BT WHOLESALE

It’s the end of the line

Whitepaper on the switch to all-IP

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Contents

The migration of B2B customers from analogue to all-IP networks by 2027 is a significant task. Before the transition commences, customers need to be informed about the reasons and benefits of migrating to better and more reliable services.

Despite efforts from many communication providers (CPs) who have detailed plans in place, progress has been slow. The stop sell of analogue services from September 2023 should serve as a wake-up call for (typically smaller) unprepared CPs as changes to existing analogue services will no longer be possible. This, in turn, should increase end-customer awareness.

In this whitepaper, I argue that despite the challenges, uncertainties, and potential financial impacts of customer migrations, a proactive strategy will ultimately succeed.

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Megabuyte is the leading source of independent intelligence on UK technology and digital businesses, providing proprietary data, insights and consultancy to the sector's leading CxOs, investors and advisers.

Summary

In 2027, the national closure of the PSTN (Public Switched Telephone Network) will mark the beginning of a new era in digital communication. The transition promises feature-rich, reliable, and energy-efficient IP-based services, paving the way for a full Fibre to the Premises (FTTP) network and substantial cost savings.

While 2027 is two years away, Openreach is taking proactive steps to prepare the industry, including ceasing the sale of analogue services like Wholesale Line Rental (stop sell) in early September 2023, and discontinuing support for services in two exchanges (Salisbury and Mildenhall) from May 2023 (stop serve).

This white paper, prepared by Megabuyte on BT Wholesale's behalf, assesses the scale of the challenge, the various approaches being taken by UK communications providers (CPs), the costs and benefits of switching customers to newer services, and the challenges faced in persuading customers to switch. It is a significant task for the industry, with an estimated 10m WLR lines still to be migrated.

Our industry discussions indicate that larger CPs have formulated strategies aligned by 2027 target, yet the migration progress lags for 5-30% of analogue service customers. In contrast, many smaller CPs lack proactive strategies altogether, and a substantial portion of customers either remain unaware, uncertain of the implications, or are reluctant to take action ahead of time.

The migration is further complicated by the associated roll out of FTTP and edge use cases, such as lift alarm lines. The phase out of new or existing PSTN services from early September should be a significant wake up call for many CPs and customers.

What is the PSTN switch-off?

The PSTN has been the mainstay of national telco fixed line networks for decades, supporting voice and data services to residential and business/public sector customers, whether sold retail by the incumbent telco or on a wholesale basis via third-party CPs.

However, with the advent of digital, all-IP technologies, analogue services have since become outdated. The retirement of PSTN is not unique to the UK, with countries such as the Netherlands and Estonia having already switched off their networks. The switch-off is supported by the UK government and telecoms regulator Ofcom.

There are compelling reasons for the analogue switch-off, not least that digital services are more feature rich, reliable and efficient. The same factors also apply to mobile networks; it is estimated that a terabyte of data carried on 3G networks (which are also being closed down) uses 14x the electricity of a 5G network. There are also practical reasons; there is a diminishing supply of spare parts for analogue networks.

The cost savings of IP services will be magnified by the concurrent rollout of FTTP in place of the existing copper network from the premise to the street cabinet. As of June 2023, Openreach had passed 11m of its 29.7m UK premises with FTTP, with 100+ alternative network providers such as CityFibre and Community Fibre collectively passing a similar total, and with Virgin Media O2 also upgrading its 16m premises cable network to FTTP. The PSTN switch-off and FTTP migration will significantly reduce the requirement for local telecoms exchanges and the complexity and costs of managing telecoms networks and IT systems.

Analogue to digital services

The bulk of the UK's analogue telecoms services are represented by WLR3 (Wholesale Line Rental), which comprises PSTN (voice services), ISDN2 and ISDN30, and Featureline. However, because these services often share the copper line into the home or business with legacy ADSL or FTTC broadband, the migration can also involve a change to legacy broadband services.

