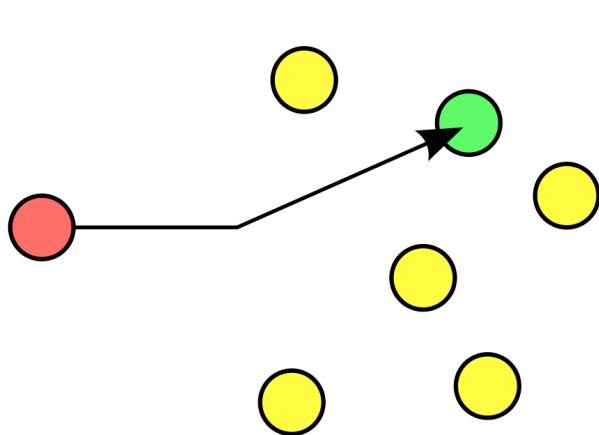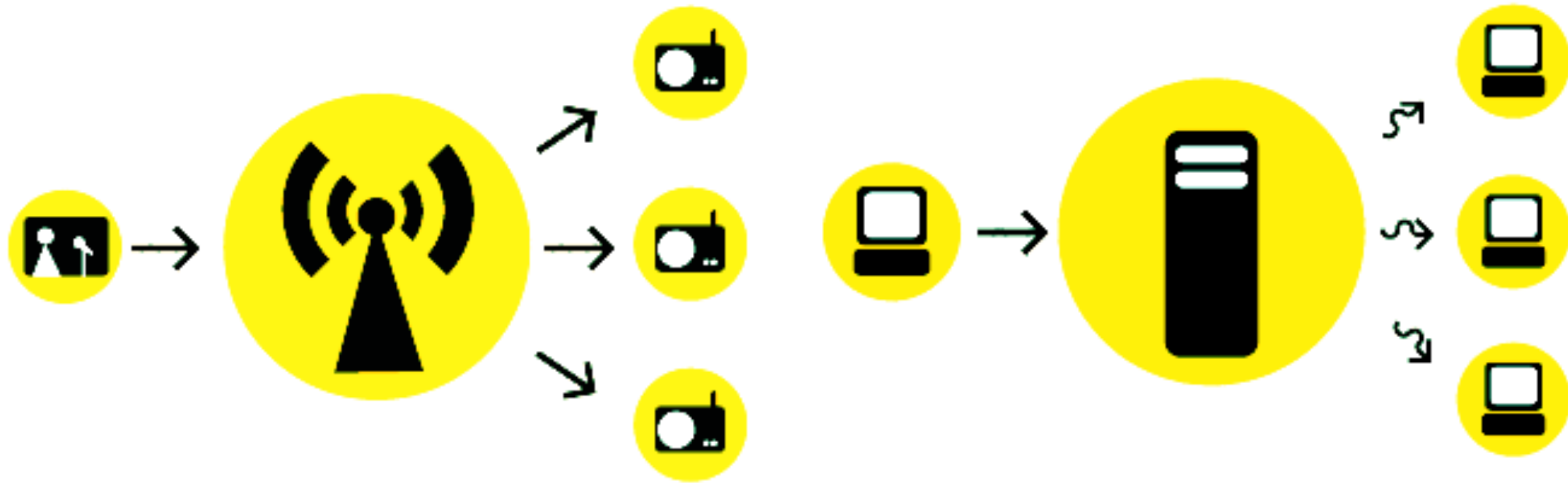# Music & the Internet MUMT301

Gabriel Vigliensoni
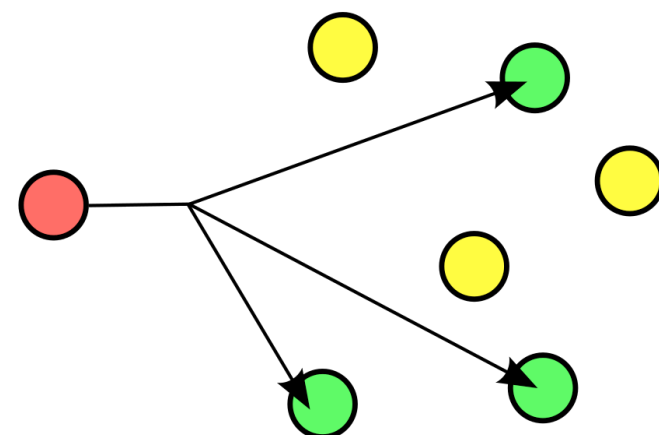Schulich School of Music
McGill University

