



INSTALLATION SERVICE GUIDE

NetLinkTrust
the fibre of a smart nation

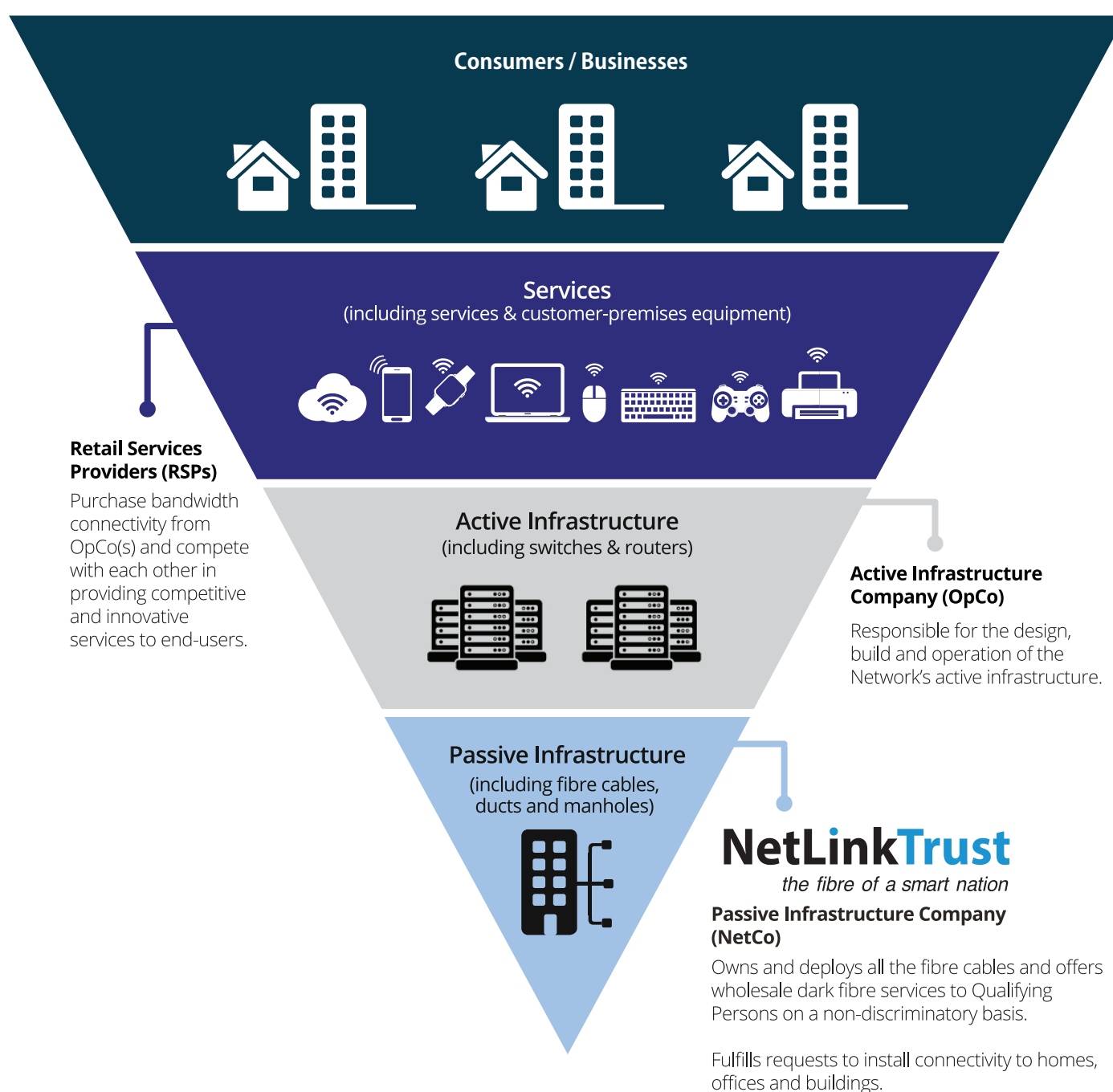
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WHO IS NETLINK TRUST?

NetLink Trust designs, builds, owns and operates the passive fibre network infrastructure of Singapore's Next Generation Nationwide Broadband Network (Next Gen NBN). An initiative led by the Singapore government, the Next Gen NBN aims to enhance the competitiveness of the economy through nationwide ultra-high-speed broadband access.

