

# iMobile: An Agent-Based Platform for Mobile Services

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## ABSTRACT

iMobile is a platform that addresses the research issues in building mobile services. iMobile acts as a message gateway that allows mobile devices using various protocols on different access networks to relay messages to each other. It also allows these thin clients to access resources and information on the internet and various networks. iMobile implements three key abstractions: *devlet*, *infolet*, and *applet*. A *devlet* is a driver attached to iMobile that receives and sends messages through a particular protocol for mobile devices. An *infolet* hosted on iMobile uses a particular access method to provide an abstract view of an information space. An *applet* implements service or application logic by processing information from various *infolets*. The foundation of iMobile, the *let engine*, implements the basic framework for maintaining *applets*, *devlets* and *infolets*, supports user and device profiles for personalization and transcoding, and invokes proper *applets* and *infolets* to answer requests from a *devlet*. The iMobile architecture allows new access devices and protocols to be added to its framework without changes in the service logic. iMobile effectively provides a personal agent on the network that enables a user to have mobile access to the information and services available, without being limited by where the user is or whatever communication or device protocol is available.

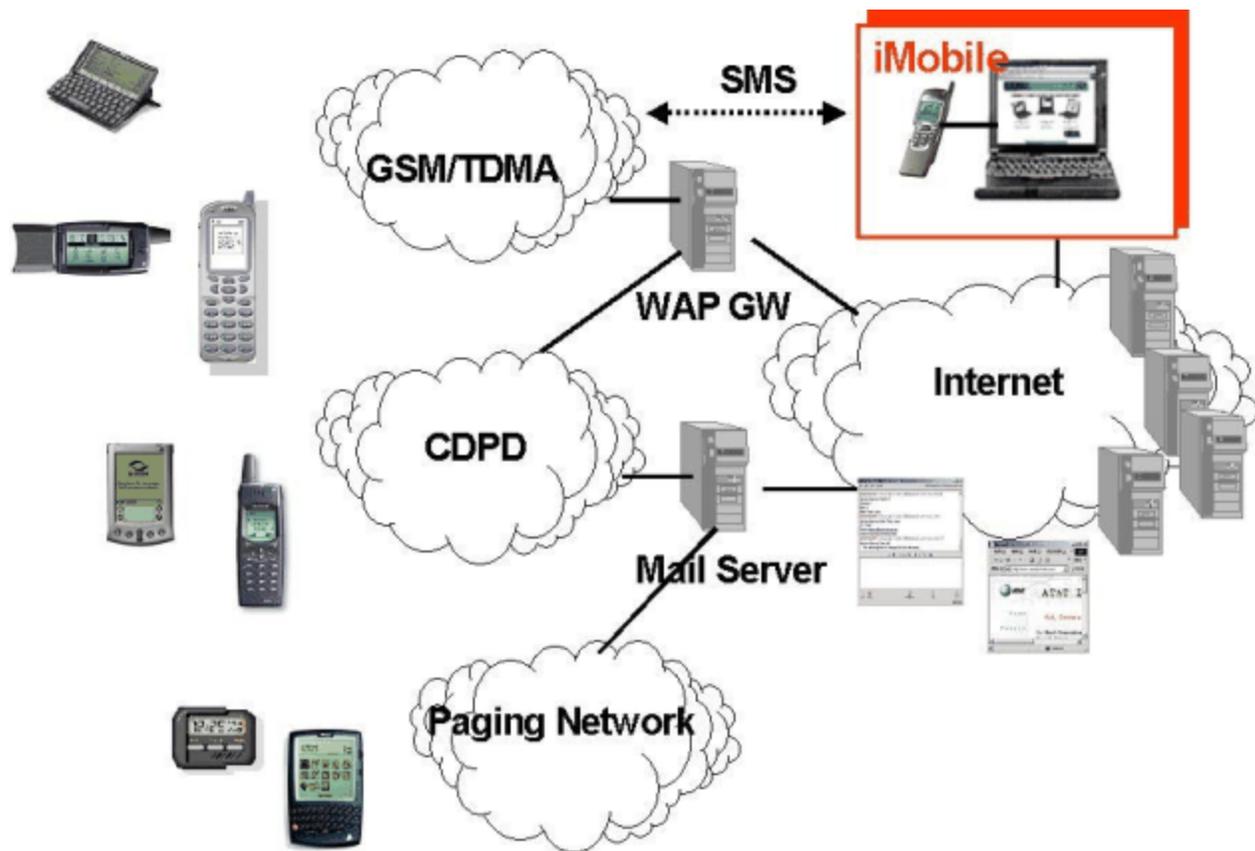
## Keywords

Proxy, Mobile Computing, Wireless, IMAP, SMS, WAP, X10, Corba, Home Network, Telnet, Instant Messaging, GSM, TDMA, CDPD

## 1. INTRODUCTION

iMobile is a platform to provide personalized mobile services. In a typical configuration as shown in Figure 1, iMobile runs on a computer with connections to the internet and a cell phone with two-way short messaging service (SMS). Many devices can communicate with iMobile through various protocols and access networks. GSM/TDMA phones with two-way SMS can communicate with iMobile through an SMS driver hosted on iMobile. CDPD devices (such as AT&T PocketNet phones and Palm Vx with the **Omnisky** modem) can use WAP to access iMobile through the internet. Email devices such as Blackberry can use the standard email protocols (SMTP) on the CDPD network or a two-way paging network to communicate with iMobile. Users on PC devices and some PDA's can use AOL instant messenger (AIM) to talk with an AIM client hosted on iMobile. It is also possible to communicate with iMobile directly via the telnet interface. iMobile receives messages and commands from these devices, accesses internet services and information on behalf of the mobile user, and then relay

messages or internet content back to the sending devices or other devices according to their device profiles.



**Figure 1: Accessing iMobile Services Through Various Devices and Networks**

iMobile hides the complexity of multiple devices and content sources from mobile users. It is built by leveraging established technology components in iProxy [1], a proxy server that provides an environment for hosting agents, which are implemented as reusable building blocks in Java. iProxy was originally designed to be middleware between HTTP clients and web servers. It maintains user profiles and adds intelligence to the traditional HTTP proxy server to provide personalized [2] and value-added services such as filtering, tracking, and archiving services. In the iMobile project, iProxy was extended with devlets to deal with various device protocols, infolets to access information sources, and applets to implement application logic.

For a more complete description of iMobile, visit <http://www.research.att.com/~iproxy/papers/imobile.pdf>

### **3. ACKNOWLEDGEMENTS**

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### **4. REFERENCES**

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