Plan

- Review of the last class

  - <u>Music distribution</u>

- Internet Radio

- On-demand music services presentation

- HTML DOM

- Writing and changing DOM elements with JavaScript
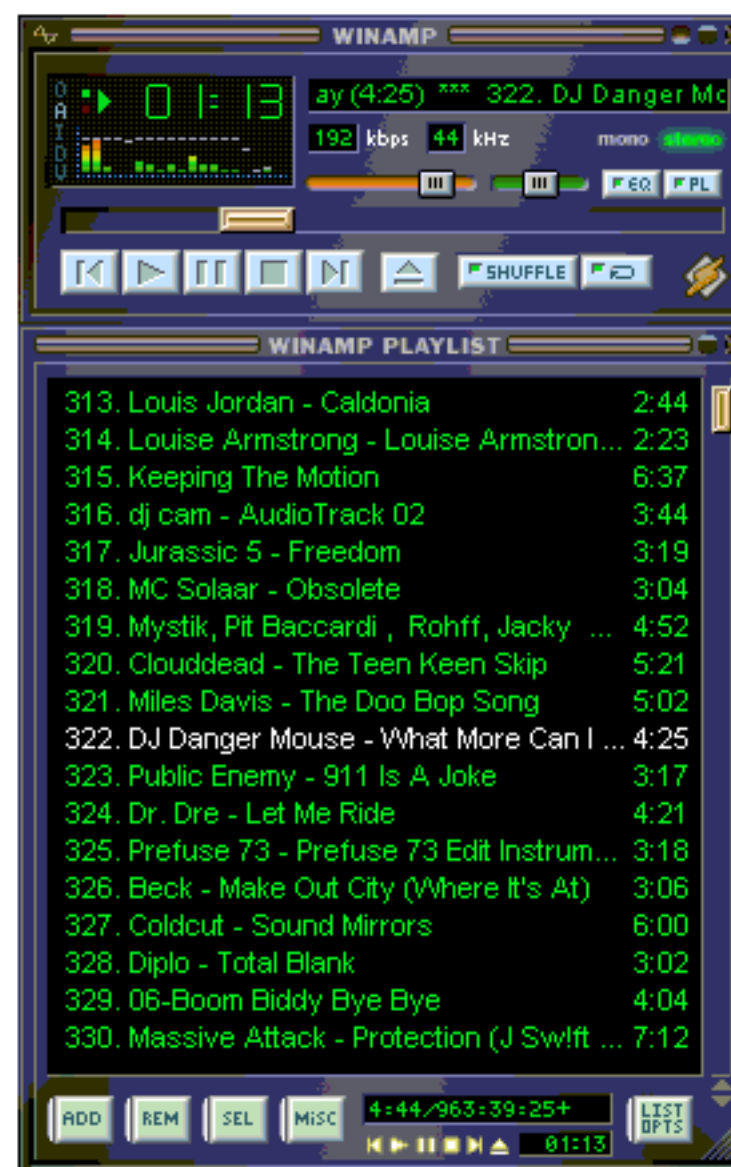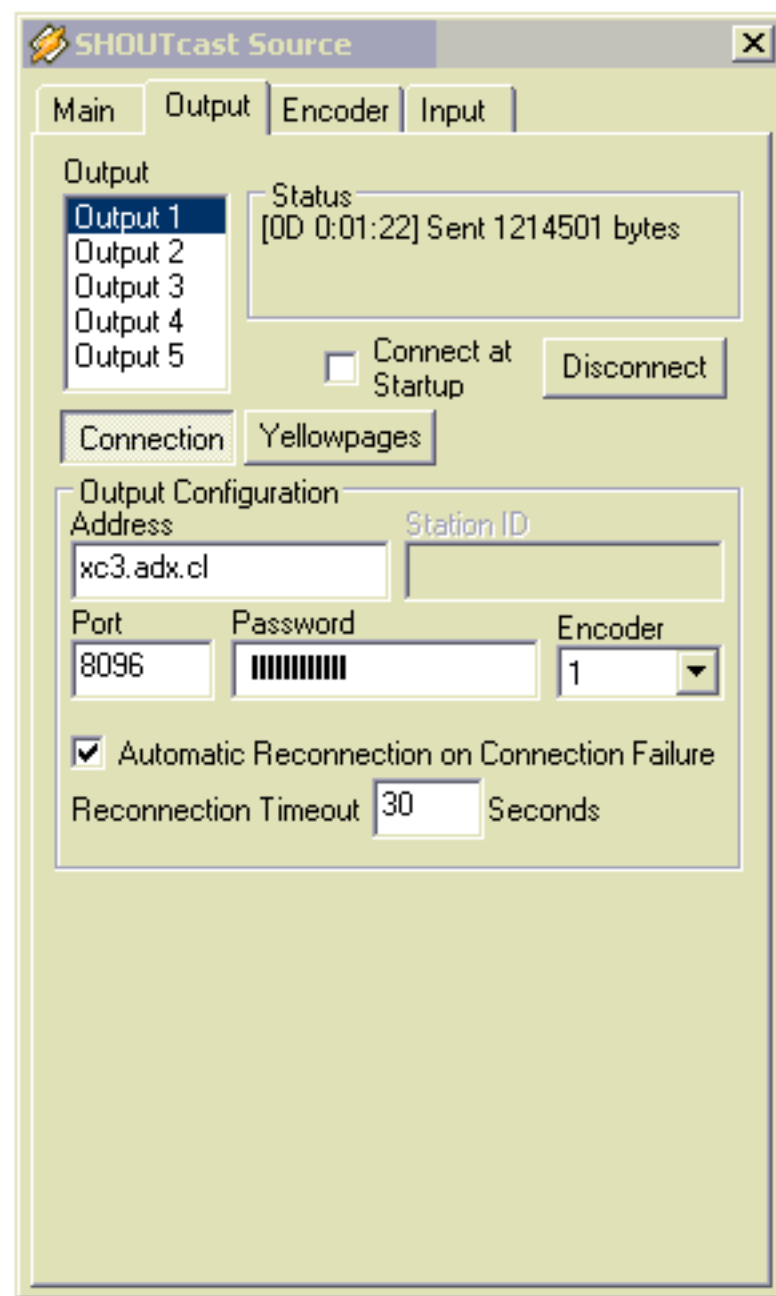
Internet Radio broadcasting

