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Starlink Satellite Internet Service

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ABSTRACT

The increasing importance of ICT has led to the development of various tools and technologies that are designed to protect and monitor the cyber-physical power system. One of the most promising projects that SpaceX is working on is the Starlink satellite constellation, which will allow the company to provide high-speed Internet service to areas in the world that have limited or unavailable connectivity. The proposed concept of a space network enhanced cyber-physical power system is validated by looking at potential uses of the Starlink space network in CPPSs. The communication infrastructure and transmission parameters are discussed, and the corresponding test case was emulated in real-time on the heterogeneous co-emulation platform.

Keywords: ICT, SPACEX, STARLINK.

INTRODUCTION

A fresh ray of light has appeared amid the pandemic, the hope of high-speed Internet access everywhere on earth. Given the issues individuals around the world are having in their businesses and their preference for using online platforms for meetings and commercial transactions, this may be good strategic business planning. All institutions and colleges are offering online courses. connectivity; these issues include downloading and uploading speeds. When a user, such as a student, uploads their work at a slow upload speed and has poor internet connectivity, they frequently lose the data and have issues. The uploading speed is typically lower than the downloading speed. Similar issues arise for other businesses and industries when people work remotely because not everyone has access to corporate internet services at home. Everyone needs high-speed internet connectivity for their education, employment, or enjoyment because of the pandemic crisis, which has forced everyone indoors.In this case, Elon Musk's satellite internet service's inaugural offer could be useful to users who require high-speed internet and those who are not already receiving it.The right use of internet services might be beneficial. SpaceX is a private company founded by Elon Musk.Elon Musk, the tech mogul, owns the corporation.Starlink, a new service being developed by the company, was announced.that could deliver Internet access to anybody, anywhere in the world satellite.So far, everything appears to be going well; people will receive what they want.desire to advance their business forward in this pandemic in the right man and due to the present lockdown condition, the current research is limited to Indiaas the only country with a geographical constraint. India is one of the most populous countries in the world.the world's largest consumer markets and there maybeElon Musk has a lot of business.

INTERNET FROM SKY- STRARLINK

Starlink will be able to provide internet connectivity from nearly everywhere on the earth once it is completely operational. The purpose of Elon Musk's Starlink project is to launch a satellite.

Figure: 1 showing an artistic Imagination of Starlink Satellite around the Earth.

Thousands of small satellites will be orbiting the Earth in low Earth orbit.They'll be able to send down high-speed internet transmissions.to the planet Earth, Each satellite in Elon Musk's Starlink project is only 573 pounds in weight (260kg). They are essentially incredibly flat, and when 60 of them are packed inside one of SpaceX's Falcon 9 rockets, they become even more so.rockets. When they're sent into orbit, they'll have a single huge solar array.comes out to provide energy to the satellite The primary section consists of For internet transmissions, there are four strong antennae. They are also each satellite is connected to four other satellites in orbit by lasers.Finally, krypton-based ionthrusters are included. This enables them to remain in orbit for longer, even at these lower altitudes distances from the planet.

STARLINK INTERNET SPEEDS

The SpaceX Starlink satellites will be in a low orbit, around 350 miles above the surface of the Earth. Because of the small distance, SpaceX believes that the delay should be between 25 and 30 milliseconds.and 35 milliseconds Which should suffice for the majority of online chores.includes video games Also, download speeds should be reasonable.At around 1Gbps, it's lightning fast. The upload has yet to be confirmed by SpaceX.

What will the speeds be?

According to a recent Reddit discussion, the early beta tests for The download rates on Starlink are between 37Mbps and 50Mbps.and 60Mbps, with upload speeds ranging from 4.5Mbps to 60Mbps. And 17.70Mbps. These speeds have not been verified.SpaceX. Emails allegedly sent by Starlink were included in a CNN piece.Speeds will be increased for potential beta testers, according to the company."With speeds ranging from 50 to 150 megabits per second and little latency," says the author.

REQUIREMENTS OF STARLINK

Figure: 2 Showing launching of Starlink Satellite in space.

Figure 3. Showing image from Starlink Homepage Source: https://www.starlink.com/

In 2018, the business launched its first test satellites. In 2019, the first official 60 satellites for the service were launched. As of this writing, SpaceX has orbited around 1,000 satellites. The most recent launch took place in late January 2021. Early February 2021 will see at least two launches. Later in 2021, the program hopes to launch as many as three rockets each month, each carrying 60 Starlink satellites.

Howmanysatelliteswill be neededfor the service?

The US Federal Communications Commission (FCC) has given SpaceX authorization to launch up to 12,000 SpaceX Starlink satellites above the earth. It will essentially form a "Starlink constellation" in the sky. SpaceX wants to launch even more satellites into orbit around the Earth. The "Starlink constellation" might eventually include up to 42,000 satellites in orbit.

How much will Starlink internet access cost?

An email from Starlink, according to CNN, invites customers to test out the service. According to the email, the ground infrastructure would cost $499 upfront, and the internet service will cost $99 each month. HughesNet, on the other hand, may cost up to $150 per month for a 50GB high-speed internet plan (at 25Mbps) with horrendous latency that makes gaming unplayable and even streaming a hassle.

Musk stated in an April tweet that a private beta will begin in three months. While it has not been confirmed, it appears that a private beta test for a select group of users has begun.

Those who expressed interest in the service received emails inviting them to participate in a "Better Than Nothing Beta" test, according to the company. In a February 2021 filing with the Federal Communications Commission, SpaceX stated that 10,000 people had signed up for the Starlink beta test. In 2021, the entire service is planned to begin.

The Federal Communications Commission granted SpaceX $856 million in December. The agreement will enable Starlink to provide an internet connection to rural areas of the United States across 35 states.

