

UNCLASSIFIED

nbn Update: monitoring in the **nbn** era

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Multi Technology Mix

94%

FTTP / FTTN / HFC
(24%) (42%) (28%)

No

Battery backup for
FTTN /HFC

No UNI-V
for FTTN /HFC

NTD

Installation &
nbn equipment for
FTTP / HFC
but **not for FTTN**

Test

for success

Copper

being disconnected in
FTTP/FTTN/HFC areas



What does FTTH & HFC look like?



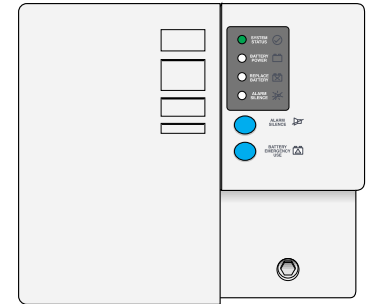
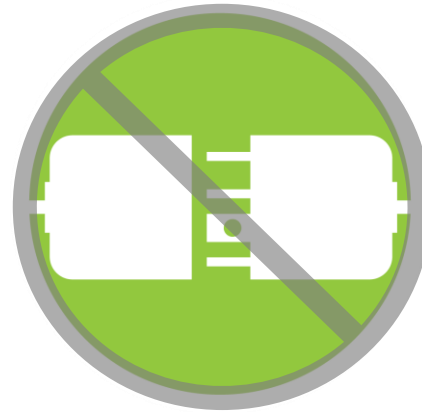
HFC looks like this...

nbn provide an NTD.

