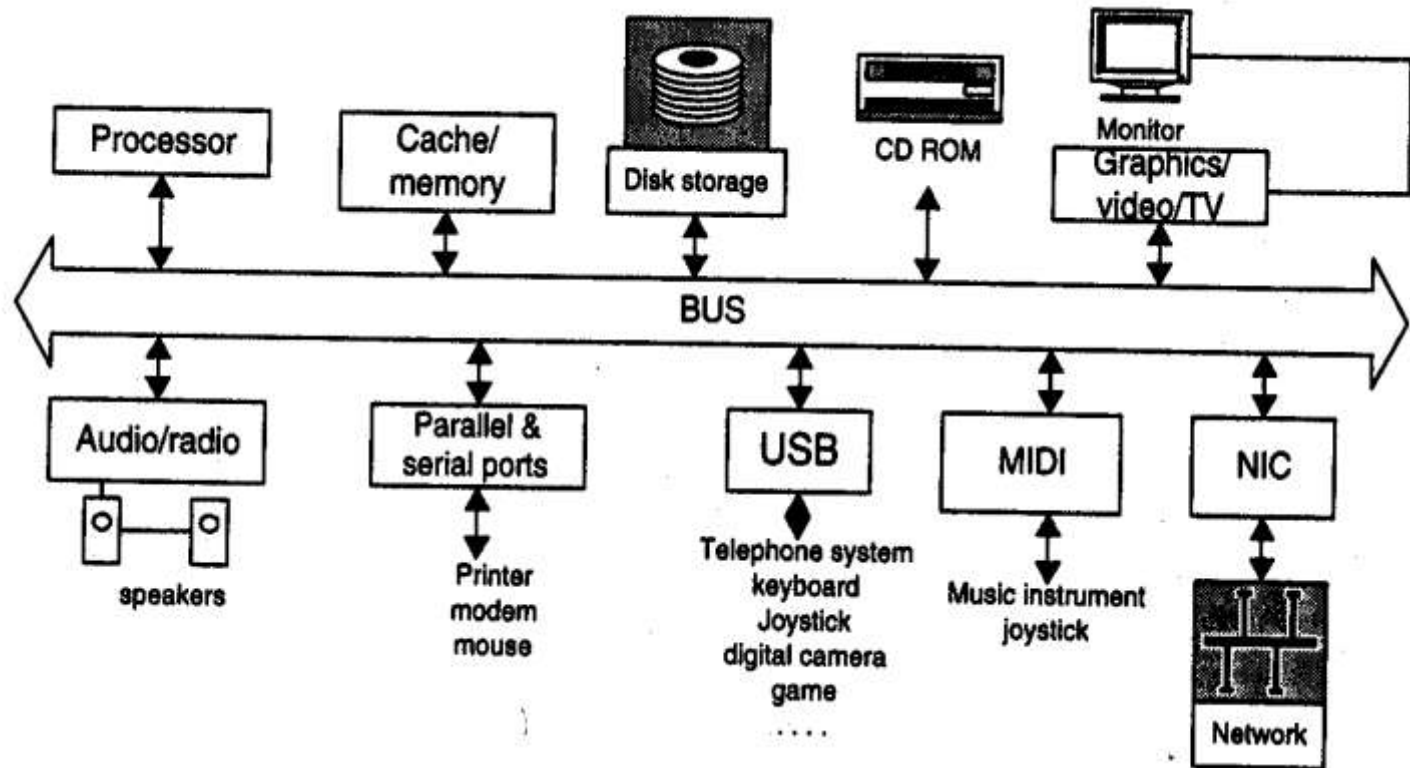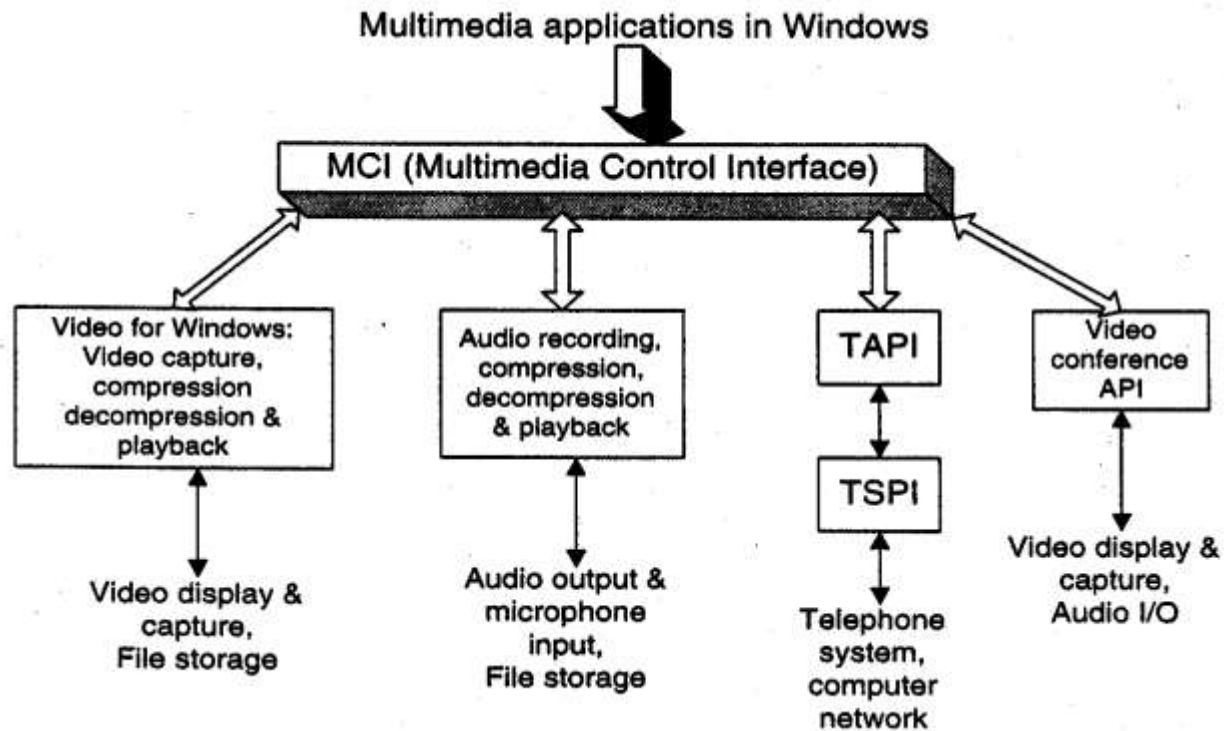