



BOTSWANA COMMUNICATIONS REGULATORY AUTHORITY

BROADBAND FACTS AND FIGURES

MARCH 2020

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FOREWORD

This is an inaugural issue of Broadband Facts and Figures, an annual publication by Botswana Communications Regulatory Authority (BOCRA) that shall be released every December. The report offers descriptive insight on broadband market in Botswana with particular discussions on broadband solutions, extent of adoption of the solutions and related matters. It is noted that very few communication regulators issue similar publications, thus rendering our benchmarking efforts scanty informative. Therefore, BOCRA takes advantage of early pioneering position to be creative in the structure of the report and its content. This inaugural report provides a lot of background information, appreciation of various available solutions and underlying technologies for purposes of consumer education. In future publications, focus will be on facts and figures as the title implies the consumer education component will not recur in same breath as in this issue. .

While facts and figures presented herein have been validated and proofread, reporting omissions and errors are acknowledged, with the believe that such are not material to the extent of misleading readers and stakeholders.

Immediate feedback is encouraged and must be sent to info@bocra.org.bw.

EXECUTIVE SUMMARY

Broadband infrastructure requires a lot of resources, capital and otherwise. Therefore, efforts to provide robust broadband infrastructure needs to be coordinated in an efficient and directed manner. That is why it was imperative for the Government of Botswana to consult the industry and civil society in creating the consolidated National Broadband Strategy (NBS). The NBS is an ambitious framework through which objectives and aspirations for broadband connectivity, content and applications are stipulated. The NBS was approved in 2018 and work is ongoing, in various quarters, to fulfil the recommendations of the Strategy.

Demand for broadband in Botswana has grown tremendously over the recent years. Substantial demand is noted in the consumer markets as presented in the various sections of this Report. Notable growth was realised between 2017 and 2018 as evidenced by the volume of mobile broadband traffic growing at 242 percent between those two years.

It is expected that demand for broadband services will continue to grow for a considerable length of time. The Fibre To The X (FTTx) initiatives by Botswana Fibre Networks (BoFiNet) and other service providers has heightened consumer expectations and it is anticipated to fuel new levels of demand for broadband services resulting in continued growth.

It is imperative that quality of service becomes a key factor in ensuring that the benefits of broadband are fully realised.

INTRODUCTION

Broadband is an essential enabler for socio-economic growth of any country. It empowers citizens, triggers positive change in business processes and creates an environment that fosters technological and service innovation. For the benefits of Broadband to be fully realised, investment in new technologies as well as migration from traditional networks and services to next generation networks is imperative.

Analysis of the growth and current status of broadband depends partly on how broadband is defined, since the exact definition of broadband affects subscriber and growth statistics.

The term broadband commonly refers to high-speed Internet access that is always on and is faster than traditional dial-up access. Broadband

includes several high-speed transmission technologies, such as fibre, wireless, satellite, digital subscriber line and cable.

International Telecommunication Union (ITU) defines broadband as a capacity of at least 256 kbps in the uplink or downlink. The Broadband Commission for Digital Development has defined broadband using a cluster of concepts, as high-speed Internet access which is always-on and capable of multiple service provision simultaneously.

The Botswana National Broadband Strategy defines broadband as an ecosystem encompassing high capacity, high speed and quality electronic networks, the services carried through the networks, the applications they deliver as well as the users. This definition takes into account the continuous evolution of technologies, applications, needs and the variety of requirements of users and the fact that users are mainly interested in the services provided rather than the technology that conveys such services.

In this inaugural issue of Broadband Facts and Figures, it is appropriate to introduce important national strategic initiatives that were targeted at development of broadband vision and these are the Maitlamo National Policy for ICT Development of 2007, the National Broadband Strategy of 2018 and the BOCRA Spectrum Management Strategy of 2019.

Maitlamo National Policy for ICT Development: This high-level compelling policy was put together to close the digital divide in Botswana and integrate and coordinate all ICT initiatives into a common direction with the intent of creating an information society. The policy proposes that the strength of the information society be anchored on robust nationwide accessible platforms of eEducation, eHealth, eCommerce and eGovernment. Clearly, all these could only be realisable on availability of extensive broadband infrastructure. Subsequent to the adoption of the Policy, a number of initiatives were developed and implemented, one of the most influential being the National Broadband Strategy.

The National Broadband Strategy of 2018: To ensure universal access to broadband services, the Botswana Communications Regulatory Authority (BOCRA) and the Ministry of Transport and Communications (MTC) in consultation with various stakeholders developed the National Broadband Strategy (NBS) for Botswana. Approved in June 2018, the Strategy seeks amongst others to:

- Create an enabling environment for the deployment, accessibility, availability and utilisation of broadband infrastructure and services for diverse use;

- Ensure universal access to broadband services through development of appropriate funding mechanisms; and
- Facilitate and encourage economic diversification

The Strategy sets out the minimum broadband access speed targets for Botswana as shown in table 1.

Table 1: Minimum broadband speed targets stipulated in the Botswana National Broadband Strategy

Area	Targets for Minimum Broadband Speeds
Urban Area	By 2023 it is expected that people in urban areas should access speeds of 100 Mbps to 200 Mbps using technologies such as LTE-Advanced and Fibre. These speeds will enable services such as Smart Government, Advanced application hosting and ICT convergence services.
Rural Area	In rural areas, minimum access speeds are expected to be between 30 to 50 Mbps. Technologies to be used include fixed wireless and TV Whitespace to enable services such as e-government, smart villages, business, application hosting and online gaming.
Agricultural Area	The proposed minimum speeds for Agricultural Areas to be attained by 2023 are between 5 to 10 Mbps. Technologies that will enable Botswana to reach these speeds are VSAT and TV Whitespace.

The above stated minimum broadband access targets are yet to be achieved and this Report will show an analysis of the different speeds for broadband as supplied by fixed broadband service providers.

Currently, there are various challenges attributable to availability of last mile infrastructure and affordability of broadband. The challenges are being addressed through various structures and initiatives such as open access provision of FTTx by BoFiNet and engagement of smart subsidy through Universal Access and Service Fund (UASF).

It is worth mentioning that the National Broadband Strategy has provided the most pursued recommendations in the development of broadband infrastructure in Botswana, the most celebrated being the School Connectivity and Computerisation programme as well as provision of high-speed broadband networks in rural areas pursued by BOCRA under the auspices of UASF.

BOCRA Spectrum Management Strategy: The Spectrum Management Strategy is a regulatory instrument that facilitates availability of scarce spectrum resources for use by service providers in delivering infrastructure, services and applications. The thrust of the strategy has been on rationale and timely allocation of spectrum bearing in mind current and future demand that are influenced by international trends and fast paced innovation and solutions. Pricing was a key consideration in determining efficient allocation of scarce resource. BOCRA allocates spectrum on demand basis and for high demand spectrum, allocations are conducted on best-bidder basis at prices fixed by the Authority. These efforts have translated into well managed availability of spectrum for use in backbone infrastructure, access networks and most importantly facilitating the broadband oriented 3G and nascent 4G/LTE access networks.

UNIVERSAL ACCESS AND SERVICE FUND (UASF) AND ITS ACHIEVEMENTS IN BROADBAND DEPLOYMENT

The establishment of Universal Access and Service Fund (UASF or the Fund) was provided for in the Communications Regulatory Authority Act of 2012. The purpose of the fund is to promote national access to communication services, one of major services of interest being broadband Internet. During implementation of its first strategic plan, the Fund was able to provide subsidy for broadband infrastructure in

The UASF strategy is anchored on objectives of Maitlamo National Policy for ICT Development and the National Broadband Strategy.

BoFiNet has national fibre coverage in excess of nine thousand kilometres (9,000 Km) countrywide covering cities, major towns and villages. To date, 164 areas which include cities, towns and villages have fibre and the target for 2020 is to have reached 206 areas.

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The importance of the above is that BoFiNet as a wholesale provider, is a key facilitator of broadband connectivity throughout the country providing connectivity at international, national, intercity and intracity levels.

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According to ITU, Fixed broadband refers to fixed high-speed access to the public Internet at downstream speeds equal to, or greater than 256 Kbit/s. This includes cable modem, Digital Subscriber Line (DSL), fibre-to-the-home/building, other fixed (wired)-broadband, satellite broadband and terrestrial fixed wireless broadband. Access to data communications (including the Internet) via mobile-cellular networks is not considered as fixed broadband.

Types of Fixed Broadband

Cable modems: Cable modems are a popular broadband technology and have flourished in economies with developed cable TV networks. Cable networks are capable of carrying different “channels” along the same physical copper cable. Originally, these channels carried different television channels. Now, in addition to these television channels, one channel sends data to users from the Internet and another channel sends data from users back to the Internet.

Digital Subscriber Lines (DSL): DSL uses different frequencies to split voice and data services using the same standard copper line as shown in figure 2. Internet is provided via Digital Subscriber Line Access Multiplexer (DSLAM) at the service provider’s premises and an ADSL modem at the customer premises while voice is filtered at both ends by a Low Pass Filter (LPF). This means users have the ability to surf the Internet and talk on the phone at the same time, using single phone line. Like all broadband technologies, DSL offers higher speeds and greater quality when transmitting voice, data and images. DSL is a contended service, where bandwidth and service speeds vary based on the number of subscribers in a particular area and simultaneous use as well as the distance to the distribution point. ADSL technologies or standards have evolved over time from 1998 with downstream speeds of 8.0 Mbit/s to the latest technologies of speeds of about 50.0 Mbit/s (i.e. for Very High Speed Digital Subscriber Line VDSL technology). Botswana Telecommunications Corporation (BTC) is the only licensee that has copper deployment and is providing ADSL technology and VDSL on both wholesale and retail basis. There are at least seventeen retail providers of ADSL comprising sixteen Internet Service Providers (ISPs) and BTC. This means that the ISPs are reselling the ADSL that is wholesaled by BTC and they compete with BTC retail arm at the same time. As at June 2019, there were 30 044 active retail ADSL subscriptions in the market of which 95.2% were supplied by BTC retail and the other 4.8% was supplied by ISPs. VBNS, Zebranet and Bytes Technology are the largest resellers of ADSL in the ISP market. The list of ADSL providers is shown in Appendix 1.

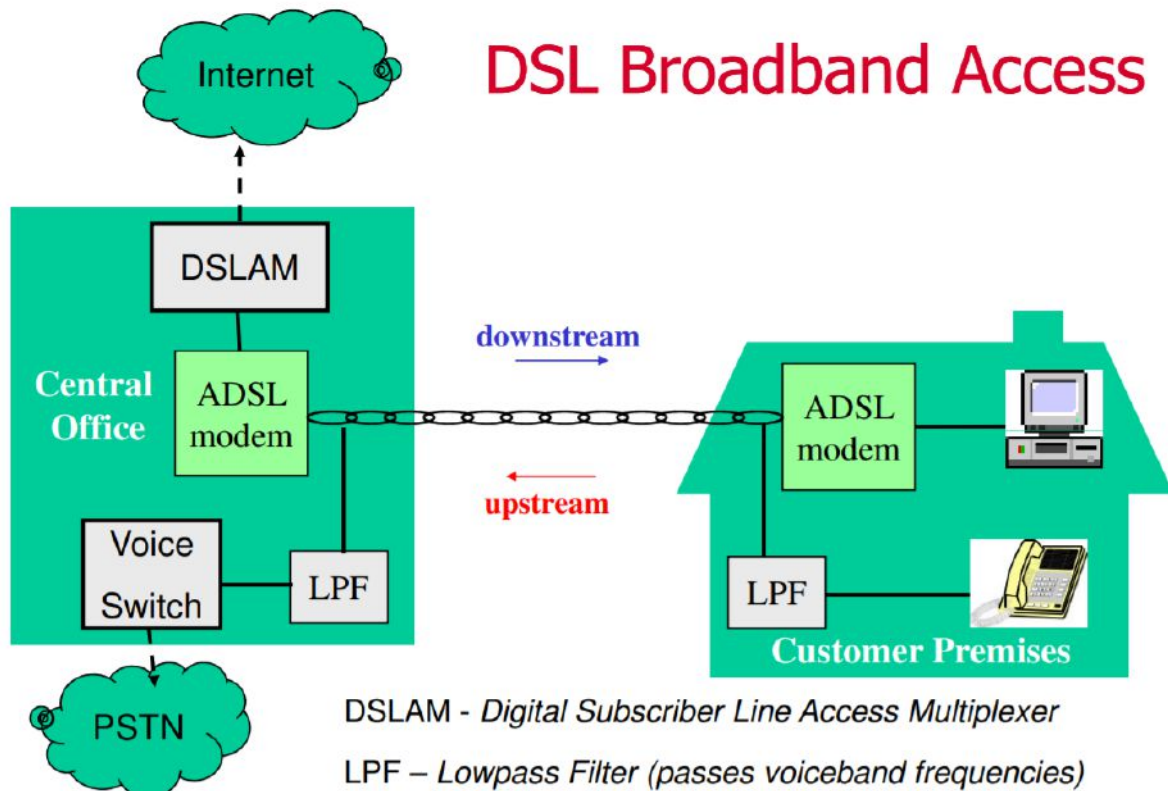


Figure 2: Schematic diagram of ADSL (Source: University of Texas)

Fibre optic cable: Unlike DSL and cable technologies, which are both based on copper wire, the fibre optic cable uses laser to transmit pulses of light down extremely fine strands of silicon called optic fibre. Since light uses higher frequencies, fibre optic cable can carry significantly more data than either electric signal or radio waves. Fibre optics can theoretically provide nearly unlimited bandwidth potential, so this solution is often used for either high bandwidth connections between cities or heavy bandwidth areas within cities.

The cost of installing the fibre optic cables previously made it prohibitive for connecting small communities or homes, but prices have fallen to the point that in several economies, users can now connect to the Internet via fibre optic cable at speeds 20 times greater than the fastest DSL and cable modem connections. Several governments are gradually laying fibre infrastructure to have it ready when it finally becomes cost effective to install the connections and “light up” fibre to the home. Botswana Fibre Networks (BoFiNet) is the sole wholesale provider of fibre in Botswana and started rollout with Fibre-To-The-Business (FTTb) in 2016. Rollout of Fibre-To-The-Home (FTTh) began in 2019 in Gaborone and will extend to various parts of the country in 2020 and beyond. BoFiNet has a robust five-year plan to rollout Fibre-To-The-X (FTTx) to over 38 towns and

villages that each have a population of over 5000 inhabitants. The x in FTTx denotes the last point of termination / arrival of the fibre and this can be a cabinet, business premises or a home. Connection from the core network to the home or business premises utilises various transport mediums such as Wired (Copper, Optic Fibre) and Wireless (radio). BoFiNet utilizes Optical fibre and radio equipment to deliver the various speeds to the point where other licensed service providers can extend the connection to provide service to the home or business premises. BoFiNet has deployed Fiber-To-The-Business (FTTb) in 12 cities, towns and villages connecting 2911 sites and the rollout continues to the rest of the country in phased approach.

Mascom has also deployed FTTh in Phakalane and Block 7 areas of Gaborone since 2017/2018. BTC deployed FTTx since 2017/18.

In terms of uptake of fixed broadband (DSL and FTTx) there were 35,394 subscriptions as at March 2016 decreasing to 29,929 subscriptions in March 2019 and about 99 percent of these subscription were ADSL while 1 percent was FTTb and FTTh. The decline was on subscriptions of ADSL after BTC had audited and validated its database to maintain more credible reporting. The major fixed broadband operators are BTC, Mascom as well as some ISPs who resell BoFiNet FTTb. An increase in number of subscriptions is expected in future as more people connect to FTTh for better experience. As at March 2019, penetration of fixed broadband in Botswana (per head of population) stood at 1 percent.

