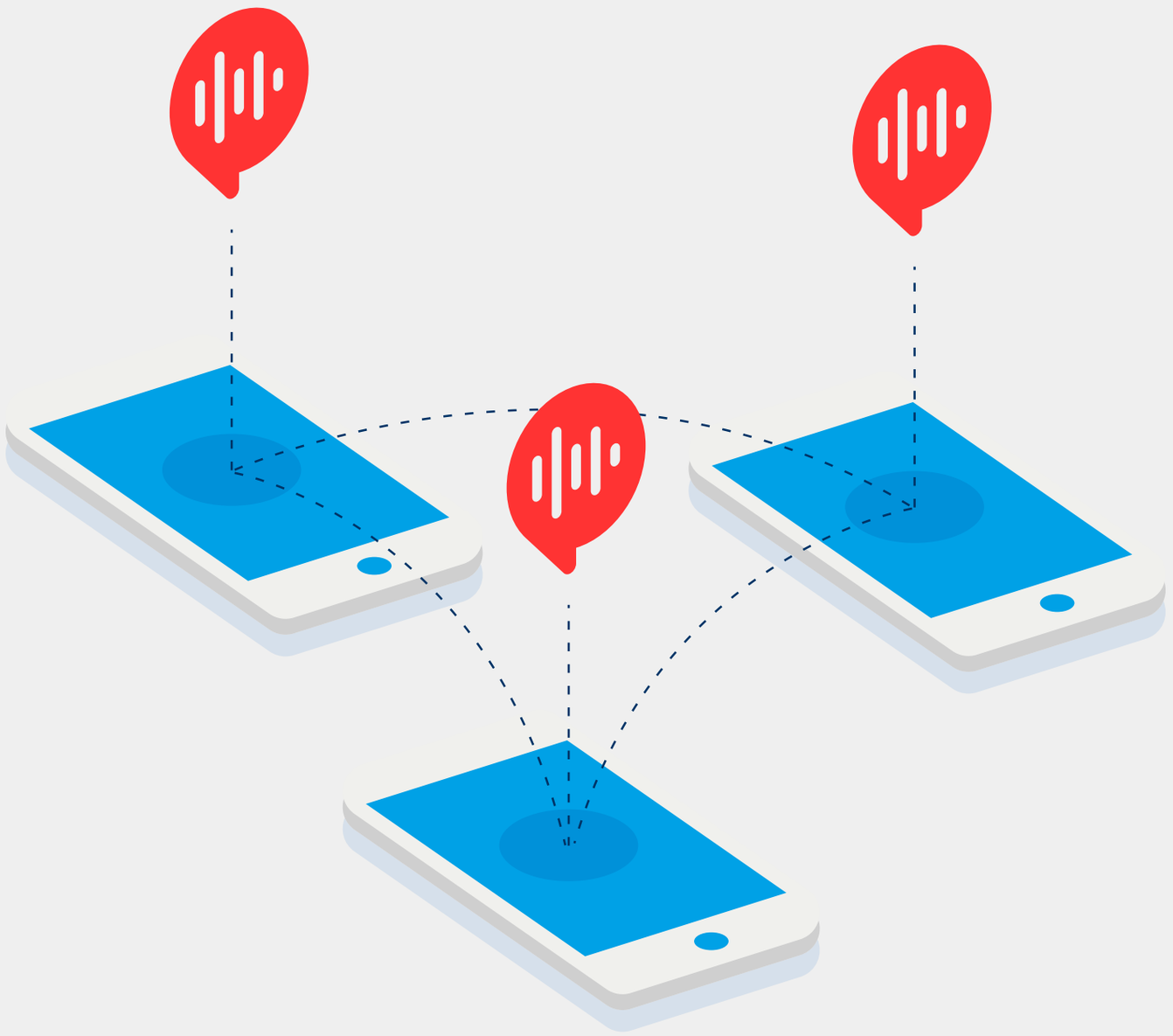


VoIP Call Recording

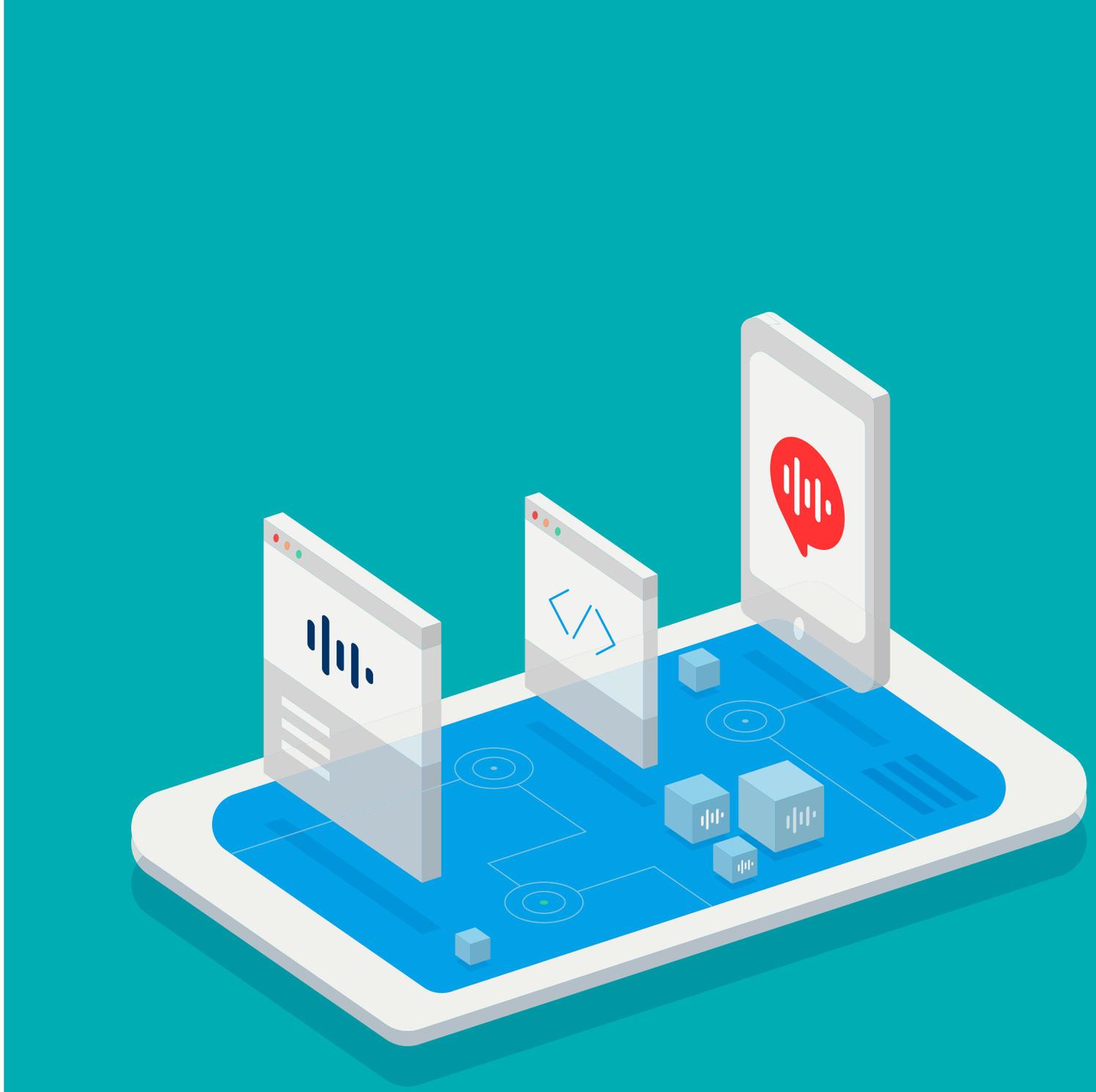
White Paper

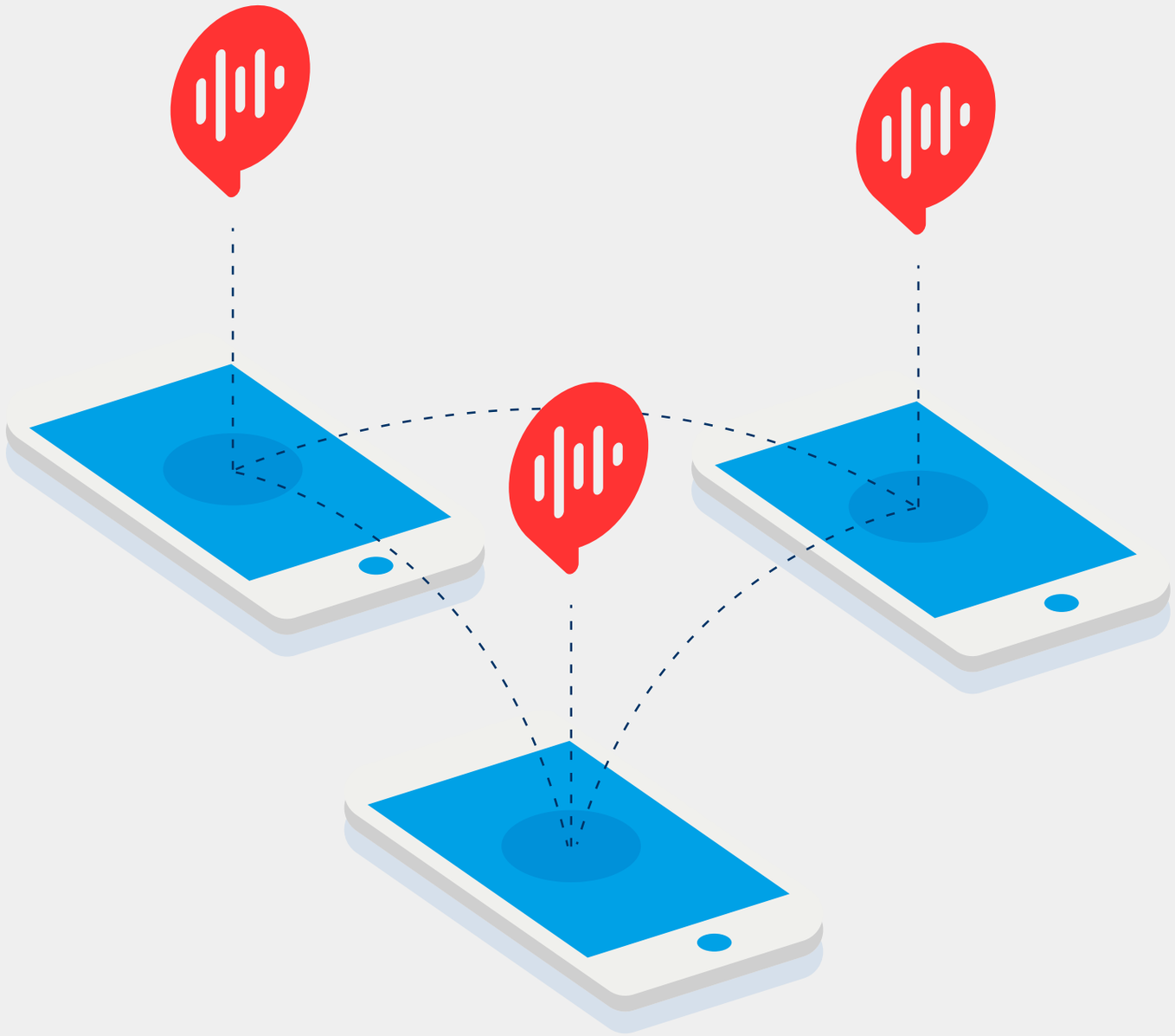
Contents

01 What is Dubber?

Dubber's use of a native cloud platform is evolutionary, and so can provide a call recording solution that goes above and beyond legacy offerings. Dubber's intelligent recording platform has abolished previous limitations of call recording and opened up a myriad of applications and benefits for all users. With innovative technologies, a capacity for mobility and additional innovative functions, Dubber has developed a call recording solution with increased relevance for everyone.

Dubber's use of a native cloud based platform enables it to provide a call recording solution that offers unlimited storage, unlimited scalability, high security, rapid deployment and additional innovative functions, which include Playback and Zoe, an open API and our Lab - a call recording sandbox that enables testing of our services - all with no CapEx.