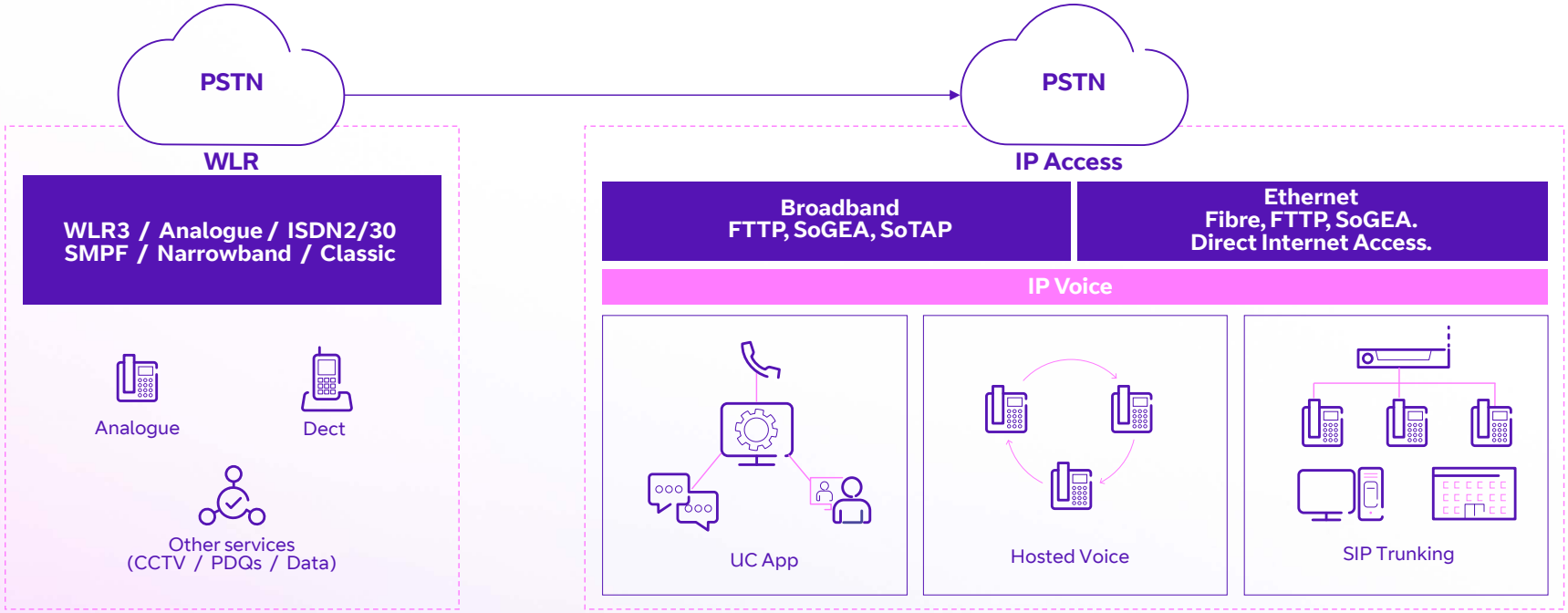
Other complications include edge use cases, where analogue lines support applications such as alarms, lifts, faxes, card payment machines, CCTV, door entry systems. Openreach has launched an IP replacement service, most notably an SOGEA (Single Order Generic Ethernet Access), and an FTTC-based broadband service up to 80Mbps on which CPs can overlay a BT or third-party voice service, which is now available for the large majority of the 29.7m premises on the PSTN network.

In places where FTTC is not available (circa 2m premises), a similar copper based product will soon be launched: SOTAP (Single Order Temporary Access Product) on which CPs can launch an all-IP version of copper ADSL.

The transition journey to all-IP

Today:
Customers buy a voice line and add broadband on top.

Future:
Customers buy an IP access line, and will add voice and other services on top.



When is the PSTN switch-off?

