White Paper

VOX®

MINIMISING BUSINESS VOICE COSTS DURING LOCKDOWN

Contents

"Effectively manage call costs during the lockdown and avoid the risk of bill shock."

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THE IMPACT OF THE LOCKDOWN ON COMMUNICATION

The global lockdown has not only had a massive humanitarian impact, but it also forced companies of all sizes and industry sectors to re-evaluate their business continuity plans.

With half of the world's population currently placed in self-isolation, this black swan event has fundamentally changed how people go about their lives amidst the current global pandemic.

Greatly contributing to this is the lockdown that has been extended indefinitely, until we reach level one. The impact of the crisis here and in every country around the world, will likely be felt for years to come.

Wherever it has been possible, businesses have been relying on employees to work from their homes. The pressure has been immense to keep operations going as smoothly as possible.

This has put the spotlight on people's connectivity and how they are able to link back to their organisation, using digital means. Additionally, those who are not able to work have mostly been placed on enforced leave. These two forces combined put unprecedented pressure on communication networks to remain working optimally.

Research has shown that between January and March 2020, global Internet traffic increased by around a quarter in many major cities. It has resulted in a spike in demand for video calls, whether to stay in touch with management and customers, or with family and friends.

The Microsoft Teams unified communication platform saw a spike of 44 million daily active users at the end of March, a 110% jump from November 2019.

In Europe, the lockdown has also sparked an increase in mobile phone calls.

Mobile network providers there have noticed an increase in activity for voice and WiFi calls since countries started their periods of self-isolation.

Spanish telecommunications operator Telefonica had seen an increase by nearly 40% for IP networks within just a few days. Orange Group in France said mobile voice traffic doubled within a week of the lockdown being imposed there.
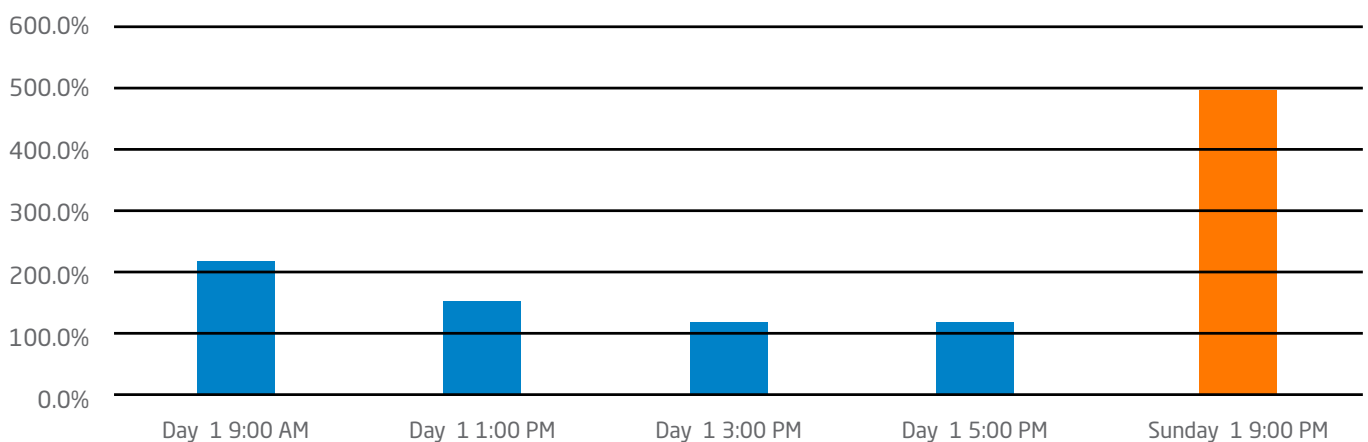The list goes on.

Nokia research has found an almost 40% increase in global internet traffic in impacted regions in March alone.

It conducted Day 1 and Sunday 1 analysis of internet usage in countries under lockdown to underpin the importance of reliable connectivity to keep economies functioning. For example, the below graph shows that on the first day and first Sunday of a lockdown, there was a significant increase in the usage of the WhatsApp instant messaging tool as opposed to how it is traditionally used.

Day 1 and Sunday 1 of Lockdown:
WhatsApp traffic increase over the same workday previous week and over the previous Sunday

SOURCE: https://www.nokia.com/blog/early-effects-covid-19-lockdowns-service-provider-networks-networks-soldier/

Communication regulators have had to make amendments to policy to ensure infrastructure remains operational due to this increased demand.

