Data Bank

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Abstract—*The Internet revolution is moulding the society into a more allied and accessible world. Needless to say that without an internet connection in today's world a person feels disoriented and isolated from the social proceedings. The routes to provide internet on the move to us on our mobile devices today, by and large depend on data networks or Wi-Fi. Data network tends to provide a planned and calculated access to internet enslaved by the availability of Network signals. This alternative is decent but inept at some extent. For instance, in case of emergencies this might stance a problem for a device in remote and unreachable state. Another proficient and competent choice is Wi-Fi, providing an unwavering and established admission to internet. But, it again is compliant to the range of the router and cannot be achieved by a moving and relocating device absent from the range. We are meaning to provide a suggestion of using the internet with the stated service of Wi-Fi, through another course. The idea is to use the data signals of the Wi-Fi, whilst in the range and additionally stowing data packets in assemble for use when outside the signal range. The concept is as simple as recharging the battery. Here instead, a limited stack is recharged with data packets from the Wi-Fi signal for use in other condition of unavailability of services. The technique involves conversion of discrete data packets into continuous data stream, storing it in handset and conversion back to discrete form to enable usage. A solution as such can be ascertained to be beneficial in emergencies or other impromptu circumstances and can be coveted for a renewed approach to mobile internet.*

Keywords: *Internet, router, Wi-Fi, data packets.*

1. INTRODUCTION

Wi-Fi is an abbreviated form for "Wireless Fidelity", that is a set of standards for wireless connectivity of networks based on IEEE 802.11 descriptions. Wi-Fi has now become synonymous to the communal world for internet interaction. The Wi-Fi technology facilitates exemption from interference, allowing multiple access points to communicate concurrently. Despite of it providing an unobstructed access, it falls short in providing absolute fidelity in terms of range.

This paper encourages the clients to benefit from the limitations of the stated technology.

2. PROPOSED SYSTEM

The idea of the proposed system is to provide a course of utilization of the Wi-Fi signals as a stored data bank for the end user's device in relocating or other demanding states. The concept adheres to the already implemented 'Rechargeable battery'. A 'Data Bank' is to be formed in the end user's device alike the battery in the listed example of 'Rechargeable battery' that works as a pile of data packets, to be stored and consumed when out of Wi-Fi coverage area.

The device in this, would not look out for the packets from the Wi-Fi when out of coverage area, instead it would fetch the stored packets and use when required.
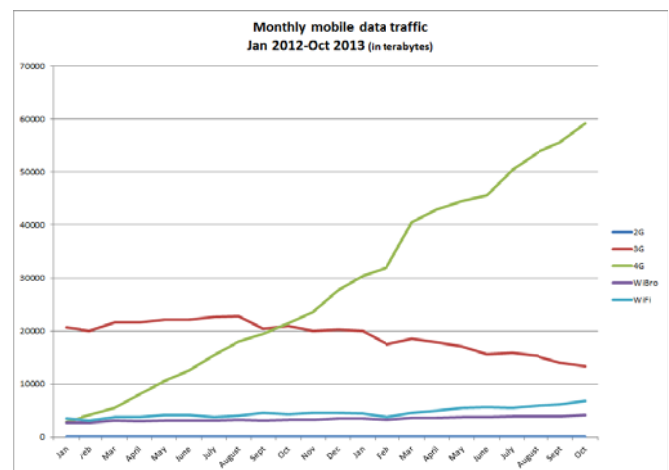

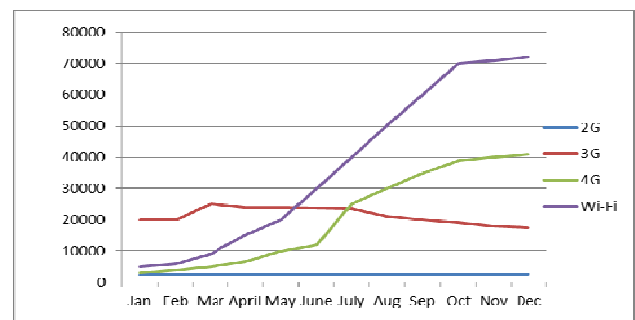**Fig. 1: Existing mobile data traffic**

Fig. 2. Estimated statistics on usage of data bank

Fig. 1 illustrates statistics of existing mobile data traffic over a time period showing usage of 2G, 3G, 4G and Wi-Fi. The 4G connection is soaring high for data usage because of its availability on the move.

