



## CONNECTIVITY GUIDE

### HKEX Orion Market Data Platform Securities Market & Index Datafeed Products (OMD-C)

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## 1. Overview

The target readers of this document are the technical personnel of Market Data Vendors, End-Users, Application Service Providers (“ASPs”) and Independent Software Vendors (“ISVs”) of HKEX Orion Market Data Platform – Securities Market & Index Datafeeds (“OMD-C”).

This document aims to provide network configuration information and guidance to assist clients in setting up their networks for making connection to testing and production environments for OMD-C.

OMD-C is available in two testing environments to serve different purposes:

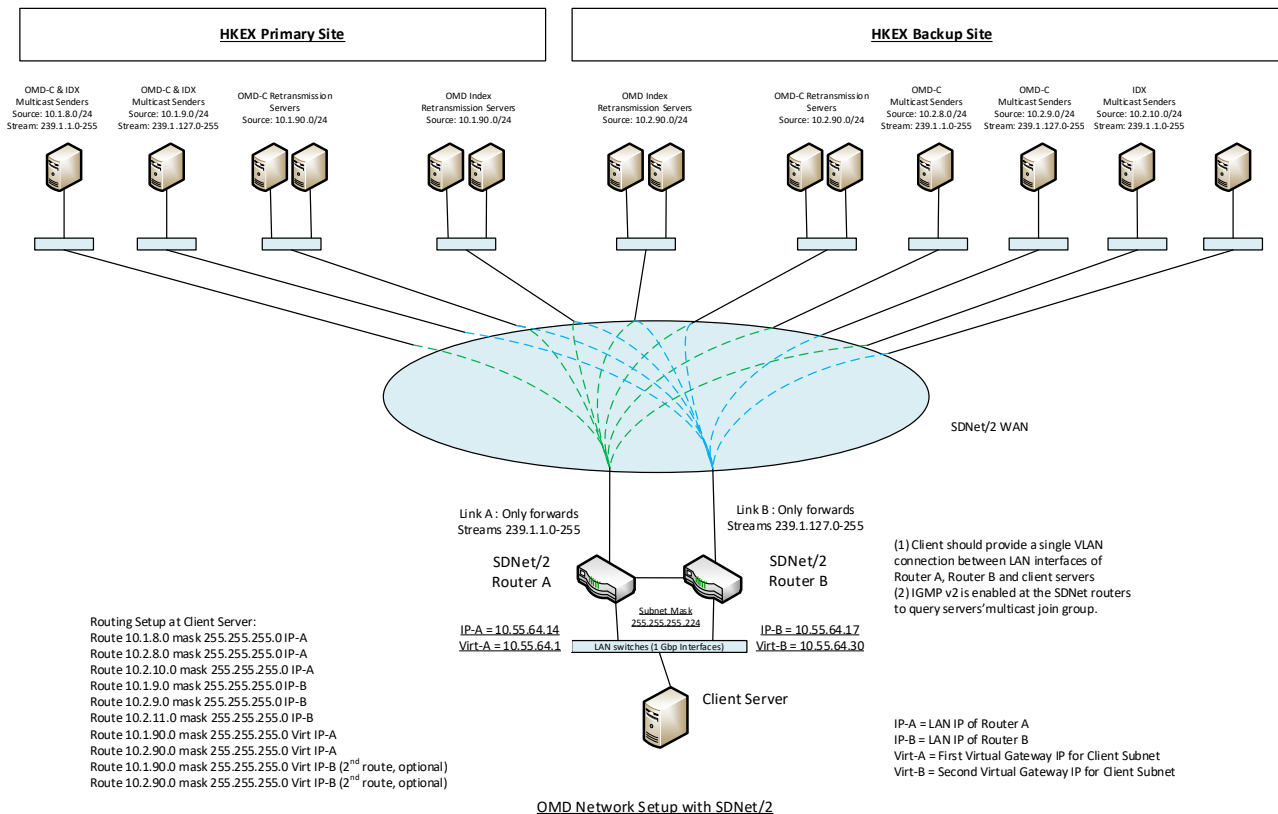
- i. Readiness Test Environment is provided for clients to perform Readiness Test on OMD-C so as to enable them to fully test the functional and technical capability of their OMD-C feed handler.
- ii. OCG End-to-End Test Environment is provided for Exchange Participants (EPs) to perform the End-to-End Test on the HKEX Orion Central Gateway (OCG). OMD-C is available in this testing environment to facilitate loop test (input order and receive market data) by OCG EPs who plan to receive market data via direct connection to OMD-C.

This document contains:

- Configuration information, i.e. IP addresses of the channels assigned for each of the OMD-C datafeed products in OMD-C Production environment and Readiness Test environment as well as the OCG End-to-End Test Environment
- Guidelines / policies for SDNet/2 and HSN connection

## 2. Configuration Information

OMD adopts multicast transmission protocol for real-time data transmission with retransmission recovery service running on Unicast. Clients are required to set correct network configurations in order to establish proper connection to the corresponding OMD multicast server and retransmission server. Below is a sample connection diagram which provides an overview of SDNet/2 network connection to OMD for reference.



For OMD connection via SDNet/2, a client system has to set up routing to the HKEX host subnets as the diagram depicted. To receive multicast stream, IGMP version 2 is employed at the SDNet/2 routers to query the multicast groups which the client system subscribes. The client system should enable the IGMP function and issue join messages to the SDNet/2 routers for the entitled multicast groups.

For OMD connection by co-location at HKEX Host Data Centre (HDC), clients are required to provide their own routers to connect to the HKEX network. The protocols used in HDC network are BGP4 and Multicast PIM sparse mode. For details, please refer to the Interface Specification on Connectivity Services and Timing Service of HKEX Hosting or contact HKEX Hosting Services team via email [hostingservices@hkex.com.hk](mailto:hostingservices@hkex.com.hk).

Since the physical speed of an SDNet/2 circuit is 1Gbps, therefore, the interface of a client end LAN switch and client end servers have to be 1Gbps in order to prevent packet drops of multicast packet burst. To connect with SDNet/2 routers, interface of the LAN switch should be configured with speed as "auto-sense" and duplex mode as "auto-sense" and "auto-negotiation". Then, when the link comes up, the corresponding interface of the LAN switch should learn 1Gbps and full duplex.

The client systems are required to subscribe to the multicast addresses and port IDs for the subscribed OMD products according to multicast channel subscriptions as listed in Section 2.1 for production

environment or as listed in Section 2.2 for Readiness Test environment or as listed in Section 2.3 for OCG End-to-End Test environment. Clients should not subscribe to other multicast addresses and port IDs not specified in this Connectivity Guide or else it could result in receiving non-OMD packets. Clients should ignore any multicast packets outside the channels subscribed to.

The following 3 subsections 2.1, 2.2, 2.3 provide connection details of the OMD-C Production Environment, OMD-C Readiness Test environment, OCG End-to-End Test Environment respectively.

## 2.1 Production Environment Connectivity Details

### 2.1.1 OMD Securities Standard (conflated)

| Multicast Service                            | Contents                                                                                                                                                                                                                                                                                 | Real-time Market Data Services |                                            | Refresh Snapshot Data Services |                                              |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------|--------------------------------|----------------------------------------------|
|                                              |                                                                                                                                                                                                                                                                                          | Channel ID                     | Multicast Channel Subscriptions            | Channel ID                     | Multicast Channel Subscriptions              |
| <b>Securities Reference Data Channel</b>     | Market Definition (10)<br>Security Definition (11)<br>Liquidity Provider (13)<br>Currency Rate (14)                                                                                                                                                                                      | 1                              | A: 239.1.1.1:51000<br>B: 239.1.127.1:51000 | 501                            | A: 239.1.1.11:51000<br>B: 239.1.127.11:51000 |
| <b>Trading Session Status Channel</b>        | Trading Session Status (20)                                                                                                                                                                                                                                                              | 2                              | A: 239.1.1.1:51001<br>B: 239.1.127.1:51001 | 502                            | A: 239.1.1.11:51001<br>B: 239.1.127.11:51001 |
| <b>Securities Value Add Data Channel</b>     | Market Turnover (61)                                                                                                                                                                                                                                                                     | 3                              | A: 239.1.1.1:51002<br>B: 239.1.127.1:51002 | 503                            | A: 239.1.1.11:51002<br>B: 239.1.127.11:51002 |
| <b>Securities News Channel</b>               | News (22)                                                                                                                                                                                                                                                                                | 4                              | A: 239.1.1.1:51003<br>B: 239.1.127.1:51003 | 504                            | A: 239.1.1.11:51003<br>B: 239.1.127.11:51003 |
| <b>Securities Level 2 Conflated Channels</b> | Trade Ticker (52)<br>Nominal Price (40)<br>Indicative Equilibrium Price (41)<br>Closing Price (62)<br>Aggregate Order Book Update (53)<br>Statistics (60)<br>Yield (44)<br>Broker Queue (54)<br>VCM Trigger (23)<br>Reference Price (43)<br>Order Imbalance (56)<br>Security Status (21) | 10                             | A: 239.1.1.2:51000<br>B: 239.1.127.2:51000 | 510                            | A: 239.1.1.12:51000<br>B: 239.1.127.12:51000 |
| <b>Securities DR Signal Channel</b>          | Disaster Recovery Signal (105)                                                                                                                                                                                                                                                           | 9                              | A: 239.1.1.1:51008<br>B: 239.1.127.1:51008 |                                |                                              |

## 2.1.2 OMD Securities Premium (streaming)

| Multicast Service                            | Contents                                                                                            | Real-time Market Data Services |                                             | Refresh Snapshot Data Services |                                              |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------|--------------------------------|----------------------------------------------|
|                                              |                                                                                                     | Channel ID                     | Multicast Channel Subscriptions             | Channel ID                     | Multicast Channel Subscriptions              |
| <b>Securities Reference Data Channel</b>     | Market Definition (10)<br>Security Definition (11)<br>Liquidity Provider (13)<br>Currency Rate (14) | 1                              | A: 239.1.1.1:51000<br>B: 239.1.127.1:51000  | 501                            | A: 239.1.1.11:51000<br>B: 239.1.127.11:51000 |
| <b>Trading Session Status Channel</b>        | Trading Session Status (20)                                                                         | 2                              | A: 239.1.1.1: 51001<br>B: 239.1.127.1:51001 | 502                            | A: 239.1.1.11:51001<br>B: 239.1.127.11:51001 |
| <b>Securities Value Add Data Channel</b>     | Market Turnover (61)                                                                                | 3                              | A: 239.1.1.1:51002<br>B: 239.1.127.1:51002  | 503                            | A: 239.1.1.11:51002<br>B: 239.1.127.11:51002 |
| <b>Securities News Channel</b>               | News (22)                                                                                           | 4                              | A: 239.1.1.1:51003<br>B: 239.1.127.1:51003  | 504                            | A: 239.1.1.11:51003<br>B: 239.1.127.11:51003 |
| <b>Securities Level 2 Streaming Channels</b> | Trade (50)                                                                                          | 20                             | A: 239.1.1.3:51000<br>B: 239.1.127.3:51000  | 520                            | A: 239.1.1.13:51000<br>B: 239.1.127.13:51000 |
|                                              | Trade Cancel (51)                                                                                   |                                |                                             |                                |                                              |
|                                              | Nominal Price (40)                                                                                  |                                |                                             |                                |                                              |
|                                              | Indicative Equilibrium Price (41)                                                                   | 21                             | A: 239.1.1.3:51001<br>B: 239.1.127.3:51001  | 521                            | A: 239.1.1.13:51001<br>B: 239.1.127.13:51001 |
|                                              | Closing Price (62)                                                                                  |                                |                                             |                                |                                              |
|                                              | Aggregate Order Book Update (53)                                                                    | 22                             | A: 239.1.1.3:51002<br>B: 239.1.127.3:51002  | 522                            | A: 239.1.1.13:51002<br>B: 239.1.127.13:51002 |
|                                              | Statistics (60)                                                                                     |                                |                                             |                                |                                              |
|                                              | Yield (44)                                                                                          | 23                             | A: 239.1.1.3:51003<br>B: 239.1.127.3:51003  | 523                            | A: 239.1.1.13:51003<br>B: 239.1.127.13:51003 |
|                                              | VCM Trigger (23)                                                                                    |                                |                                             |                                |                                              |
|                                              | Reference Price (43)                                                                                |                                |                                             |                                |                                              |
|                                              | Order Imbalance (56)                                                                                | 24                             | A: 239.1.1.3:51004<br>B: 239.1.127.3:51004  | 524                            | A: 239.1.1.13:51004<br>B: 239.1.127.13:51004 |
|                                              | Security Status (21)                                                                                |                                |                                             |                                |                                              |
|                                              |                                                                                                     | 25                             | A: 239.1.1.3:51005<br>B: 239.1.127.3:51005  | 525                            | A: 239.1.1.13:51005<br>B: 239.1.127.13:51005 |
|                                              |                                                                                                     | 26                             | A: 239.1.1.3:51006<br>B: 239.1.127.3:51006  | 526                            | A: 239.1.1.13:51006<br>B: 239.1.127.13:51006 |
|                                              |                                                                                                     | 27                             | A: 239.1.1.3:51007<br>B: 239.1.127.3:51007  | 527                            | A: 239.1.1.13:51007<br>B: 239.1.127.13:51007 |
|                                              |                                                                                                     | 28                             | A: 239.1.1.3:51008<br>B: 239.1.127.3:51008  | 528                            | A: 239.1.1.13:51008<br>B: 239.1.127.13:51008 |
|                                              |                                                                                                     |                                |                                             |                                |                                              |
| <b>Securities DR Signal Channel</b>          | Disaster Recovery Signal (105)                                                                      | 9                              | A: 239.1.1.1:51008<br>B: 239.1.127.1:51008  |                                |                                              |