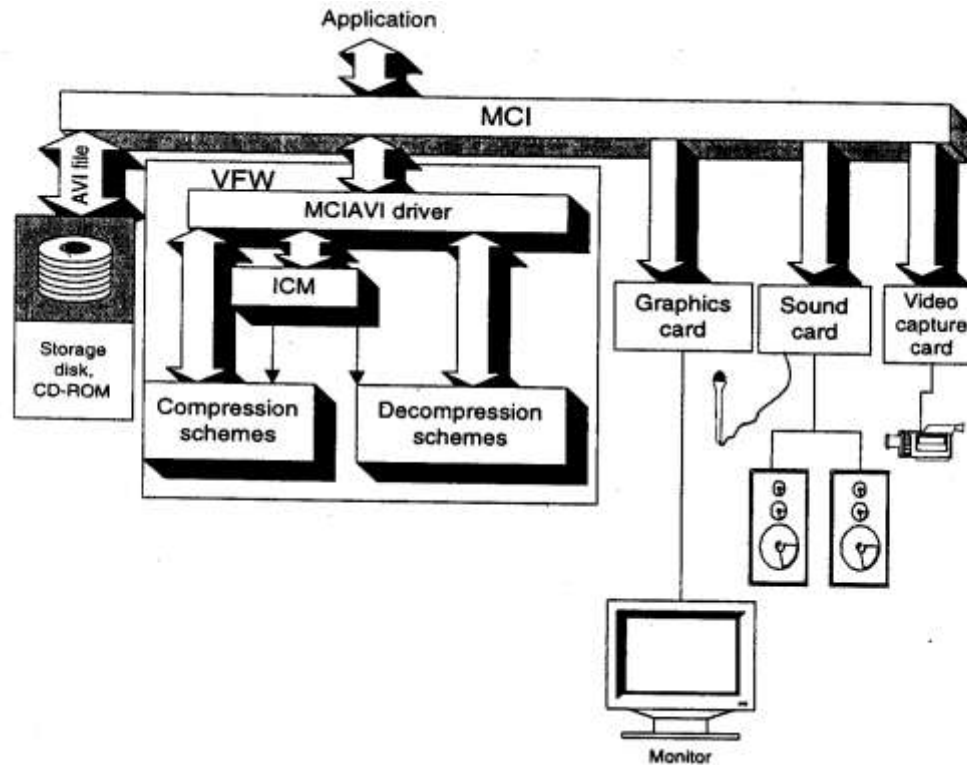# Multimedia Platforms