02 What is VoIP?

02.1 Overview

Voice over internet protocol (VoIP) is an alternative to traditional fixed-line telephones, which uses the internet to make and receive calls. VoIP calling has been steadily replacing traditional telephony due to its reliability and efficiency, achieved through its use of data connection instead of fixed lines.

VoIP calls work by converting voice data into packets of digital information that can be transferred over an internet connection. Any telephone number, whether fixed-line or VoIP, can be called but VoIP to VoIP calls will be free as these types of calls only use an internet connection.

An IP phone generates a packet of digitised speech every 10-40ms, which can then be compressed and encrypted. More frequent packets means shorter delays in data transfer and, because they carry smaller amounts of data, sound quality isn't too drastically affected if a packet is lost. Unfortunately, smaller speech packets require more bandwidth, however longer packets can cause delays and are more difficult to fix if lost, so a balance must be achieved.

02.2 Advantages

Organisations most often switch from traditional telephone lines to VoIP in order to cut costs - it is not uncommon for costs to be halved moving from ISDN lines to VoIP. The data connection that enables VoIP calls is quicker and cheaper as it takes advantage of the existing IP infrastructure of interconnected routers. Long distance calls can be made at no extra cost as the call is made over an internet connection that has already been paid for.

The inefficiencies of traditional telephone lines - a pair of copper wires is needed for each concurrent call and these lines are only in use when a call is made - are removed by utilising the existing internet connection for VoIP calls. Call quality is generally better when placing a VoIP to VoIP call, as it is transmitted at 64kbs - radio quality sound.

Features that were either impossible or expensive with a fixed-line service can be easily and affordably added to a VoIP service. Video calls and conferencing and other collaboration tools such as instant messaging are just some of the additional features that a VoIP service can bring. There are various web interfaces that can be used to easily set up services such as call forwarding and provide real time information such as itemised call records and usage statistics. Integration with third party applications such as Salesforce is also possible.

There is often more effective remote support for VoIP solutions as the major components of systems are located within the data centres of the service providers, reducing costly site visits. This also allows for updates to be administered more regularly, without requiring any downtime. Service providers also generally monitor faults more proactively, in contrast to traditional telephone providers.

03 Recording VoIP Calls

03.1 Overview

Whether recording calls for compliance or for training purposes, finding the right call recording solution to capture VoIP calls is important. Recording VoIP calls presents a challenge due to the difference in the way audio is transmitted in VoIP calls compared to traditional telephony. Recording VoIP calls requires data to be 'sniffed', which is a process of real-time monitoring of data flow through a computer network by a software program or a hardware device containing this sniffing software or firmware. Sniffers copy the data without altering it and can only intercept data from networks that their host computer is connected to.

Depending on your requirements for call recording, how you intend to use the captured conversations, and your business telephony network (or lack thereof), the VoIP call recording solution that is right for you may vary. When considering VoIP recording options, it is important to plan for the future as well as the present. Choosing a flexible call recording solution that can adapt as your business grows and changes is vital. Expansion into different locations, sudden changes in call volume, and regulation reforms could affect your call recording needs so the solution you choose must offer you the reassurance that these eventualities can be accommodated.

There are various methods that can be used to record VoIP calls. These will be discussed throughout this chapter, along with their advantages and drawbacks.

03.2 Active vs passive recording

Active call recording is also known as conference mode recording, as the call is conferenced to the recording server. Active VoIP call recording has no need for management from remote sites as calls are recorded directly from a central location. This method is referred to as active due to the call recorder being an active participant in the call. Active recording preserves all call-index information, including incoming and outgoing phone numbers and the date and time of the call to enable calls to be easily located in searches. Active recording requires a PBX that supports this function, and may require an additional licence.

Passive recording is the preferred way to record VoIP calls in the majority of cases and it works by sniffing audio streams along an IP path using either hardware taps or port mirroring, whereas active recording duplicates the speech packets created during a call and directs these to a recorder. Passive recording uses a call recorder that is separate from your telephony system and can take place gateway-side, at a connection to the public network, or station-side, at the network connection of each IP phone.

