

Augmented Reality & Video Service Emerging Technologies

Skype, YouTube & H.264/MPEG-4 AVC

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Skype, YouTube & H.264/MPEG-4 AVC





❖ YouTube

- YouTube is a global video-sharing website that uses H.264/MPEG-4 AVC, WebM, and Adobe Flash Video technology

❖ YouTube History



- 2005 February, three former PayPal employees (Chad Hurley, Steve Chen, and Jawed Karim) created YouTube



❖ YouTube History

- Co-founder Karim said that the inspiration for YouTube first came from the difficult experience in finding online videos of Justin Timberlake and Janet Jackson's 2004 Superbowl halftime performance exposing incident and later the 2004 Indian Ocean tsunami, where the need of a video sharing site was realized



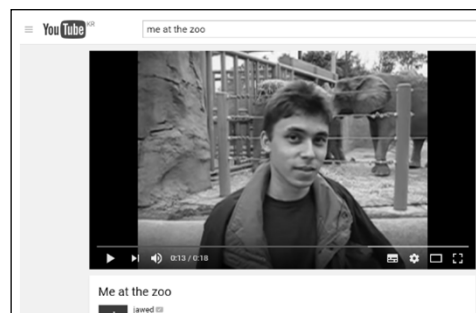
❖ YouTube History

- Co-founders Hurley and Chen said that the original idea for YouTube was an online dating service based on videos
- 2005 February 14, the domain name www.youtube.com was activated



❖ YouTube History

- 2005 April 23, the first YouTube video titled "Me at the zoo" was uploaded on, which shows co-founder Karim at the San Diego Zoo





❖ YouTube History

- 2005 September, a Nike advertisement featuring Ronaldinho reaches one million views for the first time
- 2005 November to 2006 April, YouTube received a \$11.5 million venture investment from Sequoia Capital
- 2005 December 15, the www.youtube.com site was officially launched



❖ YouTube History

- 2006 July, YouTube announced that every day there were more than 65,000 new videos uploaded

Google

- 2006 November, YouTube was bought by Google, Inc. for USD \$1.65 billion



❖ YouTube History

- 2010, Headquarter was moved to San Bruno, California, United States
- 2011 April, YouTube software engineer James Zern revealed that 30% of videos accounted for 99% of YouTube's views
- 2014, YouTube announced that every minute 300 hours of new videos were uploaded



❖ YouTube History

- 2015, YouTube was ranked as the third most visited website in the world (based on Alexa and SimilarWeb)
- 2015, YouTube was attracting more than 15 billion visitors per month making it the world's top TV and video website (based on SimilarWeb)



❖ YouTube History

- 2016 January, the San Bruno headquarters (CA, USA) was expanded to an office park that can house up to 2,800 employees for \$215 million



❖ Internet Video (OTT: Over-the-Top) Service Categories

1. User-generated content: Mostly amateurs (e.g., contents on YouTube, etc.)
2. Professionally generated content: Made in studios, broadcasting companies, etc. to promote commercial products and services (e.g., contents on ABC.com, Hulu, etc.)



❖ Internet Video (OTT: Over-the-Top) Service Categories

3. Direct Movie Sales: EST (Electronic Sell-Through) to Consumers over the Internet (e.g., Netflix, Apple TV, Ultra-Violet, etc.)



❖ OTT (Over-the-Top)

- In media broadcasting, OTT refers to media content delivered to the end-user, with the ISP (Internet Service Provider) simply transporting IP packets
- OTT **←Alternatively→** Media content is purchased through the ISP



❖ OTT (Over-the-Top)

- Consumers can access OTT media content through an Internet-connected device
 - Cable or Satellite TV Set-Top Box
 - Smart TV, Smartphone
 - PC, Laptop, Tablet
 - Game Console Box
 - etc.



❖ YouTube Video Technology

- Previously, Adobe Flash Player plug-in needed to be installed in the Internet browser of the PC (Personal Computer) was required to view YouTube videos
- 2010 January, YouTube's experimental site used the built-in multimedia capabilities of HTML5 web browsers to enable YouTube videos to be viewed without requiring Adobe Flash Player or any other plug-in to be installed



❖ YouTube Video Technology

- 2015 January 27, HTML5 was announced as the default playback method
 - HTML5 video streaming uses MPEG-DASH (Dynamic Adaptive Streaming over HTTP)
 - MPEG-DASH supports adaptive bit-rate HTTP based streaming by controlling the video & audio quality based on the network condition

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