



# COMPREHENSIVE PERFORMANCE ANALYSIS OF UNIFIED COMMUNICATIONS TECHNOLOGY

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## ABSTRACT

Unified communications encompasses a broad range of technologies and many potential applications. With unified communications, subscribers reduce the number of places they must check for incoming voice, fax, e-mail messages, and other media types. From a single interface, they can check for all messages. Unified communications encompasses all forms of call and multimedia/cross-media message-management functions controlled by an individual user for both business and social purposes. This includes any enterprise informational or transactional application process that emulates a human user and uses a single, content-independent personal messaging channel (mailbox) for contact access.

**Keywords:** *Integrated voice response (IVR), short message services (SMS), wireless application protocol (WAP), private branch exchanges (PBX), personal digital assistants [PDA], personal computers [PC].*

## 1. INTRODUCTION

Unified communications has repeatedly been the center of many discussions involving the future of communications. Unified communication offers several benefits for service providers. The first is subscriber-base growth. More people are subscribing because the provider is offering better solutions. Also, by using community messaging, more people appreciate this form of two-way communication[2]. With unified communications, service providers can increase messaging availability with maximum penetration in existing and new global segments via a wider deployment with networking.

## 2. TECHNOLOGY

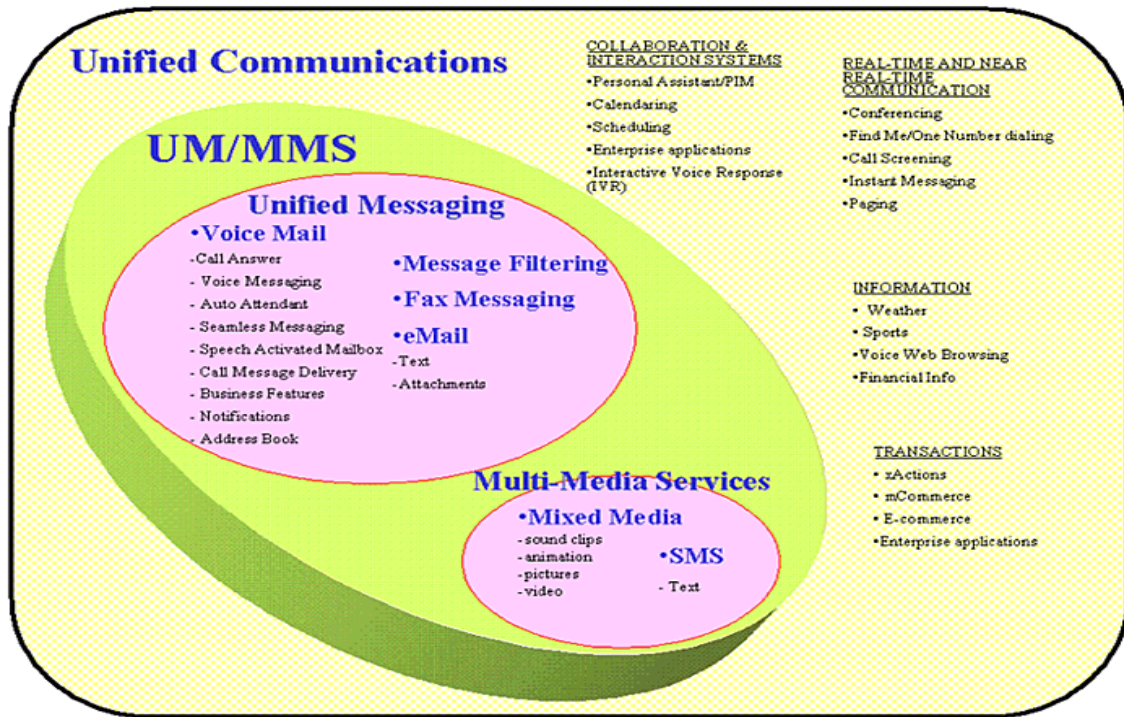
The essence of communication is breaking down barriers. In its simplest form, the telephone breaks distance and time barriers so that people can communicate in real time or near real time when they are not together. There are now many other barriers to be overcome. For example, people use many different devices to communicate (wireless phones, personal digital assistants [PDA], personal computers [PC], thin clients, etc.), and there are now new forms of communication as well, such as instant messaging. The unified communications concept

involves breaking down these barriers so that people using different modes of communication, different media, and different devices can still communicate to anyone, anywhere, at any time[3].

Unified communications encompasses several communication systems or models including unified messaging, collaboration, and interaction systems; real-time and near real-time communications; and transactional applications. Unified messaging focuses on allowing users to access voice, e-mail, fax and other mixed media from a single mailbox independent of the access device. Multimedia services include messages of mixed media types such as video, sound clips, and pictures, and include communication via short message services (SMS). Collaboration and interaction systems focus on applications such as calendaring, scheduling, workflow, integrated voice response (IVR), and other enterprise applications that help individuals and workgroups communicate efficiently. Real-time and near real-time communications systems focus on fundamental communication between individuals using applications or systems such as conferencing, instant messaging, traditional and next-generation private branch exchanges (PBX), and paging. Transactional and informational systems focus on providing access to m-commerce, e-commerce, voice Web-browsing,

weather, stock-information, and other enterprise applications.

