



ASX Trade

Connectivity Guide

December 2022

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1 Introduction

This document details the technical connectivity requirements for ASX Trade. The connectivity methods for ASX Trade are described to support customers wishing to establish connectivity to both production and test environments.

1.1 Audience

The information contained in the document is for anyone wishing to connect to the ASX Trade's production and test environments.

1.2 Version History

Version	Date	Comment
1.0	February 2020	<ul style="list-style-type: none">Initial version
1.1	March 2020	<ul style="list-style-type: none">Added detail for OMNet production connectivity
1.2	June 2020	<ul style="list-style-type: none">Updated CDE ITCH and OUCH addressing
1.3	July 2020	<ul style="list-style-type: none">OUCH and LCC gateway addressing changed to /32 routesASX Net gateway port description updated
1.4	August 2020	<ul style="list-style-type: none">Added speed / duplex configuration to ASX Net section
1.5	February 2021	<ul style="list-style-type: none">Relabelled Test Environments
1.6	July 2021	<ul style="list-style-type: none">Addition of the ASX Net OUCH ServiceAddition of CDE+ test system details
1.7	May 2022	<ul style="list-style-type: none">Section 3 added "Availability of Production Services"
1.8	December 2022	<ul style="list-style-type: none">ITCH heartbeat service detailsLCC/RTC configuration

2 Configuration and Infrastructure

2.1 Customer Infrastructure

- It is the customers' responsibility to provide network equipment for the connectivity to the termination point of each service.
- Customer network infrastructure will not require any additional feature sets. Routing standards are Static or eBGP.
 - An MD5 BGP key will be required for BGP peering.
 - Existing and agreed customer prefixes will be accepted.
 - The maximum number of BGP prefixes accepted from customers is set to 120. Exceeding this limit will cause the BGP session to go into Idle state.
- ASX Trade OMNet gateways utilise active/passive (mode 1) interface bonding, this requires dual switch configuration for network redundancy.
- It is recommended that customer connecting infrastructure be sized accordingly to handle traffic bursts at the capacity of the connecting interface.

2.2 Customer Addressing

- All addressing is IP Version 4
- For source ranges, customers have two options:
 - ASX can assign a unique private range subnet, or
 - Customers can provide their own public IP source range to ASX for access configuration

2.3 ALC Co-location Services

For the ASX Trade services delivered to an ALC cabinet: OUCH, ITCH and OMNet, ASX delivers these services over LCC/RTC cross-connects.

2.3.1 Liquidity Cross Connect (LCC)

The LCC service is a cross-connect that carries ASX Trade traffic. A single LCC can transport the following service combinations:

- OUCH only
- ITCH only
- OMNet only
- OUCH and OMNet

The LCC is an active, primary path during normal operation.

2.3.2 Redundant Teamed Connection (RTC)

The RTC service is a secondary, passive path used as backup in the event that the LCC is down or degraded. It is optional for the customer to order an RTC when ordering an LCC service.

- Under normal operation, customer devices on the LCC and RTC paths must be able to listen to and accept ASX traffic.
- Customer edge devices should be setup to detect and trigger failover to the RTC in the event the LCC service fails and vice-versa, in scenarios such as link failure and customer hardware failure.
- There are certain failure scenarios where there will be asymmetric traffic between primary and secondary paths, which means customers are able to use the LCC path and can receive an ASX reply through the RTC path.

2.3.3 Routing

ASX offers static and eBGP routing options for LCC and RTC routing configuration. eBGP is recommended over the static routing option.

- An MD5 BGP key (encryption level 7) will be required for BGP peering with a minimum of 15 alphanumeric characters.
- Existing and agreed customer prefixes will be accepted.
- The maximum number of BGP prefixes accepted from customers is set to 120. Exceeding this limit will cause the BGP session to go into IDLE state. It is recommended that the number of BGP prefixes advertised to be less than or equal to 100.
- The recommended BGP neighbour peering parameters are:
Keepalive 3s
Hold 6s
- ASX will accept a customer's public BGP ASN or an ASX-assigned private BGP ASN.
- For equal treatment for all customers, no QoS DSCP/CoS value will be preserved.
- Customer edge devices must be configured to enable BGP peering metric for preferred link selection as ASX edge nodes have active/active redundancy.

Section 5 provides sample BGP configuration which may be used as a guide.

3 Availability of ASX Trade Production Services

Times are quoted in AEST/AEDT.

3.1 OUCH

- OUCH login is available 02:25 – 20:30 on trading days.
- OUCH target IPs and ports are not available for login outside those times, however customers can expect “Connection refused” as a successful telnet test result.

3.2 ITCH

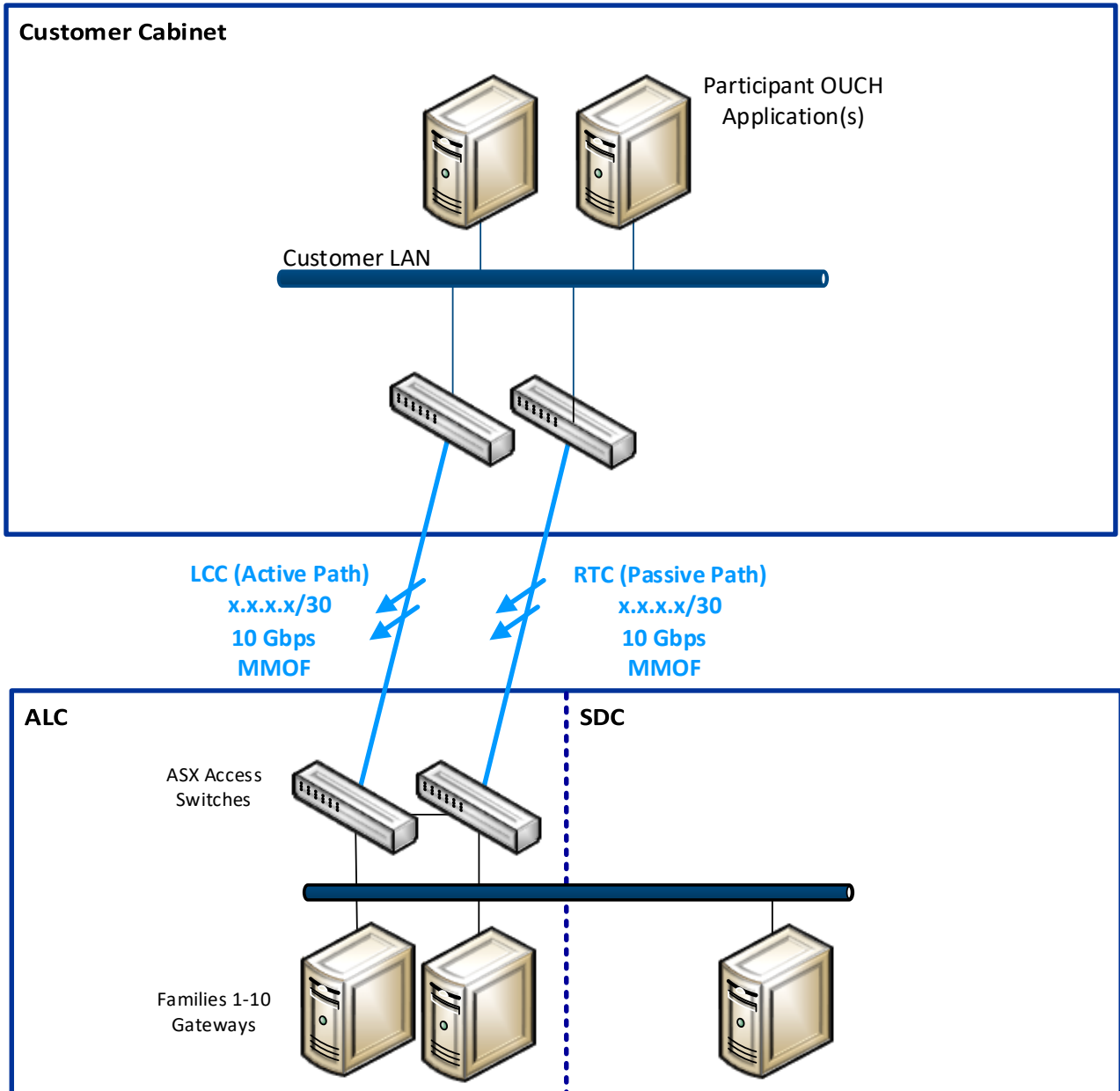
- ITCH Glimpse login, multicast data and Rewinder services are available 02:25 – 20:30 on trading days.
- Outside of those times:
 - Glimpse, Rewinder, and multicast data is not available.
 - Customers can expect “Connection refused” as a successful telnet test result to Glimpse targets.
 - A heartbeat service is available on the production ITCH network 10:00 – 20:00 on Saturdays, on multicast groups separate to the production multicast data groups. Please refer to Appendix A for details.

3.3 OMNet

- OMNet login is available 02:25 – 20:30 on trading days.
- On Sundays from 15:00, OMNet TCP target IPs and ports are available for telnet testing and login testing. Login attempts will be rejected at the API level.
- This Sunday login window is subject to change; it may coincide with planned maintenance activity.

4 OUCH Co-Location Production Configuration

4.1 Diagram



4.2 Configuration

Routing options for LCC/RTC connections are Static and eBGP (dynamic). All routes advertised over eBGP will be /32, as shown in the table below.

