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Article 20: Broadband internet choices for SMMEs

Introduction

As discussed on several occasions in this series of articles, there are considerable advantages to businesses of all sizes to trade online, and to take advantage of the multitude of services that are available online. Common to all of these is the need to have reliable and cost effective Internet access, at a sufficient quality to all the desired interactions to take place seamlessly. In Internet terms, quality is characterized by the speed of the service, the amount of data that can be accessed within a given period and other technical parameters such as jitter and latency. These last factors are mainly a consideration for 'real time' services such as voice and video calling, and where milliseconds make a difference to the experience e.g. online trading of stocks and shares.

Concepts related to broadband

There are several concepts that first need to be defined and understood before progressing to make the right choice of broadband option/s for your business. Note that these concepts are used widely and generalized definitions are provided below:

Fixed, nomadic and mobile: This refers to the location or locations where the service is available:

- Fixed services are available only at a specific location constrained as a result of a physical wire or cable connection.
- Nomadic services can be used within a known, set area. For example, a cordless phone can be used in most locations with a home, but does not work in the neighbouring property.
- Mobile services are generally available anywhere the service provider provides coverage. Here we can consider our cellphone calls which are available in most places of the country. Users 'roam' from one area to another.

Fixed and wireless: From above, for fixed services, the communications signals travel over a cable or wire, confining the service to a location. Wireless services transmit signals through the air. Note that there are hybrid services such as fixed-wireless that provide services to a fixed (set) location using wireless technology (no wires or cables between the locations). Moreover, many services involve a fixed connection to the network, and then distribution of the broadband service over wires (LAN = local area network) and/or wireless (WLAN = wireless LAN, using Wi-Fi).

Broadband speed: The speed of a broadband connection determines how much information (data) is transmitted over a given period. Broadband speeds are measured in the unit of Mbps (Megabits per second). A voice call takes only a fraction of 1Mbps (so kilobits per second, or kbps), while a video call will consume a few Mbps. Downloading and uploading of large files will benefit from a connection of many Mbps — the higher the speed, the quicker the download or upload. A typical home connection is of the order of 10 or 20Mbps, while a business connection may be from 50Mbps to 1000Mbps or more depending on the nature of the business and various other factors as detailed below. For mobile services, the broadband speed is rarely publicized and varies depending on many technical factors.

Capacity: The volume or capacity of data is measured in units of bytes (B), with a million bytes being a Megabyte (MB), and a million-MB being a Gigabyte (GB). In turn, a million-Gigabytes is a Terabyte (TB). The size of a document or digital photo is usually measured in MB, the storage capacity of a cellphone in GB, and the hard-drive capacity of a computer in hundreds of GB or even TB.

In the same way, this is a measure of the amount of data provided by a service provider. The average mobile user typically uses several hundred MB per month of mobile data. When someone says that they are 'buying data' or have 'run out of data' it is the capacity of data that they are referring to.

Internet Service Provider (ISP): An ISP is a company that provides broadband Internet services, usually amongst other value added services in their portfolio. In South Africa there are around 500 licensed ISPs, ranging from the national giants of Vodacom, MTN, Telkom, Cell, Rain, SEACOM and Liquid Telecom (all of who own their own networks) to mid-sized companies that deal mainly with subscribers such as Vox, MWeb, WebAfrica, Afrihost, Cool Ideas, Axxess, Supersonic *et al.* There are also smaller, localized and niche ISPs.

Service Level Agreement (SLA): Some ISPs are willing to offer service level agreements (SLA) where they stipulate the expected performance of their network and the service offered, and commit to penalties that are applicable should they not meet the agreed standard. The penalties may be in the form of credit or a discount. As a general rule, the higher the service level detailed in the SLA, the higher the price i.e. expect to pay a premium price for a premium service. Businesses can also consider mitigating their risk by subscribing to two services from two independent ISPs so as to minimize the risk of a 'common mode failure' i.e. a fault that affects both services simultaneously.

Types of broadband service

As detailed below there are many types of broadband services available in the market in South Africa:

1. ADSL: ADSL (Asymmetrical Digital Subscriber Line) is a broadband technology for home and business use that relies on a conventional telephone line running into the premises. Historically the telephone lines were made from copper, and later from aluminum. For this reason, sometimes reference is made to 'copper lines'. The physical element of an ADSL service is provided by Openserve (a division of Telkom) and the data service can be by Telkom, MWEB, WebAfrica, Axxess or other ISP (Internet Service Provider). In South Africa, typical ADSL speeds are 10Mbps, 20Mbps and 40Mbps. In general, the use of ADSL technology is declining as this product has reached 'end of life', with operators preferring to provide services over fibre or wireless, as detailed below.