RSP / ASP will need to provide gateway / ATA








No Exchange or UNI-V-based analogue voice*

No nbn supplied battery backup

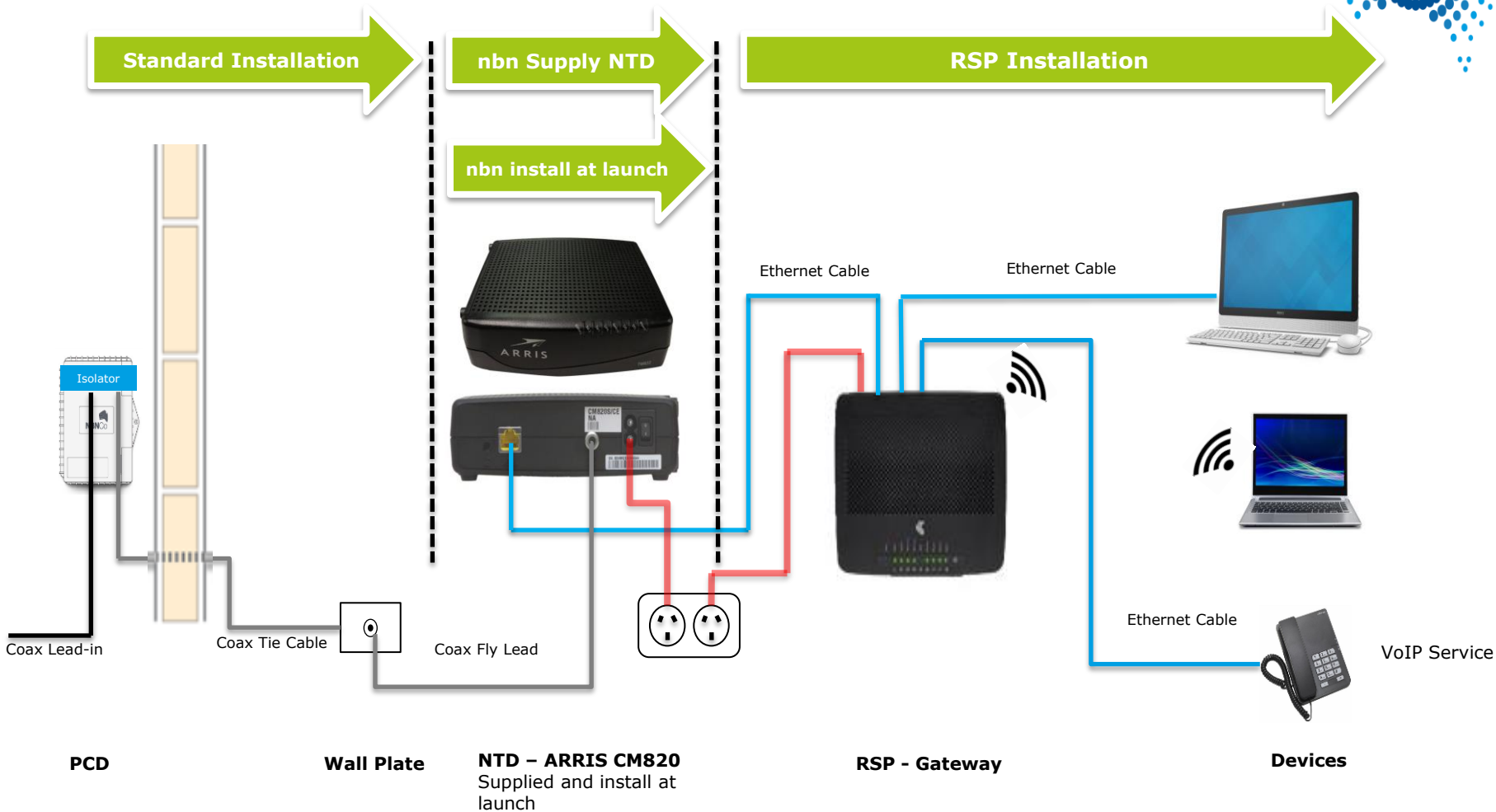


HFC In Home Equipment



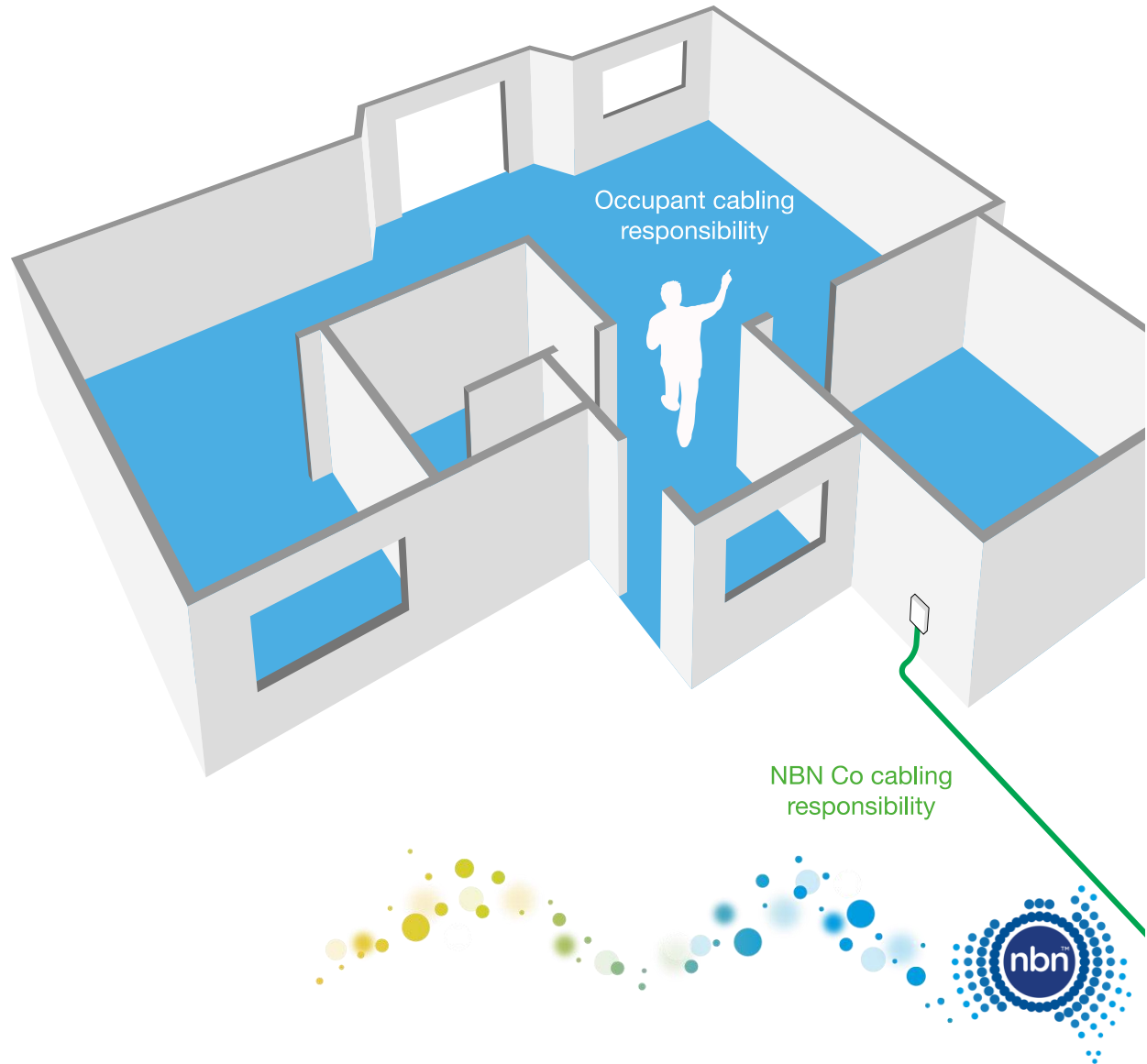
No	Equipment Image	Equipment Name	nbn Supplies	Standard Install at Launch	Standard Install
1		PCD External	✓	✓	✓
2		Wall Plate	✓	✓	✓
3		F Connector Splitter	✓	✓ When required	✗
		Coax Fly Lead Typically 1.5M x 2	✓	✓ Second lead when required	✗
4		NTD DOCSIS 3.0/3.1 Cable Modem	✓	✓	✗
		Ethernet Cable	✗	✗	✗
5		Gateway RSP / EU supplied	✗	✗	✗