By providing an open, wholesale access to our fibre network, telecommunication operators can focus on offering innovative products and services to consumers and businesses without incurring high fixed costs.



OUR MILESTONES

OpenNet was established, as a consortium among Singtel, Singapore Press Holdings Limited, SP Telecommunications Pte Ltd, and Axia NetMedia Corporation.

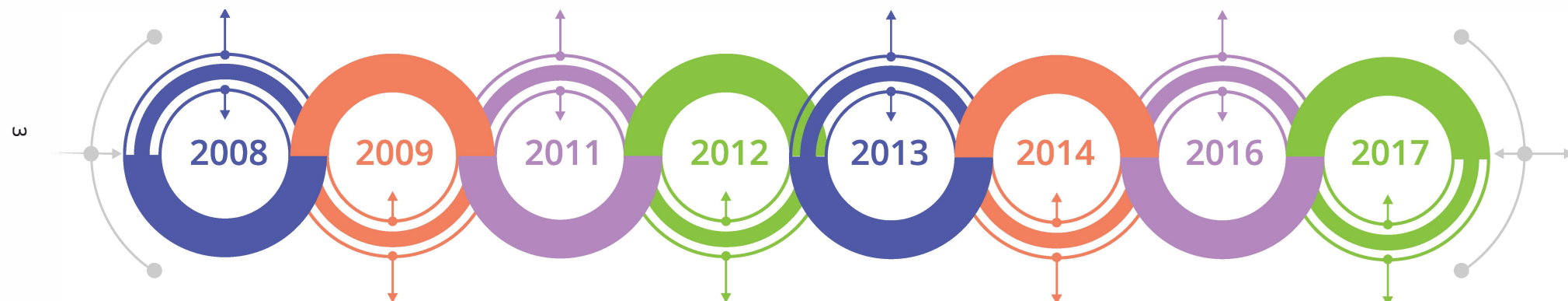
OpenNet was selected to install, operate and maintain the passive infrastructure and systems of the Next Gen NBN, pursuant to a competitive request for tender by IMDA⁽¹⁾.

NetLink Trust was established. Majority of the passive non-fibre infrastructure assets comprising underground ducts, manholes, and Central Offices required as part of the roll-out of fibre network for the Next Gen NBN were transferred to NetLink Trust from Singtel.

Next Gen NBN reached nationwide coverage with respect to residential homes and non-residential premises.

NetLink Trust acquired OpenNet as part of a consolidation process and increased its assets to include OpenNet's fibre network.

One million home subscribers.



OpenNet was issued a licence by IMDA to install, operate and maintain the passive infrastructure and systems of the Next Gen NBN.

OpenNet commenced roll-out of the fibre network for the Next Gen NBN.

Next Gen NBN was deployed to 95% of all residential homes and non-residential premises.

Additional passive non-fibre infrastructure assets that were required as part of the roll-out of fibre network for the Next Gen NBN were transferred to NetLink Trust from Singtel.

Integration of the Next Gen NBN fibre infrastructure and related Singtel assets into NetLink Trust was completed.

