Unreal Media Server
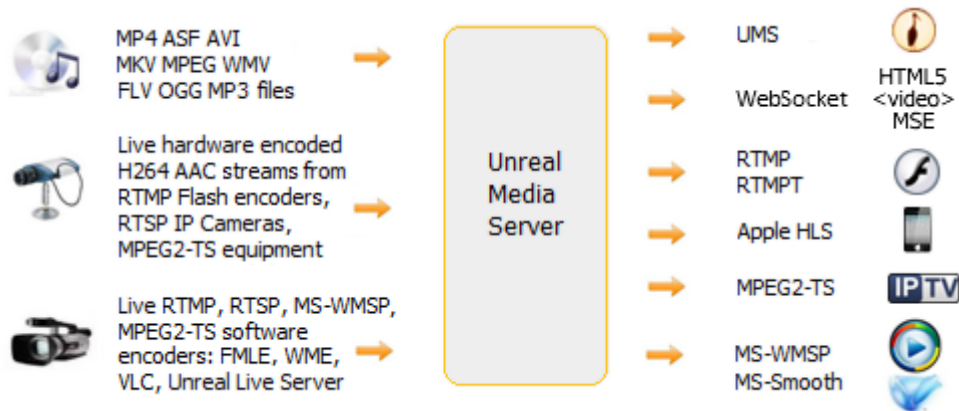
Multi-protocol, high performance and small resources footprint software platform for streaming live and on demand audio video content over IP networks. Integrates into existing solution infrastructure and delivers high quality streaming experience.

Unreal Media Server specs:

OS support	Any 32-bit and 64-bit Windows OS, starting with Windows 2000. Recommended: Server 2008 / 2012
Hardware	Any computer starting with 1MHz CPU, 512MB RAM. Recommended: quad core 3+MHz CPU, 4+GB RAM
Required system software	DirectX 8.0 or higher (comes with OS or service packs)
Process	Runs as a windows service
Configuration	Windows GUI application, API for remote or web-based configuration
Supported file container formats	MP4, ASF*, WMV*, AVI, MKV, MPEG, FLV, OGG, MP3, 3GP, MOV, any other *Windows Media Format runtime v9 or higher is required on the server computer
Playlist	VOD: Alphabetical and random order file playlists are supported. LIVE: Live playlist allows switching between a/v sources streaming to the same player, server-side ad insertion and streaming whole file folders in live mode.

Delivery protocols	Protocol	Reach limits	Players
	WebSocket - HTTP	Penetrates firewalls / proxy servers	Web browsers, HTML5 <video>
	WebSocket - HTTPS	Penetrates firewalls / proxy servers	Web browsers, HTML5 <video>
	RTMP unicast	May be limited by some firewalls	Flash Player
	RTMPT unicast	Penetrates firewalls / proxy servers	Flash Player
	MS-WMSP unicast	Penetrates firewalls / proxy servers	Silverlight, Windows Media Player
	MS Smooth streaming	Penetrates firewalls / proxy servers	Silverlight
	Apple HLS	Penetrates firewalls / proxy servers	iOS, web HLS players
	MPEG2-TS over UDP and RTP; unicast, multicast	May be limited by some firewalls	Set-Top boxes
	UMS over TCP and RTP; unicast, multicast	May be limited by some firewalls	Windows OS: Unreal Streaming Media Player or browser plug-in iOS & Android: mPlayer App
	UMS over HTTP and HTTPS; unicast	Penetrates firewalls / proxy servers	Unreal Streaming Media Player or browser plug-in

Supported live encoders	RTMP Flash encoders: FMLE, Wirecast, xSplit, OS Broadcaster and other mobile apps; RTSP IP cameras, encoders and software; MPEG2-TS and MS-WMSP encoders: VLC, WME; Unreal Live Server and UM series IP cameras and encoders	
Time-shift and DVR	Live playback with time-shift is supported with HTML5 <video> player, Flash player and Unreal Streaming Media Player. Full DVR is performed by separately running Unreal Archival Server	
User authentication	Live and recorded resources can be configured to use Internal or Session-based authentication	
	Internal authentication	Unreal Streaming Media Player asks for Username/Password; users need to be created on the server side
	Session-based authentication	Web portals/applications authorize users; only those authorized users are given access to media resources
User logging	Full user activity logging including media resources used, amount of data transfer and other information	
User control	Live console allows real-time user monitoring and management	
Resources control	Concurrent connections limit and throughput limit are supported. Live broadcasts can be configured to limit per-user playback time	
Live statistics	Live console displays current server state: current throughput for each delivery protocol, active users and media resources being used	
SDK	API for programmatic user administration and session-based authentication. API for programmatic addition/removal of virtual folders and live broadcasts to/from Media Server configuration metabase. API for programmatic start/stop of Apple HTTP Live streaming, MS Smooth streaming, MPEG2-TS broadcasting.	

