AXON

Technical Brief

DCIf Services

NEXTDC

Contents

Introduction

NEXTDC's Data Centre Interconnect – Fibre (DCIf) service provides organisations with a pair of unmanaged (dark) fibre cores that interconnect NEXTDC's metropolitan based data centres, with full management capability of the bandwidth given to customer.

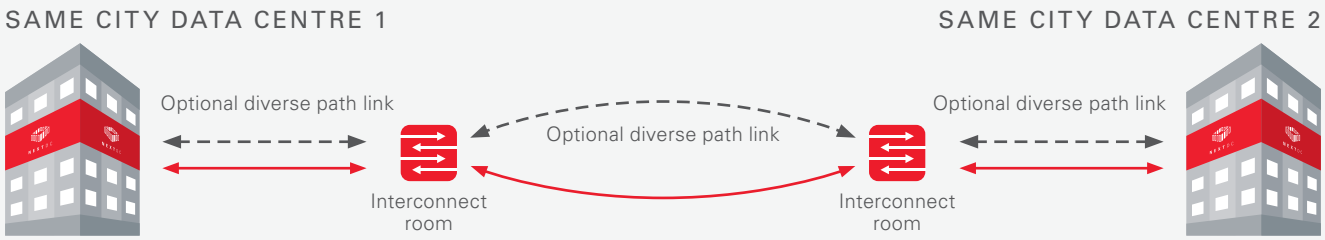
Product architecture

DCIf leverages NEXTDC's own fibre between its facilities within the same metro area.

Same city facilities are seamlessly interconnected to via two separate, fully redundant fibre paths.

A DCIf service connects customer racks that are located in more than one metropolitan facility. A Cross connect is run from the A-end to the local Interconnect Room; dark fibre is run between the metropolitan data centres, into the secondary location Interconnect Room; A Cross Connect then runs from the secondary Interconnect Room to the B-end.

DCIf (DATA CENTRE INTERCONNECT FIBRE)



Long range optics will be required depending on location and/or data centre.

The fibre solution provides clients with a pair of unmanaged fibres with no default redundancy. A second redundant pair of unmanaged fibres can be ordered should this level of redundancy be required.

DARK FIBRE

All dark fibre between NEXTDC facilities is Single Mode Optical Fibre (SMOF) that complies with, or exceeds ITU-T Recommendations G.652.D or G.657.A1.

DCIf services are currently available between:

- B1 and B2
- M1, M2 and M3
- P1 and P2
- S1, S2 and S3.

As NEXTDC's data centre footprint expands, and new facilities come online, DCIf will be locally available from day one.

DCIF FIBRE PATH LENGTHS

For DCIf, customers are required to supply their own optics to light the fibre. As such, the length of the fibre run becomes important to ensure the correct optic is purchased.

Metro Region	Path	Approximate Length (km)	1310nm Loss (dB)	1550nm Loss (dB)
Sydney S1 to S2	North	1.3	0.2	<0.2
Sydney S1 to S2	South	1.4	0.3	<0.2
Sydney S1 to S3	North	17.8	7.4	5.1
Sydney S1 to S3	South	10.3	5.2	3.9
Sydney S2 to S3	North	16.5	7.1	4.8
Sydney S2 to S3	South	11.6	5.5	4.2
Brisbane B1 to B2	North	3.0	1.2	0.9
Brisbane B1 to B2	South	2.0	1.0	0.1
Melbourne M1 to M2	East	35.6	13.4	8.1
Melbourne M1 to M2	West	23.1	9.2	5.2
Melbourne M1 to M3	West	13.6	5.1	3.3
Melbourne M1 to M3	East	17.3	6.2	4.1
Melbourne M2 to M3	West	19.8	7.5	5.0
Melbourne M2 to M3	East	19.4	6.7	4.3
Perth P1 to P2	East	14.2	5.2	3.2
Perth P1 to P2	West	20.4	7.6	4.6

STRUCTURED CABLING

DCIf is physically delivered via a pair of Single Mode Optical Fibre via the structured cabling ports in the client's rack. Customers are required to have structured cabling installed with spare ports available.