Order and trade activities of tradable securities are distributed among channels 20 to 28 on a daily basis, and this may result in heartbeat messages only being disseminated via some of the channels throughout the day if the channels are not assigned for any securities. Nonetheless, clients should always tune in to listen to all channels at all times for order and trade updates.

### 2.1.3 OMD Securities FullTick (streaming)

| Multicast Service                          | Contents                                                                                            | Real-time Market Data Services |                                            | Refresh Snapshot Data Services |                                              |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------|--------------------------------|----------------------------------------------|
|                                            |                                                                                                     | Channel ID                     | Multicast Channel Subscriptions            | Channel ID                     | Multicast Channel Subscriptions              |
| <b>Securities Reference Data Channel</b>   | Market Definition (10)<br>Security Definition (11)<br>Liquidity Provider (13)<br>Currency Rate (14) | 1                              | A: 239.1.1.1:51000<br>B: 239.1.127.1:51000 | 501                            | A: 239.1.1.11:51000<br>B: 239.1.127.11:51000 |
| <b>Trading Session Status Channel</b>      | Trading Session Status (20)                                                                         | 2                              | A: 239.1.1.1:51001<br>B: 239.1.127.1:51001 | 502                            | A: 239.1.1.11:51001<br>B: 239.1.127.11:51001 |
| <b>Securities Full Order Book Channels</b> | Trade (50)                                                                                          | 30                             | A: 239.1.1.4:51000<br>B: 239.1.127.4:51000 | 530                            | A: 239.1.1.14:51000<br>B: 239.1.127.14:51000 |
|                                            | Trade Cancel (51)                                                                                   |                                |                                            |                                |                                              |
|                                            | Add Order (30)                                                                                      |                                |                                            |                                |                                              |
|                                            | Modify Order (31)                                                                                   | 31                             | A: 239.1.1.4:51001<br>B: 239.1.127.4:51001 | 531                            | A: 239.1.1.14:51001<br>B: 239.1.127.14:51001 |
|                                            | Delete Order (32)                                                                                   |                                |                                            |                                |                                              |
|                                            | Indicative Equilibrium Price (41)                                                                   | 32                             | A: 239.1.1.4:51002<br>B: 239.1.127.4:51002 | 532                            | A: 239.1.1.14:51002<br>B: 239.1.127.14:51002 |
|                                            | VCM Trigger (23)                                                                                    |                                |                                            |                                |                                              |
|                                            | Reference Price (43)                                                                                |                                |                                            |                                |                                              |
|                                            | Order Imbalance (56)                                                                                | 33                             | A: 239.1.1.4:51003<br>B: 239.1.127.4:51003 | 533                            | A: 239.1.1.14:51003<br>B: 239.1.127.14:51003 |
|                                            | Security Status (21)                                                                                | 34                             | A: 239.1.1.4:51004<br>B: 239.1.127.4:51004 | 534                            | A: 239.1.1.14:51004<br>B: 239.1.127.14:51004 |
|                                            |                                                                                                     | 35                             | A: 239.1.1.4:51005<br>B: 239.1.127.4:51005 | 535                            | A: 239.1.1.14:51005<br>B: 239.1.127.14:51005 |
|                                            |                                                                                                     | 36                             | A: 239.1.1.4:51006<br>B: 239.1.127.4:51006 | 536                            | A: 239.1.1.14:51006<br>B: 239.1.127.14:51006 |
|                                            |                                                                                                     | 37                             | A: 239.1.1.4:51007<br>B: 239.1.127.4:51007 | 537                            | A: 239.1.1.14:51007<br>B: 239.1.127.14:51007 |
|                                            |                                                                                                     | 38                             | A: 239.1.1.4:51008<br>B: 239.1.127.4:51008 | 538                            | A: 239.1.1.14:51008<br>B: 239.1.127.14:51008 |
| <b>Securities DR Signal Channel</b>        | Disaster Recovery Signal (105)                                                                      | 9                              | A: 239.1.1.1:51008<br>B: 239.1.127.1:51008 |                                |                                              |

Order and trade activities of tradable securities are distributed among channels 30 to 38 on a daily basis, and this may result in heartbeat messages only being disseminated via some of the channels throughout the day if the channels are not assigned for any securities. Nonetheless, clients should always tune in to listen to all channels at all times for order and trade updates.

### 2.1.4 OMD Index (Streaming)

| Multicast Service              | Contents                                 | Real-time Market Data Services |                                            | Refresh Snapshot Data Services |                                              |
|--------------------------------|------------------------------------------|--------------------------------|--------------------------------------------|--------------------------------|----------------------------------------------|
|                                |                                          | Channel ID                     | Multicast Channel Subscriptions            | Channel ID                     | Multicast Channel Subscriptions              |
| <b>HKEX Indices Channel</b>    | Index Definition (70)<br>Index Data (71) | 40                             | A: 239.1.1.7:51001<br>B: 239.1.127.7:51001 | 540                            | A: 239.1.1.17:51001<br>B: 239.1.127.17:51001 |
| <b>HSI Index Channel</b>       | Index Definition (70)<br>Index Data (71) | 41                             | A: 239.1.1.5:51000<br>B: 239.1.127.5:51000 | 541                            | A: 239.1.1.15:51000<br>B: 239.1.127.15:51000 |
| <b>CSI Index Channel</b>       | Index Definition (70)<br>Index Data (71) | 42                             | A: 239.1.1.6:51000<br>B: 239.1.127.6:51000 | 542                            | A: 239.1.1.16:51000<br>B: 239.1.127.16:51000 |
| <b>Index DR Signal Channel</b> | Disaster Recovery Signal (105)           | 49                             | A: 239.1.1.7:51008<br>B: 239.1.127.7:51008 |                                |                                              |

### 2.1.5 Conflated Broker Queue

| Multicast Service                             | Contents          | Real-time Market Data Services |                                            | Refresh Snapshot Data Services |                                              |
|-----------------------------------------------|-------------------|--------------------------------|--------------------------------------------|--------------------------------|----------------------------------------------|
|                                               |                   | Channel ID                     | Multicast Channel Subscriptions            | Channel ID                     | Multicast Channel Subscriptions              |
| <b>Securities Market Broker Queue Channel</b> | Broker Queue (54) | 60                             | A: 239.1.1.8:51000<br>B: 239.1.127.8:51000 | 560                            | A: 239.1.1.18:51000<br>B: 239.1.127.18:51000 |

### 2.1.6 Odd Lot Order (Streaming)

| Multicast Service                              | Contents                                           | Real-time Market Data Services |                                            | Refresh Snapshot Data Services |                                              |
|------------------------------------------------|----------------------------------------------------|--------------------------------|--------------------------------------------|--------------------------------|----------------------------------------------|
|                                                |                                                    | Channel ID                     | Multicast Channel Subscriptions            | Channel ID                     | Multicast Channel Subscriptions              |
| <b>Securities Market Odd Lot Order Channel</b> | Add Odd Lot Oder (33)<br>Delete Odd Lot Order (34) | 70                             | A: 239.1.1.9:51000<br>B: 239.1.127.9:51000 | 570                            | A: 239.1.1.19:51000<br>B: 239.1.127.19:51000 |
|                                                |                                                    | 71                             | A: 239.1.1.9:51001<br>B: 239.1.127.9:51001 | 571                            | A: 239.1.1.19:51001<br>B: 239.1.127.19:51001 |
|                                                |                                                    | 72                             | A: 239.1.1.9:51002<br>B: 239.1.127.9:51002 | 572                            | A: 239.1.1.19:51002<br>B: 239.1.127.19:51002 |
|                                                |                                                    | 73                             | A: 239.1.1.9:51003<br>B: 239.1.127.9:51003 | 573                            | A: 239.1.1.19:51003<br>B: 239.1.127.19:51003 |
|                                                |                                                    | 74                             | A: 239.1.1.9:51004<br>B: 239.1.127.9:51004 | 574                            | A: 239.1.1.19:51004<br>B: 239.1.127.19:51004 |
|                                                |                                                    | 75                             | A: 239.1.1.9:51005<br>B: 239.1.127.9:51005 | 575                            | A: 239.1.1.19:51005<br>B: 239.1.127.19:51005 |
|                                                |                                                    | 76                             | A: 239.1.1.9:51006<br>B: 239.1.127.9:51006 | 576                            | A: 239.1.1.19:51006<br>B: 239.1.127.19:51006 |
|                                                |                                                    | 77                             | A: 239.1.1.9:51007<br>B: 239.1.127.9:51007 | 577                            | A: 239.1.1.19:51007<br>B: 239.1.127.19:51007 |

|    |                                            |                                                  |
|----|--------------------------------------------|--------------------------------------------------|
| 78 | A: 239.1.1.9:51008<br>B: 239.1.127.9:51008 | A: 239.1.1.19:51008<br>578 B: 239.1.127.19:51008 |
|----|--------------------------------------------|--------------------------------------------------|

### 2.1.7 Stock Connect Data (Streaming)

|                                                            |                                                                              | Real-time Market Data Services |                                                | Refresh Snapshot Data Services |                                                |
|------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------|------------------------------------------------|--------------------------------|------------------------------------------------|
| Multicast Service                                          | Contents                                                                     | Channel ID                     | Multicast Channel Subscriptions                | Channel ID                     | Multicast Channel Subscriptions                |
| <b>Northbound Stock Connect Market Information Channel</b> | Stock Connect Daily Quota Balance (80)<br>Stock Connect Market Turnover (81) | 80                             | A: 239.1.1.121:51000<br>B: 239.1.127.121:51000 | 580                            | A: 239.1.1.121:61000<br>B: 239.1.127.121:61000 |
| <b>Southbound Stock Connect Market Information Channel</b> | Stock Connect Market Turnover (81)                                           | 81                             | A: 239.1.1.121:51001<br>B: 239.1.127.121:51001 | 581                            | A: 239.1.1.121:61001<br>B: 239.1.127.121:61001 |

### 2.1.8 HKEX OMD Retransmission Unicast Connectivity (For All Non-Index Channels)

A Retransmission Service is provided to recover multicast packet loss in all Non-Index Channels. Functional details of the Retransmission Service are provided in the Interface Specification. Find below the Unicast Addresses to connect to the OMD Retransmission Servers in **OMD-C Production Environment**.

| Retransmission Server            | IP Unicast Address |
|----------------------------------|--------------------|
| Primary server in primary site   | 10.1.90.82:55455   |
| Secondary server in primary site | 10.1.90.83:55455   |
| Primary server in DR site*       | 10.2.90.82:55455   |
| Secondary server in DR site*     | 10.2.90.83:55455   |

\* Two servers located in DR site are also active and available for connection. Clients may connect any one of those four retransmission servers, but not concurrently.