For example, both Ireland and South Africa have seen mobile operators receive temporary access to additional spectrum to boost capacity during the lockdown period. Furthermore, the Department of Communications and Digital Technologies in South Africa has forbidden the increase of mobile data prices and mobile number portability during this period.


So, with more people having to make more calls for both business and personal reasons during the lockdown, how can companies maintain operations effectively?

Currently, those organisations who have an on-premise PBX are not able to make any outbound calls or receive inbound calls. At best, those with an on-premise PBX had to resort to either diverting calls to a single mobile phone user or requesting customers to leave a voice message. Neither scenario is ideal, resulting in much customer frustration.

This means remote workers must rely on their personal devices for business use.

Despite the price lock in South Africa, mobile rates are still expensive when compared with other developing nations meaning many companies will be in for a significant bill shock when things start returning to normal.

This is where innovative digital solutions need to be embraced to mitigate these and other risks.
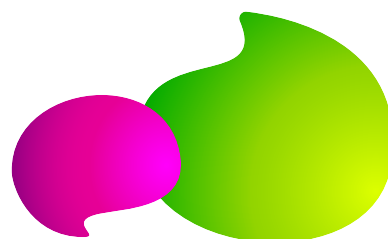
UNDERSTANDING THE COST

But what does this mean from a cost perspective?

Take the following example:

Company ABC has an on-site PBX and voice lines from Supplier XYZ. The PBX has 10 extensions and John is one of the users. Company ABC has a voice rate of R0.50 per minute for all voice calls.

This means that all outbound calls made from any of the on-site extensions will attract a rate of R0.50 per minute.

Since lockdown, John is using his mobile phone (assume he is a prepaid Vodacom subscriber) to call his customers. He will be charged between R0.79 and R1.23 per minute.

This translates into a 60% to 146% increase in call charges that Company ABC will have to absorb which is a significant economic impact given the uncertainty of the market.

If John was using a Vobi number, the call rate would either be R0.46 (if using a per-minute methodology) or R0.58 (if using a per-second methodology) which translates to a significant savings for the organisation.

See the table below for the current consumer call rates across the various networks in the country. Pricing is VAT inclusive. Rates for Vodacom, MTN, Cell C, and Telkom Mobile are per second while rates for Telkom is per minute:

Licensed Operator	Prepaid	Post Paid
Vodacom	R0,79 to R1,23	R1,03 to R1,79
MTN	R0,99 to R2,00	R1,05 to R1,71
Cell C	R0,66 to R1,75	R0,99 to R1,55
Telkom Mobile	R0,75 to R0,95	R0,79
Telkom	R0,60 to R1,30	R0,60 to 1,30
Liquid	NA - consumer prepaid no longer available	NA - Consumer post paid no longer available
Vox Vobi	NA	R0,46 (per minute billing methodology) or R0,58 (per second billing methodology)

Sources:
https://www.vodacom.co.za/vodacom/terms/smart-and-red-plus-terms?cid=ntrn_0_dsgn_6848
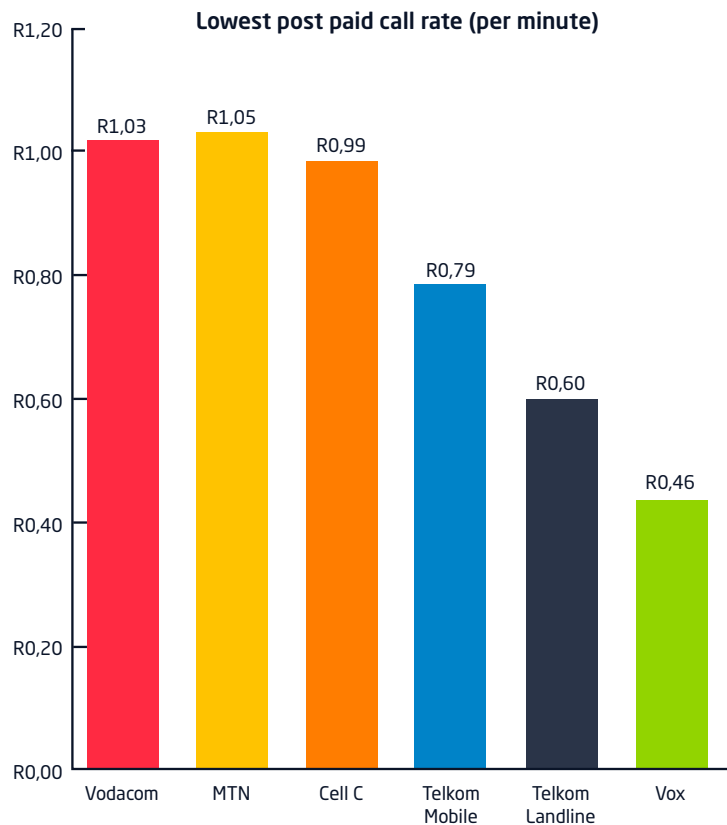https://shop.mtn.co.za/crs/siteInformation/staticPage.jsp?breadcrumb=Contracts&siteInformation=contracts
https://www.cellc.co.za/cellc/newsroom-detail/Connect-with-more-data-on-Cell-C-new-Pinnacle-and-Pinnacle-Premium-contracts
https://media.telkom.co.za/today/media/downloads/SimSonke_Terms_and_conditions.pdf
https://www.telkom.co.za/today/media/downloads/Telkom_More_Terms_and_Conditions_Nov_2014.pdf
https://www.vox.co.za/voice/vobi/?prod=HOME
https://www.businessinsider.co.za/mtn-and-cell-c-big-give-back-voice-offers-still-more-expensive-calls-2019-4