03.3 Tapping vs port mirroring

Conversations can be sniffed through port mirroring or by network taps. Tapping is implemented using boxes placed within a network to share the network feed. In VoIP networks, each extension is either connected to a hub or local area network (LAN) switch. To record through port mirroring a call recorder is connected to the hub, which allows extension information to be forwarded to this port. This is referred to as a mirror port. Each time an extension is added or removed the port configuration must be updated, and mirrored ports are often given low priority for forwarded traffic when a large number of ports are mirrored, so port mirroring is generally more suited to networks with a small number of extensions. If there is an internal PBX port, this can also be mirrored. With this method, there is no further configuration required for additional extensions but internal traffic cannot be recorded as their VoIP traffic is sent directly between the phones and doesn't flow through the gateway port.

03.4 SIP

Session initiation protocol (SIP) is essentially a language that allows phones and other telephony devices to talk to each other. SIP is the protocol that initiates VoIP calls and the process of breaking up the conversation into packets, which are then transmitted between the calling parties.

SIP trunks use SIP to connect VoIP systems to the outside world through 'trunks', enabling calls to be made and received. SIP trunk recording taps the main SIP trunk to enable low-cost recording from a centralised location. This can reduce the cost of call recording, depending on the number of trunks vs extensions and the different locations that require call recording.

SIP trunk recording is a type of passive recording so requires no extra bandwidth or resources from the network, and doesn't affect the flow of the call. SIP trunk recording is easy to deploy, configure, use, and maintain across multiple locations and can easily be scaled to accommodate high volumes of recording traffic. SIP trunk recording can also record mobile phones if the calls are routed through a mobile adapter. When considering SIP trunk recording, it is important to note that encrypted calls cannot be recorded, and neither can internal calls between IP phones (these calls do not traverse the trunk).

03.5 SIPREC

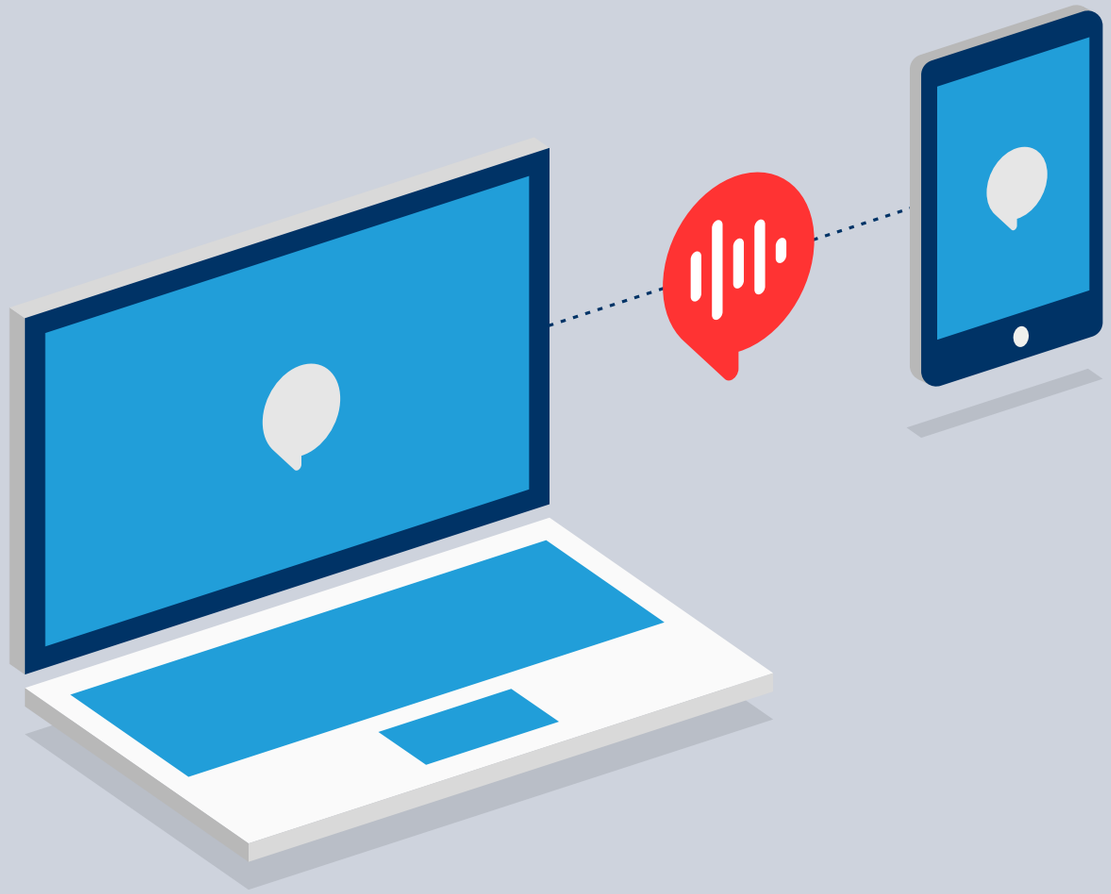
SIPREC is a globally accepted method for recording VoIP calls. Approved and adopted by platform providers including BroadSoft, SIPREC is a telecommunications protocol that was created to regulate call recording by providing a framework for recording SIP calls. Two participants; the session recording client (SRC) and the session recording server (SRS), are involved in the recording of SIP calls, creating a secure and globally accepted standard for call recording. As SIPREC systems capture calls at a centralised point in the network, they eliminate the need for hardware - providing freedom from the cost, installation time, and space requirements of on-premise hardware.

