

Research Briefing
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Digital telephone switchover

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Summary

Over the next few years, landline telephone services in the UK will switch to a fully digital network. This means phone calls will be carried over the internet.

Phone companies intend to withdraw the existing analogue telephone system, called the Public Switched Telephone Network (PSTN), by 2025. The PSTN is an aging network that is becoming harder and more expensive to maintain. Industry stakeholders have highlighted benefits of the switch to digital, such as improved call quality

The withdrawal of the PSTN is industry-led. It is not the direct result of Government policy. Decisions on migrating customers are made by the companies that operate and provide services on the network (for example, BT and Virgin Media). BT's new home phone service for digital calls is called [Digital Voice](#).

UK telecoms regulator Ofcom expects that most customers will see minimal disruption. Some customers may need more support from their phone service provider. For example, customers with only a landline service may require a phone adaptor to make calls compatible.

Unlike traditional landlines, digital phone lines will not work in a power cut without a backup power source. Ofcom requires providers to take measures to ensure uninterrupted access to emergency services including during a power cut. This could include, for example, a battery supply or mobile phone.

Concerns have been raised about the digital switchover following lengthy power cuts after [storms in late 2021 left customers without access to emergency calls](#) in areas with poor mobile signal.

Following these concerns, in March 2022, BT announced that it was [pausing its Digital Voice roll-out](#) while it worked on a more resilient programme.

Other devices that rely on the PSTN, such as telecare alarms, will also be affected by the switchover. The [Government says it is working with Ofcom](#) to ensure that consumers and affected sectors are protected and prepared for the switch.

Ofcom's website provides more information for consumers on [frequently asked questions about upgrading landlines to digital technology](#).

1 What is the digital switchover and why is it happening?

The Public Switched Telephone Network (PSTN) is the traditional analogue network that uses copper cables to carry landline voice calls between users.

The PSTN has been in place for decades – it is an old technology that is becoming costly and difficult to maintain. The availability of spare parts and engineering knowledge to maintain and repair it are decreasing globally.¹ It is also not capable of handling the speeds and data volumes demanded by modern telecommunications. As broadband connections are increasingly provided through fibre-optic rather than copper cables, it would not be financially viable for network operators to maintain the PSTN as a dedicated voice calls network.

Landline phone calls are therefore being migrated from the PSTN to fully digital services. This means calls are transmitted as data over the internet using the broadband network. Rather than plugging a phone into a wall-mounted phone socket, most landline customers will connect their telephone handset to their broadband router. The technology is called Voice over Internet Protocol (VoIP).

Openreach (the infrastructure part of BT Group) plans to retire the PSTN by the end of 2025.² Other network operators – Virgin Media and KCOM – plan to follow a similar timetable. There are many other telecoms providers that access the PSTN in order to offer landline services to consumers. Their customers will also need to migrate to VoIP before the PSTN is switched off.

Ofcom and industry stakeholders have highlighted benefits for consumers of the switch to digital, such as improved call quality, potentially cheaper calls especially abroad, and a greater range of services and features.³

Other countries are also switching to wholly digital phone networks. For example Germany, the Netherlands and Switzerland are close to the end of the migration progress.⁴

¹ Ofcom, [The future of fixed telephone services](#), 22 February 2019

² Openreach, [Upgrading the UK to Digital Phone Lines](#), accessed 22 February 2022. The Library briefing, [BT and Openreach](#) provides more information on the relationship between BT and Openreach.

³ Ofcom, [The future of fixed telephone services](#), 22 February 2019, para 2.3. Openreach, [Getting ready for digital phone lines: For my home or business](#), accessed 9 September 2021.

