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Conference Committee

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Session 3

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Session 4

Preface

Rapid advancements in underlying technology, and innovations in the application arena have recently enabled the explosive growth and more productive use of a global information infrastructure. The objective of this Critical Reviews is to provide a broad perspective of the technologies as well as the uses of this so-called global information infrastructure.

The material prepared by the experts and specialists who are participating can be viewed from a number of perspectives, all of which should help understand the broad topic of the global information infrastructure. Discussions of the evolution of the technology and uses will help us to understand context and motivations. Explanations of underlying technologies will help users understand the complexities of providing a seemingly straightforward capability. Explanations of current and planned uses will help technology developers understand the potential payoffs of their technology. The participants represent an equally broad cross section of interests, including research, product development, product planning, management, application developers, and users.

This Critical Reviews has been organized with sessions addressing the various levels of enabling technology, how that underlying technology can be effectively utilized to implement the subsystems and systems that comprise the information infrastructure, and how those systems will be utilized in the implementation of productive applications. Component technologies such as semiconductors, photonic devices, and fiber optics are critical to the implementation of subsystems such as high-speed networks, high-speed LANs, and wireless networks. Basic communication subsystems are combined into delivery systems. In addition to the interconnect subsystems, the information infrastructure also needs to have the capability to store, manage, and access that information. Therefore, component technologies to store data are critical to the implementation of storage systems. As the interconnect and storage infrastructures grow, system integration and interoperability issues become more complex. High-performance computer servers are also critical to the overall information infrastructure. As various system technologies advance, new types of information, such as multimedia, can be supported more effectively.

The development of all this interesting technology is much more than an intellectual exercise. The recent explosive growth of use of the Internet demonstrates broad interest and applications. Productive use of a technology will motivate further funding, which, in turn, enables further development of technology. This Critical Reviews includes discussions of recent and expected advances in a number of application areas including the home, business, education, and medicine.

Unfortunately, because of the time constraints imposed on any conference, a number of additional topics (such as policy, funding, etc.) could not be included in this volume. We hope that we have been successful in providing information about what is real, what is planned, and a context that will be useful to those involved or interested in the development and use of the global information infrastructure.

Stephen F. Lundstrom