Service	Active Gateway 1	Active Gateway 2	Active Gateway 3 (DR Site)	OUC Port
Family 1	203.6.253.112/32	203.6.253.145/32	203.0.119.111/32	15301
Family 2	203.6.253.113/32	203.6.253.146/32	203.0.119.111/32	15302
Family 3	203.6.253.114/32	203.6.253.147/32	203.0.119.111/32	15303
Family 4	203.6.253.115/32	203.6.253.148/32	203.0.119.112/32	15304
Family 5	203.6.253.116/32	203.6.253.149/32	203.0.119.112/32	15305
Family 6	203.6.253.117/32	203.6.253.150/32	203.0.119.112/32	15306
Family 7	203.6.253.118/32	203.6.253.151/32	203.0.119.113/32	15307
Family 8	203.6.253.119/32	203.6.253.152/32	203.0.119.113/32	15308
Family 9	203.6.253.120/32	203.6.253.153/32	203.0.119.114/32	15309
Family 10	203.6.253.121/32	203.6.253.154/32	203.0.119.114/32	15310

4.3 Physical Layer

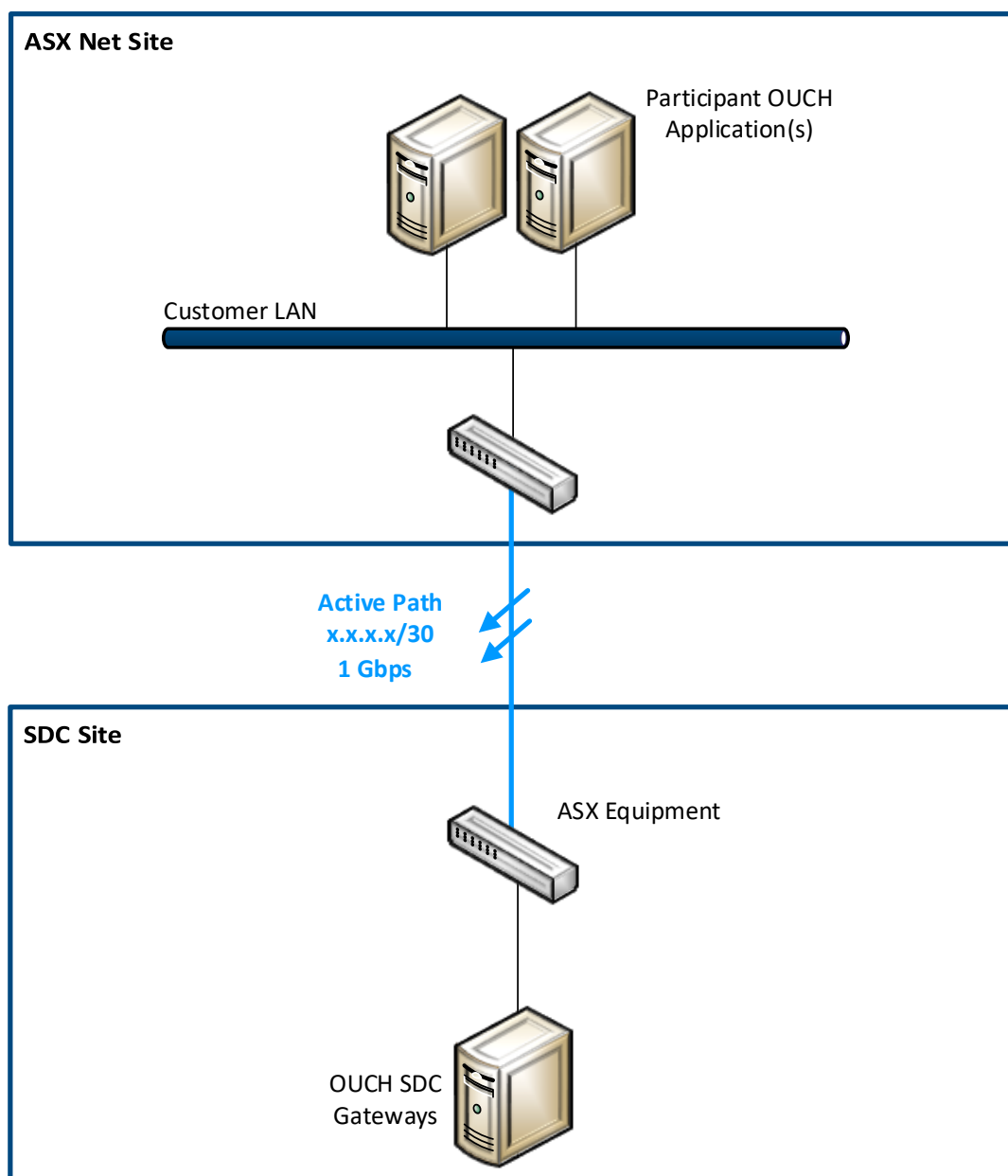
- LCC/RTC cross connects are delivered as OM3 MMOF
- Fibre termination is LC
- Media standard is 10GBASE-SR
- It is the customers' responsibility to supply transceivers for their network devices

4.4 IP Addressing

- All transit /30 subnets will be ASX assigned from the /24 range allocated to each customer
- Each LCC/RTC pair must have a unique source subnet

5 OUCH ASX Net Backup Access Configuration

5.1 Diagram



5.2 Configuration

Service	SDC Gateways	OUCH Port
Family 1	203.0.119.111/32	15301
Family 2	203.0.119.111/32	15302
Family 3	203.0.119.111/32	15303
Family 4	203.0.119.112/32	15304
Family 5	203.0.119.112/32	15305
Family 6	203.0.119.112/32	15306
Family 7	203.0.119.113/32	15307
Family 8	203.0.119.113/32	15308
Family 9	203.0.119.114/32	15309
Family 10	203.0.119.114/32	15310

5.3 Physical Layer

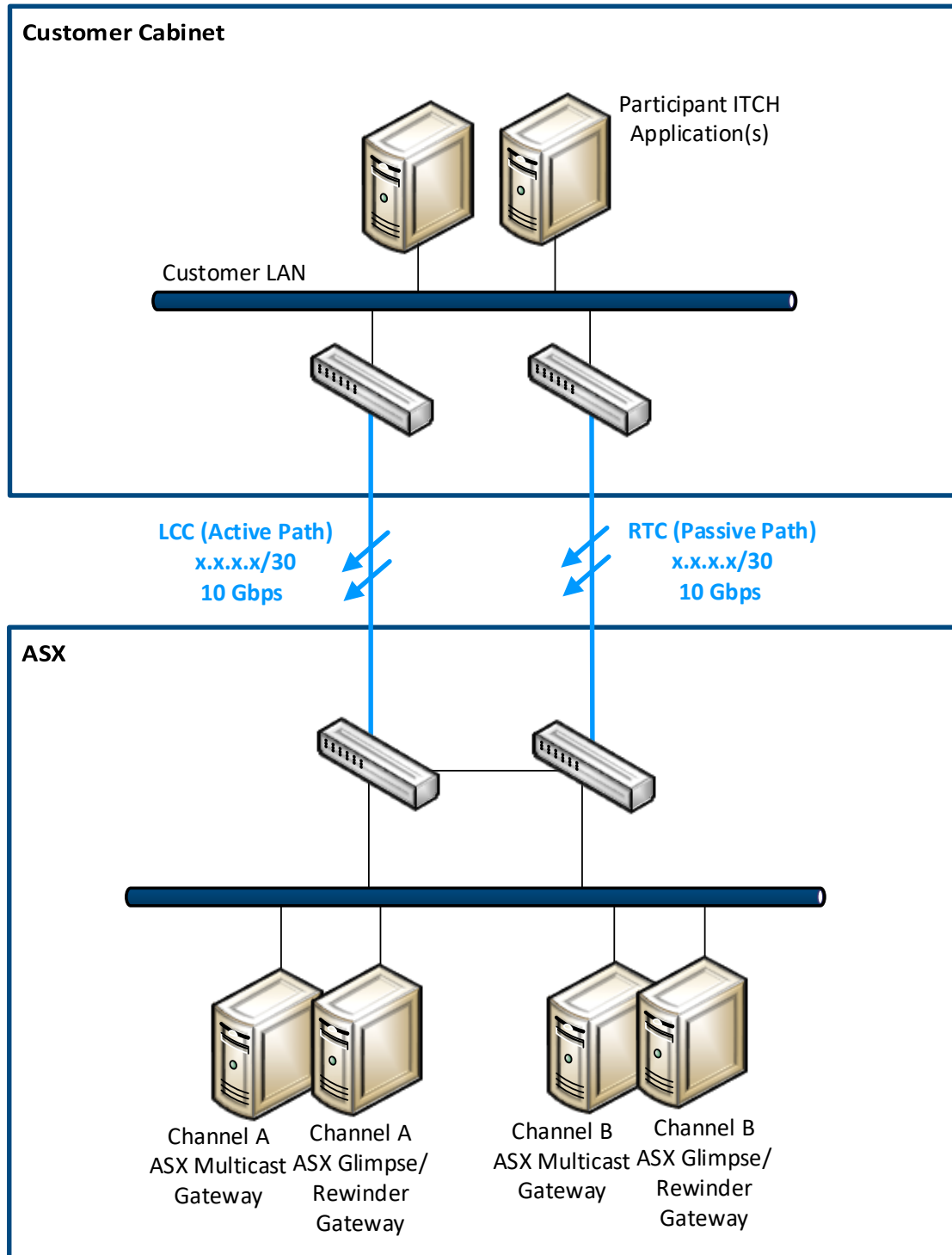
- Network handoff can be provided as Cat6 RJ45 or OM3 MMOF
- Fibre termination is LC
- Media standard is 1000BASE-T or 1000BASE-SX
- It is the customers' responsibility to supply transceivers for their network devices

5.4 IP Addressing

- All transit /30 subnets will be ASX assigned from the /24 range allocated to each customer
- Each OUCH ASX Net connection must have a unique source subnet

6 ITCH ALC Co-Location Production Configuration

6.1 Diagram



6.2 Configuration

The return path is configured so that traffic has its preference of the LCC active path while it is available. Routing options for LCC/RTC connections are Static and eBGP (dynamic). All routes advertised over eBGP will be /32, as shown in the tables below.