03.6 Hosted vs on-premise solutions

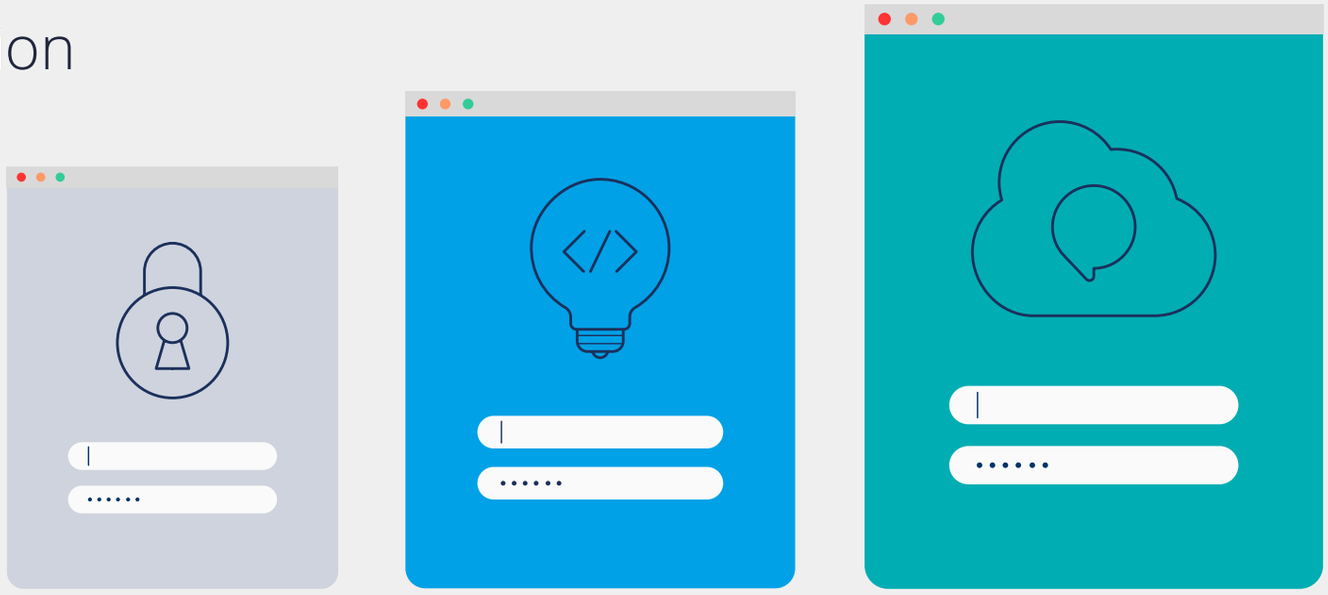
Recording calls has the potential to generate large amounts of data, particularly with always-on recording and larger organisations. Choosing how to store these recorded calls is an important consideration when choosing a VoIP call recording solution. Captured conversations will need to be stored in a manner that complies with security and privacy legislation. If an organisation is from a sector such as finance, where regulations including MiFID II require communications to be recorded for up to five years, future growth and storage requirements will need to be considered.