Where will SpaceX Starlink internet first be available onEarth?

The private beta would be offered initially to folks in "high latitudes," according to Musk. The company has clarified that the beta will be available first to residents of Canada and the. In 2021, the companyintends to expand to other regions of the world.

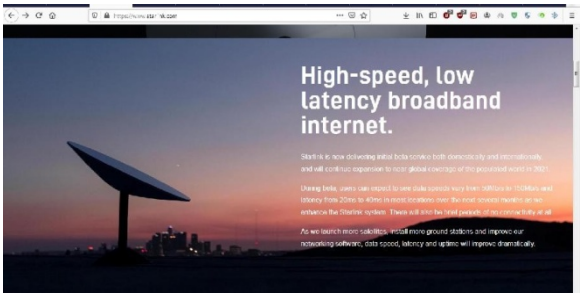

Figure 4. Showing the Image of Tracker Antenna to track the signals from Starlink Satellite

An antenna will monitor the satellite in the sky and offer the Internet to the user. This antenna comes with the installation kit and looks like a little disc with a stick. It also comes with a Wi-Fi router so you may utilize the Internet with other devices.

INTERNET DISTRIBUTION–FTTHANDSATELLITETECHNOLOGY

Satellite Internet and fiber-to-the-home (FTTH) are two distinct technologies that deliver the same service: the Internet. Due to the pandemic COVID-19 scenario, many commercial and education sectors have migrated to digital streaming, which is based on the Internet. Banking and retail marketing are nearly entirely digital, with the Internet serving as a backbone. Furthermore, entertainment has taken on a digital form; YouTube and numerous OTT platforms have had increased popularity in the past year as a result of the lockdown, necessitating the use of high-speed Internet data access.

In India, Reliance Jio offers 4G internet access on mobile devices, while Reliance Fiber and BSNL cover FTTH. Other players offer similar services, which are included next in this section. Although the technology used to supply "Internet from the SKY" by Starlink differs from that used to deliver "high-speed data connectivity," the product is the same, and this is the necessity and need of the hour.

Due to continuous demands such as education and leisure, Indians are opting for high-speed internet access.

The big concern is whether people would choose the Internet over the sky. As of now, the globe is in the second and third phases of COVID-19, and several nations throughout the world, including India, are experiencing lockdowns and night curfews to mitigate the harm. In such a situation, entertainment, commerce, and education would all be conducted online, necessitating high-speed Internet access for online mode and seamless commercial and other operations. In distant places where FTTH services are not financially feasible or are still in the works but will take time to reach and function correctly, Internet from the Sky might be useful.

The pandemic scenario is the same all around the world, and Internet access is in high demand everywhere. Using the internet Mobile devices are a solution, but they come with their own set of drawbacks, such as connection, single-user usage, personalization, battery and storage capacity of mobile devices, and the user's data purchasing power, to name a few.

According to market demand and supply strategy, the Internet from SKY has a lot of room to grab a piece of the untapped market and compete with the existing companies.

APPLICATIONS

- Educational Systems.
- Real Time Projects.
- Travelling.
- File Transfer.
- Agriculturere.
- E-Commerce.
- Digital Transactions.

ADVANTAGES

- Improved internet speed
- Affordable:
- Faster recovery from disasters:
- Starlink can be found almost anywhere.

CONCLUSION

To summarise, after reviewing all of the comments and other information, the author has concluded that there are several areas where Starlink needs to focus, such as marketing strategy during the beta period, similar to Reliance Jio, where it is preferable to grab the market at an early stage. Furthermore, even though most people are aware of the information and services provided by Starlink, there is a dearth of understanding in terms of services and facts regarding the Internet service provided by Starlink. Figures aside, the "right education" aspect of the programs must be vigorously pursued. Think like an Indian marketer while marketing something in India. People are price sensitive and require some sort of incentive to continue forward with the purchase of a product or service.

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REFERENCES

1. Edward, J. Oughton A review paper on, A Techno-Economic Framework for Satellite Networks Applied to Low Earth Orbit Constellations Assessing Starlink, OneWeb and Kuiper, IEEE Access, vol. 9, October 2021, pp 141611-141622.
2. Pawan Kalyani, A paper on Internet From Sky Starlink, Proceedings of the IEEE,vol. 8, Apr 2021, pp 2394-8124.
3. H.M.V.R. Herath, Starlink A Solution to the Digital Connectivity Divide in Education in the Global South, IEEE Access, vol. 102, Sep 2021, pp 2-11.
4. Mathew Graydon, Lisa Parks, S Connecting the unconnected a critical assessment of US satellite Internet services, IEEE Access, vol. 9, Aug 2019 pp. 101924–101945.
5. L. Townsend, C. Wallace, G. Fairhurst, and A. Anderson, Broadband and the creative industries in rural Scotland, J. Rural Stud., vol. 54, Aug. 2017, pp. 451–458.
6. M. Khaturia, P. Jha, and A. Karandikar Connecting the unconnected Toward frugal 5G network architecture and standardization, IEEE Community Standards Mag vol. 4, no. 2, Jun 2020, pp 64– 71.
7. C. L. Stergiou, K. E. Psannis, and B. B. Gupta, IoT-based big data security management in the fog over a 6G wireless network, IEEE Internet Things vol. 8, Apr. 2021, pp. 5164–5171
8. C. Huang, S. Hu, G. C. Alexandropoulos, A. Zappone, C. Yuen, R. Zhang, M. Di Renzo, and M. Debbah, Holographic MIMO surfaces for 6G wireless networks Opportunities, challenges, and trends, IEEE Wireless Communicationvol. 27, Oct. 2020, pp. 118–125.