

Multimedia im Netz
Online Multimedia
Winter semester 2015/16

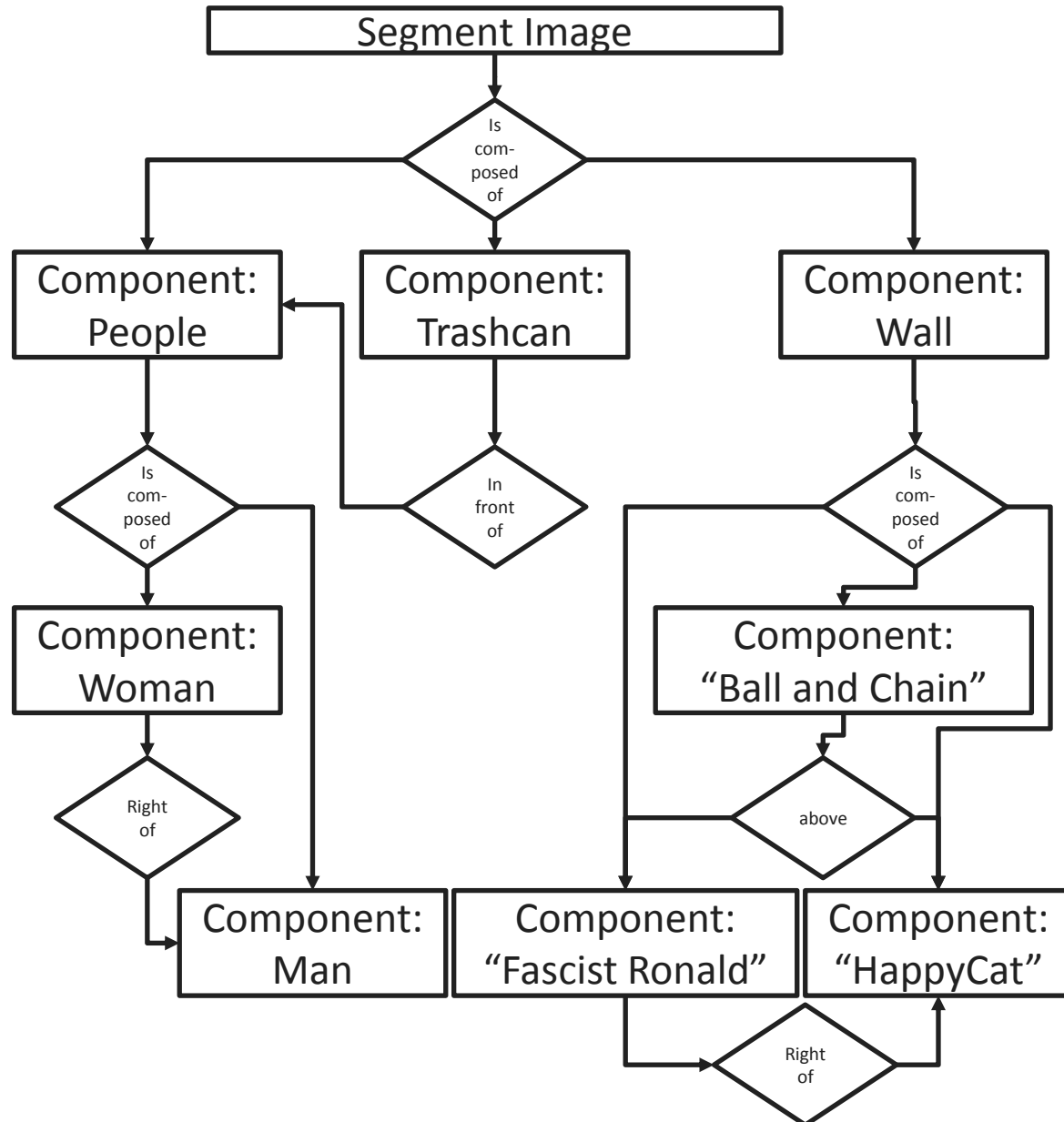
Tutorial 12 – Minor Subject



Today's Agenda

- Discussion of Assignment 11
- Streaming
 - Reading & Discussion: Why YouTube dropped Flash
 - Streaming in HTML
- Quiz

Assignment 11



Reading

The screenshot shows the top of a news article on The Verge website. The page features a navigation bar with categories like 'LONGFORM', 'REVIEWS', 'VIDEO', 'TECH', 'SCIENCE', 'ENTERTAINMENT', 'CARS', 'DESIGN', 'US & WORLD', and 'FORUMS'. The main headline is 'YouTube drops Flash for HTML5 video as default' by Rich McCormick, dated January 27, 2015. Below the headline is a large image of a crowd with the YouTube logo overlaid. To the right, there is a 'THE LATEST HEADLINES' section with several smaller article teasers, including 'Good deal: \$10 for 32 pages of Drake', 'Astronaut Scott Kelly shows off the first ever flower grown in space', 'David Bowie gets his own constellation, a lightning bolt in the night sky', 'Valve has approved this fan-made Half-Life sequel to sell on Steam', 'Spike Lee will skip the Oscars to protest all-white nominations', and 'Watch the Metal Gear Solid remake on Unreal Engine 4 before Konami'.