REDUNDANT DESIGN REQUIREMENTS

The DCI fibre solution provides customers with a pair of unmanaged fibres (dark fibres). For redundant solutions, a second path should be ordered.

When choosing DCIf to connect infrastructure located between multiple metropolitan data centres, customers should be aware that fibre faults in the street are more likely to occur than fibre faults in the data centre, e.g. during road work, and take considerably more time to be rectified. Assessing the need for two redundant services is highly recommended.

There is no bandwidth constraints set by NEXTDC. The customer has complete control over setting the capacity of the service, which is determined by their equipment of choice installed at either end.

Service ordering

DCIf is a non-standard offering. Please contact your Account Manager for further information on the ordering and fulfilment process.

Prior to ordering DCIf please ensure the following has been completed:

- A Master Service Agreement (MSA) has been executed
- A ONEDC login and rack allocation has been provided
- Structured cabling is installed with spare ports available.

To process a DCIf order, the following details are required:

- A-end Rack ID
- A-end Port #
- Supporting Notes for A-end
- B-end Rack ID
- B-end Port #
- Supporting Notes for B-end.

Supporting notes should be provided to indicate if redundancy is required when ordering two fibre pairs. Alternatively, to identify the existing primary fibre pair via the Service Identifier (SID) when ordering a second fibre pair.

Service troubleshooting checklist

Once you have the confirmation from NEXTDC that service provisioning is complete, the following checklist can be used for first level troubleshooting.

- ☑ Confirm that both ends are connected to optical transmission devices in your rack
- ☑ Confirm you are using Single Mode Optical Fibre (SMOF) duplex patch leads in both ends of the service to connect between Optic/SFP and in-rack patch panel
- ☑ Confirm that the optics on both ends are suitable for the fibre length
- ☑ Confirm that the optics on the ends of the path are compatible to one another
- ☑ Confirm that the optics on both ends are active and transmitting optical power
- ☑ Confirm that the optics on both ends are receiving optical power. If not,
  - ↳ Attempt swapping Transmit/Receive fibres on both ends of the service demarcation points, one at a time
  - ↳ Attempt to reseat the fibre patch leads on both ends of service and check there are no issues with the patch leads, one at a time
- ☑ Confirm both ends of your network equipment optics are within acceptable receive power levels
- ☑ Confirm both ends of your network equipment ports are showing as UP (Physical interface status 'Up' and Line Protocol status 'Up'). If not;
  - ↳ Confirm auto negotiation settings match on both ends of your equipment (Auto negotiation of Speed and Duplex)
- ☑ Confirm Optics/SFPs have been tested in both ends of your network equipment and they are in working condition.

If, after following the above-mentioned troubleshooting guide, you are still experiencing difficulties please contact NEXTDC support, providing the SID of the affected service.

Due to the nature of the service (dark fibre), DCIf solutions are unmanaged, therefore there is no way for NEXTDC to determine if a service has failed until we are made aware of a fault.

NEXTDC support contacts

DCIf HELP DESK

The DCIf Helpdesk can be contacted using the information below:

Phone (Australia)

1300 698 677

Phone (International)

+61 7 3177 4799

Technical support

nxtops@nextdc.com

Service provisioning

nxtops@nextdc.com

Hours of operation:

Monday – Friday

09:00 - 18:00

Sunday & Saturday

Closed

Service faults

24 hours

TERMS AND CONDITIONS AND SLA

Please refer to your Master Sales Agreement (MSA).

Glossary

Term	Explanation
DCI	Data Centre Interconnect
DCIf	Data Centre Interconnect Fibre
LC	Widely known as Lucent Connector (IEC 61754-20)
MSA	Master Service Agreement
SFP	Small Form-factor Pluggable transceiver
SID	Service IDentifier
SMOF	Single Mode Optical Fibre