An analysis of fixed broadband speeds of 30,441 subscriptions as at period ending June 2019 (i.e. 3 months after March 2019), for which data was collected, is shown in figure 3. About 15,691 subscriptions representing 52 percent of the total customer base of fixed broadband subscriptions are below speed of 2Mbps. About 46 percent or 14,105 subscriptions are at the speed of 2Mbps to 10Mbps and only 2 percent of subscriptions are at the speed of over 10Mbps. At least 60 percent of the fixed broadband subscriptions are in the residential households and this explains the substantial number of subscriptions that are in the speed categories of Below 2Mbps as well as the category of 2Mbps to 10Mbps.

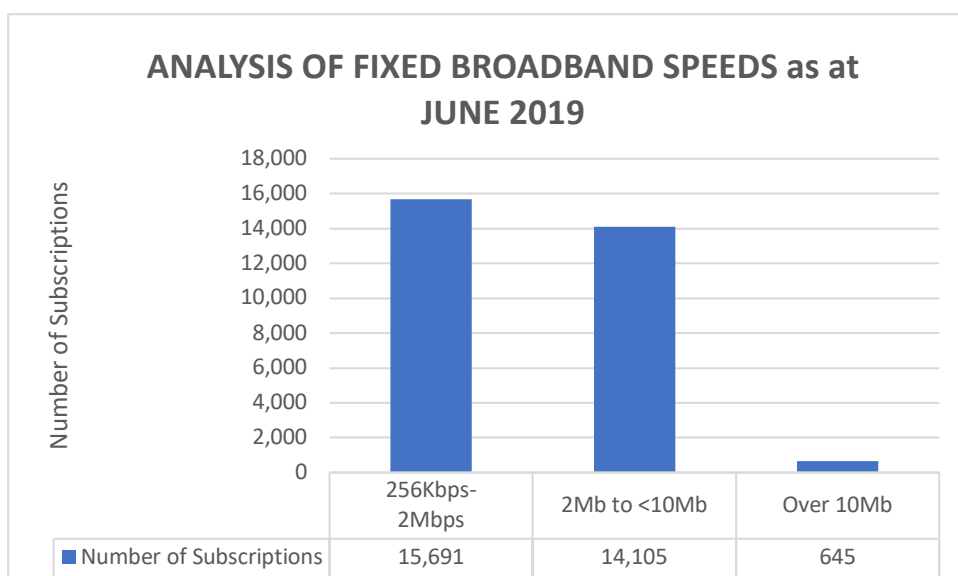


Figure 3: Analysis of Fixed Broadband Speeds (Source: BOCRA)

Other fixed (wired)-broadband refers to fixed (wired)-broadband technologies to access the Internet (other than DSL, cable modem, and fibre), at downstream speeds equal to, or greater than, 256 Kbit/s. This includes technologies such as ethernet LAN and Broadband-over-Powerline (BPL) communications. Ethernet Local Area Network (LAN) uses IEEE 802.3 technology and is usually preferred in the corporate environment for office networking purposes. BPL is broadband-over-powerline services and has not been adopted in Botswana, neither has it been widely adopted anywhere in the world because of its limitations in noise rejection.

Pricing for Fixed Broadband

The fixed broadband market has been dominated by BTC offering DSL solutions at wholesale and retail level. The retail prices of DSL largely reflect the underlying wholesale price by BTC plus value-added by resellers. The price analysis could not be presented in this report as validation and analysis were involving because of the many service providers in the market. A robust validation and analysis method will be devised so that the results are published in future reports. Prices for fixed broadband are shown together with prices for fixed wireless broadband in Appendix 2.

For FTTx, the market is new and prices are closely regulated to ensure that the BoFiNet offering does not erode in value as value-adding service providers (or resellers) take the product to the market.

In line with regulatory pricing principle, the retail offerings of FTTx wholesaled by BoFiNet and resold with value add by ISPs and other service providers must reflect the underlying costs. BoFiNet wholesale pricing for FTTx are presented in tables 2a, 2b and 2c.

Table 2a: Wholesale FTTH National Leased Line

Capacity (Mbps)	Monthly Recurring Charge (BWP)
2-5	227
10	367
15	504
20	638
25	770
30	900
40	1156
50	1437
60	1655
70	1899
80	2142
90	2382
100	2620

Table 2b: Wholesale FTTH Fibre Lite

Mbps	Monthly Recurring Charge (BWP)	Contention	Min Guarantee (Mbps)
5	350	1:2	2.5
10	650	1:2	5
25	800	1:2	12.5
50	1500	1:2	25

Table 2c: Wholesale FTTB Fibre Lite

Mbps	Monthly Recurring Charge (BWP)	Contention	Min Guarantee (Mbps)
5	586	1:4	1.3
10	1098	1:6	1.7
20	1647	1:8	2.5
40	2471	1:10	4.0

The contention and minimum guaranteed speeds are essential aspects of quality of service and customer quality of experience. BOCRA pays attention to these aspects when retailers (who resell BoFiNet's FTTx) seek approval to go to the market. Price is also an important consideration.

FIXED WIRELESS BROADBAND

Fixed Wireless Broadband refers to terrestrial fixed wireless Internet with an advertised download speed of at least 256 Kbit/s. This includes ISM at 2.4 Ghz and 5.8Ghz, WiMAX and for the purpose of this report shall also include Wireless Local Area Networks (WLAN) and Wireless Fidelity (WiFi). Mobile broadband supported services are not considered part of fixed wireless broadband.

WLANs are local area networks that use electromagnetic waves to transmit and receive data over short distances, instead of using wireline networks. Mobile devices access the network by connecting, via radio, to a wireline access point that passes traffic back and forth over the network. WLANs are an effective way to share wireless Internet access from a broadband connection within a distance of 100 metres.

They are also increasingly used to provide broadband access over long distances in rural areas and developing nations (using special equipment and technology to boost the effective distance of the connection points). Wi-Fi is one of several WLAN standards and it has come to be the most common type particularly because of its compatibility with mobile cellular devices and computer tablets.

WLAN has the advantage of being a cheaper solution to provide internet connectivity, especially in areas where deployment of copper or fibre is costly but it has the disadvantage of being limited in coverage range.

A study was conducted for the period ending June 2019 to establish the strength of the fixed wireless broadband access market, with specific focus on the demand for broadband internet from twenty-six service providers comprising Internet Service Providers (ISPs) and Mobile Network Operators (MNOs). It was observed that a significant number of service providers, particularly ISPs use the unlicensed ISM at 5.8Ghz and the MNOs use WiMax at 2.5Ghz. One ISP has the benefit of use of 2.5Ghz which was issued during an allocation exercise that was based on competitive bidding. The surveyed service providers have presence in

both urban and rural areas with the largest concentration in Gaborone. Figure 4 is a presentation of the results from the survey.

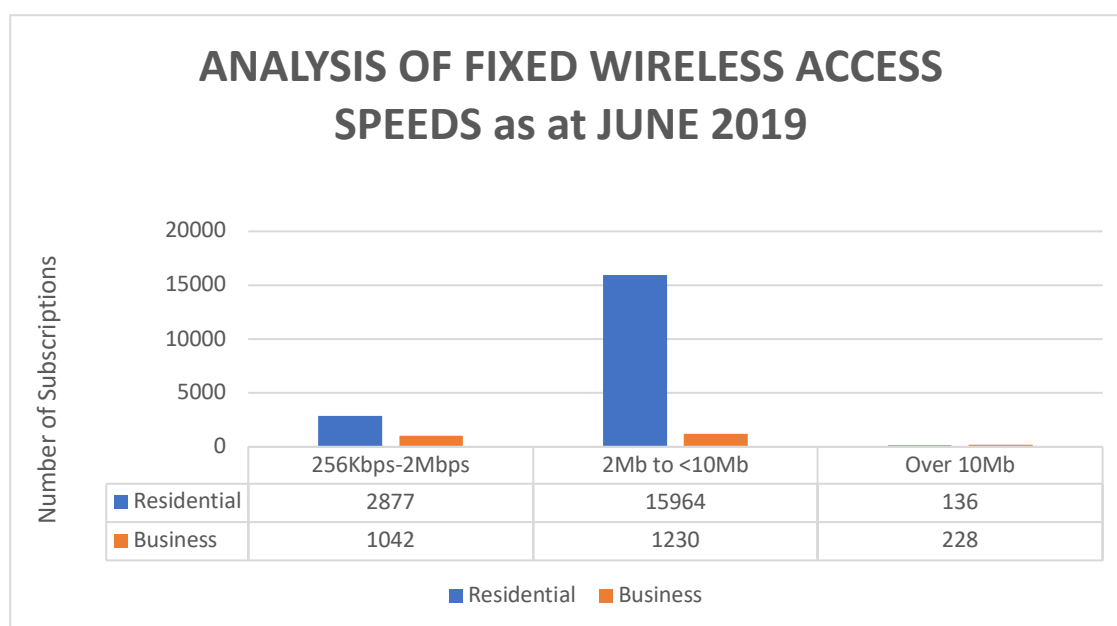


Figure 4: Analysis of Fixed Wireless Access Speeds (Source: BOCRA)

Figure 4 shows that Residential customers constitute the highest number of subscriptions at a significant 88% of the market. The largest number of subscriptions, at 74%, are for the 2Mbps to 10Mbps bandwidth in the Residential customer segment. The Business customer segments also exhibits 2Mbps to 10Mbps as the most subscribed speed. The least subscribed speed in both the Residential and Business customer segments is >10Mbps primarily because it costs higher than other speeds. Business customers are the main subscribers of the >10Mbps bandwidth possibly because of value derived from high bandwidth access that meets business needs.

The list of surveyed service providers is in Appendix 3.

Pricing for Fixed Wireless Broadband

The Fixed Wireless broadband market is fully competitive with over twenty-six service providers participating in the market. Price offerings are not easily analysed as different service providers offer differentiated packages with varied Terms and Conditions, Service Levels and Quality of Service. Prices for fixed wireless broadband are shown together with prices for fixed broadband in Appendix 2.

SATELLITE BROADBAND

Satellite broadband is sometimes the only option available to users in very rural or sparsely populated areas. Similar to satellite-based telephone and television services, satellites orbiting the earth provide necessary links for broadband. With satellite service, there must be a clear view of the southern sky. Figure 5 shows the footprint of a satellite covering southern, eastern and western parts of Africa while figure 6 shows a typical VSAT topology connecting a satellite to its satellite hub and typical use cases.

Astra 4A @ 5° East

ASTRA 4A is a multi-mission Ku / Ka-band satellite that supports services for DTH broadcasting, cable TV feeds, occasional transmissions and broadband solutions to Europe and Africa.

The position at 5°E offers excellent look angles from Southern Africa, simplifying installation as well as offering better weather resistance.

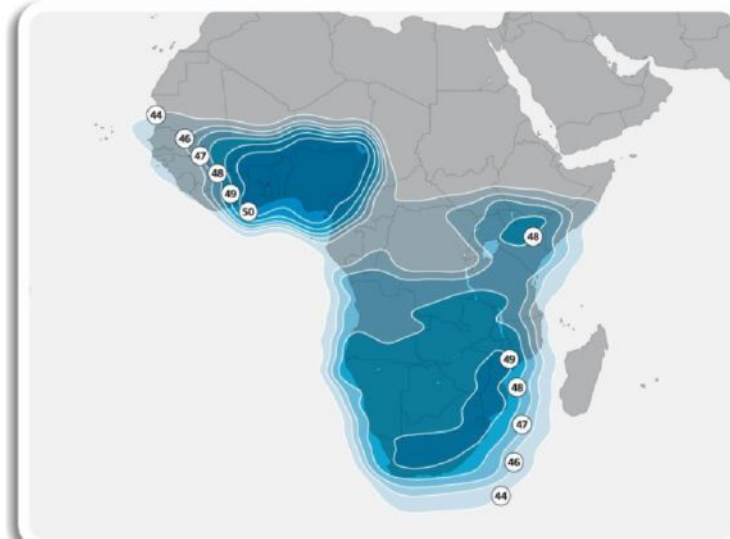


Figure 5: Typical satellite foot print covering parts of Africa (Source: OmniSat)

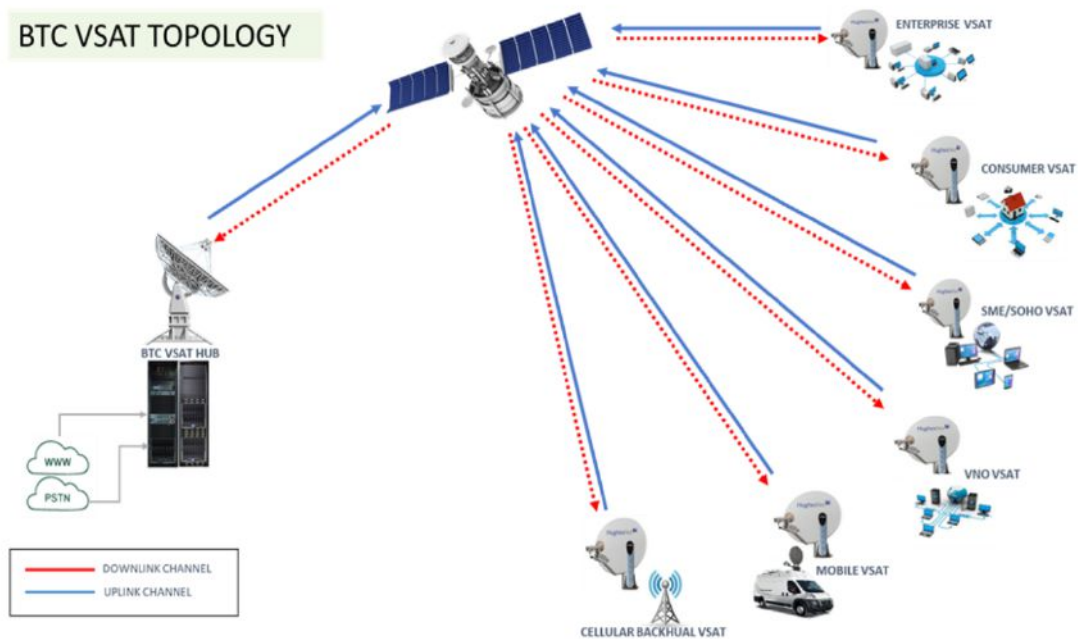


Figure 6: Typical Topology (Source: BTCL)

Satellite services can be disrupted by weather conditions and changes in line of sight to the orbiting satellite and this disruption is more prevalent on the high frequency bands (ie Ku and Ka bands) but less on the C-Band (ie lower band). Satellite service may also have a higher monthly service charges than other broadband options and the need to purchase more home or business equipment compared to the other options. Satellites are located at a significant distance from customers, causing “latency” and therefore a noticeable time lag between sending and receiving data by the end customer.

Downstream and upstream speeds for satellite broadband depends on several factors, including the provider and service package purchased, the consumer’s line of sight to the orbiting satellite and the weather. Satellite speeds may be slower than DSL and cable modem, but they can be about 10 times faster than the download speed of dial-up Internet access. High latency, easy disruption and high prices make satellite broadband less attractive options to customers but it complements the terrestrial services in rural and sparsely populated areas. In Botswana, satellite services are scarcely demanded relative to other broadband solutions due to high prices, save in areas that are hardly reachable by terrestrial based technology. Satellite services remain the most considered connectivity solution in farming areas.

Pricing for Satellite Services

As mentioned earlier, satellite solutions are expensive and are normally used in areas that are difficult to reach. A typical market rate for VSAT connectivity at 2048Kbps/512Kbps would range between P10,000 and P300,000.00 depending on the equipment, transponder provider, bandwidth, service levels and quality of service.

