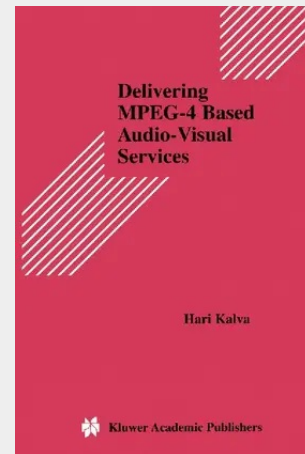


Delivering MPEG-4 Based Audio-Visual Services

investigates the different aspects of end-to-end multimedia services; content creation, server and service provider, network, and the end-user terminal. provides a comprehensive introduction to digital video communications, MPEG standards, and technologies, and deals with system level issues including standardization and interoperability, user interaction, and the design of a distributed video server. investigates the systems in the context of object-based multimedia services and presents a design for an object-based audio-visual terminal, some of these features having been adopted by the MPEG-4 Systems specification. The book goes on to study the requirements for a file format to represent object-based audio-visual content and the design of one such format. The design introduces new concepts such as direct streaming that are essential for scalable servers. The final part of the book examines the delivery of object-based multimedia presentations and gives optimal algorithms for multiplex-scheduling of object-based audio-visual presentations, showing that the audio-visual object scheduling problem is NP-complete in the strong sense. The problem of scheduling audio-visual objects is similar to the problem of sequencing jobs on a single machine. The book compares these problems and adapts job-sequencing results to audio-visual object scheduling, and provides optimal algorithms for scheduling presentations under resource constraints, such as bandwidth (network constraints) and buffer (terminal constraints). In addition, the book presents algorithms that minimize the resources required for scheduling presentations and the auxiliary capacity required to support interactivity in object-based audio-visual presentations. is essential reading for researchers and practitioners in the areas of multimedia systems engineering and multimedia computing, network professionals, service providers, and all scientists and technical managers interested in the most up-to-date MPEG standards and technologies.

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