### 2.1.9 HKEX OMD Index Retransmission Unicast Connectivity (For All Index Channels)

A Retransmission Service for Index is provided to recover multicast packet loss in all Index Channels. Functional details of the Retransmission Service are provided in the Interface Specification. Find below the Unicast Addresses to connect to the OMD Retransmission Servers in **OMD-Index Production Environment**.

| Retransmission Server            | IP Unicast Address |
|----------------------------------|--------------------|
| Primary server in primary site   | 10.1.90.61:55455   |
| Secondary server in primary site | 10.1.90.62:55455   |
| Primary server in DR site*       | 10.2.90.61:55455   |
| Secondary server in DR site*     | 10.2.90.62:55455   |

\* Two servers located in DR site are also active and available for connection. Clients may connect any one of those four retransmission servers, but not concurrently.

## 2.2 Readiness Test Environment Connectivity Details

### 2.2.1 OMD Securities Standard (conflated)

| Multicast Service                            | Contents                                                                                                                                                                                                                                                                                 | Real-time Market Data Services |                                              | Refresh Snapshot Data Services |                                              |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------|--------------------------------|----------------------------------------------|
|                                              |                                                                                                                                                                                                                                                                                          | Channel ID                     | Multicast Channel Subscriptions              | Channel ID                     | Multicast Channel Subscriptions              |
| <b>Securities Reference Data Channel</b>     | Market Definition (10)<br>Security Definition (11)<br>Liquidity Provider (13)<br>Currency Rate (14)                                                                                                                                                                                      | 1                              | A: 239.1.1.21:51000<br>B: 239.1.127.21:51000 | 501                            | A: 239.1.1.31:51000<br>B: 239.1.127.31:51000 |
| <b>Trading Session Status Channel</b>        | Trading Session Status (20)                                                                                                                                                                                                                                                              | 2                              | A: 239.1.1.21:51001<br>B: 239.1.127.21:51001 | 502                            | A: 239.1.1.31:51001<br>B: 239.1.127.31:51001 |
| <b>Securities Value Add Data Channel</b>     | Market Turnover (61)                                                                                                                                                                                                                                                                     | 3                              | A: 239.1.1.21:51002<br>B: 239.1.127.21:51002 | 503                            | A: 239.1.1.31:51002<br>B: 239.1.127.31:51002 |
| <b>Securities News Channel</b>               | News (22)                                                                                                                                                                                                                                                                                | 4                              | A: 239.1.1.21:51003<br>B: 239.1.127.21:51003 | 504                            | A: 239.1.1.31:51003<br>B: 239.1.127.31:51003 |
| <b>Securities Level 2 Conflated Channels</b> | Trade Ticker (52)<br>Nominal Price (40)<br>Indicative Equilibrium Price (41)<br>Closing Price (62)<br>Aggregate Order Book Update (53)<br>Statistics (60)<br>Yield (44)<br>Broker Queue (54)<br>VCM Trigger (23)<br>Reference Price (43)<br>Order Imbalance (56)<br>Security Status (21) | 10                             | A: 239.1.1.22:51000<br>B: 239.1.127.22:51000 | 510                            | A: 239.1.1.32:51000<br>B: 239.1.127.32:51000 |
| <b>Securities DR Signal Channel</b>          | Disaster Recovery Signal (105)                                                                                                                                                                                                                                                           | 9                              | A: 239.1.1.21:51008<br>B: 239.1.127.21:51008 |                                |                                              |

## 2.2.2 OMD Securities Premium (streaming)

| Multicast Service                            | Contents                                                                                            | Real-time Market Data Services |                                              | Refresh Snapshot Data Services |                                              |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------|--------------------------------|----------------------------------------------|
|                                              |                                                                                                     | Channel ID                     | Multicast Channel Subscriptions              | Channel ID                     | Multicast Channel Subscriptions              |
| <b>Securities Reference Data Channel</b>     | Market Definition (10)<br>Security Definition (11)<br>Liquidity Provider (13)<br>Currency Rate (14) | 1                              | A: 239.1.1.21:51000<br>B: 239.1.127.21:51000 | 501                            | A: 239.1.1.31:51000<br>B: 239.1.127.31:51000 |
| <b>Trading Session Status Channel</b>        | Trading Session Status (20)                                                                         | 2                              | A: 239.1.1.21:51001<br>B: 239.1.127.21:51001 | 502                            | A: 239.1.1.31:51001<br>B: 239.1.127.31:51001 |
| <b>Securities Value Add Data Channel</b>     | Market Turnover (61)                                                                                | 3                              | A: 239.1.1.21:51002<br>B: 239.1.127.21:51002 | 503                            | A: 239.1.1.31:51002<br>B: 239.1.127.31:51002 |
| <b>Securities News Channel</b>               | News (22)                                                                                           | 4                              | A: 239.1.1.21:51003<br>B: 239.1.127.21:51003 | 504                            | A: 239.1.1.31:51003<br>B: 239.1.127.31:51003 |
| <b>Securities Level 2 Streaming Channels</b> | Trade (50)                                                                                          | 20                             | A: 239.1.1.23:51000<br>B: 239.1.127.23:51000 | 520                            | A: 239.1.1.33:51000<br>B: 239.1.127.33:51000 |
|                                              | Trade Cancel (51)                                                                                   |                                |                                              |                                |                                              |
|                                              | Nominal Price (40)                                                                                  |                                |                                              |                                |                                              |
|                                              | Indicative Equilibrium Price (41)                                                                   | 21                             | A: 239.1.1.23:51001<br>B: 239.1.127.23:51001 | 521                            | A: 239.1.1.33:51001<br>B: 239.1.127.33:51001 |
|                                              | Closing Price (62)                                                                                  |                                |                                              |                                |                                              |
|                                              | Aggregate Order Book Update (53)                                                                    | 22                             | A: 239.1.1.23:51002<br>B: 239.1.127.23:51002 | 522                            | A: 239.1.1.33:51002<br>B: 239.1.127.33:51002 |
|                                              | Statistics (60)                                                                                     |                                |                                              |                                |                                              |
|                                              | Yield (44)                                                                                          | 23                             | A: 239.1.1.23:51003<br>B: 239.1.127.23:51003 | 523                            | A: 239.1.1.33:51003<br>B: 239.1.127.33:51003 |
|                                              | VCM Trigger (23)                                                                                    |                                |                                              |                                |                                              |
|                                              | Reference Price (43)                                                                                |                                |                                              |                                |                                              |
|                                              | Order Imbalance (56)                                                                                | 24                             | A: 239.1.1.23:51004<br>B: 239.1.127.23:51004 | 524                            | A: 239.1.1.33:51004<br>B: 239.1.127.33:51004 |
|                                              | Security Status (21)                                                                                |                                |                                              |                                |                                              |
|                                              |                                                                                                     | 25                             | A: 239.1.1.23:51005<br>B: 239.1.127.23:51005 | 525                            | A: 239.1.1.33:51005<br>B: 239.1.127.33:51005 |
|                                              |                                                                                                     | 26                             | A: 239.1.1.23:51006<br>B: 239.1.127.23:51006 | 526                            | A: 239.1.1.33:51006<br>B: 239.1.127.33:51006 |
|                                              |                                                                                                     | 27                             | A: 239.1.1.23:51007<br>B: 239.1.127.23:51007 | 527                            | A: 239.1.1.33:51007<br>B: 239.1.127.33:51007 |
|                                              |                                                                                                     | 28                             | A: 239.1.1.23:51008<br>B: 239.1.127.23:51008 | 528                            | A: 239.1.1.33:51008<br>B: 239.1.127.33:51008 |
|                                              |                                                                                                     |                                |                                              |                                |                                              |
|                                              |                                                                                                     |                                |                                              |                                |                                              |
| <b>Securities DR Signal Channel</b>          | Disaster Recovery Signal (105)                                                                      | 9                              | A: 239.1.1.21:51008<br>B: 239.1.127.21:51008 |                                |                                              |

### 2.2.3 OMD Securities FullTick (streaming)

|                                            |                                                                                                     | Real-time Market Data Services |                                              | Refresh Snapshot Data Services |                                              |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------|--------------------------------|----------------------------------------------|
| Multicast Service                          | Contents                                                                                            | Channel ID                     | Multicast Channel Subscriptions              | Channel ID                     | Multicast Channel Subscriptions              |
| <b>Securities Reference Data Channel</b>   | Market Definition (10)<br>Security Definition (11)<br>Liquidity Provider (13)<br>Currency Rate (14) | 1                              | A: 239.1.1.21:51000<br>B: 239.1.127.21:51000 | 501                            | A: 239.1.1.31:51000<br>B: 239.1.127.31:51000 |
| <b>Trading Session Status Channel</b>      | Trading Session Status (20)                                                                         | 2                              | A: 239.1.1.21:51001<br>B: 239.1.127.21:51001 | 502                            | A: 239.1.1.31:51001<br>B: 239.1.127.31:51001 |
| <b>Securities Full Order Book Channels</b> | Trade (50)                                                                                          | 30                             | A: 239.1.1.24:51000<br>B: 239.1.127.24:51000 | 530                            | A: 239.1.1.34:51000<br>B: 239.1.127.34:51000 |
|                                            | Trade Cancel (51)                                                                                   |                                |                                              |                                |                                              |
|                                            | Add Order (30)                                                                                      |                                |                                              |                                |                                              |
|                                            | Modify Order (31)                                                                                   | 31                             | A: 239.1.1.24:51001<br>B: 239.1.127.24:51001 | 531                            | A: 239.1.1.34:51001<br>B: 239.1.127.34:51001 |
|                                            | Delete Order (32)                                                                                   |                                |                                              |                                |                                              |
|                                            | Indicative Equilibrium Price (41)                                                                   | 32                             | A: 239.1.1.24:51002<br>B: 239.1.127.24:51002 | 532                            | A: 239.1.1.34:51002<br>B: 239.1.127.34:51002 |
|                                            | VCM Trigger (23)                                                                                    |                                |                                              |                                |                                              |
|                                            | Reference Price (43)                                                                                |                                |                                              |                                |                                              |
|                                            | Order Imbalance (56)                                                                                | 33                             | A: 239.1.1.24:51003<br>B: 239.1.127.24:51003 | 533                            | A: 239.1.1.34:51003<br>B: 239.1.127.34:51003 |
|                                            | Security Status (21)                                                                                |                                |                                              |                                |                                              |
|                                            |                                                                                                     | 34                             | A: 239.1.1.24:51004<br>B: 239.1.127.24:51004 | 534                            | A: 239.1.1.34:51004<br>B: 239.1.127.34:51004 |
|                                            |                                                                                                     | 35                             | A: 239.1.1.24:51005<br>B: 239.1.127.24:51005 | 535                            | A: 239.1.1.34:51005<br>B: 239.1.127.34:51005 |
|                                            |                                                                                                     | 36                             | A: 239.1.1.24:51006<br>B: 239.1.127.24:51006 | 536                            | A: 239.1.1.34:51006<br>B: 239.1.127.34:51006 |
|                                            |                                                                                                     | 37                             | A: 239.1.1.24:51007<br>B: 239.1.127.24:51007 | 537                            | A: 239.1.1.34:51007<br>B: 239.1.127.34:51007 |
|                                            |                                                                                                     | 38                             | A: 239.1.1.24:51008<br>B: 239.1.127.24:51008 | 538                            | A: 239.1.1.34:51008<br>B: 239.1.127.34:51008 |
| <b>Securities DR Signal Channel</b>        | Disaster Recovery Signal (105)                                                                      | 9                              | A: 239.1.1.21:51008<br>B: 239.1.127.21:51008 |                                |                                              |