MOBILE BROADBAND (3G, 4G and 5G)

Mobile Broadband and its Underlying Technology

Mobile wireless broadband is high-speed wireless broadband connection that is accessible from random locations without restriction to mobility but depend on the provider's cellular towers. Many technologies make up wireless networks, but mobile wireless networks are radio systems.

Mobile wireless services are continually being upgraded to provide data transmission speeds considered to be broadband speeds. The faster mobile wireless networks are referred to as 3G or 4G. The "G" stands for "generation," meaning 3rd and 4th generation or the evolution of broadband cellular networks; supposedly, each generation provides a faster and more secure wireless network.

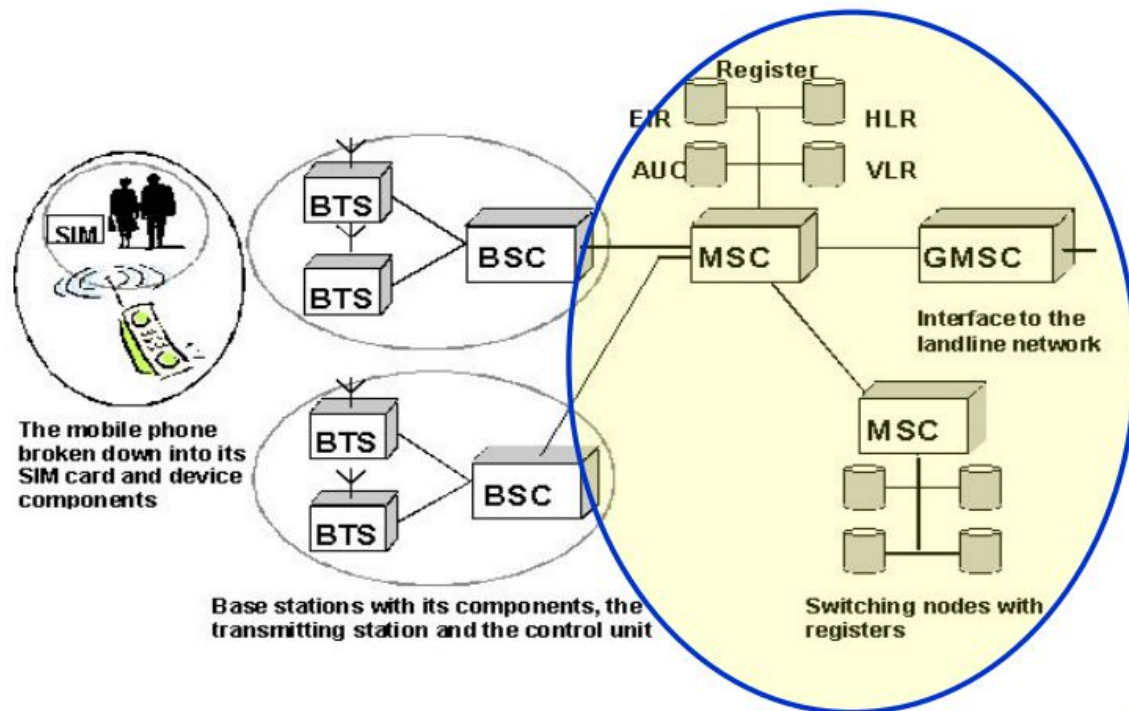


Figure 7: Typical Architecture of GSM technology supporting 2G and 3G/4G mobile broadband (Source: Cerneva)

Figure 7 shows the architecture of mobile wireless broadband infrastructure. A typical infrastructure has a base station (BTS) that is connected to a high capacity landline data transmission network to reach the Internet (ie backhaul). Several BTS are controlled by a Base Station Controller (BSC) and several BSC are connected to a Main Switch Centre (MSC). MSCs are responsible for overall management of calls including switching and interconnections of calls to other networks. Wireless broadband in common usage means that the so-called “last mile” connection to the user is done via radio signals from a tower to a cell phone or other wireless devices (e.g. tablet).

LTE is a 4G wireless technology that many service providers have chosen as their upgrade path beyond 3G technologies. 4G networks are comprehensive IP solutions that deliver voice, data and multimedia content to mobile users anytime and almost anywhere. 4G technology standards offer greatly improved data rates over previous generations of wireless technology. Mobile wireless technologies are however expensive and require more base station deployment for satisfactory quality of service.

Benefits of LTE technology are; High peak speeds, Low latency, Scalable bandwidth, Improved spectrum efficiency, Improved cell edge data rates.

5G (Fifth generation) wireless is the next mobile technology standard that will be succeeding the current 4G/LTE technology. 5G is forecasted to reach between 20 million and 100 million connections by 2021 but will be accompanied by significant spending on 5G mobile infrastructure for that same year.

As capacity demands driven by growing internet data traffic increases, 5G aims to speed up data communication by up to three times compared to 4G/LTE. The key use case driving the development of 5G is the enhancement of mobile broadband services. 5G technology will allow for easier streaming of high-definition media in densely populated areas or when out of reach of Wi-Fi hotspots. 5G is also expected to advance machine-based, IoT-centric functionalities, for example, in automotive industry, it will be an enabler for autonomous and self-driving cars. Other potential benefits include: integrated management of the vast amount of connected devices in a smart society, lower cost, lower battery consumption, lower latency and improved support of device-to-device communication and will be an important technology to facilitate Fourth Industrial Revolution (4IR).

Availability of Mobile Broadband in Botswana

Figures 8a, 8b and 8c depict network coverage for 2G, 3G and 4G or Long-Term Evolution (LTE) provided by operators in Botswana. The extensive network coverage is supported by 1559 (one thousand five hundred and fifty nine) 2G base stations, 1241 (one thousand two hundred and forty one) 3G base stations and 949 (nine hundred and forty nine) 4G base stations that are located to serve inhabited or travelled parts of the country (See Appendix 4 for list of 3G and 4G base-station sites by service provider). The population coverage by mobile broadband network is over 69 percent. The nascent 4G technology has received attention particularly due to its spectrum demands and envisaged consumer benefits. This has motivated BOCRA to award spectrum to service providers promptly at affordable prices and mandated the awarded service providers to commit to a rollout schedule. The adoption of broadband services gained significant momentum between 2017 and 2018 with popularity of electronic social media and the availability of mobile commerce that was driven by the banking industry. Although there is no market data to corroborate the observation, it is noted that gaming and home entertainment have become popular, hence the trajectory realised in demand for broadband.

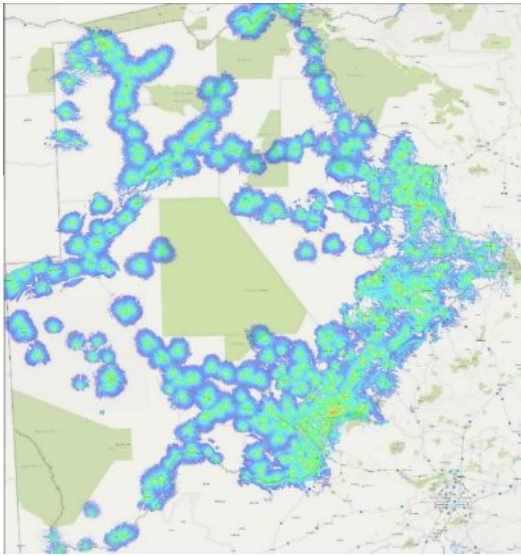


Figure 8a: 2G Network Coverage (Source: BOCRA).

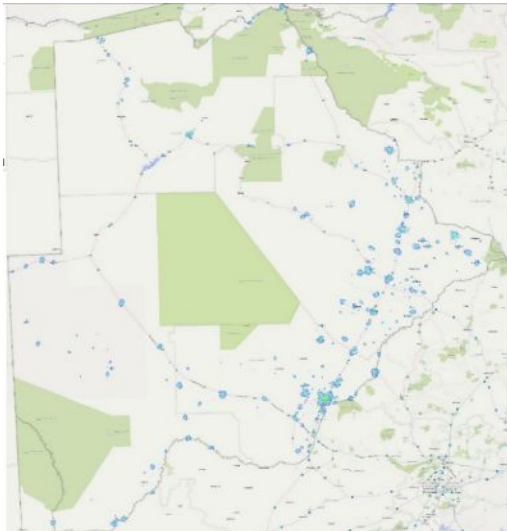


Figure 8b: 3G Network Coverage (Source: BOCRA).

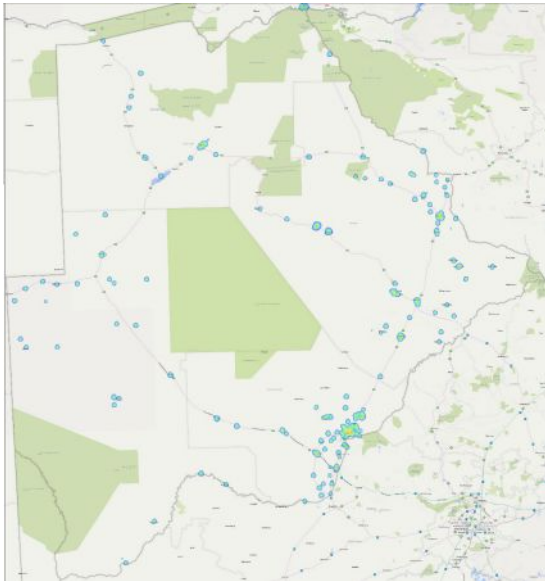


Figure 8c: 4G Network Coverage (Source: BOCRA).

Mobile Broadband Subscriptions

Figure 9 shows the analysis of mobile broadband (offered by Mascom, Orange Botswana and BTC) that covers a four- year period from 2016 to 2019. Mobile broadband subscriptions increased by 29% from 1,360,236 subscribers in March 2016 to 1,752,547 in March 2019. The annual growth rates over the four years are 3%, 9% and 15% for March 2017, March 2018 and March 2019 respectively. The significant increases in uptake of subscriptions are attributable to numerous reasons including consumer excitement created by social media, reduced broadband prices, mobile commerce facilitated by mobile money solutions, business apps for self- service on utilities and wide availability of smart feature phones as well as affordable smartphones. An increase in the number of subscribers is expected during 2020 and beyond as more products and services are introduced in the market.

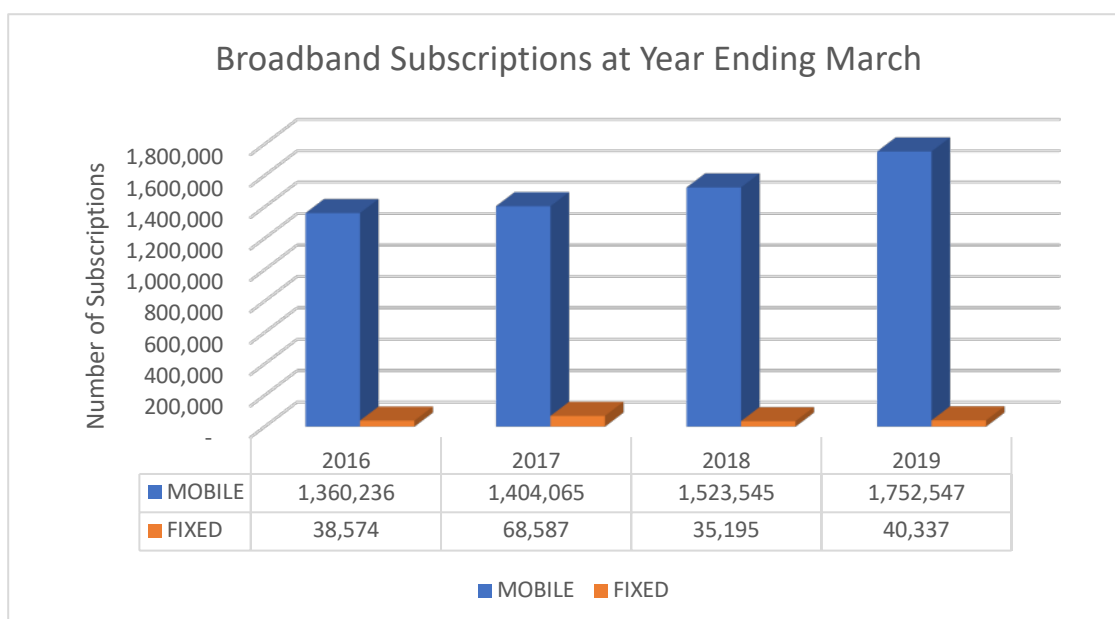


Figure 9: Mobile and Fixed Broadband subscriptions (Source: BOCRA)

While figure 9 presented subscriptions for fixed broadband primarily for comparison purposes, elaborate discussions on fixed broadband were covered in earlier sections of the report.

Mobile Broadband Traffic

With an increase in mobile broadband coverage across Botswana, there is growth in traffic as more inhabitants use modern broadband technology and this shown in Figure 10.

In March 2016, domestic prepaid mobile broadband traffic was around 1 billion Megabytes and by March 2019 traffic had grown 13-fold to over 16 billion Megabytes. This growth was attributable to growing adoption and use of services offered through mobile phones and lower prices of broadband services. Affordability of prepaid mobile broadband has also been improving as the market placed pressure on prices.

Domestic postpaid broadband traffic grew from 443 million Megabytes to 2.3 billion Megabytes between 2016 and 2019 giving a compound annual growth rate of 50 percent. It is noted that prepaid mobile broadband market yields more traffic than postpaid usage at average ratio of 7:1 during 2018 and 2019.

In terms of total broadband traffic combined for prepaid and postpaid, the largest growth period was between 2017 and 2018 at 242 percent (from 3.2 billion Megabytes to 11 billion Megabytes) of which at least 87 percent was generated by prepaid market.

It is expected that mobile broadband traffic will maintain substantial growth levels as more people show interest in use of internet-based solutions and applications.

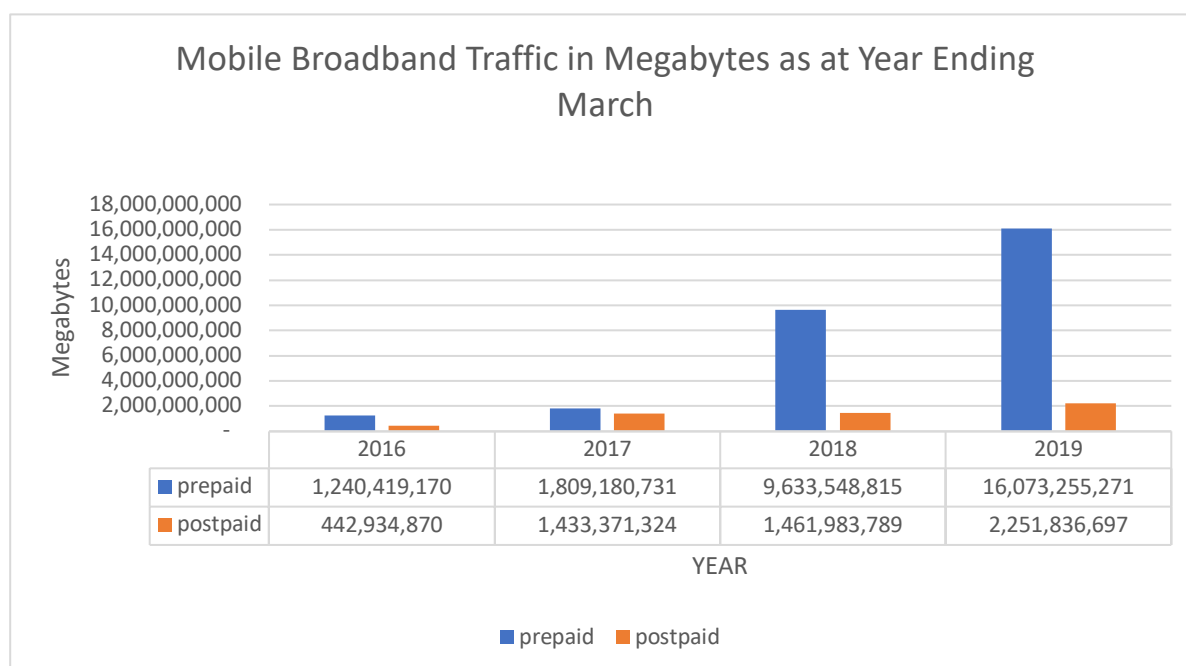


Figure 10: Data traffic from March 2016 to March 2019 (Source: BOCRA).