- 2. Optical Fibre:** Optical fibre — or usually just ‘fibre’ — is a communications medium that uses pulses of light travelling down a flexible strand of silicon glass. Fibre provides for very high speeds over long distances, with benefits such as no interference from electrical power cables. Services to homes delivered over fibre are in the range from 10Mbps to 100 or even 200Mbps, with 20Mbps being the most popular service. This is commonly called FTTH (Fibre to the Home). Business fibre services (FTTB) use similar technology, but may run at higher speeds and may come with an SLA. A data intensive business and/or one with a high number of ‘knowledge workers’ would use a service measured in Gbps. Fibre services have become increasingly popular in the past 5 years or so, and hence use modern infrastructure leading to high reliability. Fibre optic cables can be underground (buried in trenches or ducts) or aerial (overhead, strung between poles).
- 3. Wi-Fi:** Wi-Fi — or to give it its formal name, Wireless Fidelity — is a wireless service used to connect devices (phones, laptops, Smart TVs etc.) to a broadband connection. Wi-Fi is now commonplace in homes, businesses and public areas. Wi-Fi in the home is typically provided from a combined router and access point. Wi-Fi extenders help to provide a signal in other parts of the home or office. The same applies to businesses with larger facilities having more sophisticated devices to allow users to ‘roam’ from one part of the building or campus to another. All Wi-Fi systems need a broadband connection to the Internet, which may be over ADSL, fibre, mobile wireless or fixed wireless.
- 4. Fixed wireless:** Fixed wireless installations in the home or business typically requires a small dish antenna (similar to DSTV but usually much smaller) to be mounted outside on a pole or roof eave, connected by a cable to an indoor unit. The indoor unit provides power to the outdoor unit, and a connection via Ethernet cable to a separate router and access point. The latter may also provide the Wi-Fi service. Fixed wireless services compete with ADSL and fibre services in terms of broadband speed and price. Home and business connections from 5Mbps to 100Mbps are common. Fixed wireless services are provided by companies called WISPs (Wireless Internet Service Providers), and are available in most urban and many rural areas of South Africa. WAPA (Wireless Application Providers Association) is the industry body for WISPs.
- 5. Satellite:** Broadband services are also available by satellite in South Africa. These are also a form of fixed wireless service. In the same way that DSTV subscribers have a satellite dish mounted outside their property facing a particular spot of the sky, satellite broadband requires an outdoor unit (dish) and an indoor unit. Traditionally satellite communications have been slow and expensive, but prices have dropped considerably in recent years and performance has improved. This has brought satellite broadband services in line with other normal (terrestrial) services.
- 6. Mobile broadband:** Mobile broadband is provided over 3G, 4G (LTE) and now 5G networks. These are owned and operated by Vodacom, MTN, Cell C, Telkom Mobile and Rain (Liquid Telecom also provides services to Vodacom). Mobile services are also resold by other telecom operators in a wholesale: reseller arrangement. Mobile broadband services are widely available across South Africa and may be accessed on cellphones, dongles, and MiFi routers equipped with a suitable SIM card. 5G services are faster than 4G, which in turn are faster than 3G. All three essentially provide the same service but with better performance with each higher/newer generation.

How to choose a broadband service

In most urban areas, consumers are spoiled for choice when it comes to broadband services with many fixed and wireless broadband offerings (all of the choices described above). In peri-urban and rural areas, choices are more limited and generally limited to wireless services (mobile, fixed wireless and satellite).

The first step is to determine which service providers have ‘**coverage**’ in your area. Most operators publish coverage maps. Links are provided below to some of the leading providers.

The next step is to determine your technical needs (availability, speed, reliability) and budget, in most instances the more you pay, the better service you get and *vice versa*.

As a general rule, video content is the highest consumer of broadband bandwidth. For example, Netflix consumes the following:

- 3.0Mbps - Recommended for Standard Definition (SD) quality
- 5.0Mbps - Recommended for High Definition (HD) quality
- 25Mbps - Recommended for Ultra HD quality

Showmax recommends a minimum download speed of 2Mbps, and an uncapped 4Mbps connection or faster is recommended for the best experience. In the links below you will find their calculator which gives an indication of the capacity (in GB) consumed.

For businesses, the speed and capacity requirements will be based on the number of knowledge workers and the nature of their work. As a rough rule of thumb, a minimum of 1Mbps per worker is recommended.

Next consider the requirements to sign-up for the broadband service you choose. Many are mostly available on a fixed term basis, typically through a 24 month **contract**. Some services are available on a **month-to-month** basis. There will be a once-off (non-recurring cost or **NRC**) to cover the cost of the installation and equipment, and a monthly subscription (monthly recurring cost or **MRC**). The ISP may offer an incentive to take a contract and subsidise the once-off fee. In recent years broadband prices have either held stable or even decreased over time due to the competitive market that exists in South Africa. Accordingly, business owners will need to consider the risk in taking long term contracts. Sites such as Fibre Tiger and PINdrop allow potential customers to enter their details and find offers for FTTH and FTTB services respectively.

Given the high levels of competition and hence similarity in offerings, it is advisable to review the service offering and user experience of the service/s you are considering. Quality companies pride themselves on their customer experience and offerings. Some companies provide 24 x 7 operations while others only work in office hours. Some provide flexibility in billing, for example allowing product upgrades and downgrades on a flexible basis. As with any service, there is a premium to pay for service and hence the business owner taking the service must weigh up the pros and cons of each offer before making a final decision.

Useful links

Vodacom coverage map: <https://www.vodacom.co.za/vodacom/coverage-map>

MTN coverage map: https://www.mtn.co.za/Pages/Coverage_Map.aspx

Cell C coverage map: <https://www.cellc.co.za/cellc/coverage-map>

Telkom coverage map: <https://secure.telkom.co.za/today/ucm/>

Rain (then link to coverage tool): www.rain.co.za

Openserve coverage map: <https://openserve.co.za/open/>

Octotel coverage map: <https://www.octotel.co.za/coverage-map/?address-lookup=coverage+map>

Vumatel: <https://vumatel.co.za/coverage>

Lightstruck coverage map: <https://www.lightstruck.co.za/register/>

SADV coverage map: <https://signup.sadv.co.za/>

Mitchells Fibre coverage map: <https://mitchellsfibre.co.za/>

Link Africa coverage map: <https://www.linkafrica.co.za/consumer-coverage/>

WAPA find coverage: <https://wapa.org.za/>

Showmax bandwidth calculator: <https://www.showmax.com/eng/bandwidth-calculator>

Fibre Tiger: www.fibretiger.co.za

PinDrop: www.pindrop.co.za