Frequently Asked Questions (FAQs) on OMD-C Resilience Enhancement

General Questions

1 **Question: What is the major change in this resilience enhancement?**

Answer: This enhancement changes OMD-C from having the automatic resilience facilities only in the same site to allow cross-site automatic failover under an active node failure scenario. The differences are summarised below:

1) For data content in **active-standby** mechanism (please refer to OMD-C Interface Specification 2.2.4.1 for the list of data content)

Failure Scenario	Current	After Enhancement
1. One active node in the primary site fails	The standby node in same site will automatically take over. There will be a short interruption in service for fault detection and take-over process.	
2. Both nodes in the primary site fail	Service interrupted, until OMD-C is failover to the secondary site.	The standby node in the secondary site will automatically take over. There will be a short interruption in service for fault detection and take-over process.

2) For data content in **active-active** mechanism (please refer to OMD-C Interface Specification 2.2.4.1 for the list of data content)

Failure Scenario	Current	After Enhancement
1. One active node in primary site fails	The line with service provided by the faulty node is suspended.	The line with service provided by the faulty node will be taken over by a standby node in the secondary site automatically. There will be a short interruption in service for fault detection and take-over process. After the take-over, there may be a larger time difference (around 1 – 2ms, depends on the Client infrastructure) of message arrival in two different lines in OMD-C, as one line is provided by primary site, while the other is provided by secondary site.
2. Both nodes in primary site fail	Service interrupted, until OMD-C is failover to the secondary site.	Both nodes will be taken over by the corresponding standby nodes in the secondary site. There will be a short interruption in service for fault detection and take-over process.

For details, please refer to OMD-C Developer Guide 10.7 for component failover mechanism.

2 **Question: I am now subscribing OMD Securities Standard ("SS"), are all channels in active-standby resilience setup?**

Answer: No. Please refer to OMD-C Interface Specification 2.2.4.1 System Component Failure and OMD-C Developer Guide 10.7 for details.

3 **Question: I am now subscribing OMD Securities Premium ("SP") or Securities Fulltick ("SF"), are all channels in active-active resilience setup?**

Answer: No. Please refer to OMD-C Interface Specification 2.2.4.1 System Component Failure and OMD-C Developer Guide 10.7 for details.

4 **Question: If my system is now capable to handle the node failover scenario in OMD Securities Standard ("SS"), do I still need to make any changes on my system?**

Answer: In this enhancement, the behavior of node failover from primary site to secondary site is the same as the intra-site node failover in current OMD-C.
Clients are recommended to assess the impact by referencing the latest technical documents and the Webinar materials.
To facilitate Clients to confirm the readiness, canned data will be distributed in Jun 2020 and readiness test environment will be provided in Aug 2020.

5 **Question: Is there any change on Refresh Service in this resilience enhancement?**

Answer: Refresh Service will also be enhanced to allow cross-site automatic failover.

6 **Question: After the launch of resilience enhancement, is the Disaster Recovery Signal (105) message still valid? If yes, in what scenario would we receive this message?**

Answer: The Disaster Recovery Signal (105) message is still valid and will be published during the site failover of OMD-C. Site failover of OMD-C will be triggered in the events of:
a) HKEX Primary Data Center Failure; or
b) Site failover of Orion Trading Platform – Securities Market (OTP-C).
Please note that the handling of Disaster Recovery Signal (105) message remains unchanged.

7 **Question: I am also a subscriber of HKEX Orion Market Data Platform – Derivatives Market (OMD-D), should I expect to have the same change to OMD-D now?**

Answer: This enhancement is applied to OMD-C firstly. OMD-D will be afterwards, tentative in Q1 / Q2 2021. Therefore, Clients should not make any change for OMD-D until receiving notice from us.

8 **Question: What is the impact of having 1 – 2 milliseconds between 2 lines after the node failover?**

Answer: In case of a packet lost in the faster line, it may take a slightly longer time for the corresponding message to arrive in the slower line. Sufficient buffer is required to cache the packets in the faster line while waiting for the arrival of corresponding message in the slower line for line arbitration. Clients are suggested reviewing their system design for this case.

9 **Question: How long should I expect the interruption of service when there is a node failover?**

Answer: Normally, the interruption time could be around 2 minutes for fault detection and failover process.

10 **Question: Currently, my OMD-C feed handler is handling multiple OMD-C datafeeds, e.g. Securities Standard ("SS") and Securities Fulltick ("SF"). What is the impact to me?**

Answer: Please refer to Question 1 in this FAQ for the change due to this enhancement. Please note that, in SS and SF individually, there are data content in active-standby and active-active resilience setup. Clients should assess if their systems can manage the failover in OMD-C.

11 **Question: If I experience a service interruption, how can I distinguish whether it is due to OMD-C node failover or network failure?**

Answer: In case of network failure, there would be no message and heartbeat signals in all channels from the corresponding line. Clients are suggested to check with the network carrier as soon as possible. Yet in the OMD-C node failover situation, only that particular channel would be temporary without message and heartbeat signals. Furthermore, in case of "active-standby" service failover, there would be temporary no message and heartbeat signals in the corresponding channel from both lines.
Clients can distinguish the two cases by observing the scope and duration of service interruption.

12 **Question: I am subscribing OMD-C service via Mainland Market Data Hub (MMDH), what is the impact by this enhancement?**

Answer: There is no change in MMDH. Clients subscribing MMDH should not be impacted.

Retransmission (RTS) Service related Questions

13 **Question: Is it mandatory to automatically hunt all 4 RTS servers after this enhancement?**

Answer: Although it is not mandatory, this purpose of providing 4 connectable RTS servers in this enhancement is to reinforce the service availability by minimising the interruption time. Clients are recommended to build the automatic hunting logic to shorten the emergency handling time.

14 **Question: Can I choose RTS server in the secondary site as my primary connection?**

Answer: All four RTS servers are active for connection and the priority of connecting to RTS server is up to Client's decision. Please note that if the real time data service is operated in the primary site, the response time from RTS servers in the secondary site could be slightly higher than that in the primary site due to the physical distance of two data centers.

15 **Question: Can I connect to all RTS servers at the same time?**

Answer: As stated in the OMD-C Connectivity Guide version 2.3 section 2.1.8, Clients should only connect to one of the four RTS servers. Multiple concurrent connection is not allowed.

OMD Index datafeed related Questions

16 **Question: I am currently subscribing OMD Index datafeed in OMD-D production connections, what is the impact on me in this enhancement?**

Answer: There are two changes:
1) the connectable RTS servers for OMD Index datafeed will be increased from two to four due to this enhancement; and

2) if there are missing ticks in OMD Index solely due to OMD-C (not because of the feed from the Index complier), HKEX will send the missing ticks by email after the completion of index service of the day. Format of the file can be referred to section 6 in OMD-C Interface Specification.

Implementation Arrangement

17 **Question: When will I need to get my system ready for this enhancement?**

Answer: Clients should complete all development and testing work by September 2020 for submitting the readiness declaration to HKEX.

18 **Question: What I need to do?**

Answer: Clients should at least complete the following tasks:
- May 2020 – Jun 2020: Conduct impact assessment
- Jun 2020 – Sep 2020: Complete development and testing work (if needed)
- Q4 2020 (Tentative): Participate Market Rehearsal