babble
.cloud

HOSTED VOIP
Your guide to next-generation telephony

Introduction

Voice over Internet Protocol (VoIP) is the technology that allows us to make telephone calls using the internet. Also known as IP Telephony, Internet Telephony or Digital Telephony, voice is converted into data packets and transmitted using your IP network.

A History Of VoIP

As we enter 2015, VoIP has truly come of age. Although it owes its existence to the development of TCP/IP (the technology that dictates how data packets are formed and transmitted) back in 1972, it first came to our attention in 1995.

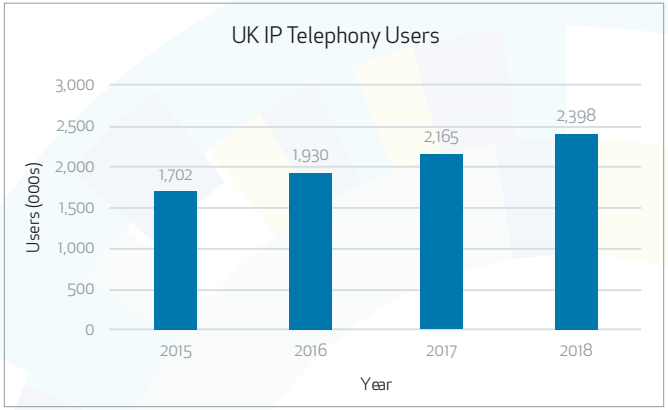
VoIP has come a long way in 20 years, from a point-to-point solution requiring software installation at both ends to a ubiquitous technology that will see 250 million users “consuming” 150 billion minutes across the globe (excludes domestic Skype users).

Over the past 5 years, the demand for VoIP has experienced exponential growth; driven primarily by the cost savings available to both consumer and commercial customers.

Fixed line telephony has seen an erosion of market share from 31% in 2010 to just 16% by 2015.

By comparison, VoIP has almost tripled its share from 12% to 32%.

All indications are that this trend will continue over the coming 5 years. As mobile VoIP adoption increases, it is predicted that it will become the dominant method of communication by 2020.



No. IP Business Telephony users in the UK. (Source. MZA Ltd, 2013).

VoIP Vs. Traditional Telephony

The user experience on a digital handset differs little from that of a traditional, analogue phone.

However, the technology that provides the experience, the level of functionality, the pricing models and the management processes all vary significantly.

Hosted VoIP systems replace analogue handsets, BT lines and numbers with a cloud-based system that leverages and connected device with audio capabilities to make the call – desktop phones, mobiles or softphone applications on your PC or tablet.

Traditional Telephony

Traditionally, business telephony has required that an organisation has a physical device installed at their premises. This device, or PBX (Private Branch Exchange), connects all the phones on-site to the PSTN (Public Switched Telephone Network), enabling calls to and from that site to be made.

The PBX sits between the on-premise handsets and the PSTN and provides all the business functionality required – such as call queuing, routing, and voicemail.

Traditional phone networks use circuit switching. When a call is made, physical circuits are switched in the intervening exchange, creating a connection between the caller and the person being called.

Each PBX requires a connection to the outside world so it can make and receive calls outside of the office. Typically a PBX will be connected by analogue or ISDN lines which attract monthly rental and call charges from your service provider.

VoIP

VoIP employs packet switching – which has typically been used by data networks connecting computers. Within this network, data is divided into small packets which are given identifying information and are then transported across the network. At the end of the line, they are reassembled to provide the information to the receiver.

Hosted IP Telephony (VoIP) provides the telephone system functionality required by the business without having to have a PBX on-site. The intelligence is hosted within your host's network on carrier grade IP voice platforms and is delivered to your users via their IP network.

VoIP uses IP rather than analogue or ISDN lines. This means that a single IP network can be used for both your telephony requirements and your data / internet requirements as part of a converged network.

