



White Paper

Abstract: The Wireless Village initiative is about building community around new and innovative Mobile Instant Messaging and Presence Services (IMPS). Instant Messaging and Presence is moving from the desktop and Internet to the mobile domain. Ericsson, Motorola and Nokia recognize the need for an industry standard for mobile IMPS. These companies formed the Wireless Village Initiative to ensure the interoperability of wireless messaging services and IM in particular. The vision is outlined in this document.

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1 Background Overview

Today's wireless landscape is rapidly changing as mobile phones and networks are being enhanced to provide services beyond just voice services. The wireless industry is now seeing the rapid expansion of mobile data services. This expansion is being fueled by a variety of factors:

- Internet and wireless domains are converging
- Tremendous adoption rates of SMS and its lucrative business model
- Mobile consumers and professionals are asking for new wireless applications
- Operators need to leverage their investment in 3G spectrums
- Operators are extending their brand to consumers via portals and new services

Chief among the technologies consumers are asking for is mobile instant messaging and presence services (IMPS). Research Portal.com reports instant messaging is the Number Two requested application after voice. With the monumental growth patterns of SMS, where 10 billion messages are sent every month globally according to the GSM Association, and the adoption rate of desktop instant messaging (IM), with over 100 million registered users and over 50 million regular users as reported by Jupiter Media Metrix, we foresee that wireless IMPS will capitalize on both these trends.

Today, the world of desktop IM can be characterized by multiple, competing, proprietary systems and a lack of interoperability that is reminiscent of the early stages of email development. One of the challenges in bringing IM to the wireless market is to enable a standards-based approach that supports the goals of interoperability and roaming, ensuring the success of an application that will be as popular as email.

It is the goal of the Wireless Village initiative to ensure interoperability of mobile instant messaging and presence services while building community both around the initiative and through the deployment of innovative new IMPS services.

It is the strategy of the Wireless Village initiative to help the wireless operator succeed in attracting and retaining customers, leveraging their investment in current 2G and 2.5G as well as emerging 3G networks and increasing profits by providing a comprehensive solution that addresses both the network operator's requirements and the end-user's needs. The Wireless Village solution enables the operator to leverage their existing customer base, SMS usage patterns and business models – while attracting new customers, enabling partnerships with existing IM providers, providing new value-add services, all while building their own IMPS communities.

2 Wireless Village Solution

The Wireless Village Instant Messaging and Presence Service (IMPS) includes four primary features:

- Presence
- Instant Messaging
- Groups
- Shared Content

Presence is the key enabling technology for the Wireless Village initiative. In the desktop world users have been able to announce their status to authorized recipients, facilitating instant messaging.

In the Wireless Village model, **Presence** takes on a richer meaning. It includes client device availability (my phone is on/off, in a call), user status (available, unavailable, in a meeting), location, client device capabilities (voice, text, GPRS, multimedia) and searchable personal statuses such as mood (happy, angry) and hobbies (football, fishing, computing, dancing). Since presence information is personal, it is only made available according to the user's wishes – access control features put the control of the user presence information in the users' hands.

Instant Messaging is a familiar concept in both the mobile and desktop worlds. Desktop IM clients, two-way SMS and two-way paging are all forms of Instant Messaging. Wireless Village will enable interoperable mobile IM in concert with other innovative features to provide an enhanced user experience.

Groups or chat are a fun and familiar concept on the Internet. The Wireless Village initiative enables both operators and end-users to create and manage groups. Users can invite their friends and family to chat in group discussions. Operators can build common interest groups where end-users can meet each other online.

Shared Content allows users and operators to setup their own storage area where they can post pictures, music and other multimedia content while enabling the sharing with other individuals and groups in an IM or chat session.

These features, taken in part or as a whole, provide the basis for innovative new services that build upon a common interoperable framework. The Wireless Village initiative will use its community of supporters as a forum in which to test that framework.

3 Who Benefits from the Wireless Village Solution?

Everyone benefits from the Wireless Village solution:

- End Users
- Device Manufacturers
- Service Providers
- Application Developers

End users benefit from the Wireless Village services – which work from any device, be it a mobile phone or desktop PC, on any network – by knowing they can communicate with their friends and family.

Device Manufacturers benefit by having only to implement a single protocol to support a common set of widely adopted features. The cost reductions made possible through strong industry support of a common protocol are necessary given the constraints on mobile devices: low power consumption, storage space, memory and cost.

Service Providers offering Wireless Village services benefit from having to deploy a single server solution that will address multiple customer needs while interoperating seamlessly across multiple devices.

Application Developers have a common framework upon which they can build new services for presence, messaging, group and content delivery.

4 The Characteristics of the Wireless Village Solution

4.1 An Open Industry Specification to Ensure Interoperability

In order for IMPS to be successful, it is imperative that client devices, both mobiles and PCs can interoperate. To ensure interoperability and the widespread adoption of the solution, the Wireless Village initiative is promoting jointly developed architecture and protocols as industry specifications.