NTD - CM820 Installation at Launch



Cabling still end-user responsibility

- **nbn** will connect broadband to existing phone and cable sockets in a home.
- Other wiring inside the home is the occupant's responsibility.
- Existing phone sockets won't have dial tone* unless connected to VoIP gateway by a registered cabler – at end user cost.



In the premises - installation

- **nbn will initially install lead-ins, (where necessary) and the NTD.**
- **In a year; potentially RSPs / ASPs will be able to do this install.**
- **Service providers & end-users will be responsible for all cabling & equipment beyond the NTD/Modem, i.e. home gateway.**

NOTE:

- **nbn** will not provide 'User Network Interface – Voice' (UNI-V) port for HFC.
- **nbn** will not provide battery back-up for NTD/Modem (providers could).
- **nbn**[™] network is not assured to work in a local power outage, even if NTD/modem has battery backup in premises.



HFC - Installation and Migration

Premises within a designated area (SAM):

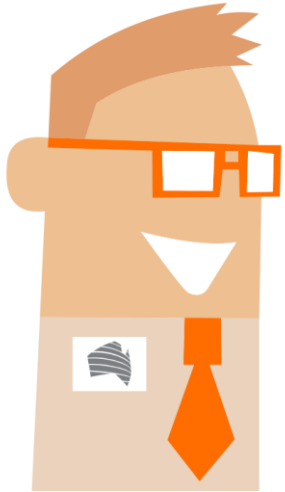
- All premises in a designated area will be able to order a HFC service when **nbn** is made available in that given area
- Premises where cable is already available, no technician visit will be required to install the NTD/Modem. Shipping and installation of NTD & gateways will remain the responsibility of the service provider
- Premises without cable will need to place an order with their service provider to have **nbn** come out and do the additional work required to ensure connectivity for that premises. Shipping and installation of the NTD & gateways will remain the responsibility of the service provider.

NOTE:

- **nbn** will migrate existing active HFC services, and install new HFC services, at zero charge for standard installations.
- **nbn** understands that there may be a market need for the installation of additional HFC wall-plates in a premises, or re-location of existing wall-plates. **nbn** proposes to make this option available as an orderable item with an appropriate service charge.