6.3 Channel A Addressing

Channel A Multicast PIM Rendezvous Point

Channel	RP
Channel A	203.0.119.252/32

Channel A	Multicast Source IP	Multicast Group	Multicast Destination Port	Glimpse Address	Glimpse Port TCP	Rewinder IP Address	Rewinder UDP Port
Partition 1	203.6.253.124/32	233.71.185.129	21001	203.6.253.126/32	21801	203.6.253.126/32	24001
Partition 2	203.6.253.124/32	233.71.185.130	21002	203.6.253.126/32	21802	203.6.253.126/32	24002
Partition 3	203.6.253.124/32	233.71.185.131	21003	203.6.253.126/32	21803	203.6.253.126/32	24003
Partition 4	203.6.253.124/32	233.71.185.132	21004	203.6.253.126/32	21804	203.6.253.126/32	24004

6.4 Channel B Addressing

Channel B Multicast PIM Rendezvous Point

Channel	RP
Channel B	203.0.119.253/32

Channel B	Multicast Source IP	Multicast Group	Multicast Destination Port	Glimpse Address	Glimpse Port TCP	Rewinder IP Address	Rewinder UDP Port
Partition 1	203.6.253.157/32	233.71.185.145	21101	203.6.253.158/32	21801	203.6.253.158/32	24001
Partition 2	203.6.253.157/32	233.71.185.146	21102	203.6.253.158/32	21802	203.6.253.158/32	24002
Partition 3	203.6.253.157/32	233.71.185.147	21103	203.6.253.158/32	21803	203.6.253.158/32	24003
Partition 4	203.6.253.157/32	233.71.185.148	21104	203.6.253.158/32	21804	203.6.253.158/32	24004

6.5 Physical Layer

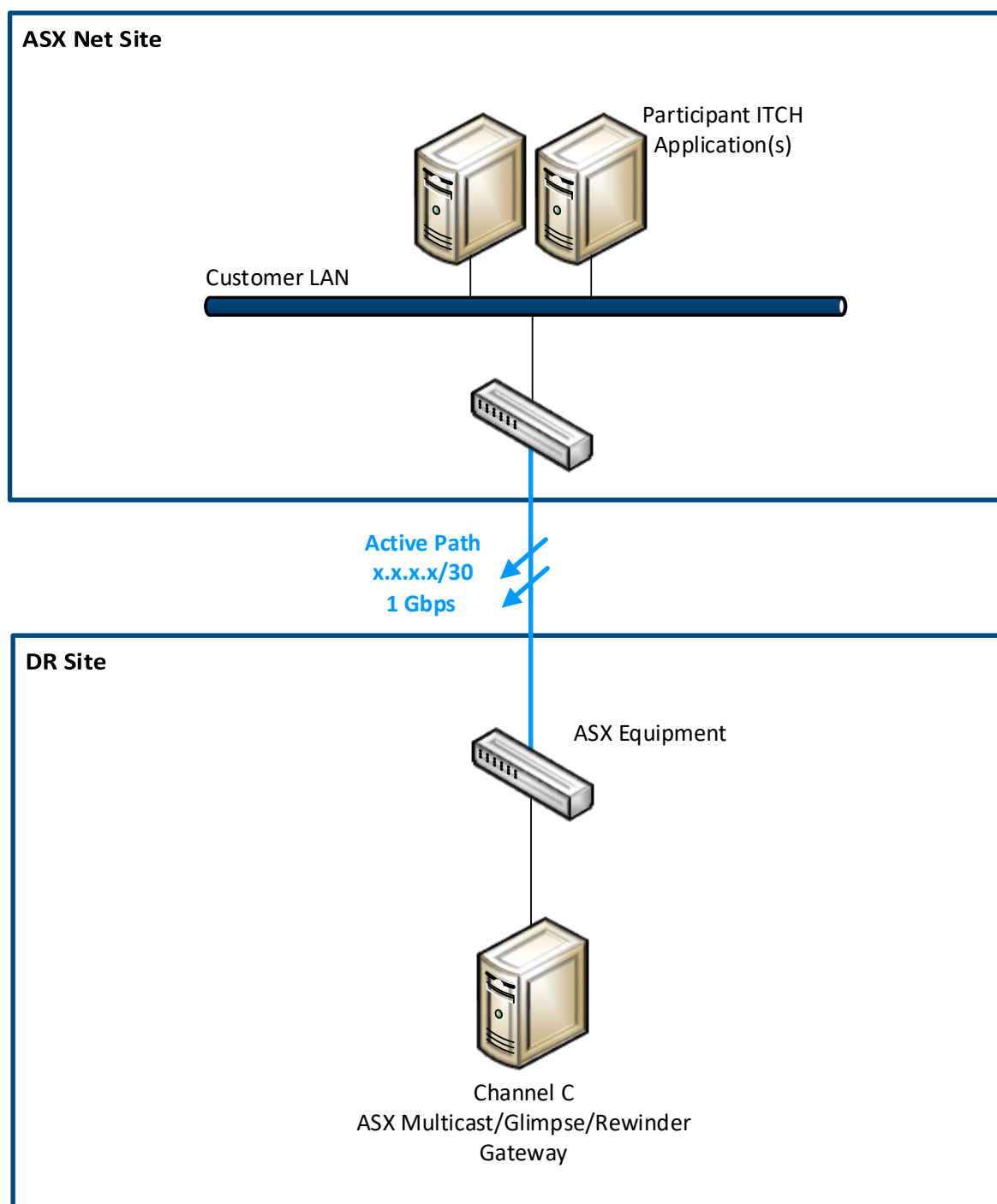
- LCC/RTC cross connects are delivered as OM3 MMOF
- Fibre termination is LC
- Media standard is 10GBASE-SR
- It is the customers' responsibility to supply transceivers for their network devices

6.6 IP Addressing

- All transit /30 subnets will be assigned by ASX from the /24 range allocated to each customer
- Each LCC/RTC pair must have a unique source subnet

7 ITCH ASX Net Backup Access Configuration

7.1 Diagram



7.2 Channel C Addressing

Multicast PIM Rendezvous Point

Channel	RP
Channel C	203.0.119.254/32

Channel C	Multicast Source IP	Multicast Group	Multicast Destination Port	Glimpse Address	Glimpse Port TCP	Rewinder IP Address	Rewinder UDP Port
Partition 1	203.0.119.124/32	233.71.185.153	21201	203.0.119.124/32	21801	203.0.119.124/32	24001
Partition 2	203.0.119.124/32	233.71.185.154	21202	203.0.119.124/32	21802	203.0.119.124/32	24002
Partition 3	203.0.119.124/32	233.71.185.155	21203	203.0.119.124/32	21803	203.0.119.124/32	24003
Partition 4	203.0.119.124/32	233.71.185.156	21204	203.0.119.124/32	21804	203.0.119.124/32	24004