On-premise storage requires the installation of hardware on which to store all of your recorded calls - a process that can take several months. As well as being time-consuming and requiring space for storage as well as substantial CapEx, the amount of calls you can record is restricted by the hardware you have purchased. The upkeep of the hardware is also the organisation's responsibility and any updates that may be required will only add to the cost. On-premise solutions can also limit the flexibility of workers, restricting them to work from their desk only.

Recording VoIP calls through a hosted solution allows the service to be set up instantly, with no installation of equipment required. The only necessity is a reliable internet connection that can accommodate the VoIP calls of the organisation. A native cloud hosted solution has scalability, which allows it to adapt to a company's requirements as it grows. The monthly subscription model of this kind of software as a service (SaaS) also makes call recording available to small businesses who wouldn't otherwise be able to afford their own on-premise solution. As an extra reassurance, true cloud call recording also brings a level of security to your recordings. Not only are they encrypted, but they are stored in multiple locations for redundancy.



04 Dubber's solution



04.1 Overview

Dubber's call recording solution uses SIPREC to capture conversations directly from telephony networks. By recording calls directly from the service provider, they are instantly available to the user. Dubber works with service providers all over the world to provide global call recording. Dubber's native cloud architecture allows its call recording to be scaled to the needs of the individual organisation, without limitations. From single users to businesses with contact centres around the world, Dubber's call recording can be rapidly deployed with the same ease as installing an app.

Dubber is accredited by multiple service providers including BroadSoft, and can be deployed directly through the network to provide cloud call recording that can be implemented as part of a unified communications (UC) solution. Using Dubber's services, organisations such as those in the financial services sector can gain comprehensive ground towards complying with call recording regulations across the UK, EU, and the rest of the world.

Dubber provides additional services including Playback, which is an easy-to-use communication capture service designed specifically for individuals. Playback lets users decide which of their calls they want to save and allows them to download and share these saved calls as easy-to-edit audio files. Zoe, Dubber's suite of Zoe modules, brings new levels of insight into recorded communications. Dubber's services can be accessed through the Dubber portal, or via their open API, which allows users to adapt their services to their individual requirements.

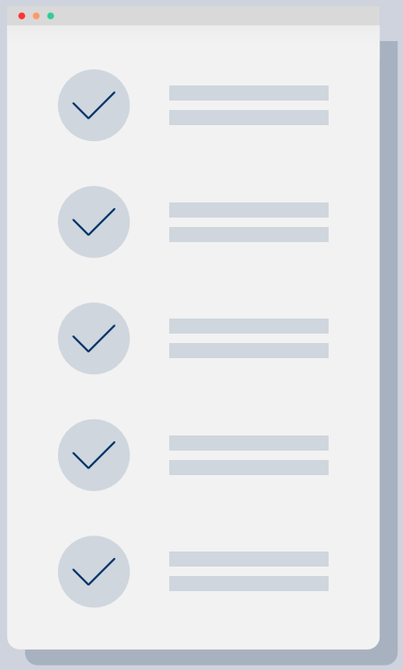
04.2 Compliance and UC integration

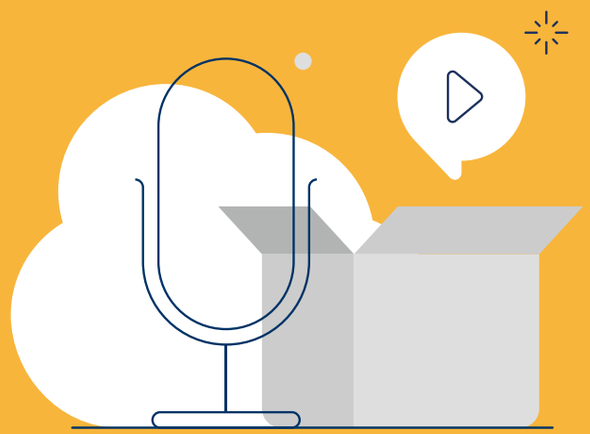
Businesses that require call recording for compliance will most often need a service that is compatible with a unified communications (UC) solution. Modern working life spans multiple methods of communication and our mobile phones allow us to make traditional calls as well as VoIP calls, send text messages, and have conversations over instant messenger. To ensure that all of these communications are captured accurately, call recording must be able to integrate with UC solutions.