HFC – Multi Dwelling Units



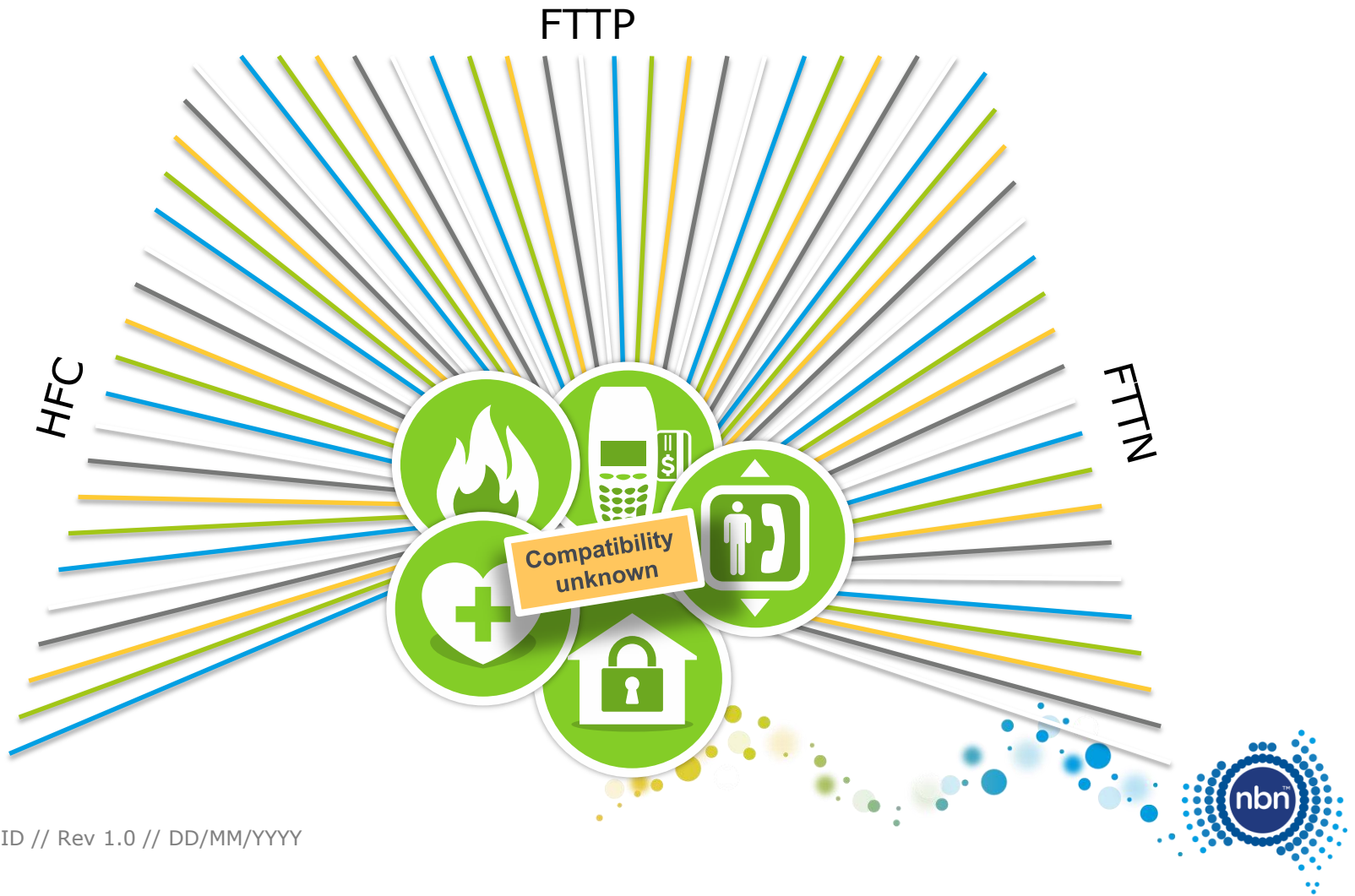
- **nbn** intends to utilise HFC technology in residential MDUs that have existing HFC cabling already installed within the building, as well as those MDUs that are too small to justify an FTTB build,
 - i.e. there are too few individual premises to justify the installation of an FTTB node.
- Larger residential MDUs that do not already have HFC infrastructure installed will likely receive FTTB.
- Similarly for commercial MDUs, **nbn** will install HFC infrastructure for buildings/complexes with a small number of individual businesses. Larger commercial MDUs,
 - e.g. shopping centres, will likely receive FTTB or FTTP



Plug Bench was created to address a problem

HFC Testing available July / Aug 2016

VoIP: Different Access Tail + RSP + CPE + VoIP service types



High risk of compatibility failure across product lifecycle

Device compatibility

Checking and documenting compatibility was a challenge under FTTP.