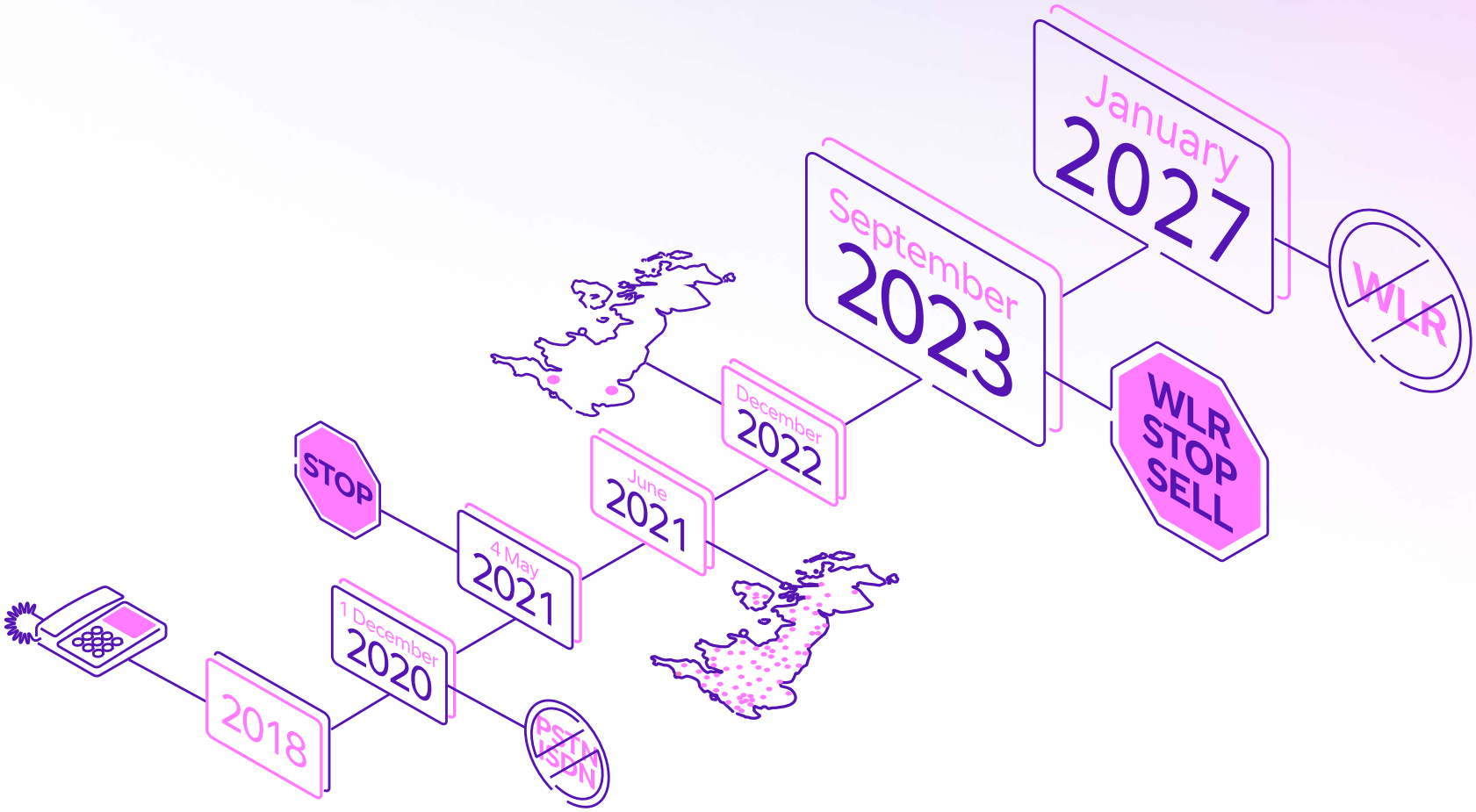
To promote an early and orderly migration, two major initiatives have been undertaken:

Stop sell

From early September 2023, WLR3 services are no longer being sold (having trialled stop sell at the Salisbury exchange – chosen due to 95%+ FTTP availability – from December 2020). This involves not just new WLR services, but changes to existing services - for example moving to a new communication provider, adding broadband or changing broadband speeds.

