

Moving to Cloud Telephony

A planning guide for UCaaS and SIP trunking:
networks, numbers, compliance and migration

BUSINESS TELEPHONE SYSTEMS

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EXECUTIVE SUMMARY

Voice is moving to the cloud

Many organisations still run on-premises private branch exchanges (PBXs) that are approaching the end of vendor support, depend on specialist skills and connect to the public network over legacy lines. Meanwhile, employees work across offices, homes and mobile devices, and expect calling to sit alongside messaging and meetings.

Cloud telephony offers a way forward, but it is not a single product. Unified communications as a service (UCaaS) replaces the PBX entirely with a hosted platform; SIP trunking keeps a PBX or calling platform but connects it to the public telephone network over IP; and many organisations use a mix of both. Choosing the right model, then migrating without disrupting customers or emergency calling, takes careful planning.

This whitepaper provides a practical planning guide: assessing the current estate, choosing a delivery model, porting numbers, preparing the network, meeting emergency calling, call recording and caller ID authentication obligations, and migrating users in controlled waves.

Key takeaways

- Start with a full inventory of numbers, devices, call flows and integrations — surprises cause outages.
- Choose UCaaS, SIP trunking or a hybrid based on requirements and constraints, not fashion.
- Network readiness determines call quality; assess it before migration, not after complaints.
- Emergency calling rules vary by country and must be checked locally for every site and remote worker.
- Migrate in waves with a tested rollback plan, and invest in user training and change communication.

DISCOVERY

Assessing your current PBX estate

A cloud telephony project is only as good as its inventory. Many PBXs have accumulated years of undocumented configuration, and the forgotten elements — a fax line for a supplier, a lift emergency phone, an alarm panel — are often the ones that fail at cut-over.

- **Numbers:** all direct dial numbers, main numbers, number ranges, toll-free numbers and their current carriers.
- **Users and devices:** desk phones, softphones, DECT handsets, conference phones, analogue devices, door entry systems, alarm lines, fax and payment terminals.
- **Call flows:** auto attendants, hunt groups, queues, out-of-hours routing, voicemail and overflow rules.
- **Contact centre:** agent counts, skills routing, reporting, workforce management and CRM integrations.
- **Integrations:** CRM click-to-dial, Microsoft Teams or other collaboration tools, paging, call recording and billing.
- **Contracts:** carrier and maintenance contract end dates, notice periods and early termination charges.

Collect call detail records for a representative period to understand peak concurrent calls, international calling patterns and how often each call flow is actually used. This data informs licensing, SIP channel sizing and network capacity.

OPTIONS

UCaaS, SIP trunking or hybrid?

	UCaaS	SIP trunking	Hybrid
What it is	Fully hosted calling, messaging and meetings delivered as a subscription.	IP connection from your own PBX or calling platform to a carrier's network.	UCaaS for most users; SIP trunks for sites or functions that keep on-premises systems.
Best fit	Distributed workforces; ageing PBXs; desire to reduce on-premises hardware.	Recent PBX investment; complex local integrations; specific regulatory needs.	Phased migrations; mixed estates; specialist sites such as factories or hospitals.
You manage	Configuration, users, devices and the network.	The PBX, its security, upgrades and capacity, plus the network.	Both environments and the routing between them.
Watch for	Feature gaps for niche call flows; country coverage of PSTN calling.	PBX end-of-support dates; security of SIP interfaces.	Complexity, duplicate costs and dial-plan consistency.

Also check whether your collaboration platform supports calling through a provider's own calling plans, through carrier-managed connections certified for the platform, or through direct routing via certified session border controllers. Each option shifts responsibility for numbers, emergency calling and support between you and your providers in different ways.

NUMBERS

Planning number porting

Keeping existing numbers is usually essential: they appear on websites, invoices, vehicles and customer records. Porting moves a number from the current carrier to the new provider, and processes differ by country and carrier.

- Confirm that every number is portable to the new provider in each country; some number types and regions have restrictions.
- Gather authorisation documents early, such as a letter of authorisation and recent carrier bills; mismatched account details are a common cause of rejected ports.
- Port number ranges in planned batches aligned with migration waves, not all at once.
- Agree port dates and times with the provider, avoid peak trading periods and keep the old service active until inbound and outbound calls are confirmed.
- Check that ending old services will not trigger early termination charges or accidentally cancel numbers before porting completes.

NETWORK

Network readiness for voice

Voice over IP is sensitive to delay, variation in delay (jitter) and packet loss, which cause echo, choppy audio and dropped calls. Call quality is often summarised as a mean opinion score (MOS), a scale from 1 (bad) to 5 (excellent) described in ITU-T Recommendation P.800; many tools estimate MOS from network measurements. ITU-T Recommendation G.114 provides guidance on one-way delay for conversational voice. Check your chosen provider's published network requirements, which are the thresholds they will support against.

- **Bandwidth:** size for peak concurrent calls using the codec bandwidth plus packet overhead, in both directions, and allow headroom for video meetings.
- **Quality of service (QoS):** mark voice traffic (commonly with the DSCP Expedited Forwarding class) and prioritise it across LAN, WAN and SD-WAN links where you control them.
- **Internet breakout:** local internet breakout to cloud providers usually performs better than backhauling voice through a central data centre.
- **Wi-Fi:** survey wireless coverage and roaming for areas where people take calls on laptops and mobiles.
- **Firewalls and SBCs:** open the provider's documented ports and address ranges, and disable features that interfere with SIP unless the provider recommends them.
- **Resilience:** consider dual internet links or cellular backup at key sites, and define what happens to calls if a site loses connectivity.