Mobile Broadband Pricing

The focus of pricing will be on prepaid mobile broadband which constitutes over 97% of the subscriptions in comparison to 3% for postpaid mobile broadband subscriptions. Pricing vary vastly between mobile broadband and fixed broadband. Further, within the mobile broadband segment, there are significant variation in pricing between prepaid and postpaid broadband as well as the packages on offer. Mobile operators afford customers some broadband packages that would closely suit their needs. The variety on offer include range of packages that are data intensive, short term, long term, social media oriented and very-low-cost-instantly-consumed packages. Some of the broadband packages are bundled with voice and SMS.

Prepaid mobile broadband is more popular than postpaid mobile broadband. All the three MNOs, Mascom Wireless, Orange Botswana and Botswana Telecommunication Corporation Limited offer both fixed and mobile broadband. Table 3 shows a sample of the 30-day prepaid mobile broadband prices of the most popular offerings in the 1Gb to 4Gb range. MNOs' offerings vary as a way of creating competitive value, therefore, it is seldom that comparison can be on identical offerings. The

general trend for pricing of mobile broadband is that as the size of package increases, the price per megabyte reduces. This makes it beneficial to consumers to obtain higher volume packages assuming such packages offer the length of validity and access to needed services. On the other hand, the package with the least cost megabytes would normally be on the high end of pricing which an average consumer, who is budget conscious, may not afford on regular basis.

Table 3: Comparison of Prepaid Mobile Broadband Prices for 30 day packages (Source: BOCRA)

MOBILE OPERATOR	1 GB	2GB	3GB	4GB
Mascom MyMix	N/A	P95.00	N/A	P145.00
Orange Bundles	N/A	P120.00	N/A	P220.00
BTC Turn Up Bundles	P75.00	N/A	P90.00	N/A

Detailed product offerings are available in the MNO websites of www.btc.bw, www.mascom.bw and www.orange.co.bw.

Prices for prepaid mobile broadband have been significantly reducing over the years. As intimated earlier, price comparison for prepaid mobile broadband is a complex task as offers vary in size and validity periods. However, the following is an illustration of price reduction for prepaid mobile broadband package that carried 30 days validity period: In 2016, an 800Mb was priced at P149.00 by both Orange and Mascom and BTC priced a 75Mb at P50.00. In December 2019, Orange and Mascom had stopped offering the 800Mb. The price for the newly introduced 2Gb was P95.00 at Mascom and P120.00 at Orange while a 1Gb was charged P75.00 at BTCL. The elimination of low volume packages and their replacement with higher volumes at significantly lower prices translated to greatly improved affordability of prepaid mobile broadband internet. In effect, prepaid mobile broadband prices were more than halved over a period of three years.

Comparison of Prepaid Mobile Broadband prices in the SADC Region

Table 4 is the price comparison of prices for 30-day prepaid mobile broadband packages in SADC countries. The Mobile Network Operators are listed because information on their broadband packages was easily available from the sources which mainly comprised websites and the

respective National Regulatory Authorities (NRAs) in the different countries. All prices are in US Dollars as at first week of December 2019.

Table 4: SADC Comparison of Prepaid Mobile Broadband Prices in USD for 30-day packages incl. VAT (Source: CRTT Members)

COUNTRY	MOBILE NETWORK OPERATOR	PREPAID MOBILE BROADBAND PRICE FOR 30 DAYS IN USD						
		1Gb	1.15 Gb	1.2 Gb	1.5Gb	2Gb	2.3Gb	3Gb
NAMIBIA	TELECOM	9.51				13.61		
SOUTH AFRICA	MTN	10.19			12.93			
	VODACOM	10.19				17.03		
ZIMBABWE			10.31					
MOZAMBIQUE	MOVITEL	1.04				3.08		
	TMCEL	1.60			2.40			
	VODACOM	2.00					4.01	
MALAWI	AIRTEL			4.73		6.77		
LESOTHO	ECONET	5.33						
	VODACOM					8.21		
MAURITIUS	TELECOM					7.92		
ESWATINI	ESWATINI MOBILE				10.26			
	MTN	10.26						
TANZANIA	TTCL							2.16
BOTSWANA	ORANGE					10.92		
	MASCOM					8.64		
	BEMOBILE	6.82						8.19

Prices for prepaid mobile broadband vary significantly across the region. There has not been any cost studies of significant nature done on mobile broadband pricing in the SADC region and this means that prices charged on mobile broadband may not necessarily reflect cost, rather they may be reflecting market-based prices. Market based prices are largely driven by competition and in some instances anchored on pricing trends by the dominant operator.

The table shows that pricing for 1Gb of mobile data ranges from USD1,04 to USD10,26. The price charged in Botswana is on the upper end of the range, at USD6,82. The other most offered package of 2Gb exhibits prices that range between USD3,08 and USD17,03 with Botswana in the middle of the range at USD8,64. Therefore, it can be concluded that mobile

broadband prices in Botswana are not the most competitive, neither are they the most expensive in the region.

In 2017 BOCRA conducted an economic study on mobile services and found that the major cost component in deployment of mobile broadband services is largely attributable to deployment of extensive broadband capable network infrastructure (mainly base stations) in rural areas. The cost deployment of 3G and 4G base stations far surpass cost of non-broadband capable base stations of 2G standard. The high cost of deployment of broadband infrastructure translates to high consumer prices.

Other factors which cause high cost of deployment leading to perceived high consumer prices include:

- Low Population Density - Our relatively low population that is spread over a large landmass results in deployment of infrastructure to serve few consumers;
- Transit Costs - Botswana routes her bandwidth for overseas connectivity and access to the Global Internet Exchanges through Namibia and South Africa which levy transit charges; and
- Equipment Costs - All equipment used in construction of networks is imported in foreign currency which is stronger than local currency and further attracts import taxes.

TV WHITE SPACE

TV White Space refers to the provision of broadband using frequencies allocated to TV broadcasting services but not locally used in order to avoid interference between two adjacent TV channels. TV White Space technology operates in the unused portions of the broadcasting band IV and V (470-694MHz) to provide internet connectivity (especially in rural or underserved areas). There has been technical trials of the technology by Botswana Innovation Hub (BIH) but so far, no operator has been licensed to provide services in Botswana. The technology has the advantage of utilising unused TV spectrum to provide service beyond the range of other wireless solutions, but its main disadvantage is the possibility of interfering with TV broadcasting service. There is little or no adoption of TV white spaces in Africa and the rest of the world, making its acceptance highly scanty.

WHO PROVIDES BROADBAND IN BOTSWANA?

The mobile network operators Mascom Wireless, BTC and Orange Botswana provide mobile wireless broadband and fixed wireless broadband. BTC and Mascom Wireless also provide fixed broadband. To date, BTC seems to be the only operator who provides Satellite Broadband on a larger scale with ISPs providing on a smaller scale.

ISPs primarily provide fixed wireless broadband and in some instances, fixed broadband. BoFiNet is the wholesale provider of leased lines, IPT and FTTx under the current licensing framework. If companies have an interest in providing broadband, they would have to acquire either a Network Facilities Provider license or a Services and Applications Provider license.

INTERNATIONAL BROADBAND CAPACITY

The Eastern Africa Submarine Cable System (EASSy)

The Eastern Africa Submarine Cable System (EASSy) is an undersea fibre optic cable system with a design capacity of 10Tbit/s connecting countries in Eastern Africa to the rest of the world with a total length of 10,000 km. The Cable System links Twenty-One African countries and has 9 landing stations. The Botswana Government has made an investment on the EASSy cable through BoFiNet with a total capacity of **206.5Gbps**.

The West Africa Cable System (WACS)

The West Africa Cable System (WACS) Links South Africa with the United Kingdom along the west coast of Africa. It has a design capacity of 14.5Tbit/s with a total length of 14,530 km. The Cable System begins in Yzertontein in Western Cape South Africa to London in United Kingdom. It has 14 landing points; 2 along the western coast of Africa (including Cape Verde and Canary Islands) and 2 in Europe (Portugal and England) completed on land by a cable termination station in London. Botswana Government has invested on the WACS through BoFiNet and has capacity of **205Gbps**.

Figure 11 illustrates BoFiNet's International Connectivity for EASSy and WACS.

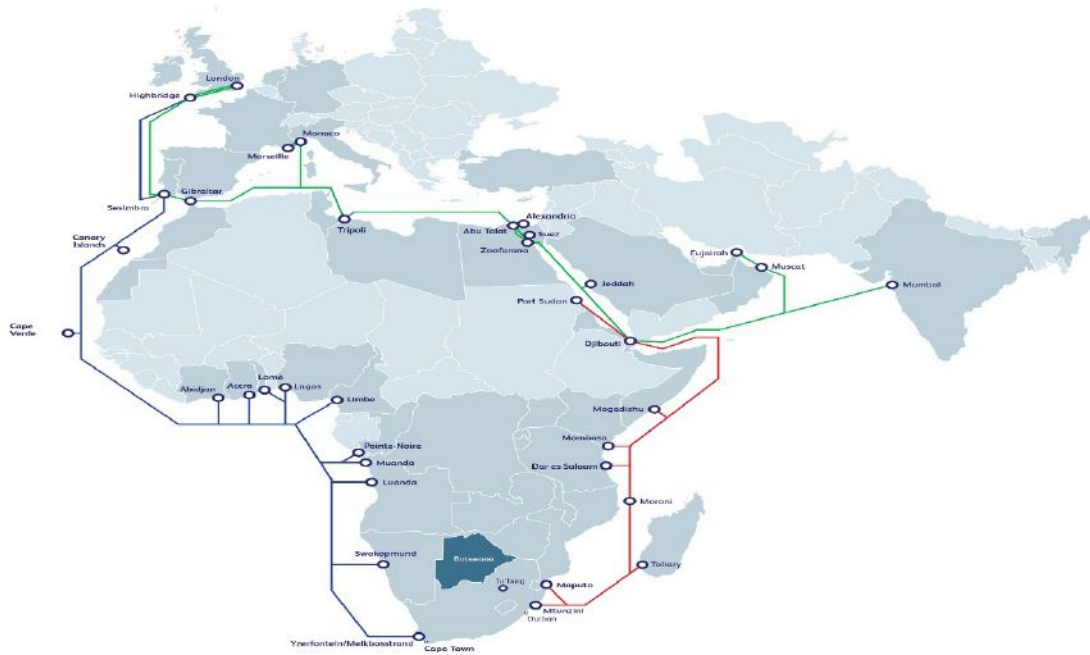


Figure 11: BoFiNet International Connectivity (Source: BoFiNet, 2019)

The international incoming internet bandwidth is 43Gbps and a considerable part of it is owned by BoFiNet. BoFiNet controls a significant market share of international internet connectivity through six cross-border connections of Tlokweng, Ramatlabama, Ramokgwebana, Kazungula, Mamuno and Ngoma. These are for connectivity points to South Africa, Zimbabwe, Zambia and Namibia.

Satellite connectivity that is dominated by BTC is also used for international connectivity.

The landlocked position in the central part of Southern Africa makes Botswana ideal for transit connectivity to South Africa, Zimbabwe, Zambia, Namibia and Angola.

MONITORING OF QUALITY OF SERVICE AND QUALITY OF EXPERIENCE FOR BROADBAND INTERNET

BOCRA implemented the guidelines for Broadband Quality of Service and Quality of Experience in January 2020. These are for adoption by the

industry and the first performance measurements that are based on the guidelines are yet to be received from service providers of broadband internet. The Guidelines are mandatory to all Licensees offering broadband internet. The guidelines define quality of service and quality of experience as follows;

Quality of Service (QoS) – refers to the level of quality of the service as offered to the consumer by a service provider.

Quality of Experience (QoE) – refers to the consumer perception, or experience of the quality of the service offered.

Table 5 and 6 show a sample of quality of service parameters for fixed broadband and mobile broadband services.

Table 5: Quality of Service Parameters for Fixed Broadband Internet Services

Parameter Name	Formula	Measurement Mechanism	Measurement Tool	Target
Access Network Utilization	<i>Access Network Utilization</i> = Total traffic between access node / aggregation of traffic at the node	Test Traffic	Test Stations	Uplink utilization must not be more than 75% of uplink bandwidth provided
Throughput	Throughput = Number of test samples greater than or equals QoS throughput / Total number of test samples) *100	Test Traffic	Test Stations	Throughput must not be less than: a) 75% of subscribed level of bandwidth for 90% of the time for ADSL b) 95% of the subscribed bandwidth for 100 % of the time for dedicated services
Latency	Latency = (Number of test samples less than or equal to 85 ms / Total number of test samples) *100	Test Traffic	Test Stations	≤ 85 ms 95% of the time
Packet Loss	<i>Packet Loss = (Total no of packet lost / Total no of packets sent) *100</i>	Test Traffic	Test Stations	≤ 1%

Table 6: Quality of Service Parameters for Mobile Broadband Internet Services

Parameter Name	Formula	Measurement Mechanism	Measurement Tool	Target
<i>HTTP Set-up Time</i>	<i>HTTP Set-up Time = Time Content Received-Time Content requested</i>	Real Traffic from Operation and Support System (OSS) and or Test traffic	Performance Monitoring System/ Test Stations or Drive Test System	95% within 5 seconds
<i>FTP {download upload} Set-up Time</i>	<i>FTP {download upload} Set-up Time = Time Service Access Successful - Time Service Access Start</i>	Real Traffic from OSS and or Test traffic	Performance Monitoring System/ Test Stations or Drive Test System	< 2 seconds
<i>FTP Drop Rate</i>	<i>FTP Drop Rate = (Number of incomplete data transfers/ Number of transfers started successfully) *100%</i>	Real Traffic from OSS and or Test traffic	Performance Monitoring System/ Test Stations or Drive Test System	< 1%
<i>Web Radio Tune-in Success Rate</i>	<i>Web Radio Tune-in Success Rate = (Number of Successful tune-in/ Total attempts) * 100%</i>	Test traffic	Test Stations or Drive Test System	>98%

CONCLUSION

The journey to achieving broadband connectivity targets as per the National Broadband Strategy is faced with various challenges which require concerted effort to mitigate. Figures 3 and 4 have given insights in terms of how far the market is away from reaching the targets: for both fixed broadband and fixed wireless broadband, only 2 percent of the subscriptions are of speed over 10Mbps. This is in contrast to the proposed target that broadband speed in urban areas must reach a minimum 100Mbps by year 2023!

It is expected that the rollout of FTTx and 4G will go a long way in facilitating achievement of the targets.

It is important that the broadband infrastructure should be of high speed and high bandwidth with resilience and undoubted quality of service in order that the economy is well placed to participate in the Fourth Industrial Revolution.