## 2.2.4 OMD Index (Streaming)

| Multicast Service              | Contents                                 | Real-time Market Data Services |                                              | Refresh Snapshot Data Services |                                              |
|--------------------------------|------------------------------------------|--------------------------------|----------------------------------------------|--------------------------------|----------------------------------------------|
|                                |                                          | Channel ID                     | Multicast Channel Subscriptions              | Channel ID                     | Multicast Channel Subscriptions              |
| <b>HKEX Indices Channel</b>    | Index Definition (70)<br>Index Data (71) | 40                             | A: 239.1.1.27:51001<br>B: 239.1.127.27:51001 | 540                            | A: 239.1.1.37:51001<br>B: 239.1.127.37:51001 |
| <b>HSI Index Channel</b>       | Index Definition (70)<br>Index Data (71) | 41                             | A: 239.1.1.25:51000<br>B: 239.1.127.25:51000 | 541                            | A: 239.1.1.35:51000<br>B: 239.1.127.35:51000 |
| <b>CSI Index Channel</b>       | Index Definition (70)<br>Index Data (71) | 42                             | A: 239.1.1.26:51000<br>B: 239.1.127.26:51000 | 542                            | A: 239.1.1.36:51000<br>B: 239.1.127.36:51000 |
| <b>Index DR Signal Channel</b> | Disaster Recovery Signal (105)           | 49                             | A: 239.1.1.27:51008<br>B: 239.1.127.27:51008 |                                |                                              |

## 2.2.5 Conflated Broker Queue

| Multicast Service                             | Contents          | Real-time Market Data Services |                                              | Refresh Snapshot Data Services |                                              |
|-----------------------------------------------|-------------------|--------------------------------|----------------------------------------------|--------------------------------|----------------------------------------------|
|                                               |                   | Channel ID                     | Multicast Channel Subscriptions              | Channel ID                     | Multicast Channel Subscriptions              |
| <b>Securities Market Broker Queue Channel</b> | Broker Queue (54) | 60                             | A: 239.1.1.28:51000<br>B: 239.1.127.28:51000 | 560                            | A: 239.1.1.38:51000<br>B: 239.1.127.38:51000 |

## 2.2.6 Odd Lot Order (Streaming)

| Multicast Service                              | Contents                                           | Real-time Market Data Services |                                              | Refresh Snapshot Data Services |                                              |
|------------------------------------------------|----------------------------------------------------|--------------------------------|----------------------------------------------|--------------------------------|----------------------------------------------|
|                                                |                                                    | Channel ID                     | Multicast Channel Subscriptions              | Channel ID                     | Multicast Channel Subscriptions              |
| <b>Securities Market Odd Lot Order Channel</b> | Add Odd Lot Oder (33)<br>Delete Odd Lot Order (34) | 70                             | A: 239.1.1.29:51000<br>B: 239.1.127.29:51000 | 570                            | A: 239.1.1.39:51000<br>B: 239.1.127.39:51000 |
|                                                |                                                    | 71                             | A: 239.1.1.29:51001<br>B: 239.1.127.29:51001 | 571                            | A: 239.1.1.39:51001<br>B: 239.1.127.39:51001 |
|                                                |                                                    | 72                             | A: 239.1.1.29:51002<br>B: 239.1.127.29:51002 | 572                            | A: 239.1.1.39:51002<br>B: 239.1.127.39:51002 |
|                                                |                                                    | 73                             | A: 239.1.1.29:51003<br>B: 239.1.127.29:51003 | 573                            | A: 239.1.1.39:51003<br>B: 239.1.127.39:51003 |
|                                                |                                                    | 74                             | A: 239.1.1.29:51004<br>B: 239.1.127.29:51004 | 574                            | A: 239.1.1.39:51004<br>B: 239.1.127.39:51004 |
|                                                |                                                    | 75                             | A: 239.1.1.29:51005<br>B: 239.1.127.29:51005 | 575                            | A: 239.1.1.39:51005<br>B: 239.1.127.39:51005 |
|                                                |                                                    | 76                             | A: 239.1.1.29:51006<br>B: 239.1.127.29:51006 | 576                            | A: 239.1.1.39:51006<br>B: 239.1.127.39:51006 |
|                                                |                                                    | 77                             | A: 239.1.1.29:51007<br>B: 239.1.127.29:51007 | 577                            | A: 239.1.1.39:51007<br>B: 239.1.127.39:51007 |

|    |                                              |                                                  |
|----|----------------------------------------------|--------------------------------------------------|
| 78 | A: 239.1.1.29:51008<br>B: 239.1.127.29:51008 | A: 239.1.1.39:51008<br>578 B: 239.1.127.39:51008 |
|----|----------------------------------------------|--------------------------------------------------|

## 2.2.7 Stock Connect Data (Streaming)

|                                                            |                                                                              | Real-time Market Data Services |                                                | Refresh Snapshot Data Services |                                                |
|------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------|------------------------------------------------|--------------------------------|------------------------------------------------|
| Multicast Service                                          | Contents                                                                     | Channel ID                     | Multicast Channel Subscriptions                | Channel ID                     | Multicast Channel Subscriptions                |
| <b>Northbound Stock Connect Market Information Channel</b> | Stock Connect Daily Quota Balance (80)<br>Stock Connect Market Turnover (81) | 80                             | A: 239.1.1.122:51000<br>B: 239.1.127.122:51000 | 580                            | A: 239.1.1.122:61000<br>B: 239.1.127.122:61000 |
| <b>Southbound Stock Connect Market Information Channel</b> | Stock Connect Market Turnover (81)                                           | 81                             | A: 239.1.1.122:51001<br>B: 239.1.127.122:51001 | 581                            | A: 239.1.1.122:61001<br>B: 239.1.127.122:61001 |

## 2.2.8 HKEX OMD Retransmission Unicast Connectivity (For All Non-Index Channels)

A Retransmission Service is provided to recover multicast packet loss in all Non-Index Channels. Functional details of the Retransmission Service are provided in the Interface Specification. Find below the Unicast Addresses to connect to the OMD Retransmission Servers in **OMD-C Readiness Test Environment**.

| Retransmission Server            | IP Unicast Address |
|----------------------------------|--------------------|
| Primary server in primary site   | 10.1.90.41:55455   |
| Secondary server in primary site | 10.1.90.42:55455   |
| Primary server in DR site*       | 10.2.90.41:55455   |
| Secondary server in DR site*     | 10.2.90.42:55455   |

\* Two servers located in DR site are also active and available for connection. Clients may connect any one of those four retransmission servers, but not concurrently.

## 2.2.9 HKEX OMD Index Retransmission Unicast Connectivity (For All Index Channels)

A Retransmission Service for Index is provided to recover multicast packet loss in all Index Channels. Functional details of the Retransmission Service are provided in the Interface Specification. Find below the Unicast Addresses to connect to the OMD Retransmission Servers in **OMD-Index Readiness Test Environment**.

| Retransmission Server          | IP Unicast Address |
|--------------------------------|--------------------|
| Primary server in primary site | 10.1.90.36:55455   |
| Primary server in DR site*     | 10.2.90.36:55455   |

\* Server located in DR site is also active and available for connection. Clients may connect any one of those retransmission servers, but not concurrently.

## 2.3 OTP-C OCG End-to-End Test Environment Connectivity Details

### 2.3.1 OMD Securities Standard (conflated)

| Multicast Service                            | Contents                                                                                                                                                                                                                                                                                 | Real-time Market Data Services |                                              | Refresh Snapshot Data Services |                                              |
|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------|--------------------------------|----------------------------------------------|
|                                              |                                                                                                                                                                                                                                                                                          | Channel ID                     | Multicast Channel Subscriptions              | Channel ID                     | Multicast Channel Subscriptions              |
| <b>Securities Reference Data Channel</b>     | Market Definition (10)<br>Security Definition (11)<br>Liquidity Provider (13)<br>Currency Rate (14)                                                                                                                                                                                      | 1                              | A: 239.1.1.81:53550<br>B: 239.1.127.81:53550 | 501                            | A: 239.1.1.81:63550<br>B: 239.1.127.81:63550 |
| <b>Trading Session Status Channel</b>        | Trading Session Status (20)                                                                                                                                                                                                                                                              | 2                              | A: 239.1.1.81:53551<br>B: 239.1.127.81:53551 | 502                            | A: 239.1.1.81:63551<br>B: 239.1.127.81:63551 |
| <b>Securities Value Add Data Channel</b>     | Market Turnover (61)                                                                                                                                                                                                                                                                     | 3                              | A: 239.1.1.81:53552<br>B: 239.1.127.81:53552 | 503                            | A: 239.1.1.81:63552<br>B: 239.1.127.81:63552 |
| <b>Securities News Channel</b>               | News (22)                                                                                                                                                                                                                                                                                | 4                              | A: 239.1.1.81:53553<br>B: 239.1.127.81:53553 | 504                            | A: 239.1.1.81:63553<br>B: 239.1.127.81:63553 |
| <b>Securities Level 2 Conflated Channels</b> | Trade Ticker (52)<br>Nominal Price (40)<br>Indicative Equilibrium Price (41)<br>Closing Price (62)<br>Aggregate Order Book Update (53)<br>Statistics (60)<br>Yield (44)<br>Broker Queue (54)<br>VCM Trigger (23)<br>Reference Price (43)<br>Order Imbalance (56)<br>Security Status (21) | 10                             | A: 239.1.1.82:53550<br>B: 239.1.127.82:53550 | 510                            | A: 239.1.1.82:63550<br>B: 239.1.127.82:63550 |
| <b>Securities DR Signal Channel</b>          | Disaster Recovery Signal (105)                                                                                                                                                                                                                                                           | 9                              | A: 239.1.1.81:53558<br>B: 239.1.127.81:53558 |                                |                                              |