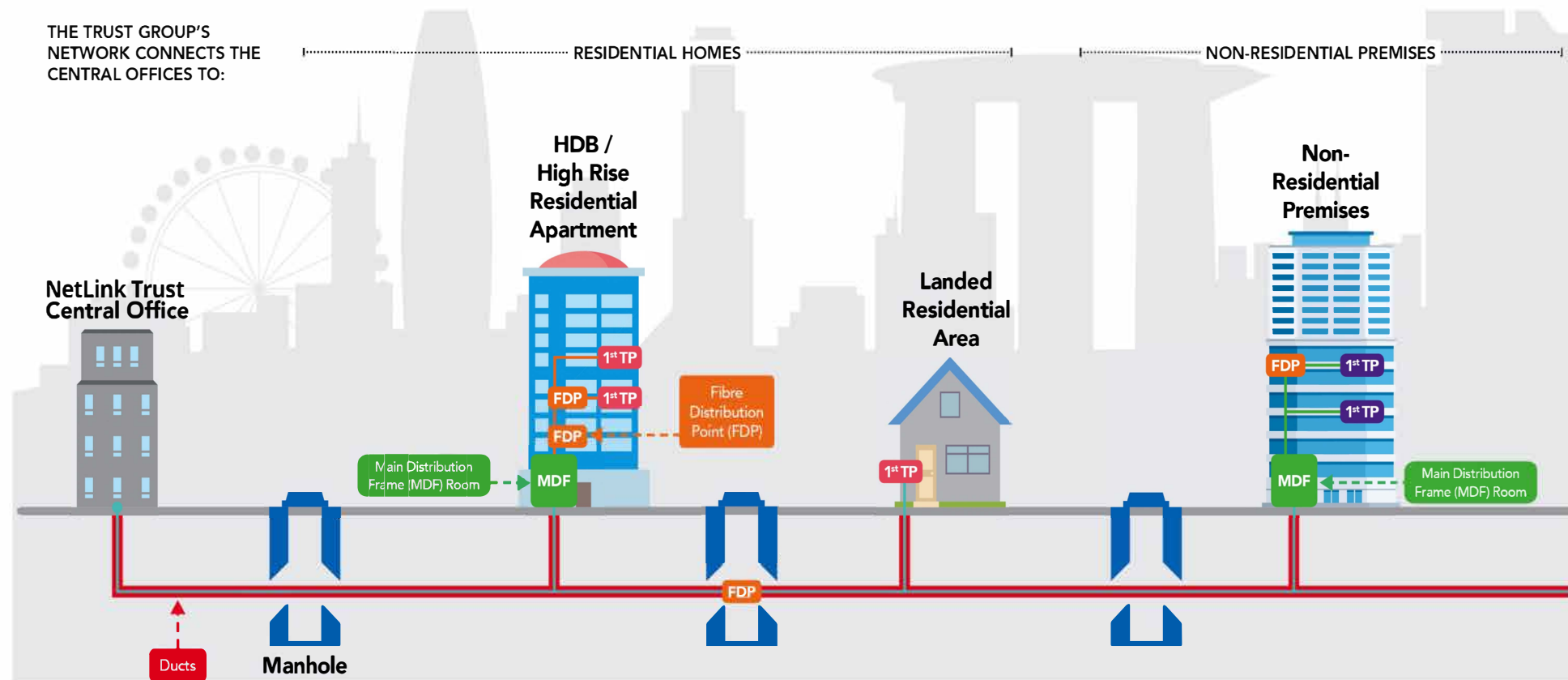
Remaining passive non-fibre infrastructure assets that were required as part of the roll-out of fibre network for the Next Gen NBN were transferred to NetLink Trust from Singtel.

NetLink NBN Trust was established. Listed on mainboard of SGX-ST.

⁽¹⁾ Info-communications Media Development Authority ("IMDA") also refers to its successor-in-title, and its predecessor the Info-communications Development Authority of Singapore ("IDA").

OUR NETWORK INFRASTRUCTURE

THE TRUST GROUP'S
NETWORK CONNECTS THE
CENTRAL OFFICES TO:



RESIDENTIAL

Residential

What is the process for Installation?

NetLink Trust will obtain the approval from the Managing Agent and/or the Management Corporation Strata Title (MCST)*.

2


When the contractor arrives at your premise, the work* will begin.

The cable will be connected at the Main Distribution Frame (MDF) room.

4

A person is using a handheld medical device, likely a pulse oximeter, to measure a patient's pulse. The device is blue and black with a small screen and several buttons. A green probe is attached to the device and is being held against the patient's finger. The patient is wearing blue jeans and a light blue shirt. The background is a plain, light-colored wall.

Upon completion of the work, you will sign on the Fibre Installation Service Report Form (SRF).

 Service Installation File Transfer / Residential		Serial No: NLT/ 0050001
Appointment Date & Time:		Arrival Time:
THE CUSTOMER OR OPERATOR (two persons) undertakes to read and understand the terms of the following as set forth below on the Installation and service presentation as indicated in this Form.		
Contact to (Name): (Name):	(DPF)	
Homeowner Address: Back Street: Unit No. 8	Street Name:	
Building Name:	Postal code: SE	
REMOTE OR OPERATOR (if different from Homeowner Address)		
Previous Address: Back Street:	Street Name:	
Building Name:	Postal code: SE	
I HEREBY DECLARATION (Please read in full in box as appropriate)		
<p><input checked="" type="checkbox"/> I am the owner of the above property. I agree to be bound by the terms and conditions set out in this document and the NetLink Trust "File Services Agreement" as published on NetLink Trust's website at www.netlinktrust.com.</p> <p><input type="checkbox"/> I, Name: _____, am authorized by the owner of the premises to sign this form and NetLink Trust's website and/or any correspondence to the premises and conduct the installation work. I agree to be fully responsible and indemnify NetLink Trust and its contractors for any liability, costs, losses, damages, expenses etc., arising from the homeowner discharging any authority or any services taken by NetLink Trust and/or its contractors to install, maintain, repair, replace, or remove the work and equipment set out in this document and the NetLink Trust's Services Agreement published on NetLink Trust's website at www.netlinktrust.com.</p>		
I HAVE READ AND UNDERSTAND THE TERMS AND CONDITIONS OF THE INSTALLATION FORM (SEE BOX AS APPROPRIATE)		
Overview:		