APPENDIX 1: LIST OF ADSL RETAIL INTERNET PROVIDERS AS AT JUNE 2019

VBNS	Metrotech
Microteck	BBI (Croc 684)
Mission	Lenong
BTC	OPQ
Bytes Technology	Stature
Conduitwire	Zebranet
GBS	ICT Dynamix
IOB	IOB
	Mega Internet

APPENDIX 2: PRICES FOR FIXED BROADBAND AND FIXED WIRELESS INTERNET AS AT 2019

[See attached spreadsheet Appendix 2 – Prices for Fixed Broadband and Fixed Wireless Internet]

APPENDIX 3: LIST OF FIXED WIRELESS INTERNET PROVIDERS AS AT JUNE 2019

OPQ Net	MTN Business Solutions
VBN Services	Nashua
Ngami Net	Kasane Computers
Internet Options Botswana	Abaricom
Cene Media	GC Stat
Mascom	iTalk Africa
ICT Dynamix	Technotrends
Paratus	Bytes Technology/Altron
BBI (Croc 684)	Jenny Internet
Liquid Telecom	Mega Internet
Paqlink	Zebranet
Winagain	Cellconnect
Pula Towers	Orange Botswana

APPENDIX 4: LIST OF LOCALITIES WITH BROADBAND ENABLED (3G AND 4G/LTE) BASE STATIONS AS AT JUNE 2019

[See attached spreadsheet Appendix 4 – List of Localities with Broadband]

APPENDIX 2: PRICES FOR FIXED BROADBAND AND FIXED WIRELESS INTERNET AS AT 2019

ABARICOM			
RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
1) Abari@Home Standard	Up to 4Mbps	Installation P1344 Subscription P399	No Contract
2) Abari@home Pro: Free installation	Up to 4Mbps	Subscription: P540	12 Months Contract
3) Abari@Exco	Up to 10Mbps	Installation: P1344 Subscription: P720	12 Months Contract

ACACIA			
RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
FTTH	5Mbps	500	12 Months
FTTH	10Mbps	882	12 Months
FTTH	25Mbps	1080	12 Months
FTTH	50Mbps	1950	12 Months

BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
Fibre Lite	5	900	24 Months
Fibre Lite	10	1500	24 Months
Fibre Lite	20	2500	24 Months
Fibre Lite	40	3500	24 Months

ALTRON BOTSWANA			
RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
ADSL-B	1024/192 Kbps	241.92	12 month
ADSL-C	2048/256 Kbps	542.08	12 month
ADSL-D	3072/768 Kbps	795.00	12 month
ADSL-E	4096/768 Kbps	1,197.00	12 month

BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
ADSL-B	1024/192 Kbps	241.92	12 month
ADSL-C	2048/256 Kbps	542.08	12 month
ADSL-D	3072/768 Kbps	795.00	12 month
ADSL-E	4096/768 Kbps	1,197.00	12 month

BBI				
RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	Mechanism	PRICE (BWP) INCL VAT	PERIOD
HOME	2-4Mbps/s	Short burst to 4Mbps/s	500	3months
POWER	2.5 - 4Mbps/s	Longer burst to 4Mbps/s	850	3months

BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
BUSINESS	2.5 to 4.5Mbps/s	1230	3months
BUSINESS-PLUS	3 to 5Mbps/s	1900	3months
Corporate	3.5 to 5Mbps/s	2550	3months
Corporate Plus	4 to 6Mbps/s	3575	3months

BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
Fibre Lite 5	5Mbps/s	1200	3months
Fibre Lite 10	10Mbps/s	1600	3months
Fibre Lite 20	20Mbps/s	2550	3months
Fibre Lite 40	40Mbps/s	3575	3months

CENE MEDIA			
BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
1) 3.5 Mbps Internet Unlimited	3.5 Mbps / 6:1	559	12 Months
2) 5 Mbps Unlimited	5 Mbps / 6:1	749	12 Months
3) 7 Mbps Unlimited	7 Mbps / 6:1	999	12 Months
4) 10 Mbps Unlimited	10 Mbps / 6:1	1499	12 Months
5) 15Mbps Unlimited	15 Mbps / 6:1	1799	12 Months
6) 20Mbps Unlimited	20 Mbps / 6:1	2999	12 Months
7) 1M Dedicated Wireless	1 Mbps / 1:1	814	12 months
8) 2M Dedicated Wireless	2 Mbps / 1:1	1480	12 months
9) 4M Dedicated Wireless	4 Mbps / 1:1	2960	12 months
10) 6M Dedicated Wireless	6 Mbps / 1:1	4440	12 months
11) 8M Dedicated Wireless	8 Mbps / 1:1	5919	12 months
12) 10M Dedicated Wireless	10 Mbps / 1:1	7000	12 months
13) 15M Dedicated Wireless	15 Mbps / 1:1	10500	12 months
14) 20M Dedicated Wireless	20 Mbps / 1:1	14000	12 months
15) 25M Dedicated Wireless	25 Mbps / 1:1	17500	12 months
16) 30M Dedicated Wireless	30 Mbps / 1:1	21000	12 months
17) 40M Dedicated Wireless	40 Mbps / 1:1	26352	12 months
18) 50M Dedicated Wireless	50 Mbps / 1:1	32941	12 months
19) 100M Dedicated Wireless	100 Mbps / 1:1	62223	12 months
20) 150M Dedicated Wireless	150 Mbps / 1:1	93333	12 months
21) 200M Dedicated Wireless	200 Mbps / 1:1	124444	12 months
22) Enterprise 3 Firewall		600	12 Months
23) Enterprise 3 Anti Virus		90	12 Months
24) Enterprise 3 Email Security		60	12 Months
25) Enterprise 3 Access point		450	12 Months
26) Enterprise 7 Firewall		600	12 Months
27) Enterprise 7 Anti Virus		150	12 Months
28) Enterprise 7 Email Security		100	12 Months
29) Enterprise 7 Access Point		450	12 Months
30) Enterprise 11 Firewall		600	12 Months
31) Enterprise 11 Anti Virus		210	12 Months
32) Enterprise 11 Email Security		140	12 Months
33) Enterprise 11 Access Point		450	12 Months
34) Enterprise 16 Firewall		1200	12 Months
35) Enterprise 16 Anti Virus		480	12 Months
36) Enterprise 16 Email Security		320	12 Months
37) Enterprise 16 Access point		450	12 Months
38) Enterprise 22 Firewall		1200	12 Months
39) Enterprise 22 Anti Virus		660	12 Months
40) Enterprise 22 Email Security		440	12 Months

41) Enterprise 22 Access point		450	12 Months
1) 10 GB Satellite PAYG	3M/512k / 6:1	1299	12 Months
2) 25 GB Satellite PAYG	3M/512k / 6:1	2999	12 Months
3) 80 GB Satellite Monthly	3M/512k / 6:1	8999	12 Months
4) 150 GB Satellite Monthly	3M/512k / 6:1	15999	12 Months
5) Unlimited	3M/512k / 6:1	24999	12 Months

PARATUS						
Package	ENTERPRISE		GOLD		SILVER	
Peak Guarantee (% contracted speed)	0.95		0.8		0.75	
Mbps	Gaborone	National	Gaborone	National	Gaborone	National
1	1005	1510	885	1390	810	1315
2	1495	2000	1250	1755	1105	1610
3	2150	2905	1785	2540	1565	2320
4	2805	3815	2320	3325	2025	3030
5	3460	4720	2850	4110	2485	3740
6	4120	5625	3385	4895	2945	4450
7	4775	6535	3915	5675	3405	5165
8	5430	7440	4450	6460	3860	5875
9	6085	8345	4985	7245	4320	6585
10	6715	9160	5490	7935	4760	7205
12	8020	10955	6555	9485	5670	8605
14	9325	12750	7615	11035	6585	10010
16	10630	14545	8675	12585	7500	11415
18	11940	16340	9735	14135	8415	12815
20	13245	18135	10795	15685	9330	14220
25	16510	22620	13450	19560	11615	17730
30	19770	27105	16105	23440	13900	21235
35	23035	31595	18755	27315	16185	24745
40	26300	36080	21410	31190	18470	28250
45	29410	40215	23905	34710	20605	31405
50	32660	44660	26540	38545	22875	34875
55	35905	49110	29180	42380	25140	38345
60	39155	53555	31815	46220	27410	41815
65	42400	58005	34450	50055	29680	45285
70	45645	62450	37085	53890	31950	48750
75	48895	66900	39720	57725	34215	52220
80	52140	71345	42355	61560	36485	55690

GC SAT			
RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
1) Home 2M	2M burst 16:1	500	2 year
2) Home 5M	5M burst 16:1	810	2 year
3) Home 10M	10M burst 16:1	1320	2 year
4) Home 15M	15M burst 16:1	1830	2 year
5) Home 20M	20M burst 16:1	2350	2 year

BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
1) Business 2M	2M burst 4:1	1060	2 year
2) Business 5M	5M burst 4:1	2190	2 year
3) Business 10M	10M burst 4:1	4090	2 year
4) Business 15M	15M burst 4:1	5990	2 year
5) Business 20M	20M burst 4:1	7880	2 year
6) Dedicated 2M	2M CIR	2760	2 year
7) Dedicated 3M	3M CIR	3860	2 year
8) Dedicated 6M	5M CIR	7170	2 year
9) Dedicated 10M	10M CIR	11590	2 year

FTTx within 250km of Gaborone (price incl VAT)			
BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
1) Business 2M	2M burst 4:1	1240	2 year
2) Business 5M	5M burst 4:1	2850	2 year
3) Business 10M	10M burst 4:1	5520	2 year
4) Business 15M	15M burst 4:1	8190	2 year
5) Business 20M	20M burst 4:1	10870	2 year
6) Business 25M	25M burst 4:1	13320	2 year
7) Dedicated 2M	2M CIR	2800	2 year
8) Dedicated 3M	3M CIR	4060	2 year
9) Dedicated 6M	5M CIR	7850	2 year
10) Dedicated 10M	10M CIR	12880	2 year
11) Dedicated 15M	15M CIR	19180	2 year
12) Dedicated 20M	20M CIR	25480	2 year

FTTx more than 250km of Gaborone (price incl VAT)			
BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
1) Business 2M	2M burst 4:1	1730	2 year
2) Business 5M	5M burst 4:1	4080	2 year
3) Business 10M	10M burst 4:1	7780	2 year
4) Business 15M	15M burst 4:1	11790	2 year
5) Business 20M	20M burst 4:1	15670	2 year
6) Business 25M	25M burst 4:1	19540	2 year
7) Dedicated 2M	2M CIR	3290	2 year
8) Dedicated 3M	3M CIR	4800	2 year
9) Dedicated 6M	5M CIR	9320	2 year
10) Dedicated 10M	10M CIR	15140	2 year
11) Dedicated 15M	15M CIR	22770	2 year
12) Dedicated 20M	20M CIR	30270	2 year

VSAT Ku-Band (price incl VAT)			
PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
1) 128/512 CR 25:1	Burst upload 128kbps / download 512kbps	3099	1 year
2) 256/512 CR 25:1	Burst upload 256kbps / download 512kbps	7832	1 year
3) 256/1024 CR 25:1	Burst upload 256kbps / download 1024kbps	6097	1 year
4) 512/1024 CR 25:1	Burst upload 512kbps / download 1024kbps	6765	1 year
5) 512/1536 CR 25:1	Burst upload 512kbps / download 1536kbps	9383	1 year

ICT DYNAMIX			
RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
1) 2 Mbps Shared	1.99 Mbps	P475.00	12 Months
2) 3 Mbps Shared	2.99 Mbps	P699.00	12 Months
3) 4 Mbps Shared	3.99 Mbps	P811.00	12 Months

BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
1) 2 Mbps Shared	1.99 Mbps	P577.00	12 Months
2) 3 Mbps Shared	2.99 Mbps	P711.00	12 Months
3) 4 Mbps Shared	3.99 Mbps	P846.00	12 Months

FIXED WIRELESS			
RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
Contention Ratio - 1:6			
1) 1 Mbps Shared	0.99 Mbps	P299	12 Months
2) 2 Mbps Shared	1.99 Mbps	P449	12 Months
3) 3 Mbps Shared	2.99 Mbps	P699	12 Months
4) 4 Mbps Shared	3.99 Mbps	P899	12 Months
5) 1 Mbps Dedicated	1 Mbps	P1,399.00	12 Months
6) 2 Mbps Dedicated	2 Mbps	P2,799.00	12 Months
7) 3 Mbps Dedicated	3 Mbps	P4,199.00	12 Months
8) 4 Mbps Dedicated	4 Mbps	P5,599.00	12 Months

BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
Contention Ratio - 1:4			
1) 1 Mbps Shared	0.99 Mbps	P399	12 Months
2) 2 Mbps Shared	1.99 Mbps	P699	12 Months
3) 3 Mbps Shared	2.99 Mbps	P999	12 Months
4) 4 Mbps Shared	3.99 Mbps	P1399	12 Months
5) 1 Mbps Dedicated	1 Mbps	P1,399.00	12 Months
6) 2 Mbps Dedicated	2 Mbps	P2,799.00	12 Months
7) 3 Mbps Dedicated	3 Mbps	P4,199.00	12 Months
8) 4 Mbps Dedicated	4 Mbps	P5,599.00	12 Months

BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
1) Fiber	4Mbps	7280	12 Months

INTERNET OPTIONS BOTSWANA			
RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
HOME (ADSL STANDARD)	512 kbps	185.92	0 years
HOME (ADSL STANDARD)	1 Mbps	310.24	0 years
HOME (ADSL STANDARD)	2 Mbps	446.88	0 years
HOME (ADSL NON-STANDARD)	1 Mbps	446.88	0 years
HOME (ADSL NON-STANDARD)	2 Mbps	558.88	0 years
HOME (ADSL NON-STANDARD)	4 Mbps	745.92	0 years
IOB WIRELESS BLUE BROADBAND	2 Mbps	448	0 years
IOB WIRELESS BLUE BROADBAND	4 Mbps	660.8	0 years
IOB WIRELESS BLUE BROADBAND	5 Mbps	756	0 years
IOB WIRELESS BLUE BROADBAND	6 Mbps	840	0 years
IOB WIRELESS BLUE BROADBAND	8 Mbps	1008	0 years
IOB WIRELESS BLUE BROADBAND	9 Mbps	1092	0 years
IOB WIRELESS BLUE BROADBAND	10 Mbps	1176	0 years

BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
BUSINESS (ADSL STANDARD)	512 kbps	201.6	0 years
BUSINESS (ADSL STANDARD)	1 Mbps	357.28	0 years
BUSINESS (ADSL STANDARD)	2 Mbps	502.88	0 years
BUSINESS (ADSL NON-STANDARD)	1 Mbps	502.88	0 years
BUSINESS (ADSL NON-STANDARD)	2 Mbps	626.08	0 years
BUSINESS (ADSL NON-STANDARD)	4 Mbps	749.28	0 years

Business Package Name	Contract Period	Bandwidth Capacity / Speed	Price in Botswana Pula
1)Dedicated Internet bandwidth	1 Year	1 Mbps	P750 Exl vat
2)Dedicated Internet bandwidth	1 Year	2 Mbps	P1500Exl vat
3)Dedicated Internet bandwidth	1 Year	4 Mbps	P2999Exl vat
4)Dedicated Internet bandwidth	1 Year	10 Mbps	P5000 Exl vat

ITALK AFRICA			
RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
Fixed Wireless	1Mbps	440	NIL
Fixed Wireless	2Mbps	500	NIL
Fixed Wireless	3Mbps	560	NIL
Fixed Wireless	4Mbps	620	NIL

BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
Fixed Wireless	2Mbps	570	12 months (min)
Fixed Wireless	3Mbps	640	12 months (min)
Fixed Wireless	4Mbps	710	12 months (min)
Fixed Wireless	5Mbps	780	12 months (min)

