emby + ffmpeg transcoding/re-encoding

QCLUG presentation by Aaron Johnson
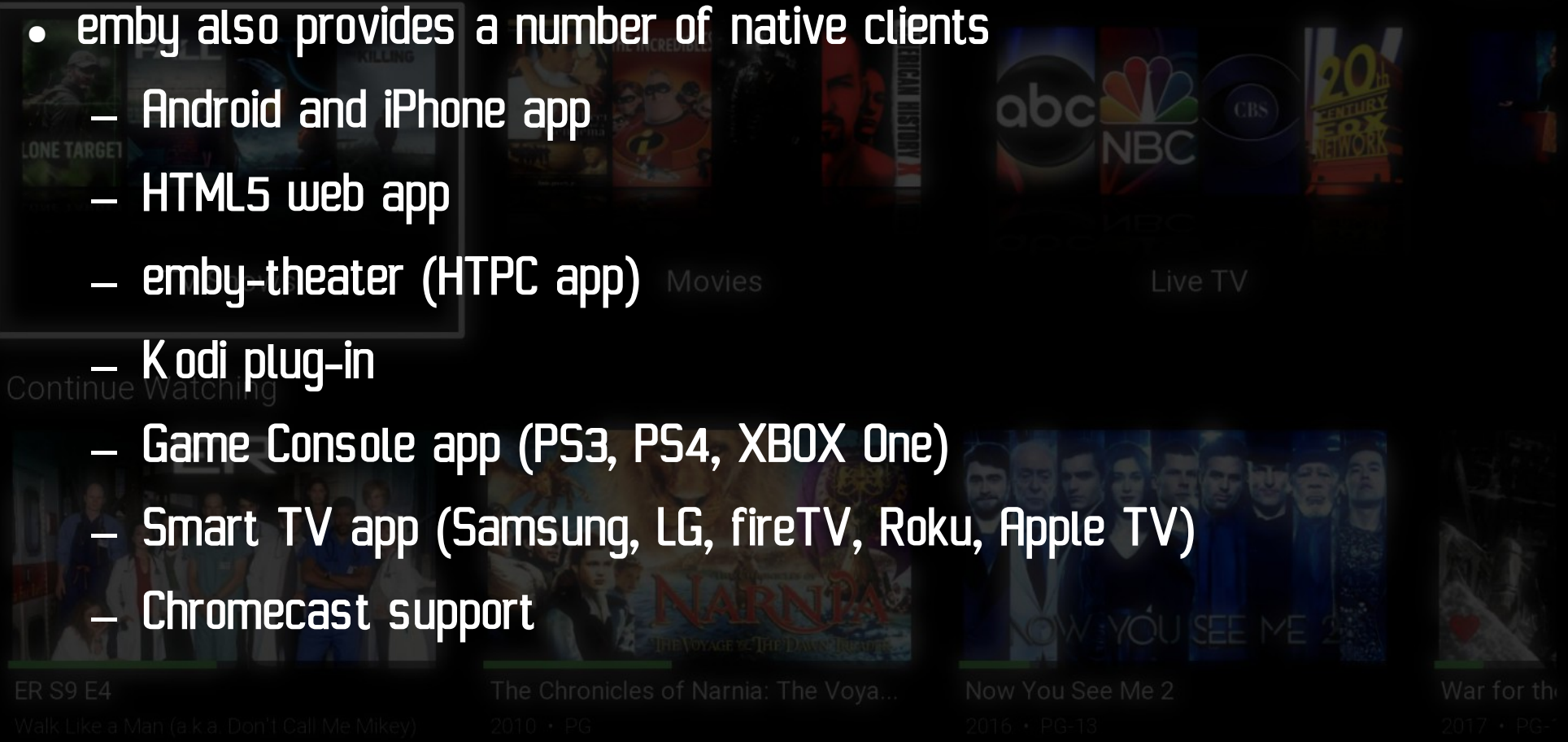
What is emby and why use it?

- emby is a free personal media server with a paid "emby premiere" option
- As of version 3.5.3.0 emby is no longer pure open source (and yes there is a fork now; it is called Jellyfin)
- emby is written in c#, has been ported to dotnet core and is built using a number of popular open source technologies including (but not limited to)
  - ffmpeg
  - sqlite
- Seen by some as a Plex alternative
- You can run emby-server on an amazing number of devices/platforms including PCs (cross platform), NAS devices, nVidia Shield, and even docker...
- emby makes it easy to convert and stream (and transcode in some cases) your personal media on the fly to play on [almost] any device

What is emby and why use it?

- emby also provides a number of native clients
  - Android and iPhone app
  - HTML5 web app
  - emby-theater (HTPC app)
  - Kodi plug-in
  - Game Console app (PS3, PS4, XBOX One)
  - Smart TV app (Samsung, LG, fireTV, Roku, Apple TV)
  - Chromecast support

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What type of content does emby support?

