

Death of 2G Network In India

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Abstract- Indian moving very fast on data consumption. Indian data consumption has grown from 70.10 Mb in 2014 to 1.70 GB per user in Dec'2017 [2] with such high speed of data adoption, question remains same what will be the future of the 2G network in India? Which has its technological disadvantages on data speed.

This research paper discuss the features of 4G and 2G network and impact of other aspects like consumer behaviour , operator profitability , government policies and technical challenges which will help us to find out the future of 2G technology in India

I. INTRODUCTION

India is having 5 telecom operator and soon it will become 4 operator market after consolidation of proposed merger of Idea and Vodafone.

All 5 operators are having 4G volte network spread and they are expanding and doing massive investment on 4G network.

In India currently 3 types of technologies are available for mobile consumer usage 2G/3G/4G, while old operators are running business with 2G/3G , Jio operator which is new operator in to Indian market is running entire business only on 4G Volte network and has come No # 03 operator in revenue market share in India[20] in just 19 month from the data of operations start and Jio is planning to acquired 50% market shared by 2022 , on the same page Airtel is planning to close 3G network in another 3-4 years.

II. OBJECTIVE OF STUDY

- To study the impact of 4G network penetration on 2G network
- Future of 2G network in India

Major observations in telecom industry

1. IUC Charges : TRAI has decided to cut the Interconnection Usage Charges (IUC) to 6 paisa / Minutes from 14 paisa per minutes from 1st October 2017 , and planning to make it zero from 1st Jan 2020 . This results in reduction in the payment to incumbent operators by new entered Jio close to Rs

3840 cr. per annum. [11] This loss in payment will reduce the incumbent's operator's financial capacity to maintain the 2G network.

2. Reliance Jio entry : Reliance Jio has entered in to Indian Market with free voice and data offering virtually free for first 6 months , after that also in order to increase the penetration of 4G handset and technology , Jio has offered Rs 49/-per month with free unlimited calls and 2GB 4G data with 100% cash back offer [20] with exclusive Jio handset which is lowest offer in telecom industry by any operator in unlimited portfolio.
Jio is given cost proposition to customer like Rs 5/- Gb data, against Rs 250/- Gb data by old operators. This cost proposition was so attractive that customers finding value proposition with Jio by taking new 4G handset also
3. Consolidation of telecom operators : Indian telecom sector is becoming 3- 4 player market from 10 players on 8/10 years ago , operators like RCOM, AIRCEL, Videocon , Telenor , Etisalat has already closed their operations and now all operators are having Vodafone-idea , Airtel , Jio and BSNL are available with 4G
4. Spectrum Price: 3G is turned to an expensive model . The 2100 MHz and 900 MHz bands are one of the highest paid spectrums in India. While 4G spectrums like 2300 MHz, 1800 MHz and 850 MHz are the cheapest ones available in India. As spectrum is cheaper, and has better capacity to handle more users, operators will be able to offer 4G at almost half the rates when compared to 3G. With increased competition from pure-play 4G operators like Reliance Jio, the 4G data rates are all set to fall in the coming years [14]

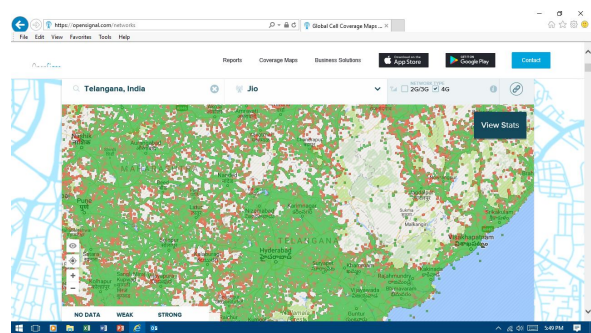
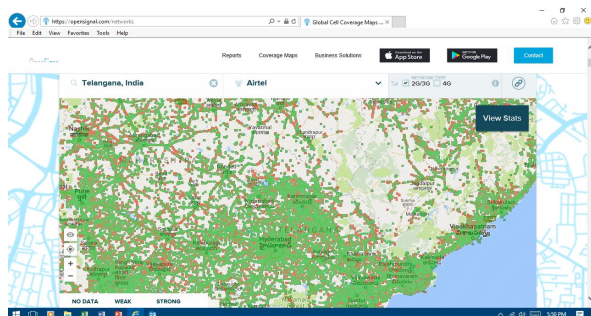
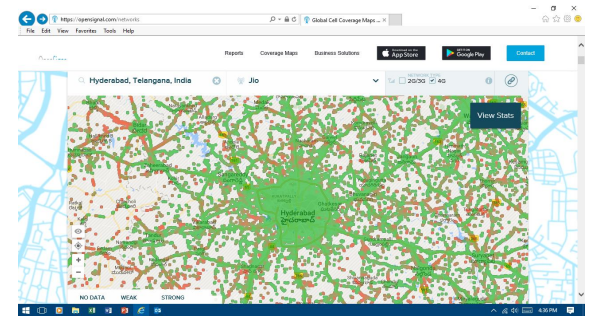
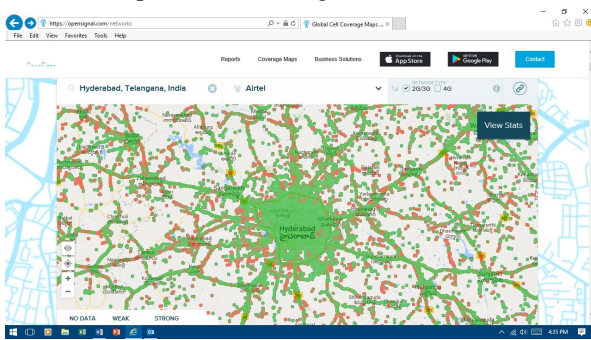
This also reduces the financial inability of incumbent operators to fight with Jio which is on pure 4G volte

III. 2G VS 4G NETWORK STUDY AND ECO SYSTEM

1. Network spread trend 2G/3G/ 4G

Below map shows comparative study of the network coverage of 2G-Airtel [4] and 4G- Jio for Hyderabad city [4] and Telangana state.

