

Instant Messaging

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Instant Messaging, with its buddy list and presence information, is the right service to federate all these communication services; it provides a single intuitive access point to all communication services. Moreover, it is a key service for mobile operators as it enables them to retain control of their customer base, to remain independent of other service providers, and to be more than just a dumb pipe provider carrying other people's data! All this is already happening. However, taking a look into the future shows us that this is just the start of a revolution: mobile operators are faced with the challenge of moving from operating a simple Instant Messaging service to offering a global Internet Protocol (IP) communication suite.

INSTANT MESSAGING

Instant Messaging is a cornerstone service that will enable mobile operators to federate a whole range of services using a common interface and buddy list.

Introduction

In recent years, communication needs have increased dramatically. No longer is it sufficient for an operator to offer users just the basic voice communication service and voice mail. The emergence of the Internet and the success of e-mail have created new ways of communicating and triggered the emergence of new media. At the same time, the success of mobile telephony has raised new challenges relating to the increased heterogeneity of terminals and the burgeoning number of communication possibilities (see *Figure 1*).

Fixed and mobile operators are now faced with the challenge of finding a solution that will unify these diverse media, terminals and communication means.

Typically, when sending a multimedia message to someone who does not have a suitable terminal, or at least a media viewer, the network must perform some kind of transformation to ensure that multimedia content is displayed correctly. The ability to adapt the content is a *must have*, as the delivery of a message that cannot be displayed on the receiver's terminal would be perceived by the user as a message delivery failure. Consequently, there is a need for a communication means that allows rich media content to be delivered in the right format for the receiver's terminal.

More terminals

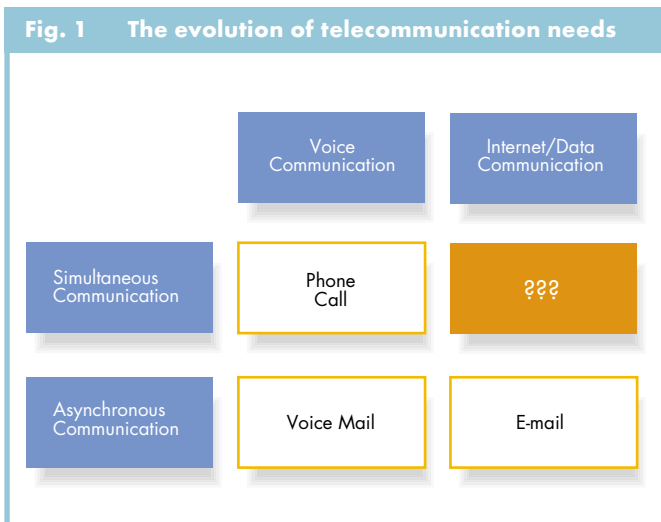
Until recently, each type of device was only used for one purpose. Typically, a computer was used for making data connections, while a phone was used to make voice calls. With the arrival of new terminal types, the boundary between voice and data communication is becoming blurred. The success of the Short Message Service (SMS) shows that it has become the norm to use a single terminal for both voice and data calls. Moreover, the success of Third Generation (3G) terminals is helping to break down the barrier between voice and data communication. Today's terminals are equipped with digital cameras and color screens, and support the standard Internet multimedia format.

Consequently, there is a need for a means of communication that can be made available on all terminals, and that provides messaging capabilities regardless of the device's technical characteristics.

More bearers

Although voice remains a major part of the mobile operators' business, new services using Voice over Internet Protocol (VoIP), such as *push over cellular*, are currently being studied by mobile operators who are expected to launch services by 2005. Push over cellular (also known as *push to talk*) is a half duplex communication method that allows users to send communication bursts over the air, basically using their mobile phones as walkie-talkies. In the United States, Verizon Wireless has launched (August 2003) a push over cellular solution that offers nationwide communication.

There is now a need for a messaging component that can unify all these messaging trends in a simple, efficient way. Instant Messaging has the ability to achieve this.



More media

With the emergence of new terminals, particularly mobile terminals with large color screens, the number of media formats has increased dramatically. Today the challenge is to be able to display media on different terminals. This is achieved by adapting the required content according to the capabilities of the receiving user's terminal and the software used to view the content.

Instant Messaging as a Tool to Unify Messaging

First it must be appreciated that Instant Messaging goes beyond simple text messaging, and should also be seen as a call completion system. Indeed, it should be seen as an advanced address book in term of the user interface, providing presence-based information to help the user decide what type of call to make. Presence information can be application based, network based, location based, etc. Application presence tells the user whether John Doe is online or not, and what terminal he is using. Network presence indicates whether or not John Doe is already making a call. And finally, location information tells where John Doe is currently located. Knowing this information helps the user to decide how to contact John.

