

# Clipstream™ Live Configurations



*Today's technology for live video streaming*

## About Clipstream™ Live

Clipstream™ Live can be set up in a variety of configurations depending on the number of cameras required, the size of the target audience, the available bandwidth. There are two main implementations:

1) Clipstream™ Live– A single video camera with a single feed directly to a Clipstream™ Live which captures, encodes and streams the event from the same PC. The entire event is streamed from the broadcasters available bandwidth.

2) Clipstream™ Live Repeater – If the available bandwidth is limited, Clipstream™ Live connects to the Clipstream™ Live Repeater which rebroadcasts the signal over a larger bandwidth in order to reach a larger audience. There are a lot of variations to this type of implementation, many depending on the audience reach, load balancing, quality of stream and type of servers.

## Bandwidth

The bandwidth available determines the number of simultaneous streams (viewers) for a basic Clipstream™ Live implementation:

Connection	Viewers (up to a maximum)	Bitrate (Stream)
Cable / ADSL	19	44 kbps
	3	128 kbps
T-1	33	44 kbps
	10	128 kbps
	4	300 kbps
T-3	1,010	44 kbps
	340	128 kbps
	145	300 kbps
OC-3	3,500	44 kbps
	1,200	128 kbps
	500	300 kbps

## Steps to setting up Clipstream™ Live:

1. Connect a video source (Example: Webcam, Handy Cam or television) to your PC.
2. Confirm that it functions correctly.
3. Install Clipstream™ Live.
4. Click the icon to launch.
5. Click the 'Start/Stop' button to broadcast.
6. Go to 'Live Streams' and 'Email Camera Link' to your friends and colleagues can see you live!
7. Repeater - Clipstream™ Live must broadcast to the Clipstream™ Live Repeater once IP is provided to the Repeater.



Broadcast over ADSL, Cable Modem,  
T1 and Above



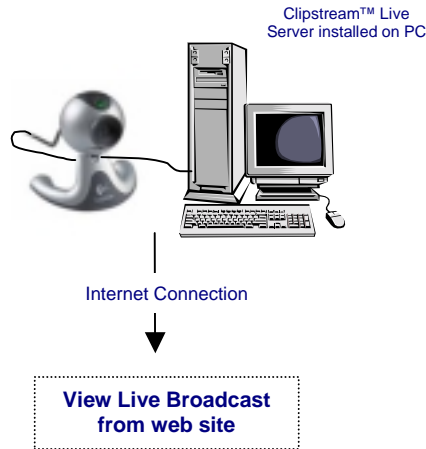
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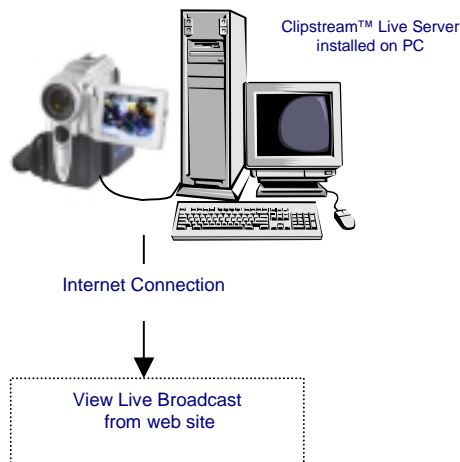
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## Clipstream™ Live Implementation

Considered the simplest live broadcasting implementation available for anyone. One way sales presentation, CEO address, online dating, security application or saying hello to grandma - Clipstream™ Live is just a click away.



You can improve your live broadcast quality by increasing the quality of your capture device to a digital camera or better device.



