Enhanced Mobile Social Networks
Mobile Internet of People

Brijesh Kumar Singh[1], Masoom Jajoo[2], Pooja Sharma[3], Vikash Sharma[4]

[1] CSE Department, JECRC UDML College of Engineering, Jaipur India
[2] CSE Department, JECRC UDML College of Engineering, Jaipur India
[3] CSE Department, JECRC UDML College of Engineering, Jaipur India
[4] ECE Department, Gyan Vihar University, Jaipur India

Abstract— **Social Networks has bound people in virtual internet. In this age where smart phones has replaced those conventional 'just calling' phones, people are believed to be more active on their social networks on the go. From sharing personal opinions to sharing digital media with family and friends has become easier and mobile. Location based services like foursquare has eliminated that taste and tell thing by yourself. Your virtual friends can help you out with finding your local restaurants and clubs that rock. Various dating services and matrimonial sites has become a way for many relationships. Social networking platforms like twitter has given a common man a way to express his opinions with the world. Social gaming, texting services and VoIP calls on the go has changed the way people interact socially. Vast use of such internet networks and increasing mobile users has made the companies develop applications for such social platforms. Discoveries, innovations, new conclusions, relationships and change are a result of this networking transformed mobile and social.**

Index Terms—**MSN, Mobile Social Network, Smart Phones, Internet, Mobile Devices, Mobile social media**

I. INTRODUCTION

MSN known as Mobile Social Network is a way of exchanging and sharing information such as personal information using mobile digital devices such as smart phones and other portable and wearable devices which are based on an infrastructure made of Internet Technologies. It is a part of all user based personal and community activities which involve sharing, posting, tagging, poking, tweeting and experiencing social media. Easy accessibility of mobile devices and internet services at a very friendly cost to users all around the world has made people interact more and more virtually. Due to this all major and social network giants has felt a need to create mobile apps to give their users a feel of portability and easy availability anywhere, anytime. Increasing number of users and members has revolutionized this new web platform.

Interconnection of people around the world on these social networks on web has made market enthusiasts to look for newer and more advanced means of communication to create more and more opportunities to boost their platform's success. Evolution of such smart phones and other portable devices as tablet computers has equipped these Social Giants with a means of boosting their popularity. Mobile application development and cost efficient web services both has a part in this revolution. There are different variants of such Mobile Social Networks based on the contexts they are used for and some of them are mobile group texting such as *WhatsApp,* location based social networks as *Foursquare,* Mobile Social Gaming as *itsmy.com,* media sharers as *YouTube, Instagram, Flickr,* Blogs such as *Tumblr, Blogger, WordPress,* Dating services as *Smiggle,* and other social giants as *Facebook*, *Myspace* and *Twitter*, professional ones as *LinkedIn.* All of these social network teams has their own mobile Avatar these days being exploited with users around the world.

II. BRIEF HISTORY OF MSN

The evolution of mobile social network started in 1999 with the basic texting services. In early 2000, applications for texting and chatting were preinstalled in mobiles. The consumers were anonymous and used this services as pay as you go basis. In the period of 2004 through 2006, the 3G was introduced though costly, and camera phones added many new features of uploading photos. The period 2006 which is called the third generation of MSN, brought tremendous changes and made people think of social networks differently. Social networks became a part and parcel of their life. With rich user experience and advanced features of location based sharing, automatic publishing to web profiles and status updates these years saw a great bloom in mobile social networking industries .MMS, voice capture, java on the server were popular. Fourth generation started in the beginning of 2008 and reached till 2010. All the features of third generation wer advanced with multiplayer social gaming capturing the market.

III. MSN Context and terminologies

Social networks has connected people all around world whether they are friends or unknown to each other. Users have joined these platforms and shared their personal and professional experiences. They used to join different platforms based on their own interests and contexts. People loves to share their experiences and love to express their perceptions and interests have chosen blogs as a medium of their sharing. Furthermore MSN users can also be influenced by trends, number of users and popularity of different social networks. MSNs can be classified into several types, all of them claims to be unique but they share one or two common set of features.

- GROUP MESSEGING: Application like *WhatsApp* has already marked its presence and has billions of message transfers all around the world. These type of Mobile social Networks focuses on Messaging and sharing social media information on the go using smartphones. *LINE, WeChat* are some of the other popular applications emerging and getting popular.

- LOCATION BASED SOCIAL SHARING: These type of social network applications such as *Foursquare* tells its user about their location and about other information about the near-by localities. Geo-Tagging of friendly venues and comments regarding the facilities helps user to know them better. Such applications alert its users about local venues and tagged friends.

- DATING SERVICES: Such services are usually targeting a special group of people who wants to get into any relationships and such dating sites and mobile applications manage all these formalities and arrange get-togethers for people. Smiggle and other matrimonial sites have seen a lot of user traffic and also developed mobile applications to handle increasing number of people with mobile accessibility.