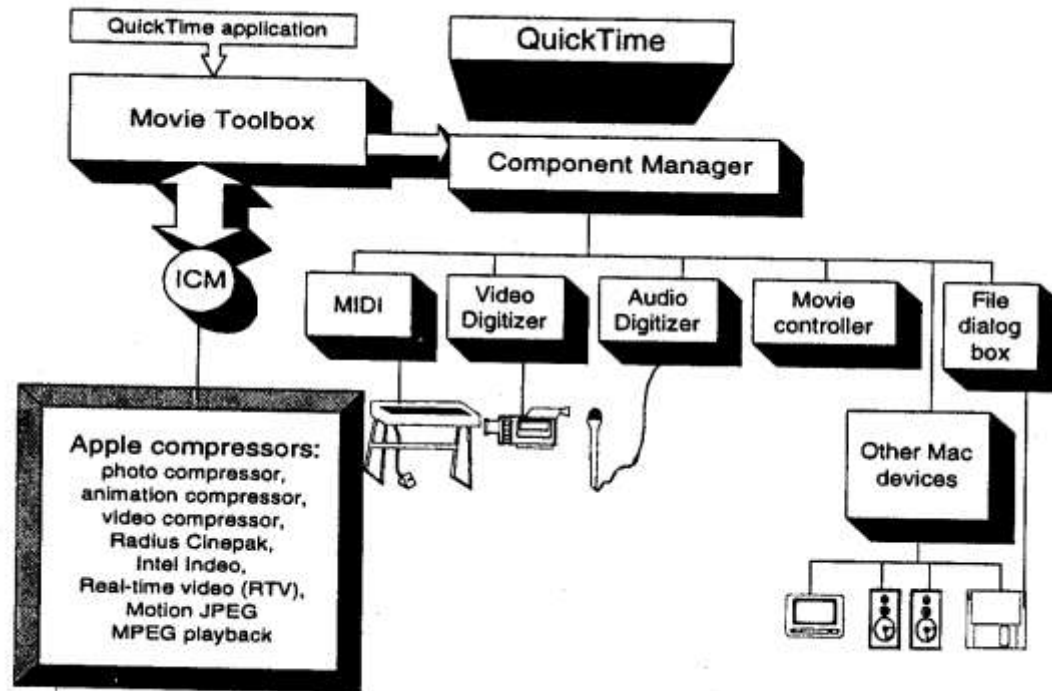# Multimedia Computer Block Diagram