⁴ Plum Consulting for the Broadband Stakeholder Group, [Preparing the UK for an all-IP future](#) (PDF), 20 December 2018; Wik-consult paper for FTTH Council Europe, [Copper switch-off: European experience and practical considerations](#), 30 November 2020, page 19

2 What is the role of the Government and Ofcom?

The digital switchover is an industry-led process. It is not the direct result of a specific Government decision or policy. The Government says that it:

recognises the unique importance of the fixed telephone network in the UK, in particular to elderly or vulnerable users and customers of telecoms enabled care services. As a result, the government works closely with telecoms providers and Ofcom to ensure such users are protected and that where possible, customer disruption is minimised. DCMS receives regular updates from telecoms providers about the progress of their migration and any emerging challenges they face.⁵

Government departments and public sector organisations are working with stakeholders that may be affected by the switchover to ensure that they are prepared. This includes manufacturers of telecare devices (such as personal alarms that alert carers if the user experiences a problem).⁶

As the telecommunications sector regulator, Ofcom is responsible for ensuring that service providers meet their obligations to consumers. In particular, Ofcom says that its role is to ensure that customers are not subject to “undue disruption” and are protected from harm during the migration process.⁷

Ofcom has published guidance to service providers on how it expects them to [communicate with and support migrating customers](#), how they should [treat vulnerable customers](#), and how they can meet their obligation to enable customers to [contact the emergency services during a power cut](#).

3 When will the switch happen for customers?

All lines will be migrated to digital by the end of 2025 – the date for retiring analogue networks set by industry. However, the date of migration for an individual customer depends on the customer’s telephone service provider. Customers will be contacted by their provider ahead of the switch.

⁵ [HL2469](#), 24 October 2022

⁶ [PQ 146001](#), 31 March 2022

⁷ Ofcom, [The future of fixed telephone services](#), 22 February 2019, p5-6

The migration process is already under way. Ofcom estimated in its December 2022 Connected Nations report that 27% of landline services are currently delivered over the internet, up from 15% a year earlier. In the year to August 2022, around 1.6 million customers migrated to digital phone services.⁸

For some customers the switch will have taken place when they entered into a new broadband and home phone contract. Others will find that analogue landline services are not available in their area. New build developments, for example, are likely to come with fibre-optic cables for both internet and phone connectivity. From September 2023, no new analogue phone lines will be sold to new customers.⁹

Other customers will be switched as part of a 'managed' or 'provider-led' migration programme. This is where providers proactively move their existing customers from analogue to digital landline services. According to Ofcom, managed migrations by BT and Virgin Media account for just over half of the customers who moved to digital services in the year to August 2022.¹⁰

In response to customer concerns, BT announced in March 2022 that it was [pausing its Digital Voice migration programme](#).¹¹ It is expected to resume in Spring 2023.¹² In the meantime BT's rollout is continuing for customers in [Salisbury](#) and [Mildenhall](#), where Openreach is conducting a trial retirement of the PSTN. In both areas the PSTN will be switched off by April 2023.

4 How much will digital calls cost?

Pricing for digital landline services is a commercial matter for service providers. BT and Virgin Media have both said that customers will not pay more for their landline service when they are migrated.¹³

Ofcom does not directly regulate retail prices. It monitors the market, publishing regular reports on the [affordability of communications services](#) and [pricing trends for communications services](#). Ofcom has regulatory and non-regulatory intervention options if it believes the market is not delivering value for consumers. Following an Ofcom review

⁸ Ofcom, [Connected nations 2022](#), 15 December 2022, p23

⁹ Openreach, [Getting ready for digital phone lines: For my home or business](#), accessed 9 September 2021

¹⁰ Ofcom, [Connected nations 2022](#), 15 December 2022, p23

¹¹ BT, [We're pausing our Digital Voice plans for Consumers, while we work on a more resilient rollout](#), 29 March 2022

¹² ISPReview, [ISP BT to Restart Troubled UK Digital Voice Rollout in Spring 2023](#), 21 December 2022

¹³ See the FAQs at BT, [Moving to Digital Voice](#), and Virgin Media, [Fibre Phone FAQs](#), both accessed 9 January 2023.

in 2017, for example, BT voluntarily agreed to reduce prices for landline-only customers and not to increase prices beyond the rate of inflation.¹⁴

The Government says that it has been clear to the industry that “the PSTN migration should not be used as an opportunity for providers to exploit consumers with disproportionate costs for the necessary upgrades.”¹⁵

5 What do customers need to do?

Ofcom expects that most customers will migrate voluntarily and with limited disruption.¹⁶ For many customers, the only change they will need to make is to plug their existing handset into their broadband router.¹⁷ Customers who require new equipment, such as a compatible handset or router, will receive it from their provider when they migrate.