4.2 Enabling the Operators to Build Persistent Communities

One of the key benefits to the operator in deploying the Wireless Village solution is the ability to brand the service and build an end-user community. Friends and colleagues want to be able to communicate with each other independent of location, time or device constraints. We predict that the inherent mobility of wireless devices, coupled with an IM solution that leverages the desktop PCs, will very quickly drive the creation of persistent IMPS communities.

4.3 Open Interfaces to Support Partnerships

The Wireless Village specification defines how the IMPS system should interface with the existing wireless network infrastructures, as well as, providing an open interface to existing IM communities on the Internet. This enables operators to establish business relationships with existing IM providers such as AOL, ICQ, Yahoo, MSN and others.

Gartner Group reports that messaging will be the #1 data revenue source for carriers for the next 5 years (39% in 2002 and 62% in 2005). The architecture and open protocol of the Wireless Village specification supports multiple server deployments such that the operator can host their own service, in addition to enabling the enterprise with their own IMPS servers. The Wireless Village initiative's flexible architecture and open interfaces help promote the widespread adoption of IMPS servers. Our expectation is that IMPS servers will become as prevalent as email servers in the near future.

4.4 Built upon Existing Internet and Web technologies

Where possible, the protocol makes use of existing Internet and Web technologies. These technologies are implemented widely and are well tested, so their use ensures easy implementation and interoperability testing.

XML, the Extensible Markup Language, is rapidly emerging as the lingua franca for representing structured data over the Web. To the greatest extent possible, the protocol uses XML to represent the protocol data being exchanged during an IMPS session.

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IMPS activities in the IETF IMPP have received widespread interest throughout the industry. Although it is still in development, to the greatest extent possible, the Wireless Village initiative will support the CPIM draft and build upon it.

Other useful standards in this space include the Multipurpose Internet Mail Extensions (MIME) for registering the format of the IMPS protocol messages.

5 Wireless Village Interoperability Framework

The Wireless Village defines and promotes a set of universal standards and specifications for mobile instant messaging and presence services. The standards and specifications will be used for exchanging messages and presence information between mobile devices, mobile services and Internet-based instant messaging services. All will be fully interoperable and will leverage existing web technologies.

The Wireless Village interoperability framework includes the Wireless Village system architecture and an open protocol suite at the IMPS application level to provide interoperable mobile IMPS services among workstations, network application servers, and mobile information appliances such as mobile handsets, handheld computers, PDAs and other mobile devices.