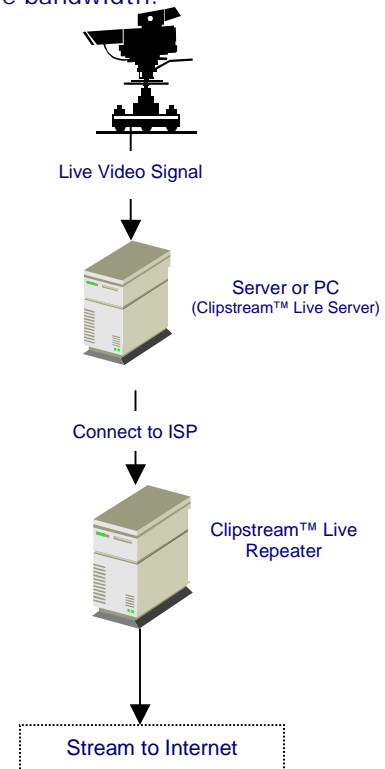
## Clipstream™ Live Repeater Implementation

To reach the largest possible audience, Clipstream™ Live can broadcast its signal to the Clipstream™ Live Repeater. The repeater, located at your ISP, rebroadcasts the signal to the largest possible audience because of the available bandwidth. There are a few implementation scenarios using the Clipstream™ Live Repeater.

- Case 1: Simple Repeater Implementation
- Case 2: Load Balanced Repeater Implementation
- Case 3: Capture Content for Live Archival
- Case 4: Internet Service Provider (ISP)

### Case 1: Simple Repeater Implementation

A single server broadcasting to the maximum capabilities of the Clipstream Live Repeater server and available bandwidth.



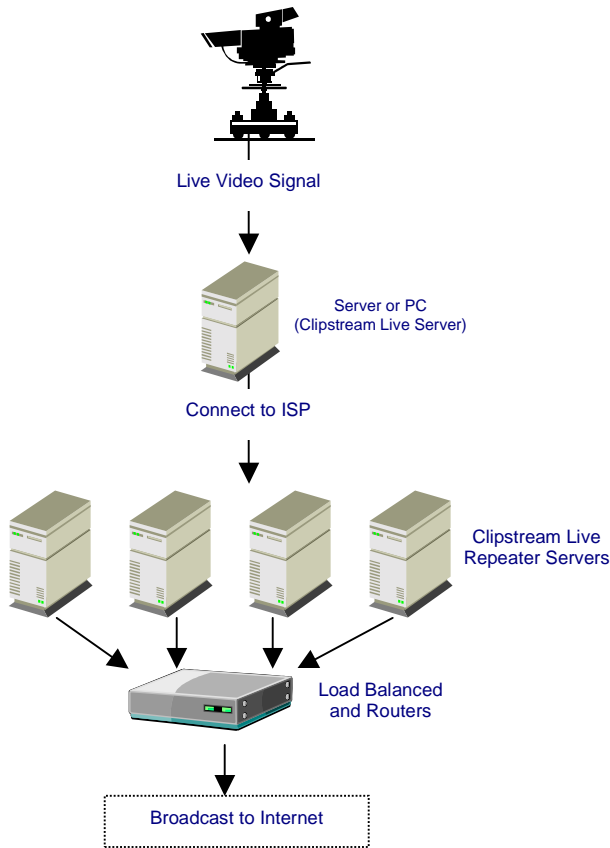
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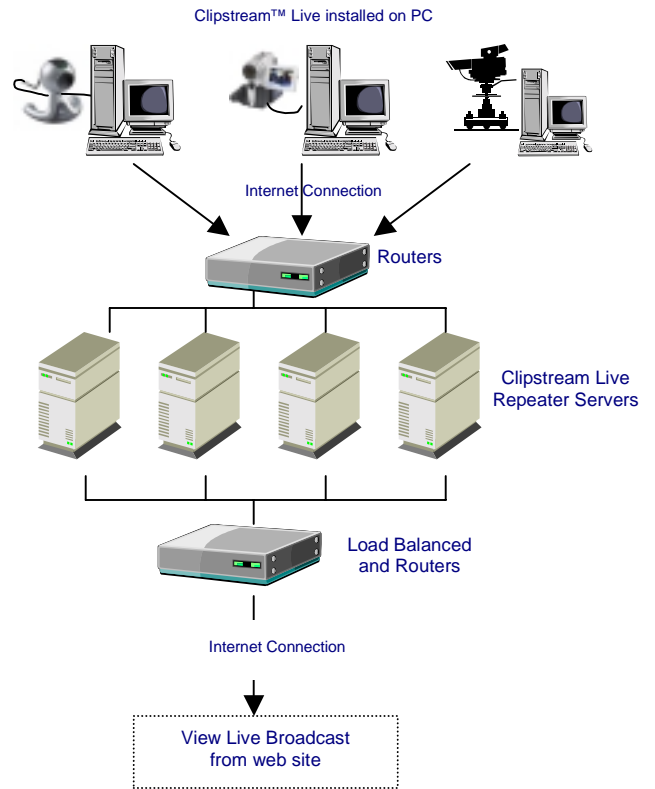
### Case 3: Load Balanced Repeater Implementation