Feature	Hosted VoIP	On-Premise
Total Costs of Ownership	No investment required in on-site PBX or handsets. Monthly fee per user	Purchase and maintenance of onsite PBX and analogue handsets
Security	Monitored 24/7 by your service provider	Owner assumes responsibility
Scalability	Unlimited	Limited to capacity of PBX
Geography	Single or multi-site options and supports mobile/remote working	Requires tunnelling for multi-site applications
Functionality	Wide range of advanced features that can be turned on and off as needed	Fixed set of features that may require hardware upgrades to expand upon
Systems Management	Web-based admin console	Physical hardware maintenance
Support	Included in monthly license costs	Separate maintenance contract or fees
Capacity	Limited by bandwidth	Limited by physical number of lines
Ownership	Outsourced	User-Owned
Resilience	Automatic failover and DR governed by datacentre SLA	Dependent upon on-site PBX
Implementation	Plug and play	Often complex and disruptive to day-today operations

Benefits of Hosted VoIP

VoIP can provide businesses with a wide range of benefits. Although 75% of organisations initially adopt VoIP because of the cost savings it offers, the corresponding improvements in functionality, flexibility and customer service cannot be ignored.

Instant Scalability

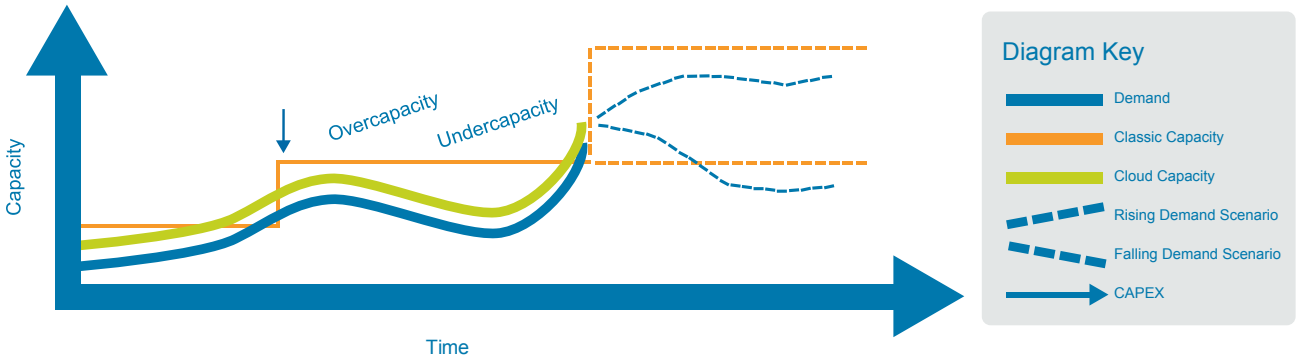
Unlike traditional telephony, provisioning new extensions and functionality is quick and easy. VoIP does not utilise a physical PBX on-site so there are no physical limits to the number of extensions.

The scalable benefits of VoIP extend beyond ease of expansion. The number of users can flex both up and down during periods of high or low demand to ensure your telephony is always “right-sized” and doesn’t leave you missing out on revenue opportunities or paying for hardware you don’t need.

In the diagram below, you can see how cloud technology (represented in green) grows in conjunction with the business (their capacity requirements represented in blue). However, with traditional technology, (represented in orange) there is a pre-defined limit on capacity, meaning the businesses infrastructure is often misaligned with actual requirements.

The business has to contend with the infrastructure being either over or under-capacity, and is constrained by the physical limits of their technology.

At some point, businesses are faced with a decision to invest in additional equipment. What happens if the business doesn’t grow as predicted? You’ve paid for capacity that is no longer required.



Increased Functionality

IP Telephony is characterised by its rich feature set, including intelligent call queuing and routing, call forwarding, audio conferencing, call recording and monitoring.

As all functionality can be tailored to groups or individuals, based on user profiles, there is no over or under-utilisation. Functionality is also paid for on a per-user, per-month basis, so costs are both predictable and manageable.

Reduced Costs

Cost savings are at the heart of a significant proportion of VoIP adoptions:

- A converged network for voice and data offers savings on infrastructure and connectivity.
- A hosted solution negates the requirement for an on-site PBX.
- Outsourcing your communications means you don't need to retain specialist technical personnel.
- Costs are reduced across, local, national and international calls.
- As all sites are linked via a single IP network, there is no charge for internal calls.

Business Continuity

A hosted solution offers benefits in terms of ensuring business continuity. In the event connectivity to an individual site is lost, or an office becomes unavailable — perhaps through fire or flood — calls can be managed within the network and diverted to an alternate office, a number of home-workers, or even mobile phones.

Increased Flexibility

VoIP provides number portability, allowing the same number to be used wherever the user connects to the IP network. This flexibility extends to service mobility — so wherever the phone goes, it takes its functionality, features, voicemail, call logs with it.