THE VERGE TRENDING NOW Watch SpaceX's Falcon 9 rocket land, tip over, and explode 16 NEW ARTICLES

LOG IN | SIGN UP LONGFORM REVIEWS VIDEO TECH SCIENCE ENTERTAINMENT CARS DESIGN US & WORLD FORUMS

PREVIOUS STORY This is the main cast of the new Steve Jobs movie

NEXT STORY Nintendo cuts forecasts but still expects a return to annual profit

ENTERTAINMENT WEB **137** COMMENTS

YouTube drops Flash for HTML5 video as default

By Rich McCormick on January 27, 2015 10:22 pm Email

THE LATEST HEADLINES

- Good deal: \$10 for 32 pages of Drake
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- David Bowie gets his own constellation, a lightning bolt in the night sky
- Valve has approved this fan-made Half-Life sequel to sell on Steam
- Spike Lee will skip the Oscars to protest all-white nominations
- Watch the Metal Gear Solid remake on Unreal Engine 4 before Konami

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The slow death of Adobe Flash has been hastened — YouTube, which used the platform as the standard way to play its videos, has dumped Flash in favor of HTML5 for its default web player. The site will now use HTML5 video as standard in Chrome, Internet Explorer

<http://www.theverge.com/2015/1/27/7926001/youtube-drops-flash-for-html5-video-default>

Comprehension

- Discuss with the person next to you:
 - What are the reasons for which YouTube made the switch?
 - What is the idea behind Adaptive Bitrate (ABR)?
 - Why does it reduce buffering?
 - Why is reducing buffering a desirable?
 - What does “heavily congested networks” mean?
- Not mentioned in the text:
 - What kind of streaming models are there?
 - Which model does the HTML5 video player use?

Streaming Media in HTML

```
<video controls>  
  <source src="movie.mp4" type="video/mp4">  
  <source src="movie.ogg" type="video/ogg">  
  Your browser does not support the video tag.  
</video>
```

- Before the introduction of the <video> element, you needed things like Flash
- Specifying the “type” attribute improves performance. If you do not specify it, the browser will start loading all source files until it finds one that it can play back.

<http://www.html5rocks.com/en/tutorials/video/basics/>

Going Responsive

- It makes sense to use smaller video sources if the output device can't even display the full size of the original video

```
<video controls autoplay>

  <source src="video-small.mp4"
    type="video/mp4" media="(max-width: 699px)" />

  <source src="video.mp4"
    type="video/mp4" media="(min-width: 700px)" />

</video>
```

Cross Browser Issue

- Problem:
The solution from the previous slide doesn't work with the current version of Chrome (and maybe other browsers)
- How do we fix this?

```
var baseURL =  
'http://www.medien.ifi.lmu.de/lehre/ws1516/mmn/uebung/material/';  
var sources = {  
  small : baseURL + 'w3c-webstandards-small.mp4',  
  large  : baseURL + 'w3c-webstandards.mp4'  
};  
  
function updateVideoSource(){  
  if(window.innerWidth > 699 && video.src != sources.large){  
    video.src = sources.large;  
  }  
  else if(window.innerWidth < 700 && video.src != sources.small){  
    video.src = sources.small;  
  }  
}  
  
window.addEventListener('resize',updateVideoSource);  
updateVideoSource();
```


Breakout: Media Events

- Goal:
Understand how the browser fetches and buffers the stream
- What to do:
 1. Attach multiple event listeners to a `<video>` element
 2. These are the relevant events: **canplaythrough, loadstart, canplay, loadedmetadata, loadeddata, ratechange, progress**
 3. Produce some kind of output when any of the event occurs (e.g. a `console.log`, or setting the `innerHTML` of a `<div>`)
- Time frame: **15 minutes.**

Determining the Buffer State

```
video.addEventListener('progress', function(e) {
  try {
    if (video.buffered.end(0) !== bufferEnd) {
      bufferEnd = video.buffered.end(0);
      console.log(bufferEnd);
    }
  }
  catch (e) {
    // do nothing
  }
})
```

Breakout: Buffer full

- Inform the user once the buffer is full
- In other words, check if the buffer end has reached the total duration of the video
- Time frame: 15 Minutes

Round-Up Quiz

1. Why is HTTP streaming (DASH) “such a big deal”?
2. What are drawbacks of HTTP streaming?
3. What are drawbacks of the <video> element?

Thanks!

What are your questions?