### 2.3.2 OMD Securities Premium (streaming)

| Multicast Service                            | Contents                                                                                            | Real-time Market Data Services |                                              | Refresh Snapshot Data Services |                                              |
|----------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------|--------------------------------|----------------------------------------------|
|                                              |                                                                                                     | Channel ID                     | Multicast Channel Subscriptions              | Channel ID                     | Multicast Channel Subscriptions              |
| <b>Securities Reference Data Channel</b>     | Market Definition (10)<br>Security Definition (11)<br>Liquidity Provider (13)<br>Currency Rate (14) | 1                              | A: 239.1.1.81:53550<br>B: 239.1.127.81:53550 | 501                            | A: 239.1.1.81:63550<br>B: 239.1.127.81:63550 |
| <b>Trading Session Status Channel</b>        | Trading Session Status (20)                                                                         | 2                              | A: 239.1.1.81:53551<br>B: 239.1.127.81:53551 | 502                            | A: 239.1.1.81:63551<br>B: 239.1.127.81:63551 |
| <b>Securities Value Add Data Channel</b>     | Market Turnover (61)                                                                                | 3                              | A: 239.1.1.81:53552<br>B: 239.1.127.81:53552 | 503                            | A: 239.1.1.81:63552<br>B: 239.1.127.81:63552 |
| <b>Securities News Channel</b>               | News (22)                                                                                           | 4                              | A: 239.1.1.81:53553<br>B: 239.1.127.81:53553 | 504                            | A: 239.1.1.81:63553<br>B: 239.1.127.81:63553 |
| <b>Securities Level 2 Streaming Channels</b> | Trade (50)                                                                                          | 20                             | A: 239.1.1.83:53550<br>B: 239.1.127.83:53550 | 520                            | A: 239.1.1.83:63550<br>B: 239.1.127.83:63550 |
|                                              | Trade Cancel (51)                                                                                   |                                |                                              |                                |                                              |
|                                              | Nominal Price (40)                                                                                  |                                |                                              |                                |                                              |
|                                              | Indicative Equilibrium Price (41)                                                                   | 21                             | A: 239.1.1.83:53551<br>B: 239.1.127.83:53551 | 521                            | A: 239.1.1.83:63551<br>B: 239.1.127.83:63551 |
|                                              | Closing Price (62)                                                                                  |                                |                                              |                                |                                              |
|                                              | Aggregate Order Book Update (53)                                                                    | 22                             | A: 239.1.1.83:53552<br>B: 239.1.127.83:53552 | 522                            | A: 239.1.1.83:63552<br>B: 239.1.127.83:63552 |
|                                              | Statistics (60)                                                                                     |                                |                                              |                                |                                              |
|                                              | Yield (44)                                                                                          | 23                             | A: 239.1.1.83:53553<br>B: 239.1.127.83:53553 | 523                            | A: 239.1.1.83:63553<br>B: 239.1.127.83:63553 |
|                                              | VCM Trigger (23)                                                                                    |                                |                                              |                                |                                              |
|                                              | Reference Price (43)                                                                                |                                |                                              |                                |                                              |
|                                              | Order Imbalance (56)                                                                                | 24                             | A: 239.1.1.83:53554<br>B: 239.1.127.83:53554 | 524                            | A: 239.1.1.83:63554<br>B: 239.1.127.83:63554 |
|                                              | Security Status (21)                                                                                |                                |                                              |                                |                                              |
|                                              |                                                                                                     | 25                             | A: 239.1.1.83:53555<br>B: 239.1.127.83:53555 | 525                            | A: 239.1.1.83:63555<br>B: 239.1.127.83:63555 |
|                                              |                                                                                                     | 26                             | A: 239.1.1.83:53556<br>B: 239.1.127.83:53556 | 526                            | A: 239.1.1.83:63556<br>B: 239.1.127.83:63556 |
|                                              |                                                                                                     | 27                             | A: 239.1.1.83:53557<br>B: 239.1.127.83:53557 | 527                            | A: 239.1.1.83:63557<br>B: 239.1.127.83:63557 |
|                                              |                                                                                                     | 28                             | A: 239.1.1.83:53558<br>B: 239.1.127.83:53558 | 528                            | A: 239.1.1.83:63558<br>B: 239.1.127.83:63558 |
|                                              |                                                                                                     |                                |                                              |                                |                                              |
|                                              |                                                                                                     |                                |                                              |                                |                                              |
| <b>Securities DR Signal Channel</b>          | Disaster Recovery Signal (105)                                                                      | 9                              | A: 239.1.1.81:53558<br>B: 239.1.127.81:53558 |                                |                                              |

### 2.3.3 OMD Securities FullTick (streaming)

| Multicast Service                          | Contents                                                                                            | Real-time Market Data Services |                                              | Refresh Snapshot Data Services |                                              |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------------------|--------------------------------|----------------------------------------------|
|                                            |                                                                                                     | Channel ID                     | Multicast Channel Subscriptions              | Channel ID                     | Multicast Channel Subscriptions              |
| <b>Securities Reference Data Channel</b>   | Market Definition (10)<br>Security Definition (11)<br>Liquidity Provider (13)<br>Currency Rate (14) | 1                              | A: 239.1.1.81:53550<br>B: 239.1.127.81:53550 | 501                            | A: 239.1.1.81:63550<br>B: 239.1.127.81:63550 |
| <b>Trading Session Status Channel</b>      | Trading Session Status (20)                                                                         | 2                              | A: 239.1.1.81:53551<br>B: 239.1.127.81:53551 | 502                            | A: 239.1.1.81:63551<br>B: 239.1.127.81:63551 |
| <b>Securities Full Order Book Channels</b> | Trade (50)                                                                                          | 30                             | A: 239.1.1.84:53550                          | 530                            | A: 239.1.1.84:63550                          |
|                                            | Trade Cancel (51)                                                                                   |                                | B: 239.1.127.84:53550                        |                                | B: 239.1.127.84:63550                        |
|                                            | Add Order (30)                                                                                      |                                |                                              |                                |                                              |
|                                            | Modify Order (31)                                                                                   | 31                             | A: 239.1.1.84:53551                          | 531                            | A: 239.1.1.84:63551                          |
|                                            | Delete Order (32)                                                                                   |                                | B: 239.1.127.84:53551                        |                                | B: 239.1.127.84:63551                        |
|                                            | Indicative Equilibrium Price (41)                                                                   | 32                             | A: 239.1.1.84:53552                          | 532                            | A: 239.1.1.84:63552                          |
|                                            | VCM Trigger (23)                                                                                    |                                | B: 239.1.127.84:53552                        |                                | B: 239.1.127.84:63552                        |
|                                            | Reference Price (43)                                                                                |                                |                                              |                                |                                              |
|                                            | Order Imbalance (56)                                                                                | 33                             | A: 239.1.1.84:53553                          | 533                            | A: 239.1.1.84:63553                          |
|                                            | Security Status (21)                                                                                |                                | B: 239.1.127.84:53553                        |                                | B: 239.1.127.84:63553                        |
|                                            |                                                                                                     | 34                             | A: 239.1.1.84:53554<br>B: 239.1.127.84:53554 | 534                            | A: 239.1.1.84:63554<br>B: 239.1.127.84:63554 |
|                                            |                                                                                                     | 35                             | A: 239.1.1.84:53555<br>B: 239.1.127.84:53555 | 535                            | A: 239.1.1.84:63555<br>B: 239.1.127.84:63555 |
|                                            |                                                                                                     | 36                             | A: 239.1.1.84:53556<br>B: 239.1.127.84:53556 | 536                            | A: 239.1.1.84:63556<br>B: 239.1.127.84:63556 |
|                                            |                                                                                                     | 37                             | A: 239.1.1.84:53557<br>B: 239.1.127.84:53557 | 537                            | A: 239.1.1.84:63557<br>B: 239.1.127.84:63557 |
|                                            |                                                                                                     | 38                             | A: 239.1.1.84:53558<br>B: 239.1.127.84:53558 | 538                            | A: 239.1.1.84:63558<br>B: 239.1.127.84:63558 |
| <b>Securities DR Signal Channel</b>        | Disaster Recovery Signal (105)                                                                      | 9                              | A: 239.1.1.81:53558<br>B: 239.1.127.81:53558 |                                |                                              |

### 2.3.4 OMD Index (Streaming)

| Multicast Service              | Contents                                 | Real-time Market Data Services |                                              | Refresh Snapshot Data Services |                                              |
|--------------------------------|------------------------------------------|--------------------------------|----------------------------------------------|--------------------------------|----------------------------------------------|
|                                |                                          | Channel ID                     | Multicast Channel Subscriptions              | Channel ID                     | Multicast Channel Subscriptions              |
| <b>HKEX Indices Channel</b>    | Index Definition (70)<br>Index Data (71) | 40                             | A: 239.1.1.87:53551<br>B: 239.1.127.87:53551 | 540                            | A: 239.1.1.87:63551<br>B: 239.1.127.87:63551 |
| <b>HSI Index Channel</b>       | Index Definition (70)<br>Index Data (71) | 41                             | A: 239.1.1.85:53550<br>B: 239.1.127.85:53550 | 541                            | A: 239.1.1.85:63550<br>B: 239.1.127.85:63550 |
| <b>CSI Index Channel</b>       | Index Definition (70)<br>Index Data (71) | 42                             | A: 239.1.1.86:53550<br>B: 239.1.127.86:53550 | 542                            | A: 239.1.1.86:63550<br>B: 239.1.127.86:63550 |
| <b>Index DR Signal Channel</b> | Disaster Recovery Signal (105)           | 49                             | A: 239.1.1.87:53558<br>B: 239.1.127.87:53558 |                                |                                              |

### 2.3.5 Conflated Broker Queue

| Multicast Service                             | Contents          | Real-time Market Data Services |                                              | Refresh Snapshot Data Services |                                              |
|-----------------------------------------------|-------------------|--------------------------------|----------------------------------------------|--------------------------------|----------------------------------------------|
|                                               |                   | Channel ID                     | Multicast Channel Subscriptions              | Channel ID                     | Multicast Channel Subscriptions              |
| <b>Securities Market Broker Queue Channel</b> | Broker Queue (54) | 60                             | A: 239.1.1.88:53550<br>B: 239.1.127.88:53550 | 560                            | A: 239.1.1.88:63550<br>B: 239.1.127.88:63550 |

### 2.3.6 Odd Lot Order (Streaming)

| Multicast Service                              | Contents                                           | Real-time Market Data Services |                                              | Refresh Snapshot Data Services |                                              |
|------------------------------------------------|----------------------------------------------------|--------------------------------|----------------------------------------------|--------------------------------|----------------------------------------------|
|                                                |                                                    | Channel ID                     | Multicast Channel Subscriptions              | Channel ID                     | Multicast Channel Subscriptions              |
| <b>Securities Market Odd Lot Order Channel</b> | Add Odd Lot Oder (33)<br>Delete Odd Lot Order (34) | 70                             | A: 239.1.1.89:53550<br>B: 239.1.127.89:53550 | 570                            | A: 239.1.1.89:63550<br>B: 239.1.127.89:63550 |
|                                                |                                                    | 71                             | A: 239.1.1.89:53551<br>B: 239.1.127.89:53551 | 571                            | A: 239.1.1.89:63551<br>B: 239.1.127.89:63551 |
|                                                |                                                    | 72                             | A: 239.1.1.89:53552<br>B: 239.1.127.89:53552 | 572                            | A: 239.1.1.89:63552<br>B: 239.1.127.89:63552 |
|                                                |                                                    | 73                             | A: 239.1.1.89:53553<br>B: 239.1.127.89:53553 | 573                            | A: 239.1.1.89:63553<br>B: 239.1.127.89:63553 |
|                                                |                                                    | 74                             | A: 239.1.1.89:53554<br>B: 239.1.127.89:53554 | 574                            | A: 239.1.1.89:63554<br>B: 239.1.127.89:63554 |
|                                                |                                                    | 75                             | A: 239.1.1.89:53555<br>B: 239.1.127.89:53555 | 575                            | A: 239.1.1.89:63555<br>B: 239.1.127.89:63555 |
|                                                |                                                    | 76                             | A: 239.1.1.89:53556<br>B: 239.1.127.89:53556 | 576                            | A: 239.1.1.89:63556<br>B: 239.1.127.89:63556 |
|                                                |                                                    | 77                             | A: 239.1.1.89:53557<br>B: 239.1.127.89:53557 | 577                            | A: 239.1.1.89:63557<br>B: 239.1.127.89:63557 |

|    |                                              |                                                  |
|----|----------------------------------------------|--------------------------------------------------|
| 78 | A: 239.1.1.89:53558<br>B: 239.1.127.89:53558 | A: 239.1.1.89:63558<br>578 B: 239.1.127.89:63558 |
|----|----------------------------------------------|--------------------------------------------------|

