolving actions taken

DCO Database engineers completed a restart of the NDB nodes to restore service

Root Cause, if known

It has been identified that an increase in processor usage on the physical server that hosts one of the database nodes, led to a VMotion event. This consists of the Virtual Machine (VM) moving from one physical host server to another, while it is running.

This is not an uncommon event and should not have caused an interruption in service. However, the move was not graceful, and the node became into hung state. This in turn led to the paired node to experience an error.

With the 2 paired nodes out of service, this subsequently caused the NDB to shut down completely. This is as expected design to protect data integrity.

Investigations into the failure are ongoing and following an update directly to the Sec OpsG 36 on the 1st September, additional updates on root cause will be included within the detailed review report.

Initial mitigation was been immediately implanted and presently will prevent all NDB Database nodes from being subject to this virtualisation automated performance tuning processes on the private cloud environment. This will greatly reduce the chances of this Incident trigger from recurring.

Enduring remediation activities include;

- Full investigation on the behaviour of the Database services whilst being subject to VMotion
- Full investigation on the "Panic" event experienced on subsequent nodes
- Actions and recommendations brought forward from RCA investigation

These enduring remediation activities will be tracked as part of the ongoing DCO stability improvement plan tracked by heightened governance processes with DCC.

Table of linked incidents

N/A – No linked incidents.

