Wave Bye-Bye to the PSTN!

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Abstract

- Ofcom says that the Public Switched Telephone Network will be retired in only 5 years.

- This affects security systems, fire alarms, 999 calls, retail terminals, modems, network monitoring, whole PBXs, call centres and calls during power cuts.

- The VoIP and SIP replacement technologies don't support all PSTN features but are a real chance to unify your communications.

- Whether you go with an on-premise solution or take advantage of the many Cloud options, you are likely to see a significant saving in the cost of communications.

Agenda

- Part I – The End of PSTN
- Part II – The Alternatives
- Part III – Make a Plan
- Summary & Close

Declaration of Interest

- Typex sells telecoms solutions in the UK
  - A Communications Provider (CP) for the lines, the trunks
  - A reseller for PBXs, the mobiles, the cloud, etc.
  - An IBM i-to-telephony integrator
- But, this is not a selling session. Stop me if I start!
- In fact ... I promise that if you (as an i-UG member) do buy any new telecoms from us then you can have our services for free
- Technical Director (Pete) in the audience
  - Happy to work for nowt!

Part I – The End of PSTN

What is the PSTN?

- "The Public Switched Telephone Network (PSTN) is the ... world's circuit-switched telephone networks ... providing infrastructure and services for public telecommunication. The PSTN consists of telephone lines, fiber optic cables, microwave transmission links, cellular networks, communications satellites, and undersea telephone cables, all interconnected by switching centers, thus allowing most telephones to communicate with each other. Originally a network of fixed-line analog telephone systems, the PSTN is now almost entirely digital in its core network and includes mobile and other networks, as well as fixed telephones."
    - (Wikipedia)

What is Going to Happen?

- BT Openreach (who own the UK PSTN) plans to shut it
  - and the Wholesale Line Rental (WLR) products relying on it
  - so this affects Gamma, Virgin, etc. not just BT customers
- Closed by 2025 – but we must change well before then.
- "There were 31.8 million fixed exchange lines (3.2 million ISDN channels) in the UK in 2019, 31k (0.1%) fewer than at the end of the previous quarter." (Ofcom)
- 16 million users will have to be moved to new IP-based products.

PSTN Line Types (Wholesale Line Rental)

- Analogue
  - Voice data flows over circuit-switched copper wires
    - … like a home landline
  - You can add broadband over it

- Integrated Services Digital Network (ISDN)
  - Digital lines for voice and data - video conferencing, data transfer and direct-dial in.
  - Multiple channels per line, enabling simultaneous calls.
  - A single ISDN channel provides one concurrent call.
    - ISDN2 or Basic Rate Interface (BRI) supports channels in pairs. Between 2 and 8 ISDN2 channels.
    - ISDN30 or Primary Rate Interface (PRI) - for capacity. Between 8 and 30 channels per ISDN30 line.

PSTN Line Types, contd.

- Variations
  - Local Loop Unbundling Shared Metallic Path Facilities (LLU SMPF)
  - Sub-Loop Unbundling Shared Metallic Path Facility (SLU SMPF)
  - Narrowband Line Share
  - Classic Products
  - Also Feature Lines, bundling, etc.
- When the PSTN is switched off these products will no longer be available.
- Nor will broadband products (like ADSL and FTTC Broadband) that rely on these products to work.

So What Changes?

- No big deal? We go from:
  - a copper wire that carries telephony (and optionally broadband IP) to:
  - one that only carries IP (and optionally VoIP telephony)?

- The copper wire will stay the same

- But …
  - the 'products' (switching at the exchange) to deliver this are still being tested.
  - ".. some attributes of the PSTN may not be fully replicated"

- Also, a landline costs £10 to £15 pcm but FTTC adds £25 or more. If you just want voice that's a lot. A low bandwidth variant is expected but no details yet.

New Openreach IP-Only Products

- Openreach alternative access products include:
  - Single Order Transitional Access Product (SOTAP)
    - Copper, IP only
  - Single Order Generic Ethernet Access (SOGEA)
    - FTTC, IP only
  - Single Order Gfast (SOGfast)
    - Fast copper, IP only
  - Fibre to the Cabinet (GEA-FTTC)
  - Fibre to the Premises (GEA-FTTP)
  - Ethernet
    - fibre
  - Metallic Path Facility (MPF)
    - In CP's network

Why is this a Problem?

- PBX's and phone lines using ISDN and analogue connections will stop working externally

- … but also Critical National Infrastructure (CNI) (water, electric and gas), modems, lift phones, 999 calls, alarm lines, payment terminals, traffic light systems, payphone lines, emergency health pendants, dialysis machines, telemetry devices and any other special service must be tested by the equipment manufacturers.