Stop serve

From May 2023, a phased migration commenced in two exchanges – Salisbury and Mildenhall – with CPs given 18 months' notice to migrate customers in the two exchanges. This involves, for non-migrated customers, first throttling broadband speeds and then diverting and barring all outbound calls (with the exception of 999), accompanied by Openreach communications with end customers, to trigger a customer response. Exemptions exist in cases such as critical national infrastructure. Given the complexities involved and slower than expected process in migrating customers (potentially an indicator of future performance), stop serve in the trial was extended by six months to enable new degradation approaches.



To set the scene, we are in the early stages of the PSTN migration. As of March 2023, according to BT's annual report, the PSTN network passed 29.7m premises, with 23.9m connections. Of the latter, 10.2m (43%) are WLR, 7.2m (30%) are unbundled local loops, 3.3m (14%) are newer IP products (e.g. SOGEA) and the remaining 3.1m (13%) are FTTP. Hence, 27% of connections are IP/FTTP, up from 16% at March 2022. At the same date, BT Enterprise had 1.2m traditional analogue voice lines across its retail and wholesale channels, down just 14% over the last year.

WLR has fallen from 14.5m lines in early 2020 but the pace of migration needs to accelerate; migrating 4.3m WLR lines took three years; there are less than 2.5 years for the remaining 10.2m lines.

The role of the channel

The PSTN switch-off and associated migration presents unique challenges in the UK due to the substantial presence of over 1,500 CPs. This prevalence can be attributed to the early liberalisation of the UK telecoms market. However, it's worth noting that the majority of these CPs primarily cater to the B2B market, as opposed to consumers.

To assess where the channel/CPs are in the migration path, we spoke to two of the main service aggregators (Gamma and Digital Wholesale Solutions (now Giacom)), leading resellers (some also with their own channel, including Daisy, Firstcom, Focus, Onecom, Southern and Verastar) and, to gain the smaller resellers view, the Federation of Communications Services. They cover the full range of B2B customers, from SoHo to SME to corporate and public sector.

In the discussion, we addressed:

- CP strategies for managing the migration
- Awareness of the PSTN switch-off both among CPs and their end customers
- Progress to date
- Challenges raised
- Financial impacts on CPs

Managing IP migration

Large CPs

Larger CPs typically have established migration strategies, often under the supervision of dedicated project managers. Many of them have been actively engaged in this process, particularly if they serve customers in the Salisbury or Mildenhall exchanges.

Each CP is striving to meet the target of 2027 date to prevent a last-minute rush. These strategies typically include:

- Launching promotional campaigns, some as far back as 18-24 months ago
- Educating salespeople/prioritising sales of digital products
- Halting the sale of analogue products ahead of formal stop sell – though this is not always easy to achieve where resellers also use partners, or where an existing customer insisted upon a legacy product/add-on

The focus for the larger CPs is on migrating existing customers rather than using the PSTN switch-off as a basis for attracting new customers; those that try the later approach report lower than expected success (or at least no impact above usual new customer sales activity), partly due to end-customer lack of awareness and uncertainty.

Small CPs

In contrast, smaller CPs on average exhibit lower levels of preparedness compared to their larger counterparts, for several reasons. These factors include limited sales, engineering, and operational resources required to effectively navigate a migration while sustaining their ongoing operations. There is also apprehension about potential revenue and margin reduction resulting from the transition of analogue products, including possibly unused but still paid-for lines, to digital services.

Concern also exists surrounding customer attrition if analogue services lack a digital equivalent supported by the CP (e.g., mobile data). Finally, voice services are increasingly being sold by IT resellers/service providers, who may lack knowledge of how the telecoms market works from a regulatory and technical perspective.

Lack of public awareness

Although the overwhelming majority of CPs are well-informed about the PSTN switch-off, it seems that end-customer awareness, even among larger CPs employing extensive marketing and sales campaigns, remains low.

Larger end-customers are generally more aware, thanks to the presence of dedicated communications and IT managers responsible for staying current with product technology and advancements. However, in the case of most smaller end-customers, a communications oversight seems to be present by staff holding primary roles in other functions (e.g. Office Managers, Finance Directors, or Business Owners).

