PARLIAMENT OF THE PROVINCE OF THE WESTERN CAPE

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QUESTION PAPER

WRITTEN REPLY

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Note: * Indicates translated version.

FRIDAY, 13 JUNE 2025

13. Mr N P Masipa to ask Dr I H Meyer, Minister of Agriculture, Economic Development and Tourism:

(1) (a) What is his Department's current assessment of fixed and mobile internet bandwidth availability across the Karoo region, (b) which towns or municipalities have been identified as lacking the minimum broadband requirements for business development, (c) what is the minimum internet speed or bandwidth requirement generally considered necessary to support Business Process Outsourcing (BPO) operations and (d)(i) how many BPO operations currently exist in rural municipalities, and (e) how many people are currently employed in these rural BPO centres;

(2) whether his Department conducted or commissioned any studies assessing the Karoo's potential for BPO job creation; if so, what were the key findings;

(3) (a) what are the primary barriers to high-speed broadband access in the Karoo and (b) what role does his Department foresee for satellite-based services such as Starlink in enabling digital economic activity in the region?

Response:

13 (1)(a)

The fundamental technology underlying broadband services is optical fibre including in the 'backbone' of any network. The 'last mile' delivery from the telecommunications network to the user may be over a combination of fibre and wireless. The latter includes fixed, mobile, fixed-mobile and even satellite services.

Maps of backbone fibre coverage in South Africa are not in the public domain but were a topic of public interest in the mid-2010s. It is known that Telkom SOC deployed an extensive fibre network from the 1990s onwards to

support the expansion of the mobile networks (2G, 3G, 4G/LTE, and 5G) and other purposes. The fibre maps published by Telkom in 2015 show connections to the main towns in the Karoo including Beaufort West, Laingsburg, Prince Albert and Leeu Gamka.
The private sector commenced with building the NLD (National Long Distance) fibre networks around 2010. The N1 route was commissioned around 2015 through the collaboration of various telecommunications companies and SANRAL.
With this, high speed services, including 10Gbps, are available along the N1, so in Beaufort West and Laingsburg[1]. Mobile services along the N1 corridor also benefit from this infrastructure.
ICASA, the sector regulator, stated in their 2025 *State of the ICT Sector Report of South Africa* report that "Fixed internet access at home is highest in the Western Cape at 40.1%" for which "the Western Cape emerges as the clear leader", for urban population coverage "Western Cape was the highest province with 78% 5G coverage". As regards rural population coverage, ICASA reported that 89% of the rural population has 4G/LTE coverage which lower than the national average of 96%. We do not have disaggregated data at a municipal level, but it is recognised that the Central Karoo District is highly urbanised, with 86.9% of its population living in urban areas[2] and hence the population coverage figures are relevant.
Other notable telecommunications services available in the District include:

- OpenServe, the wholesale division of Telkom, offers FTTH (fibre to the home) in parts of Beaufort West, Prince Albert, Fraserberg and Lainsburg. FTTB (fibre to the business) services are also available there.
- Vodacom Business offers Business Fibre services in Beaufort West and Laingsburg, Sutherland and Oudtshoorn. Vodacom 4G/LTE services are extensive across the province including the Karoo.
- MTN 'home internet' service is available extensively along the N1 route. MTN offers licenced wireless services in Beaufort West.
- WISPs (wireless internet service providers) operate in the area. Known companies include Airpark Beaufort West and Wispernet[3].
- Other service providers may also provide telecommunications services in the area.

