

## Media Servers for Entertainment

Home entertainment ranks high among consumer discretionary spending. What is the home systems industry offering for this market? Most entertainment equipment consists of self-contained units, such as CD and MP3 players, VCR and DVD players/recorders, and TV sets. Component systems with discrete players, amplifiers, and speakers constitute a smaller market of media room installers and audio/video aficionados.

A recent addition to entertainment products is the *media server*. In this article, we introduce the media server and explore the potential impact a media server might have on the growth of home network installations.

### *What is a Media Server?*

A media server is a repository that stores music, video, TV shows, and photos as electronic data on one or more large computer disks. These disks are the mechanical devices used in computers to hold data files. A media server is a specialized computer functioning like a jukebox for organizing, cataloging, accessing, and playing music, video, and photos. The media server is usually a separate box from the speakers or TV.

The music, video, or photos may originate in a variety of formats listed in the following table.

Content for a Media Server	
Media Type	Media Source
Music	CDs Cassette tapes Phonograph records Downloads to a PC Internet radio
Video	Video tapes DVDs Video cameras
Television	Broadcasts over the air, via cable TV, and satellite Personal video recorder (PVR: a disk-based recorder)
Photos	Prints Digital camera storage

### *Media Server Products*

About a year ago I started surveying media servers at home systems trade shows. I counted about 30 products ranging from a few hundred dollars to almost \$50,000. Some vendors sell a companion box called a *media player* that is located near the TV and speakers to decode the digital data into the format required by the audio/video equipment. Typical media server and player products are shown in Figure 1.

Some of the major distinctions among the products on the market include:

- Hardware: PC-based vs. custom hardware
- Software: Windows Media Center Edition vs. custom user interface
- Audio vs. multi-media
- Analog network distribution vs. digital network

- Additional features such as scalers and tuners.

The lowest cost media servers are actually software programs for a personal computer (PC). These programs use a home network to access PCs around the house, search the PC disks for entertainment files, and play the audio or video on the PC or on a TV and speakers. The low end products do not have dedicated storage units and are *media receivers* only.

### Media Server Features

Operating a conventional audio/video system involves loading a disk and pressing keys on many remote control units. The user may have separate remotes for a CD player, an audio system, a DVD player, and a TV. Once a media server is set up, there are no disks to handle. Instead, the user operates a single remote with feedback on various devices such as a control panel on a wall, a tablet, a TV, or a Personal Digital Assistant (PDA). The display presents the entertainment choices, as shown in the examples of Figure 2.

A networked house offers many flexible options for operating the media server remotely. The user would typically be sitting by the speakers and TV using a remote control unit to select the entertainment. The media server may have the ability to supply separate entertainment programs simultaneously to different rooms. I will discuss the networking technology for accessing a media server and distributing audio and video in my column later this year.

The ultimate media server offers the home occupants easy and quick access to their entertainment anywhere in the house without handling physical media. The audio and video output may need to be reformatted to match the presentation device so that a video can be viewed on a wall-mounted TV, a small TV, or even on a cell phone. Some media servers include scaling features for this adaptation.

### Using a Media Server

Setting up and using an entertainment system designed around a media server involves the steps listed in the following table.

Media Server Functions	
Function	Options
1. Select source material	Audio, video, photos
2. Load source material	Digitize and store source material
3. Organize material	Descriptions, cover art
4. Select destination	Multiple outputs
5. Select material	Create play list
6. Play material	Control playback
7. Extras	Home automation

Step 2, loading the media server with digitized entertainment, could be challenging depending on the type of source material. Conversions may require digitization from an analog record, tape or photo (using a scanner), or digital format conversion.

Data already digitized may still require a change in data format for storage on a media server. Such format conversions may not be readily available. Some vendors of entertainment media refuse to facilitate conversion because they perceive a threat to retail sales of CDs and DVDs from on-line purchases, downloading, and storage on a media server.

The buyer needs to determine the storage format of a media server and the availability of translators from the various source formats. Don't assume that a translator exists! For consumers with large collections of entertainment media, the conversion to disk storage in a media server can be tedious. Some companies offer "ripping services" to digitize private collections of media.

To conserve disk space, media server vendors offer different amounts of data compression from the original quantity on the source disk. Compression methods such as MP3 may reduce fidelity slightly. Depending on hearing acuity, the user may notice the difference or may get fatigued after extended listening. Compressed video may not deliver quite the high definition promised or may degrade images during rapid motion on the screen.

