

MEDIACAST

distributing offline content via TV broadcast

MEDIACAST platform delivers multimedia files into the end-user equipments via Television broadcast. Broadcasters can provide high video quality OTT services to users with bad internet access. MEDIACAST provides maximum customer reach in most convenient way from user perspective.

Movies/music delivered via MEDIACAST are stored in an end-user equipment (STB etc). They are immediately ready for watching/listening. This provides user high level of comfort without facing problems during streaming video, mainly HD, via congested internet links, like video buffering, video quality downgrading etc.

MEDIACAST is ideally suit to TV broadcast networks, as they are native multicast networks. MEDIACAST provides efficient use of broadcast bandwidth. The same file, dedicated to multiple users, even when millions, is transmitted only once.

MEDIACAST offloads broadband networks by broadcast.

MEDIACAST is a 2nd generation of MAINDATA file multicast system via TV broadcast

MEDIACAST can be integrated into various user appliances equipped with TV tuner, like:

- STB
- TV
- smartphone
- tablet
- laptop
- PC

MEDIACAST middleware is available for Linux & Android equipments. They must be equipped with internal or external storage capacity. Recommended min. storage capacity is 32 GB, where min. write speed is should be considered.

MEDIACAST can be operated via any digital television broadcast:

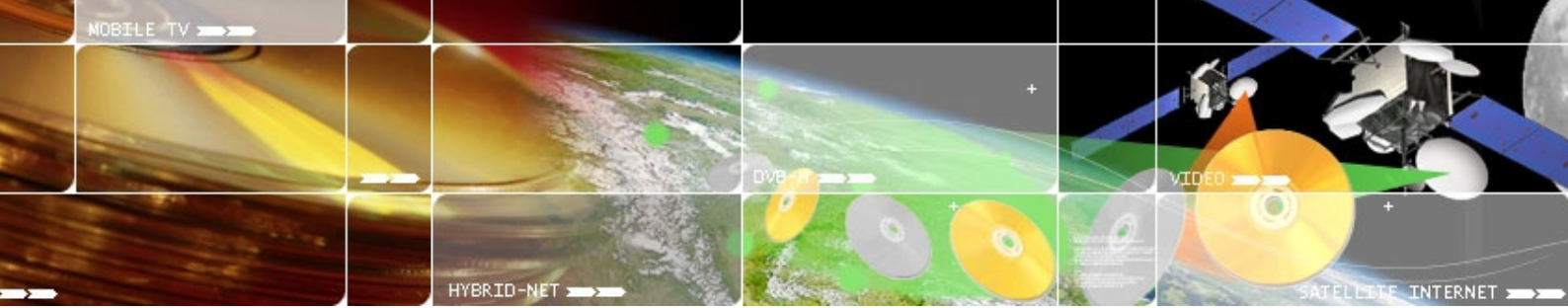
- satellite DVB-S2, DVB-S
- terrestrial DVB-T, DVB-T2, ATSC, ISDB-T ISDB-T (Tb)
- cable DVB-C, DVB-C2, and via multicast IP networks.

What content can be distributed via MEDIACAST ? Any offline content such as movies, music, games, antivirus databases etc...

	<p>title: The Watch starring: Ben Stiller, Vince Vaughn price: package genre: comedy runtime: 1 hour 42 minutes video: HD, 16:9, stereo, NTSC directed by: Akiva Schaffer studio: Fox, 2012</p>
	<p>title: Magic Mike starring: Channing Tatum, Alex Pettyfer price: package genre: comedy runtime: 1 hour 51 minutes video: HD, 16:9, stereo, PAL directed by: Steven Soderbergh studio: Warner Bros., 2012</p>
	<p>title: The Campaign starring: Will Ferrell, Zach Galifianakis price: package genre: comedy runtime: 1 hour 26 minutes video: HD, 16:9, stereo, PAL directed by: Jay Roach studio: Warner Bros., 2012</p>
	<p>title: Home Alone starring: Macaulay Culkin, Joe Pesci price: 0,99 US\$ genre: comedy runtime: 1 hour 43 minutes video: SD, 4:3, stereo, NTSC directed by: Chris Columbus studio: Fox, 1990</p>

trailer • content • reviews • forums

figure 1



MEDIACAST enhances IP multicast by additional functionality (layers):