7.3 Physical Layer

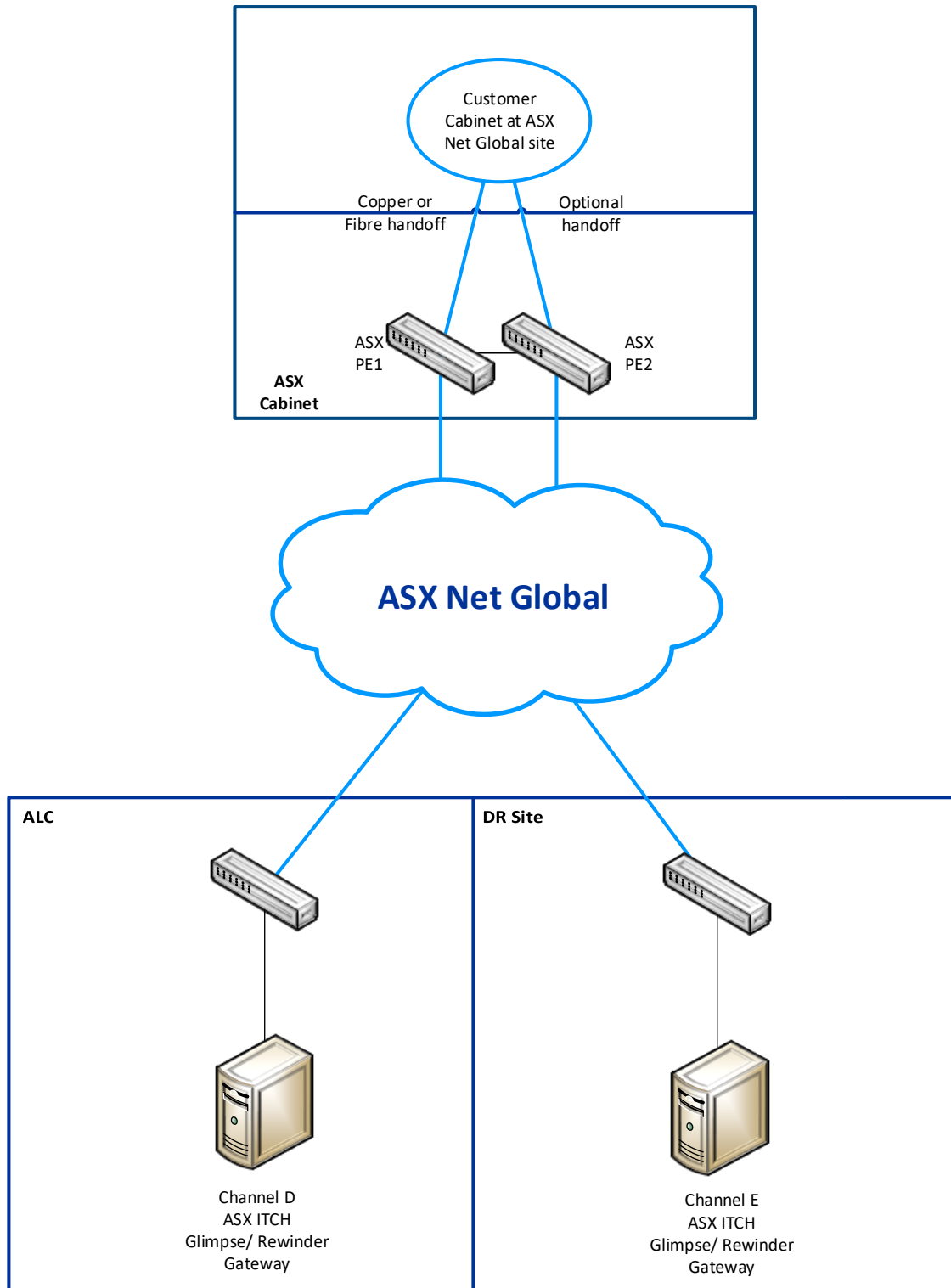
- Network handoff can be provided as Cat6 RJ45 or OM3 MMOF
- Fibre termination is LC
- Media standard is 1000BASE-T or 1000BASE-SX
- It is the customers' responsibility to supply transceivers for their network devices

7.4 IP Addressing

- All transit /30 subnets will be assigned by ASX from the /24 range allocated to each customer
- Each ITCH ASX Net connection must have a unique source subnet

8 ITCH ASX Net Global Production Configuration

8.1 Diagram



8.2 Channel D Multicast and Unicast Addressing

Multicast PIM Rendezvous Point

Channel	RP
Channel D	203.0.119.252/32

Channel D	Multicast Source IP	Multicast Group	Multicast Destination Port	Glimpse Address	Glimpse Port TCP	Rewinder IP Address	Rewinder UDP Port
Partition 1	203.6.253.125/32	233.71.185.137	21301	203.6.253.125/32	21801	203.6.253.125/32	24001
Partition 2	203.6.253.125/32	233.71.185.138	21302	203.6.253.125/32	21802	203.6.253.125/32	24002
Partition 3	203.6.253.125/32	233.71.185.139	21303	203.6.253.125/32	21803	203.6.253.125/32	24003
Partition 4	203.6.253.125/32	233.71.185.140	21304	203.6.253.125/32	21804	203.6.253.125/32	24004

8.3 Channel E Addressing

Multicast PIM Rendezvous Point

Channel	RP
Channel E	203.0.119.254/32

Channel E	Multicast Source IP	Multicast Group	Multicast Destination Port	Glimpse Address	Glimpse Port TCP	Rewinder IP Address	Rewinder UDP Port
Partition 1	203.0.119.125/32	233.71.185.225	21401	203.0.119.125/32	21801	203.0.119.125/32	24001
Partition 2	203.0.119.125/32	233.71.185.226	21402	203.0.119.125/32	21802	203.0.119.125/32	24002
Partition 3	203.0.119.125/32	233.71.185.227	21403	203.0.119.125/32	21803	203.0.119.125/32	24003
Partition 4	203.0.119.125/32	233.71.185.228	21404	203.0.119.125/32	21804	203.0.119.125/32	24004

8.4 Physical Layer

- Network handoff can be provided as Cat6 RJ45 or OM3 MMOF
- Fibre termination is LC
- Media standard is 1000BASE-T or 1000BASE-SX
- It is the customers' responsibility to supply transceivers for their network devices

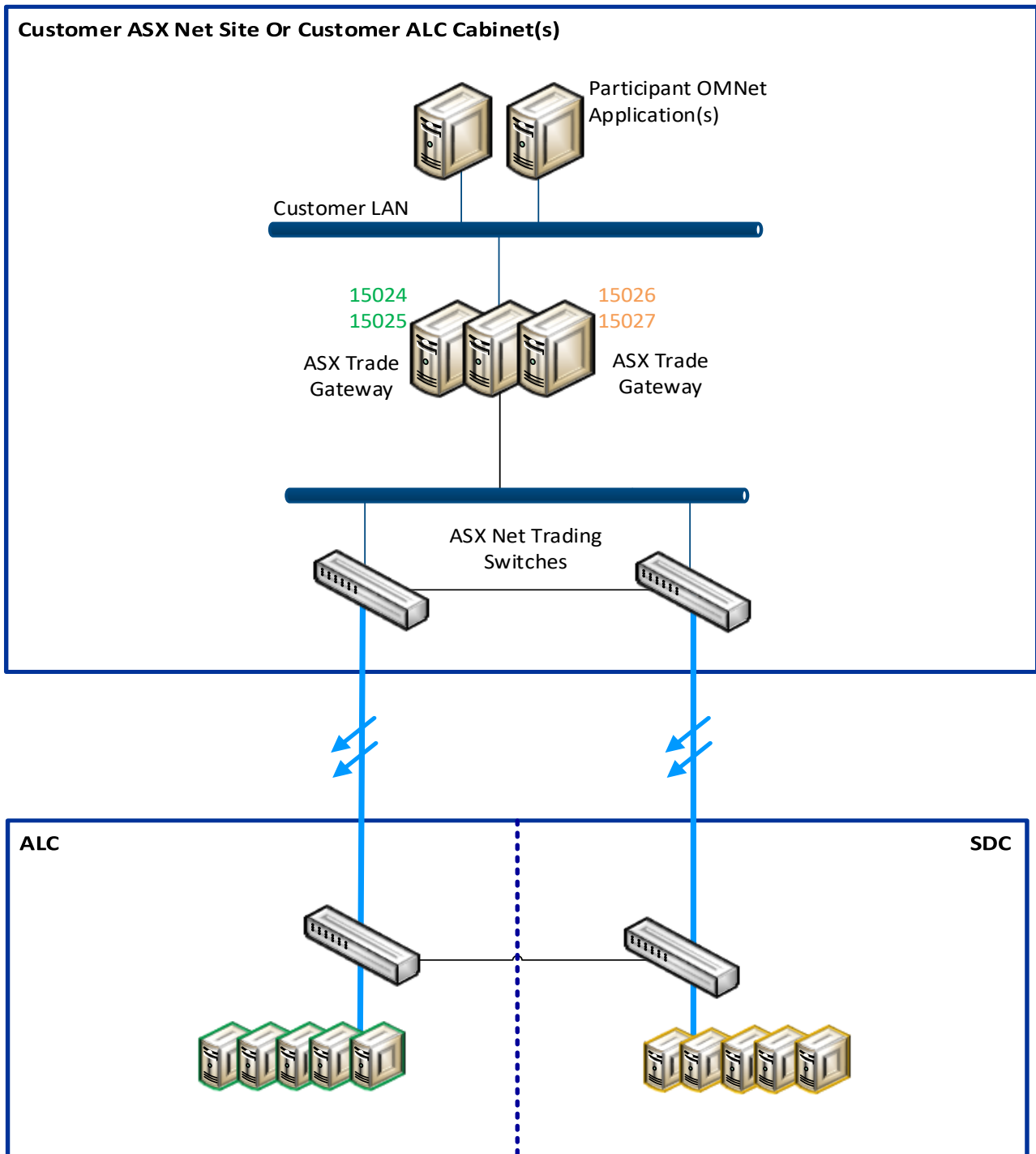
8.5 IP Addressing

- All transit /30 subnets will be assigned by ASX from the /24 range allocated to each customer
- Each ITCH ASX Net Global connection must have a unique source subnet

9 OMNet Production Configuration

9.1 ASX Net Gateway and Gateway-in-Cabinet

9.1.1 Diagram



9.1.2 Configuration

The IP addresses on the client side of the ASX Net OMNet gateways and gateway-in-cabinet devices are configured by agreement with each customer.

The ports are 15024, 15025, 15026 and 15027. All 4 ports are active; port 15024 and 15025 connect to ALC and port 15026 and 15027 connect to SDC.