Interestingly, several CPs admitted that a non-insignificant proportion of their end-customers regard PSTN switch-off marketing as a ploy to get them to change/upgrade services. It does not help that there is a variety of lexicon used across CPs, such as PSTN switch-off, all-IP and digital.

An inevitable comparison lies in the analogue TV switch-off, which occurred between 2007 and 2012, and was accompanied by significant government-funded advertising campaigns designed to encourage consumers to invest in new TVs and aerials. In contrast, the UK telecoms industry is responsible for raising awareness of the PSTN switch-off. Some CPs observed that promotional campaigns orchestrated by BT has been more effective at raising customer awareness than their own marketing.

Variable progress to date

The stats highlighted to the right detailing the amount of migration yet to commence are backed up by CP feedback. Whilst not on a consistent basis, reported migration progress ranges from just 5% to 30%. However, there are nuances; one CP has migrated most of its ISDN base but has only just begun on other harder-to-migrate analogue services.

Migration Metric	Percentage
Migration Progress Overall	< 5%
Migrated	5.4%
Pending	7.3%
Existing Base	15%
ISDN Base Reduction (Avg.)	18-36%
PSTN Base Reduction (Avg.)	Single Digits
ISDN to Hosted/SIP Migration	> 60% by Q1
Analogue Services Migration	20%
Full Inventory Done	30% Migrated, 20% In Process

Challenges

So, what are the challenges ahead for the industry as we move towards 2027?

We have already alluded to the main reason: the customer. Many customers are still not aware of the PSTN switch-off (95% in the case of one small customer-focussed CP); or if they are aware, do not have full understanding of what it means for them. Those with good knowledge of what the switch-off is report they don't have the time, inclination, or resources to commence migration, usually citing that there is ample time to prepare by 2027 as reasoning for the delay.

CPs note that customers are generally satisfied with their analogue services, which are well understood, reliable, and fit for purpose, and many think they are already on full fibre, even if it's FTTC. Customers with mission-critical comms are likewise concerned about potential disruption from the change. While smaller businesses tend to have simpler requirements, they will typically have to migrate all services in unison (though CPs can install the new service before switching off the analogue one), whereas larger customers have more flexibility, and can stagger migrations. Some PSTN replacement services are considerably more expensive (up to 2x to achieve the same SLA in one scenario).

Once customers are, in principle, willing to migrate, potential challenges still need to be addressed. Most notably, all CPs contacted prefer to migrate customers straight to FTTP to avoid a potential second migration down the line from an FTTC-based IP service (e.g. SoGEA) to FTTP as and when the copper network is shut down.

However:

- As highlighted earlier, FTTP is not universally available. Openreach has passed a third of premises, but CPs perceive this as weighted towards consumers (data shows that 4.6% of FTTP premises passed are business premises, which will rise to 6%/1.5m of its 2026 25m target). Even if FTTP is 'available' at an exchange, some CPs report exchanges temporarily running out of capacity.

- Conversion to FTTP also comes with operational challenges, not least requiring new cable installation into a premises, potentially being inconsistent with location of existing equipment (e.g., a payments terminal on a counter). Vulnerable customers can be offered a battery backup in case of power cuts. This is at the discretion of CPs. Ofcom's guidance is that a battery backup will last longer than one hour where provided.

Another challenge is the aforementioned edge use cases. The first challenge for a CP is identifying such uses. One noted that 40% of its analogue lines don't carry voice at all. Some of these will be unused (e.g., fax lines – a saving to the customer but lost revenue to the CP following a migration). Most CPs have left the problem to others, such as lift phones to the companies responsible for the lifts or noted the lack of replacement products. However, the situation has improved considerably over the last year, with third parties and BT developing specific digital products for edge use cases, at reasonable prices, while mobile services are a clear alternative solution for some, e.g., alarms not requiring very demanding SLAs.

Availability of digital replacement product has also been an issue for some core services, such as the small minority of customers only able to access ADSL broadband, but this should be solved with the launch of SOTAP later this year.