5.1 System Architecture

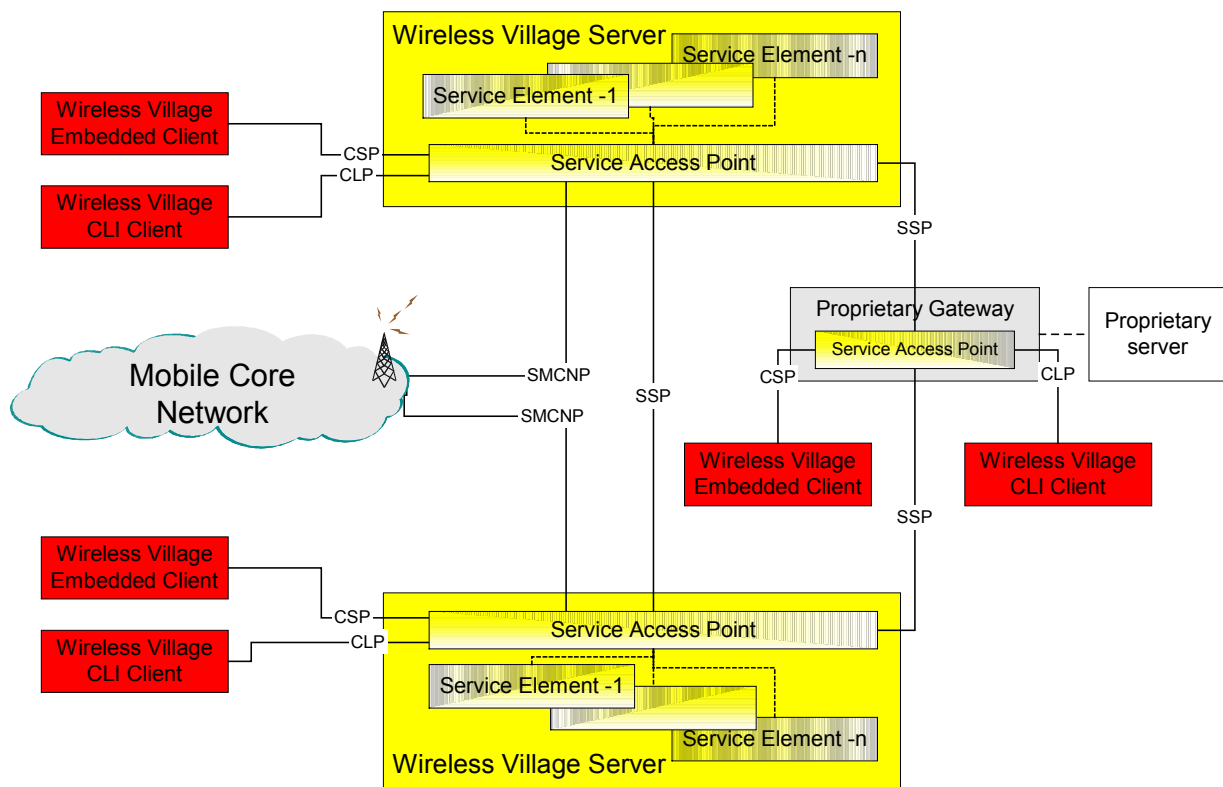


Figure 1: The Wireless Village System Architecture

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The Wireless Village System Architecture, as shown in Figure 1, describes the IMPS system and its relation to mobile networking and the Internet. This is a client-server-based system, where the server is the IMPS server and the clients can be either mobile terminals, or other services / applications, or fixed PC-clients. For interoperability, the IMPS servers and Gateways are connected with a Server-to-Server Protocol (SSP). The architecture gives implementers more choices in Wireless Village Servers or Gateways, but with the Wireless Village brand and technology.

The **Wireless Village Server** is the central point in this system. It is composed of four Application Service Elements that are accessible via the Service Access Point. The Application Service Elements are:

- Presence Service Element
- Instant Messaging Service Element
- Group Service Element
- Content Service Element

The **Wireless Village Client** consists of an Embedded Client and a Command-Line Interface (CLI) Client. It communicates with the Wireless Village Server to accomplish IMPS features and functions and to provide users with IMPS services.

The Wireless Village System Architecture is consistent with 3GPP TS 22.121 Virtual Home Environment and 3GPP TS 23.127 Open Service Architecture.

The interoperability between Wireless Village Servers and Clients, and between Wireless Village Servers is achieved through the Wireless Village Protocol Suite.

5.2 Protocol Suite

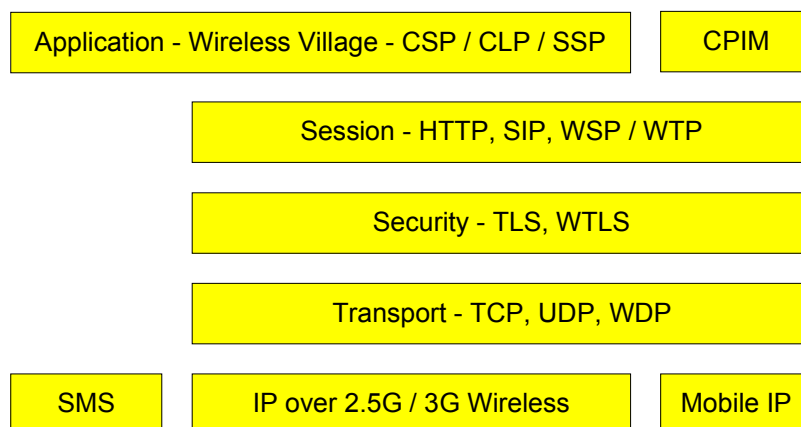


Figure 2: The Wireless Village Protocol Stack

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The Wireless Village Protocol Suite consists of the Client-Server Protocol (CSP), Server-Server Protocol (SSP) and Command Line Protocol (CLP). The protocol stack is shown in Figure 2.

CSP is designed to provide Embedded Clients in mobile terminals and desktop clients access to the Wireless Village Server.

SSP is designed to provide the communication and interaction means among the Wireless Village Servers and the SSP Gateways. SSP allows the Wireless Village clients to subscribe to the IMPS services provided by different servers that are distributed across the network. SSP allows the Wireless Village clients to communicate with existing proprietary Instant Messaging networks through the SSP Gateway.

CLP is designed to provide the Wireless Village server and the CLI client with the means to communicate and interact with each other to support the IMPS services in a legacy CLI client.

The Wireless Village Protocol Suite runs at the application level, and is compliant with IETF RFC 2778, RFC 2779 and the IMPP CPIM model. The Wireless Village Protocol Suite may run independently over different transport layer and bearer protocols.

6 Conclusion

The Wireless Village initiative is a community-building effort. We endeavor to build a community of technology companies around a common standard, and to enable service providers to build their own end-user communities.

The Wireless Village initiative is an industry-leading coalition and a comprehensive solution that leverages a standards-based approach to wireless instant messaging and presence.

Ericsson, Motorola, and Nokia are leaders in wireless communications solutions.

The Wireless Village initiative is open to participation from all industry leaders that desire to support these specifications and help build this community.

7 References

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