- SOCIAL BLOGGING: Blogging is for those who has or hasn't any particular interests, they can just start and write their own perceptions and experiences in their own languages. Some of the blogging applications are *Blogger* and *WordPress Mobile.* Blogging Giants such as *TechCrunch* has made its place in the market and people interacts on these networks through discussion forums and portals.

- SOCIAL NETWORKS: *Facebook* and *Twitter* has become another name of social networking. Due to the exponential rise in the popularity of these two social media giants, enthusiasts has taken a step to let user access these platforms on the go. And mobile versions of these are readily available on different platforms.

- MEDIA SHARER: These type of MSNs have given access to its users to take snapshots and a friendly video and instantly share their images and videos to networks. *Instagram* and *YouTube* has become an instant hit in users around the world. Medical Science, Aviation, Agriculture, and Education all these sectors as well as social activists make use of these platform to make a dent in the universe.

'Status', 'Tweets' and 'Social Profile' has become a common term in today's world. Various communities and social activities are managed and even events and parties are arranged and such MSNs have a major role in making it all so easy. There are some terminologies associated with MSNs:

- SOCIAL PROFILE: Social Profiles are a virtual showcase or social representation of any individual or any community. They show their personal information, interests, hobbies and activities which can be further modified and enhanced.

- SOCIAL MEDIA: Social media can be a type of digital media whether it can be images, audio, written or videos. It is a user generated content and users share these on the go with their networked people.

- SOCIAL COMMUNITIES: Social Communities in MSNs sense is an internetwork of socially bound people in a group to any context such as social, informative, support, sports, political or identical. Such communities has ties of its members with its host and as a result of these communities set up various campaigns can be organized to boost the objective and content can be shared on the go to make the community active in its cause.

- SOCIAL MESSAGING: Social Messaging is defined by a set of tools that provide a user to send text messages as well as social content as iconic smiles, video clips and images using web platform.

All these tools, technologies, trends and terminologies are more common now-a-days to us. More and more social networking companies are emerging and they claim to be different by introducing newer ways to express socially. These MSNs are created focusing individuals and communities. Activities on these networks can be done personally or it can be done in a broad way by sharing with a set of people bound to a cause. Hence these MSNs can be based on Personal Context as well a Community Context.

IV. PRICING AND AVAILABILITY

With large number of mobile users all around the world equipped with quad core processors, bigger and smarter touch panels and the 3G services grounded all over the world, mobile

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social networks has become more accessible. Every smart phone now-a-days is equipped with wireless LAN, Bluetooth, GPRS, 3G Network, Broadband and hence internet has become easily available to users at a very low cost. It's easier and cost efficient to use these social networks as it does not take so much of data usage. People are active 24*7 on their social networks, instantly updating their profile statuses, sharing photographs, and tweeting on popular topics. It has all become more obvious and a part of daily routine. Sharing online has become a way of living for people. Following data shows subscribers increase from 2009-2014.

Mobile phone subscribers, internet users and social network users Worldwide, 2008-2014(millions and % penetration)							
	2008	2009	2010	2011	2012	2013	2014
MSN Users	76.0	141.4	223.4	318.3	454.0	607.5	760.1
MSN Users % of mobile phone subscribers	1.9%	3.1%	4.6%	6.1%	8.4%	10.8%	13.3%
MSN Users % of mobile internet users	19.0%	28.0%	34.0%	37.0%	40.0%	43.0%	45.0%

Figure 1: MSN Users data

It can be seen from above data that the number of mobile social network users among mobile internet users has increased over the years. It's nothing but it shows how accessible these social networks are to the users who are subscribed to mobile internet services. The number of mobile social network users in 2014 has almost increased to 10 times the number in 2008. This is because of cheap internet services and growing popularity of social networks and their services. The price managing body has also introduced various pricing modals for users to provide access to these MSN services. For example user can pay by day, month, and yearly basis or by session. These modals follow the concept where subscriber has to pay some fee in order to use services. As MSN operators monetize their needs with advertisements and etc. Recent modals has evolved newer ways where network provider and MSN operators share the revenue and provide access to particular MSNs only, limiting other web usage at a specific cost on a monthly basis. These models have increased the usage and the number of users.

V. CHALLENGES

Ever increasing number of MSN users has put data traffic and internet services to a situation where they need to modify the quality and data capabilities of today's Internet Architecture. There are scientists performing research work to find newer ways to perform offloading of mobile data traffic to reduce the load on internet services. There are some challenges in efficiently incorporating MSNs.

- DATA TRAFFICING: Increasing number of users has become a reason to worry for internet society. And more research work is needed to be done to implement and efficiently handle internet users' data. This big data has to be maintained with some data compression techniques which needs a good research work in this field.