Green colour represents the strength of network.



If we see map carefully, it shows that Jio’s 4G coverage is having more spread than Airtel’s 2G network which is market leader in the circle.

Jio which is pure 4G operator is going to have 99% coverage by the end of 2018 which will be more than 2G network coverage in India [5]

1. Customer experience :

If we look at three major KPIs which are independent of network coverage it’s clear that 4G has technical advantage over 2G network

- a. Call connect time: No beep beep sound during call connect. Like 2G network
Instant call connect on 4G VOLTE network. [17]
- b. Data speed : avg data speed on 4G , 42 Mbps [14] against 512 kbps in 2G/ 2.5 G
- c. Voice clarity : clear HD voice clarity on 4G network , not possible in 2G network

2. Data consumption trend

The average monthly data usage in June 2014 was 70.10 Mb per user. This rose to 1.60 GB per month by September 2017 [2]

3. Handset penetration 2G/3G/4G

Smartphone adoption in India is likely to touch to 39% [22] in 2019, with more cost effective rates on data and 4G handset this adoption is going to move more and more fast track

4. Cost of network:

operational maintenance cost of 4G Volte network requires only one network to be managed by operator e.g. data network on the other hand for 2G network operators needs to manage the two types of network e.g. Voice and data which required more cost.

Also 4G VOLTE can work on any spectrum band where as 2G / 3g works only till 2100 band which is costlier in India.

Hence Jio is able to reduce the cost of the product lower than other operators on the other hand other operators are forced to match the Jio pricing because of fear of losing of customers with higher costing of 2G/3G network.

5. Pricing policy of telecom operators:

If we see below table it shows that operators are giving more benefits on 4G network than 2G network.

Selling price: Cost of product / Voice benefits / Data benefits / Validity ** M&G Circle

Operator / Network Type	2G	4G
Vodafone		348
Jio	NA	299

**2GB per day product

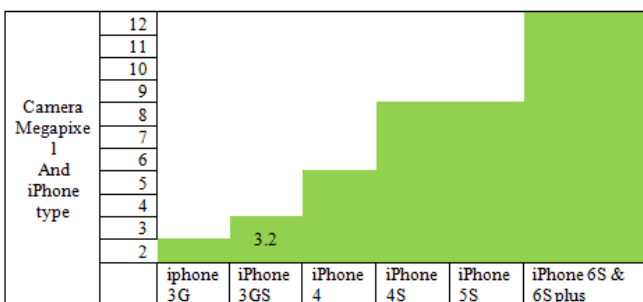
6. Customer needs :

with change in world customer needs are changing, now mobile is not used only for talking but also for working as entertainment device

- a. Entertainment: Consumer behaviour is shifting towards entertainment from voice base usage of phone. Applications like Jio app ,Airtel Wynk are becoming more and more popular. In Bank of America Marill Lynch BofAML survey, 72% of users said they watch Jio TV, 60% listen to Jio Music and 42% watch Jio Cinema.[8]
- b. Facebook / what’s app/ social media penetration: WhatsApp users in India as of February 2017. During that month, the mobile messaging platform announced more than 200 million monthly active users in the country. As of 2016, 16.32 percent of the Indian population accessed social networks. YouTube, Facebook and WhatsApp were the most popular social platforms in India based on usage reach as of the fourth quarter of 2016.
- c. Handset camera capacity and need for high speed data network :

If we see the handset camera capacity its increasing day by day iPhone 3G when launched has 2.0 Megapixel camera , same apple is now giving 12 megapixel camera with 1080 p and 4k feature. This is resulting the requirement of higher data capacity while transferring the pictures on what’s app /social media etc.

iPhone[10] : If we see the camera capacity of the iPhone it has gone up to 12 Megapixel from 2.0 Megapixel, which means that we required more data seed to transfer the data as more megapixel means bigger data file.



More features:

iPhone 6S and 6S Plus : 12 megapixel camera, with 4K HD video capability
The iPhone 7

The iPhone 8 camera remains largely the same as its predecessor, but it features a larger sensor, and a newer color filter. The camera can also now record 4K at 60 and 24 frames per second, and slow-mo at 1080p in 240 frames per second

7. Global trend

Globally many countries like Singapore [23] , A&T in US , Taiwan are closing their 2G network. This is because smart phone adoption , affordable data and operators are also pushing this phenomenon because of low of maintenance on 4G network/ to avoid duplication on maintenance cost 2G/4G.

IV. CONCLUSION

Reliance Jio , Airtel , Idea and Vodafone all operators in India are focusing on major expansion in 4G VOLTE technology and with support of 4G handset eco system , cost advantage on 4G network maintenance , data adoption on consumer segment is going to accelerate 4G adoption and death of 2G network in another 3-4 years in India.

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