

The Impact of the Digital Switch on Lift Alarms

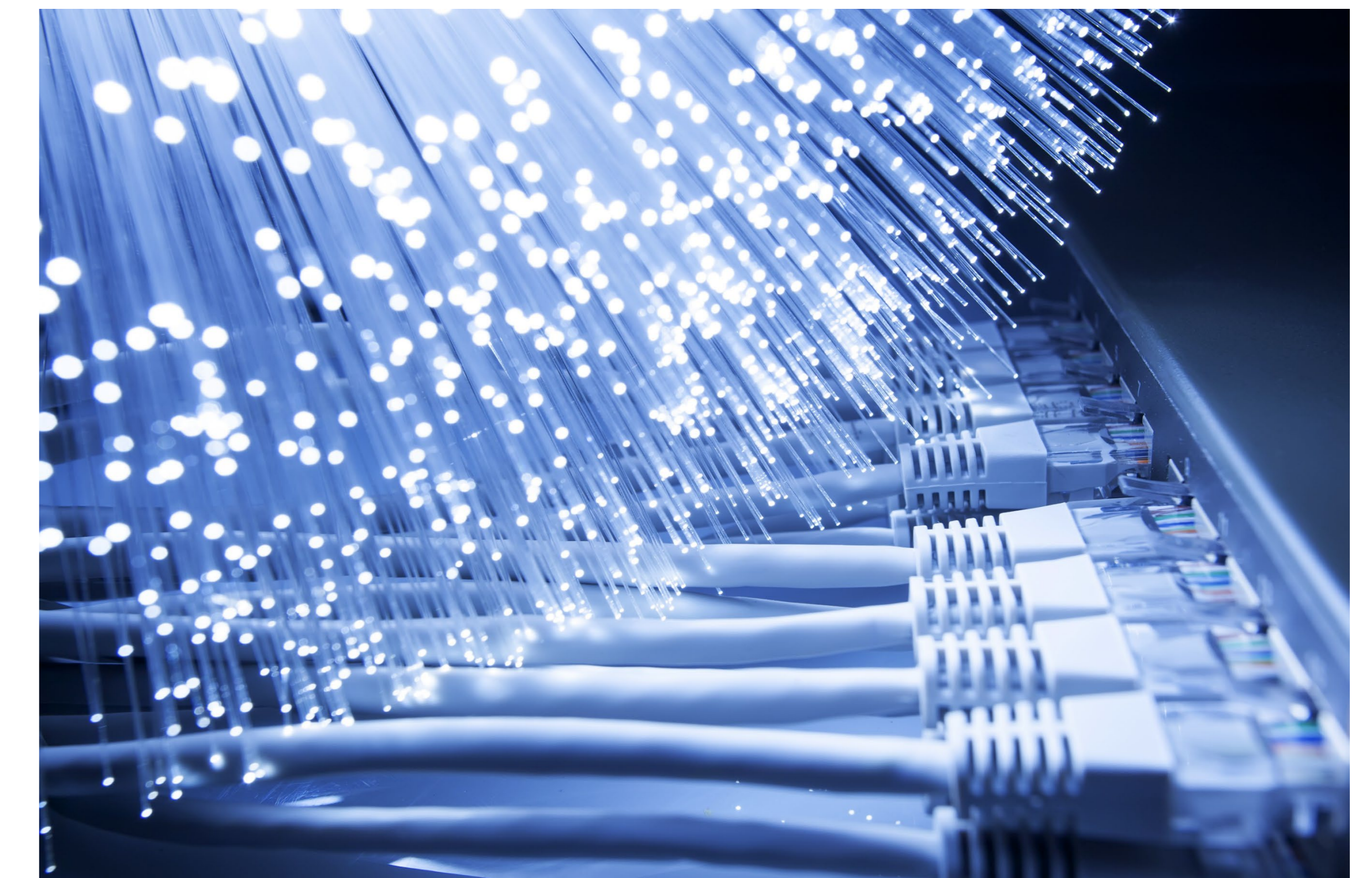
CIBSE Lifts Group 15/02/23



What is the 'digital switch'?