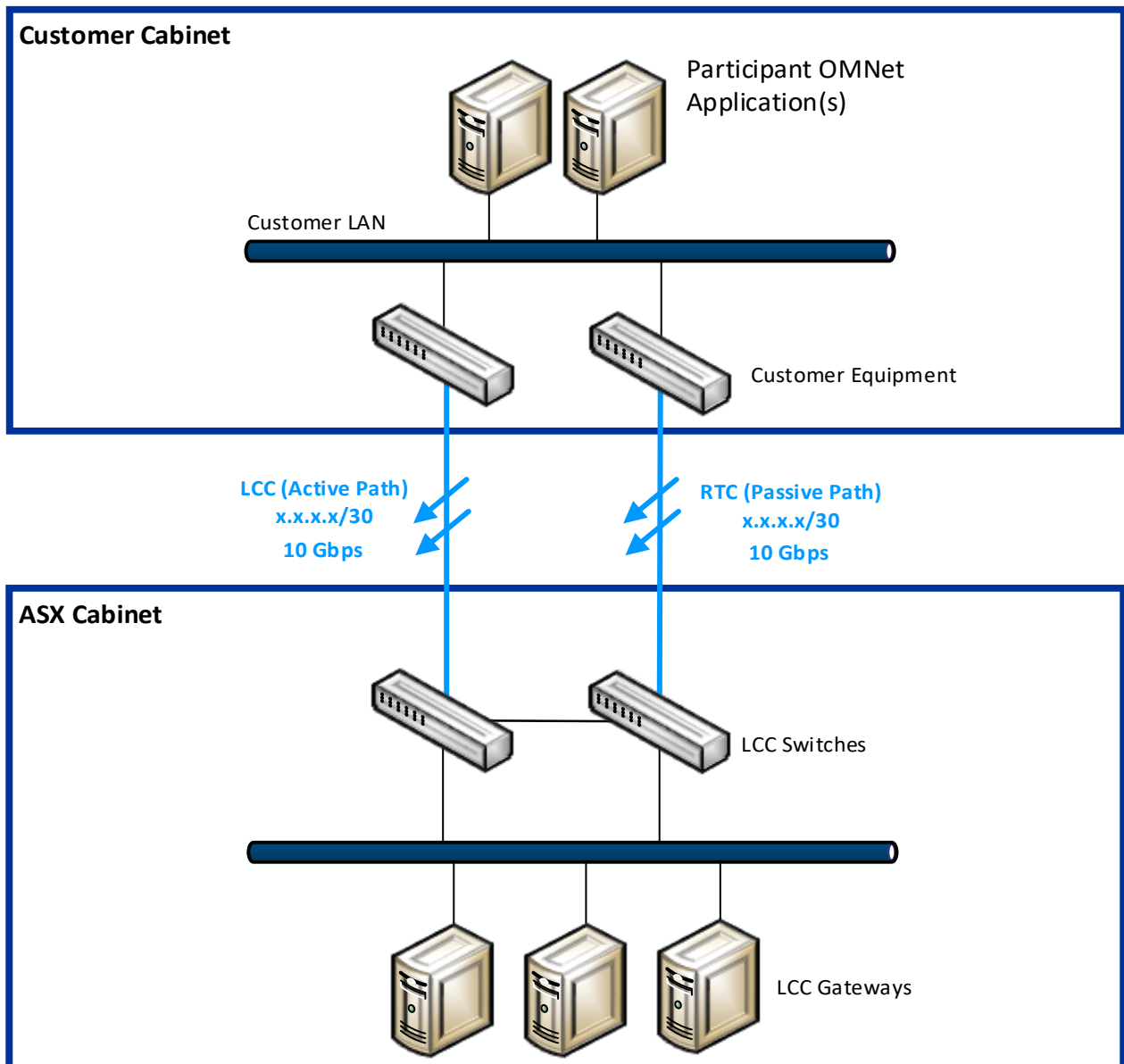
Ports 15024 and 15025 should be used as the primary connection paths and customers are encouraged to load balance across the two ports. Ports 15026 and 15027 connect via SDC and can be used in normal operation or in the event 15024 and 15025 are unavailable.

9.1.3 Physical Layer

- Network handoff provided as Cat6 RJ45
- Media standard is 1000BASE-T
- Default speed / duplex configuration is 1Gb / Auto. It is recommended that customer connections meet this standard.
- It is the customers' responsibility to supply transceivers for their network devices

9.2 OMNet LCC Gateway

9.2.1 Diagram



9.2.2 Configuration

For each LCC gateway purchased, customers will be assigned one IP and port out of the two gateway pod 1 and gateway pod 2 ranges. Customers will also be assigned an IP and port from the DR gateway range, located in SDC. Routing options for LCC/RTC connections are Static and eBGP (dynamic). All routes advertised over eBGP will be /32, as shown in the tables below.

Gateway Pod 1	Gateway Pod 2	DR Gateway Pod 3	OMNet Port Range
203.6.253.100/32	203.6.253.132/32	203.0.119.100/32	15024 - 15031
203.6.253.101/32	203.6.253.133/32	203.0.119.101/32	15024 - 15031
203.6.253.102/32	203.6.253.134/32	203.0.119.102/32	15024 - 15031
203.6.253.103/32	203.6.253.135/32	203.0.119.103/32	15024 - 15031
203.6.253.104/32	203.6.253.136/32	203.0.119.104/32	15024 - 15031
203.6.253.105/32	203.6.253.137/32	203.0.119.105/32	15024 - 15031
203.6.253.106/32	203.6.253.138/32	203.0.119.106/32	15024 - 15031
203.6.253.107/32	203.6.253.139/32	203.0.119.107/32	15024 - 15031
203.6.253.108/32	203.6.253.140/32	203.0.119.108/32	15024 - 15031
203.6.253.109/32	203.6.253.141/32	203.0.119.109/32	15024 - 15031
203.6.253.110/32	203.6.253.142/32	203.0.119.110/32	15024 - 15031
203.6.253.111/32	203.6.253.143/32		15024 - 15031
	203.6.253.144/32		15024 - 15031

9.2.3 Physical Layer

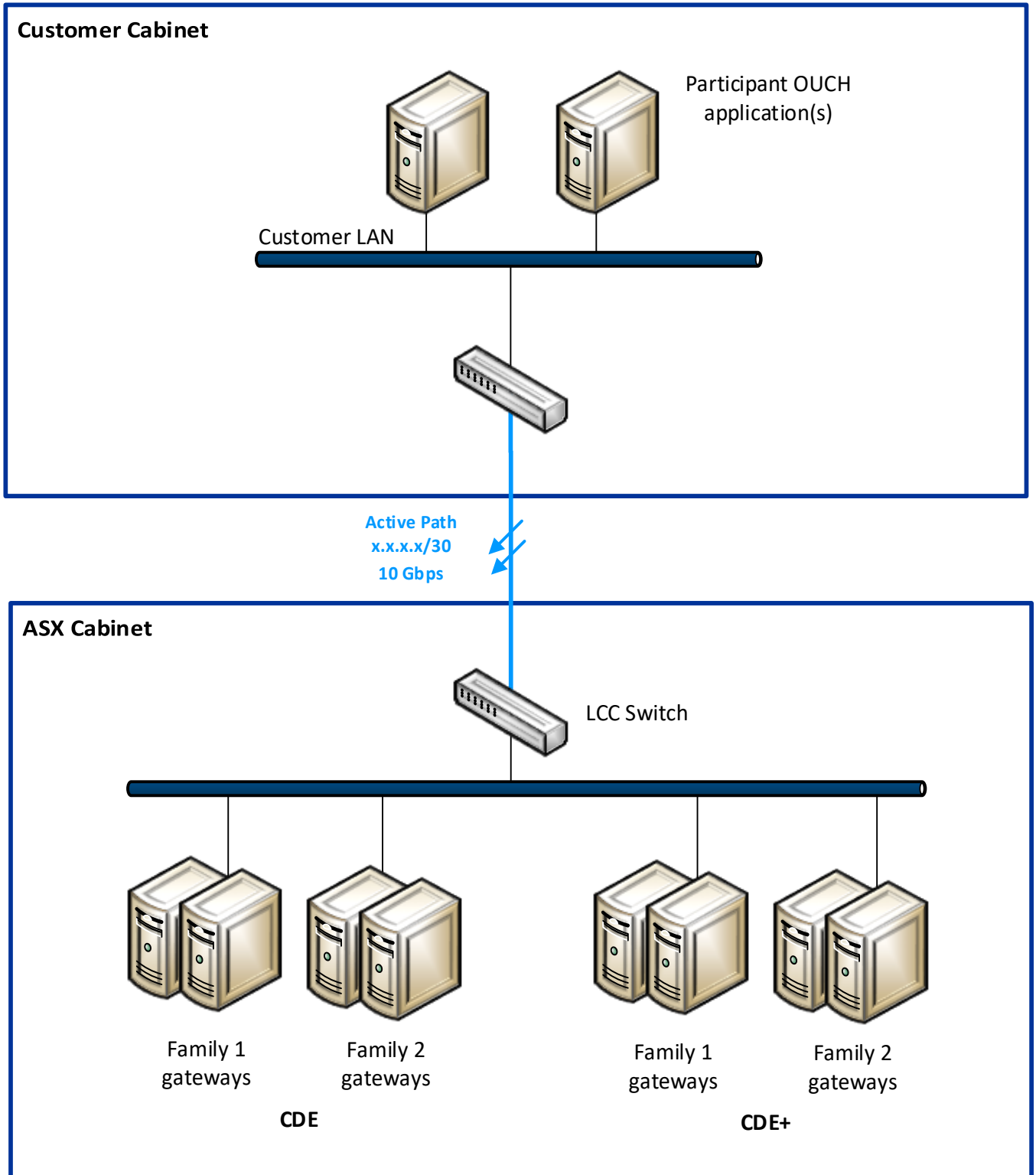
- LCC/RTC cross connects are delivered as OM3 MMOF
- Fibre termination is LC
- Media standard is 10GBASE-SR
- It is the customers' responsibility to supply transceivers for their network devices