Unreal Live Server specs:

OS support	Any 32-bit and 64-bit Windows OS, starting with Windows 2000	
Hardware	Dual or quad core 2+MHz CPU, 2+GB RAM	
Required system software	DirectX 8.0 or higher (comes with OS or service packs)	
Process	Runs as a windows service	
Configuration	Windows GUI application, API for remote or web-based configuration	
Live sources	Video	USB, Firewire cameras. DV sources such as camcorders. Analog sources via capture cards; graphics card input or TV-tuner card. Hardware encoding appliances with DirectShow support.
	Audio	Sound card: microphone, line in. DV audio. USB microphones. TV-tuner audio.
	Network Streams	Ability to receive live audio / video via RTSP, RTMP, MMS (MS-WMSP), MPEG2-TS, HLS streaming protocols.
Codecs used for encoding and transcoding	Video	H.264, VC1 (WMV), Microsoft MPEG-4 Video, any other codec
	Audio	AAC-LC, WMA, MP3, GSM 6.10, any other codec
	Transcoding options	Ability to choose between transcoding and streaming originally encoded content.
Encoding bitrates	Video	Multiple profiles from 40 kbps to 24 mbps.
	Audio	Multiple profiles from 5 kbps to 320 kbps.

Live streaming latency in Near Real Time mode	Video only	0.05-0.3 sec
	Audio + Video	0.3-1 sec
	Latency may grow if network bandwidth is not sufficient for particular stream bitrate.	

Streaming delivery modes	Near Real Time mode: minimal latency on the client side. Refer to the table above. Suitable for conferencing or surveillance applications. Buffered mode: Media Server, Live Server and Player buffer live content to compensate on network congestions. Suitable for live event webcasting; live radio/TV.
Connection to Media Server	Connections can be initiated by Media Server or by Live Server. Multiple Media Servers can connect to the same Live Server. Live Server can send data over TCP and RTP (UDP) transports
Access restrictions	IP-based restrictions can be set to allow or prohibit Media Servers to use Live Server sources
Transformations	Built-in logo/watermark, text, timestamp overlays. Ability to insert custom transformation plugin to get access to raw video frames / audio samples
Recording	Live sources can be recorded based on scheduler or video motion / audio beat detection, independently of streaming. Recording format is ASF or MP4 containing WMV, H.264, MPEG4/WMA, AAC, MP3 media.
Resources control	Live console displays resources currently being streamed and recorded. Live console displays current Media Server connections. Live console allows connecting to Media Server and starting/stopping recording of live sources.
SDK	API for programmatic control over recording of live sources. API for connecting live broadcasts to Media Server programmatically. SDK for creating custom Audio/Video transform components.

Client playback applications:

OS	Player
Windows	HTML5 <video>, Flash Player, Unreal Streaming Media Player, Windows Media Player, HLS players, VLC
MAC	HTML5 <video>, Flash Player, HLS players, QuickTime Player, VLC
Linux	HTML5 <video>, Flash Player, HLS players, VLC, built-in players in Set-Top boxes
Android, Symbian, Blackberry, WindowsPhone	HTML5 <video>, HLS players, Flash Player with Flash-enabled browser
iOS	HLS players, mPlayer App, Flash Player with Flash-enabled browser

Unreal Streaming Media Player specs:

OS support	All Windows versions starting with Windows 98
Plugin for web browsers	Internet Explorer, Firefox, Netscape, Mozilla, Safari, Opera, Chrome.
Player features	Pause/Resume/Seek controls. Resizable frame - custom size; Full screen. Contrast/brightness enhancements, playlist browsing, volume control. Uses hardware video acceleration. Any number of players can run on a single desktop at the same time (CPU bound).
DRM	Incoming content is not stored on client computer's hard disk and user is not allowed to save media locally. Streams cannot be ripped.
SDK	API for ActiveX control: complete automation control for customizing player behavior.

Tests conducted with Unreal Media Server v10.0 on Intel I7 3MHz CPU, 8Gb RAM, Windows Server 2008.

Live stream parameters:
Video: H264, 30 fps, 720p, 1.5 Mbps
Audio: AAC, stereo, 128 Kbps

(Top chart: Total CPU Utilization (%) vs Number of viewing clients (RTMP, UMS unicast))

- 750 Mbps
- 1.5 Gbps
- 2.25 Gbps
- 3 Gpbs
- 3.75 Gbps
- 4.5 Gbps

Live stream parameters:
Video: H264, 30 fps, 640x480, 512 Kbps
Audio: AAC, stereo, 128 Kbps

(Bottom chart: Total CPU Utilization (%) vs Number of viewing clients (RTMP, UMS unicast))

- 640 Mbps
- 1.28 Gbps
- 1.92 Gbps
- 2.56 Gbps
- 3.2 Gbps
- 3.84 Gbps