Customers should be able to retain their existing phone numbers (although this may depend on their service provider) and will still use phone numbers to make calls.

However, some customers may need more support from their communications provider in order to switch. Ofcom advises customers to get in touch with their provider if they:

- Have other devices that rely on the PSTN, such as telecare and security alarms (see section 7 below);
- Would be unable to contact the emergency services if they lost landline services in the event of a power cut, for example because they do not have a mobile phone or reliable mobile signal (see section 8 below);
- Have a disability or other needs that mean they require help with installation (see section 9 below).

Ofcom’s website addresses some [frequently asked questions](#) for consumers.

¹⁴ Ofcom, [Protecting prices for BT’s landline-only customers](#), 25 March 2021

¹⁵ [PQ 153922](#), 25 April 2022

¹⁶ Ofcom, [The future of fixed telephone services](#), 22 February 2019

¹⁷ Ofcom, [The future of fixed telephone services](#), 22 February 2019, page 3

6 What about customers without an internet connection?

Ofcom estimated around 3% of households used only landline services in 2018, when the digital switchover was announced.¹⁸ The move to VoIP landline services will require all premises to have a broadband connection to make phone calls.

Although customers will require a broadband connection, they should not necessarily need to subscribe to a high-speed broadband service package. VoIP only needs very low broadband speeds of around 0.5 Mbps.¹⁹ The Government has said that customers who would prefer a landline-only service will be able to have a digital landline from BT or KCOM (in the Hull area) without purchasing a general internet connection.²⁰ According to BT this will cost no more than existing landline-only services.²¹

7 What about other devices that rely on the PSTN?

There are other services and devices that use the PSTN that may be affected by the switch, such as security alarms, telecare devices, CCTV, and fax machines.

Customers who use these devices should check with the provider of those devices if they are compatible with VoIP services. For example, [telecare device provider Lifeline says](#) that their emergency alarms that use the traditional phone network can be used on a digital network with an Analogue Telephone Adaptor that can be supplied by phone providers.²²

Government departments and public bodies are working with relevant sectors to ensure that product and service providers and their customers are prepared. The Department of Health and Social Care, for example, published a [telecare stakeholder action plan](#) in December 2022 which sets out how it intends to:

¹⁸ Ofcom, [The future of fixed telephone services](#), 22 February 2019, para 1.9

¹⁹ [PQ 45815, 14 September 2021 \[Telephone Systems\]](#)

²⁰ [PQ 153922](#), 25 April 2022

²¹ See the FAQs on BT's [Digital Voice](#) website.

²² Lifeline, [The digital telephone switchover and its impact on Lifeline users](#), 11 August 2021 [accessed 6 September 2021]

- improve overall communication and co-ordination between telecommunication providers and telecare services, and with people who use telecare services;
- resolve technical issues such as the need for more testing of analogue equipment to determine what will work reliably in the short term after switchover;
- consider how local authority telecare services may be transformed going forward.

Ofcom's guidance to service providers states that they should seek to identify customers who rely on telecare devices and other services that use the PSTN. Customers should receive additional protection, including delaying their migration until they are satisfied that their device will continue to work.²³

Some businesses and public infrastructure, for example some traffic lights, also rely on the PSTN. The [Crown Commercial Service](#) says that it is working with Openreach to ensure that public sector organisations are prepared.²⁴

8 What would happen in a power cut?

Digital phone services rely on mains power at the customer's premises. This means that in a power cut at the premises, landline phone calls could not be made without a backup power supply.