With legacy solutions and traditional fixed-line telephones, compliance was once a major cost consideration for organisations. Each location would need its own recording solution, but with VoIP, a single centralised recording platform consolidates costs. With call recording deployed as a subscription service, even the smallest businesses have access to an affordable compliance solution.

Dubber is designed to be integrated with UC platforms and provides an array of solutions for call recording and communication capture, anywhere and on any device. By capturing communications straight from the network, when a UC solution is implemented with mobility, all user communications can be recorded even while they are mobile. This is a crucial component of regulatory compliance, as records of all communications - even those made on a mobile phone - are required.

Compliance with regulations such as those of the financial industries, for example MiFID II, requires records of communications to be stored for up to five years. Dubber's cloud architecture provides the scalability and security required to guarantee compliant storage.





04.3 Use cases

When deciding on the call recording solution that is best for you, it is important to consider how you will be using your recorded calls. The following are just some examples of the many uses for Dubber's call recording solution.

04.3.1 Journalist

If you are a journalist who records their phone interviews, you will need calls to be stored in a format that can be easily replayed, but you might not need to keep the calls for years after you have filed your copy. Dubber's Playback is designed for use by individuals and gives users the choice to save their conversations on a call by call basis. Once Playback is activated on a user's phone service, for three days after they make or receive a call they will have the option to save it. With Playback users are only charged for the calls they keep, creating an affordable solution.

04.3.2 Financial institution

Financial institutions require their communications with customers to be recorded in order to stay compliant with the latest regulations. Call records are generally required to be stored for up to five years, so businesses will need to ensure the solution they choose has the flexibility and security needed to safely archive their conversations. A cloud-based solution, such as Dubber, has the scalability required to hold unlimited calls and is not restricted by the hardware limitations of legacy solutions. Dubber's true cloud storage also has the added security of encryption and the redundancy that accompanies multiple storage locations, for added reassurance.

04.3.3 Call centre

Larger businesses that have contact centres, often use call recording in order to improve their customer service and working practices by analysing their captured conversations. A solution that offers speech Zoe, such as Dubber's Zoe, will allows an organisation to search their calls and automate processes to make their business more efficient and gain a detailed insight into their customers. Recording with Dubber can also record conversations between extensions, ensuring recording continues if a call is transferred internally.

05 Conclusion

The cost reductions, reliability, and flexibility of VoIP calling, through its use of internet connection rather than fixed lines, has seen it steadily replacing traditional telephone systems. These advantages are accompanied by additional services including call recording and the opportunity for voice data analysis and integration with existing systems.

Call recording is an important additional service for organisations who are deploying VoIP calling. Not only does it help to ensure that businesses stay compliant with a variety of regulations, it can provide a valuable insight into customers and working practices.

The various methods used to record VoIP calls have their own advantages and limitations, however Dubber's solution has a global reach through its partnerships with service providers. Recording directly from the network using SIPREC allows Dubber to work with UC solutions, which is key to ensuring organisations can comply with call recording regulations.

Dubber's enhanced call recording solution, with features and services that go above and beyond traditional call recording offerings, makes call recording and speech Zoe not only more relevant but more accessible to more businesses than ever before. Dubber's flexible solution can adapt to the needs of an individual or an organisation to provide enhanced VoIP call recording easily, quickly, and at an affordable price.

06 About Dubber

Dubber is the world's most scalable call recording service and enables users to record, save, replay, and interact with their recorded calls like never before. Dubber's cloud based call recording is evolutionary in its elimination of hardware flaws.

Dubber's call recording offers unlimited scalability, high security, rapid deployment, no upfront costs, and a true SaaS offering. Together with innovative add-on services such as Playback and Zoe, Dubber enables both service providers and enterprise users to benefit from call recording and communication capture services like never before, increasing the value of communications for everyone.

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