Lowest post paid call rate (per minute)

Provider	Rate
Vodacom	R1,03
MTN	R1,05
Cell C	R0,99
Telkom Mobile	R0,79
Telkom Landline	R0,60
Vox	R0,46

The top 10 international calling destinations (from South Africa) are as follows with the lowest advertised rate shown:

Destination	Telkom	MTN	Vodacom	Vox Vobi
United Kingdom	R0,61	R1,49	R5,29	R0,15
USA	R0,61	R1,49	R4,49	R0,28
Germany	R0,92	R1,99	R5,29	R0,32
Namibia	R2,00	R2,49	R4,99	R1,10
Zimbabwe	R3,58	R5,49	R6,99	R1,99
France	R0,63	R1,99	R5,29	R0,20
Mozambique	R3,96	R3,49	R4,99	R1,35
Swaziland	R1,67	R4,49	R4,99	R0,95
Australia	R0,94	R1,99	R4,99	R0,65
Botswana	R2,66	R3,99	R4,99	R1,43

Note: International calls from mobile networks in South Africa usually take the standard prepaid or postpaid rate and then add an international surcharge.

Sources:
https://www.telkom.co.za/about_us/download/Telkom%20Fixed%20line%20International%20calls.pdf
https://www.mtn.co.za/Pages/RatesPerCountry.aspx
https://www.vodacom.co.za/vodacom/services/convenience-and-security/calling/international-calling-plus-rates

It is apparent that the mobile voice market in South Africa does not make it a feasible option for indefinite operating remotely. Companies must therefore turn to alternative, and more affordable, solutions that still enable employees to keep in touch with customers.

INTRODUCING VOBI
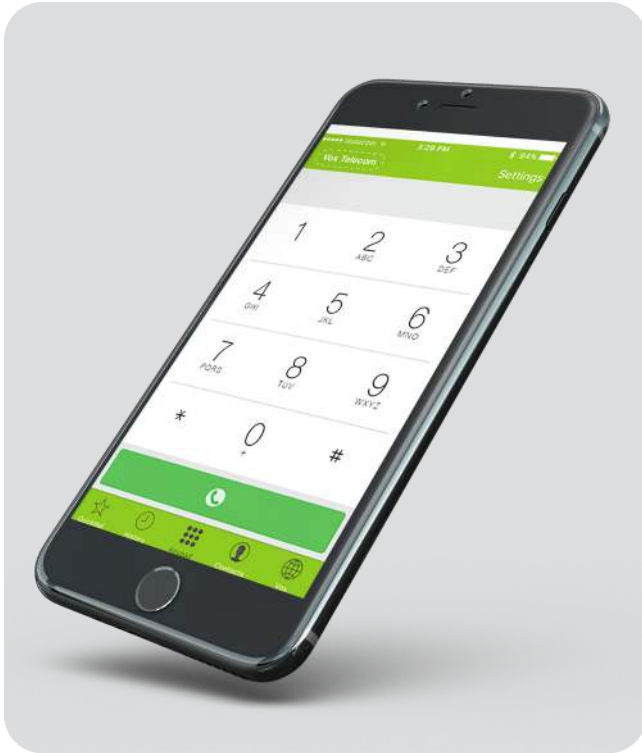
Moving to a hosted telephony solution would address many of the limitations of an on-premise offering during such difficult times.