- RELIABILITY**
 reliable delivery via lossy 1 way connectionless tv broadcast links utilizes BFTP+ (Broadcast File Transfer Protocol) at the transmission layer performs strong 3D FEC and interleaving mechanism
- ADDRESSABILITY**
 content can be addressed to individual clients identified e.g. by MAC address of STB, PC etc
 this improves content protection and billing capabilities
- ENCRYPTION**
 content are encrypted with AES 256 encryption
 it can be integrated with various CA systems to comply with content protection / security requirements

MEDIACAST SYSTEM consists from Server and Client. MEDIACAST Server is connected to the IP encapsulator at TV head-end. IP encapsulator is connected to the Multiplexer see figure 2, or directly to the Modulator.

How the offline content is transmitted ?

There are more frequencies broadcast in the terrestrial, satellite or cable TV networks. STB with double tuner allows users watch linear TV and receive MEDIACAST in parallel. During the time of MEDIACAST transmission single tuner STB must be tuned to MEDIACAST frequency. This is needed only during MEDIACAST runtime. During this period single tuner users can either watch TV present at given frequency or watch saved movies. MEDIACAST can be scheduled so transmission which occurs in hours with smallest audience, e.g. 2-4 am.

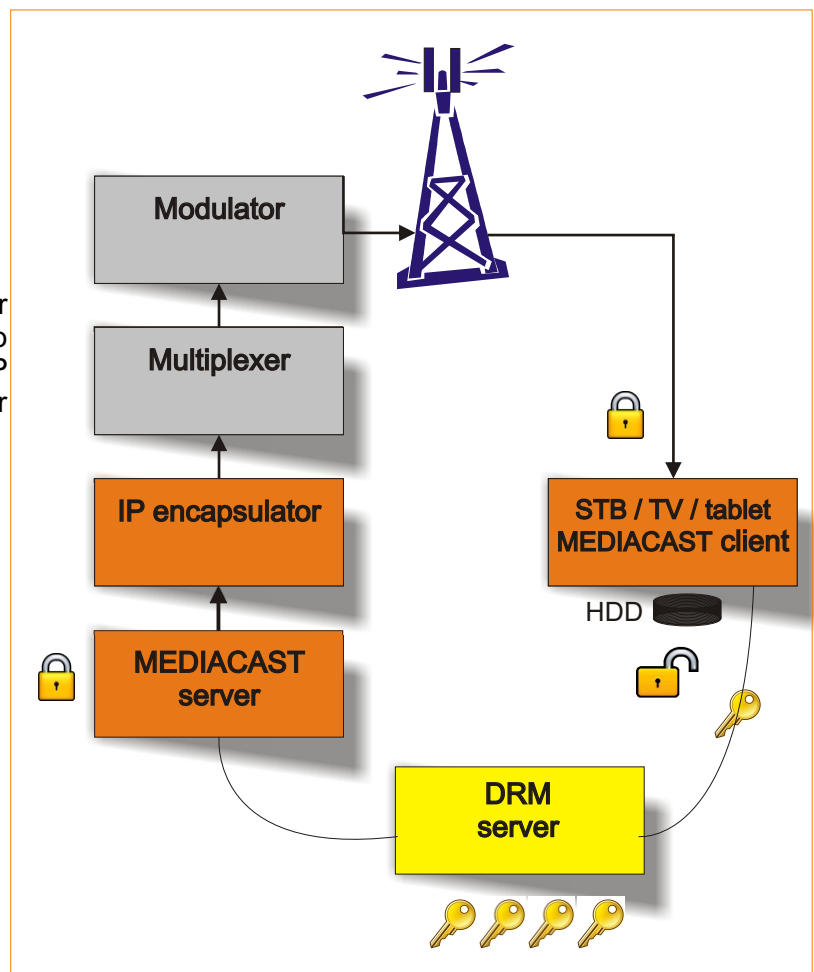
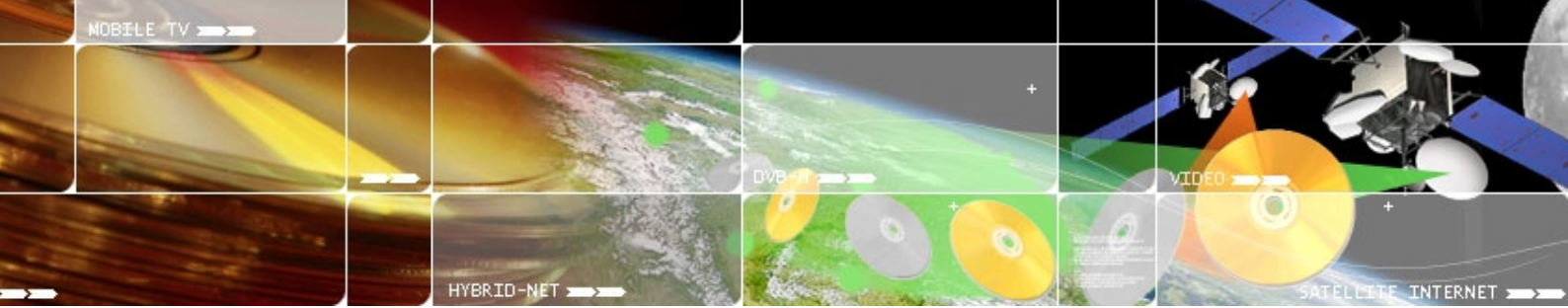