As another proxy of access to broadband services, the Western Cape Government provides public WiFi facilities in the following towns with 81% (55 of the 68) sites already served by fibre, 12 (18%) by a broadband wireless service and only 1 by satellite (VSAT):

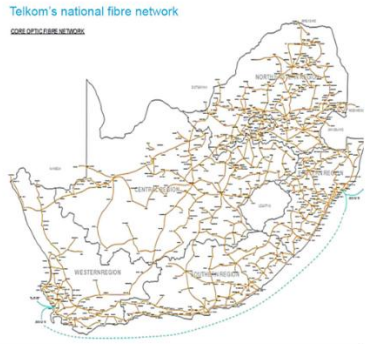
- Beaufort West Local Municipality
    - Beaufort West
    - Merweville
    - Murraysburg
    - Nelspoort
- Laingsburg Local Municipality
    - Laingsburg
    - Matjiesfontein

[1] See https://iol.co.za/business-report/companies/2019-10-03-seacom-lights-up-n1-route-increasing-capacity-and-expanding-national-connectivity/
[2] See MERO 2024
[3] See https://wispernet.co.za/coverage-area/

- Prince Albert Local Municipality
    - Klaarstroom
    - Leeu Gamka

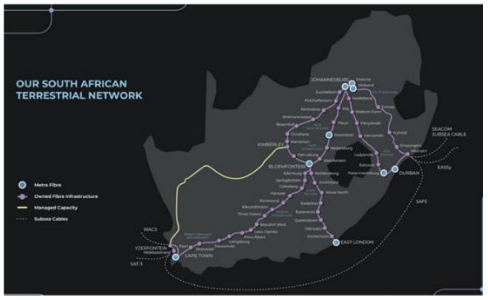
National Long Distance Routes ('backbone')

Telkom National Fibre Network (c. 2015)



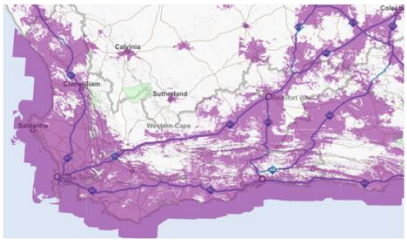
Broadband Infraco Fibre Network

SEACOM Fibre Network

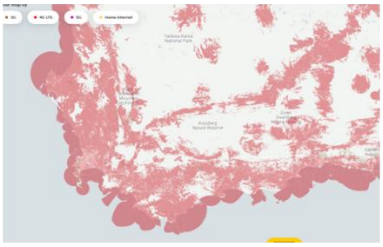


Mobile and Fixed Wireless coverage (examples) in the greater Karoo region

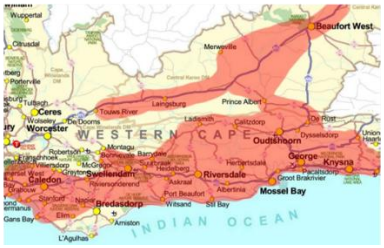
Vodacom 4G/LTE coverage



MTN 4G/LTE coverage



WisperNet coverage (fixed wireless)



13 (1)(b)

Follow on from the above, population coverage is extensive, and the bulk of towns have access to underlying telecommunications infrastructure and high-speed services. Accordingly, no towns have been identified as lacking the minimum broadband requirements for business development, but a feasibility study would be needed to assess any individual business' need.

13 (1)(c)

BPO operations require stable, high-speed broadband Internet connections with low latency (delay), particularly when servicing international markets. BPO operations can be on a centralised basis, for example in an office type environment with multiple 'seats' for agents, or on a decentralised basis where the agents are location in their own homes typically with one 'seat' only.

For a centralised BPO operation, the bandwidth required is a function of the number of agents working simultaneously and the operations that they are performing, plus background data requirements. Voice itself is a not a large user of bandwidth, but quality is an imperative. Connections need to have adequate performance both for download (from the network) and upload (to the network) with a symmetrical service preferred. It is noted that home and mobile services are typically asymmetrical with a much higher download speed than upload speed.

In practice, centralised BPO facilities typically require[4]:

- At least a 50 Mbps symmetrical service (50 Mbps download & 50Mbps upload) for small operations and 100 Mbps (100 Mbps download & 100Mbps

[4] Adapted from https://whichvoip.co.za/internet-speed-voip-contact-centre/

upload) or more for medium scale operations with higher speeds needed for larger facilities
- Low latency (<150 ms) for real-time voice and data services
- The bandwidth should be uncapped and unshaped with low contention rates
- Business grade SLA (service level agreement) and support
- Redundant connections to ensure service in the event of a failure of the primary communications. This may be via different fibre routes, operators and media for increased reliability.
- Enterprise grade equipment (routers, switches etc.)