In simple terms, an on-premise (or on-site) PBX is where the solution is installed at the company's offices. This can either be a physical installation or having software installed on computers or servers at the business.

Furthermore, phone users need to be located at the business to use the phone system. A hosted (or cloud-based) PBX is deployed in a remote data centre with the solution typically accessed via the Internet.

A Cloud-based PBX means employee extensions can be located anywhere and on different types of devices whether that is a desktop phone, mobile phone, tablet, or laptop. It essentially provides a truly unified way of communicating. All that is required is a good Internet connection and the necessary security protocols in place to enable extensions to work from anywhere. An employee would be able to make and receive calls as if they were in the office, and business owners need not worry as calls would be charged at the same rates, whether in or out of office.

This is where the Vox Vobi voice calling app is an example of an innovation that can empower organisations to keep their communication costs down while still enabling their employees to continue engaging with customers. The app integrates seamlessly with the Vox hosted PBX and has the capability to alleviate some of the shortcomings of the on-site PBX as well.

For example, companies with on-premise PBX systems can automatically route incoming calls from the office to the correct employee.

With Vobi, each employee will get their own 087 number. The on-premise solution just needs to be configured to forward a call made to an extension to the relevant employee.

The PBX service provider will be able to easily do that once all the extensions and numbers are supplied. The 087 number can also be used to make outbound calls at lower rates. This solution ensures that employees do not miss any calls made to their extensions during the lockdown.

Migrating users to the Vobi environment is a fast and painless process. It is a five-step process to get remote workers operational with Vobi. . For business users with an on-site PBX requiring Vobi, any queries can be sent to sales@vox.co.za.

Step 1	Step 2	Step 3	Step 4	Step 5
DOWNLOAD Vobi APP	VISIT vox.co.za TO PURCHACE SIP ACCOUNT	RECEIVE QR CODE VIA MAIL	SCAN CODE USING MOBILE PHONE	DONE - START MAKING AND RECEIVING CALLS

This means employees can now make calls at reduced rates across all network operators in the country including international destinations.

The company is charged a low flat rate on a month-to-month basis so there is no long-term contract lock-in to be concerned about if they decide to return to their traditional setup once the lockdown ends. Businesses will still be responsible for the call forwarding costs to the Vobi number with the rates dependant on plan agreed upon by the PBX service provider.

However, Vobi provides detailed call records and itemised billing that can be downloaded from a Web portal. This enables management to keep track of employee phone usage and spend so they can more effectively manage call costs during the lockdown and avoid the risk of bill shock after the period.

Of course, there are technical considerations to be mindful of that may impact the user experience.

These include congestion on the Internet connection especially when home users have several services running at once such as streaming movies, downloading information, playing online games, and so on.

However, Vobi does not have to integrate with a PBX. It can be used as a standalone application to offer lower calling charges for users. For example, a business owner could purchase standalone Vobi services for employees to use on their mobile phones. Outgoing calls will be charged at much lower call rates than traditional mobile to mobile calls.

Business owners benefit by way of cost savings as well as not having to deal with multiple voice usage claims from employees who make use of their mobile phones. Additionally, itemised billed can be sourced from one Web-based portal for all Vobi users.

There are two Vox Vobi packages available:

For any queries on either of these packages, contact **sales@vox.co.za**

Per Minute Calling

- 4 Concurrent calls
- Calls charged at R0.46 per minute to all fixed and mobile numbers in RSA
- International calls at prevailling rates
- Per minute flat rate
- Self Install
- Mobile App
- Itemised Billing

Payment Term

Month to Month

R26.93 /month

R54.00 once-off fee

Uncapped Calling

- 2 Concurrent calls (1 inbound and 1 outbound)
- Uncapped calling to all fixed and mobile numbers in RSA
- International calls at prevailling rates
- Uncapped
- Self Install
- Mobile App
- Itemised Billing

Payment Term

Month to Month

R350.00 /month

R54.00 once-off fee

USING FIBRE FOR VOICE CALLS

Fibre has become the building block for enabling effective (and affordable) VoIP calling.