JENNY INTERNET			
RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
Wireless Home Urban (Within 250km of Gaborone)			
Wireless Urban Home Uncapped with bursting	3-6Mbps	599	12 Months
Wireless Urban Home Uncapped with bursting	4-8Mbps	699	12 Months
Wireless Urban Home Uncapped with bursting	5-10Mbps	799	12 Months
Wireless Urban Home Uncapped with bursting	6-12Mbps	899	12 Months
Wireless Urban Home Uncapped with bursting	8-12Mbps	1199	12 Months
Wireless Urban Home Uncapped with bursting	10-15Mbps	1499	12 Months
Wireless Urban Home Uncapped with bursting	12-17Mbps	1599	12 Months
Wireless Urban Home Uncapped with bursting	15-20Mbps	1899	12 Months
Wireless Urban Home Uncapped with bursting	20-25Mbps	2299	12 Months
Wireless Urban Home Uncapped	3Mbps	399	12 Months
Wireless Urban Home Uncapped	4Mbps	499	12 Months

Wireless Urban Home Uncapped	5Mbps	599	12 Months
Wireless Urban Home Uncapped	6Mbps	699	12 Months
Wireless Urban Home Uncapped	8Mbps	999	12 Months
Wireless Urban Home Uncapped	10Mbps	1199	12 Months
Wireless Urban Home Uncapped	12Mbps	1399	12 Months
Wireless Urban Home Uncapped	15Mbps	1699	12 Months
Wireless Urban Home Uncapped	20Mbps	1999	12 Months
Rural			
Wireless Rural Home Uncapped with bursting	3-6Mbps	699	
Wireless Rural Home Uncapped with bursting	4-8Mbps	899	
Wireless Rural Home Uncapped with bursting	5-10Mbps	999	
Wireless Rural Home Uncapped with bursting	6-12Mbps	1099	
Wireless Rural Home Uncapped with bursting	8-12Mbps	1499	
Wireless Rural Home Uncapped with bursting	10-15Mbps	1899	
Wireless Rural Home Uncapped with bursting	12-17Mbps	1999	
Wireless Rural Home Uncapped with bursting	15-20Mbps	2399	
Wireless Rural Home Uncapped with bursting	20-25Mbps	2899	
Wireless Rural Home Uncapped	3Mbps	499	
Wireless Rural Home Uncapped	4Mbps	599	
Wireless Rural Home Uncapped	5Mbps	699	
Wireless Rural Home Uncapped	6Mbps	899	
Wireless Rural Home Uncapped	8Mbps	1199	
Wireless Rural Home Uncapped	10Mbps	1499	
Wireless Rural Home Uncapped	12Mbps	1799	
Wireless Rural Home Uncapped	15Mbps	2199	
Wireless Rural Home Uncapped	20Mbps	2499	
BUSINESS PACKAGE		BANDWIDTH/SPEED	PRICE (BWP) INCL VAT
Wireless Business Urban (Within 250km of Gaborone)			CONTRACT PERIOD
Wireless Urban Business Uncapped with bursting	4-8Mbps	899	12 Months
Wireless Urban Business Uncapped with bursting	6-12Mbps	999	12 Months
Wireless Urban Business Uncapped with bursting	8-12Mbps	1499	12 Months
Wireless Urban Business Uncapped with bursting	10-15Mbps	1899	12 Months
Wireless Urban Business Uncapped with bursting	12-17Mbps	1999	12 Months
Wireless Urban Business Uncapped with bursting	15-20Mbps	2299	12 Months
Wireless Urban Business Uncapped with bursting	20-25Mbps	2899	12 Months
Wireless Urban Business Uncapped	4Mbps	599	12 Months
Wireless Urban Business Uncapped	6Mbps	799	12 Months
Wireless Urban Business Uncapped	8Mbps	1199	12 Months
Wireless Urban Business Uncapped	10Mbps	1499	12 Months
Wireless Urban Business Uncapped	12Mbps	1799	12 Months
Wireless Urban Business Uncapped	15Mbps	2199	12 Months
Wireless Urban Business Uncapped	20Mbps	2499	12 Months
Rural			
Wireless Urban Business Uncapped with bursting	4-8Mbps	999	12 Months
Wireless Urban Business Uncapped with bursting	6-12Mbps	1099	12 Months
Wireless Urban Business Uncapped with bursting	8-12Mbps	1699	12 Months
Wireless Urban Business Uncapped with bursting	10-15Mbps	2199	12 Months
Wireless Urban Business Uncapped with bursting	12-17Mbps	2299	12 Months
Wireless Urban Business Uncapped with bursting	15-20Mbps	2699	12 Months
Wireless Urban Business Uncapped with bursting	20-25Mbps	3399	12 Months
Wireless Urban Business Uncapped	4Mbps	699	12 Months
Wireless Urban Business Uncapped	6Mbps	899	12 Months
Wireless Urban Business Uncapped	8Mbps	1399	12 Months
Wireless Urban Business Uncapped	10Mbps	1699	12 Months
Wireless Urban Business Uncapped	12Mbps	2099	12 Months
Wireless Urban Business Uncapped	15Mbps	2599	12 Months
Wireless Urban Business Uncapped	20Mbps	2899	12 Months
Urban (Within 250Km's of Gaborone)			
Fibre via Wireless 1:1 (100% Dedicated)	2Mbps	1499	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	3Mbps	2199	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	4Mbps	2899	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	6Mbps	4299	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	8Mbps	4899	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	10Mbps	5499	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	15Mbps	8299	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	20Mbps	10999	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	25Mbps	13399	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	30Mbps	14599	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	40Mbps	19599	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	50Mbps	24699	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	75Mbps	37099	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	100Mbps	48899	12 Months
Fibre via Wireless 3:1 contention	2Mbps	1099	12 Months
Fibre via Wireless 3:1 contention	3Mbps	1599	12 Months
Fibre via Wireless 3:1 contention	4Mbps	2099	12 Months
Fibre via Wireless 3:1 contention	6Mbps	3099	12 Months
Fibre via Wireless 3:1 contention	8Mbps	3499	12 Months
Fibre via Wireless 3:1 contention	10Mbps	3999	12 Months
Fibre via Wireless 3:1 contention	15Mbps	5999	12 Months
Fibre via Wireless 3:1 contention	20Mbps	7999	12 Months
Fibre via Wireless 3:1 contention	25Mbps	9599	12 Months
Fibre via Wireless 3:1 contention	30Mbps	11499	12 Months
Fibre via Wireless 3:1 contention	40Mbps	15499	12 Months
Fibre via Wireless 3:1 contention	50Mbps	19599	12 Months
Fibre via Wireless 3:1 contention	75Mbps	29299	12 Months
Fibre via Wireless 3:1 contention	100Mbps	38599	12 Months
Rural			
Fibre via Wireless 1:1 (100% Dedicated)	2Mbps	2399	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	3Mbps	3499	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	4Mbps	4699	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	6Mbps	6999	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	8Mbps	9299	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	10Mbps	11299	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	15Mbps	16999	12 Months

Fibre via Wireless 1:1 (100% Dedicated)	20Mbps	22599	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	25Mbps	27899	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	30Mbps	33399	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	40Mbps	44699	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	50Mbps	55499	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	75Mbps	83299	12 Months
Fibre via Wireless 1:1 (100% Dedicated)	100Mbps	109099	12 Months
Fibre via Wireless 3:1 contention	2Mbps	1499	12 Months
Fibre via Wireless 3:1 contention	3Mbps	2199	12 Months
Fibre via Wireless 3:1 contention	4Mbps	2999	12 Months
Fibre via Wireless 3:1 contention	6Mbps	4399	12 Months
Fibre via Wireless 3:1 contention	8Mbps	5899	12 Months
Fibre via Wireless 3:1 contention	10Mbps	7199	12 Months
Fibre via Wireless 3:1 contention	15Mbps	10799	12 Months
Fibre via Wireless 3:1 contention	20Mbps	14299	12 Months
Fibre via Wireless 3:1 contention	25Mbps	17599	12 Months
Fibre via Wireless 3:1 contention	30Mbps	21099	12 Months
Fibre via Wireless 3:1 contention	40Mbps	28299	12 Months
Fibre via Wireless 3:1 contention	50Mbps	35099	12 Months
Fibre via Wireless 3:1 contention	75Mbps	52599	12 Months
Fibre via Wireless 3:1 contention	100Mbps	68799	12 Months
Urban (Within 250Km's of Gaborone)			
Fibre using Bofinet 1:1 (100% Dedicated)	2Mbps	1499	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	3Mbps	2199	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	4Mbps	2899	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	6Mbps	4299	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	8Mbps	4899	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	10Mbps	5499	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	15Mbps	8299	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	20Mbps	10999	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	25Mbps	13399	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	30Mbps	14599	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	40Mbps	19599	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	50Mbps	24699	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	75Mbps	37099	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	100Mbps	48899	12 Months
Fibre using Bofinet 3:1 Contention	2Mbps	1099	12 Months
Fibre using Bofinet 3:1 Contention	3Mbps	1599	12 Months
Fibre using Bofinet 3:1 Contention	4Mbps	2099	12 Months
Fibre using Bofinet 3:1 Contention	6Mbps	3099	12 Months
Fibre using Bofinet 3:1 Contention	8Mbps	3499	12 Months
Fibre using Bofinet 3:1 Contention	10Mbps	3999	12 Months
Fibre using Bofinet 3:1 Contention	15Mbps	5999	12 Months
Fibre using Bofinet 3:1 Contention	20Mbps	7999	12 Months
Fibre using Bofinet 3:1 Contention	25Mbps	9599	12 Months
Fibre using Bofinet 3:1 Contention	30Mbps	11499	12 Months
Fibre using Bofinet 3:1 Contention	40Mbps	15499	12 Months
Fibre using Bofinet 3:1 Contention	50Mbps	19599	12 Months
Fibre using Bofinet 3:1 Contention	75Mbps	29299	12 Months
Fibre using Bofinet 3:1 Contention	100Mbps	38599	12 Months
Rural			
Fibre using Bofinet 1:1 (100% Dedicated)	2Mbps	2399	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	3Mbps	3499	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	4Mbps	4699	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	6Mbps	6999	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	8Mbps	9299	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	10Mbps	11299	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	15Mbps	16999	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	20Mbps	22599	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	25Mbps	27899	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	30Mbps	33399	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	40Mbps	44699	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	50Mbps	55499	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	75Mbps	83299	12 Months
Fibre using Bofinet 1:1 (100% Dedicated)	100Mbps	109099	12 Months
Fibre using Bofinet 3:1 Contention	2Mbps	1499	12 Months
Fibre using Bofinet 3:1 Contention	3Mbps	2199	12 Months
Fibre using Bofinet 3:1 Contention	4Mbps	2999	12 Months
Fibre using Bofinet 3:1 Contention	6Mbps	4399	12 Months
Fibre using Bofinet 3:1 Contention	8Mbps	5899	12 Months
Fibre using Bofinet 3:1 Contention	10Mbps	7199	12 Months
Fibre using Bofinet 3:1 Contention	15Mbps	10799	12 Months
Fibre using Bofinet 3:1 Contention	20Mbps	14299	12 Months
Fibre using Bofinet 3:1 Contention	25Mbps	17599	12 Months
Fibre using Bofinet 3:1 Contention	30Mbps	21099	12 Months
Fibre using Bofinet 3:1 Contention	40Mbps	28299	12 Months
Fibre using Bofinet 3:1 Contention	50Mbps	35099	12 Months
Fibre using Bofinet 3:1 Contention	75Mbps	52599	12 Months
Fibre using Bofinet 3:1 Contention	100Mbps	68799	12 Months

KASANE COMPUTERS

RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
VSAT PACKAGES			
	Contentions ± 40:1		
1) Jola Easy 1 Mbps 10GB cap - Shared	1024 Mbps Shared	473	12 months
2) Jola Easy 1 Mbps 30GB cap - Shared	1024 Mbps Shared	1148	12 months
3) Jola Easy 1 Mbps 50GB cap - Shared	1024 Mbps Shared	1823	12 months
4) Jola Easy 1 Mbps 75GB cap - Shared	1024 Mbps Shared	2700	12 months
5) Jola Easy 1 Mbps 100GB cap - Shared	1024 Mbps Shared	3510	12 months
6) Jola Easy 1 Mbps 150GB cap - Shared	1024 Mbps Shared	5198	12 months
7) Jola Easy 1 Mbps 200GB cap - Shared	1024 Mbps Shared	6885	12 months
8) Jola Easy 1 Mbps 250GB cap - Shared	1024 Mbps Shared	8573	12 months

BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
1) Jola Play 3 Mbps 10GB cap - Shared	3072 Mbps Shared	675	12 months
2) Jola Play 3 Mbps 30GB cap - Shared	3072 Mbps Shared	1350	12 months
3) Jola Play 3 Mbps 50GB cap - Shared	3072 Mbps Shared	2025	12 months
4) Jola Play 3 Mbps 75GB cap - Shared	3072 Mbps Shared	2903	12 months

5)Jola Pay 3 Mbps 100GB cap - Shared	3072 Mbps Shared	3713	12 months
6)Jola Play 3 Mbps 150GB cap - Shared	3072 Mbps Shared	5400	12 months
7)Jola Play 3 Mbps 200GB cap - Shared	3072 Mbps Shared	7088	12 months
8)Jola Play 3 Mbps 250GB cap - Shared	3072 Mbps Shared	8775	12 months
9)Jola Explore 5 Mbps 10GB cap - Shared	5120 Mbps Shared	878	12 months
10)Jola Explore 5 Mbps 30GB cap - Shared	5120 Mbps Shared	1553	12 months
11)Jola Explore 5 Mbps 50GB cap - Shared	5120 Mbps Shared	2228	12 months
12)Jola Explore 5 Mbps 75GB cap - Shared	5120 Mbps Shared	3105	12 months
13)Jola Explore 5 Mbps 100GB cap - Shared	5120 Mbps Shared	3915	12 months
14)Jola Explore 5 Mbps 150GB cap - Shared	5120 Mbps Shared	5603	12 months
15)Jola Explore 5 Mbps 200GB cap - Shared	5120 Mbps Shared	7290	12 months
16)Jola Explore 5 Mbps 250GB cap - Shared	5120 Mbps Shared	8978	12 months

RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
FIBRE AND FIXED RADIO ** WITHIN 250KM RADIUS OF CENTRAL KASANE			
1)1 MBPS - unlimited, no contention	1024 Mbps dedicated	1133	12 months
BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
1)2 MBPS - unlimited, no contention	2042 Mbps dedicated	1758	12 months
2)3 MBPS - unlimited, no contention	3126 Mbps dedicated	2521	12 months
3)4 MBPS - unlimited, no contention	4096 Mbps dedicated	3295	12 months
4)5 MBPS - unlimited, no contention	5130 Mbps dedicated	4016	12 months
5)10 MBPS - unlimited, no contention	10240 Mbps dedicated	7754	12 months
6)12 MBPS - unlimited, no contention	12288 Mbps dedicated	9265	12 months
7)15 MBPS - unlimited, no contention	15360 Mbps dedicated	11452	12 months
8)20 MBPS - unlimited, no contention	20480 Mbps dedicated	15098	12 months

RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
LOCAL WIFI ** CENTRAL KASANE ONLY			
1)1 MBPS - unlimited, no contention	1024 Mbps dedicated	950	12 months

BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
1)2 MBPS - unlimited, no contention	2042 Mbps dedicated	1509	12 months
2)3 MBPS - unlimited, no contention	3126 Mbps dedicated	2248	12 months
3)4 MBPS - unlimited, no contention	4096 Mbps dedicated	2848	12 months
4)5 MBPS - unlimited, no contention	5130 Mbps dedicated	3694	12 months
5)10 MBPS - unlimited, no contention	10240 Mbps dedicated	6586	12 months
6)15 MBPS - unlimited, no contention	15360 Mbps dedicated	9425	12 months
7)20 MBPS - unlimited, no contention	20480 Mbps dedicated	12111	12 months