### 2.3.7 Stock Connect Data (Streaming)

|                                                            |                                                                              | Real-time Market Data Services |                                                | Refresh Snapshot Data Services |                                                |
|------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------|------------------------------------------------|--------------------------------|------------------------------------------------|
| Multicast Service                                          | Contents                                                                     | Channel ID                     | Multicast Channel Subscriptions                | Channel ID                     | Multicast Channel Subscriptions                |
| <b>Northbound Stock Connect Market Information Channel</b> | Stock Connect Daily Quota Balance (80)<br>Stock Connect Market Turnover (81) | 80                             | A: 239.1.1.125:53550<br>B: 239.1.127.125:53550 | 580                            | A: 239.1.1.125:63550<br>B: 239.1.127.125:63550 |
| <b>Southbound Stock Connect Market Information Channel</b> | Stock Connect Market Turnover (81)                                           | 81                             | A: 239.1.1.125:53551<br>B: 239.1.127.125:53551 | 581                            | A: 239.1.1.125:63551<br>B: 239.1.127.125:63551 |

### 2.3.8 HKEX OMD Retransmission Unicast Connectivity (For All Non-Index Channels)

A Retransmission Service is provided to recover multicast packet loss in all Non-Index Channels. Functional details of the Retransmission Service are provided in the Interface Specification. Find below the Unicast Address to connect to the OMD Retransmission Servers in **OTP-C OCG End-to-End Test Environment**.

|                       | IP Unicast Address |
|-----------------------|--------------------|
| Retransmission Server | 10.1.90.105:55455  |

### 2.3.9 HKEX OMD Index Retransmission Unicast Connectivity (For All Index Channels)

A Retransmission Service for Index is provided to recover multicast packet loss in all Index Channels. Functional details of the Retransmission Service are provided in the Interface Specification. Find below the Unicast Addresses to connect to the OMD Retransmission Servers in **OTP-C OCG End-to-End Test Environment**.

|                       | IP Unicast Address |
|-----------------------|--------------------|
| Retransmission Server | 10.1.90.37:55455   |

---

## 2.4 Individual Client Configuration Details

Individual clients will be provided with the following configuration details for each set of product feed subscription:

- One Retransmission User ID (Username)
- The subnet and subnet mask of the client segment
- Two unicast client allowable IP addresses for connection with re-transmission servers<sup>1</sup>
- Two physical IP addresses and two Virtual IP address of SDNet/2 routers<sup>2</sup>
- HSRP/VRRP groups used by SDNet/2 routers

Individual client testing configuration information will be provided separately prior to the Readiness Test or OCG End-to-End Test whilst the client specific production configuration information will be provided upon the client's successful completion of the Readiness Test and prior to the Market Rehearsals/Post Release Test. Please refer to Appendix B for an example of Client Configuration information.

---

<sup>1</sup> Only one unicast client allowable IP addresses for connection with re-transmission servers will be assigned for clients connecting to the OCG End-to-End Test environment

<sup>2</sup> Only one physical IP addresses and one Virtual IP address of SDNet/2 routers will be assigned for clients connecting to the OCG End-to-End Test environment

### 3. Guidelines on SDNet/2 lines / HSN connection

#### 3.1 Mode of OMD connection

- For resilience purpose, at least 2 SDNet/2 or HSN lines are required for OMD connection either for individual OMD datafeed product or sharing among different OMD datafeed products.
- The set of 2 SDNet/2 lines is required to locate in the same location. If clients require receiving OMD data in multiple locations, 1 set of 2 SDNet/2 lines are required to install in each location.

#### 3.2 Bandwidth Requirement

Full suite of OMD-C datafeed products and respective estimated bandwidth requirements are as follows.

##### 3.2.1 Production SDNet/2 / HSN and Testing SDNet/2 / HSN for Readiness Test

##### *Minimum Bandwidth Allocation Between Multicast and Unicast in Each Datafeed*

| Datafeed                                                                                         | Minimum Multicast Allocation                                                                                                                                                                           |                                                                  |
|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
|                                                                                                  | (i.e. Real Time & Refresh) with Any Combination / All of the Following Complimentary Datafeed(s)<br>a) Odd Lot Order (OLO)<br>b) Index Feed (INDEX) <sup>1</sup><br>c) Stock Connect Market Feed (SCM) | Minimum Unicast Allocation <sup>2</sup><br>(i.e. Retransmission) |
| Securities Standard (SS)                                                                         | 15 Mbps                                                                                                                                                                                                | 0.2 Mbps                                                         |
| Securities Premium (SP) <sup>3</sup> - <u>without</u> Conflated Broker Queue (CBQ) <sup>4</sup>  | 41 Mbps                                                                                                                                                                                                | 0.2 Mbps                                                         |
| Securities Premium (SP) <sup>3</sup> + Conflated Broker Queue (CBQ) <sup>4</sup>                 | 48 Mbps                                                                                                                                                                                                | 0.2 Mbps                                                         |
| Securities FullTick (SF) <sup>3</sup> - <u>without</u> Conflated Broker Queue (CBQ) <sup>4</sup> | 51 Mbps                                                                                                                                                                                                | 0.2 Mbps                                                         |
| Securities FullTick (SF) <sup>3</sup> + Conflated Broker Queue (CBQ) <sup>4</sup>                | 58 Mbps                                                                                                                                                                                                | 0.2 Mbps                                                         |

<sup>1</sup> Update rates of individual indices depend on respective index providers.

<sup>2</sup> If more than 1 datafeed is subscribed in Production or Readiness Test Environment, the minimum bandwidth required for unicast is still 0.2 Mbps.

<sup>3</sup> SP and SF Clients have to subscribe to lines with High Performance Option (HPO) to avoid potential data loss in the event of busy traffic that could happen in the production environment.

<sup>4</sup> CBQ is only eligible for SP and SF subscribers as conflated broker queue information is already provided in SS

### 3.2.2 Testing SDNet/2 / HSN for OCG End-to-End Test

#### Minimum Bandwidth Allocation Between Multicast and Unicast in Each Datafeed

| Datafeed | Minimum Multicast Allocation                                                                                                               |                                                                  |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
|          | (i.e. Real Time & Refresh) with Any Combination / All of the Following Complimentary Datafeed(s)<br>a) OLO<br>b) INDEX<br>c) SCM<br>d) CBQ | Minimum Unicast Allocation <sup>1</sup><br>(i.e. Retransmission) |
| SS       | 1.936 Mbps                                                                                                                                 | 0.064 Mbps                                                       |
| SP       | 1.936 Mbps                                                                                                                                 | 0.064 Mbps                                                       |
| SF       | 1.936 Mbps                                                                                                                                 | 0.064 Mbps                                                       |

### 3.3 Sharing of SDNet/2 lines or HSN port set

Clients may opt to use separated sets or same set of SDNet/2 lines/ HSN ports for receiving data of different OMD datafeed products but clients should note the following policies on sharing of SDNet/2 for OMD datafeed products:

- Sharing of same set of production SDNet/2 circuits for **more than one OMD datafeed products across different markets** (i.e. securities market datafeed and derivatives market datafeed) **is allowed**.
- Sharing of the same SDNet/2 / HSN circuits for both product and testing purposes is **NOT ALLOWED**.
- **Exchange Participants** who would like to **share the same SDNet/2 circuits with trading traffic (orders and trades) and market data traffic** are however **only** allowed to do so if all the traffic on the circuits belongs to **the same market** (i.e. either securities market or derivatives market). OMD-Index, which is market neutral, can be carried on the same circuits with securities market or derivatives market. For example, Exchange Participants of cash market may use the same SDNet/2 circuits for their access to OMD-C SS, OMD-Index and OCG<sup>2</sup>.
- Clients should note and consider the followings if they are going to adopt shared line mode:
  - i) In case of failure/interruption of the shared circuits, all datafeed products using this set of circuits will be affected.
  - ii) Troubleshooting for network related issues (e.g. performance, latency or packet loss etc.) will be much more difficult and time consuming and assistance from network carriers and HKEX will be limited in such troubleshooting. Clients must accept this risk in making the line sharing decision.
  - iii) Due to the difference in operating hours and testing windows between securities and derivatives markets, clients should make sure any maintenance/testing of one of the systems does not affect the rest of the systems sharing the same set of circuits.

<sup>1</sup> If more than 1 datafeed is subscribed in End-to-End Environment, the minimum bandwidth required for unicast is still 0.064 Mbps.

<sup>2</sup> Should OCG Exchange Participants wish to share the same set of OMD-C SDNet lines with their OCG connection, they should refer to the Connectivity Guide of HKEX Orion Central Gateway Platform for the details of the relevant SDNet lines sharing arrangement.

### 3.4 Bandwidth for shared SDNet/2 lines or HSN port set

- i) Shared SDNet/2 / HSN circuits must have sufficient bandwidth to support the data transmission of multiple products/devices. Please see below examples for reference:

Example 1: Sharing of a set of SDNet/2 lines for OMD SP and OMD SF in Production Environment:-

The estimated bandwidth requirements for multicast are 41 Mbps for SP and 51 Mbps for SF, minimum bandwidth for unicast of multiple datafeeds is 0.2 Mbps, a set of SDNet/2 lines with 100 Mbps will be required.

(Actual total bandwidth requirement is 92.2 Mbps and minimum incremental bandwidth threshold is 10 Mbps for SDNet/2 lines of 10 Mbps - 100 Mbps)

Example 2: Sharing of a set of SDNet/2 lines for OMD SS and SP in OCG End to End Environment:-

The estimated bandwidth requirements for multicast are 1.936 Mbps for SS and 1.936 Mbps for SP (with no optional feed), minimum bandwidth for unicast of multiple datafeeds is 0.064 Mbps,

(Actual total bandwidth requirement for Market Data would be is 3.936 Mbps. If OCG session is included in the shared circuit, please also consider the bandwidth requirement for the OCG session for total bandwidth requirement of SDNet/2 lines.)

Example 3: Sharing of a set of SDNet/2 lines for OMD DF<sup>1</sup>, OMD-C SS in Production Environment:-

The estimated bandwidth requirements for multicast of are 78 Mbps (34+44 Mbps) for OMD-D DF (SOM & Non-SOM) and 15 Mbps for OMD-C SS, minimum bandwidth for unicast are 1 Mbps for of OMD-D datafeed and 0.2 Mbps for OMD-C datafeed. The bandwidth for the common set of SDNet/2 lines will therefore be 100 Mbps.

(Actual total bandwidth requirement is 94.2 Mbps and minimum incremental bandwidth threshold is 10Mbps for SDNet/2 lines of 10Mbps - 100Mbps)

- ii) Clients can allocate bandwidth of the shared lines to different products as they wish as long as the bandwidth allocated to each datafeed product meets the estimated bandwidth requirement specified.

### 3.5 SDNet/2 High Performance Option

High Performance Option of SDNet/2 lines which transmits data in relatively higher packet rates is required for clients who subscribe to OMD streaming feeds, i.e. SP and SF,. Please refer to Appendix A for details on high performance options provided by different SDNet/2 providers.

<sup>1</sup> For OMD-D connectivity information, please refer to the Connectivity Guide of OMD Derivatives Market Datafeed Products (OMD-D).

## 4. Other Guidelines on OMD Connections

### 4.1 Additional Login IDs/Client IP addresses for Unicast Retransmission Service

Direct connection clients will get one set of login ID with two IP addresses for retransmission service per OMD-C datafeed subscription. That means, clients subscribing to one set of SP feed and one set of SF feed will get two login IDs each with two IP addresses. These login IDs would be generic ID where each ID can be used to recover either the SP and SF missing data rather than tied to the respective datafeed product associated with that login ID provided that the same pair of SDNet/2 or HSN circuits is used for receiving the data from both SP and SF.

Exchange Participants who are entitled to receive two sets of complimentary SS feed via two different pairs of circuits would also be entitled to one complimentary login ID per set of SS feed which is also a generic ID.

To facilitate different clients' internal setup or operational requirement, an additional set of login ID and with/without IP addresses for retransmission service can be offered to clients at a cost on a per request basis.