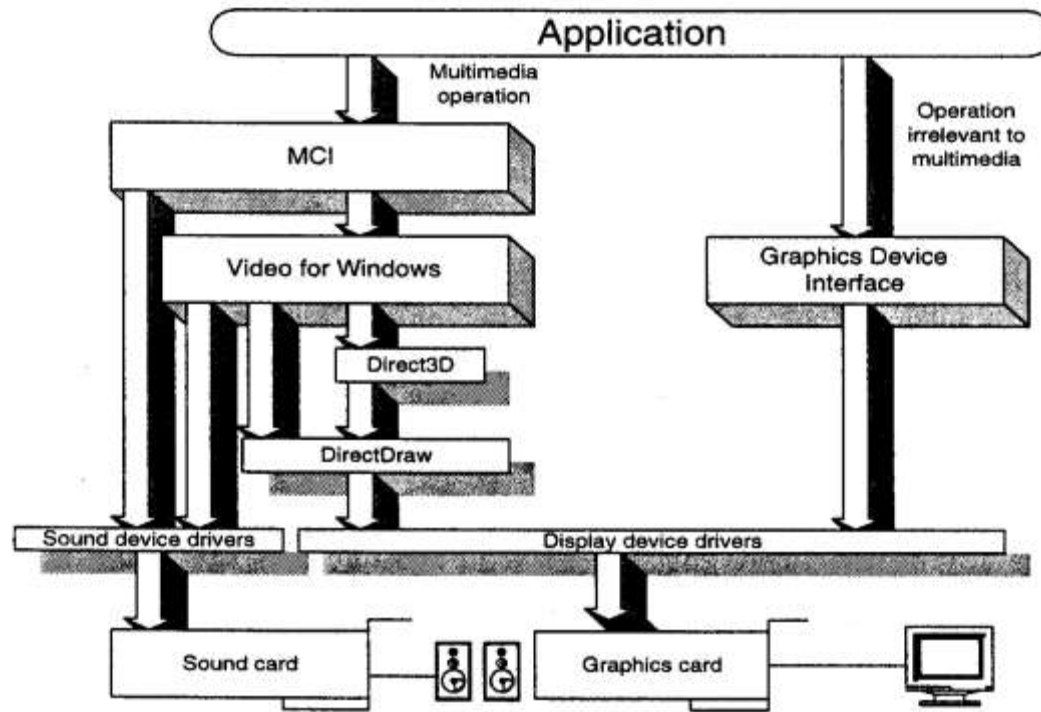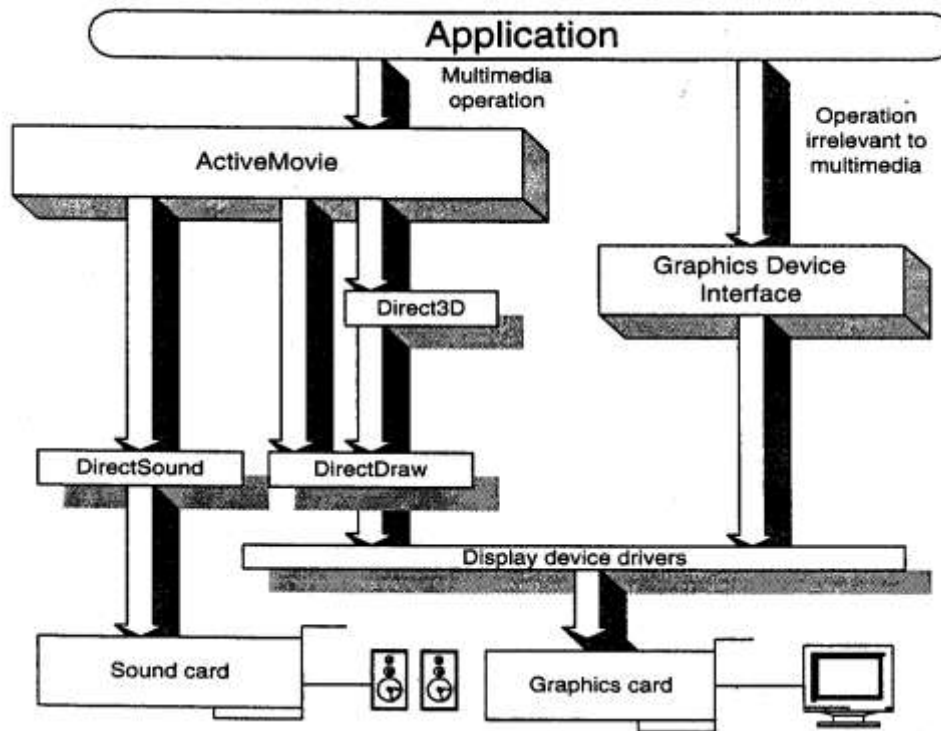