



Intelligent Signal Processing

Multimedia Networking Applications

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Introduction

- **Multimedia Networking Applications**
 - network application that employs **audio** or **video**
- **Categories of Multimedia Applications**
 - *streaming stored audio/video*
 - *conversational voice/video-over-IP*
 - *streaming live audio/video*
- each of these application categories has its own *set of service requirements* and *design issues*



Streaming Stored Audio and Video

- Streaming Stored Video/Audio
 - prerecorded Video/Audio
 - movie, television show, sporting event, user generated Video (such as those commonly seen on YouTube)
 - request on-demand
 - company internet
 - YouTube (Google)
 - Netflix
 - Hulu



Streaming Stored Audio and Video

- Key features
 - streaming
 - Interactivity
 - continuous playout
- Storing
 - CDN
 - P2P



Conversational Voice- and Video-over-IP

- Real-time **conversational voice** over the Internet
 - internet telephony
 - commonly called **Voice-over-IP (VoIP)**
 - **Skype, QQ, Google Talk, ...**
- **Features**
 - **Timing** considerations are important because audio and video conversational applications are **highly delay-sensitive**
 - multimedia applications are **loss-tolerant**



Streaming Live Audio and Video

- similar to traditional broadcast radio and television
 - *IP multicasting techniques*
 - application-layer multicast or multiple separate unicast streams