### 4.2 Installation of SDNet/2 and HSN lines

#### 4.2.1 SDNet/2 lines

Clients are required to contact the SDNet/2 Accredited Vendors for installation of SDNet/2 lines for OMD connection. Details of the SDNet/2 Accredited Vendors and reference costs charged by different SDNet/2 Accredited Vendors can be found in Appendix A.

#### 4.2.2 HSN lines

Clients who will use HKEX's Hosting Service for OMD connection should contact our Hosting Service team directly for details on the HSN lines.

## Appendix A – SDNet/2 Accredited Vendors Information

SDNet/2 services are provided by Accredited Vendors for the provision of circuits from EP/CP/IV locations to HKEX's data centres.

To become an Accredited Vendor, the Vendor's SDNet/2 service must comply with the technical requirements set out by HKEX. The compliance of these technical requirements ensures the Accredited Vendor will deliver a stable, reliable and high quality networking services to the EPs/CPs/IVs.

Two Accredited Vendors have been selected and accredited to provide SDNet/2 network services. These vendors are (in alphabetical order):

- Hong Kong Telecommunications (HKT) Limited (also known as PCCW)
- HKBN Enterprise Solutions HK Limited (HKBNES)

For details of SDNet/2 circuit price information / technical specification / service level, please refer to [Price Information / Technical Specification / Service Level of SDNet/2](#) posted on HKEX website.

## Appendix B – Sample Client Configuration Information

### Client End Network Information (Sample):

|                                                                                                        |                                                                                                             |                                                                     |
|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| 1                                                                                                      | Network                                                                                                     | SDNet/2                                                             |
| 2                                                                                                      | Client Name                                                                                                 | CLIENT1                                                             |
| 3                                                                                                      | OMDC LAN Subnet                                                                                             | 10.55.64.0                                                          |
| 4                                                                                                      | OMDC LAN Subnet Mask                                                                                        | 255.255.255.224                                                     |
| 5                                                                                                      | Client Allowable IP Address 1 for retransmission                                                            | 10.55.64.2                                                          |
| 6                                                                                                      | Client Allowable IP Address 2 for retransmission                                                            | 10.55.64.29                                                         |
| 7                                                                                                      | Primary Circuit Number                                                                                      | 808311                                                              |
| 8                                                                                                      | Subscriber Router A LAN IP Address (IP-A)                                                                   | 10.55.64.14                                                         |
| 9                                                                                                      | Secondary Circuit Number                                                                                    | 808312                                                              |
| 10                                                                                                     | Subscriber Router B LAN IP Address (IP-B)                                                                   | 10.55.64.17                                                         |
| 11                                                                                                     | Subscriber OMDC LAN 1 <sup>st</sup> Virtual Gateway IP Address (Virt-A)                                     | 10.55.64.1                                                          |
| 12                                                                                                     | HSRP Group Number used by SDNet/2 Router for Virt-A                                                         | 14                                                                  |
| 13                                                                                                     | Subscriber OMDC LAN 2 <sup>nd</sup> Virtual Gateway IP Address (Virt-B)                                     | 10.55.64.30                                                         |
| 14                                                                                                     | HSRP Group Number used by SDNet/2 Router for Virt-B                                                         | 17                                                                  |
| 15                                                                                                     | Multicast Protocol used by SDNet/2 Routers                                                                  | IGMPv2                                                              |
| 16                                                                                                     | SDNet/2 Router Physical Interface for OMDC                                                                  | Please refer to the port assignment provided by the network carrier |
| 17                                                                                                     | SDNet/2 Router Port Speed for OMDC                                                                          | Auto Sense up to 1Gbps                                              |
| 18                                                                                                     | SDNet/2 Router Port Duplex Mode for OMDC                                                                    | Auto Negotiation                                                    |
| 19                                                                                                     | IP address ranges usable by Clients for Multicast transmission (IP addresses outside these ranges reserved) | 10.55.64.9-13<br>10.55.64.18-22                                     |
| Note: Clients can use same set of addresses for Unicast retransmission for the multicast transmission) |                                                                                                             |                                                                     |

### Host End Network Information (non-IDX source) (Sample):

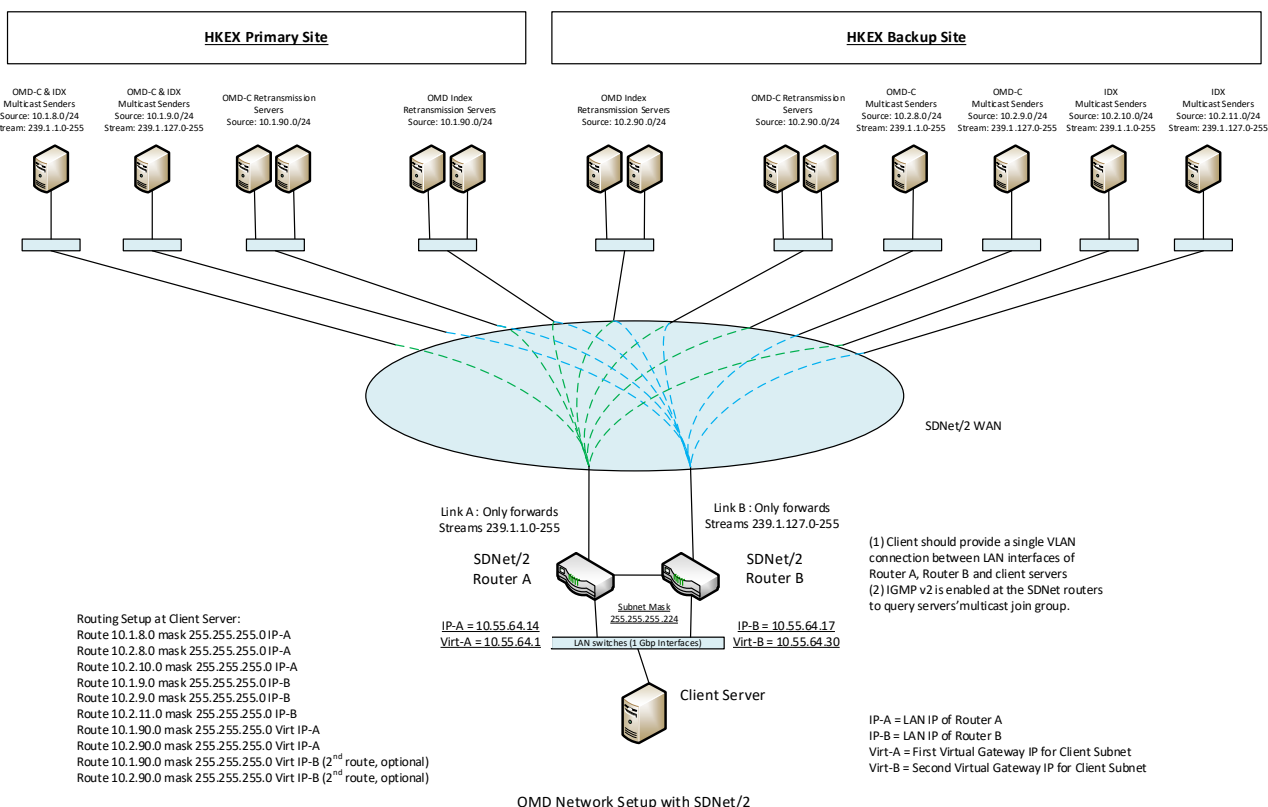
|    |                                                                                                      |                                                                         |
|----|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| 1  | Multicast Source Segment of Stream A in Primary Site forwarded by Client SDNet/2 Router A            | 10.1.8.0/24                                                             |
| 2  | Multicast Source Segment of Stream A in Backup Site forwarded by Client SDNet/2 Router A             | 10.2.8.0/24                                                             |
| 3  | Multicast Source Segment for multicast stream B in Primary Site forwarded by Client SDNet/2 Router B | 10.1.9.0/24                                                             |
| 4  | Multicast Source Segment for multicast stream B in Backup Site forwarded by Client SDNet/2 Router B  | 10.2.9.0/24                                                             |
| 5  | Primary Site Primary Retransmission Server IP Address                                                | Please refer to the latest OMD-C Connectivity Guide for the information |
| 6  | Primary Site Primary Retransmission Server TCP Port Number                                           |                                                                         |
| 7  | Primary Site Secondary Retransmission Server IP Address                                              |                                                                         |
| 8  | Primary Site Secondary Retransmission Server TCP Port Number                                         |                                                                         |
| 9  | Backup Site Primary Retransmission Server IP Address                                                 |                                                                         |
| 10 | Backup Site Primary Retransmission Server TCP Port Number                                            |                                                                         |
| 11 | Backup Site Secondary Retransmission Server IP Address                                               |                                                                         |
| 12 | Backup Site Secondary Retransmission Server TCP Port Number                                          |                                                                         |

### IDX SUBSCRIBER ONLY

### Host End Network Information (IDX source) (Sample):

|   |                                                                                                      |              |
|---|------------------------------------------------------------------------------------------------------|--------------|
| 1 | Multicast Source Segment of Stream A in Primary Site forwarded by Client SDNet/2 Router A            | 10.1.8.0/24  |
| 2 | Multicast Source Segment of Stream A in Backup Site forwarded by Client SDNet/2 Router A             | 10.2.10.0/24 |
| 3 | Multicast Source Segment for multicast stream B in Primary Site forwarded by Client SDNet/2 Router B | 10.1.9.0/24  |
| 4 | Multicast Source Segment for multicast stream B in Backup Site forwarded by Client SDNet/2 Router B  | 10.2.11.0/24 |
| 5 | Primary Site Primary Index Retransmission Server IP Address                                          |              |

|    |                                                                    |                                                                                                                         |
|----|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| 6  | Primary Site Primary Index Retransmission Server TCP Port Number   | Please refer to the latest OMD-C Connectivity Guide - OMD Index Retransmission Unicast Connectivity for the information |
| 7  | Primary Site Secondary Index Retransmission Server IP Address      |                                                                                                                         |
| 8  | Primary Site Secondary Index Retransmission Server TCP Port Number |                                                                                                                         |
| 9  | Backup Site Primary Index Retransmission Server IP Address         |                                                                                                                         |
| 10 | Backup Site Primary Index Retransmission Server TCP Port Number    |                                                                                                                         |
| 11 | Backup Site Secondary Index Retransmission Server IP Address       |                                                                                                                         |
| 12 | Backup Site Secondary Index Retransmission Server TCP Port Number  |                                                                                                                         |



