## Beyond MPEG-2

- MPEG-4: compression standard for very low bit rate compression
- MPEG-7: standard for describing audio and video content





## MPEG-4

- Uses a new object-oriented paradigm
- Audio and video components are known as *objects*
  - Items can be grouped hierarchically to construct a scene
  - Example: a scene could consist of audio and video, the video object could consist of 4 objects, each a component of the scene (person, house etc)
- Video objects can be positioned in 3-D space
- Audio objects can be positioned in sound space.

# Objects in MPEG-4

- Objects can be real or synthetic (e.g., computer generated shapes)
- Objects are described using a language called Binary Format for Scenes (BIFS)
  - BIFS uses concepts from VRML (virtual reality modeling language)
- The standard does *not* specify how to locate/construct objects within a scene
  - It only provides a standard way of grouping objects
  - Determination of objects within a scene is left to the implementor
  - Use of objects permits bit rates ranging from 10Kb/s to several Mb/s





# MPEG-7

- MPEG-7 is a standard for describing audio and video content
  - It is *not* a compression standard for audio and video
- **Goals**
  - Make streaming media searchable and navigable
  - Allow data to be managed in a flexible manner
  - Globalize data resources

# Describing Content in MPEG-7

- Standardizes a description format to describe content
- Content can be described in many ways
  - Textual annotation, color/feature extraction,..
- MPEG-7 borrows concepts from multimedia databases, content-based retrieval and image processing
- Supports push and pull-based information acquisition.