Nationwide mass upgrade of analogue copper telecoms infrastructure, to latest fibre based digital technology

- Also referred to as 'Fibre To The Premises' (FTTP)
- Copper network is no longer fit for purpose so needs to be upgraded to fibre optic due to our ever increasing demand for data
- This also means the end of analogue support on the public switch telephone network (PSTN, aka "Landlines"):
 - 48V power on phones lines removed
 - Reduction in, then removal of, support for analogue signalling (specifically 'dual tone multi-frequency', DTMF, signalling)
- Full fibre will deliver an estimated £59bn boost to UK productivity by 2025
- Previous changes to the PSTN have not affected lift alarms until now...



Impact on Lift Alarms

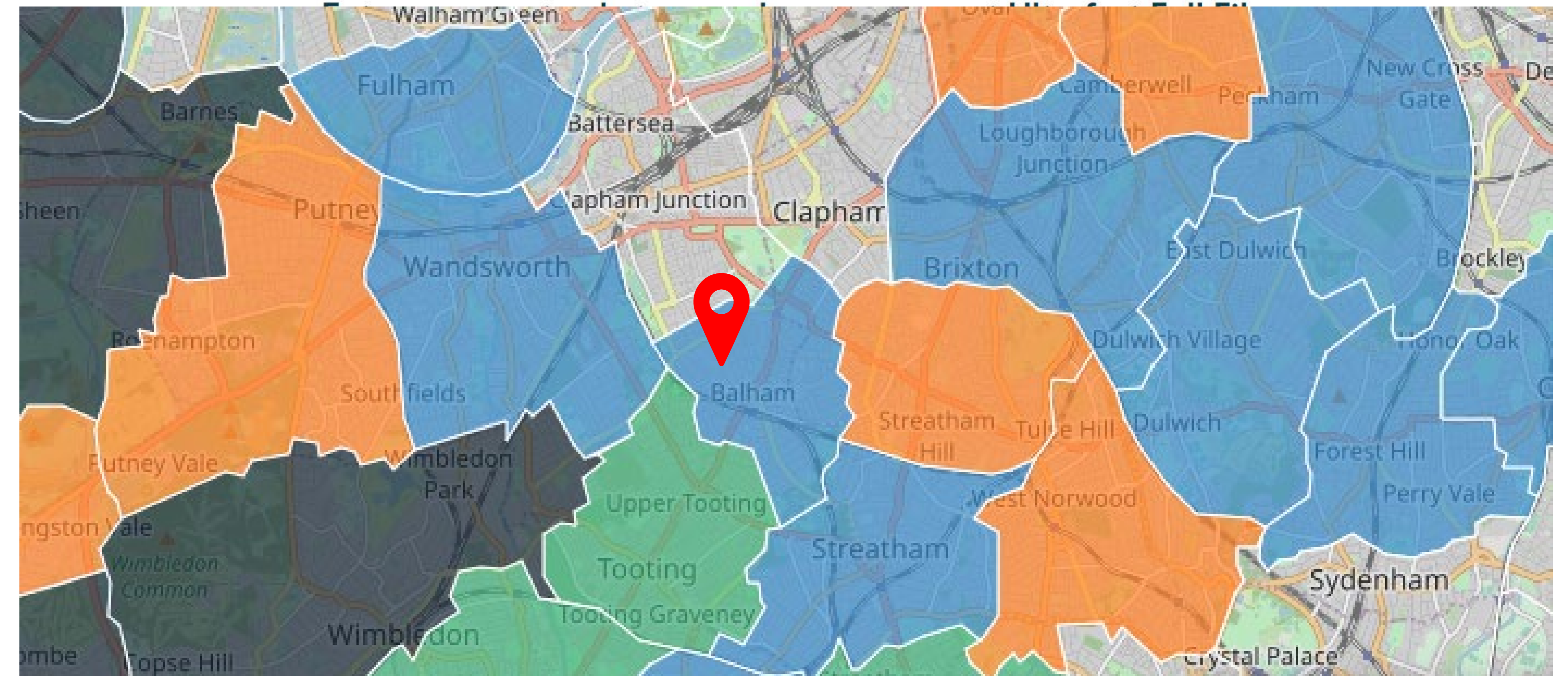
An estimated 257k lift alarms in the UK are still connected to landlines

- Vast majority of the lift alarms installed are analogue devices, so need analogue signalling to operate correctly - DTMF signalling is required for 3-day test calls
- Current analogue support on fibre lines varies between Communication Providers (CPs) today
- Mains power failure leads to fibre telephone lines failing (copper lines carried their own power)
- Analogue support will be completely *withdrawn* across the UK network in Dec 2025
- “Stop Sell” of analogue services in Sept 2023 will further increase the pace of the roll out/impact

Pace of change

7 million premises and counting...