- Businesses will have to migrate to Voice over Internet Protocol (VoIP) products based on copper or fibre networks or, if fibre isn't available, a new stop gap non-VoIP product based on copper (TBD).

Timescales

- Nov 2017. OpenReach announce intention to switch off.

- Dec 2018. Formal notification to stop selling products.

- Sep 2019. SOGEA/SOGfast trial in Salisbury, Wiltshire

- Jan 2020. Trial in Mildenhall, Suffolk

- Mar 2020. SOTAP to start trials

- Dec 2020. Trial sites will completely withdraw PSTN

- Dec 2020. Five year reminder of withdrawal

- Sep 2023. Stop selling new WLR

- Apr 2025. Orphaned assets phase.

- Dec 2025. End of Life of PSTN incl. ISDN

Part II – The Alternatives

11:50

What Happens at Home?

- 81% of households have a landline. 4% have no mobile.

- 'An all-IP voice service will use digital technology to make phone calls and data connections. To enable telephone calls to be made in the home, the end customer's phone will connect to the broadband router instead of the white phone socket on the wall. .... This is ultimately a question for the CP or service providers, providing an over the top service."
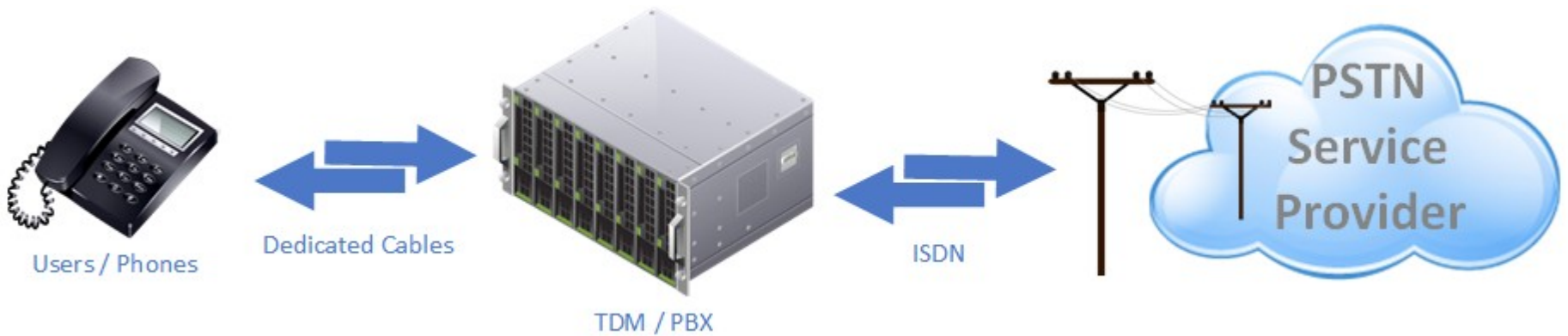 - Openreach

- We keep the same phone numbers

Business Replacements for PSTN

- Voice over IP
  - Technology to 'packetise' voice and transmit over IP
  - Needs Quality of Service (QoS) for good calls
  - Can be sent over
    - LAN
    - Multi-Protocol Label Switching (MPLS) WAN
    - Converged (dedicated line with managed bandwidth)
    - 'Over The Top' (Internet. No QoS)
    - Cellular
    - A combination
- VoIP with SIP option
  - Session Initiation Protocol (SIP) is about setting up, maintaining and terminating the call, whether voice, video or messaging. The route is immaterial.

Ways to implement VoIP

- The main alternatives for business include:

- a) PBX and SIP Trunking
  - Your PBX (IP or TDM) connects to IP rather than PSTN.
  - SIP Trunks are virtual ISDN channels.
  - Free site-to-site calls. Lower connection, rental and call charges. Ability to connect remote workers. Highly flexible and scalable. Virtual geo numbers. Failover.

- b) PBX in the Cloud
  - You have a PBX but your provider manages it remotely. You need a fat, converged 'pipe' to the cloud.
  - Not usually cost effective for medium to large organisations.