Operational Efficiencies

With a Hosted IP Telephony (VoIP) solution, it is no longer necessary to have specialist resources brought in to make changes to the telephone system. Moves/adds/changes can now be carried out with ease via an intuitive web portal from any PC connected to the Internet.

Improved Customer Service

The operational and functional benefits of a VoIP system have a positive impact on customer service levels. For call centre operations, the ability to intelligently queue and route customers helps operatives deliver against key performance indicators such as first call resolution and average call duration.

Sophisticated IVR solutions can help with call avoidance or customer self-service and the scalable nature of VoIP systems makes handling calls during peak periods easier.

The integration of voice with back-office and CRM systems also impacts

on responsiveness, and presence ensures users are contacted in the most appropriate way.

Call monitoring and recording can be used to identify potential skills gaps and are a valuable aid to training, helping to deliver even greater levels of customer service.

Finally, reducing operational costs allows businesses to pass savings on to customers.

Business Challenges Addressed By VoIP

The way in which most of us do business has experienced something of a revolution over the past 10 years. As technological and sociological changes continue to influence how and where we work, they represent a new set of business challenges. VoIP has a role to play in helping businesses address these challenges.

Flexible Working / Mobility

IP telephony opens up opportunities for businesses of all sizes to exploit the advantages of flexible working practices. Enabling employees to work remotely (either at home or on the move) improves both workforce productivity and morale.

As compliance and regulatory requirements place additional pressure on businesses, VoIP offers both flexibility and security to help businesses meet their obligations.

As employees become more geographically dispersed, VoIP enables them to stay in contact with customers and to collaborate with colleagues; overcoming the barriers traditionally associated with remote workers.

Office Relocation

One of the major advantages of VoIP over a traditional telephone system is its portability.

Under the old regime, if you relocated out of your STD area you would need to change numbers or pay for redirects.

With a hosted VoIP system, you simply connect your handset to the internet in your new premises and your phone will work the same way it did in your old office, with the same number and the same functionality.

Rapid Business Growth

With a hardware-based system, scalability is limited according to the number of lines your PBX can handle. Expansion beyond a certain point requires the purchase of additional hardware and results in periods or under or over capacity.

With a VoIP system, additional users can be deployed instantly and with no need for specialist resource, all you need is another handset. Similarly, if specific departments expand and require new functionality, it can be provisioned remotely via a web portal.

Hardware Obsolensence

A traditional telephony estate relies upon physical hardware which, by its very nature, will both date and depreciate over time.

Adopting a Cap Ex approach to ICT exposes your business to significant up-front investment in a depreciating asset. As new technology and functionality emerges, the Cap Ex model requires further investment to make use of new features or expand capacity.

Hosted VoIP employs an Op Ex approach where handsets and functionality are kept up to date by your service provider and included in your monthly license fees. As new technologies emerge, they are available to provision on the same basis as your current services.

Business Continuity

A criticism of VoIP in the past has been its dependence on connectivity to both power and the internet. Traditionalists have said that PBX and analogue phones will always have a place whilst this vulnerability exists.

However, any modern business that loses power and internet connectivity will struggle to operate without lights, computers and the internet so this argument is a little redundant.

The reality is that the service is still operational, it's the site that is inoperative. As all calls are managed in the network, loss of power or connectivity to a single site could trigger automatic failover to a recovery site, remote workers or users' mobiles to ensure continuity of service.

With an on-site PBX, although some handsets are not dependent upon power, service is still subject to physical connectivity. If the phone lines are down, the system is inoperative. This singlepoint of failure is a red flag for any business continuity plan.

Advanced Call Features

A hosted VoIP solution typically provides a suite of advanced features; including FCA-compliant call recording, call monitoring, call queuing, routing and forwarding, audio conferencing and more.

In a traditional PBX scenario, adding call recording could cost thousands of pounds in new hardware. With hosted call recording you can simply add functionality on a per-user basis and store any recordings centrally.

Multi-site Businesses

With traditional site-based telephony a PBX is required at each and every site; from your headquarters to the smallest satellite office. This will naturally involve an investment in hardware purchase, installation and maintenance.

Hosted VoIP systems do not rely on site-based hardware. If you are running multiple sites, or looking to create a failover location in case of disaster recovery, all you need is an internet connection.

Moves, adds and changes across multiple sites can all be administered centrally from a webbased management tool.

BYOD

One of the most significant and pervasive technology trends of the past decade, BYOD can provide cost and productivity benefits to your business. However, device management and interoperability can be problematic.