In contrast, for a decentralised BPO operation, typically with an agent working from their home, a fixed (fibre) connection is optimum, but a stable mobile connection (4G/LTE or 5G) can be used. Fixed-wireless services offered by WISPs (Wireless Internet Service Providers) may also be used provided that the required performance can be met.
It should be noted that the types of services rendered by decentralised BPO agents are generally different from those in the centralised model. This is due to compliance requirements, particularly related to financial transactions, and the need to manage risks. These requirements are particularly important when servicing clients in international markets.

13 (1)(d) and 13 (1)(e)
BPO operations in the Western Cape are centred on the Cape Town metropolitan municipal area. There is one known operator active in George with circa 500 employees.
There are no known rural BPO centres and no employment in this sector.

13(2)
No, the Department has not formally conducted or commissioned any studies to assess the Karoo's potential for BPO job creation.

13(3)(1)(a)
The primary barrier to access was optical fibre. As detailed above, Telkom has provided fibre services across the country since the 1990s and 2000s, and the private sector built extensive infrastructure in the 2010s and beyond.
The price of these services may be an issue as some operators price services on factors such as speed (Mbps) and distance to a main location.

13(3)(1)(b)
Satellite based services have been available across most of the Karoo for many years now. VSAT services were used by banks, petrol station and public sector organisations for narrowband communications. Satellite broadband services such as *YahClick*! have been available since circa 2012. It is again the cost (cost per Mbps and/or of MB of data) that have been prohibitive for various business applications. Additionally, these services suffer from high latency (~600 to 800ms) which does not make them practical for real time services such as voice communications.
Based on international precedent, StarLink can bring lower cost services to remote locations with reasonable latency figures (under 100ms). However, there are capacity limitations with the "100 in 300" rule being used which sets the maximum of 100 subscribers in a 300km^2 area before additional satellite capacity is needed. Gaberone in Botswana has already reported capacity

issues resulting in poor performance[5]. Additional satellites are required to alleviate congestion. StarLink services are also generally asymmetrical, and hence not optimum for BPO operations.
It should also be noted that the Radio Astronomy Reserve or Radio Quiet Zone has been established in the Karoo area to protect the Square Kilometre Array (SKA) from radio interference. This limits the use of satellites in the skies above the Karoo, and hence the use of StarLink and other services. Hence, the preference will remain on terrestrial services such as optical fibre which do not interfere with other services.
In summary, StarLink and other LEO (low earth orbit) satellite services are not the 'game changer' element needed to stimulate the BPO opportunity in the Karoo. Overall, the private sector needs to see the business model in the Karoo and that there are cost and performance benefits for them to operate there.
Connectivity itself is not a technical impediment to creating a BPO facility in a town in the Karoo region. However, the cost of this service and other factors of cost and access to human resources including management staff, technical staff, trainers and agents are relevant. Access to business accommodation, transport and other factors also needs to be considered.
Additionally, it should be noted that to support the further development of access to broadband services, the Department is working with other stakeholders including the Department of Local Government, the Department of Infrastructure and SALGA to promote the use of new models for optical fibre deployment to improve network resilience and broadband services in residential areas not currently served. The uptake of such services would allow for more employment on a decentralized basis.

PARLEMENT VAN DIE

PROVINSIE VAN DIE

WES-KAAP

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VRAELYS

SKRIFTELIKE BEANTWOORDING

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Nota: * Dui vertaalde weergawe aan.

VRYDAG, 13 JUNIE 2025

[5] See https://www.bwtechzone.com/2025/01/starlink-reaches-capacity-in-gaborone.html

13 . Mnr. N.P. Masipa vra dr. I.H. Meyer, Minister van Landbou, Ekonomiese Ontwikkeling en Toerisme:

(4) (a) Wat is sy Departement se huidige assessering van die beskikbaarheid van vaste en mobiele internetbandwydte regoor die Karoo streek, (b) watter dorpe of munisipaliteite is geïdentifiseer as dorpe wat nie aan die minimum breëbandvereistes vir sakeontwikkeling voldoen nie, (c) wat is die minimum internetspoed- of bandwydtevereiste wat oor die algemeen as nodig beskou word om Sakeproses-uitkontraktering (SPU) te ondersteun en (d)(i) hoeveel SPU vind tans in landelike munisipaliteite plaas, en (e) hoeveel mense is tans in hierdie landelike SPU-sentrums werksaam?