figure 2

In order to make transmission via TV networks economical, MEDIACAST transmission may use unused part of the TV bandwidth by 2 methods:

- Replacing null packets (in this case MUX and IPE is connected in reverse order).
 IP Encapsulator allocates bandwidth to the MEDIACAST. MEDIACAST and MD IPE support dataflow control mechanism. In this case IPE in real-time informs MEDIACAST server about free bandwidth. MEDIACAST server automatically adjusts its outgoing bitrate. This mechanism allows Content provider to transmit files over unused bandwidth. This leads to lower bandwidth costs.
- Opportunistic data insertion
 requires support of at both sides IPE and Multiplexer.



MEDIACAST may serve various applications:

- **MEDIACAST**

is introductory PUSH content application. It allows service provider to create specific channels with specific content. User can then browse movies within his HDD first choose among categories see Figure 3. e.g. documentaries, comedy, thriller, action, family, nature and then list movies within this category see Figure 1.

Each channel can be public or private. Private channels allows to address each channel to individual subscribers.

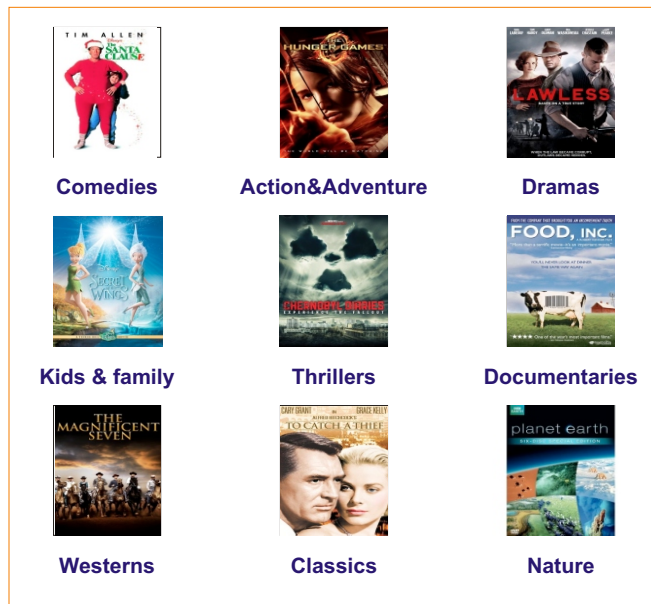


figure 3

- **DOWNLOAD CENTER**

allows user to additionally select movies from wider offering at service provider site and let them transmit to his STB. Transmission can be done immediately or can be scheduled. In case of scheduled transmission, requests from multiple users for the same content are aggregated into one transmission to make transmission economical.

- **USER DOWNLOAD**

goes beyond service provider offering and allows user to select any file from internet to be transmitted via broadcast channel.

- **COMMUNITY DOWNLOADS**

allows to follow public transmissions at download center and user download service and get inspired by users activities. User can join any public scheduled broadcast.