- c) Hybrid
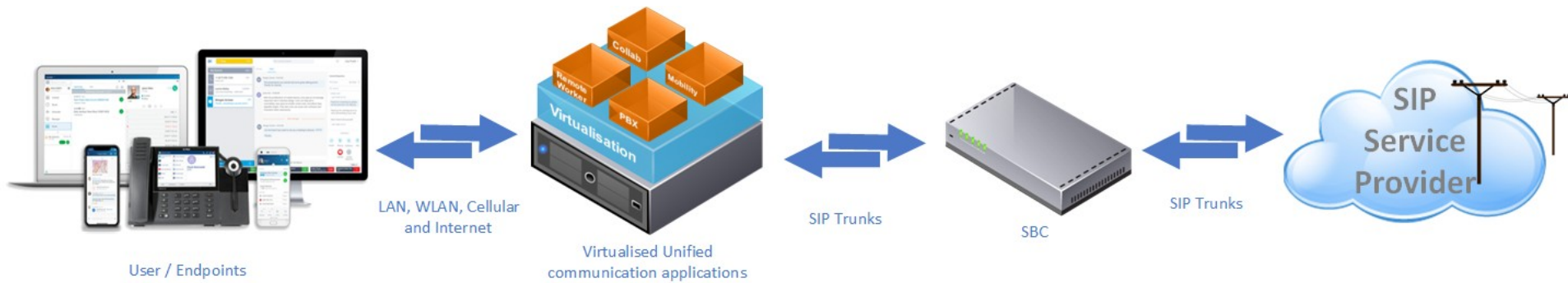 - e.g. Retail: PBX & SIP at centre; Cloud in branches.

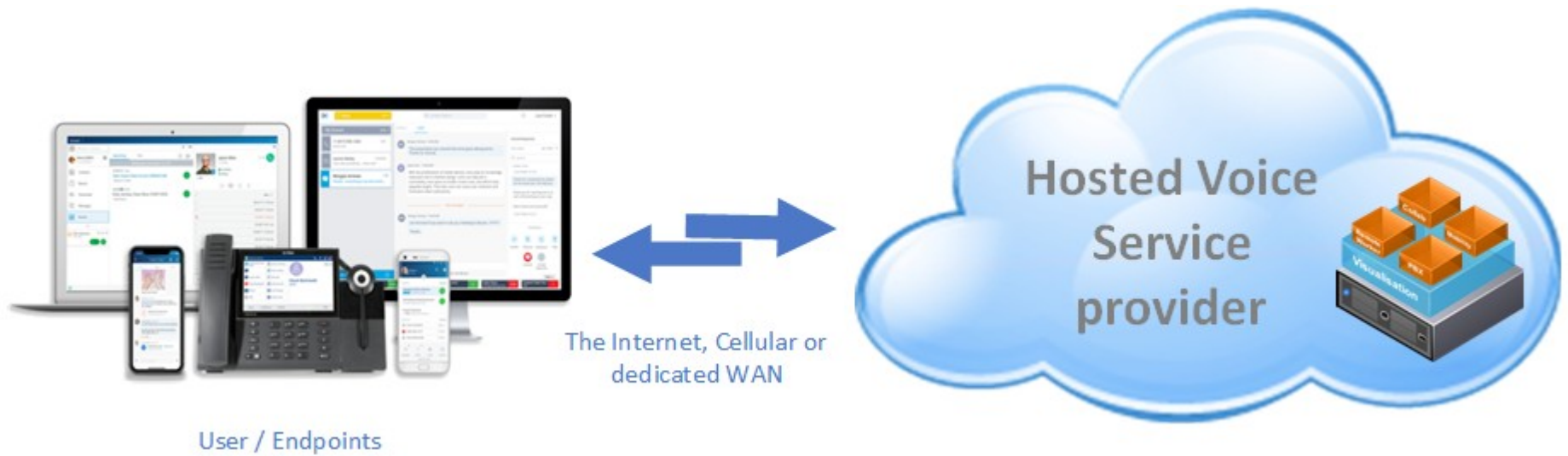# Existing TDM PBX with ISDN

Users / Phones — Dedicated Cables — TDM / PBX — ISDN — PSTN Service Provider

TDM PBX with SIP Gateway

Users / Phones — Dedicated Cables — TDM / PBX — ISDN — ISDN <-> SIP SBC — SIP Trunks — SIP Service Provider

Modern UC with SIP

User / Endpoints

LAN, WLAN, Cellular
and Internet

Virtualised Unified
communication applications

SIP Trunks

SBC

SIP Trunks

SIP Service Provider

Hosted UC

Hosted Voice Service provider

The Internet, Cellular or dedicated WAN

User / Endpoints

Part III – Make a Plan

12:00

Planning

- Audit your assets

- Estimate the possible savings

- How business-critical is voice to your organisation?

- If also upgrading the PBX
  - Think about end-points
    - Smartphones, PCs, deskphones or combination?
  - Check your LAN
    - Capacity. PoE. VLANs for QoS.
  - Think About Unified Communications (UC) ...