LIQUID TELECOM			
BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
Dedicated Internet Access	2	2263.83	12
Dedicated Internet Access	4	4051.06	12
Dedicated Internet Access	8	5719.15	12
Dedicated Internet Access	10	5851.06	12
Dedicated Internet Access	20	11914.89	12
Dedicated Internet Access	30	17157.45	12
Dedicated Internet Access	40	21446.81	12
Dedicated Internet Access	70	32527.66	12
Dedicated Internet Access	100	45276.60	12
Dedicated Internet Access	200	76255.32	12
Dedicated Internet Access	500	178723.40	12
Dedicated Internet Access	1000	309787.23	12
Dedicated Internet Access	1500	393191.49	12
Dedicated Internet Access	2500	595744.68	12
VSat_Epic-Basic	1	479.98	12
VSat_Epic-Bronze	2	959.95	12
VSat_Epic-Silver	3	1439.93	12
VSat_Epic-Gold	6	2679.85	12
VSat_Epic-Business	8	3673.11	12
VSat_Epic-Platinum	10	4799.38	12
VSat_Epic-PlatinumPlus	15	6699.73	12
VSat_Epic-Double Platinum	20	8398.91	12

MASCOM			
RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
1)MySurf Instant	2 Mbps 3G/4G	375	None
2)MySurf Ultra	5 Mbps 3G/4G	595	None
3)My Pre-paid broadband 5GB's	10 Mbps	189	None
4)My Pre-paid broadband 15GB's	10 Mbps	489	None
5)My Pre-paid Broadband 25 GB's	10 Mbps	686	None
6)My Pre-paid Broadband 40 GB's	20 Mbps	959	None
7)MySurf Fiber Instant	10 Mbps	675	12 months
8)MySurf Fiber Ultra	20 Mbps	975	12 months
9)My Fixed broadband EASY	5 Mbps	595	None
BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
1)MySurf Super	10 Mbps 3G/4G	995	None
2)My pre-paid Broadband	20 Mbps 4G	1289	None
3)MySurf Fiber	30 Mbps	1375	12 months
4)My Fixed BB pro	10 Mbps 4.5 G	995	None

MEGA INTERNET			
RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
ADSL			
	512Kbps	170	monthly
	1MB	330	monthly
	2MB	710	monthly
	4MB	1100	monthly
WIRELESS			
	1MB	336	monthly
	2MB	448	monthly
	4MB	728	monthly
FTTX	5MB	896	Monthly
FTTX	10MB	1150	Monthly

NASHUA			
RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) vat incl	CONTRACT PERIOD
1)Home Lite 2.2mbps	2.2mbps to 8mbps	450	1 year & 2 years
2)Home Power 3.2mbps	3.2mbps to 9mbps	580	1 year & 2 years
3)Home Extreme 4.2mbps	4.2mbps to 10mbps	680	1 year & 2 years
4)Home Blast 5.2mbps	5.2mbps to 11mbps	830	1 year & 2 years
5)Home Extreme 6.2mbps	6.2mbps to 12mbps	990	1 year & 2 years
6) Home Extreme 7.2mbps	7.2mbps to 13mbps	1090	1 year & 2 years
7) Home Extreme 8.2mbps	8.2mbps to 14mbps	1190	1 year & 2 years
8) Home Extreme 9.2mbps	9.2mbps to 15mbps	1290	1 year & 2 years
9) Home Extreme 10.2mbps	10.2mbps to 16mbps	1390	1 year & 2 years
etc: anything after 10mbps it is special deal			
BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) vat incl	CONTRACT PERIOD
1)Biz Lite 2.5mbps	2.5mbps to 9mbps	530	1 year & 2 years
2)Biz Power 3.5mbps	3.5mbps to 10mbps	780	1 year & 2 years
3)Biz Extreme 4.5mbps	4.5mbps to 11mbps	1080	1 year & 2 years
4)Biz Blast 5.5mbps	5.5mbps to 12mbps	1590	1 year & 2 years
5)Biz Blast 6.5mbps	6.5mbps to 13mbps	1690	1 year & 2 years
6)Biz Blast 7.5mbps	7.5mbps to 14mbps	1790	1 year & 2 years
7)Biz Blast 8.5mbps	8.5mbps to 15mbps	1890	1 year & 2 years
8)Biz Blast 9.5mbps	9.5mbps to 16mbps	1990	1 year & 2 years
9)Biz Blast 10.5mbps	10.5mbps to 17mbps	2090	1 year & 2 years
anything after 10mbps it is special deal			

NGAMI NET			
PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
H 1 MB	1mb Package (CR 10:1) min 0.1mb / ave 1mb / max 1.5mb	624	min 1 year
H 2 MB	2mb Package (CR 10:1) min 0.2mb / ave 2mb / max 2.5mb	912	min 1 year
H 3 MB	3mb Package (CR 10:1) min 0.3mb / ave 3mb / max 3.5mb	1200	min 1 year
H 4 MB	4mb Package (CR 10:1) min 0.4mb / ave 4mb / max 5mb	1488	min 1 year
H 5 MB	5mb Package (CR 10:1) min 0.5mb / ave 5mb / max 6mb	1776	min 1 year
H 6 MB	6mb Package (CR 10:1) min 0.6mb / ave 6mb / max 8mb	2488	min 1 year
H 8 MB	8mb Package (CR 10:1) min 0.8mb / ave 8mb / max 10mb	2640	min 1 year
H 10 MB	10mb Package (CR 10:1) min 1mb / ave 10mb / max 12mb	3216	min 1 year
B 2 MB	2mb Package (CR 3:1) min 0.6mb / ave 2mb / max 2.5mb	2488	min 1 year
B 5 MB	5mb Package (CR 4:1) min 1.2mb / ave 5mb / max 6mb	4888	min 1 year
B 6 MB	6mb Package (CR 4:1) min 1.5mb / ave 6mb / max 8mb	5784	min 1 year
B 8 MB	8mb Package (CR 4:1) min 2mb / ave 8mb / max 10mb	7576	min 1 year
BS 10 MB	10mb Package (CR 4:1) min 2.5 / ave 10mb / max 12mb	9376	min 1 year
FB 4 MB	Fibre 4MB - min 0.4mb / ave 4mb / max 5mb	3296	min 1 year
FB 10 MB	Fibre 10MB (CR 10:1) min 1mb / ave 10mb / max 12mb	7566	min 1 year
DSB30 MB	DS Fibre 30MB - (CR 4:1) min 17.5mb / ave 30mb / max 35mb	11000	min 1 year
Bel 25 MB	Biz 25MB - Internet Package DL=4:1 UP=2:1 MAX 25mb	11950	min 1 year

OPQ NET			
RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
OPQ Student	768kbps - 6:1	178.57	12 months
Home Classic FWA	2Mbps - 6:1	232.15	12 months
Home Classic Professional FWA	3Mbps - 6:1	321.43	12 months
Home Basic FWA	4Mbps - 6:1	500	12 months
O1 Home FWA	5Mbps - 6:1	650	12 months
O1 Home + FWA	6Mbps - 6:1	758.93	12 months
O1 Home Professional FWA	10Mbps - 6:1	848.22	12 months
O1 Home Professional + FWA	12 Mbps - 6:1	1089.29	12 months
O2 Home FWA	14 Mbps - 6:1	1350	12 months
O2 Home Professional FWA	16 Mbps - 6:1	4125	12 months
O2 Home Professional + FWA	18 Mbps - 6:1	1499	12 months

BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
Business Classic FWA	2Mbps - 4:1 / 8:1*	357	12 months
Business Classic Professional FWA	3Mbps - 4:1 / 8:1*	446	12 months
Business Basic FWA	4Mbps - 4:1 / 8:1*	750	12 months
O1 Business FWA	5Mbps - 4:1 / 8:1*	999	12 months
O1 Business + FWA	6Mbps - 4:1 / 8:1*	1116	12 months
O1 Business Professional FWA	10Mbps - 4:1 / 8:1*	1499	12 months
O1 Business Professional + FWA	12Mbps - 4:1 / 8:1*	1719	12 months
O2 Business FWA	14Mbps - 4:1 / 8:1*	1925	12 months
O2 Business Professional FWA	16Mbps - 4:1 / 8:1*	2696	12 months
O3 Business Professional FWA	18 Mbps - 4:1 / 8:1*	3700	12 months

Fixed Wireless - Dedicated			
BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
Business Classic FWA CIR	1Mbps	1192	12 months
Business Classic Professional FWA CIR	2Mbps	2052	12 months
Business Basic FWA CIR	3Mbps	3078	12 months
O1 Business FWA CIR	4Mbps	4104	12 months
O1 Business + FWA CIR	5Mbps	5130	12 months
O1 Business Professional FWA CIR	6Mbps	6156	12 months
O1 Business Professional + FWA CIR	10 Mbps	7182	12 months
O2 Business FWA CIR	8Mbps	8208	12 months

O2 Business Professional FWA CIR	9Mbps	9234	12 months
O3 Business Professional FWA CIR	10 Mbps	10236	12 months

Fibre Metro Ethernet Included - Dedicated			
BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
Business Classic FWA CIR	1Mbps	1192	12 months
Business Classic Professional FWA CIR	2Mbps	2052	12 months
Business Basic FWA CIR	3Mbps	3078	12 months
O1 Business FWA CIR	4Mbps	4104	12 months
O1 Business + FWA CIR	5Mbps	5130	12 months
O1 Business Professional FWA CIR	6Mbps	6156	12 months
O1 Business Professional + FWA CIR	10 Mbps	7182	12 months
O2 Business FWA CIR	8Mbps	8208	12 months
O2 Business Professional FWA CIR	9Mbps	9234	12 months
O3 Business Professional FWA CIR	10 Mbps	10236	12 months

Fibre Metro Ethernet - Dedicated			
BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
Business Classic Professional FWA CIR	2Mbps	398	12 months
Business Basic FWA CIR	3Mbps	598	12 months
O1 Business FWA CIR	4Mbps	797	12 months
O1 Business + FWA CIR	5Mbps	996	12 months
O1 Business Professional FWA CIR	6Mbps	1195	12 months
O1 Business Professional + FWA CIR	10 Mbps	1394	12 months
O2 Business FWA CIR	8Mbps	1594	12 months
O2 Business Professional FWA CIR	9Mbps	1793	12 months
O3 Business Professional FWA CIR	10 Mbps	1963	12 months

ADSL - Shared			
RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
Bronze Home	512 Kbps	170	n/a
Silver Home	1024 Kbps	290	n/a
Gold Home	2048 Kbps	390	n/a
ADSL - Shared			
BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
Bronze Business	512 Kbps	260	n/a
Silver Business	1024 Kbps	360	n/a
Gold Business	2048 Kbps	480	n/a

PAQLINK			
BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
WI-FI	50 MBPS	28570	24 MONTHS

TECHNOTRENDS			
BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP)	CONTRACT PERIOD
1) Fibre Lite- 4Mbps(CR4:1)	Min.:1Mbps/ Max.: 4Mbps	679	36 Months
2) Fibre Lite -5Mbps (CR4:1)	Min.:1.25Mbps/Max.:5Mbps	952	36 months
3) Fibre Lite -10Mbps (CR6:1)	Min.:2Mbps/Max.:10Mbps	1421	36 Months
4) Fibre Lite -20Mbps (CR8:1)	Min.:2.5Mbps/Max.:20Mbps	2141	36 Months
5) Fibre Lite -40Mbps (CR10:1)	Min.:4Mbps/Max.:40Mbps	3212	36 Months

IPT DEDICATED (CR 1:1)			
BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE(BWP)	CONTRACT PERIOD
1) Business -1Mbps	Down:1Mbps/Up:1Mbps	785	36 Months
2) Business -2Mbps	Down:2Mbps/Up:2Mbps	1570	36 Months
3) Business-3Mbps	Down:3Mbps/Up:3Mbps	2347	36 Months
4) Business-4Mbps	Down:4Mbps/Up:4Mbps	3102	36 Months
5) Business-5Mbps	Down:5Mbps/Up:5Mbps	3878	36 Months
6) Business-10Mbps	Down:10Mbps/Up:10Mbps	7559	36 Months
7) Business-20Mbps	Down:20Mbps/Up:20Mbps	14853	36 Months
8) Business-40Mbps	Down:40Mbps/Up:40Mbps	28917	36 Months
9) Business-50Mbps	Down:50Mbps/Up:50Mbps	35653	36 Months

IPT SHARED SERVICE			
RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE(BWP)	CONTRACT PERIOD
1) RESISHARED-1Mbps	1Mbps(CR 1:1)	366	36 Monhs
2) RESISHARED-2Mbps	2Mbps(CR 2:1)		36 Months
3) RESISHARED-3Mbps	3Mbps(CR 3:1)		36 Months

BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE(BWP)	CONTRACT PERIOD
1) BusiShared-2Mbps (CR 2:1)	Min. 1Mbps/Max.2Mbps	733	36 Months
2) BusiShared-3 Mbps (CR 3:1)	Min. :1Mbps/Max.:3 Mbps	1099	36 Months
3) BusiShared-4 Mbps (CR 4:1)	Min.:1Mbps/Max.:4 Mbps	1465	36. Moths
5) BusiShared-5 Mbps (CR 4:1)	Min.:1.25Mbps/Max.:5Mbps	1831	36 Months

VBN SERVICES			
RESIDENTIAL PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
ADSL	2	392	24
ADSL	4	784	24
Fixed Wireless	2	476	12
Fixed Wireless	4	837	12
Fixed Wireless	10	1415	12
Fixed Wireless	2	442	24
Fixed Wireless	4	778	24
Fixed Wireless	10	1316	24

BUSINESS PACKAGE	BANDWIDTH/SPEED	PRICE (BWP) INCL VAT	CONTRACT PERIOD
ADSL	2	448	12
ADSL	4	784	12
Fixed Wireless	2	756	12
Fixed Wireless	5	1046	12
vBox-Fibre Lite	2	753	12
vBox Pro-Fibre Lite	5	813	12
vBox Plus-Fibre Lite	10	1805	12
vBox Mega-Fibre Lite	20	2888	12
vBox-Fibre Lite	2	700	24
vBox Pro-Fibre Lite	5	756	24
vBox Plus-Fibre Lite	10	1679	24
vBox Mega-Fibre Lite	20	2687	24

Dedicated Internet Access-LOCAL FIBER	2	1576	24
Dedicated Internet Access-LOCAL FIBER	4	3011	24
Dedicated Internet Access-LOCAL FIBER	6	4457	24
Dedicated Internet Access-LOCAL FIBER	8	5939	24
Dedicated Internet Access-LOCAL FIBER	10	7362	24
Dedicated Internet Access-LOCAL FIBER	15	11089	24
Dedicated Internet Access-LOCAL FIBER	20	14382	24
Dedicated Internet Access-LOCAL FIBER	25	17876	24
Dedicated Internet Access-LOCAL FIBER	30	21367	24
Dedicated Internet Access-LOCAL FIBER	40	28024	24
Dedicated Internet Access-LOCAL FIBER	50	34880	24
Dedicated Internet Access-LOCAL FIBER	100	70066	24
Dedicated Internet Access-LOCAL RADIO	2	1940	24
Dedicated Internet Access-LOCAL RADIO	4	3395	24
Dedicated Internet Access-LOCAL RADIO	6	4822	24
Dedicated Internet Access-LOCAL RADIO	8	6303	24
Dedicated Internet Access-LOCAL RADIO	10	7726	24
Dedicated Internet Access-NATIONAL FIBER	2	2093	24
Dedicated Internet Access-NATIONAL FIBER	4	4069	24
Dedicated Internet Access-NATIONAL FIBER	6	6056	24
Dedicated Internet Access-NATIONAL FIBER	8	8056	24
Dedicated Internet Access-NATIONAL FIBER	10	10020	24
Dedicated Internet Access-NATIONAL FIBER	15	15088	24
Dedicated Internet Access-NATIONAL FIBER	20	19698	24
Dedicated Internet Access-NATIONAL FIBER	25	24531	24
Dedicated Internet Access-NATIONAL FIBER	30	29341	24
Dedicated Internet Access-NATIONAL FIBER	40	38443	24
Dedicated Internet Access-NATIONAL FIBER	50	48193	24
Dedicated Internet Access-NATIONAL FIBER	100	95291	24
Dedicated Internet Access-NATIONAL RADIO	2	2458	24
Dedicated Internet Access-NATIONAL RADIO	4	4434	24
Dedicated Internet Access-NATIONAL RADIO	6	6421	24
Dedicated Internet Access-NATIONAL RADIO	8	8421	24
Dedicated Internet Access-NATIONAL RADIO	10	10384	24