(5) Het sy departement enige studies uitgevoer of opdrag gegee om die Karoo se potensiaal vir SPU-werkskepping te beoordeel; indien wel, wat was die belangrikste bevindinge?

(6) (a) Wat is die grootste hindernisse vir hoëspoed-breëbandtoegang in die Karoo en (b) watter rol voorsien sy departement vir satellietgebaseerde dienste soos Starlink om digitale ekonomiese aktiwiteit in die streek moontlik te maak?

Antwoord:

13 (1)(a) Die fundamentele tegnologie onderliggend aan breëbanddienste is optiese vesel, insluitend in die 'ruggraat' van enige netwerk. Die 'laaste myl'-aflewering vanaf die telekommunikasienetwerk na die gebruiker kan oor ’n kombinasie van vesel en draadloos geskied. Laasgenoemde sluit vastelyn-, mobiele, vastelyn-en-mobiele dienste en selfs satellietdienste in.

Kaarte van ruggraatveseldekking in Suid-Afrika is nie in die publieke domein nie, maar was ’n onderwerp van openbare belang in die middel-2010’s. Dit is bekend dat Telkom SOC ’n uitgebreide veselnetwerk vanaf die 1990’s ontplooi het om die uitbreiding van die mobiele netwerke (2G, 3G, 4G/LTE en 5G) en ander doeleindes te ondersteun. Die kaarte van veselnetwerkdienste wat in 2015 deur Telkom gepubliseer is, toon verbindings na die hoofdorpe in die Karoo, insluitend Beaufort-Wes, Laingsburg, Prins Albert en Leeu-Gamka.

Die privaatsektor het omstreeks 2010 begin met die bou van die NLA (Nasionale Langafstand) veselnetwerke. Die N1-roete is omstreeks 2015 in gebruik geneem en dit is moontlik gemaak deur die samewerking van verskeie telekommunikasiemaatskappye en SANRAL.

Hiermee is hoëspoeddienste, insluitend 10 Gbps, langs die N1 in plekke soos Beaufort-Wes en Laingsburg[6] beskikbaar. Mobiele dienste langs die N1-korridor trek ook voordeel uit hierdie infrastruktuur.

OKOSA, die sektorreguleerder, het in hul V*erslag oor die toestand van die IKT-sektor van Suid-Afrika* van 2025 verklaar dat “die syfers vir vaste internettoegang by die huis die hoogste in die Wes-Kaap is, op 40,1%”, waarvoor “die Wes-Kaap as die duidelike leier na vore tree”, en vir stedelike bevolkingsdekking was “die Wes-Kaap die provinsie met die beste syfers, met 78% 5G-dekking”. Wat landelike bevolkingsdekking betref, het OKOSA berig dat 89% van die landelike bevolking 4G/LTE-dekking het, wat laer is as die nasionale gemiddelde van 96%. Ons het nie verwerkte data op ’n munisipale vlak nie, maar daar word uitgewys dat die Sentrale Karoo Distrik hoogs verstedelik is, met 86,9% van sy bevolking wat in stedelike gebiede woon,[7] en daarom is die bevolkingsdekkingsyfers van toepassing. Die volgende noemenswaardige telekommunikasiedienste is in die distrik beskikbaar:

- OpenServe, die groothandelafdeling van Telkom, bied FTTH (vesel na die huis) in dele van Beaufort-Wes, Prins Albert, Fraserberg en Lainsburg. FTTB (vesel na die besigheid) dienste is ook daar beskikbaar.