Another very real challenge is the financial impact on CPs, actual or perceived, which will deter many smaller CPs from being proactive. We now consider the experience to date of CPs that have migrated customers.

Financial impacts on CPs

The consensus is that migration inevitably has a negative short-term impact, even if the medium-term outlook is potentially positive. First, there are additional costs involved in a project of this nature – such as marketing, engineering, customer support, and staff training – as well as service management processes for newer services that are not as well embedded as established analogue products.

CPs have also undertaken system upgrades and developed data analytics capabilities to enable them to more effectively identify and analyse customers with legacy products and gain insights into areas where customers could potentially access FTTP. In certain instances, CPs may need to offer financial support or inducements to allow customers to switch, particularly if new CPE is required, or they may have to provide funded assistance, such as conducting inventory audits.

The migration process may also reveal instances where customers are paying for services they no longer use, such as fax lines or analogue broadband subscriptions which persist even after the installation of FTTP. That said, it's important to note that these savings represent a clear economic advantage for UK businesses and public sector organisations. One clue comes from the early experience of stop serve in Salisbury where, according to Openreach , two-thirds of customers have not yet reacted to degraded services[1]. While this may be because some lines are genuinely rarely used but still necessary (e.g. lift phones), in other cases this may be because the line is not being used.

Next, but less easy to generalise, is the likely impact of direct PSTN replacement services. Some solutions may require the customer to spend more (the aforementioned 2x), but others involve lower spending. One CP noted 6-9% lower £ gross profit on one ISDN2 replacement scenario. If the move triggers a shift from an on-premise PBX to a hosted voice service, the CP will also lose maintenance revenues.

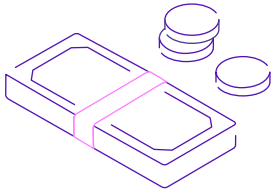
These modest negative short-term financial impacts are manageable for most CPs. Larger CPs tracked by Megabuyte report resilient trading helped by highly recurring contracted revenues, mission critical services and price rises. But this could create problems for some smaller CPs, particularly those still wedded to PBX hardware and software sales, maintenance contracts, and with longstanding customers who may be paying for unused lines.

[1]BT Group (2023) BT Group - Results for the full year to 31 March 2023. London. UK: BT Group.

Against short term impacts, the CPs we contacted see broadly neutral to positive medium term (2-3 years) financials impacts, reflecting:

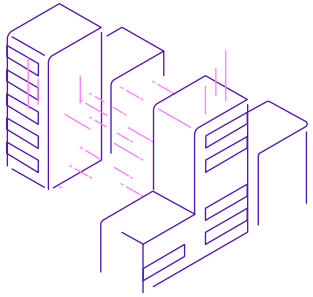
1. Selling other services

Selling other services to replace lost margin, for example hosted voice, 4G/5G-based backup, IoT/m2m connectivity, services to help SMEs manage their web presence, card payment terminals. These may be services already in the CP's portfolio that the customer contact around migration gives an opportunity to sell, or they may be services added to the portfolio specifically to address the cross-sell opportunity/mitigate lost revenues.



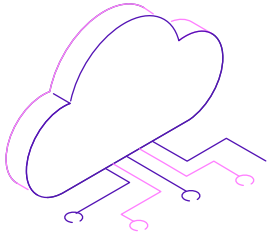
2. Better functionality and reliability

Customers who have migrated should generally enjoy better functionality (e.g., faster broadband) and more reliable services, reducing the risk of churn. If the migration triggers adoption of hosted voice, this generally improves the quality of CP revenues, including a higher proportion of recurring revenues.



3. Gain market share

Some described the PSTN switch-off as a once-in-a-generation opportunity to gain market share, building a base of customers with decent digital infrastructure to support their future digital transformation needs.



4. Future-proofing business

The fact that the PSTN switch-off has required CPs to invest in better systems, data analysis, and new products is seen as a positive, better preparing them for the future.

What's next?