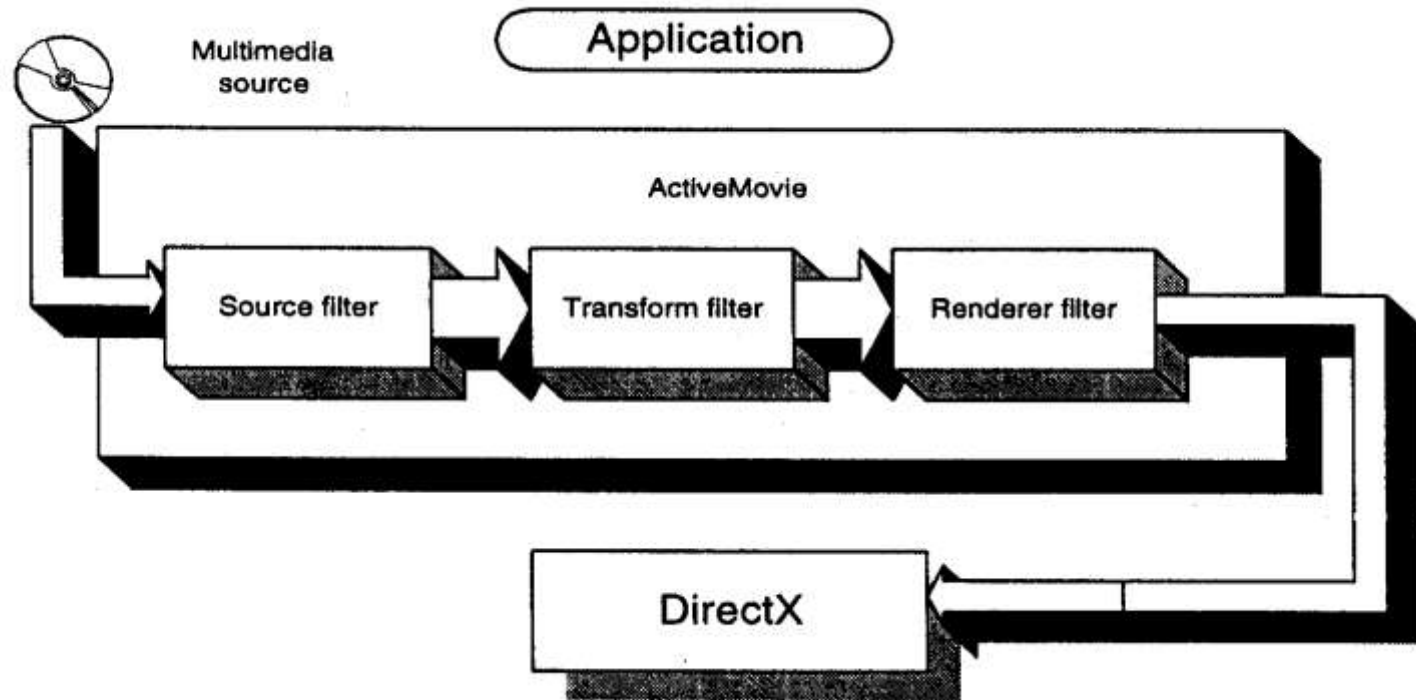# Windows MCI (Multimedia Control Interface)