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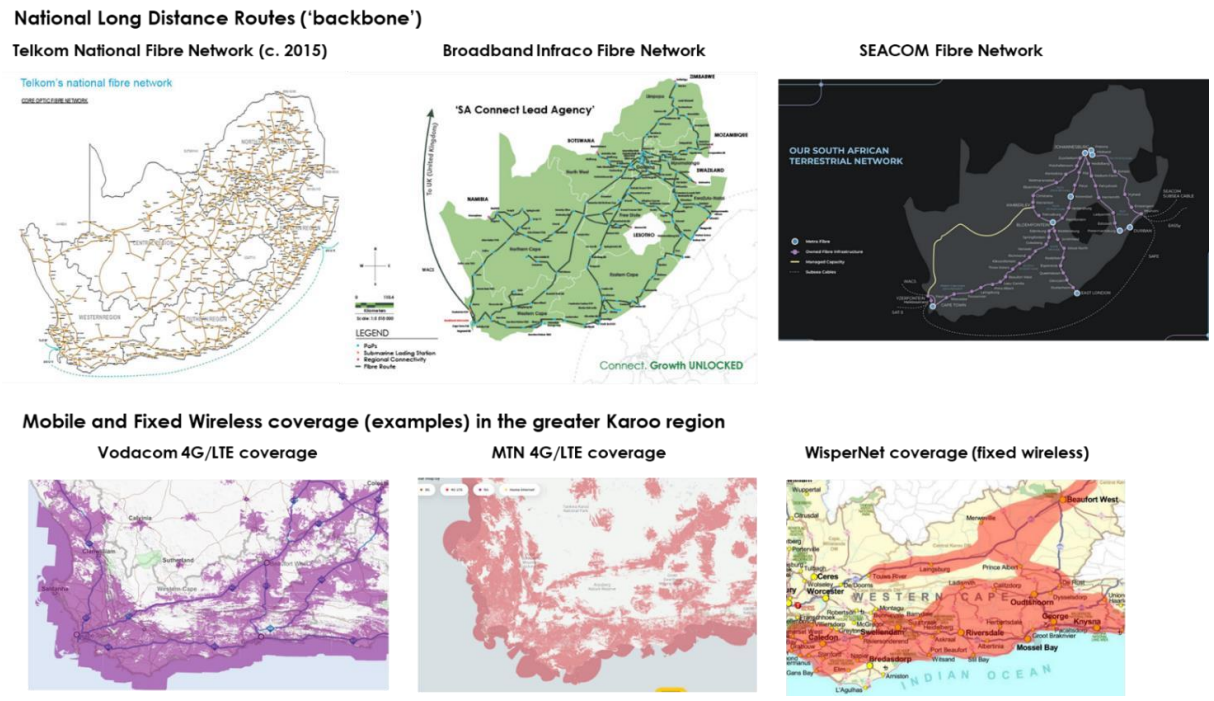
6 Besoek https://iol.co.za/business-report/companies/2019-10-03-seacom-lights-up-n1-route-increasing-capacity-andexpanding-national-connectivity/

7 Sien MERO 2024

- Vodacom Business bied veselnetwerkdienste vir sake-ondernemings in Beaufort-Wes, Laingsburg, Sutherland en Oudtshoorn. Vodacom se 4G/LTE-dienste is uitgebreid regoor die provinsie, insluitend die Karoo.
- MTN se 'tuisinternet'-diens is oral langs die N1-roete beskikbaar. MTN bied gelisensieerde draadlose dienste in Beaufort-Wes.
- WISP's (draadlose internetdiensverskaffers) lewer dienste in die gebied. Bekende maatskappye sluit in Airpark Beaufort-Wes en Wispernet[8].
- Ander diensverskaffers kan ook telekommunikasiedienste in die gebied verskaf.