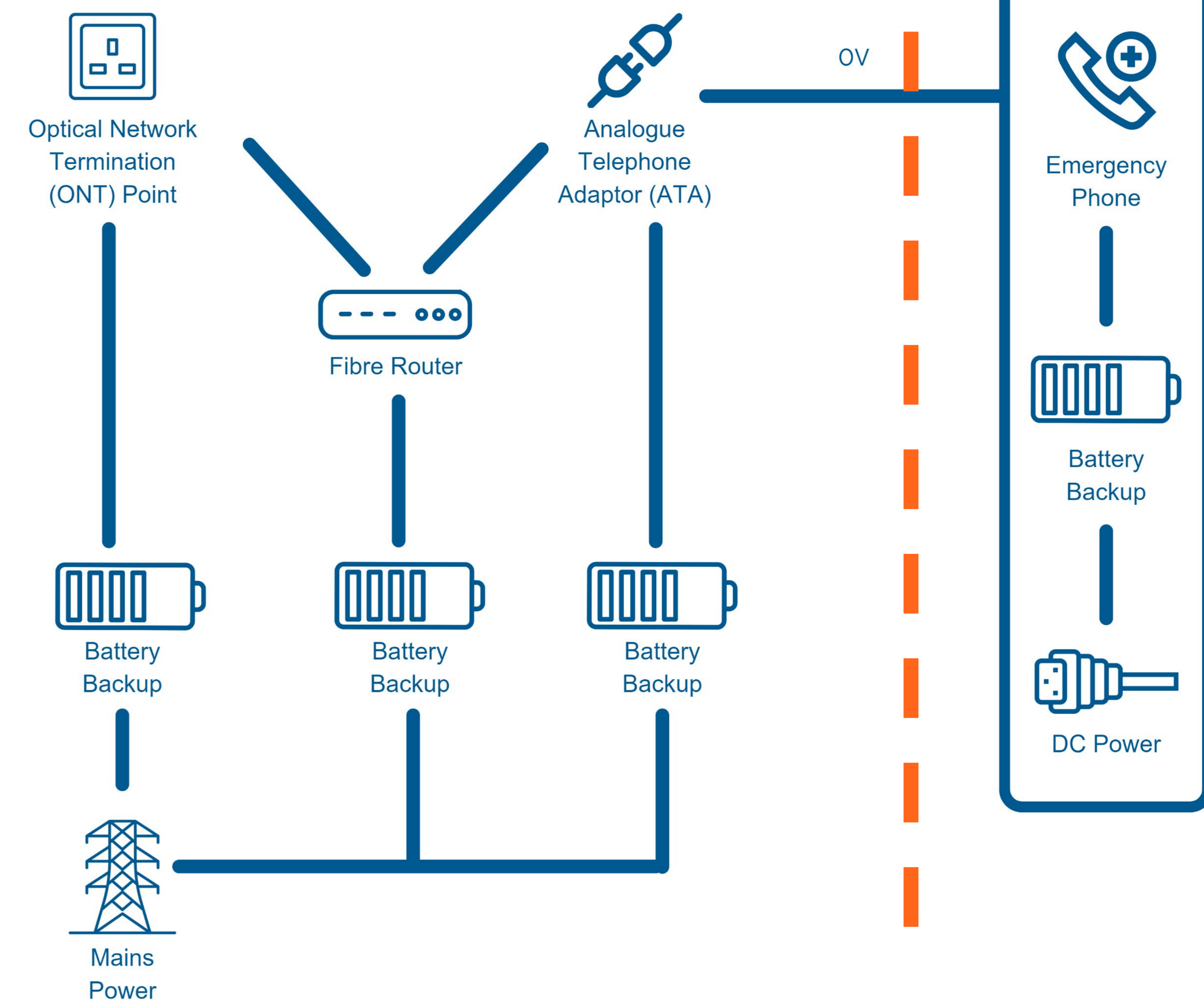
- 2019 - 685k premises served by fibre
- Targeting 3 million premises by end of 2020 – **4.8 million**
- Fibre now serves **7 million premises** in the UK, projected to reach 10 million by the end of the year
- ‘Stop Sell’ program aka “Stealth Copper Migration”
 - When an exchange reaches 75% fibre, no new analogue services can be ordered
 - Definition of “new” is very broad, including:
 - Change of CP
 - Working line take over
 - 658 exchanges are currently under Stop Sell
 - **September 2023** the UK will enter a National Stop Sell