A solution to messaging IOT

Instant Messaging is a key element in tomorrow's communication in view of the explosion in the number of terminals, bearers and formats. Nowadays, a user who wants to send a text message can send an SMS, a Multimedia Messaging Service (MMS) message or an e-mail, all of which are more or less compatible. Voice calls can be made using the classic telephone service, while data voice calls, like *push to talk*, are about to become very popular.

One application has the ability to unify all these services – Instant Messaging. Indeed, Instant Messaging provides Interoperability Testing (IOT) between various terminal types; for example, it is possible to have an Instant Messaging conversation between a mobile phone and a desktop computer. This is realized by providing a matching client, whether web based or embedded in the terminal. However, IOT goes beyond terminal interoperability, as it also has to cope with heterogeneous communication bearers. Multi-bearer Instant Messaging addresses this issue.

Starting point for all communications

If a user's buddy list is used as an address book, Instant Messaging becomes the starting point for all his or her communication needs, as long as the appropriate service extensions are provided. For example, if the application provides a *click to call* function, it is convenient to initiate a phone call through the instant messaging interface.

Moreover, VoIP services are now being introduced, requiring a buddy list to select the person to whom one wants to send an instant voice message. The reason why an Instant Messaging buddy list should be used is simply because it includes key presence information. In a study made by the Yankee Group in August 2003 comparing the Verizon Wireless and Nextel *push to talk* services, presence was rated as a key advantage in term of user friendliness.

Unify messaging

The above issues clearly show that there is a need for a service with extensive interoperability features in order to unify all these communication means.

Typically, some users will have the latest MMS terminals, while others will keep on using their old SMS-enabled terminals. Others will be connected using a PC, but will still want to send messages seamlessly to users with mobile handsets. This requires a service that provides interoperability between various message formats, various communication bearers and various terminal types.

Today the mobile market, with a penetration rate of 71%, has reached saturation, according to Forrester (July 2002). There is thus a need for mobile operators to stimulate usage by providing easy access to all the available communication features, and in particular to new 2.5G and 3G messaging services, like MMS, without changing users' habits.

Cross-fertilization between all types of communication without disrupting the user's experience is a key requirement for mobile operators so that they can increase usage, thereby generating more revenue and reducing churn. However, this is not the only consideration. Displaying presence information is also a key issue, as presence is a great communication enabler. This is because information about the status of a colleague or relatives clearly helps a user to decide what method of communication to use.

The ability to aggregate presence information of any kind and broadcast it to a group of users regardless of the type of device and bearer is a basic feature of Instant Messaging. Moreover, it is an easy way to unify all types of messaging and to provide a simple common access point to all the means of communication offered by a mobile operator, as illustrated in *Figure 2*.

Operate Your Own Instant Messaging

A mobile operator can provide an Instant Messaging service in one of two ways:

- Make a deal with an Instant Messaging service provider, who will then host and operate the service on the operator's behalf.
- Operate its own Instant Messaging service.