When large audience reach must be achieved, multiple live servers will be set-up to accommodate viewer (stream) load. Variations in Clipstream™ Live broadcaster bandwidth, viewer bandwidths and target audience will dictate the final server requirements.



### Case 4: Internet Service Provider

Instead of broadcasting a single event to a large audience, ISPs may elect to offer streaming services to their customers. The Clipstream™ Live Repeater can be implemented to manage several Clipstream™ Live (broadcasters). Multiple Clipstream™ Live Repeaters will be required on multiple servers to manage large groups of Live broadcasters and viewers (streams).



**Clipstream™: Simple, ubiquitous and secure streaming technology!**



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## **Minimum Clipstream™ Live Broadcasting Requirements**

- 150k (ADSL or cable modem connection)
- Windows 95 or above
- Sound card
- Direct X
- A 500MHz or better MMX capable CPU
- 128 Meg Ram
- 10 Meg of hard drive space
- Audio input device and necessary drivers
- Video input device and necessary drivers: The live input can be a simple USB or serial web cam, a Mini-DV cam through USB, Fire Wire, or capture card, or any other video input device that is recognized by the operating system.

## **Clipstream™ Live Repeater Requirements**

Minimum requirements:

- CPU: P3 450MHz
- RAM: 128M
- Hard Drive: 2Gig
- Connection: Broadband
- NIC: 10 Mbps
- Operating Systems: Windows 9x/NT4/2K/XP
- JVM: MS JVM 5.0.0.3802

Recommended requirements:

- CPU: P3/P4/Althon 2GHz
- RAM: 512M
- Hard Drive: 2G
- Connection: T1 or better
- NIC: 100 Mbps (Server NIC)
- Operating Systems: Windows 2000 or XP
- JVM: MS JVM 5.0.0.3802

## **Live Broadcasting Considerations**

- Large Audience Reach - 500 simultaneous streams at 250kbps is 125 mbit/second or 3 T3 lines. This extremely high audience reach would be excessively expensive. Any live product is not well suited for a lot of simultaneous access based purely on bandwidth related costs and support.
- Consideration should be given to the TCP/IP stack. Destiny wouldn't recommend more than 256 connections on a single Microsoft Windows box, therefore, a load balanced set-up is required.
- Real world live broadcast limitations are more likely to be upstream / bandwidth - the host's

connection is fast enough, but you could overwhelm their upstream provider.

- Clipstream Live is very scaleable and reliable.
- If costs are an issue, consider capturing the event and streaming it on demand from your site. On demand can reach way more streams for a fraction of the cost.

## **Viewing Requirements**

*On a PC:*

- 28.8 or faster Internet Connection
- Windows 95 or above, Linux
- Sound Card
- Pentium 166Mhz CPU or better
- 64 MB RAM or higher
- Browser with Java installed and enabled (ex. Netscape, Internet Explorer, Mozilla)

*On a Mac:*

- 28.8 or faster Internet Connection
- PowerPC Processor (200MHz or faster)
- MacOS 8.1 or higher
- 64 MB Ram or higher
- Browser with Java installed and enabled (ex. Netscape, Internet Explorer, Mozilla)

## **About Destiny Media Technologies, Inc.**

Destiny Media Technologies, Inc. is the developer of consumer and professional Internet media applications and enabling technologies that facilitate the distribution of content media assets over the web. Since 1991, this company of experienced and innovative Internet software developers has been developing proprietary video and audio compression formats. The technology platform provided by Destiny makes it possible for our customers to provide the premier platform for the delivery of digital video and audio content. Our suite of streaming and downloadable products includes: Clipstream™, MPE™, RadioDestiny Broadcaster™, Pirate Radio™ and Destiny Media Player™.