Once all the entertainment media are stored on a large disk, the user needs a convenient method to peruse the collection. Some media servers can access “cover art” for record and disc albums from various Internet sites, as illustrated in Figure 3. Some can arrange collections by genre, artist, etc. From this library of data, the user might create play-lists of preferred entertainment to suit various moods: relaxing, romancing, dining, meditating, etc.

#### *Links to Home Automation*

Most media servers are sold exclusively for management of multi-media entertainment. A few manufacturers are including control of home automation applications such as lighting, window coverings, and HVAC. With appropriate programming by a home systems integrator or an adept user, it is possible to create a theater-like experience by coordinating home systems with audio and video.

Users of media servers never need to handle physical media again. All choices and control of entertainment are via a remote control unit and a display (TV or control panel). This interactive environment may set user expectations for convenient control of other home systems, thus facilitating the market development for integrated home systems.

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(Courtesy of Inteset)



(Courtesy of Leviton)

**Figure 1 – Media Server and Player Equipment**



(Courtesy of Xperinet)

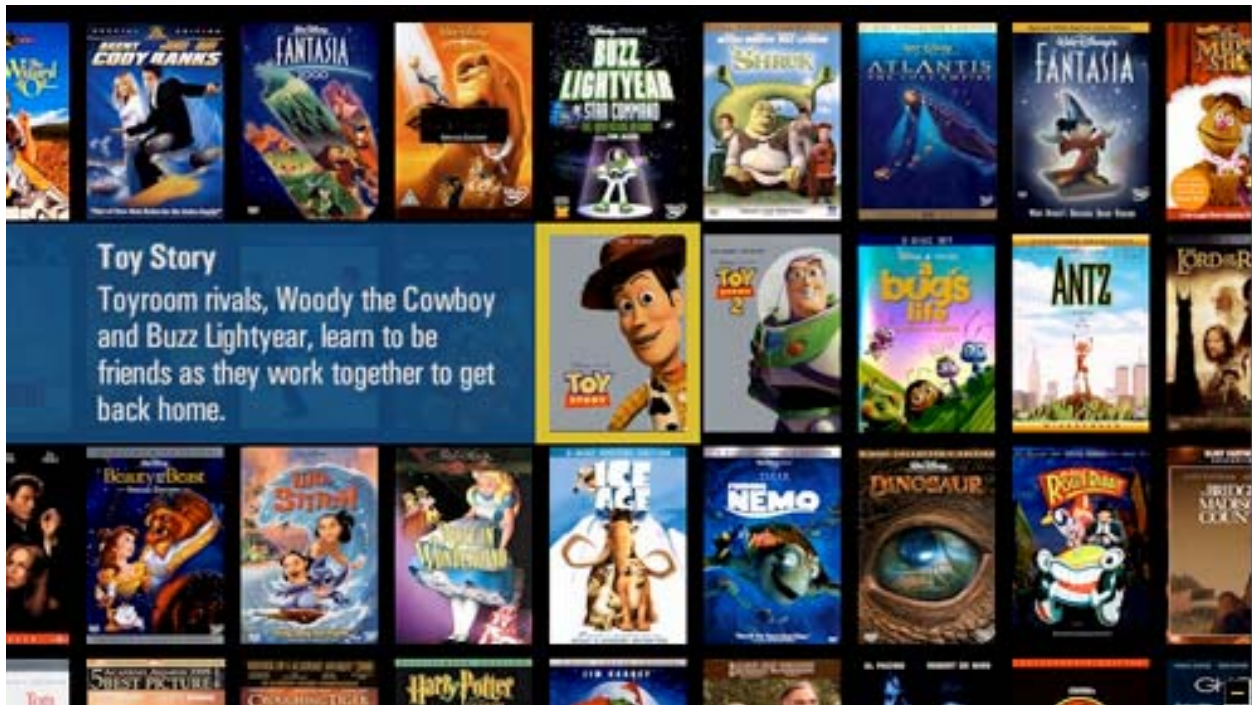


(Courtesy of Superna)

**Figure 2 – Media Server Control Panels**



(Courtesy of SageTV)



(Courtesy of Kaleidescape)

**Figure 3 – Media Server Entertainment Choices**