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REDUCING MASSIVE POWER FOR MOBILE DEVICES USING INSTANT MESSAGING

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ABSTRACT- *Instant messaging (IM) is a form of communication over the Internet that offers an instantaneous transmission of text-based messages from sender to receiver. Instant messaging basically offers real-time direct written language-based online chat. This chat can be performed by using personal computers or other mobile devices like smart phones. The user's text is conveyed over a network, such as the Internet. In, our analysis shows that the frequency exchange of presence information incurs massive power consumption to mobile devices. This power consumption in mobile devices can occurs due to the presence information exchange between the users. In this paper, we find several solutions to lower the power consumption problem in mobile devices using IM. By reducing the network access and keeping mobile devices in the sleep mode as much as possible.*

Key terms: Mobile computing, Instant messaging, power consumption.

1, INTRODUCTION

1.1 OBJECTIVE

Now-a-days the Instant Messaging services as become arguably one of the most popular Internet application. It may address point communications as well as multicast communication from senders to many receivers.

1.2 SCOPE

The scope of this thesis are given below,

It will allow the publication of a user's presence information, for example his availability, his address, his communication means, his location, etc. Mobile operators consider instant messaging as a potential traffic-driver for 3G networks. We have designed and implemented the system architecture for extensible mobile instant messaging and presence service over the IMS.

1.3 OVERVIEW

Instant Messaging (IM) is a form of communication over the Internet, that offers an instantaneous transmission of text based messages from sender to receiver. In push mode between two or more people using personal computers or other devices, along with shared clients, instant messaging basically offers real direct written language-based online chat. The user's text is conveyed over a network, such as the Internet. It may address point communications as well as multicast communications from one sender to many receivers. More advanced instant messaging allows enhanced modes of communication, such as live voice or video calling, video chat and inclusion of hyperlinks to media.

Instant Messaging (IM) services, as have become arguably one of the most popular Internet applications nowadays, appeared as early as the introduction of the UNIX operating system, where users were able to exchange short messages using simple commands in real time. Within only a few years, commercial IM applications such as AOL Instant Messenger (AIM), Microsoft MSN messenger (MSN), and Yahoo! messenger, were released one after another with millions of registered users today.

Typically, IM applications provide two main services: the instant message delivery service and the presence awareness service. The instant message delivery service enables real-time text message exchange between users, while the presence awareness service provides the instantaneous online status of IM friends/entities.

2, SYSTEM ANALYSIS

2.1 EXISTING SYSTEM

The instant message delivery service enables real-time text message exchange between users, while the presence awareness service provides the instantaneous online status of IM.
In market there are many video player software available. For Example windows media player, VLC, Real player, KM Player, etc…. But these software only give the output of the video at the actual resolution of the original video file format. The frequency exchange of presence information incurs massive power consumption to mobile devices over cellular or wireless local area networks. The main drawback of the existing system is to Reduce the power backup in short time of period and a Huge amount of data traffic occurs due to frequency exchange of presence information.

2.2 PROPOSED SYSTEM

In this paper, we propose several solutions to lower the power consumption of mobile devices due to the presence information exchange. By effectively reducing the rate of the presence information exchange that mobile devices actually have to participate in, the proposed solutions are capable of achieving great power saving at zero cost. Further power saving can also be obtained on the mobile devices by compromising a certain amount of presence update delay.

The proposed solutions are then implemented on both Wi-Fi and 3G handsets using a Jabber/Extensible Messaging and Presence Protocol (XMPP)-based architecture based on which extensive power measurement experiments are performed. The advantage of this is that to extends the mobile battery power and lifetime and also easy power saving method at low cost.