Fig. 2 illustrates the predicted statistics after the proposed 'Data Bank' is implemented, over a time period showing usage of 2G, 3G, 4G and Wi-Fi. This would result in elevation in the usage of Wi-Fi, the better alternative for connection.

3. EXPERIMENTAL METHOD

The technique would require storage of the data packets in the 'Data Bank' in the device in a substantial amount and subsequently expanding the lifespan of the data packet from a momentary second to a few hours.

The foremost step in implementation would require employment of an 'Intelligent router' which would route the data in bulk when a request is made from a handset installed with the 'Data Bank' application. The attainment of a successful application would require improved speed. To increase the speed manifolds, the availed Wi-Fi setup can be replaced by 'Tri-band Wi-Fi'. This network topology allows data rate to be increased up to 5Gbps. This data can then be routed through the 'Intelligent router'.

The next step would be conversion of data packets into data streams to enable storage in the handset. Once the 'Data Bank' is supplemented sufficiently, the data streams would be broken into bits for the further stage. The further stage would include reconstruction of bits into data packets of longer life span by a 'microcontroller' embedded in the device.

We assure the lossless transfer, storage and retrieval of data packets and also measure the speed of fetching data packets between machines as for a system efficient in all aspects, it would be required that the transfer occurs at a fairly high speed if not rapid.

Also the complete process must be user-friendly and must not involve many sub-processes.

4. DIRECT COST VERSUS OVERHEAD

The initial cost of the setup would be marginally high as the existing routers will have to be replaced by "Intelligent routers" so as to take benefit of the system. Once implemented, the maintenance cost would be minimal.

As the system would prove to be of great benefit to the masses, it will have high number of users thus reducing the cost involved in the initial setup making a system with high financial feasibility.

As internet usage has undergone an exponential increase over the decade, the implementation of this system would yield excellent profits to the service provider.

Also since internet is now being accessed by people of all age groups, the technology would gain popularity and lead to cost effective implementation over time.

5. PERFORMANCE BENEFITS OF DATA BANK

The proposed system appreciates the growth of a more dynamic network feasible for all end users at all times. It also proves to be a highly reliable and bug-free technology on both sides of the network.

The implementation of the proposed system as a working application software would not alter or interfere in the functioning of other running applications on the device.

The data packets retrieved from the data bank would still be as efficiently working as when the device is connected to Wi-Fi.

Another plus offered by this system is for the new age users in a demanding job, who despite of having a Wi- Fi connection at their residing and official places have to avail the data network connection for connectivity while travelling which at times fails and annoys. This would provide effective and able means for such users.

6. CONCLUSION AND FUTURE WORK

In this paper, we present that putting "Data Bank" into practice can notably improve the performance of Wi-Fi. The technology put forward can enable a device to remain connected to the internet at any hour regardless of it being within or beyond the coverage area of Wi-Fi.

For future work, we plan to improve the existing routers and making them compliant to the needs of the proposed system. We plan to look into user-friendly techniques to speed up the setup and working of the system. We also plan to investigate efficient transfer and storage of data packets without any leakage.

Finally, we intend to apply our system to a wide range of users.

There might be a possibility of design of mobile applications to be installed on handsets running on different operating systems for making the process simpler.

Methods may be applied to sustain the data packets on the device for an even longer time to enable usage within few hours or even a day.

7. ACKNOWLEDGEMENTS

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