Video for Windows & MCI
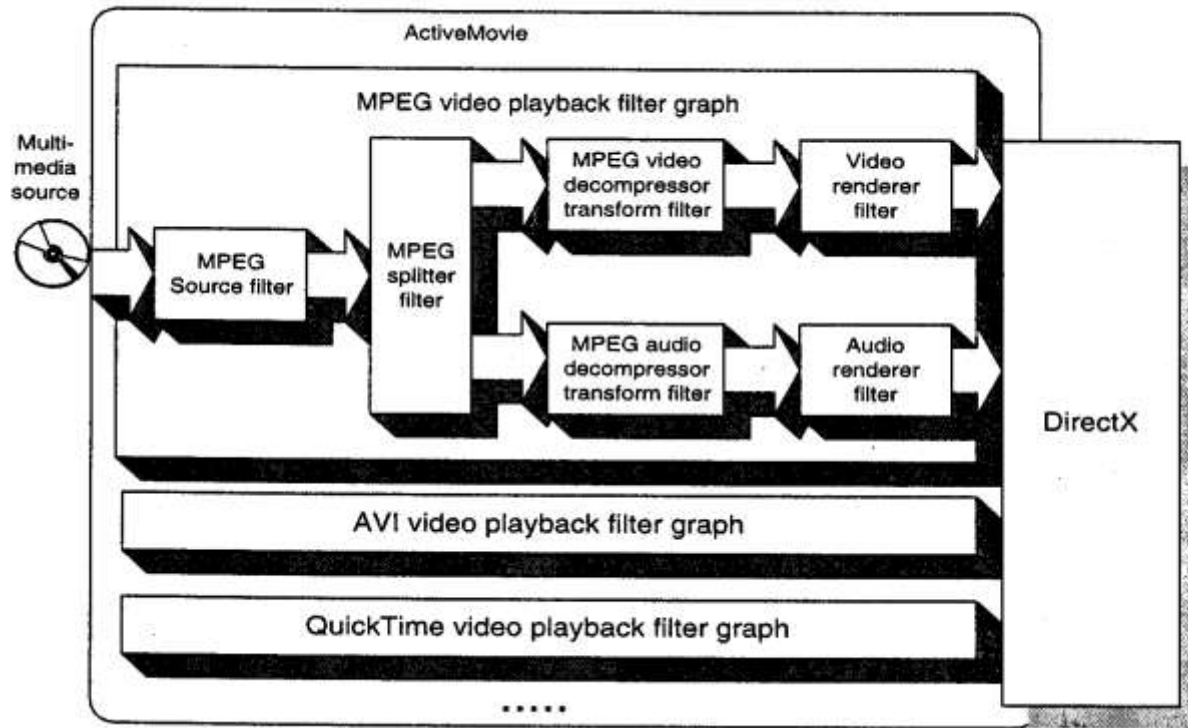
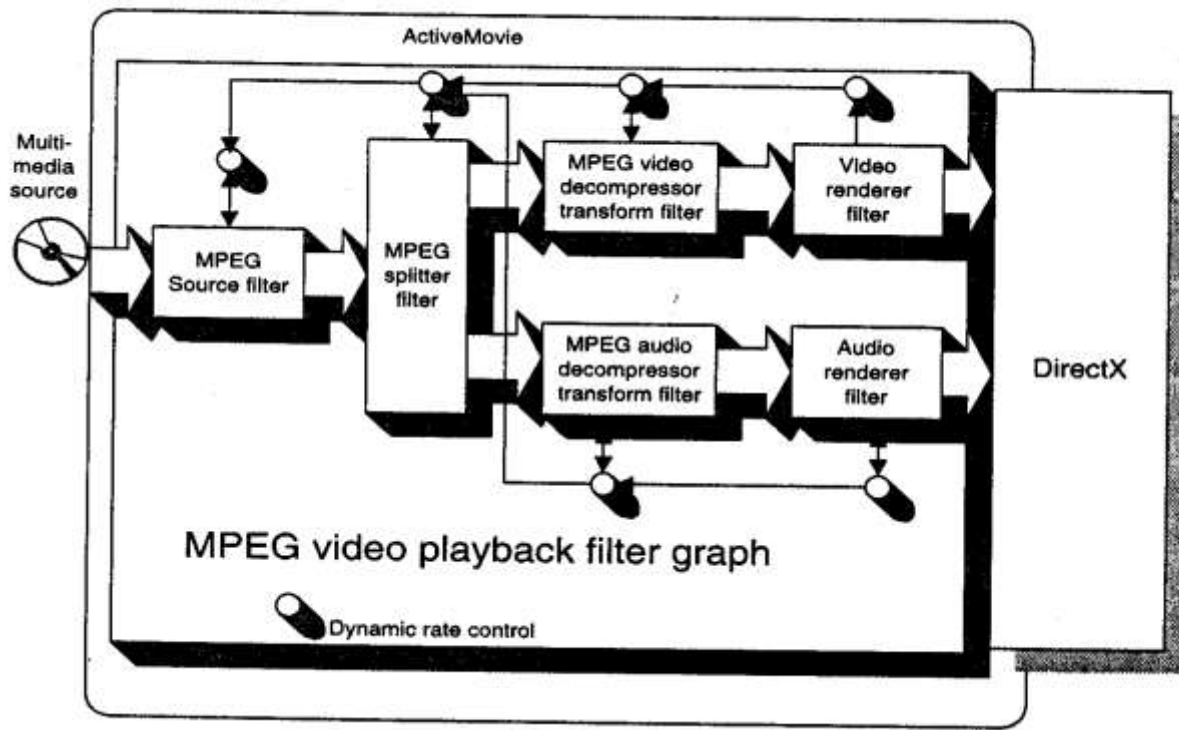# Quicktime