9.2.4 IP Addressing

- All transit /30 subnets will be assigned by ASX from the /24 range allocated to each customer
- Each LCC/RTC pair must have a unique source subnet

10 OUCH Test Configuration

10.1 Diagram



10.2 CDE Configuration

Aggregate Address		203.0.119.160/28		
Service	Active Gateway 1	Active Gateway 2	Active Gateway 3	OUCH Port
CDE Family 1	203.0.119.170	203.0.119.171	203.0.119.174	15301
CDE Family 2	203.0.119.170	203.0.119.171	203.0.119.174	15302

10.3 CDE+ Configuration

Aggregate Address		203.0.119.160/28		
Service	Active Gateway 1	Active Gateway 2	Active Gateway 3	OUCH Port
CDE+ Family 1	203.0.119.168	203.0.119.169	203.0.119.173	15301
CDE+ Family 2	203.0.119.168	203.0.119.169	203.0.119.173	15302

10.4 Physical Layer

- Cross connects are delivered as OM3 MMOF
- Fibre termination is LC
- Media standard is 10GBASE-SR
- It is the customers' responsibility to supply transceivers for their network devices

10.5 IP Addressing

- All transit /30 subnets will be assigned by ASX from the /24 range allocated to each customer
- Each OUCH test connection must have a unique source subnet

10.6 Sample Customer Configuration

```
#### CUSTOMER SWITCH 1 CONFIGURATION ####

vlan 100,1001

ip routing

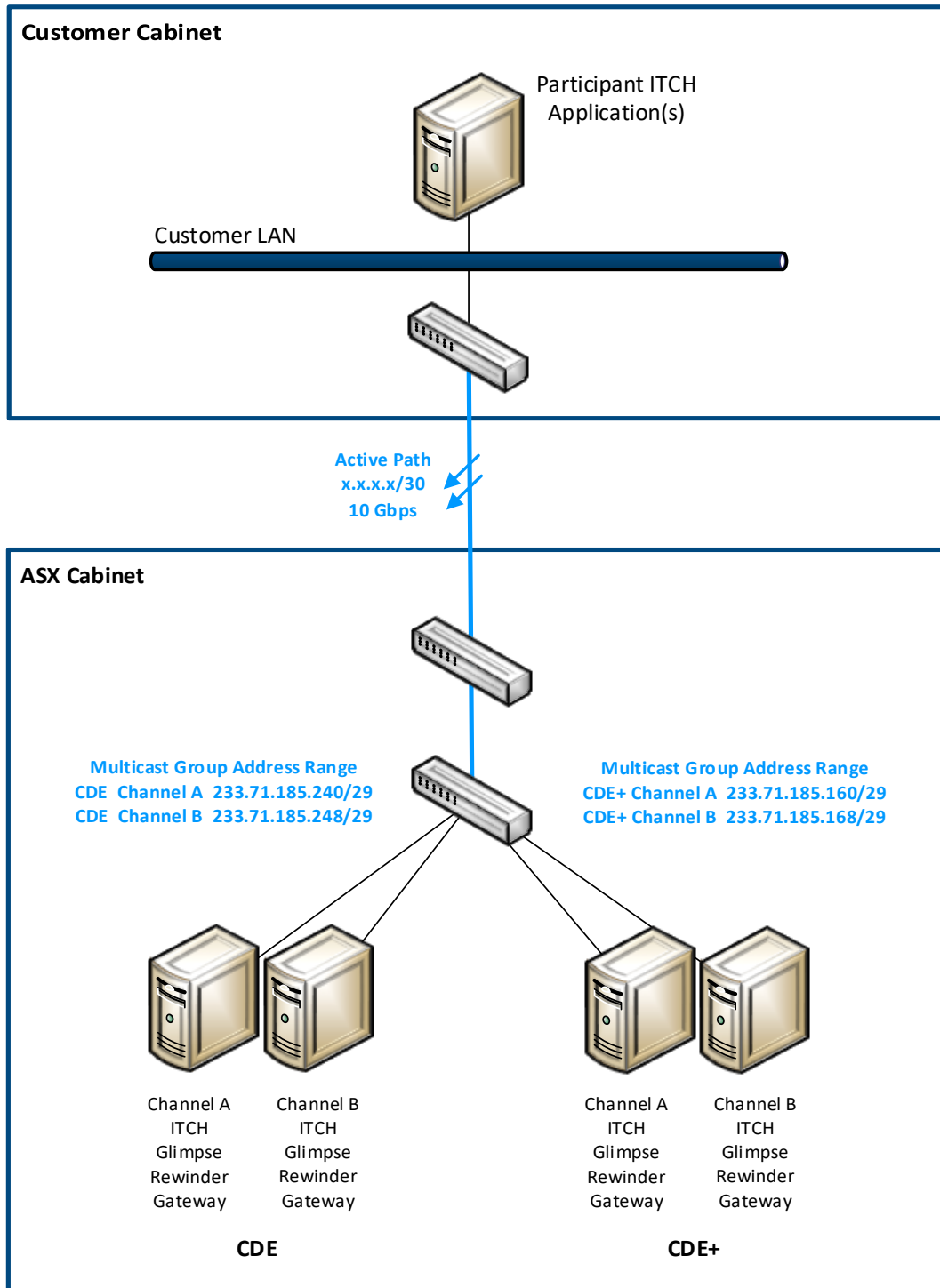
interface Ethernet24
    description Primary ASX cross connect
    switchport access vlan 1001
    spanning-tree portfast

interface Vlan100
    description Customer Servers
```

11 ITCH Test Configuration

The ITCH test environments are only available for customers who have a co-location connection.

11.1 Diagram



11.2 CDE Configuration

11.2.1 Channel A

IP Routing	Aggregate Address
Multicast	233.71.185.240/29

CDE Channel A	Multicast Source IP	Multicast Group	Multicast Destination Port	Glimpse Address	Glimpse Port TCP	Rewinder IP Address	Rewinder UDP Port
Partition 1	203.0.119.229	233.71.185.241	21001	203.0.119.229	21801	203.0.119.229	24001
Partition 2	203.0.119.229	233.71.185.242	21002	203.0.119.229	21802	203.0.119.229	24002
Partition 3	203.0.119.229	233.71.185.243	21003	203.0.119.229	21803	203.0.119.229	24003
Partition 4	203.0.119.229	233.71.185.244	21004	203.0.119.229	21804	203.0.119.229	24004

11.2.2 Channel B

IP Routing	Aggregate Address
Multicast	233.71.185.248/29

CDE Channel B	Multicast Source IP	Multicast Group	Multicast Destination Port	Glimpse Address	Glimpse Port TCP	Rewinder IP Address	Rewinder UDP Port
Partition 1	203.0.119.231	233.71.185.249	21101	203.0.119.231	21801	203.0.119.231	24001
Partition 2	203.0.119.231	233.71.185.250	21102	203.0.119.231	21802	203.0.119.231	24002
Partition 3	203.0.119.231	233.71.185.251	21103	203.0.119.231	21803	203.0.119.231	24003
Partition 4	203.0.119.231	233.71.185.252	21104	203.0.119.231	21804	203.0.119.231	24004

11.2.3 Multicast PIM Rendezvous Point

Channel	RP
Channel A	203.0.119.242
Channel B	203.0.119.242

11.3 CDE+ Configuration

11.3.1 Channel A

IP Routing	Aggregate Address
Multicast	233.71.185.160/29

CDE+ Channel A	Multicast Source IP	Multicast Group	Multicast Destination Port	Glimpse Address	Glimpse Port TCP	Rewinder IP Address	Rewinder UDP Port
Partition 1	203.0.119.228	233.71.185.161	21001	203.0.119.228	21801	203.0.119.228	24001
Partition 2	203.0.119.228	233.71.185.162	21002	203.0.119.228	21802	203.0.119.228	24002
Partition 3	203.0.119.228	233.71.185.163	21003	203.0.119.228	21803	203.0.119.228	24003
Partition 4	203.0.119.228	233.71.185.164	21004	203.0.119.228	21804	203.0.119.228	24004

11.3.2 Channel B

IP Routing	Aggregate Address
Multicast	233.71.185.168/29

CDE+ Channel B	Multicast Source IP	Multicast Group	Multicast Destination Port	Glimpse Address	Glimpse Port TCP	Rewinder IP Address	Rewinder UDP Port
Partition 1	203.0.119.230	233.71.185.169	21101	203.0.119.230	21801	203.0.119.230	24001
Partition 2	203.0.119.230	233.71.185.170	21102	203.0.119.230	21802	203.0.119.230	24002
Partition 3	203.0.119.230	233.71.185.171	21103	203.0.119.230	21803	203.0.119.230	24003
Partition 4	203.0.119.230	233.71.185.172	21104	203.0.119.230	21804	203.0.119.230	24004

11.3.3 Multicast PIM Rendezvous Point

Channel	RP
Channel A	203.0.119.242
Channel B	203.0.119.242

11.4 Physical Layer

- Cross connects are delivered as OM3 MMOF
- Fibre termination is LC
- Media standard is 10GBASE-SR
- It is the customers' responsibility to supply transceivers for their network devices

11.5 IP Addressing

- All transit /30 subnets will be assigned by ASX from the /24 range allocated to each customer
- Each ITCH test connection must have a unique source subnet