- CONNECTIVITY: Frequent disruptions in connectivity and manage each connection is also a challenge for managing body of such networks.

- PRIVACY CONCERNS: Today the biggest threat and a challenge to overcome this threat is ensure a safe and reliable communication medium with these social networks. People used to provide and share all their personal information in these social networks and hence they require pure safety of their social accounts and account credentials as well as reliable content sharing. Various cryptography techniques and networking models are being incorporated in order to ensure privacy concerns and safety on web.

And as these MSNs operate on distributed and decentralized networking models it is complex to maintain reliable communication among two entities but research works in this field is being done by managing bodies and scientists.

VI. OPPORTUNISM IN SOCIAL NETWORKS

As defined Opportunism is the conscious policy and practice of taking selfish advantage of circumstances –with little regard for principles, or with what the consequences are for others.

A wide spread usage of mobile devices and these MSNs has grown the chances of large number of human interactions and contacts. Today we have over 3 billion mobile phone users all around the world and these mobile phones do have Wi-Fi networks, Bluetooth and other means of networks. We have newer devices that are unconventional and can be worn by people, these are portable wearable devices with wireless networks installed. We also have newer interfaces installed in even vehicles and other our living rooms. Such availability of communication interfaces has made it easier for people to connect with others. And it has become a means of human mobility. Research works are being done in different parts of the world to analyze the social interaction patterns. And on the basis of that efficient messaging models are being build.

By using social networks people are doing lot of things like:

- SOCIAL GAMING: The activity or practice of playing an online game on a social media platform is called social gaming. The cyber café today are taking the selfish advantage of gaming online. Teens enjoy

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to spend their evenings in café and interact with the players situated all over the world. *Facebook* gaming has also become popular. Social Gaming industry is relatively new phenomenon in India. India's consumer spending patterns are increasing, making the potential for the sale of virtual goods in social games, very high. The various gaming platforms evolve simultaneously. Also the gaming services industry has benefited from the economic downturn in a way, as the prices of game development have gone high which has in turn resulted into increased workflows to businesses. Mobile social gaming has also bloomed the mobile industries with a lot of people downloading multiplatform gaming applications on their cellphones.

- SOCIAL NEWS: Today maximum number of youngsters who used to feel bored in reading newspapers have made social media a way to getting acquainted with latest happening all around the world. Any phenomena happening anywhere in the world can be seen through *Tweeter* tweets, *Facebook* shares, *Whatsapp* messages, etc. There are many news apps on *Windows* like *"The Hindu"* and on *android* which updates the latest news every hour on users mobile. During an emergency *tweeter* became an information lifeline.

- SOCIAL MATRIMONY: Mobile social matrimony apps for *Shaadi.com*, *Bharat Matrimony*, *Jeevansathi.com* has become a trend comfort for choosing bride and grooms. These were made with simple thoughts to make people find happiness. It has provided a peak profits to matrimonial sites.

- E-COMMERECE: The android application like *Quikr* and *OLX* has substituted the classified ads in newspaper. Now most people just touch and play with new smart phones with internet. Clicking a photo of the item to sell or demanding an item over the net with a good reasonable price is benefiting masses. Other online shopping sites has also launched their applications to increase their market such as *Flipkart* application on Android smart phone.

VII. MOBILE DATA OFFLOADING THROUGH OPPORTUNICTIC MoSoNets

Due to vast number of people using smart phones (Like Apple, Blackberry, Samsung smart phones) and through these smart phones they use social mobile services (like WhatsApp, Facebook, WeChat etc.), the traffic and load on these mobile networks have reached to limits and that's why the need to develop newer strategies to resolve the issue of overloading in

mobile networks such as 3G. Mobile data offloading can be done by incorporating various alternative techniques that includes newer technologies to deliver best results with optimum resource usage or it can also be done by using complementary networks for mobile internet usage such as WLAN HotSpot etc. Some of the ways to deliver optimum results are following:

- By introducing and exploring Opportunistic web access via WLAN hotspots for mobile phone users.

- By proposing intentionally delays in delivery of information over cellular networks and offload it through the free opportunistic communications.

VII. CONCLUSION

Now users are 24*7 active on these social platforms and these have become a means of revolution to the world. From social activists to scientists, doctors to engineers, everyone has their opinions about the positive outcome of Social Networking going Mobile. There's a big difference when we talk about social networks going mobile in theory and practice. Mobile Social Networks has given its part in social awareness and put a challenge in front of the engineers and people behind the team that has made it possible. Now when the number of users are ever increasing that's why overloading of mobile data has become a challenge for the researchers. Several 3G mobile networks are overloaded with the ever increasing traffic because of these MoSoNets and that's why opportunistic mobile social network methodologies are incorporated to resolve this issue, a need to develop some effective protocols and architectures is important and that's why several research works are also being done.

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