By moving away from more costly mobile technologies, companies can radically reduce costs and improve employee productivity with fibre driving voice calls.

The bandwidth that a typical VoIP phone service requires depends on the number of concurrent calls the business needs to make.

The table below shows the minimum bandwidth required to make VoIP calls as well as recommended speeds for optimal performance.

Number of Concurrent Calls	Minimum Required Bandwidth	Recommended Speed
1	100 Kbps Up and Down	3 Mbps Up and Down
3	300 Kbps Up and Down	3 Mbps Up and Down
5	500 Kbps Up and Down	5 Mbps Up and Down
10	1 Mbps Up and Down	5-10 Mbps Up and Down

Source: Phone.com

However, the number of concurrent calls is just one part of the equation.

IP technology converts voice into digital data. Much like how music can be made available in several different file formats (for example .MP3 or .AAC), phone calls are compressed using a variety of codecs.

A codec is a method to compress and decompress digital data (typically audio and video). VoIP uses codecs to make data packets smaller while maintaining voice quality. There are numerous codecs that exist for telecommunications. The right codec determines how much data VoIP calls consume and affects overall call quality.

Below is a table that shows approximately how much data a 10-minute call and a one hour call would use with the different codes:

Codec	Data (10 Minutes)	Data (1 hour)
G.711	102 MB	613 MB
G.729	36 MB	219 MB
G.723.1	24 MB	146 MB
G.726	71 MB	426 MB

Source: Nextiva

Given the high cost of mobile data in South Africa, relying on GSM technology for VoIP calling is not a practical solution for organisations. This is not only relevant to employees working from home during the lockdown but extends beyond that when operations return to normal. This is where uncapped fibre provides a cost-effective and affordable solution.

Furthermore, there are several technical aspects that could impact the user experience if connectivity is limited as is often the case with cellular technology.

One of the most fundamental things is the internet connection and the bandwidth available.

With most ADSL ISPs optimised for Web surfing rather than the settings required to achieve high-quality voice calls, an internet connection that is good for most uses may still give a poor call quality.

The transmission of voice packets needs different internet protocol settings to those that may be provided as standard.

A business class high-speed connection will provide the best experience. This is where fibre has the distinct edge over any other internet connection.
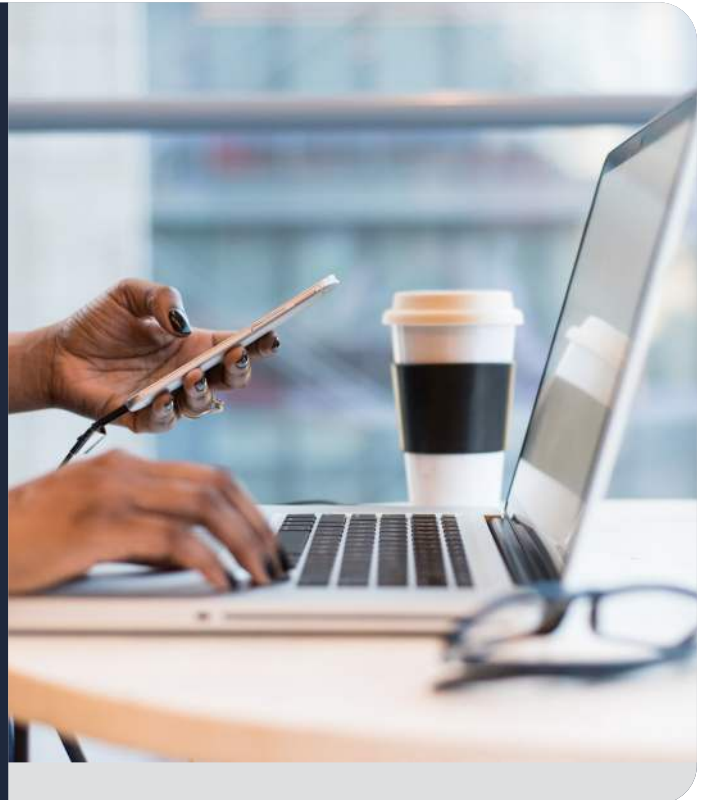
Other aspects to be mindful of are latency and jitter. The former translates to the length of time taken for speech to leave the mouth of the speaker and reach the ear of the listener. It can sound like an echo and is caused by three types of delay:

1 Propagation:
This delay is so small as to be barely perceptible and is the time taken for data to be transmitted through the network cables at the speed of light. If the distance travelled for an intercontinental call was halfway around the world, the propagation delay would be approximately seventy milliseconds.