3, SYSTEM DESIGN AND METHODS

3.1 SYSTEM ARCHITECTURE

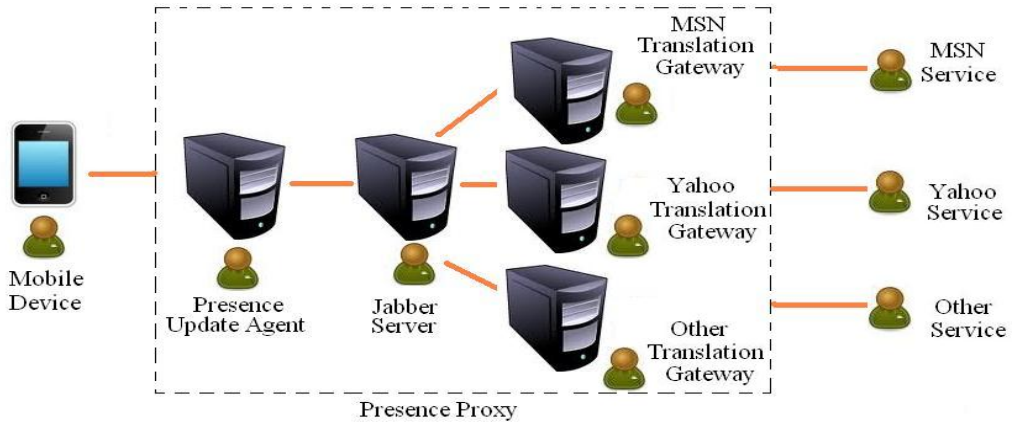

Fig.1:

Architecture diagram

3.2 SOFTWARE DESCRIPTION

ANDROID

Android is a Linux-based operating system for mobile devices such as smart phones and tablet computers. It is developed by the Open Handset Alliance led by Google. Android has a large community of developers writing applications ("apps") that extend the functionality of the devices. Developers write primarily in a customized version of Java. Android was listed as the best-selling Smartphone platform worldwide in Q4 2010 by Canalys with over 200 million Android devices in use by November 2011. According to Google's Andy Rubin, as of December 2011 there are over 700,000 Android devices activated every day.

3.3 FEATURES AND SPECIFICATIONS

Handset layouts

The platform is adaptable to larger, VGA, 2D graphics library, 3D graphics library based on OpenGL ES2.0 specifications, and traditional Smartphone layouts.

Storage

SQLite, a lightweight relational database, is used for data storage purposes.

Connectivity

Android supports connectivity technologies including GSM/ EDGE, IDEN, CDMA, EV-O, UMTS, Bluetooth, WiFi, LTE, NFC and WiMAX.

Messaging

SMS and MMS are available forms of messaging, including threaded text messaging and now Android Cloud To Device Messaging (C2DM) is also a part of Android Push Messaging service.

3.4 MULTITASKING

Voice based features

Google search through voice has been available since initial release. Voice actions for calling, texting, navigation, etc. are supported on Android 2.2 onwards.

Tethering

Android supports tethering, which allows a phone to be used as a wireless/wired Wi-Fi hotspot. Before Android 2.2 this was supported by third-party applications or manufacturer customizations.

Screen capture

Android supports capturing a screenshot by pressing the power and volume-down buttons at the same time. Prior to Android 4.0, the only methods of capturing a screenshot were through manufacturer and third-party customizations or otherwise by using a PC connection (DDMS developer's tool). These alternative methods are still available with the latest Android.

4, SYSTEM IMPLEMENTATION

4.1 MOBILE APPLICATION TO INTERACT WITH THE PROXY SERVER FOR IM STATUS UPDATES

In this module a mobile application was created to get the updates about the status of the Instant Messaging through the proxy server by IM translator and IM update agent.

Here we also measure the power consumption in mobile devices with workload with wireless LAN and Bluetooth format.

