Multimedia Encryption, Transmission and Authentication

Edited by

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Chapter 10

An Overview of Scalable Video Streaming

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10.1.INTRODUCTION

As the number of networks, types of devices, and content representation formats increase, interoperability between different systems and different networks is becoming more important. Video streaming addresses the problem of transferring video data as a continuous Stream, typically there are two modes for transmission of stored video over the Internet, namely the download mode and the streaming mode (i.e., video streaming). In the download mode, a user downloads the entire video file and then plays back the video file. However, full file transfer in the download mode usually suffers long and perhaps unacceptable transfer time. Internet's transmission resources exhibit variability at multiple time-scales, and the available bandwidth fluctuates over a broad range because of the wide distribution of packet loss burst duration, changes in bottleneck capacity, and multiple time-scale queuing-time variation. This dynamic behavior of the Internet makes it difficult to provide perceptually good quality of streaming video In contrast, in the streaming mode, the video content need not be downloaded in full, but is being played out while parts of the content are being received and decoded.

10.2 CHALLENGES IN VIDEO STREAMING

An ideal data network is capable of transferring any amount of information without delay or loss; unfortunately practical networks do not possess such characteristics, in the following discussion, the three fundamental problems of unknown and dynamic bandwidth, delay jitter, and loss, are considered in more depth.