Testing current technology

Test Labs and Field Trials

- 'Master socket' ("phone socket") will be replaced with an Optical Network Terminal (ONT) and a fibre router
- Avire have tested our equipment at the Openreach digital services lab which includes the following CPS: BT, TalkTalk, Sky, Vodafone, Zen
 - Avire has also run extended testing at the BT, TalkTalk, Sky and Virgin Media labs
- Field trial was conducted between Avire, Sky, Openreach (sponsor) and Galliard Homes
 - Part of work being done to assuage Galliard's concerns about fibre lines:
 - Lifts
 - Sewage pumps
 - Site offices
 - Case study published by Openreach – 'fibre worked adequately', however...

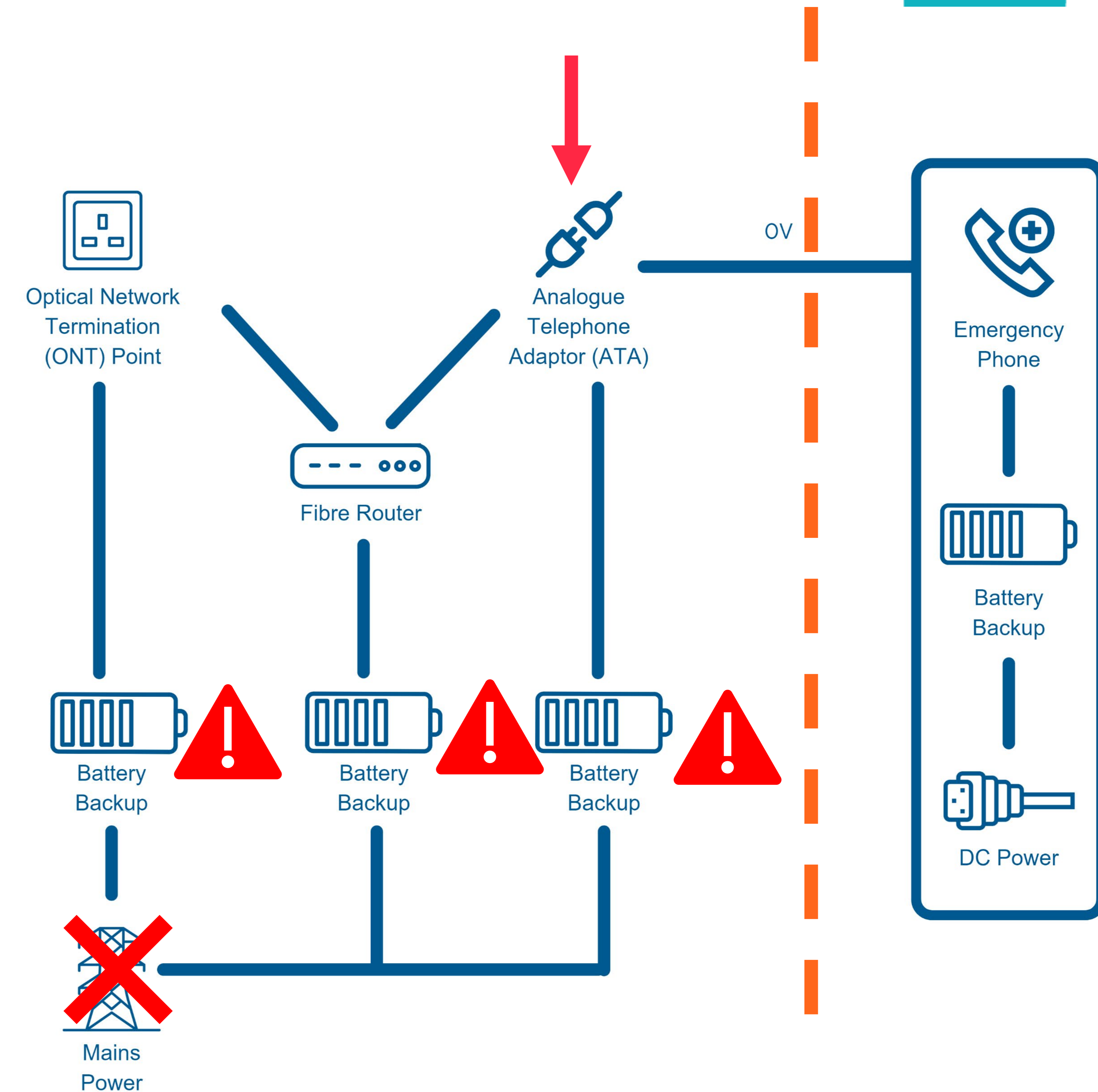


Testing