The 2023/24 financial year will be pivotal to the successful completion of the PSTN switch-off by 2027, particularly the stop sell of analogue services from early September 2023. The fact that the stop sell applies also to existing services (such customers wishing to add broadband to PSTN or change analogue broadband speeds) means that its impact will be very quickly felt by all CPs, whether prepared or not, and will also raise end customer awareness.

From our conversations with CPs, it is clear (and unsurprising) that a project of this nature and size comes with challenges and uncertainties, but that is no reason for CP inaction or attributing slow progress to customers' lack of awareness or unwillingness to migrate. Assuming that the PSTN switch-off will be delayed or simply does not take place is also an irrational approach given the clear financial and operational benefits from upgrading the network.

While in such a scenario it is tempting for CPs to wait for other CPs to test the all-IP waters, hope for wider FTTP availability, and to hang on to analogue services margins and cash flows, we think a more proactive strategy will win out for the following reasons:

- CPs are now no longer able to sell, change, or upgrade analogue services under stop sell, so they need to be focussed on digital services as a matter of urgency.
- We suspect that many of the noted challenges are more perception than reality, and the best way for CPs to learn how to manage tricky migrations is to undertake them.
- The PSTN switch off is an ideal opportunity to broaden and diversify product portfolios, helping mitigate potential financial impacts
- While CP migration efforts have, to date, focussed on existing rather than new customers, those CPs who get ahead on the migration curve will be well-placed to gain market share at the expense of laggard CPs.

"We are at a critical point in the journey to all-IP. In fact, the recent stop serve in Salisbury and Mildenhall and stop sell of all WLR products are proof that the PSTN switch-off is very real. Many businesses have already recognised the urgency to transition to IP networks, but it is clear from Megabuyte's analysis there is still more work to be done, especially when it comes to motivating smaller CP's and educating end-users."

Steve Blackshaw,
IP Migration Director, BT Wholesale

Final thoughts

Stop serve and stop sell give CPs a great opportunity to offer their expertise to customers, increase revenue and attract new business.

Organisations can continue using existing legacy lines until 2027. However, communications providers won't be able to replace them like-for-like. These businesses will be forced to upgrade eventually and risk continuity. To ensure uninterrupted connectivity and minimal disruption activity, businesses must consider migrating now.

Megabuyte points out that a key challenge is the perceived financial impact which will deter many smaller CPs from being proactive. Plus, end-customers can perceive the PSTN switch-off as a marketing ploy to get them to invest in alternate services. Here, it's crucial to realise that the benefits absolutely outweigh the costs of migrating to all-IP. Customers who migrate early will enjoy faster communications and more reliable services, which is proving to increase customer stickiness. I share the view that this is a once in a generation opportunity for CPs to gain market share. In embracing the PSTN switch-off, CPs are future-proofing themselves and their customers.

Another key challenge is that some businesses may have particular use cases that make moving to all-IP more complex. That's why BT Wholesale has been rolling out a number of resources from our five-step plan to all-IP hack videos on product substitutions and making migrations manageable, to ensure CPs are ready for any scenario. When it comes to edge use cases like alarms, lifts, CCTV and faxes, identifying these is the first port of call. Digital replacements in these niche areas are improving massively, and mobile services are a clear alternative solution for some. We are working hard to continually improve these. BT Wholesale's announcement of a powered PSTN replacement 'The Pre-Digital Phone Line' is the last piece in resolving the edge use case jigsaw.

At BT Wholesale, we often like to think of the PSTN switch-off as a 'digital switch-on'. This change is ensuring that the UK is in line with other countries such as the Netherlands, Estonia and Germany who have made the move to an all-IP future and are reaping the benefits of faster and more advanced technology infrastructure. It's clear that we're at a turning point; the industry must make sure that the move to all-IP continues to gather momentum. Future-ready networks will lay the foundations for how the UK communicates, delivers public services and does business – and CPs must capitalise on the opportunity now.

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This paper is authored by Philip Carse, Chief Analyst at Megabuyte, the leading source of independent intelligence on UK technology and digital businesses, providing proprietary data, insights and consultancy to the sector's leading CxOs, investors and advisers.

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