5B

If the contractor is unable to complete the work, you will need to sign an Appointment Advice Form.

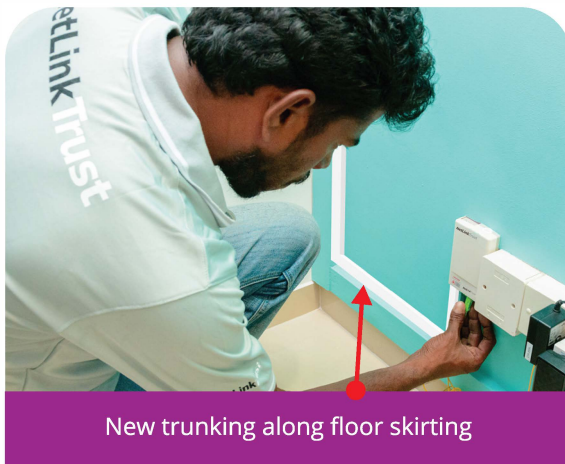
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STANDARD INSTALLATION

We only provide unplasticised polyvinyl chloride (uPVC) surface trunking during fibre installation. You may choose to run the trunking along the floor skirting or along the cornice/ceiling.

IMPORTANT THINGS TO NOTE:

- We will not use the existing trunking (within the premises) installed by other operators.
 - If you decide to use the existing trunking (excluding electrical trunking) within the premises, you will be asked to indemnify our appointed contractor against any claims arising from damage to existing cables and/or disruption to services as a result of the use of the existing trunking.
- Our contractor is strictly not allowed to use the external trunking installed by other service providers in the common area.

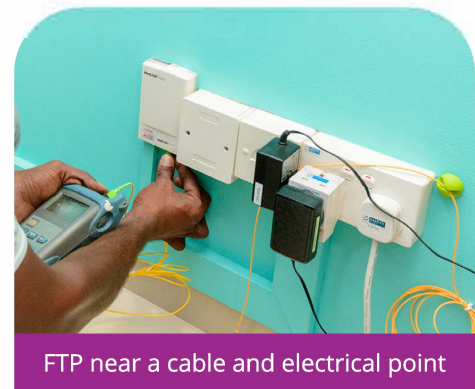
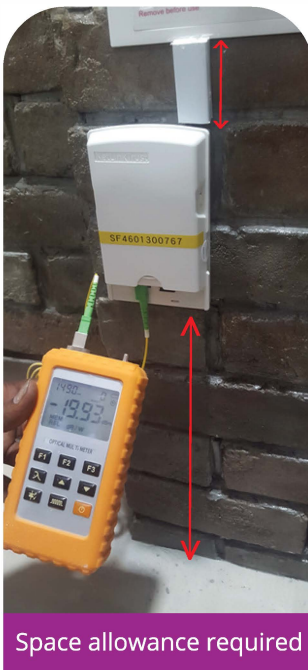


For safety reasons, we strictly do not share electrical trunking. Fibre cables should be separated from electrical cables at all intersection points to avoid any potential damage to the fibre cable.

LOCATION OF THE FIBRE TERMINATION POINT (FTP)

These are the points to consider when deciding on the location of the FTP:

- There should be a space allowance of at least 50mm above and 75mm below the FTP, utility outlets and/or structures.
- For premises with structured data cabling (cabling system supports multiple hardware uses), you have the option to install the FTP either in the utility closet or another selected location that meets the following requirements:
 - Near an electrical point;
 - Structured cabling RJ45 (min Cat 5 Cabling) connecting the utility closet or selected location to other parts of the premises such as living room, study room, bedroom; and
 - FTP remains accessible after installation.
- For premises without structured cabling, you have the option to install the FTP on a wall that meets either of the following requirements:
 - Television point with nearby electrical point in living room next to TV console to support data, voice and TV services, or
 - Selected location with nearby electrical point.
- The FTP should not be obstructed once it has been installed.