Battery Backups and ATAs

- Some CPs are using analogue telephone adaptors (ATAs) to allow existing analogue devices to connect to fibre lines
 - Performance varies between CPs
 - **Disruption of alarm calls** has been seen which is a concern
- Provision of battery backups is still unclear
 - Battery backups will **not** be provided as standard on fibre lines*
 - Lack of remote monitoring for battery backups means that on site visual inspection will be required; **risk of battery backup failing and the fault not being detected**

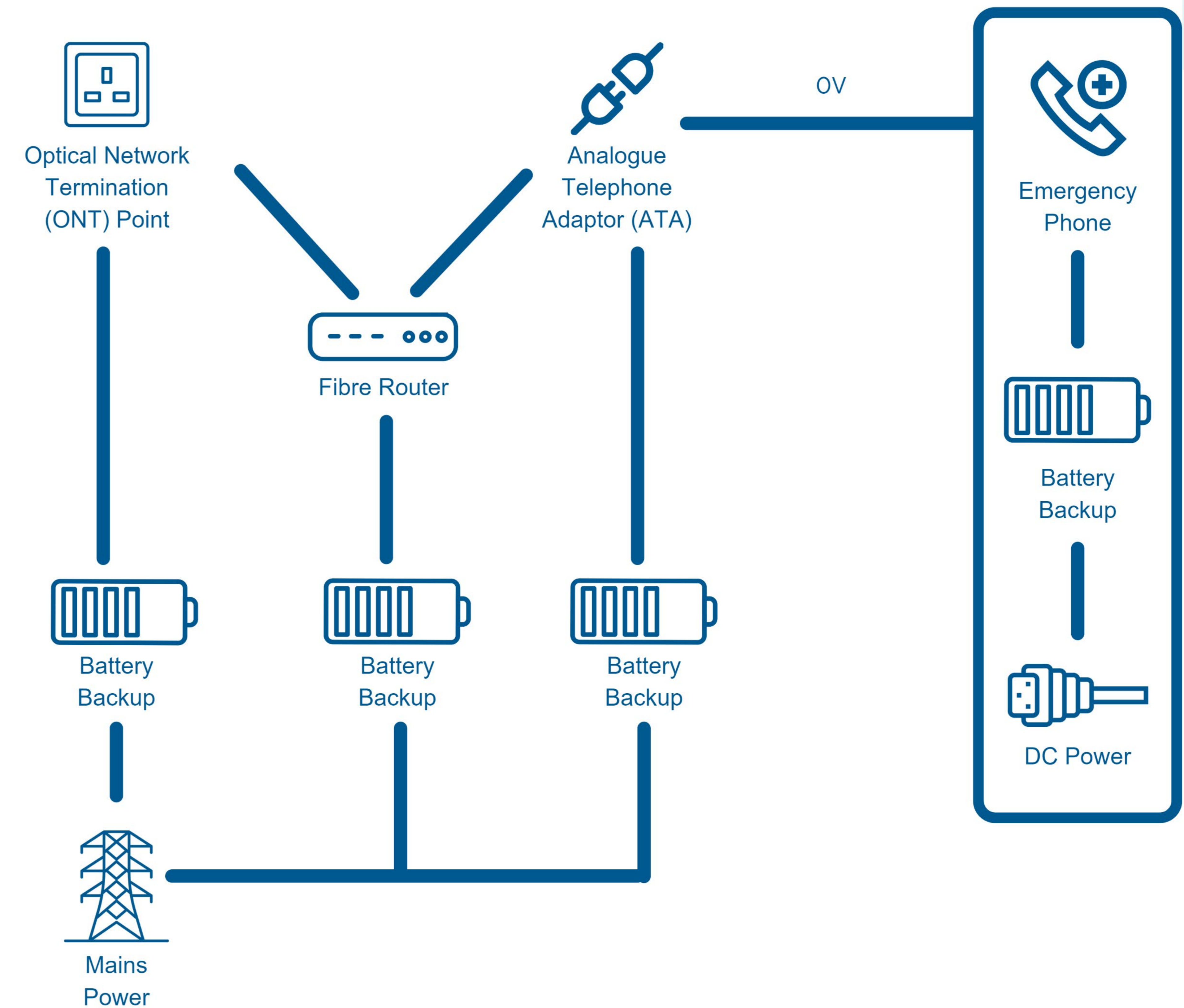
*Ofcom only require battery backups to be provided for 'vulnerable customers' and, even then, only to place 999 calls – not suitable for lift alarms