However, under MTM, the compatibility matrix becomes:

Alarm	PSTN	NBN UNV RSP 1	NBN UNV RSP 2	NBN UNV RSP 3	NBN UNV RSP 4	NBN UNV RSP 5	NBN UNV RSP 6	NBN UNV RSP 7	NBN UNV RSP 8	NBN UNV RSP 9	NBN UNV RSP 10	NBN UNV RSP 11	NBN UNV RSP 12
Alarm 1	✓	✓	✗	✗	✗	✓	✓	✗	✓	✓	✗	✗	✗
Alarm 2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✗	✓	✓	✗
Alarm 3	✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✗	✓	✗

Alarm	PSTN	FTTN RSP 1 CPE A	FTTN RSP 1 CPE B	FTTN RSP 2 CPE A	FTTN RSP 2 CPE B	FTTN RSP 3 CPE A	FTTN RSP 3 CPE B	FTTN RSP 4 CPE A	FTTN RSP 4 CPE B	FTTN RSP 5 CPE A	FTTN RSP 5 CPE B	FTTN RSP 6 CPE A	FTTN RSP 6 CPE B
Alarm 1	✓	✓	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗
Alarm 2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	✓	✗
Alarm 3	✓	✓	✗	✗	✓	✓	✓	✓	✓	✗	✓	✓	✗

Alarm	PSTN	HFC RSP 1 CPE A	HFC RSP 1 CPE B	HFC RSP 2 CPE A	HFC RSP 2 CPE B	HFC RSP 3 CPE A	HFC RSP 3 CPE B	HFC RSP 4 CPE A	HFC RSP 4 CPE B	HFC RSP 5 CPE A	HFC RSP 5 CPE B	HFC RSP 6 CPE A	HFC RSP 6 CPE B
Alarm 1	✓	✓	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗
Alarm 2	✓	✓	✓	✓	✓	✗	✗	✓	✓	✓	✓	✓	✗
Alarm 3	✓	✓	✗	✗	✓	✓	✓	✓	✓	✗	✓	✓	✗

Alarm	PSTN	HFC RSP 7 CPE A	HFC RSP 7 CPE B	HFC RSP 8 CPE A	HFC RSP 8 CPE B	HFC RSP 9 CPE A	HFC RSP 9 CPE B	HFC RSP 10 CPE A	HFC RSP 10 CPE B	HFC RSP 11 CPE A	HFC RSP 11 CPE B	HFC RSP 12 CPE A	HFC RSP 12 CPE B
Alarm 1	✓	✓	✗	✗	✗	✗	✗	✗	✓	✓	✗	✗	✗
Alarm 2	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗
Alarm 3	✓	✓	✗	✗	✓	✓	✓	✓	✓	✓	✓	✓	✗

Ongoing lifecycle risks

While existing and future fixed line solutions can work, there are a number of lifecycle factors that can cause the solution to fail, including:

Performance in a blackout

- Services unlikely to work in a power outage

Churn can break compatibility

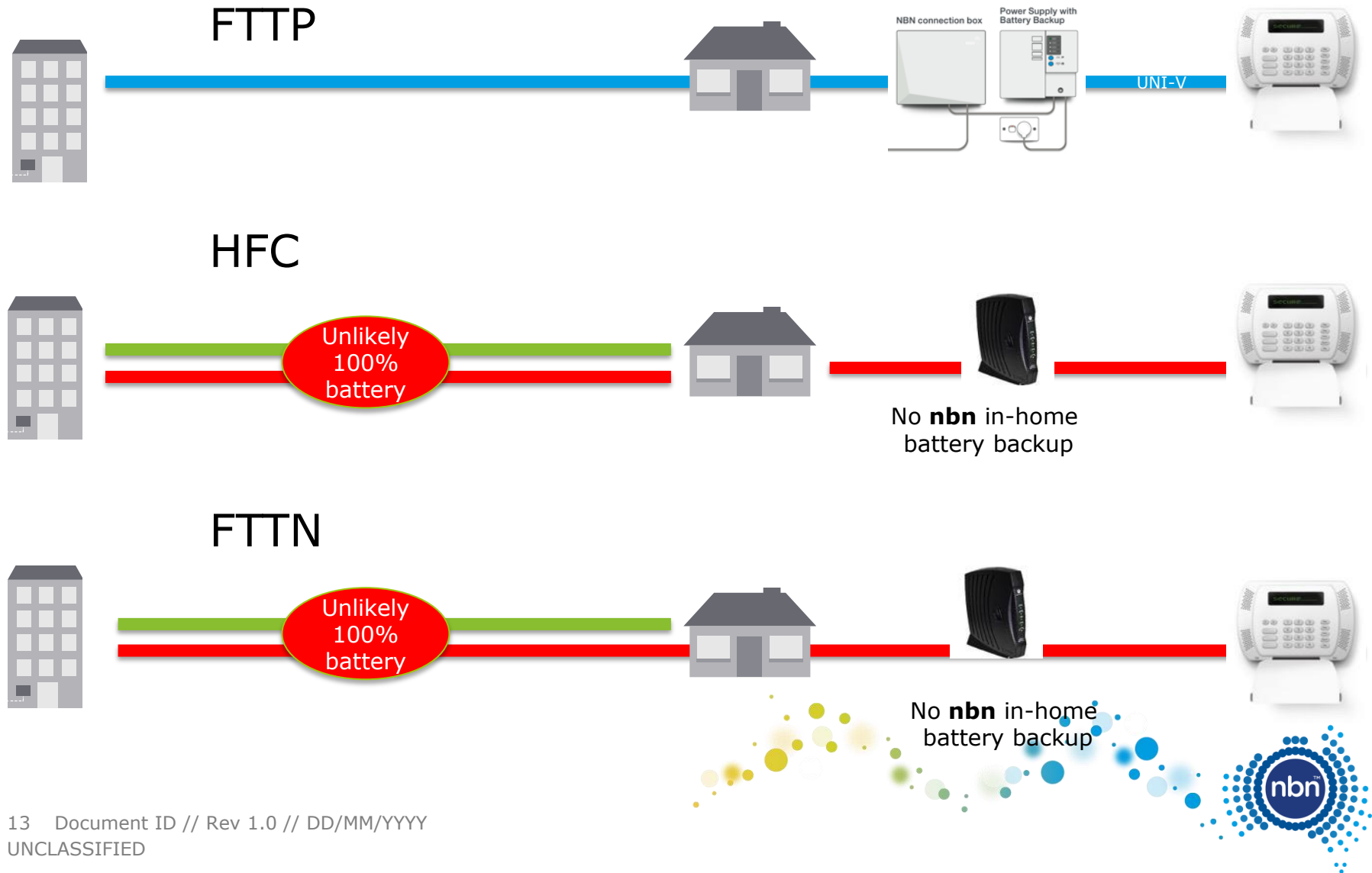
- Churn between RSPs
- RSP VoIP changes
- Cross-product churn
- CPE updates/replacement

Maintaining compatibility matrices under MTM becomes impractical

Even following successful migration, there is an ongoing risk

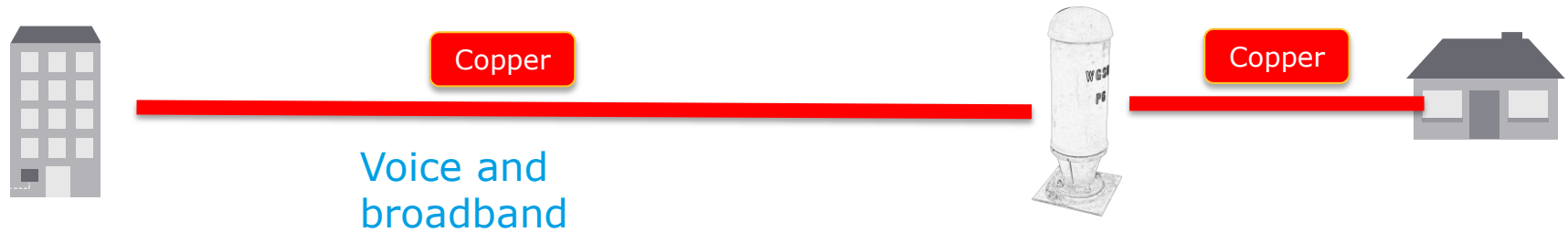


Network availability in a blackout



Copper is still being disconnected

Existing network



HFC



This means **all** phone services will be voice over IP – no more exchange-based analogue phone lines.*



So will it work on the **nbn**?