Figure 1. Unified Communications and Its Components



**3.BENEFITS:**

Today's subscribers live in multiple networks (see Figure 2). More and more subscribers belong to numerous electronic communities and have an ever increasing number of innovative communications devices to choose from, whether it is a mobile phone, PDA, pager,

hand-held computer, or a wireless application protocol (WAP)-enabled device. With a wide range of services and devices at their disposal, greater demands are being placed on the subscriber in the way they manage their communications [1]. Today's busy consumers want an intuitive, easy-to-use method for unifying their communications.

Figure 2. Subscribers Live in Multiple Networks



Unified communications provides control for the individual user. It can help to send and receive messages, whether they are voice, e-mail, or fax. It also will notify the user whenever mail arrives. The concept of notification is becoming a large part of messaging. Some people want to be reached at all costs, anywhere, at any time. Whether they are at home or on vacation, they want to be notified of messages. Others are more protective about their privacy. They do not want to be reached, for example, when they are sleeping or having dinner. Unified communications technology provides the power to reach people almost anywhere, at any time, and provides the flexibility to allow people to control when they can be reached. Subscribers can interface with messages how and when they want[11]-[16].

#### 4. EVOLUTION TO UNIFIED COMMUNICATIONS

A natural evolution in application value, which has built upon available technologies, has occurred in messaging (see *Figure 3*). Technologies exist that enhance the integration of voice mail and e-mail, such as text-to-speech software that converts e-mail into spoken words. For example, at the airport, a user could call in on a phone and hear e-mail messages, making it easy to reach important decisions without delay. Other enabling technologies, such as speech recognition, are becoming more reliable and cost-effective. For example, people who drive frequently will find speech recognition a particularly convenient interface, especially if it is used to dial numbers or navigate menu options.

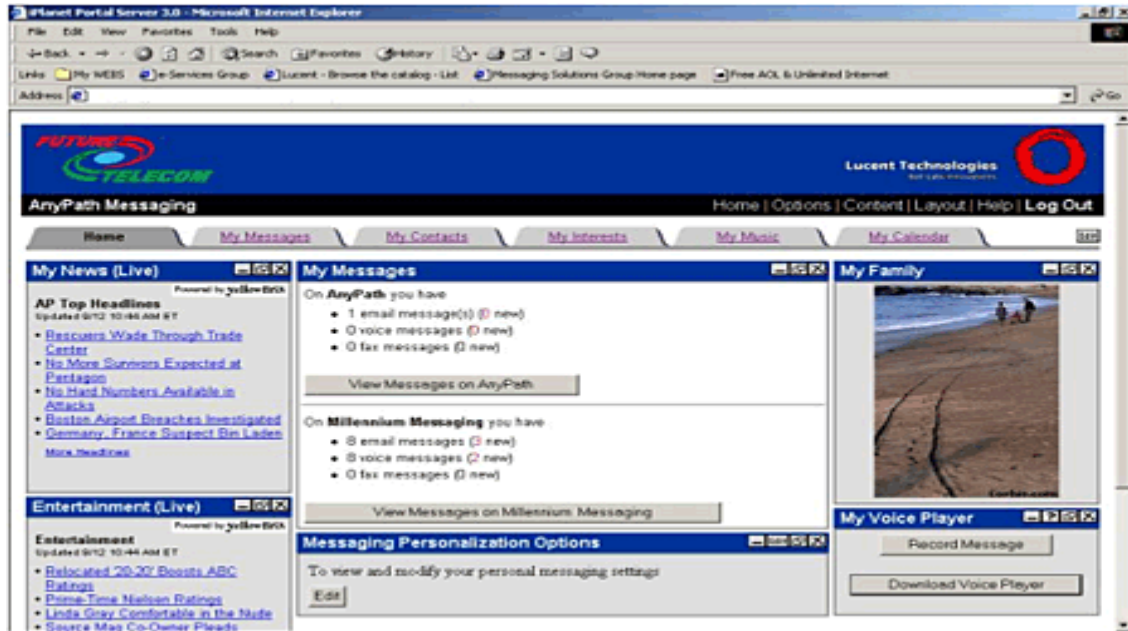
Figure 3. Unified Communications Evolution



Easy-to-use user interfaces are essential to accessing the unified mailbox. Whether from the phone or from any Internet-enabled device, the subscriber can navigate through a unified mailbox with ease and full control at all times (see *Figure 4*). Checking e-mail from the phone becomes

intuitive, and, likewise, hearing voice messages from a PC becomes second nature.

Figure 4. An Example of Unified Mailbox Access through the Web



Unified communications can be used as a business tool as well. It can provide efficient business communication or act as an interface to a 24-hour storefront. People can use the phone to get information or to make transactions. They can purchase merchandise or trade stock without talking to a live person. With the emergence of new technology, especially the Internet, the 24-hour storefront has flourished. More information can be accessed and more shopping can be done than ever before[4]-[10].

Understanding the needs of the diverse market segments is essential to the success of deploying unified communications to a market. By mixing and matching various unified communications applications, service providers can increase market penetration, maximize revenues, and stimulate interest for more unified communications functionality.

## 5. CONCLUSION

Unified communications provides a new source of revenue and the opportunity to streamline product and service offerings. By keeping the interfaces intuitive and the applications tailored to the market segments,

service providers can build stronger customer loyalty and be more attractive to new customers, whether they are residential or small-business customers. Unified communications can also streamline operations. The Internet has changed technology and communications. It has shown how standards work and how they can benefit even competing products. With standards, less training is required. Different machines and different systems can work together based on common standards. The power of the standard will streamline products and services as well as operations. Fewer service reports are needed. With network-management standards, for example, an essential system of control by polling different machines can be established to find out how these machines work. Streamlining operations will provide large cost savings for service providers.

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