Once the FTP is installed at your selected location, kindly note that you will be required to pay for all charges applicable for any subsequent relocation of the FTP based on NetLink Trust's prevailing rates.

NON-STANDARD INSTALLATION

If you choose this method of installation, you will need to engage your own contractor to carry out such works.

Examples of Non-Standard Trunking or Concealment of Cable:



Concealment through cornice



Concealment through access panel



Installation on fixture

IMPORTANT THINGS TO NOTE:

- If you engage our contractor for a non-standard trunking or concealment of cable work, it will be considered a private and mutual arrangement⁽¹⁾ between you and the contractor.
- You are responsible for the negotiation and agreement with the contractor for any terms and conditions relating to the non-standard trunking and concealment of cable work, process and charges.
- Payment will be made directly to the contractor's company. Upon payment, please request for a receipt from the Contractor's company.
- Our contractor does not carry out the removal of lighting or accessories attached to the false ceiling. You would need to ensure that the route is accessible prior to the appointment.



Removal of downlight from the false ceiling



NetLink Trust shall not be liable in any way for any matters pertaining to or arising from quality of works, cost, and damage to your property and/or interruption of services during the private engagement with the contractor.

⁽¹⁾ Please note that any private engagements are based on the contractors' availability and scope.

NON-STANDARD INSTALLATION GUIDELINES

Below are a set of guidelines to observe when engaging your own contractor:

- Identify a location where the Fibre Termination Point (FTP) and electrical points can be installed.
- Prepare a 'conduit or path' to the location to facilitate the installation.
- Provide electrical points and patch panel to the assigned location.
- You are encouraged to install structured cabling (minimum Unshielded Twisted Pair Cat 5 cable).
- Our contractor will not perform access panel cutting works. If necessary, please give instructions to your contractor. Access panels should be removable and have a minimum size of 450mm x 450mm to provide access for future maintenance.

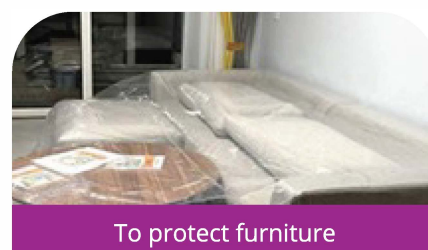


MOVEMENT OF FURNITURE/OTHER PERSONAL EFFECTS

What should you do prior to an appointment?

You are responsible for ensuring that the designated location for installation is accessible by our contractor.

- Please ensure that your furniture/other personal effects are well-protected before our contractor arrives, as he is not responsible to move or shift any furniture/other personal effects.
- If you request for our contractor to assist you in moving or shifting any furniture/other personal effects, neither NetLink Trust nor our contractor shall be liable for any damage caused to your property. The following will be observed prior to the assistance:
 - ☐ Allow NetLink Trust or our contractor to take a photograph of the furniture and its surrounding before and after the move or shift; and
 - ☐ You will need to acknowledge the agreement in the Fibre Installation Service Report Form (SRF).





RESIDENTIAL

What is the scope of work for Relocation, Repair and Replacement or Removal (RRR)?

RELOCATION

- Our contractor will relocate the Fibre Termination Point (FTP) from Point A to Point B within the same residential premises.
- The existing FTP and fibre cable will be removed only upon your request. Otherwise the existing FTP and trunking will be left intact.

REPAIR AND REPLACEMENT

- Our contractor will assess the fault with the FTP and/or fibre cable within the premises.
- Our contractor will replace the faulty cable with a new cable and/or replace the faulty FTP.

REMOVAL

- Our contractor will remove the existing FTP and fibre cable. The trunking will also be removed only if it was solely used to house NetLink Trust's fibre cable.



- ◆ Our contractor will only plaster over the gaps on the wall caused by the removal of the trunking/FTP.
- ◆ Our contractor will not undertake any painting/repair work.

NON-RESIDENTIAL

Non-Residential

NON-RESIDENTIAL

What happens during a handover of patch cord at the Main Distribution Frame (MDF) room?



NON-RESIDENTIAL

What happens during a handover of patch cord at the riser?



NON-RESIDENTIAL

What is the process for installation?

1

The appointed contractor will secure an appointment with the Building Management (BM) for the site survey.

2

Administrative documents will be prepared for BM's approval.