Die Wes-Kaapse Regering is nóg 'n fasiliteerder van toegang tot breëbanddienste en verskaf openbare WiFi-geriewe in die volgende dorpe, met 81% (55 van die 68) terreine wat reeds deur vesel bedien word, 12 (18%) deur 'n breëband draadlose diens en slegs 1 deur satelliet (VSAT):

- Beaufort-Wes Plaaslike Munisipaliteit o Beaufort-Wes o Merweville o Murraysburg o Nelspoort
- Laingsburg Plaaslike Munisipaliteit o Laingsburg o Matjiesfontein
- Prins Albert Plaaslike Munisipaliteit o Klaarstroom o Leeu-Gamka



13 (1)(b) Dit blyk duidelik uit bogenoemde dat bevolkingsdekking uitgebreid is en die grootste deel van die dorpe het toegang tot onderliggende telekommunikasieinfrastruktuur en hoëspoeddienste. Gevolglik is geen dorpe geïdentifiseer as dorpe wat nie aan die minimum breëbandvereistes vir sake-ontwikkeling voldoen nie, maar 'n haalbaarheidstudie sal nodig wees om die behoefte van enige individuele sakeonderneming te bepaal.

13 (1)(c) SPU vereis stabiele, hoëspoed-breëband-internetverbindings met lae latensie (vertraging), veral wanneer internasionale markte bedien word.
SPU kan op 'n gesentraliseerde basis plaasvind, byvoorbeeld in 'n kantooromgewing met verskeie 'sitplekke' vir agente, of op 'n gedesentraliseerde basis waar die agente in hul eie huise geleë is, tipies met slegs een 'sitplek'.
Vir 'n gesentraliseerde SPU-operasie is die vereiste bandwydte 'n funksie van die aantal agente wat gelyktydig werk en die bewerkings wat hulle uitvoer, plus agtergronddatavereistes. Klank self gebruik nie baie bandwydte nie, maar gehalte is noodsaaklik. Verbindings moet voldoende werkverrigting hê vir beide aflaai (vanaf die netwerk) en oplaai (na die netwerk), met 'n simmetriese diens wat verkies word. Daar word opgemerk dat tuis- en mobiele dienste tipies asimmetries is, met 'n baie hoër aflaaispoed as oplaaispoed.

8 Besoek https://wispernet.co.za/coverage-area/

In die praktyk vereis gesentraliseerde SPU-geriewe tipies[9]:

- Ten minste ’n 50 Mbps simmetriese diens (50 Mbps aflaai en 50 Mbps oplaai) vir klein bedrywighede en 100 Mbps (100 Mbps aflaai en 100 Mbps oplaai) of meer vir mediumskaal bedrywighede met hoër snelhede wat vir groter fasiliteite benodig word.
- Lae latensie (<150 ms) vir intydse stem- en datadienste.
- Die bandwydte moet onbeperk en ongevorm wees, met min gebruikers wat die bandwydte uitput.
- Sakegraad DVO (diensvlakooreenkoms) en ondersteuning.
- Oorbodige verbindings om diens te verseker in die geval van ’n weiering van die primêre kommunikasie. Dit kan via verskillende veselroetes, operateurs en media wees vir verhoogde betroubaarheid.
- Toerusting vir ondernemings (roeteerders, skakelaars ens.)

In teenstelling hiermee is ’n vaste (vesel) verbinding optimaal vir ’n gedesentraliseerde SPUoperasie, tipies met ’n agent wat van sy/haar huis af werk, maar ’n stabiele mobiele verbinding (4G/LTE of 5G) kan gebruik word. Vaste draadlose dienste wat deur WISP’s (Draadlose Internetdiensverskaffers) verskaf word, kan ook gebruik word, mits die vereiste werkverrigting nagekom kan word.
Let wel: die tipe dienste wat deur gedesentraliseerde SPU-agente gelewer word, verskil oor die algemeen van dié in die gesentraliseerde model. Dit is as gevolg van voldoeningsvereistes, veral met betrekking tot finansiële transaksies en die behoefte om risiko’s te bestuur. Hierdie vereistes is veral belangrik wanneer kliënte in internasionale markte bedien word.

13 (1)(d) en 13 (1)(e) SPU-aktiwiteite in die Wes-Kaap is gefokus op die Kaapstad metropolitaanse munisipale gebied. Daar is een bekende operateur aktief in George, met ongeveer 500 werknemers.
Daar is geen bekende landelike SPU-sentrums en geen werk in hierdie sektor nie.