With a hosted VoIP solution in place, softphone applications for iOS, Android or Windows mobile devices allow users to log in from any connected device and leverage all the features of the business telephony solution.

Management Information

VoIP solutions include powerful monitoring and reporting tools that provide vital intelligence to support business decision making and user-training.

Access to data on call abandonment, queue times, call duration and call resolution rates (amongst others) allows administrators to analyse performance and recommend remedial action to maintain customer service levels.

Legacy Systems Integration

Most modern ICT estates feature a mix of best-in-class vendor solutions. Introducing another vendor to the mix can create hardware conflicts or integration issues than ultimately impact on service delivery in the short-term.

Hosted VoIP is characterised by its ease of deployment and integration with existing technologies, such as click-to-call functionality integrated with MS Outlook and screen-popping within MS Dynamics.

For bespoke incumbent technologies, open APIs are used to facilitate integration.

Financial Comparison Of Voip Vs. On-Site PBX

If you opt for a Hosted IP solution, your up-front costs are minimal-to-nothing. The capital investment has already been made by the provider – their own hardware, their own phone systems and their own servers. You simply access their technology and pay for what you use on a monthly, utility basis.

Cap Ex

Cap Ex (capital expenditure) requires you to purchase equipment outright. With this comes a §monthly service charge and the implications of hardware depreciation and redundancy.

Op Ex

Op Ex (operational expenditure) allows businesses to finance any hardware, software, service and support costs into a single, predictable monthly cost.

With Hosted IP telephony now offering the resilience, security and quality of traditional systems, there really is no need for companies to buy their own phone systems any more.

There are many ways a Hosted solution can keep your initial and recurring costs down.

- No initial investment or setup costs for hardware or expertise
- No on-going maintenance, servicing and upgrade costs
- Your provider or host shoulders all the risk, work and complexity
- The system is ‘shared’ by numerous companies bringing down costs with scale
- Add one user and only pay for one user as opposed to adding multiples of 8 or 16
- If your building connection drops out, users can carry on working using any internet connection
- Disaster recovery options are intrinsic to the system

SIP Trunking

Session Initiation Protocol (SIP) trunking is the use of voice over IP (VoIP) to facilitate the connection of a private branch exchange (PBX) to the Internet.

In effect, the Internet replaces the conventional telephone trunk, allowing an enterprise to communicate with fixed and mobile telephone subscribers worldwide.

(SIP is an IETF standard for initiating interactive multimedia user sessions; a trunk is a line or link that can carry many signals at once, connecting major switching centres or nodes in a communications system.)

In order to take advantage of SIP trunking, an enterprise must have a PBX that connects to all internal end users, an Internet telephony service provider (ITSP) and a gateway that serves as the interface between the PBX and the ITSP.

One of the most significant advantages of SIP trunking is its ability to combine data, voice and video in a single line, eliminating the need for separate physical media for each mode. The result is reduced overall cost and enhanced reliability for multimedia services.

With SIP trunking, subscribers can:

- Initiate and receive local calls
- Initiate and receive long-distance calls
- Make emergency calls
- Access directory assistance
- Use fixed and mobile telephone sets
- Employ e-mail and texting
- Browse the World Wide Web
- Make free, on-net calls

Connectivity

If your current connection does not meet the performance requirements for VoIP, you will need to arrange for a business-grade solution that is tailored to your specific voice and data needs. Any connectivity should include QoS (Quality of Service) as standard.

Don't worry there are a number of solutions available that provide fast and secure connectivity at reasonable rates.

As bandwidth continues to increase and connectivity prices come down, enterprise-class performance becomes available to small and medium-sized businesses; featuring SLAs that guarantee the number of voice channels available.

Fibre to the Cabinet (FTTC) offers a cost-effective, entry level solution that provides uncontested connectivity.

For those looking for an alternative to leased lines or ADSL, or those without fibre access, Ethernet First Mile (EFM) technology provides a cost-effective option.

For larger businesses with more demanding connectivity requirements, Ethernet connectivity provides scalable access at speeds of up to 100Gbps.

Remember, not all connectivity is created equal. Despite creative naming policies and claims to the contrary, not all fibre-based services are true fibre. Some will include lower speed components, such as copper cabling into the premises.

If you get the connectivity right, you can realise some cost savings across the business.