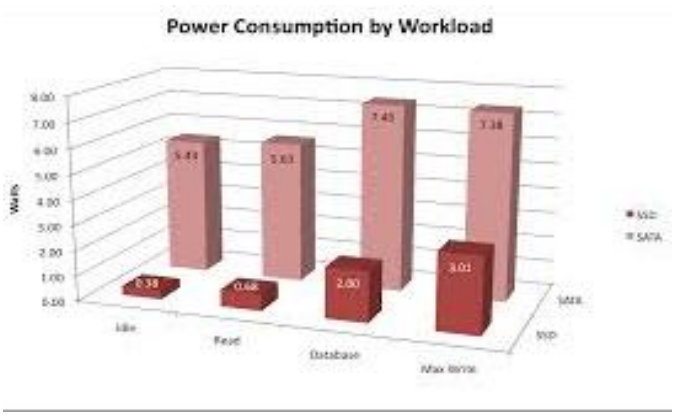

Fig.2

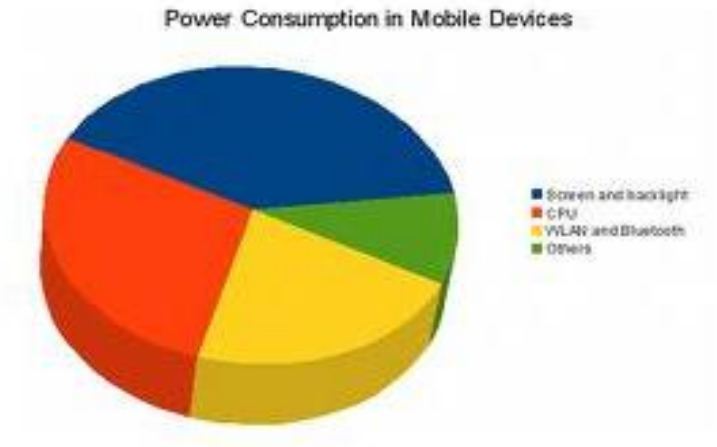

Fig.3

4.2 JABBER SERVER IMPLEMENTATION AND PRESENCE UPDATE AGENT

Jabber server software that you can use to run your own (Extensible Messaging and Presence Protocol) XMPP service, either over the Internet or on a local area network. Jabber server provides basic messaging, presence, and XML routing features.

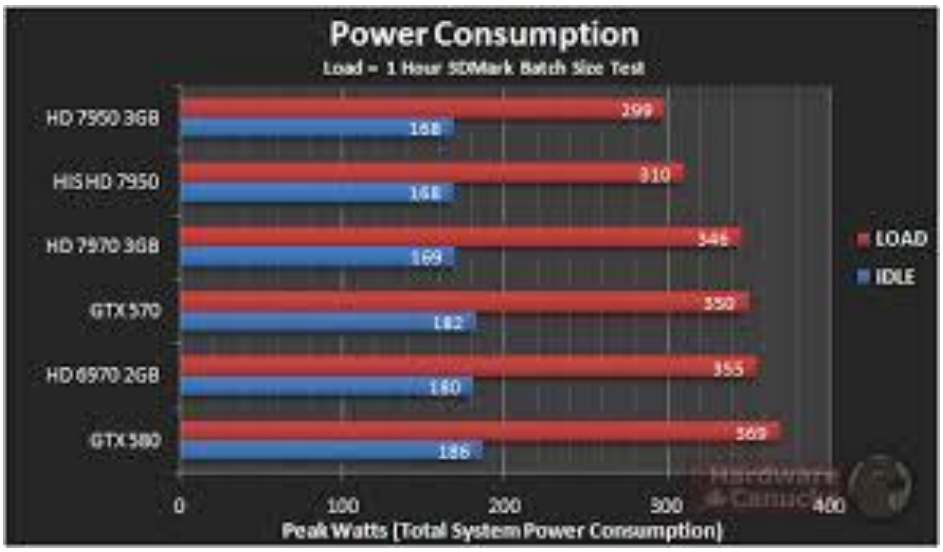
Power Consumption
Load - 1 Hour 3DMark Batch Size Test
HD 7950 3GB
HIS HD 7950
HD 7970 3GB
GTX 570
HD 6970 2GB
GTX 580
299
168
310
168
346
169
350
182
355
180
369
186
LOAD
IDLE
0
100
200
300
400
Peak Watts (Total System Power Consumption)

Fig.4

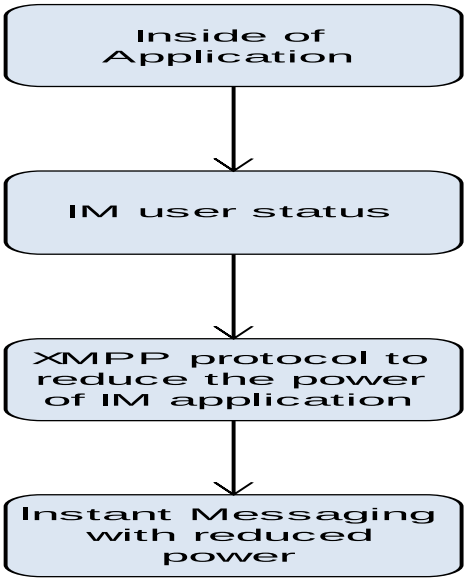
Inside of Application
IM user status
XMPP protocol to reduce the power of IM application
Instant Messaging with reduced power

Fig.5

4.3 EVENT TRIGGER PRESENCE UPDATE FROM THE REMOTE IM SERVER VIA PROXY SERVER

Application connected to a fixed-line network, to buffer the event triggered presence updates. For instance, presence update messages can be temporarily buffered at the agent either for a predefined period or until the number of accumulated presence updates reaches a certain threshold. The buffered event-triggered presence updates are then forwarded to the mobile IM client via proxy server by the buffering agent.