Unified Communications (UC)

- "... the integration of enterprise communication services such as instant messaging (chat), presence information, voice (including IP telephony), mobility features (including extension mobility and single number reach), audio, web & video conferencing, fixed-mobile convergence (FMC), desktop sharing, data sharing (including web connected electronic interactive whiteboards), call control and speech recognition with non-real-time communication services such as unified messaging (integrated voicemail, e-mail, SMS and fax).

- '... a set of products that provides a consistent unified user interface and user experience across multiple devices and media types."

  - Wikipedia

Saving Money with UC

- Telecoms Costs
  - Trunk calls & PSTN line rental
  - Cellular calls
  - External Conferencing
- PBX Costs
  - Maintenance, MACs
  - Power
- Travel Costs
  - Expenses, Staff time
- Buildings
  - Cabling, projects
- Payroll
  - Reception, switchboard, telecom, 'emulators'

Risk & Compliance with UC

- Reliability
- High Availability
- Disaster Recovery
- Dispute Resolution & Compliance
- Security
- Not 'if' but 'when'

Just a Thought on Risk & Compliance ...

- How ready are you for coronavirus?
  - UK government planning on up to 40% infected (25 million)
  - They (and anyone with symptoms) need to self-isolate for 2 weeks
  - Luckily, only 2% (0.5 million) expected to die (!)
  - Schools and shops will close due to lack of staff
  - Food and medicine shortages (and no new iPhones!)
- So, how many of your staff will come in to work?
- Can they usefully work from home?
- How will your international business continue?

Making Money with UC

- Responsiveness
  - Customer Call Handling. Faster calling. Conferencing with Customers & Suppliers.

- Innovation
  - Selling via Auto Attendants

- Flexibility
  - Flexible working, Virtual Contact Centres
  - Mergers & Acquisitions, Virtual Companies. Office in every town.

- Quality
  - Recruitment, Retention & Development

- Revenue
  - 0870, reduced credits, etc.

Do an Audit

- Audit Your Inventory ...
  - Bills (mainly bills, actually)
  - Cable types (for line types)
  - Office and home lines
  - Check alarms, lifts, etc.
- Find out when your telecoms contract(s) expire or renew.

Estimate the cost savings

- Examine how much you spend on telecommunications – rentals, maintenance and call costs – as well as the costs of increasing capacity.

- Compare that to the equivalent SIP trunking solution.

- SIP channel rentals and calls are typically up to 40% cheaper than traditional ISDNs. Include free calls to certain number ranges as part of the service.

- Less of an administrative burden, as simplified expansion potential longer term and line rationalisation savings short term.

Sample (real life) Cost Case

- Migrate 20 ISDN Lines to SIP Trunking over FTTC
  - Call Costs
    - Down from £120 to £43 pcm
  - Rentals
    - Down from £340 to £254 pcm
  - Total Savings £2,465 pa (down 40%)
  - Expenditure £604
  - RoI 3 months
    - And that is just the direct costs!
    - Failover costs even less
- Also remember ...
  - you can't have 1 to 7 or 31 to 37 ISDN30 channels.

Tips

- Replace your ISDN lines with SIP soon
  - Gets it done. No 'big bang' needed. It soon pays for itself.
- You don't need to replace your old TDM PBX
  - But you might want to
  - Definitely make the change with any new premises
  - If you do then think about end-points
    - Softphones? Smartphones? BYOD?
    - PC clients mean cheaper desksets
    - Probably a mix.
- Think very carefully about the costs of Cloud
  - 2 years subscription = OnPrem purchase
- Move to UC over time unless pressing benefits now
  - Some of it (UM, Directory, etc.) is free

Summary & Close

12:10

Summary

- The PSTN is going away

- You <u>will</u> be affected

- This presents opportunities as well as problems

- There are short term savings to be made

- There are longer term benefits to be had

More information

- Ofcom & 2025
  - 'The future of fixed telephone services'
  - https://www.ofcom.org.uk/__data/assets/pdf_file/0032/1379 66/future-fixed-telephone-services.pdf

- OpenReach & 2025
  - 'Upgrading the Access Network - The withdrawal of Wholesale Line Rental (WLR) products and the transition to IP Voice services'
  - https://www.openreach.co.uk/orpg/home/products/wlrwithdr awal/wlrwithdrawal/downloads/OR_11019_WLRPSTN_with drawal_infographic_A4_01.pdf

- Typex & 2020
  - www.typex.com

Next Steps

- Foils will be on i-UG Website
- SIP flyers at front
- Leave a business card for
  - Your own SIP Cost Case, or
  - Free consultancy on site (just pay for travel)
    - (i-UG members only)
- Email john_taylor@typex.com
- Questions now?
  - .....
- Pete and I will stay behind afterwards
- .... or catch us over lunch.
- Thank you for listening.