Run a network assessment before migration, including synthetic call tests from each site, and repeat it after major changes. Remote workers depend on home broadband, so publish minimum guidance and provide a way to test it.

COMPLIANCE

Emergency calling obligations

Emergency calling is the most important compliance area in any telephony migration. Obligations vary by country, and sometimes by state or region, and must be checked locally for every location in scope. Cloud telephony adds complexity because users can make calls from anywhere, so the system must determine or be told where the caller is.

- Identify the emergency numbers, routing rules and location requirements in each country where you operate.
- Register a validated address for every site and, where required, for remote and nomadic users.
- Understand how the platform handles location for softphones and mobile apps, and what users must do to keep it accurate.
- In the United States, for example, the FCC's rules implementing Kari's Law and Section 506 of RAY BAUM'S Act set requirements for direct 911 dialling, notification and dispatchable location for multi-line telephone systems.
- Configure notifications to security or reception teams when an emergency call is made, where appropriate.
- Test emergency calling with the provider and emergency services using approved test procedures, never by placing unannounced live emergency calls.

- Explain clearly to users any limitations, such as reduced capability during power or internet outages.

COMPLIANCE

Call recording and caller ID authentication

Call recording

Rules on recording calls differ between jurisdictions, including whether one or all parties must be informed or must consent, and what notice is required. Recordings also contain personal data, so data protection rules on purpose, retention, access and security apply.

- Define why calls are recorded (training, quality, dispute resolution, regulatory requirement) and record only where needed.
- Play or provide appropriate notices and keep them consistent across queues and countries.
- Set retention periods and access controls, and make sure recordings can be found to respond to individual rights requests.
- Where card payments are taken by phone, do not record sensitive authentication data; use pause-and-resume or payment technology that keeps card details out of recordings, in line with PCI DSS.
- Check sector-specific obligations, such as financial services rules that may require certain calls to be recorded.

STIR/SHAKEN in the United States and Canada

STIR/SHAKEN is a framework of industry standards that lets voice providers digitally sign the caller ID on calls they originate, so that other providers can verify it. It was introduced to combat illegal robocalls and caller ID spoofing, and regulators in the United States and Canada have required voice providers to implement it on IP networks. Originating providers assign an attestation level that reflects how confident they are that the caller is entitled to use the number.

For businesses, the practical implications are to confirm that your provider signs your outbound calls, that the numbers you present (including numbers from other carriers or used by contact centre partners) are properly authorised so they can receive the highest attestation, and that legitimate outbound calls are not being labelled as suspected spam.

DELIVERY

Migration waves and user training

Migrating everyone at once concentrates risk. A wave-based approach builds confidence and gives the project team time to learn and fix issues before they affect critical functions.

- **Pilot:** start with the IT team and a small group of volunteers who use a range of features.
- **Early waves:** move straightforward sites and user groups with simple call flows.
- **Complex waves:** migrate contact centres, reception, executive assistants and sites with special devices once processes are proven.
- **Cut-over plan:** for each wave, document porting times, configuration checks, test calls, support cover and the rollback procedure.
- **Decommissioning:** remove old lines, PBX hardware and contracts only after numbers and services are confirmed.

User adoption matters as much as technical cut-over. Provide short, role-based training — for example, for general users, receptionists, queue agents and team leaders — with quick-reference guides, floor-walkers or virtual drop-in sessions on go-live days, and a clear route to report problems.

BUYER GUIDANCE

Questions to ask telephony providers

- In which countries can you provide numbers, PSTN calling and porting, and under what licences?
- How do you handle emergency calling and location for fixed, remote and mobile users in each country?
- What are your published network requirements and call quality monitoring tools?
- How is service resilience designed, and what are the service levels and credits?
- How do you support call recording compliance, retention and secure access?
- Do you sign outbound calls under STIR/SHAKEN where applicable, and how do you help resolve spam labelling?
- What migration, porting and training support is included in the price?

ROADMAP

A phased migration plan

Phase	Focus	Outcome
1. Assess	Inventory numbers, devices, call flows, contracts; collect call data; network assessment.	Complete, verified baseline.
2. Design	Choose UCaaS, SIP trunking or hybrid; dial plan; emergency calling and recording design.	Approved target architecture.
3. Prepare	Network remediation, QoS, firewall changes, porting paperwork, training materials.	Sites and users ready.
4. Migrate	Pilot then waves, with test plans, porting windows and rollback procedures.	Users live with minimal disruption.
5. Optimise	Call quality monitoring, decommissioning, contract clean-up, feature adoption.	Lower cost and complexity.

Checklist: cloud telephony readiness

- Every number, device, call flow and integration is inventoried and owned.
- Delivery model chosen and documented, including responsibilities for numbers and emergency calling.
- Porting documents gathered and number batches aligned to migration waves.
- Network assessed for bandwidth, QoS, jitter, packet loss and resilience at every site.
- Emergency calling requirements confirmed locally for each country and user type.
- Call recording notices, retention and payment-card handling agreed with compliance.
- Outbound caller ID authentication confirmed where STIR/SHAKEN applies.
- Pilot, wave plan, rollback procedure and role-based training ready.

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