Solutions

Fixed Line versus Gateways

- Provision of a fixed line sits with the lift owner
- Australia and Switzerland lift industries moved 100% to gateways after their digital switches – too many concerns about the resilience of fibre lines in the event of power outages
- Alternative to a fixed line is a 4G gateway which can be provisioned & maintained by the lift maintenance provider:
 - In-built battery* *with remote monitoring*
 - Roaming (non-steered) SIM cards to maximise signal availability and strength



Mobile Network Sunsets

End of 2G/3G by 2025!

- Previous projections that 2G/3G would last until 2030-2033 have proven not to be valid
- UK sunset for 2G is now Dec 2025 for EE and Vodafone, with O2 expected to announce this year*
- In the mean time previous levels of support for analogue signalling (DTMF) are sharply declining
- **Don't get caught out fitting a cheap 2G gateway today only to replace it in 2025**
- **Many 4G gateways currently run their voice channel through the 2G/3G bands – these gateways will have to move to Voice Over LTE (VoLTE) to continue operating after 2025**
 - Impacts choice of SIM card as well as gateway
- Loss of DTMF support will be critical – to keep lift alarms in service opt for a 4G gateways which can convert DTMF to data

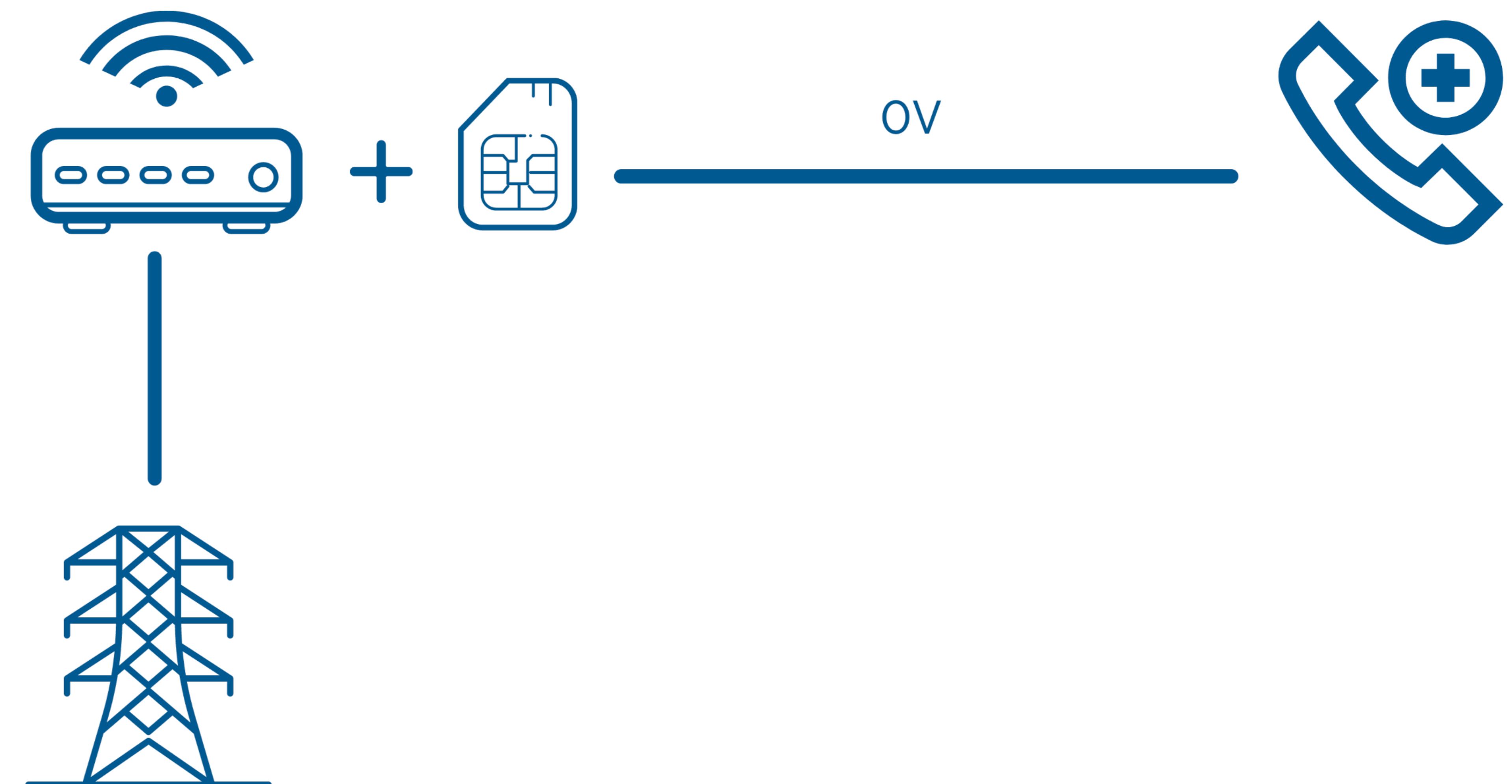
Territory	Operator	2G closure date	3G closure date
UK	EE	31/12/2025	31/12/2022
UK	Hutchison-Three	n/a	31/12/2024
UK	O2	TBC	TBC
UK	Vodafone	31/12/2025	31/12/2023