WINGAIN

FIXED WIRELESS

Residential Package Name	Contract Period	Bandwidth Capacity / Speed	Price in Botswana Pula
1) Silver	12	512kbit	600
2) Dedicated 1Mbit	24	1Mbit	3000

MTN BUSINESS SOLUTIONS

BROADBAND								
	CAPACITY		1 YEAR CONTRACT	CONTRACT	CONTRACT	CONTRACT	CONTRACT	CONTRACT
512 kbps	0.5MB -4MB	0.50MB	BWP 299.00	BWP 286.00	BWP 260.00	BWP 247.00	BWP 234.00	
1024 kbps	0.5MB -4MB	1.00MB	BWP 624.00	BWP 598.00	BWP 520.00	BWP 495.00	BWP 470.00	
E1	0.5MB -4MB	2.00MB	BWP 1,200.00	BWP 1,148.00	BWP 1,043.00	BWP 990.00	BWP 940.00	
2 x E1s	0.5MB -4MB	4.00MB	BWP 2,400.00	BWP 2,295.00	BWP 2,085.00	BWP 1,980.00	BWP 1,875.00	
3 x E1s	5MB -15MB	6.00MB	BWP 3,420.00	BWP 3,275.00	BWP 2,975.00	BWP 2,825.00	BWP 2,680.00	
4 x E1s	5MB -15MB	8.00MB	BWP 4,560.00	BWP 4,360.00	BWP 3,965.00	BWP 3,765.00	BWP 3,570.00	
10Mbps	5MB -15MB	10.00MB	BWP 5,700.00	BWP 5,450.00	BWP 4,955.00	BWP 4,705.00	BWP 4,460.00	
15360 Kbps	5MB -15MB	15.00MB	BWP 8,550.00	BWP 8,180.00	BWP 7,435.00	BWP 7,065.00	BWP 6,690.00	
20480 Kbps	16MB -35MB	20.00MB	BWP 11,100.00	BWP 10,615.00	BWP 9,650.00	BWP 9,170.00	BWP 8,685.00	
25600 Kbps	16MB -35MB	25.00MB	BWP 13,875.00	BWP 13,270.00	BWP 12,065.00	BWP 11,460.00	BWP 10,860.00	
30720 Kbps	16MB -35MB	30.00MB	BWP 16,645.00	BWP 15,925.00	BWP 14,475.00	BWP 13,750.00	BWP 13,030.00	
35840 Kbps	16MB -35MB	35.00MB	BWP 19,425.00	BWP 18,580.00	BWP 16,890.00	BWP 16,045.00	BWP 15,200.00	
40960 Kbps	36MB -45MB	40.00MB	BWP 21,720.00	BWP 20,775.00	BWP 18,885.00	BWP 17,940.00	BWP 16,995.00	
D53	36MB -45MB	45.00MB	BWP 24,430.00	BWP 23,370.00	BWP 21,245.00	BWP 20,185.00	BWP 19,120.00	
76800 kbps	46MB -100MB	75.00MB	BWP 39,370.00	BWP 37,660.00	BWP 34,235.00	BWP 32,525.00	BWP 30,810.00	
102400 kbps	46MB -100MB	100.00MB	BWP 52,505.00	BWP 50,220.00	BWP 45,655.00	BWP 43,370.00	BWP 41,090.00	
STM1	101MB -622MB	155.00MB	BWP 79,045.00	BWP 75,610.00	BWP 68,735.00	BWP 65,300.00	BWP 61,860.00	
STM4	101MB -622MB	622.00MB	BWP 317,230.00	#####	#####	#####	#####	
STM7	623MB -1244MB	1085.00MB	BWP 520,810.00	#####	#####	#####	#####	
STM8	623MB -1244MB	1244.00MB	BWP 597,075.00	#####	#####	#####	#####	

APPENDIX 4: LIST OF LOCALITIES WITH BROADBAND ENABLED (3G AND 4G/LTE) BASE STATIONS AS AT JUNE 2019

Mascom 3G	Mascom 4G
Artesia	Bobonong
Boatlane	Francistown
Bobonong	Gabane
Bogogobo	Gaborone
Bokaa	Gantsi
Bokspits	Goodhope
Bonwapitse	Gumare
Borolong	Jwaneng
Bray	Kang
Chadibe	Kanye
Changate	Kasane
Damochojenaa	Kopong
Damtshaa	Kumakwane
Dibete	Letlhakane
Digawana	Lobatse
Dinokwe	Lobu
Ditshegwane	Mahalapye
Dkar	Masunga
Dovedale	Maun
Draihok	Medie
DUKWI	Metsimotlhabe
Dutlwe	Mmadinare
Etsha 13	Mmopane
Etsha 6	Mochudi
Foley	Modipane
Francistown	Mogoditshane
Gabane	Mohembo
Gaborone	Molepolole
Gakgatla	Moshupa
Gakhibane	Nata
Gakutlo	Oodi
Gantsi	Orapa
Gojwane	Otse
Goodhope	Palapye
Gootau	Pilane
Gumare	Ramatlabama
Gweta	Ramotswa
Hatsalatladi	Rasesa
Hubona	Selibe Phikwe
Hukuntsi	Serowe
Hunhunkwe	Shoshong
Ikongwe	Sowa Town
Inalegolo	Tati siding
Jakalas NO 2	Taukgolo
Jwaneng	Thamaga
Kachikau	Thebephatshwa
Kalamare	Tlokweng
Kang	Tonota
Kanye	Tsabong
Karakubis	Tutume
Kasane	
Kauxwi	
Kavimba	
Keng	
Kgagodi	
Kgomodiatshaba	
Khakhea	
Khama Rhino	
Khawa	
Khisa	
Khudumelapye	
Khuis	
Kobojango	
Kodibeleng	
Kokong	
Kokotsha	
Kolonkwane	
Kopong	
Kudumatse	
Kuke	
Kumakwane	
Lecheng	
Lehututu	
Lentsweletau	
Lephephe	
Lepokole	
Lerala	
Lesenepole	

Orange 3G	Orange LTE
Betesankwe	Bobonong
Bobonong	Charles Hill
Bokaa	Francistown City
Borolong	Gabane
Charles Hill	Gaborone City
Digawana	Gaborone North
Francistown City	Ghanzi
Gabane	Good-hope
Gaborone	Highway
Gaborone City	Hukuntsi
Gaborone North	Jwaneng
Ghanzi	Kang
Good-hope	Kanye
Gumare	kasane
Gweta	Khakhea
Hukuntsi	Kopong
Itholoke	Kumakwane
Jwaneng	Lentsweletau
Kanakau	Letlhakane
Kang	Lobatse
Kanye	Lodge
kasane	Mabutsane
Kazungula	Mahalapye
Keng	Maokane
Khakhea	Masunga
Khonkhwa	Maun
Kokong	Metsimotlhabe
Kopong	Mine Site
Kumakwane	Mmadinare
Kutuku	Mmanoko
Lefoko	Mmokolodi
Lentsweletau	Mmopane
Lerala	Mochudi
Letlhakane	Mogobane
Letlhakeng	Mogoditshane
Lobatse	Mohembo
Lodge	Molepolole
Mabutsane	Morwa
Mahalapye	Moshupa
Mahotshwane	Oodi
Maitengwe	Orapa Town
Manyana	Otse WaterTank
Maokane	Palapye
Mapharangwane	Ramotswa
Masunga	Sefhare
Mathangwane	Sekoma
Maun	Selibe Phikwe
Maunatlala	Serowe
Metsimotlhabe	Sese
Mine	Shoshong
Mine Site	Sikwane
Mmadinare	Tati Siding
Mmankodi	Thamaga
Mmanoko	Tlokweng
Mmathethe	Tonota
Mmopane	Tsabong
Mochudi	Tshebebe
Modipane	Tutume
Mogobane	
Mogoditshane	
Mohembo	
Mokhomma	
Molapowabojang	
Molepolole	
Morwa	
Morwamosu	
Moshupa	
Nata	
Oodi	
Orapa Town	
Otse	
Otse WaterTank	
Palapye	
Pitsane	
Rakops	
Ramokgwebana	
Ramotswa	
Rureitse	

BTCL 3G	BTCL 4G
BOKAA	Bere
BRAY	Palapye
CHARLES HILL	Boatlane
DKAR	BOKAA
F/town	Bokspits
GABANE	Chobokwane
GABORONE	DKar
Ghanzi	East Hanahai
GUMARE	FRANCISTOWN
HUKUNTSI	Bere
JWANENG	Chobocwane
KANG	EastHanahai
KANYE	GrootLoagte
Kasane	Kagcae
Letlhakane	Kalkfontein
Letlhakeng	Karakubis
LOBATSE	Kule
LOKGWABE	Makunda
MABUTSANE	Metsimantsho
MAHALAPYE	Ncojane
MAPHARANGWANE	NewXade
MARUAPULA TRANSPORT	NewXanagas
MASUNGA	Qabo
Maun Boro	WestHanahai
METSIMOTLHABE	Xanagas
MIDDLEPITS	Gabane
MMOPANE-BOKAMOSO	Ghanzi
MOCHUDI BTC	Groot Loagte
MOGODITSHANE	Gumare
MOKOLODI	JWANENG
MOLEPOLOLE	Kagcae
MOSHUPA	Kalkfontein
OODI EAST	KANYE BUS RANK
OODI MATEBELENG	Karakubis
Orapa	Kasane CBD
Palapye	KGALÉ
PHAKALANE RLU9	Khawa Lodge
RAMOTSWA	Khawawa
S/Phikwe	Kuke
SEKOMA	Kule
Serowe	Lehututu
ST JOSEPHS COLLEGE	Letlhakane
Tati Siding	LOBATSE
THAMAGA	SOWA
TLOKWENG	MAHALAPYE
Tonota Letlhabile	Makunda
TOTENG	Manong lodge
TSABONG	Mapharangwane
TSHANE	MAUDIS
	Maun Disaneng
	Metsimantsho
	METSIMOTLHABE
	Mmopane Bokamoso
	MOCHUDI MAKGOPHANA
	MOGODITSHANE POLICE
	MOKOLODI VILLAGE
	MOLEPOLOLE LEKGAPHENG
	MOLEPOLOLE TSHOSA
	MOSHUPA POLICE
	NASHUA
	Ncojane
	New Xade
	OODI EAST
	OODI MATEBELENG
	Orapa
	Palapye Engen
	PHAKALANE PHOMOLONG
	Phikwe MSU
	PHKNS_
	Qabo
	RAMOTSWA
	S/Phikwe BTC
	Senn Foods
	Serowe Mall
	Shakawe
	Sowa Town
	ST JOSEPHS COLLEGE
	Suwa Mines

Leshibitse
Letlhakane
Letlhakeng
Lobatse
Lobu
Lokgwabe
Lonetree
Lotlhakane
Maake
Mabalane
Mabele
Mabeleapudi
Maboane
Mabolwe
Mabule
Mabutsane
Machaneng
Magapatona
Mahalapye
Mahetlwe
Maitengwe
Majwanaadipitse
Majwaneng
Makalamabedi
Makaleng
Makopong
Makoro
Makuta
Makwate
Malaka
Maleshe
Malolwane
Malotwana
Mamabula
Mandunyane
Mannathoko
Manyana
Maokane
Maokatumo
Maope
Mapoka
Maralaleng
Marapong
Maruapula Investment
Masa Tower Indoor
Masunga
Matebeleng
Mathangwane
Mathathane
Matlhako
Matshelagabedi
Matsila
Matsiloje
Maubelo
Maun
Maunatlala
McCarthys Rust
Medie
Metlojane
Metsimotlhabe
Middlepits
Mmadinare
Mmankgodi
Mmanoko
Mmaphashalala
Mmashoro
Mmathethe
Mmopane
Mochudi
Modipane
Moepeng
Mogapi
Mogobane
Mogoditshane
Mogome
Mogorosi
Moiyabana
Mokgosi
Mokgware
Mokhomma
Mokobeng

Sebina
Sefhare
Sefophe
Seherelela
Sekoma
Selibe Phikwe
Selibe Phikwe
Semane
Serowe
Sese
Shakawe
Shoshong
Sikwane
Sowa Town
Tati Siding
Thamaga
Tlokwenng
Tonota
Toteng
Tsabong
Tshele Hill
Tshesebe
Tutume

Tati Siding
Thamaga
THAMAGA RLU
TLOKWENG MASETLHENG
Tonota Letlhabile
Tsabong Exchange
Tsabong Police
UCHARLESHILL
ULetlhakeng
Werda
West Hanahai
Xanagas

Mokoboxane
Mokolodi Village
Mokoswane
Mokubilo
Molalatau
Molapowabojang
Molepolole
Monong
Mookane
Mopipi
Moralane
Morale Hill
Moremi
Moreomabele
Moroka
Morupule
Morupule Junction
Morwa
Morwa Mammitseng
Morwamosu
Mosaditshwene
Mosetse
Moshupa
Mosojane
Mosolotshane
Mosu
Motlhabaneng
Motloutse
Motokwe
Mowana Mine
Mupane Mine
Nata
Natale
Ncaang
Ncojane
Ngoma
Ngwatle
Nkange
Nokaneng
Nshakashokwe
Nswazi
Ntlhantlhe
Nxamasere
Oliphants Drift
Omaweneno
Oodi
Orapa
Otse
Paje
Palapye
Pandamatenga
Parakarungu
Parrs Halt
Phitshane Molopo
Phoenix-Mine
Phuduhudu
Phuduhudu Ngamiland
Pilane
Pilikwe
Pitsane
Poloka
Radisele
Rakhuna
Rakops
Ramatlabama
Ramokgonami
Ramokgwebana
Ramotlabaki
Ramotswa
Ranaka
Rappelspan
Rasesa
Ratholo
Robelela
Salabjwe
Samochima
Satau
Sebina
Sefhare
Sefhophe
Sefhophe_Bobonong Rd

Sehitwa
Sekoma
Selibe Phikwe
Selkirk
Semolale
Senete
Senyawwe
Seolwane
Sepopa
Seronga
Serowe
Serule
Sese
Sexaxa
Shakawe
Shakwe
Shashe mooke
Sherwood
Shorobe
Shoshong
Sikwane
Sojwe
Sowa Town
Struizendam
Takatokwane
Tati Siding
Taukgolo
Tewane
Thabala
Thamaga
Thebephatshwa
Tloaneng
Tlokweneng
Tobane
Tonota
Toteng
Tsabong
Tsamaya
Tsau
Tsetsebjwe
Tshane
Tshele_Hills
Tshesebe
Tshimoyapula
Tshokwe
Tsootsha
Tumasera
Tutume
Ukhwi
Vaalhoek
Werda
Xanagas
Xhumo
Zanzibar
Zutshwa
Zwenshambe