In contrast, PSTN lines are powered from the local telephone exchange and therefore still work in the event of a power cut at a customer's premises.

Phone services providers are required to take all necessary measures to ensure uninterrupted access to emergency organisations, including during a power cut.²⁵ "Emergency organisations" are defined as the public bodies that can be contacted on 999 and 112: police, fire, ambulance, and coastguard services.²⁶

This obligation will continue to apply to internet-based VoIP services. In October 2018 Ofcom published guidance on how communications providers can meet it.²⁷ The guidance states that providers should have

²³ Ofcom, [The future of fixed telephone services](#), 22 February 2019, para 2.19

²⁴ Crown Commercial Service, [The closure of the public switched telephone network](#), 27 November 2020

²⁵ [General Conditions of Entitlement](#), Condition A3.2. For more information about the General Conditions, see our briefing, [Mobile and broadband: affordability and consumer protection](#)

²⁶ [General Conditions of Entitlement](#), Condition A3.4

²⁷ Ofcom, [Guidance: Protecting access to emergency organisations when there is a power cut at the customer's premises](#), October 2018, accessed 11 February 2022

at least one solution that enables access to emergency organisations for a minimum of one hour in the event of power cut at the premises. Solutions should be suitable for customer needs and provided free of charge to customers that are dependent on landline services

For example, Virgin Media say they will provide an [Emergency Backup Line](#) for customers who have accessibility needs or do not have a mobile phone. The Emergency Backup is a battery-powered device that enables the customer's handset to connect to any available mobile network and make calls to 999 and 112.

Ofcom announced in July 2022 that it had opened a monitoring programme to assess phone service providers' compliance with their obligation to ensure VoIP customers have access to emergency organisations during power cuts.²⁸

Power cuts during the Winter 2021/22 storms

The one-hour timeframe for enabling access to emergency organisations was chosen based on the average time for most power cuts in the UK. However, concerns have been raised about the lack of digital phone services in the event of lengthy power cuts, as happened following Storm Arwen in November 2021 and Storm Eunice in February 2022, especially in areas with poor mobile coverage where back-up mobile phone options are limited.²⁹

In part due to concerns about resilience, BT announced in March 2022 that it was [pausing its Digital Voice roll-out](#) for customers that do not wish to switch to the new technology straight away.³⁰ BT said that it had underestimated the impact the programme would have on some customers and apologised:

With hindsight we went too early, before many customers – particularly those who rely more heavily on landlines – understood why this change is necessary and what they needed to do.

We also recognise we have more work to do on getting better back-up solutions in place for when things disrupt the service like storms and power cuts.

We got this part of our programme wrong and for that, we're sorry.

The huge disruption caused by recent Storms Arwen and Eunice brought this into sharper focus, when people – including many of our customers in

²⁸ Ofcom, [Compliance monitoring programme into access to emergency services during power outages](#), 11 July 2022

²⁹ BBC News, [Storm Arwen: Why power cuts left people unable to phone for help](#), 12 December 2021; Telegraph, [BT customers blocked from calling for help during storms](#), 24 February 2022,

³⁰ BT, [We're pausing our Digital Voice plans for Consumers, while we work on a more resilient rollout](#), 29 March 2022

rural areas – needed to get in touch with loved ones during power outages. While many lines were cut in those storms, including the older phone lines, as well as power lines – we do recognise that for some customers, making calls would not have been possible with a broadband-only connection.

We have listened to our customers' concerns and we have more work to do to improve the resilience of the network, working with energy providers on faster power restoration and providing better back-up solutions for customers.³¹

In May 2022 the Electronic Communications Resilience & Response Group (EC-RRG), made up of representatives from Government and industry, published a [Post-Incident Report on the 2021/22 severe storms](#).³² The report identified a number of lessons to be learned, including the need to improve incident management processes, take a more proactive approach to identifying faults, and improving engagement with energy suppliers.