2 Handling:
Delays caused by devices in the network.

3 Queuing delays:
These are delays caused when packets are put in a queue when the number sent is greater than the interface can handle in a given time period.

Jitter, which is a measure of the change in latency over time in a network, is a common problem in connectionless or packet-switched networks.
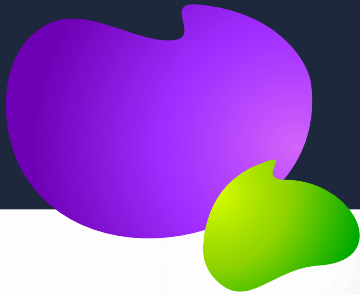
This is because the voice packets that carry information between the sender and receiver all travel via different paths and arrive in a different order from that in which they started out.

This can cause scrambled and poor quality audio and can be fixed by using jitter buffers which store packets as they arrive in order to reduce delay variations and discard them if they arrive too late.

Both latency and jitter can be improved by making sure that VoIP calls are correctly prioritised, which will be the case for a business quality VoIP service.
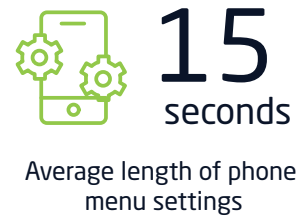
Techniques used for prioritising traffic include bandwidth reservation, multi-protocol label switching, and policy-based network management.

Despite the technical challenges around delivering high-quality VoIP services, fibre can address most of them. The need to embrace VoIP especially during high pressure economic times such as these are too good to ignore.
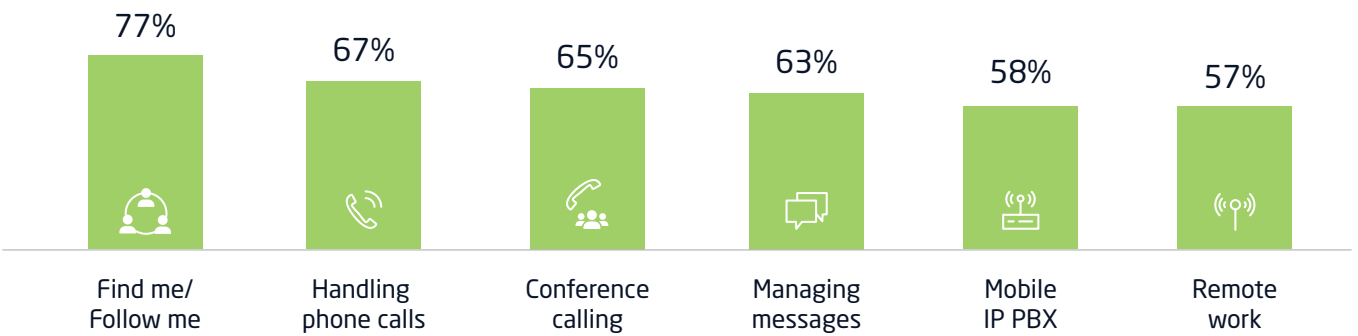
3 Key VOIP statistics you should know

1. What happens to a typical call inside businesses?

90 seconds
Average time callers hold before hanging up phones

36 seconds
Average time callers hold until connected

15 seconds
Average length of phone menu settings

Source: Telzio

2. Top VoIP features & benefits according to small businesses

- **77%** Find me/ Follow me
- **67%** Handling phone calls
- **65%** Conference calling
- **63%** Managing messages
- **58%** Mobile IP PBX
- **57%** Remote work

Source: Spectrum Voip

3. How much money can you save by using VoIP?

- **90%** Savings on international calls
- **75%** Savings on operational costs
- **40%** Savings on local call bills
- **30%** Saving on phone bills

Source: Business.com, Fit Small Business, BullsEye Telecom, Tech.com

vox

CASE STUDY 1 – ALPHAWAVE

alphawave

Industry: Technology

Because of the nature of their business, Alphawave - a technology, software, and electronics company - required fast internet capabilities around-the-clock.

About Alphawave

Made up of 150 people (with more than 100 engineers, scientists, and technicians), Alphawave creates and innovates in software and electronics - providing products and services to clients in a wide range of industries.