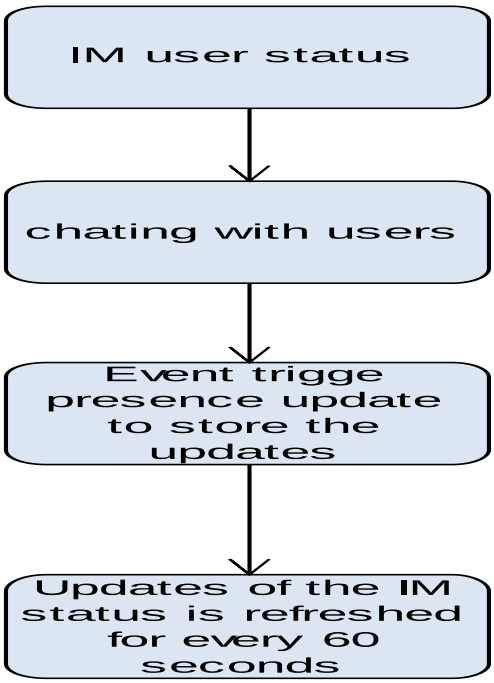

Fig.6

4.4 PRESENCE PROBE ON BEHALF OF MOBILE CLIENT

For mobile devices which are required to send (receive) probe messages to (from) remote IM entities, we are propose to use an agent to handle the presence of probes on behalf of the

mobile device. This agent is going to initiate the outgoing probe message and react to the incoming probe message without disturbing the mobile device. With this solution, the mobile device can only for a few occasions leave the sleep mode to initiate presence probes. Thus the power consumption for initiating probe messages can be completely eliminated.

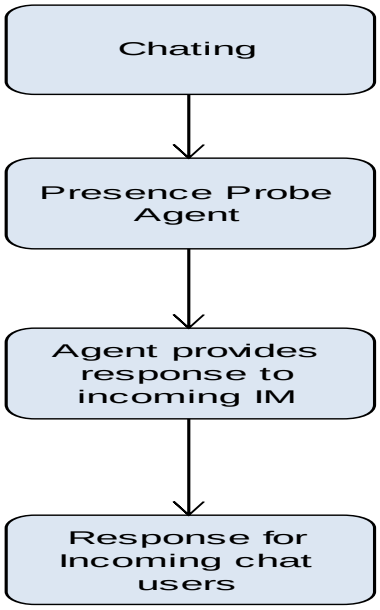

Fig.7

4.5 PERIODIC PRESENCE UPDATE ON BEHALF OF MOBILE CLIENT

An agent is used to handle the periodic presence updates to (from) the remote IM entities as required by the underlying protocol. So the duty of the periodic presence update is also totally removed from the mobile client. Also an intermediate transport protocol is used to streamline the presence updates from the different IM services. Multi-IM protocol translators are specifically used on the presence proxy to translate different IM protocols into one unifying IM protocol. The mobile was client actually communicates with presence proxy through this IM protocol. A multi-

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IM protocol translator is used at the mobile device side, to translate the unified IM back to the intended IM formats.