- Movies
- Music
- TV Shows
- Audio books
- Ebooks
- Games (requires GameBrowser plugin)
- Music videos
- Home videos & photos
- Mixed content

TV Shows

Movies

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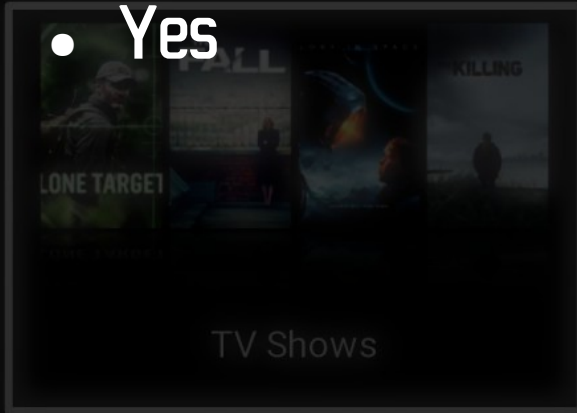2010 · PG

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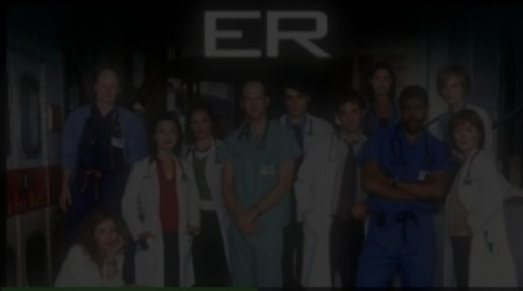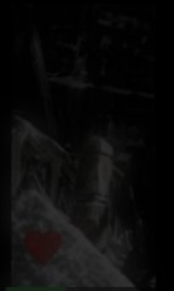# Does emby support metadata and artwork scraping?

My Media

- Yes

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How and when does emby transcode video?

- emby will transcode video when it deems it necessary
- Sometimes codec formats can cause emby to transcode (using Xvid or DivX CAN cause this for example)
- Other times high video bitrates exceed what the native client is capable of (think Internet bandwidth limits) which can cause emby to transcode as well
- However emby prefers the following streaming options first
  - Direct Play
  - Direct Streaming
- Basically if these streaming methods fail emby will be forced to transcode

What is Direct Play?

- Direct Play is the ideal streaming method as it does not require any CPU usage in order to stream the media file

- In order for this to work the native client must support the container (MKV, AVI, MP4, etc), the codecs (h264, h265, Xvid, TrueHD, DTS, etc), and has enough network bandwidth to stream the file at its encoded bitrate

- The media is essentially a 1:1 copy that is streamed real-time from the server to the client and played directly

What is Direct Streaming?

- Sometimes emby is unable to stream a file using Direct Play simply because it is using an container that is incompatible with the native client

- When this occurs emby will attempt "Direct Streaming" which will use ffmpeg to "copy" the audio or video streams to a compatible container format in realtime

- Direct Streaming requires very little CPU usage

Is there a way to pre-optimize my content?

- Yes there is a "convert" feature in emby that will transcode your content in-advance and can even replace the original file to save space, however it is not very flexible currently and does not offer any configuration

- You can do this in an ad-hoc fashion but I don't recommend queuing a large number of video files as this will destroy performance for an unknown duration

- Also I have seen the convert feature fail for unclear reasons and so I tend to avoid it altogether

- If you are trying to optimize your content for streaming or storage I recommend an external transcoding process that will give you maximum control over the end result.

- To avoid high CPU utilization during this transcoding process I recommend you co-locate the transcoding process to use a separate device or VM by making using of shared storage protocols such as NFS, SSHFS or even CIFS

How can I optimize my videos without using emby's crappy convert feature?

https://github.com/acjohnson/ansible#ffmpeg-media-video-optimizer

(Live demo)

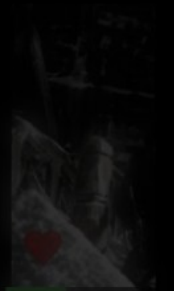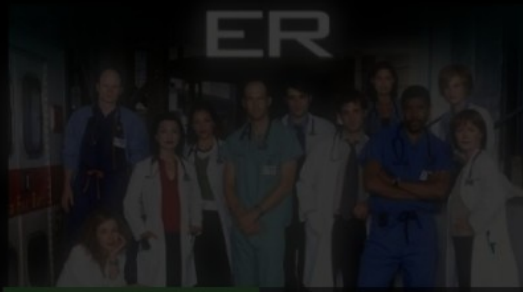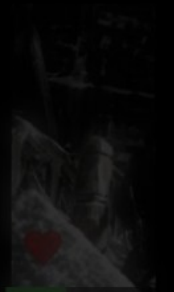My Media

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