13(2) Die Departement het geen formele opnames gedoen of opdrag gegee om die Karoo se potensiaal vir SPU-werkskepping te bepaal nie.

13(3)(1)(a)) Die grootste hindernis vir toegang was optiese vesel. Soos hierbo uiteengesit, het Telkom sedert die 1990’s en 2000’s veselnetwerkdienste regoor die land verskaf, en die privaatsektor het uitgebreide infrastruktuur in die 2010’s en daarna gebou.
Die prys van hierdie dienste kan ’n probleem wees, aangesien sommige operateurs die prys van dienste bepaal op grond van faktore soos spoed (Mbps) en afstand na ’n hoofligging.

13(3)(1)(b) Satellietgebaseerde dienste is al jare lank in die grootste deel van die Karoo beskikbaar. VSAT-dienste is deur banke, vulstasies en openbare sektororganisasies vir smalbandkommunikasie gebruik. Satellietbreëbanddienste soos *YahClick*! is sedert ongeveer 2012 beskikbaar. Dit is weereens die prys (koste per Mbps en/of MB data) wat onbekostigbaar vir verskeie besigheidstoepassings was. Daarbenewens ly hierdie dienste aan hoë latensie (~600 tot 800 ms) wat hulle nie prakties maak vir intydse dienste soos stemkommunikasie nie.
Gebaseer op internasionale presedent, kan StarLink laerkostedienste na afgeleë plekke bring met redelike latensiesyfers (onder 100 ms). Daar is egter kapasiteitsbeperkings met die “100 in 300”-reël wat gebruik word, wat die maksimum van 100 intekenare in ’n 300 km²- gebied stel voordat bykomende satellietkapasiteit benodig word. Gaberone in Botswana het reeds kapasiteitsprobleme gerapporteer wat swak werkverrigting tot gevolg het[10]. Bykomende satelliete is nodig om opeenhoping te verlig. StarLink-dienste is ook oor die algemeen asimmetries en dus nie optimaal vir SPU-aktiwiteite nie.
Daar moet ook genoem word dat die Radio-astronomie-reservaat of Radio-stiltesone in die Karoo-gebied gevestig is om die Square Kilometer Array (SKA) teen radiosteuring te beskerm.

9 Aangepas uit https://whichvoip.co.za/internet-speed-voip-contact-centre/
10 Sien https://www.bwtechzone.com/2025/01/starlink-reaches-capacity-in-gaborone.html

Dit beperk die gebruik van satelliete in die lugruim bo die Karoo, en dus die gebruik van StarLink en ander dienste. Gevolglik sal grondgebaseerde dienste soos optiese vesel wat nie met ander dienste inmeng nie, voorkeur geniet.
Kortliks, StarLink en ander LAW (lae aarde-wentelbaan) satellietdienste is nie die ‘deurslaggewende’ element wat nodig is om die SPU-geleentheid in die Karoo te stimuleer nie. Oor die algemeen moet die privaatsektor die sakemodel in die Karoo raaksien en besef dat operasies in die gebied vir hulle koste- en prestasievoordele inhou.
Konnektiwiteit self is nie ’n tegniese struikelblok vir die skep van ’n SPU-fasiliteit in ’n dorp in die Karoo-streek nie. Die koste van hierdie diens en ander faktore van koste en toegang tot menslike hulpbronne, insluitend bestuurspersoneel, tegniese personeel, instrukteurs en agente, is egter tersaaklik. Toegang tot sakeverblyf, vervoer en ander faktore moet ook in ag geneem word.
Daarbenewens moet daarop gelet word dat die Departement, om die verdere ontwikkeling van toegang tot breëbanddienste te ondersteun, saam met ander belanghebbendes, insluitend die Departement van Plaaslike Regering, die Departement van Infrastruktuur en die Suid-Afrikaanse Vereniging vir Plaaslike Regering (SALGA), werk om die gebruik van nuwe modelle vir die ontplooiing van optiese veselnetwerke te bevorder om netwerkveerkragtigheid en breëbanddienste in residensiële gebiede wat tans nie