## DOCUMENT HISTORY

DOCUMENT HISTORY

| Document Version               | Date                                                                                                                                                                                                                        | Change Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |         |                                |                                                                                                                                                                                                                             |                    |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| 1.0                            | 30 Jul 2012                                                                                                                                                                                                                 | First issue                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                |         |                                |                                                                                                                                                                                                                             |                    |
| 1.1                            | 31 Oct 2012                                                                                                                                                                                                                 | Section 2.1.1, 2.2.1 – include Broker Queue (54) message in Securities Level 2 Conflated Channels<br><br>Section 2.1.2, 2.2.2 – remove News (22) from Securities Status Channel<br><br>Section 2.2.1 – update the correct Line A multicast IP address for Securities Status Channel<br><br>Section 2 – add some descriptive reference on network connection to OMD<br><br>Section 3 & 4 – add some guidelines on SDNet lines or HSN connection, e.g. estimated bandwidth requirements, sharing of SDNet/2 or HSN, additional RTS login ID/IP address for Retransmission etc                                                                         |                |         |                                |                                                                                                                                                                                                                             |                    |
| 1.2                            | 7 Mar 2013                                                                                                                                                                                                                  | Section 2 – (i) add description on the requirement of the interface of the LAN switch to set speed as auto-sense” and duplex mode as “auto-sense” and “auto-negotiation”; (ii) update the sample connection diagram for the LAN switch and the link between routers A & B; (iii) add note not to subscribe to multicast addresses & port IDs not specified in the Connectivity Guide.<br><br>Section 2.1.7 – update the production IP Unicast Address in the table<br><br>Section 2.2 – update the section heading<br><br>Appendix B – update the Client Sample Configuration Sheet to include the sample connection diagram & clarify on the setup |                |         |                                |                                                                                                                                                                                                                             |                    |
| 1.3                            | 24 May 2013                                                                                                                                                                                                                 | Section 1 – added overview for OCG End-to-End Test Environment<br><br>Section 2.3 – newly added for OCG End-to-End Test Environment Connectivity Details<br><br>Section 2.4 (previously 2.3) and Section 3.2 – amended for above<br><br>Section 4.1 – clarify the policy on usage of login ID for retransmission service                                                                                                                                                                                                                                                                                                                            |                |         |                                |                                                                                                                                                                                                                             |                    |
| 1.4                            | 5 Aug 2015                                                                                                                                                                                                                  | <table><tr><th>Effective Date</th><th>Changes</th></tr><tr><td>Phrase 1 of CAS on 25 Jul 2016</td><td rowspan="2"><b>Introduction of Closing Auction Session (CAS) &amp; Volatility Control Mechanism (VCM)</b><br/>Section 2.1, 2.2, 2.3 – added new messages VCM Trigger (23), Reference Price (43) and Order Imbalance (56) for SS, SP &amp; SF</td></tr><tr><td>VCM on 22 Aug 2016</td></tr></table>                                                                                                                                                                                                                                            | Effective Date | Changes | Phrase 1 of CAS on 25 Jul 2016 | <b>Introduction of Closing Auction Session (CAS) &amp; Volatility Control Mechanism (VCM)</b><br>Section 2.1, 2.2, 2.3 – added new messages VCM Trigger (23), Reference Price (43) and Order Imbalance (56) for SS, SP & SF | VCM on 22 Aug 2016 |
| Effective Date                 | Changes                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |         |                                |                                                                                                                                                                                                                             |                    |
| Phrase 1 of CAS on 25 Jul 2016 | <b>Introduction of Closing Auction Session (CAS) &amp; Volatility Control Mechanism (VCM)</b><br>Section 2.1, 2.2, 2.3 – added new messages VCM Trigger (23), Reference Price (43) and Order Imbalance (56) for SS, SP & SF |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |         |                                |                                                                                                                                                                                                                             |                    |
| VCM on 22 Aug 2016             |                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |         |                                |                                                                                                                                                                                                                             |                    |
| 1.5                            | 15 Dec 2015                                                                                                                                                                                                                 | <table><tr><th>Effective Date</th><th>Changes</th></tr><tr><td>Immediate</td><td><b>Update of Information</b><ul style="list-style-type: none"><li>Appendix A – SDNet/2 Accredited Vendors Information</li></ul></td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                  | Effective Date | Changes | Immediate                      | <b>Update of Information</b> <ul style="list-style-type: none"><li>Appendix A – SDNet/2 Accredited Vendors Information</li></ul>                                                                                            |                    |
| Effective Date                 | Changes                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |         |                                |                                                                                                                                                                                                                             |                    |
| Immediate                      | <b>Update of Information</b> <ul style="list-style-type: none"><li>Appendix A – SDNet/2 Accredited Vendors Information</li></ul>                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |         |                                |                                                                                                                                                                                                                             |                    |

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| 1.6  | 19 Feb 2016 | <b>Effective Date</b> | <b>Changes</b>                                                                                                                                                                                                                                                                                                                                                                                                                           |
|      |             | 6 Mar 2017            | <b>Introduction of a new Disaster Recovery (DR) mechanism</b> <ul style="list-style-type: none"> <li>Section 2 (across sub-sections) – Add information on the new dedicated channel for the new Disaster Recovery Signal (105) message</li> </ul>                                                                                                                                                                                        |
|      |             | Immediate             | <b>Update of Information</b> <ul style="list-style-type: none"> <li>Section 3.3 and Section 3.4 – Remove MDF3.8 related information</li> </ul>                                                                                                                                                                                                                                                                                           |
| 1.7  | 4 Aug 2016  | <b>Effective Date</b> | <b>Changes</b>                                                                                                                                                                                                                                                                                                                                                                                                                           |
|      |             | 29 Aug 2016           | <b>Launch of new Indices</b> <ul style="list-style-type: none"> <li>Section 2.1.4, 2.2.4 and 2.3.4 – Add TR Index Channel</li> </ul>                                                                                                                                                                                                                                                                                                     |
|      |             |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1.8  | 03 Feb 2017 | <b>Effective Date</b> | <b>Changes</b>                                                                                                                                                                                                                                                                                                                                                                                                                           |
|      |             | 24 Jul 2017           | <b>Launch of Stock Connect Market Feed</b> <ul style="list-style-type: none"> <li>Section 2.1.7, 2.2.7 and 2.3.7 – Add Stock Connect Daily Quota Balance and Stock Connect Market Turnover Channels</li> <li>Section 3.2 – Add bandwidth requirement for Datafeed with Stock Connect Market Feed (SCM)</li> </ul>                                                                                                                        |
|      |             |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1.9  | 25 Apr 2017 | <b>Effective Date</b> | <b>Changes</b>                                                                                                                                                                                                                                                                                                                                                                                                                           |
|      |             | 24 Jul 2017           | <b>Launch of Stock Connect Market Feed</b> <ul style="list-style-type: none"> <li>Update the Section 2.1.7 and 2.2.7 – Update Stock Connect Daily Quota Balance and Stock Connect Market Turnover multicast IP address.</li> </ul>                                                                                                                                                                                                       |
|      |             |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1.10 | 30 Jun 2017 | <b>Effective Date</b> | <b>Changes</b>                                                                                                                                                                                                                                                                                                                                                                                                                           |
|      |             | 24 July 2017          | <b>Launch of Orion Trading Platform – Securities Market (OTP-C)</b> <ul style="list-style-type: none"> <li>Section 2.1.2 and 2.1.3 – Add clarification notes on distribution of order and trade information among multiple channels</li> <li>Section 2.3 – Heading amended to specify it is for the AMS/3 OCG E2E environment</li> <li>Section 2.4 – Added for connectivity details of OMD-C in the OTP-C OCG E2E environment</li> </ul> |
|      |             |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2.0  | 3 Jul 2017  | <b>Effective Date</b> | <b>Changes</b>                                                                                                                                                                                                                                                                                                                                                                                                                           |
|      |             | 5 Feb 2018            | <b>Launch of Orion Trading Platform – Securities Market (OTP-C)</b> <ul style="list-style-type: none"> <li>Section 2.1 and 2.2 – Update Security Status (21) to be disseminated in channel 10 for SS, channels 20 – 28 for SP and channels 30 – 38 for SF</li> <li>Section 2.3 – Remove the connectivity details of AMS/3 OCG E2E environment (Superseded with OTP-C OCG E2E environment)</li> </ul>                                     |
|      |             |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                          |

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| 2.1 | 12 Sep 2018    | <b>Effective Date</b> | <b>Changes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                |
|     |                | 22 Oct 2018           | <b>Bandwidth increase for Securities Standard (SS) and Securities FullTick (SF) Datafeed:</b> <ul style="list-style-type: none"> <li>Section 3.2.1 – Update the bandwidth requirement for Securities Standard (SS) and Securities FullTick (SF) Datafeed and add the details of bandwidth allocation between multicast and unicast in production in each datafeed</li> </ul>                                                                  |
|     |                | Immediate             | <b>Clarifications and housekeeping changes:</b> <ul style="list-style-type: none"> <li>Section 2.1.1-3, 2.2.1-2 and 2.3.1-3 – Update Multicast Service name for Channel ID 2 and 502</li> <li>Section 2.3.2 – Update multicast port for Channel ID 2 Line A</li> <li>Appendix A – Update the full name of HGC</li> <li>Appendix A – Update the link for the Price Information / Technical Specification / Service Level of SDNet/2</li> </ul> |
| 2.2 | 10 May 2019    | <b>Effective Date</b> | <b>Changes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                |
|     |                | Immediate             | <b>Update of Information</b> <ul style="list-style-type: none"> <li>Section 3.2.1 and 3.2.2 – Update bandwidth requirement for Conflated Broker Queue (CBQ) and update the details of bandwidth allocation between multicast and unicast for each data feed</li> <li>Section 3.4 – Include more examples for bandwidth requirement calculation</li> </ul>                                                                                     |
| 2.3 | 20 May 2020    | <b>Effective Date</b> | <b>Changes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                |
|     |                | 18 Jan 2021           | <b>Update of Information</b> <ul style="list-style-type: none"> <li>Section 2.1.8 and 2.2.8 – Add a remark for retransmission server at DR site</li> </ul>                                                                                                                                                                                                                                                                                    |
|     |                | Immediate             | <b>Update of Information</b> <ul style="list-style-type: none"> <li>Appendix A – Remove HGC Global Communications Limited and rename Wharf T&amp;T Limited to HKBN Enterprise Solutions HK Limited</li> </ul>                                                                                                                                                                                                                                 |
| 2.4 | 2 August 2021  | <b>Effective Date</b> | <b>Changes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                |
|     |                | 29 Nov 2021           | <b>Update of Information</b> <ul style="list-style-type: none"> <li>Section 3.2.1 – Update the bandwidth requirement for Securities Premium (SP)</li> <li>Section 3.4 – Update the bandwidth of SP with new requirement</li> </ul>                                                                                                                                                                                                            |
| 2.5 | 24 April 2023  | <b>Effective Date</b> | <b>Changes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                |
|     |                | Immediate             | <b>Housekeeping</b> <ul style="list-style-type: none"> <li>Sections 2.1.8, 2.2.8, 2.3.8 &amp; 3.4 – Remove the wording “HKEX”</li> <li>Section 1 - Add description for target readers</li> </ul>                                                                                                                                                                                                                                              |
| 2.6 | 15 August 2023 | <b>Effective Date</b> | <b>Changes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                |
|     |                | 25 Sep 2023           | <b>Remove HKEX Gold Futures Indices</b> <ul style="list-style-type: none"> <li>Sections 2.1.4, 2.2.4, 2.3.4 – Remove TR Index Channel</li> </ul>                                                                                                                                                                                                                                                                                              |

|     |             |                                               |                                                                                                                                                                                                                                                                                                                      |
|-----|-------------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.7 | 21 May 2024 | <b>Effective Date</b>                         | <b>Changes</b>                                                                                                                                                                                                                                                                                                       |
|     |             | Upon the launch of OMD Index Feed Enhancement | <b>Enhancement of OMD Index Datafeed</b> <ul style="list-style-type: none"> <li>Sections 2.1.8 - 2.1.9, 2.2.8 - 2.2.9 and 2.3.8 - 2.3.9 – New OMD-Index Retransmission servers connections detail</li> <li>Appendix B – Updated OMD Index connectivity details in Sample Client Configuration Information</li> </ul> |
| 2.8 | 21 Aug 2026 | <b>Effective Date</b>                         | <b>Changes</b>                                                                                                                                                                                                                                                                                                       |
|     |             | Immediate                                     | <b>Housekeeping</b> <ul style="list-style-type: none"> <li>Sections 3.5 – Updated the content for HPO</li> </ul>                                                                                                                                                                                                     |
|     |             | Upon the launch of HKEX Indices               | <b>Introduction of HKEX Indices</b> <ul style="list-style-type: none"> <li>Sections 2.1.4, 2.2.4 and 2.3.4 – Add Channel 40 for HKEX Indices Channel</li> </ul>                                                                                                                                                      |
|     |             | 31 Oct 2026                                   | <b>Removal of S&amp;P Indices</b> <ul style="list-style-type: none"> <li>Sections 2.1.4, 2.2.4 and 2.3.4 – Remove Channel 43 for S&amp;P Indices Channel</li> </ul>                                                                                                                                                  |