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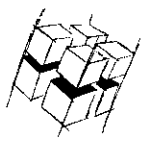

Industrial Process and System Communications (KOM)

Department of Electrical Engineering & Information Technology
Merckstraße 25
D-64283 Darmstadt • Germany
Phone: +49 6151 166150
Fax: +49 6151 166152
Email: info@KOM.tu-darmstadt.de
URL: http://www.kom.e-technik.tu-darmstadt.de/

Christoph Rensing, Ralf Ackermann, Utz Roedig, Ralf Steinmetz

SSS4it - Implementierung und Performancemessung

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SSS4it - Implementierung und Performancemessung

C. Rensing[1], *R. Ackermann*[1], *Utz Roedig*[1], *Ralf Steinmetz*[1,2]

1
Industrielle Prozess- und Systemkommunikation
Technische Universität Darmstadt
Merckstr. 25 • D-64283 Darmstadt

2
GMD IPSI
Forschungszentrum Informationstechnik GmbH
Dolivostr. 15 • D-64293 Darmstadt • Germany

{Christoph.Rensing, Ralf.Ackermann, Utz.Roedig, Ralf.Steinmetz}@kom.tu-darmstadt.de

Abstract: Multimedia communication deals with the transfer, the protocols, services and mechanisms of discrete media data (such as text and graphics) *and* continuous media data (like audio and video) in/over digital networks. Such a communication requires all involved components to be capable of handling a well-defined quality of service. The most important quality of service parameters are used to request (1) the required capacities of the involved resources, (2) compliance to end-to-end delay and jitter as timing restrictions, and (3) restriction of the loss characteristics.
In this paper we describe the necessary issues and we study the ability of current networks and communication systems to support distributed multimedia applications. Further, we discuss upcoming approaches and systems which promise to provide the necessary mechanisms and consider which issues are missing for a complete multimedia communication infrastructure.

Keywords: multimedia, communication, quality of service, reservation, scaling

1 Introduction

Multimedia systems have attracted much attention during the last few years in the society as a whole and in the information technology field in particular. Multimedia communication comprises the techniques needed for distributed multimedia systems. To enable the access to information such as audio and video data, techniques must be developed which allow for the handling of audiovisual information in computer and communication systems.

In this paper, we discuss ...

Multimedia itself ...

As outlined in [StNa95] we understand continuous media data as time-dependent data in multimedia systems (such as audio and video data) which is manipulated in well-defined parts per time interval according to a contract.

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In the following section ... The principal issues for QoS provisioning are described in Section 3. Subsequently ... Before we conclude the paper, we discuss the ability of current systems to support distributed multimedia applications and consider which issues are still missing in XXX.

2 Requirements of Distributed Multimedia Applications

Distributed multimedia applications have several requirements with respect to the service offered to them by the communication system.[1] These requirements depend on the type of the application and on its usage scenario. For instance, a non-conversational application for the retrieval of audiovisual data has different needs than a conversational application for live audiovisual communication (e.g., a conferencing tool). The usage scenario influences the criticality of the demands. For example, a home user video-conference, say between parents and children, is not as critical as a video-conference used as part of remote diagnosis by a physician.

...

For various multimedia applications, especially in the conferencing realm, multiple receivers are interested in receiving the same data. For instance, in a talk distributed via the network, all listeners must receive the same data. Sending each person a single copy wastes resources since for parts of the path from the sender to the receivers, the same nodes are traversed. Thus, multicast should be used which provides for the transmission of a single copy of data to multiple receivers (Figure 1). In addition to reduced network load, multicast lowers also the processing load of the sender. Multicast must not be limited to a single sender; in conferencing scenarios, it is usual to have several senders which normally do not use the resources at the same time (e.g., only one person is speaking). Hence, mechanisms for `m:n` multicast allow for even reduced resource demands.

Figure 1: Unicast vs. Multicast.

Para with more text

3 Quality of Service

3.1 QoS Provisioning Steps and Components

In order to provide QoS by using resource reservation and scheduling, the following steps must be performed in turn at each system and component participating in the end-to-end application:

- *QoS specification*
- *Reservation*
- *Enforcement*

1. Other application areas than distributed multimedia applications have related service requirements, e.g., plant and other control systems, or large-scale simulations where the overall progress depends on the availability of single results.

This functionality ...

3.2 QoS Classes and Layers

Para
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4 Conclusions

Multimedia communication has been (and certainly will be much more) used by various distributed applications: Video-conferencing, retrieval systems and video-on-demand will address all network types, LANs (e.g., in-house information systems), MANs (e.g., city information systems, campus networks) and WANs (e.g., distributed lectures).

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