The challenge

Alphawave is a company that specialises in products and services like the Internet of Things (IoT) and engineering. This means that it is imperative that they can communicate with their customers 24/7. Despite previously having fibre from a local ISP, Alphawave's connectivity needs were not being met.

Along with a high-speed connection, they also required a modern VoIP solution that could handle their telephony needs. "When approaching Vox for a solution, the free calls inherent in their VoIP offering is what really caught our attention," says Alphawave IT Manager, Hennie Rall.

The solution

After contacting Vox about a high-speed, reliable, and effective connectivity and voice solution, an account manager went to visit Rall on-site. Alphawave decided to adopt Vox's Fibre-to-the-Business (FTTB) 50 Mbps uncapped broadband and FTTB Verto Supreme uncapped voice solutions. "We are very satisfied with Vox and have some good feedback especially around ease-of-use on phones and clarity of voice channels," says Rall.

Benefits

Overall, Rall says that Alphawave's staff are thrilled with the clarity of the voice channels, their ease of use, and that business can be conducted smoother as a result "We have reports that the voice quality has greatly improved over the previous on-site PABX we had," he explains. "Thanks to the implementation of Vox services, we can also budget our telecommunications accurately."

He adds that Vox has a very responsive and helpful service desk support service. "Feedback on problems as well as reports on root causes are accurate," he says.

"We have received good service and prompt responses from Vox and have a stable and reliable Internet/VoIP system which keeps operations running efficiently."

"We are looking forward to a long and mutually-beneficial relationship with Vox," he adds. "My experience of Vox has been very satisfactory, and I'll happily recommend the company to others."

CASE STUDY 2 – KLOOF SENIOR PRIMARY SCHOOL

Industry: Education

Schools are learning environments with numerous administrative functions. Internet connectivity is an essential resource for both learning and necessary administrative tasks. Security is also imperative given the number of learners at a school.

Public schools also need to be conscious of spend and should employ high quality cost-effective solutions.

About Kloof Senior Primary School

Kloof Senior Primary School is a co-educational public school in the heart of Kloof, a suburb of greater Durban in KwaZulu-Natal.

The school offers quality tuition from Grade 4 to Grade 7. They run a variety of academic, cultural, and sporting programs and are made up of 45 staff members and 435 learners.

The challenge

Before getting Vox Fibre to the Business (FTTB), Bernice Love, Principal of Kloof Senior Primary, says the school always had connection issues. "Our connection was never stable and staff members often complained about the internet outages," she says.

Internet connectivity is a necessary resource in any learning environment. Love explains how extended downtime in the classroom as well as in the administrative departments of the school started becoming a problem.

Then there was the issue of security. "When it comes to technology, some of our learners are smarter than us. They know our technology vulnerabilities and how to get onto our systems," says Love.

The learners are also at risk when it comes to cyber security on the school premises. "You'll always get a few learners who will test the boundaries and search for inappropriate words. This has been done a few times," says Love.

Kloof Senior Primary knew they needed to act and protect their staff and learners from cyber security vulnerabilities and risks.

"Internet connectivity is a necessary resource in any learning environment"

The solution

Kloof Senior Primary School got three different quotes for fibre. They settled on the one that came highly recommended, Vox. "A person from our area here in Kloof told us Vox had great service, they were locally based and had a quick turnaround time, so we went with their recommendation," says Love.

"Ever since we've gotten fibre from Vox, we've never been down for more than an hour except for one time when rats got hold of cabling in the area and everyone was down for the day," she adds.

Love says that she hardly gets any complaints from her staff about internet outages and adds that the minimal complaints she has received of late have had to do with internal issues and not Vox.

Having a stable internet connection has allowed the school to become more efficient as well. "When it comes to communication, we're almost paperless.

"Having fibre has helped us better communicate with our community of learners and parents," says Love.

To keep the local network safe, and the school information and resources private and secure, Kloof Senior Primary School employed a managed firewall service from Vox. "Having a firewall has helped us secure our network.

We have not had any issues with learners searching for inappropriate words in the last three years. They may search, but they won't find what they're looking for," says Love.

"The service we've received from Vox has been prompt.

Any issues we had were quickly resolved. Our account manager, Thobelani, is extremely efficient and we can count on him when we need action," says Love.