3

Depending on your request, installation, relocation, repair and replacement or removal works will be carried out. (The work should take no more than 4 hours.)



4

Cable will be connected at the Main Distribution Frame (MDF) room.



5

Signal connectivity tests will be conducted.



6

Fibre Installation Service Report Form (SRF) will be signed by you.

7

Your Service Provider will work with you to provide the necessary Optical Network Terminal (ONT) or Router.

Other Terms & Conditions:

Any additional cost requested by the BM such as non-refundable security deposit and escort charges shall be paid by the Service Provider/You.



NON-RESIDENTIAL

What is the scope of work for Relocation, Repair and Replacement or Removal (RRR)?

RELOCATION

Subject to the site situation, the relocation work will be done on the same day as the site survey.

- NetLink Trust will contact the Building Management (BM) to obtain access approval and the relocation work (if required).
- NetLink Trust's contractor will schedule an appointment with you.
- The contractor will relocate the Fibre Termination Point (FTP) from Point A to Point B within the same premises.

REPAIR AND REPLACEMENT

Subject to the site situation, the repair and replacement work will be done on the same day as the site survey.

- NetLink Trust will contact the BM to obtain access approval for the repair and replacement work (if required).
- NetLink Trust's contractor will schedule an appointment with you.
- The contractor will rectify the fault within the premises.

REMOVAL

- NetLink Trust will seek the BM's approval for access and removal work.
- The contractor will remove the existing:
 - FTP;
 - Fibre cable provisioned by NetLink Trust; or
 - Trunking only if it was solely used to house NetLink Trust's fibre cable.



- ◆ Our contractor will only plaster over the gaps on the wall caused by the removal of the trunking/FTP.
- ◆ Our contractor will not undertake any painting/repair work.

OUR SHARED RESPONSIBILITY

COMMERCIAL TENANT:

- Determine the position of the FTP.
- Provide the cable tray (if required) within your unit for the fibre cable installation.
- Approve the fibre cable routing.

BUILDING MANAGEMENT (BM) / MANAGEMENT CORPORATION STRATA TITLE (MCST):

- Allow access into the building/tenants' unit/Main Distribution Frame (MDF) room and/or telecoms risers for surveys/maintenance/installation.
- During the site survey, a BM representative with knowledge of the building structure and cable routing must be present.
- Approve the installation proposal promptly.
- If the existing conduit/cable tray is unavailable/unserviceable/unusable in NetLink Trust's view, the BM may need to provide the conduit/cable tray.

NETLINK TRUST:

- Install fibre cable from NetLink Trust's node* to tenants' unit via surface trunking.
- NetLink Trust will provide the necessary tools and equipment (eg: Scaffold Tower, Scissor Lift etc) if the installation is located at a height of more than 3m above floor level.

*Existing NetLink Trust's node is located in designated Main Distribution Frame (MDF) room or telecoms riser.

SITUATIONS DELAYING YOUR APPOINTMENT

Situations Delaying
Your Appointment

WHY IS THERE A DELAY IN MY APPOINTMENT?

There are several situations that might result in a delay in your appointment, below are some common reasons:

1. Use of Non-Standard Trunking or Concealment of Cable

You will need to engage your own contractor to carry out the works. Our contractor will proceed with the installation once the works are completed. (Eg: running the fibre cable through the access panel, use of GI conduit)



2. Building Management (BM)

BM has not given NetLink Trust the necessary approval, you can expedite the process by obtaining permission from the BM to grant NetLink Trust access to the building / Main Distribution Frame (MDF) room / facilitate fibre routing / opening of the false ceiling.



3. Pending Home Owner's Action

If your premises is still under renovation, our contractor will not be able to proceed with the installation.



Please contact NetLink Trust at 6563 4273 once your premises is ready and/or approval has been obtained.

4. Serving Cabinet Access Issue (located in another building Main Distribution Frame (MDF) room)

- Provisioning time may be delayed if NetLink Trust has difficulty in obtaining the Building Management's (BM) approval to access the serving cabinet. NetLink Trust will work with IMDA and the BM to resolve the issue.
- Once approval has been obtained, our contractor will contact you to resume the installation work.



The approval process may take several weeks, depending on the BM.

5. Network Issue

Many factors may cause a network issue:



- If our contractor is unable to rectify the issue on the day of the appointment, he will feedback to NetLink Trust.
- Our contractor will arrange with you or the BM to access the serving cabinet and/or your unit.
- Network tests will be carried out. Any issues will be reported back to NetLink Trust.

