Keynote Talk

Building Large-Scale Multimedia Systems: Should We Use More SOAP to Clean Up Our Act?

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ABSTRACT
This paper is a position statement given as keynote talk on the First Workshop on Multimedia Service Composition on specific challenges in the area of multimedia service composition.

Categories and Subject Descriptors

General Terms
Algorithms, Languages, Design.

Keywords
multimedia service composition, service-oriented architectures.

1. KEYNOTE ABSTRACT
The multimedia community has had great success in finding solutions to some of the most challenging multimedia problems. We have high-performance and scalable codecs, many protocols exist for the timely delivery of real-time streams, QoS mechanisms have been developed, media archives exist and are in use, just to name a few examples. Hence, the components now exist that allow us to build large-scale, distributed multimedia applications and systems.

In reality it remains a labor-intensive and hard problem to build these complex and sophisticated systems that provide many integrated functions. Often systems are constructed in a monolithic, stove-pipe fashion. Historically there have been good reasons for this. Multimedia processing was often very processing intensive and performance was of paramount importance. Furthermore, standards were evolving and interfaces not well defined. However, we are now entering an era where some of the basic problems have been (almost) solved, and the question emerges: Can we build systems in a more flexible and modular manner?

In this talk I reflect on my experiences with a number of projects and initiatives. At USC’s Integrated Media Systems Center (IMSC) we have worked over the last decade towards the vision of a real-time and multi-site distributed interactive and collaborative environment. Several prototype systems have resulted from the research, each integrating a number of components. Currently we have also pursued work with our Civil Engineering department on the design and implementation of a Web platform for the exchange and utilization of geotechnical information. Here Web services are used to access distributed data sources and processing modules across the Internet to enable complex simulations. Each of these projects has resulted in a number of lessons learned and they have put the spotlight on the challenges, advantages and disadvantages of the different approaches used.

2. KEYNOTE SPEAKER
Dr. Roger Zimmermann is currently a Research Assistant Professor with the Computer Science Department and a Research Area Director with the Integrated Media Systems Center (IMSC) at the University of Southern California.

He received his Ph.D. degree in Computer Science from the University of Southern California in 1998. He has co-authored more than sixty-five conference publications, journal articles and book chapters in the areas of multimedia and databases. He was the co-chair of the ACM NRBC 2004 workshop, the Open Source Software Competition of the ACM Multimedia 2004 conference and the short paper program systems track of the ACM Multimedia 2005 conference. He is on the editorial board of SIGMOD DiSC, the ACM Computers in Entertainment magazine and the International Journal of Multimedia Tools and Applications. He has served on many conference program committees such as ACM Multimedia, SPIE MMCN and IEEE ICME.

His research activities focus on streaming media architectures, immersive environments, and multimodal databases. His work on streaming media has resulted in a number of distributed systems and prototype implementations. For example, the Yima architecture is the basis of the Remote Media Immersion (RMI) system which is designed for high quality, on-demand media distribution. Recently, he has been investigating scalable high-performance data recording platforms (project HYDRA) for collaborative, large-scale group communications. He has also worked on Web services based spatial data repositories for geotechnical information. Several patents have been filed on the developed techniques. His industrial experience includes his participation in several large-scale projects while at Zühlke Engineering AG in Switzerland and consulting services for a number of companies.