Kloof Senior Primary School has added an LTE failover connection, a switchboard and are currently installing uncapped voice from Vox. "VoIP calls will save us money and we're always looking for cost effective solutions for our school," says Love.

Vox

CASE STUDY 3 - LEADS 2 BUSINESS

LEADS2 BUSINESS

Industry - Business

Leads 2 Business is a small to medium sized business in Hilton, KwaZulu-Natal. They function with plus minus 80 staff and all staff make some use of the their 15-channel uncapped voice service from Vox.

About Leads 2 Business

Leads 2 Business is a tender information company.

The company researches new tender and procurement opportunities and are in the know about projects and tenders across Africa.

Leads 2 Business publish the tender information they have researched and provide this information to their subscribers, who are invested in this intelligence and will use it to further build their businesses.

The challenge

There were several business challenges that Leads 2 Business faced.
The first was looking for a fibre provider.

Since Hilton is not a large urban area, many internet connections do not allow for the fast connection fibre allows for.

> **"Vox was the first fibre provider to come to the party,"** says Leads 2 Business Director, Mark Meyer.

The next challenge the company faced was one they did not realise they had – unnecessarily high call rates.

Graeme Ainsworth, Vox Key Account Manager for Leads 2 Business noticed this and suggested a money saving solution.

"When looking at the clients call volumes, I noticed there were lots of mobile calls made – which could have been free with an uncapped calling solution,"
says Ainsworth.

The solution

Once Leads 2 Business chose Vox as their internet service provider (ISP), they had the sorely needed fast connection they were looking for in Hilton - an area with less internet infrastructure than the bigger cities other businesses were functioning from.

With Vox as their ISP, it made sense for Leads 2 Business to move their hosted exchange services and voice services over as well.

Meyer says he was impressed with the seamless change over.

Initially Leads 2 Business was using another voice solution by Vox. After noticing the high volume of mobile calls, a 15-channel uncapped voice solution was suggested.

Uncapped voice would allow the company to be ready for all traffic types and utilise their mobile calls free of charge.

When Leads 2 Business followed through on the advice given, they were able to save between R6 000 and R7 000 a month on voice calls.

"Our company has almost continuous uptime and very little downtime," says Meyer and adds that any downtime the company has had has been out of Vox's control – like when they had malicious damage to their fibre line.

Describing the quality of the company's voice calls, Meyer says "We've only used VoIP via Vox and the quality is good. We were forced to use a different service provider before Vox in our Johannesburg office and the quality was not as great," says Meyer.

Meyer was also impressed by the regular visits and check ins by their Vox key account manager who highlighted their need for an uncapped voice solution, and the cost savings they benefited from as a result.

He describes Vox's ability to offer several business solutions as helpful.

"Having different products with one company makes sense. It is only one support call when anything goes wrong. It saves us money and frustration," says Meyer.

CONCLUSION

If anything, the lockdown has highlighted the critical need for companies to assess how they approach communication in a digital world.

Whether you are an entrepreneur, an SME, or a large enterprise, keeping costs to a minimum while still enabling the business for growth and keeping engaged with customers are vital components.

Unfortunately, communication is something that many decision-makers have taken for granted. Some might even have neglected to adequately adapt their business continuity plans to reflect its importance to ensure organisational longevity.

Those companies with on-premise PBX solutions who are reliant on employees to use their personal mobile devices to keep working are in for a massive bill shock then the lockdown ends. Not only does this apply to voice calls but data services as well, especially for those not having access to fibre and who are reliant on mobile connectivity.

Fundamentally, the business landscape will change once normal operations resume.

This will result in a 'new' normal influenced by the learnings gained from this period of remote working.

Companies will likely have to introduce a more flexible work environment in the early stages after the lockdown ends. It could even result in the introduction of a complete remote working culture for those employees able to do so and who have proven their capabilities during the current lockdown.

For this to work, the traditional on-premise PBX can no longer remain. With so many other mission-critical services migrating to the cloud, communication must become one of them. A cloud-based PBX environment supplemented by innovative mobile apps will ensure that a company can remain operational under any circumstances.

Purely from a cost perspective, a cloud-driven system makes more sense as it provides all the flexibility of remote working while still allowing for business to function normally. However, decision-makers must be willing to make the change and embrace this new way of working. Those who remain resistant to it, will increasingly lose relevance not only from a customer perspective, but an employee one as well.

"a cloud-driven system makes more sense"

About Vox

Vox®