Consolidating voice and data services provides a flatter, easier to manage network. Plug and play installation reduces time to operation and eliminates the need for specialist installers.

Scalability of connectivity is essential if your essential services are to provide long-term support as your business grows.

Quality Of Service

Network Quality of Service (QoS) refers to the ability of the network to handle voice and data traffic, so it can meet the service needs of various applications. This requires fundamental traffic handling mechanisms in the network, the ability to identify traffic that is entitled to these mechanisms and the facility to control these services.

The primary goal of QoS is to provide priority services including dedicated bandwidth, controlled jitter and latency (required by some real-time and interactive traffic), and improved loss characteristics.

Also important is making sure that providing priority for one or more flows does not make other flows fail. QoS technologies provide the elemental building blocks that will be used for future business applications in campus, WAN, and service provider networks.

Here is a quick overview of QoS and some important questions to ask potential providers.

What is QoS?

When you hear VoIP (Voice over Internet Protocol) providers or IT experts talking about Quality of Service what they are referring to is the overall performance of a VoIP system or network. This performance is usually measured by what the end-users think of as the system's performance and by looking at other statistics such as bandwidth use, transmission (call) delay and error rates.

Why is it important?

QoS is not just used for VoIP systems. It has been something even traditional phone providers strive for. Think back to your original landline service - chances are 99 percent of the time call quality was perfect, or near perfect. This is because traditional phone network providers invested in physical networks and connections that offer high QoS, all of the time. If you switch from one provider to another, there is a good chance that quality doesn't change.

With these well-established physical networks, you are going to have to pay more though. Most traditional phone systems are more expensive than VoIP, because the network providers have to physically maintain their transmission network. This high-maintenance cost is also the reason there are only a couple of phone providers in your area - it's just too costly for small companies to launch a traditional phone network.

Broadband connections have enabled VoIP and have led to a high number of VoIP providers, largely because you don't need to own the transmission network (in this case the Internet) to launch a VoIP platform. Because of this, the QoS amongst providers varies drastically.

What this means for you is that you should be taking a provider's QoS into account when looking for new VoIP systems. To help you ensure that you are getting the best possible, here are three questions you should ask prospective providers:

How much do you own of the network infrastructure your system uses?

Almost every VoIP provider will rely at some point on public Internet in order to transmit their services. Essentially, the less infrastructure a company owns, the higher the risk that quality will be lower. Conversely, using more public systems means lower prices, so it really is a trade-off you need to think about.

For businesses that rely on phone systems, one of the best options is to look for facilities-based providers. These companies own all, or most, of the network that carries VoIP calls and can therefore offer better services and quality.

How much traffic will run over public Internet?

This answer will vary. Some of the most popular solutions among really small businesses and home users such as Vonage will use almost 100 percent public Internet for their traffic. Other companies will use a mixture of public and private networks, often using public for more affordable services and private for high-end users.

For example, cable providers who offer VoIP calling will often use public Internet to carry lowerlevel traffic, while high-end business plans will often run on private networks. The reason to ask this question is because traffic that goes over public Internet networks will be subject to bandwidth sharing. If there is a high demand for bandwidth in the general area, call quality may drop.