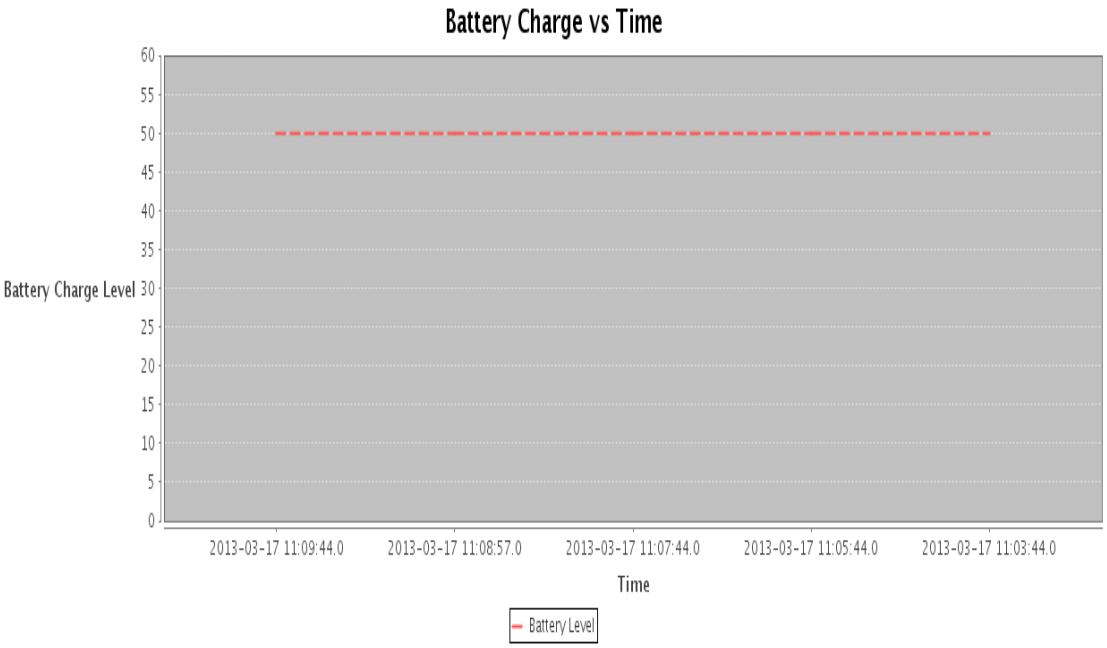

Fig.8

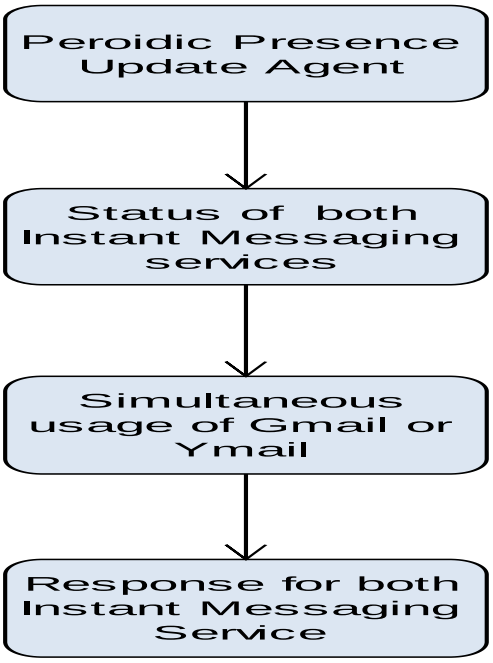

Fig.9

4.6 POWER CONSUMPTION ANALYSIS

Here we are going to first derive the power consumption for the considered mobile device both with and without the proposed solutions to compute the achievable power saving. The presence update delay expected was experienced by the mobile client when applying the proposed solutions is then derived to characterize the tradeoff between the attained power saving and the resulted presence update delay.

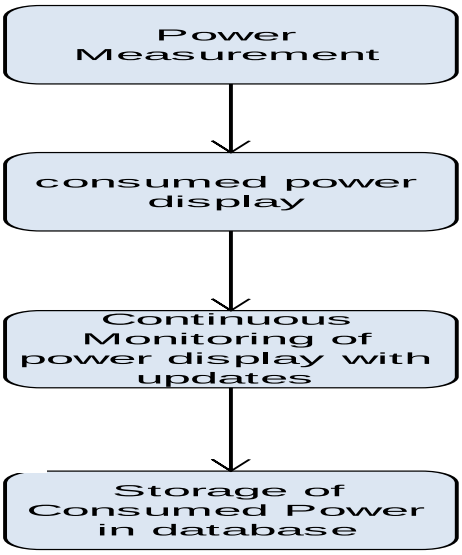

Fig.9

5. CONCLUSION AND FUTURE ENHANCEMENT

5.1 CONCLUSION

In this paper, we have investigated the power consumption caused by the presence information exchange of IM on mobile devices. To analyze the severity of this problem, we examine the various presence information exchange mechanisms and derive the respective power consumption implications. We have proposed several mobile IM power saving solutions to reduce the power consumption penalty. The proposed solutions achieve power saving by introducing agents to reduce and regulate the presence information exchange traffic. The proposed proxy-based IM architecture has been implemented using the Jabber/XMPP protocol.

The proposed solutions together with the analyzed tradeoff between the presence update delay and the power consumption can be applied to implement adaptive power saving mechanism for mobile IM services by adjusting the tolerable presence update delay in real-time according to the remaining battery life. The handset battery life can be effectively extended with the balance between the presence update delay and the attainable power saving**.**

5.2 FUTURE ENHANCEMENTS

We can use this process for proxy based web service search from mobile to find the list of web service matching search string to show this process also using small amount of battery

power. Also we can Measure battery strength and store in cloud server to see the power consumption usage at later point of time, for that we need to write a web application to see that process.

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