Are you on
nbn FTTP, FTTN
OR HFC?

What model of
modem do you
have?

Do you have a
central splitter
installed?

Let me check if we
have tested your
XXX device with
RSP XYZ modem
on FTTN or the
nbn NTD on HFC

What are the options for communications?

Copper

\$30 - \$40 /mth
(to customer)

Broadband IP
(inc VoIP)

\$30 - \$40 /mth
(to customer)

3G

~\$2-\$5 /mth
(to XXX)



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~\$2 - \$5 /mth
(to XXX)



HFC – Summary of key points

- Launch date 30 June 2016
- HFC will predominantly be offered in urban areas:
 - 77 of the existing 121 permanent (POIs) will be used to deliver HFC.
- **nbn** will initially do the installation work with a view in late 2017 that may allow other parties to perform the installation work i.e. RSPs / ASPs.
- Similar to FTTP & FTTN/B, the existing copper-based PSTN voice environment will continue to operate in a given area during the 18 month migration period.
- Similar to FTTP, the copper based PSTN service can continue to work in parallel to HFC until the copper disconnection date.

Two devices will be required in the premises:

Device 1) Network Termination Device/Modem: supplied, configured and maintained by **nbn**.

Device 2) Gateway: Typically supplied, configured and maintained by the service provider



What's Next?

Key Dates

- **HFC Q2 2016** – 30 June 2016
- **FTTN Q3 2015** – Fibre to the Node (FTTN) initial product release
- **FTTB Q1 2015** - Fibre to the Building (FTTB) initial product release

More information

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03 9601 5273

How can nbn Co help you?

Disconnection Address Database (DAD)

- **nbn** has a list of addresses due for copper disconnection in the next 18 months.
- List of wireless areas
- List of areas identified pre disconnection date