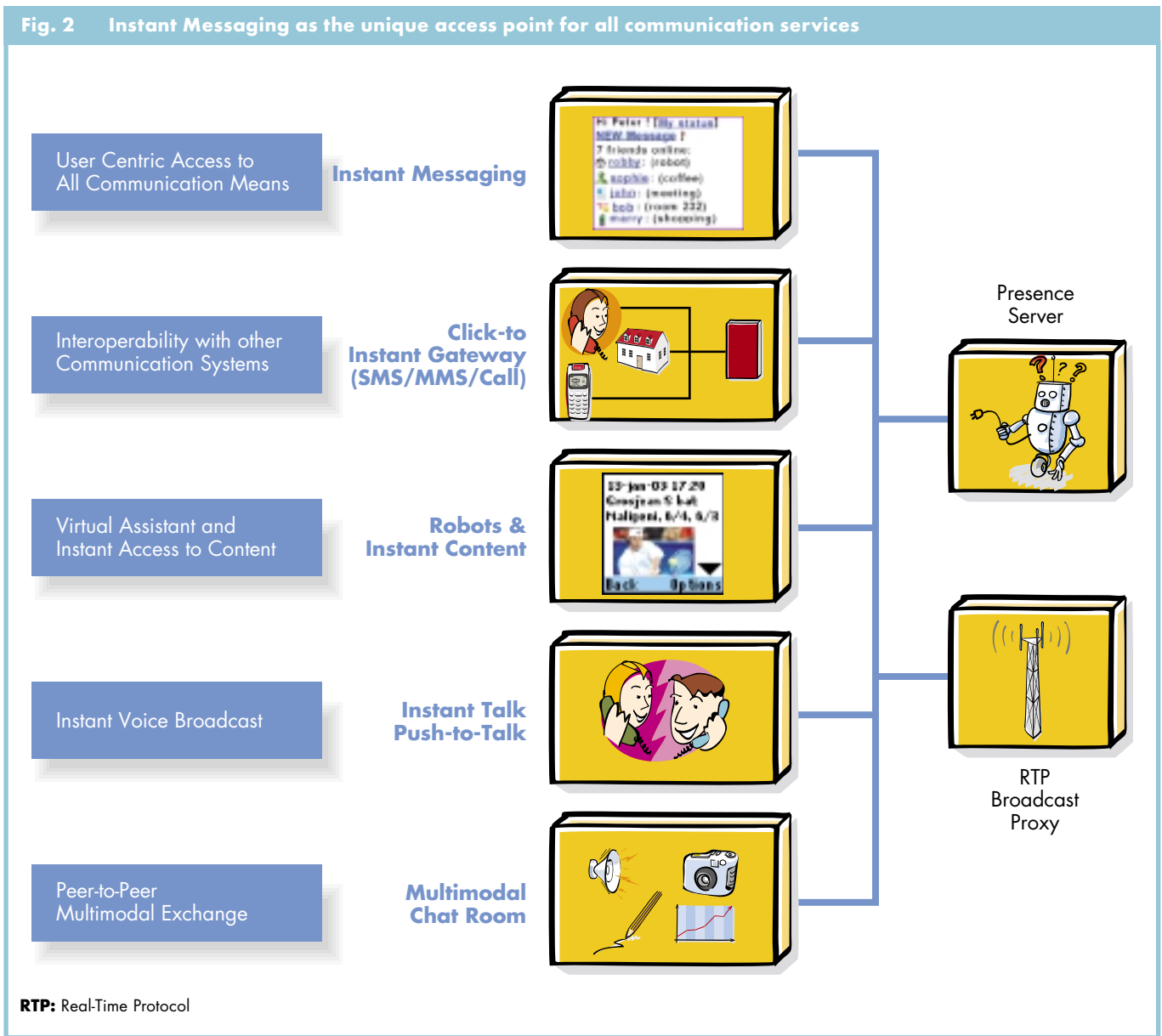
The first approach might appear to be a good way to launch the service rapidly on the market. However, in practice this approach endangers the mobile operator's business, and in the long-term puts its survival at stake.

Keep value in the network

Instant Messaging enables mobile operators to maintain a central position in the communication value chain.

A user's address book is probably his or her most valuable source of information. Nowadays, this

Fig. 2 Instant Messaging as the unique access point for all communication services



information is stored either on a Subscriber Identity Module (SIM) card or in the terminal itself. Consequently, the mobile operator has virtually no control over it. An Instant Messaging buddy list has one big advantage over the traditional address book – presence information. Because this feature is provided through the Instant Messaging service, it is natural for the user to move the entries in his or her address book to this buddy list, thereby storing his or her contact list on the network!

Instant Messaging thus gives the mobile operator control over users' contact lists by providing presence features, adding significant value to the network.

Prevent others from taking your business

Delegating operations and maintenance of the Instant Messaging service might appear to be a good short-term solution as it enables the service to be introduced rapidly and doesn't involve a maintenance cost. However, this short-term strategy actually endangers future revenues because the third party to whom the operator has delegated operation of the service then controls the messaging services, relegating the operator to the role of a simple data carrier. Consequently, the operator receives no revenue whatsoever from the Instant Messaging service, nor from messaging services in general. The third-party service provider will cannibalize all messaging

revenues, while the operator watches it happen without being able to do anything to prevent it!

In contrast, operators that provide their own Instant Messaging service retain full control. As the buddy list is the starting point for all communications, it is straightforward for an operator to deploy new services that can be easily accessed through this list. Typically, the Instant Messaging buddy list provides easy access to all the operator's messaging services: the user is always just one click away from sending an MMS, setting up a voice call, and so on.

Instant Messaging is thus a key element in any operator's messaging strategy as it enables them to retain control of all the services offered to users.