Depending on the issues encountered, our contractor will follow-up with you to resume installation once he has received the necessary approvals and/or after the network issues have been resolved.

6. Obstruction of Manhole

Our contractor will inform the vehicle owner via a letter of the pending works and will request for the vehicle to be moved.

Once the obstruction is cleared, our contractor will follow up with you to resume the installation.



Car over manhole

7. Height and Safety Issues

NetLink Trust will provide appropriate tools and equipment for the installation works.



Scaffold Lift



Scaffold Tower

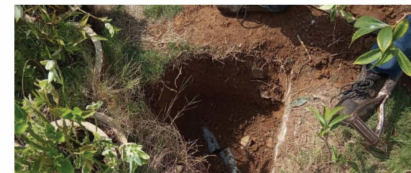
If the site environment is not safe to work, our contractor will not proceed with the installation.

8. Internal Pipe Blockage within your Compound

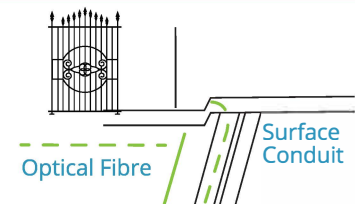
You will need to engage your own contractor to clear the blockage in your premises within 1 month from your initial appointment.

Once the blockage is cleared, please contact us to schedule an appointment to complete the installation.

Alternatively, our contractor can proceed with the appointment if you are agreeable for surface conduit installation from the gate post / point of entry into your premises.



Example of internal pipe blockage



9. No Lead-in Pipe

If there is no lead-in pipe, our contractor will not be able to proceed with the installation.

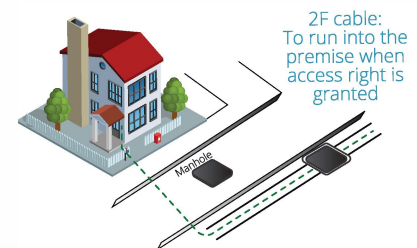
You would need to provide the lead-in pipe according to the COPIF, once completed, please contact our contractor to connect the pipe.

Following which, our contractor will contact you to schedule an appointment to complete the installation after the lead-in pipe has been connected.

10. External Pipe Blockage

The external pipe might be blocked, damaged or it could not be located due to wear and tear of the pipe, soil movement dislocating the pipe, pipe damaged due to renovation, addition & alteration or redevelopment works.

Our contractor will not be able to proceed with the installation. He will need to apply for the necessary permits from the relevant authorities. Once the permits have been approved and cable detection completed, our contractor will carry out excavation works to perform the pipe repairs. Upon completion, our contractor will get in contact with you to resume the installation.



Layout of fibre cable from exterior and into your premises via underground pipe.

! The rectification process may take up to 3 months.

11. Internal/External Pipe Blockage

You will need to clear the internal blockage within your compound at your own cost. Once it has been rectified, please inform NetLink Trust.

Our contractor will proceed to apply for the necessary permits to clear the blockage outside your compound. Once rectified, you will be contacted to resume the installation.