DirectX

ActiveMovie

ActiveMovie Architecture

ActiveMovie Filters

ActiveMovie Dynamic Rate Control

MPEG video playback filter graph

DirectShow

http://msdn.microsoft.com/library/en-us/dnanchor/html/graphicsmultimedia.asp

DirectShow System Overview

- Working with multimedia presents several major challenges:
- Multimedia streams contain large amounts of data, which must be processed very quickly.
- Audio and video must be synchronized so that it starts and stops at the same time, and plays at the same rate.
- Data can come from many sources, including local files, computer networks, television broadcasts, and video cameras.
- Data comes in a variety of formats, such as Audio-Video Interleaved (AVI), Advanced Streaming Format (ASF), Motion Picture Experts Group (MPEG), and Digital Video (DV).
- The programmer does not know in advance what hardware devices will be present on the end-user's system.

DirectShow System Overview

DirectShow is designed to address each of these challenges. Its main design goal is to simplify the task of creating digital media applications on the Windows® platform, by isolating applications from the complexities of data transports, hardware differences, and synchronization.

DirectShow Components
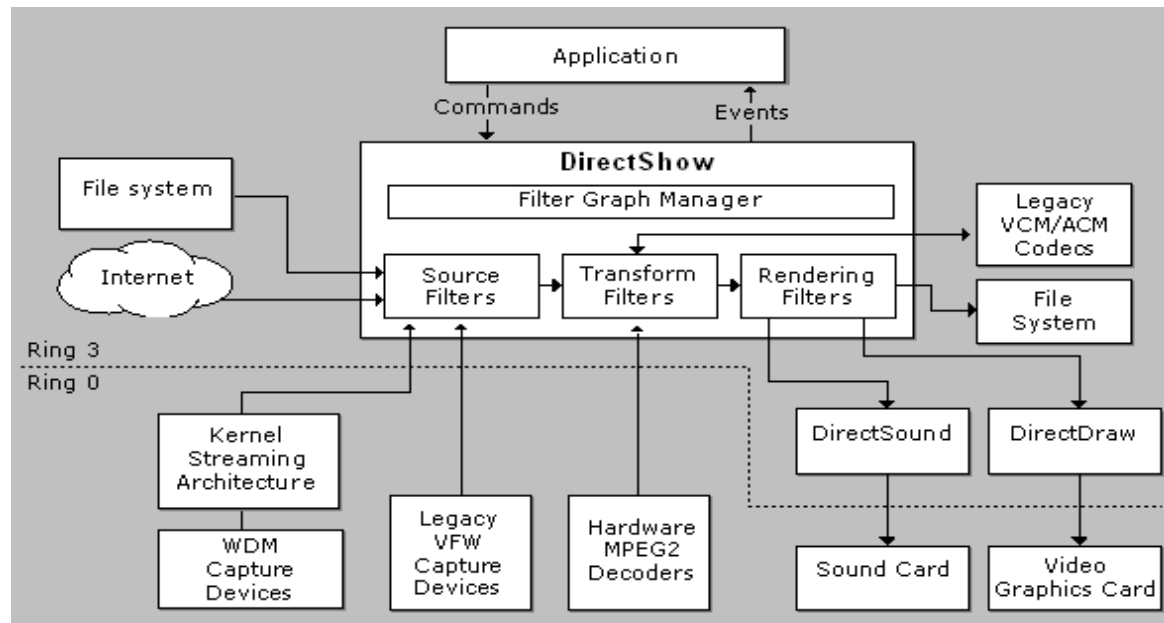
DirectShow Filters

- DirectShow uses a modular architecture, where each stage of processing is done by a COM object called a filter.

- DirectShow provides a set of standard filters for applications to use, and developers can write their own custom filters that extend the functionality of DirectShow.

To play an AVI video file:

- Read the raw data from the file as a byte stream (File Source filter).
- Examine the AVI headers, and parse the byte stream into separate video frames and audio samples (AVI Splitter filter).
- Decode the video frames (various decoder filters, depending on the compression format).
- Draw the video frames (Video Renderer filter).
- Send the audio samples to the sound card (Default DirectSound Device filter).

Filter Graph