Plug Bench – where you can continue to test your devices

More information about the **nbn** network options in homes



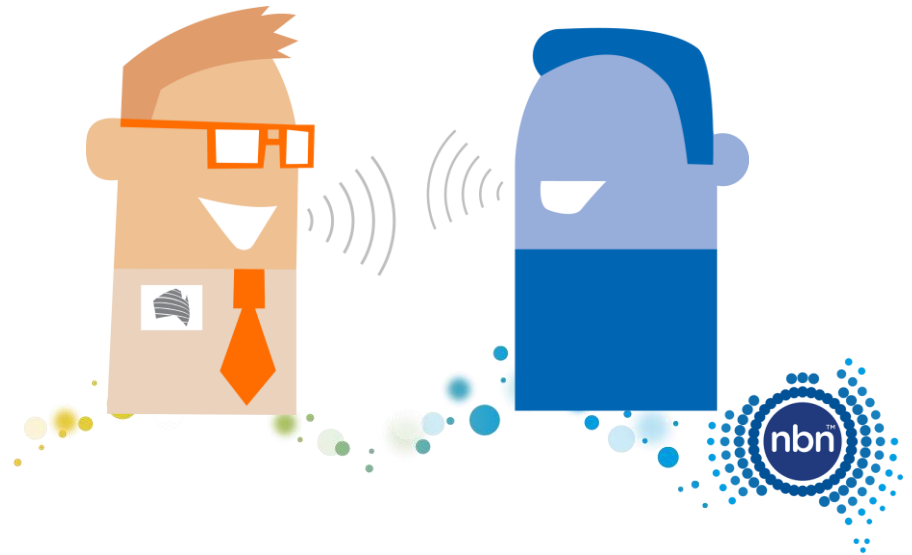
What you need to do

Actions

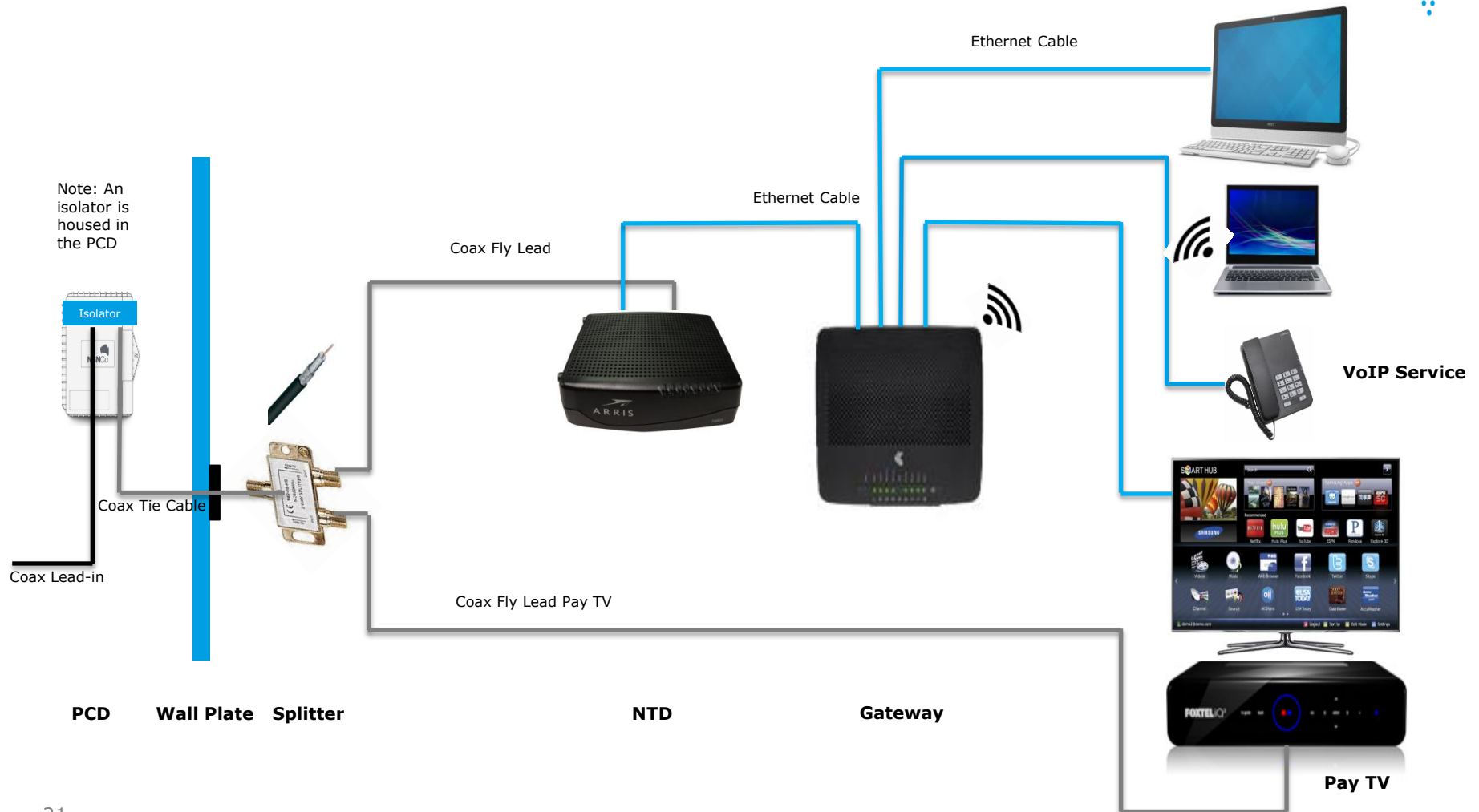
- Company position on IP migration (technology refresh)
- Migration & Communications Strategy
- Identification of affected customers
- Register your building (s)
<http://www.nbnco.com.au/connect-home-or-business/register-your-building-or-apartment-block.html>

More information

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HFC In Home Connection Set-Up With Pay TV Splitter After Wall Plate



Note: An isolator is housed in the PCD