Control the terminal strategy

The availability of next generation terminals with color screens and broadband mobile access is a great opportunity for mobile operators to provide attractive services. However, it is also a potential threat, as manufacturers are putting more and more features into their terminals, thus wresting service control out of the operators' hands. Clearly, a key factor for mobile operators to have the capability to provide network-centric, device-agnostic services based on standard protocols.

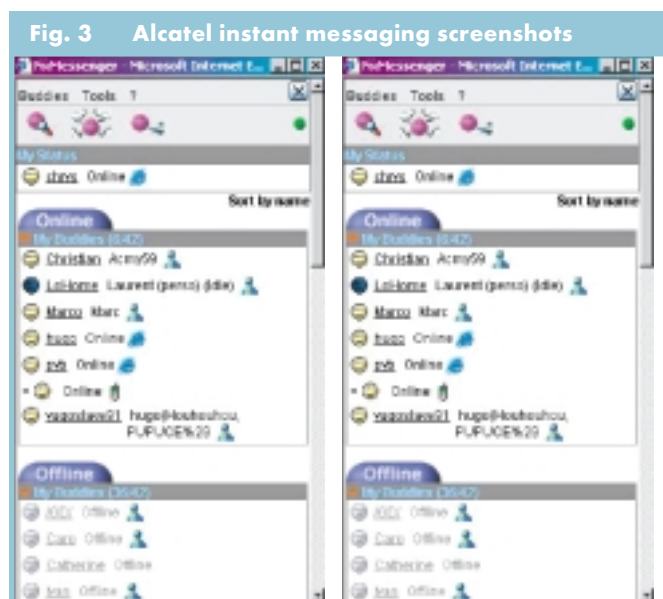
Alcatel Instant Messaging

With these considerations in mind, for the past two years Alcatel has been developing the Alcatel 5324 Instant Messaging product. The goal of this program is to develop a multi-terminal instant messaging solution that can interoperate with other instant messaging services and products, and which can be easily integrated into an existing network.

Currently, the Alcatel 5324 Instant Messaging solution is available for a range of terminals: PCs, mobile phones using the Wireless Application Protocol (WAP), SMS and Personal Digital Assistants (PDA). Thus the Alcatel 5324 enables users to keep in touch with each other anywhere, any time and from any device. *Figure 3* shows some typical screen shots.

Interoperability is ensured by a set of dedicated gateways that provide a connection with the major Instant Messaging services – MSN Messenger, Yahoo! Messenger and AOL – allowing users to federate all their Instant Messaging accounts. In addition, it requires a set of proxies based on standard protocol stacks, such as the Session Initiation Protocol (SIP) and SIP for Instant Messaging and Presence Leveraging Extension (SIMPLE).

In terms of communication protocols, Alcatel 5324 Instant Messaging also implements a SIP/SIMPLE communication stack that is used to provide additional support for legacy clients, such as Windows



Messenger V4.6. In addition, the Alcatel 5324 comes with web/WAP clients that have an intuitive user interface, require no installation and allow the service to be displayed in a uniform way on all devices.

The key element for integrating third-party services is the “click-to communication services” feature. This allows the instant messaging functions to be extended simply by plugging in and monitoring third-party services and applications. By default, Alcatel 5324 Instant Messaging comes with “click-to MMS” and “click-to SMS” functions to simplify the sending of multimedia and text messages, and “click-to call” to allow interaction between the data world and the voice world.

Conclusion

The arrival of next generation communication services, such as MMS and VoIP, means that mobile operators are now facing the challenge of offering more than pure voice communication to their customers. However, launching these new services should be carefully planned. It is also important to have a means to federate them so that users have a clear view of what is available and how easy it is to use the new services.

Instant Messaging, with its buddy list and presence information, is the right service to federate all these communication services. It is a cornerstone application that provides a single intuitive access point to all communication services. Moreover, it is a key service for mobile operators as it enables them to retain control of their customer base, remain independent of other service providers, and be more than just a dumb pipe provider carrying other people's data!

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Abbreviations

- 3G** Third Generation
- IOT** Inter Operability Testing
- IP** Internet Protocol
- PDA** Personal Digital Assistant
- POT** Plain Old Telephone
- MMS** Multimedia Messaging Service
- SIP** Session Initiation Protocol
- SIMPLE** Sip for Instant Messaging and Presence Leveraging
Extension
- SMS** Short Message Service
- VoIP** Voice over Internet Protocol
- WAP** Wireless Application Protocol

ARCHITECTS OF AN INTERNET WORLD



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