Ofcom's December 2022 Connected Nations report also discusses communications network resilience in light of the 2021/22 storms. It notes that the lessons learned by the industry following Storm Arwen helped reduce the impact of later storms. Ofcom says that it will “work closely with the UK Government and industry to ensure that these learnings are taken on board, and action is being taken to improve the preparedness for future such events.”³³

9

What support is available for consumers?

Customer support for the PSTN switch-off is provided by broadband or phone services providers. Customers that are concerned about the migration or need support should contact their provider. Contact details should be available on customer bills.

Ofcom has set [expectations for communications providers](#) regarding support that should be provided when migrating customers to digital services. These include giving adequate notice of service changes and offering to help with the migration process if necessary (for example, offering a home visit to install a router).³⁴

³¹ BT, [We're pausing our Digital Voice plans for Consumers, while we work on a more resilient rollout](#), 29 March 2022

³² EC-RRG, [2021/22 severe storms: post-incident report](#), May 2022

³³ Ofcom, [Connected nations 2022](#), 15 December 2022, pp51-55

³⁴ Ofcom, [The future of fixed telephone services](#), 22 February 2019

The Communications Consumer Panel, an independent body that represents the interests of consumers, has published research into the needs of landline customers. Based on the research it has made a series of recommendations to service providers and policy makers. The recommendations are primarily about communicating effectively with customers and getting to know their additional requirements.³⁵

Vulnerable customers

Providers should offer additional support to vulnerable customers. There is no official definition of a vulnerable consumer: many different factors can make a person vulnerable, temporarily or permanently. For example, Ofcom has identified age, disability, physical and mental health and household income as some factors that may make people vulnerable.³⁶

Ofcom has published general best practice guidance on [treating vulnerable customers fairly](#).³⁷ The guidance also applies to how vulnerable customers should be treated during the digital switchover. It recommends actions that providers should take, such as:

- proactively identifying vulnerable customers;
- offering a range of communication channels according to the customer's needs;
- working with the carers and relatives who are supporting vulnerable customers;
- actively promoting the extra help, support, and services that are available to vulnerable customers.

Further discussion is available in our briefing, [Mobile and broadband: affordability and consumer protection](#).

³⁵ CCP, [Switchover from analogue to digital telephony: UK consumer and micro-business reactions](#), August 2021; and CCP, [Switching from analogue to telephony: Listening to the needs of landline consumers](#), September 2022

³⁶ Ofcom, [Vulnerable people](#), accessed 24 February 2022

³⁷ Ofcom, [Treating vulnerable customer fairly: a guide for phone, broadband and pay-TV providers](#), July 2020

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Further resources

Official guidance

- DCMS, [UK transition from analogue to digital landlines](#), 6 January 2023
- Ofcom, [Moving landline phones to digital technology: what you need to know](#), 11 July 2022

Information from service providers

- [Future of Voice](#) (a telecoms industry website established to inform businesses and consumers about the switch to digital services).
- BT, [The UK's PSTN network will switch off in 2025](#)
- Openreach, [Upgrading the UK to digital phone lines](#)
- Virgin Media, [Your home phone is getting an upgrade](#)

Information from advocacy organisations

- Which?, [Digital Voice and the landline phone switch-off: what it means for you](#)
- Age UK, [Changes to landline telephones](#)
- [Opinion piece: VoIP migration](#), Rick Hill, Communications Consumer Panel advisor.

Research on customer perceptions and experiences

- Ofcom, [Experiences of moving to digital landline in the Salisbury and Mildenhall trials](#), September 2022
- Communications Consumer Panel, [Switching from analogue to telephony: Listening to the needs of landline consumers](#), September 2022
- Communications Consumer Panel, [Switchover from analogue to digital telephony: UK consumer and micro-business reactions](#), August 2021

For general background information on consumers issues in the telecoms industry see the House of Commons Library briefing, [Mobile and broadband: affordability and consumer protection](#) (November 2022).

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