11.6 Sample Customer Configuration

```
#### CUSTOMER SWITCH 1 CONFIGURATION ####

vlan 100,1001

ip routing

ip multicast-routing
ip mfib activity polling-interval 5

ip pim rp-address 203.0.119.242 233.71.185.240/29
ip pim rp-address 203.0.119.242 233.71.185.248/29

interface Ethernet24
    description Primary ASX cross connect
    switchport access vlan 1001
    spanning-tree portfast

interface Vlan100
    description Customer Servers
    ip address 1.1.2.1/24

    ip igmp query-max-response-time 40
    ip igmp query-interval 5
    ip pim sparse-mode
    ip pim query-interval 2ip pim dr-priority 15

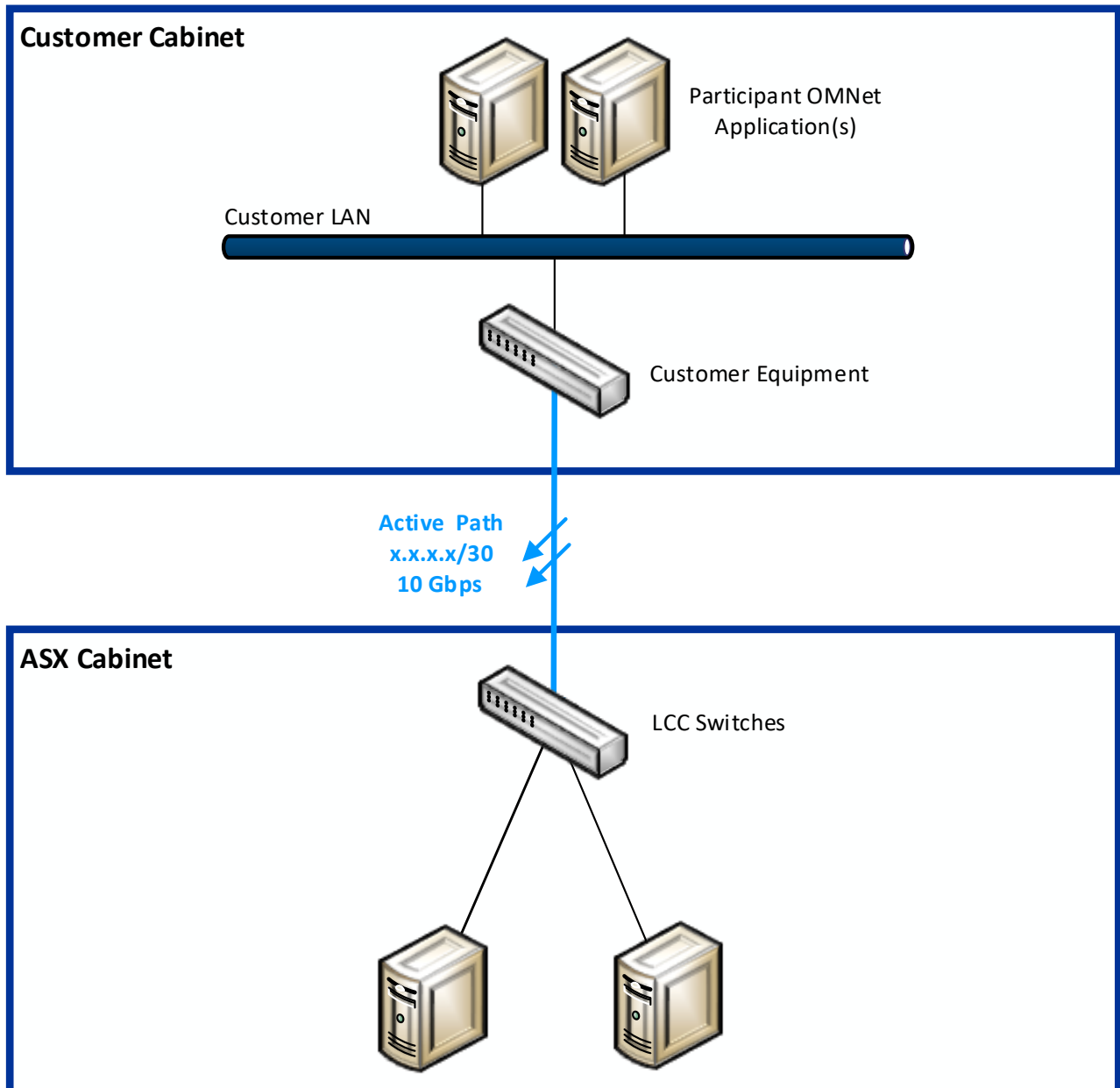
interface Vlan1001
    description Primary ASX cross connect
    ip address 1.1.1.2/30

    ip pim sparse-mode
```

12 OMNet Test Configuration

12.1 LCC Configuration

12.1.1 Diagram



12.1.2 CDE Configuration

LCC customers will each be assigned one port from within the two ranges in the table below.

Aggregate Address 203.0.119.160/28		
Service	Target IP	OMNet API Port
CDE	203.0.119.166	15024 – 15031
CDE	203.0.119.167	15024 – 15031

12.1.3 CDE+ Configuration

LCC customers will each be assigned one port from within the two ranges in the table below.

Aggregate Address 203.0.119.160/28		
Service	Target IP	OMNet API Port
CDE+	203.0.119.163	15024 – 15031
CDE+	203.0.119.164	15024 – 15031

12.1.4 Physical Layer

- LCC/RTC cross connects are delivered as OM3 MPOF
- Fibre termination is LC
- Media standard is 10GBASE-SR
- It is the customers' responsibility to supply transceivers for their network devices

12.1.5 IP Addressing

- All transit /30 subnets will be assigned by ASX from the /24 range allocated to each customer
- Each OMNET Test connection must have a unique source subnet

12.1.6 Sample Customer Configuration

```
#### CUSTOMER SWITCH 1 CONFIGURATION ####

vlan 100,1001

ip routing

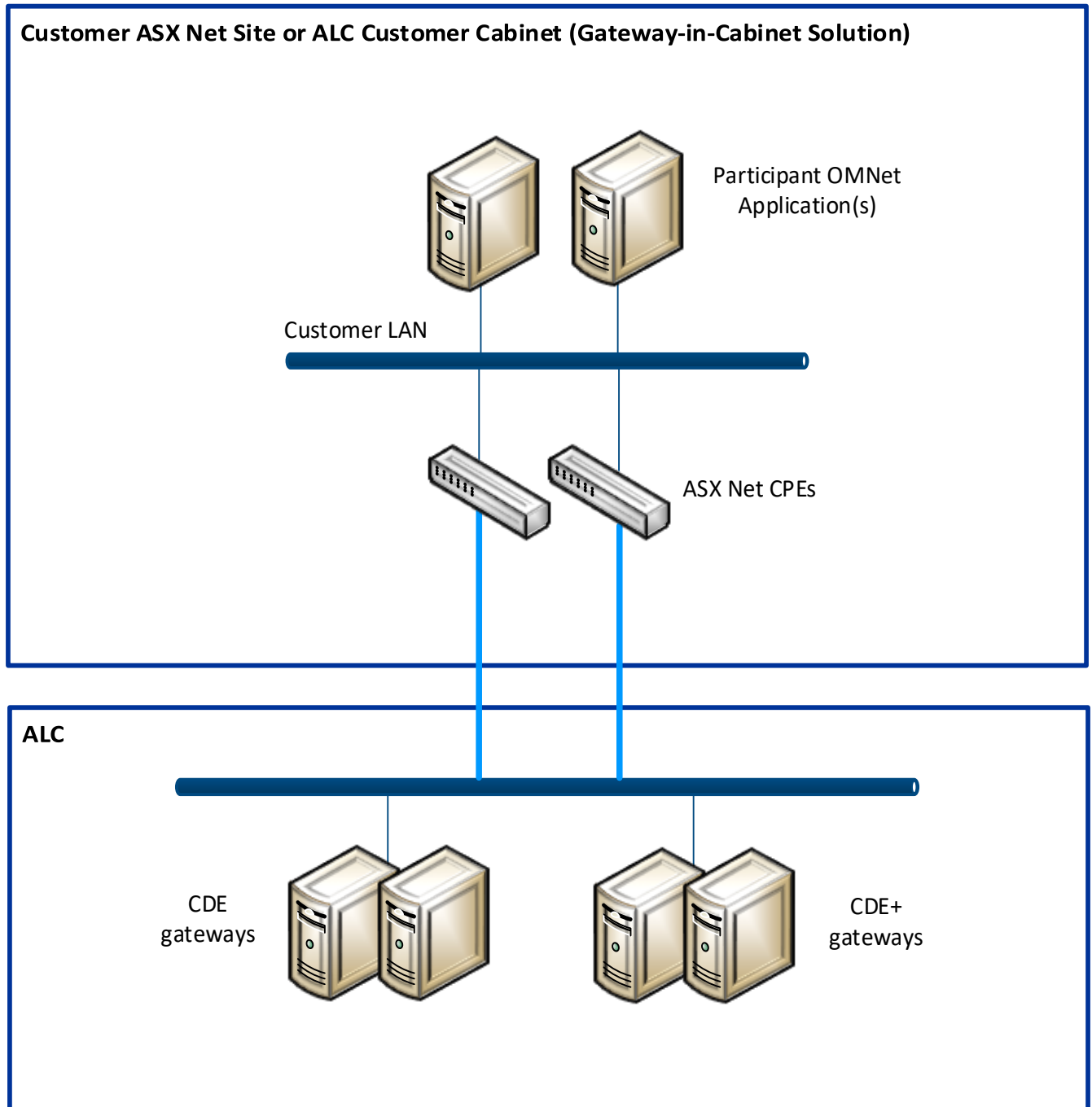
interface Ethernet24
    description Primary ASX cross connect
    switchport access vlan 1001
    spanning-tree portfast

interface Vlan100
    description Customer Servers
    ip address 1.1.2.1/24

interface Vlan1001
    description Primary ASX cross connect
    ip address 1.1.1.2/30
```