NEXT GENERATION NATIONWIDE BROADBAND NETWORK

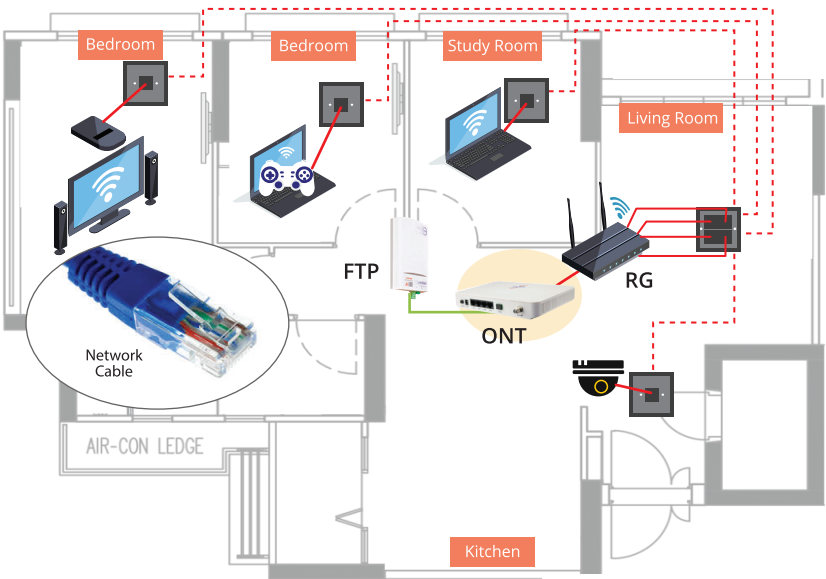
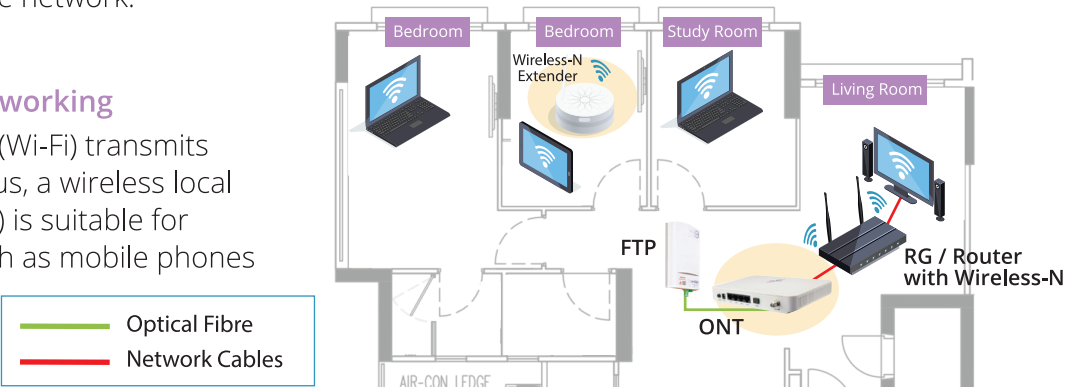
With the Next Generation Nationwide Broadband Network (Next Gen NBN), you are able to enjoy faster downloads and uploads, as well as services such as high-definition on demand video over their Fibre Termination Point (FTP).

You may wish to contact your Service Provider for the Optical Network Terminal (ONT) / Residential Gateway (RG).

There are multiple ways for setting up and connecting to the high-speed fibre connection network among multiple users and devices. Below are the available networking options to explore for your home network:

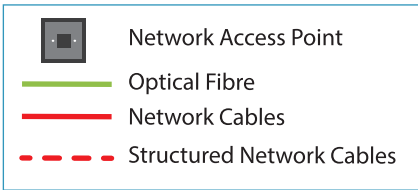
Option 1: Wireless Home Networking

Wireless technology (Wi-Fi) transmits data over the air. Thus, a wireless local area network (WLAN) is suitable for portable devices such as mobile phones and tablet devices.



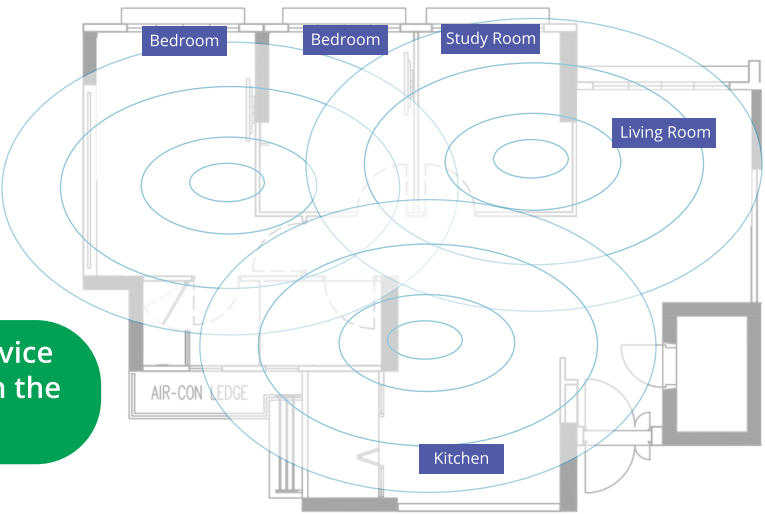
Option 2: Structured Network Cabling

Network cables are laid to different rooms within the home, and then terminated into network access points.



Option 3: WiFi Mesh

Overcome WiFi blind spots by setting up the WiFi Mesh units across your home. It expands the coverage around your home.



 You may approach your Service Provider for more details on the home networking options.

NetLinkTrust

the fibre of a smart nation

T (65) 6563 4273
www.netlinktrust.com

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