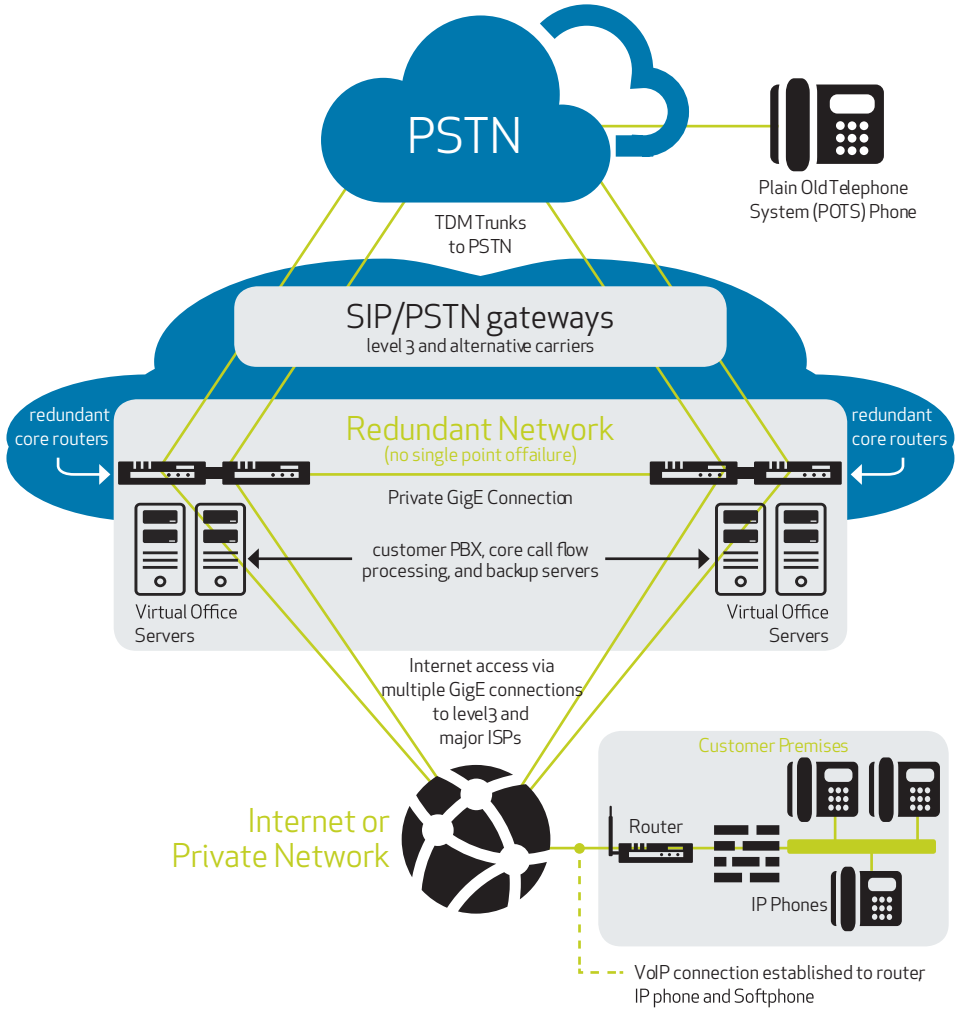
What level of quality can you guarantee?

Good providers will be able to guarantee a QoS that is comparable, or even better, than traditional networks. This is especially important for businesses who are looking to switch to a full VoIP solution. What a provider should do is run a few tests on your network and then give you a quality assurance. If it is too low, then look for another provider.

Sample VoIP Network Architecture

What to look for

- Intelligent software analytics deliver quality connectivity
- Geographic redundancy / failover provides 99.995% availability
- Able to serve customers requiring compliance with major regulatory standards Seamless abstraction of complex SIP/PSTN gateways
- 90+ awarded patents; 24 pending
- Carrier-Grade products hosted in Carrier-Grade datacentres
- Each ACME SBC and BroadWorks component is duplicated
- Auto Failover
- MPLS network for inter-site communication
- Quality of Service enabled
- Multiple PSTN breakouts with diverse carriers
- Direct Connections to all leading carriers



VoIP System Features

Basic Telephony

- Complete phone service
- Mobile, tablet, online, IP Phone accessible
- Unified communications: presence, video , chat
- Instant, secure provisioning
- Fully scalable, up or down
- Remote PBX management

Advanced Features

With Virtual Office Pro you can add our full suite of Unified Communications (UC) tools to your Virtual Office solution.

- Call Recording
- Virtual Fax
- Virtual Meeting
- Unlimited meetings
- Web collaboration
- Private conference bridge

System Administration

The Virtual Office Account Manager provides real-time system administration with “0” down-time for changes or updates.

- Administrative web-based portal
- Feature configuration
- User administration
- Security management

Why choose babble?

At babble we bring businesses and communications technology together in unexpected ways – to make them more accessible, more responsive and more effective.

We work primarily with large and mid-sized UK enterprises and are a recognised leaders in the deployment of UCaaS and CCaaS solutions.

What makes us different is that we are not just fanatical about the technology we work with, but also the endless possibilities that these solutions creates for our customers.

This is why we start by making sure we get under the skin of your business issues and ambitions, as well as your employees' and customers' expectations.
By doing this we can bring the technology and the business possibilities together and offer you a choice of uniquely joined-up communications solutions that achieve exactly what you need... in ways you probably never imagined.

And that's how we make you business brilliant.

babble cloud Limited
Bury House
31 Bury Street
London
EC3A 5AR

For more information, contact the babble team

Web: www.babble.cloud
Tel. 0800 440 2100