Solutions

Fixed Line versus Gateways

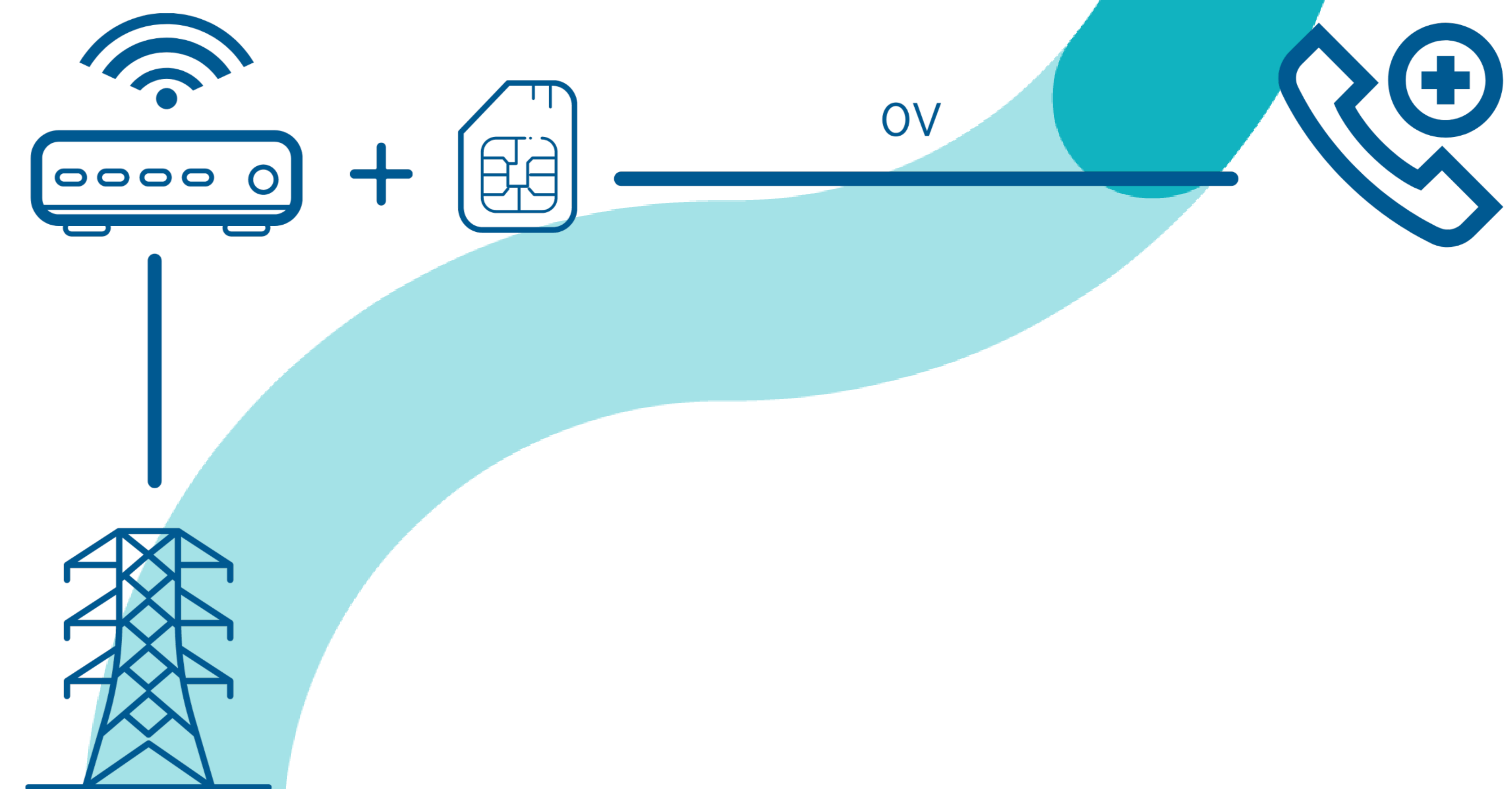
- Key Concerns:
 1. **Mobile switch off in the event of a disaster?** – Reports after ‘July 7th’ and ‘Manchester Arena’ attacks noted that switching off the mobile network hampered the rescue efforts
 2. **Mobile network congestion** – Possible, but the mobile network operators are constantly investing in bandwidth and coverage
 3. **“Can’t get signal”** – Use of roaming SIMs, high gain antennas, signal boosters and “don’t install the gateway top of car!” massively mitigate signal issues compared to even a few years ago
- These risks can be mitigated by moving to a managed connection service:
 - Provisioning of communication equipment
 - Signal monitoring, remote diagnostics and fault alerts
 - Battery monitoring and lifecycle replacements



Call to Action

Understand, Review, and Respond

- Lift owners need to understand the following:
 - Alarm equipment currently installed
 - Compatibility with a fibre line?
 - Fibre roll out status (especially STOP SELL) in their area
- Upgrade to a resilient solution:
 - Avoid 2G/3G gateways
 - Avoid unmonitored batteries
 - Gateways with DTMF to data conversion capabilities to keep existing lift alarms in service
- Lift owners need a long term plan for their connectivity:
 - Network sunsets will continue – we will not get 30 years on 4G
- Consider a managed connection service to ensure lifetime of 'communication means' matches lifetime of lift



THANK YOU

Matt Davies

Head of Strategic Marketing – Europe

Mobile: 07808641833

Email: matt.davies@avire-global.com

MEMCO
by AVIRE