12.2 ASX Net Configuration

12.2.1 Diagram



12.2.2 Configuration

<hr/>		
Aggregate Address	203.4.179.0/24	
<hr/>		
Service	Target IP	OMNet API Port
<hr/>		
CDE	203.4.179.121	15024
<hr/>		
CDE+	203.4.179.122	15024
<hr/>		

12.2.3 Physical Layer

- Network handoff provided as Cat6 RJ45
- Media standard is 1000BASE-T
- It is the customers' responsibility to supply transceivers for their network devices

12.2.4 IP Addressing

- All transit /30 subnets will be assigned by ASX from the /24 range allocated to each customer
- Each OMNET Test connection must have a unique source subnet

13 Appendices

13.1 Appendix A – Saturday ITCH Heartbeat Service

A heartbeat service is available on the production ITCH network 10:00 – 20:00 on Saturdays, on multicast groups separate to the production multicast data groups. Customers can use this service to verify their production network path.

Channel	Service	Multicast Source IP	Multicast Group	Multicast Destination Port
Channel A	ALC Primary	206.6.253.124	233.71.185.134	21009
Channel B	ALC Secondary	206.6.253.157	233.71.185.150	21009
Channel C	ASX Net backup	203.0.119.124	233.71.185.158	21009
Channel D	ASX Net Global	203.6.253.125	233.71.185.230	21009
Channel E	ASX Net Global	203.0.119.125	233.71.185.142	21009

13.2 Appendix B – Sample BGP Configuration

ASX offers the following switch configuration as a guide only, to indicate how BGP could be configured on a customer's network equipment when an LCC service is purchased along with the RTC option. It must not be used in production systems without verification and testing.

```
! Connectivity to ASX Trade Primary Link
interface Ethernet48
description connectivity_asx_lcc
no switchport
ip address 10.1.1.1/30

! Input Prefix list for Primary link
ip prefix-list pl_connectivity_asx
    seq 10 permit 203.6.253.96/27 ge 32
    seq 20 permit 203.6.253.128/27 ge 32
    seq 30 permit 203.0.119.96/27 ge 32

! Output Prefix list for Primary link
ip prefix-list pl_connectivity_customer seq 10 permit 172.30.1.0/24

! Input Route-map for Primary link
route-map rm_connectivity_lcc_in permit 10
match ip address prefix-list pl_connectivity_asx

! Output Route-map for Primary link
route-map rm_connectivity_lcc_out permit 10
match ip address prefix-list pl_connectivity_customer

! BGP Peering
router bgp 64500
    bgp log-neighbor-changes
    neighbor 10.1.1.2 remote-as 65300
    neighbor 10.1.1.2 timers 3 9
    neighbor 10.1.1.2 description connectivity_asx
    neighbor 10.1.1.2 route-map rm_connectivity_lcc_in in
    neighbor 10.1.1.2 route-map rm_connectivity_lcc_out out
    neighbor 10.1.1.2 password XXXXXXX
    neighbor 10.1.1.2 maximum-routes 120
    redistribute connected route-map redis_conn
    redistribute static route-map redis_static
-----

! Connectivity to ASX Trade Backup Link
interface Ethernet49
description connectivity_asx_rtc
no switchport
ip address 10.1.1.5/30

! Input Prefix list for Backup link
ip prefix-list pl_connectivity_asx
    seq 10 permit 203.6.253.96/27 ge 32
    seq 20 permit 203.6.253.128/27 ge 32
    seq 30 permit 203.0.119.96/27 ge 32
```



```

! Output Prefix list for Backup link
ip prefix-list pl_connectivity_customer seq 10 permit 172.30.1.0/24

! Input Route-map for Backup link
route-map rm_connectivity_rtc_in permit 10
match ip address prefix-list pl_connectivity_asx

! Output Route-map for Backup link
route-map rm_connectivity_rtc_out permit 10
match ip address prefix-list pl_connectivity_customer

! BGP Peering
router bgp 64500
  bgp log-neighbor-changes
  neighbor 10.1.1.6 remote-as 65300
  neighbor 10.1.1.6 timers 3 9
  neighbor 10.1.1.6 description connectivity_asx
  neighbor 10.1.1.6 route-map rm_connectivity_rtc_in in
  neighbor 10.1.1.6 route-map rm_connectivity_rtc_out out
  neighbor 10.1.1.6 password XXXXXX
  neighbor 10.1.1.6 maximum-routes 120
  redistribute connected route-map redis_conn
  redistribute static route-map redis_static

```

13.2.1 Configuration Items

Section	Configuration Item	Description
! Connectivity to ASX Trade Primary Link	interface Ethernet48	Configuration section label
	description connectivity_asx_lcc	ASX LCC connectivity description
	no switchport	Convert L2 to L3 interface
	ip address 10.1.1.1/30	Cross-connect IP
! Input Prefix list for Primary link	ip prefix-list pl_connectivity_asx	Target subnet
	seq 10 permit 203.6.253.96/27 ge 32	Target subnet
	seq 20 permit 203.6.253.128/27 ge 32	Target subnet
	seq 30 permit 203.0.119.96/27 ge 32	Target subnet
! Output Prefix list for Primary link	ip prefix-list pl_connectivity_customer seq 10 permit 172.30.1.0/24	Target subnet
! Input Route-map for Primary link	route-map rm_connectivity_lcc_in permit 10	Route map profile name for inbound traffic
	match ip address prefix-list pl_connectivity_asx	Associate prefix-list profile name with route map
! Output Route-map for Primary link	route-map rm_connectivity_lcc_out permit 10	Route map profile name for outbound traffic
	match ip address prefix-list pl_connectivity_customer	Associate prefix list profile name with route map
! BGP Peering	router bgp 64500	BGP ASN on customer side
	bgp log-neighbor-changes	Enable logging messages when BGP neighbor status changes

	neighbor 10.1.1.2 remote-as 65300	BGP peering with neighbor 10.1.1.2 (ASX side) with ASN 65300 (ASX side)
	neighbor 10.1.1.2 timers 3 9	BGP keepalive every 3s and hold timer 9s
	neighbor 10.1.1.2 description connectivity_asx	BGP peering neighbor description
	neighbor 10.1.1.2 route-map rm_connectivity_lcc_in in	BGP peering route-map profile for incoming traffic
	neighbor 10.1.1.2 route-map rm_connectivity_lcc_out out	BGP peering route-map profile for outgoing traffic
	neighbor 10.1.1.2 password XXXXXXX	MD5 authentication password
	neighbor 10.1.1.2 maximum-routes 120	Max BGP routes of 120 received from adjacent neighbor
	redistribute connected route-map redis_conn	BGP to redistribute directly connected routes with specified route-map
	redistribute static route-map redis_static	BGP to redistribute static routes with specified route-map
! Connectivity to ASX Trade Backup Link	interface Ethernet49	Configuration section label
	description connectivity_asx_rtc	ASX RTC connectivity description
	no switchport	Convert L2 to L3 interface
	ip address 10.1.1.5/30	Cross-connect IP
! Input Prefix list for Backup link	ip prefix-list pl_connectivity_asx	Target subnet
	seq 10 permit 203.6.253.96/27 ge 32	Target subnet
	seq 20 permit 203.6.253.128/27 ge 32	Target subnet
	seq 30 permit 203.0.119.96/27 ge 32	Target subnet
! Output Prefix list for Backup link	ip prefix-list pl_connectivity_customer seq 10 permit 172.30.1.0/24	Target subnet
! Input Route-map for Backup link	route-map rm_connectivity_rtc_in permit 10	Route-map profile name for inbound traffic
	match ip address prefix-list pl_connectivity_asx	Associate prefix list profile name with route map
! Output Route-map for Backup link	route-map rm_connectivity_rtc_out permit 10	Route map profile name for outbound traffic
	match ip address prefix-list pl_connectivity_customer	Associate prefix list profile name with route map
! BGP Peering	router bgp 64500	BGP ASN on customer side
	bgp log-neighbor-changes	Enable logging messages when BGP neighbor status changes
	neighbor 10.1.1.6 remote-as 65300	BGP peering with neighbor 10.1.1.6 (ASX side) with ASN 65300 (ASX side)
	neighbor 10.1.1.6 timers 3 9	BGP keepalive every 3s and hold timer 9s
	neighbor 10.1.1.6 description connectivity_asx	BGP peering neighbor description
	neighbor 10.1.1.6 route-map rm_connectivity_rtc_in in	BGP peering route map profile for incoming traffic
	neighbor 10.1.1.6 route-map rm_connectivity_rtc_out out	BGP peering route map profile for outgoing traffic
	neighbor 10.1.1.6 password XXXXXX	MD5 authentication password

	neighbor 10.1.1.6 maximum-routes 120	Max BGP routes of 120 received from adjacent neighbor
	redistribute connected route-map redis_conn	BGP to redistribute directly connected routes with specified route-map
	redistribute static route-map redis_static	BGP to redistribute static routes with specified route-map

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