Unicast: Sends IP packets to identified recipients on a network, with added bandwidth

Multicast: sends IP packets to a group of hosts on a network, with no added bandwidth, and not requiring prior knowledge of who or how many receivers there are.

Playlist creation applications

Playlist creation applications

Automated radio broadcasting

Social radio applications
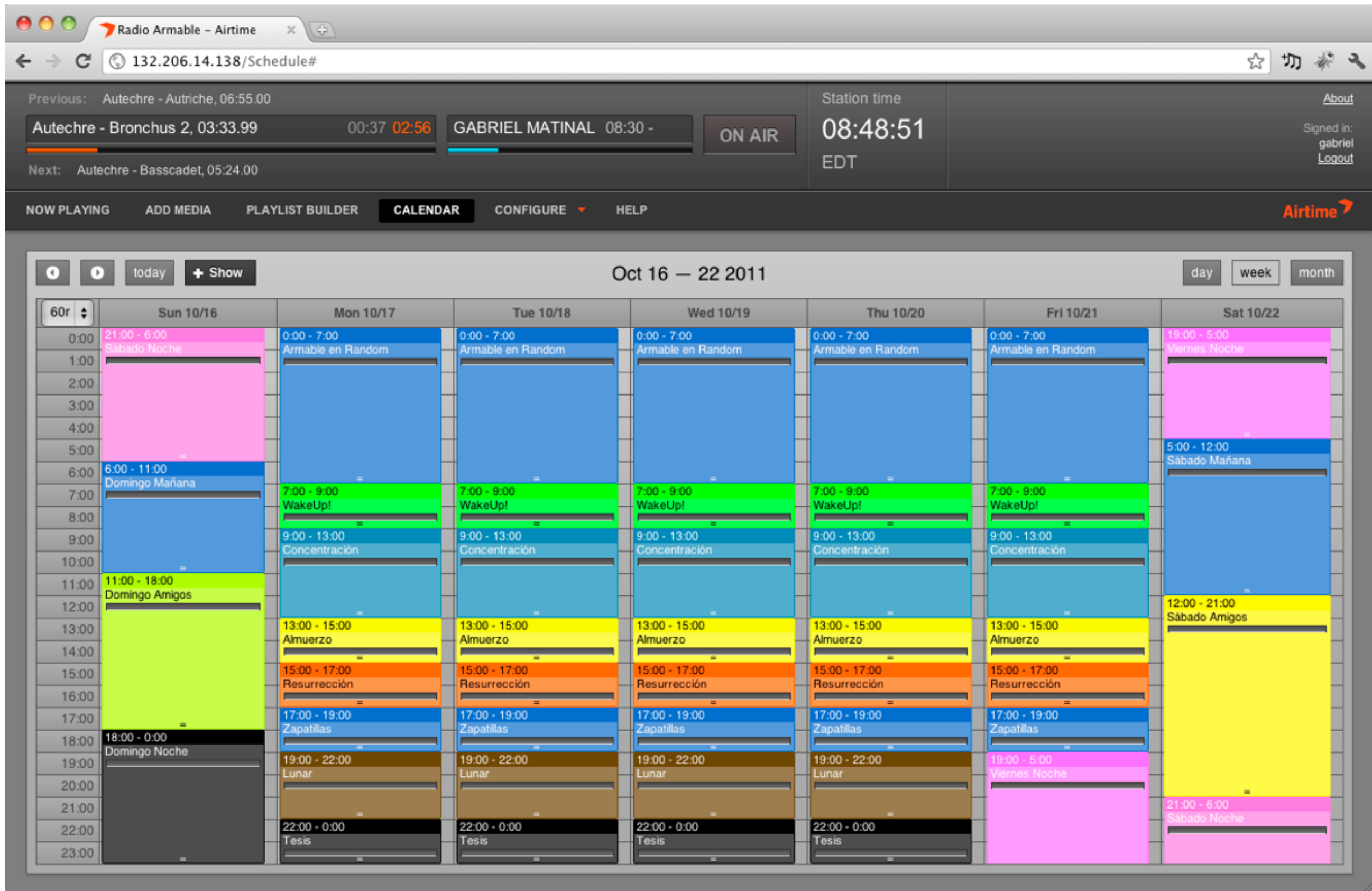
Streaming Media Servers
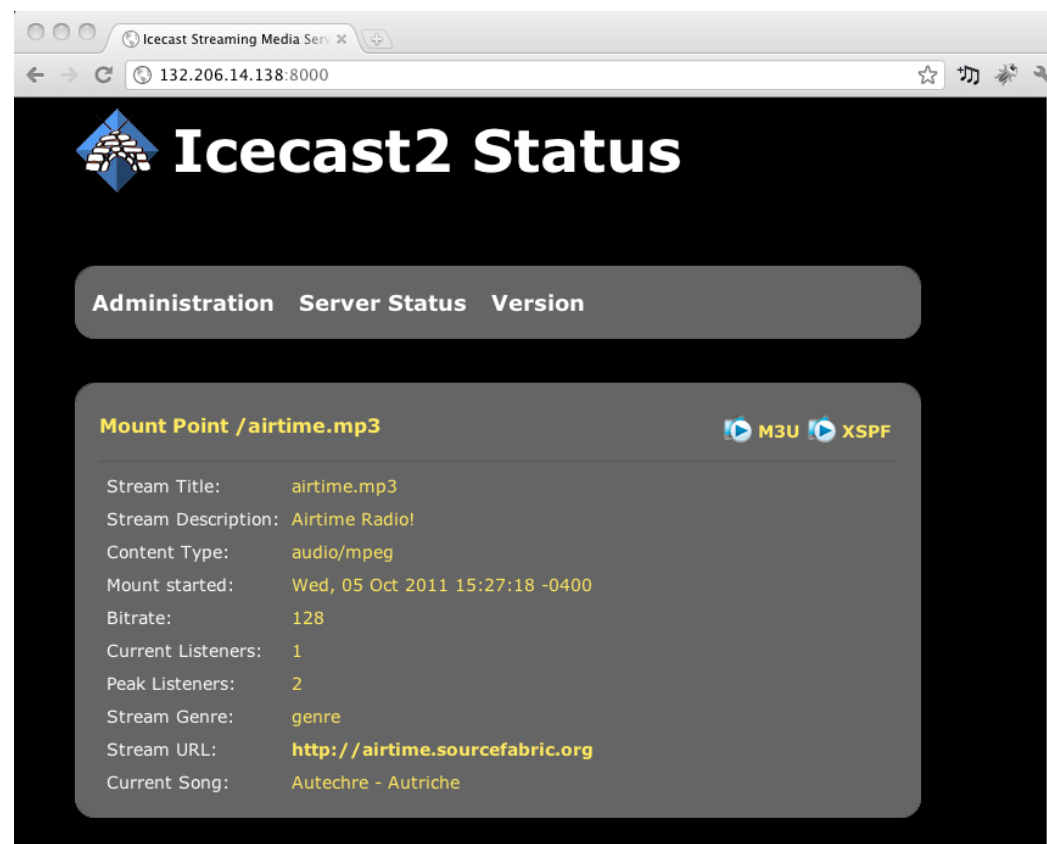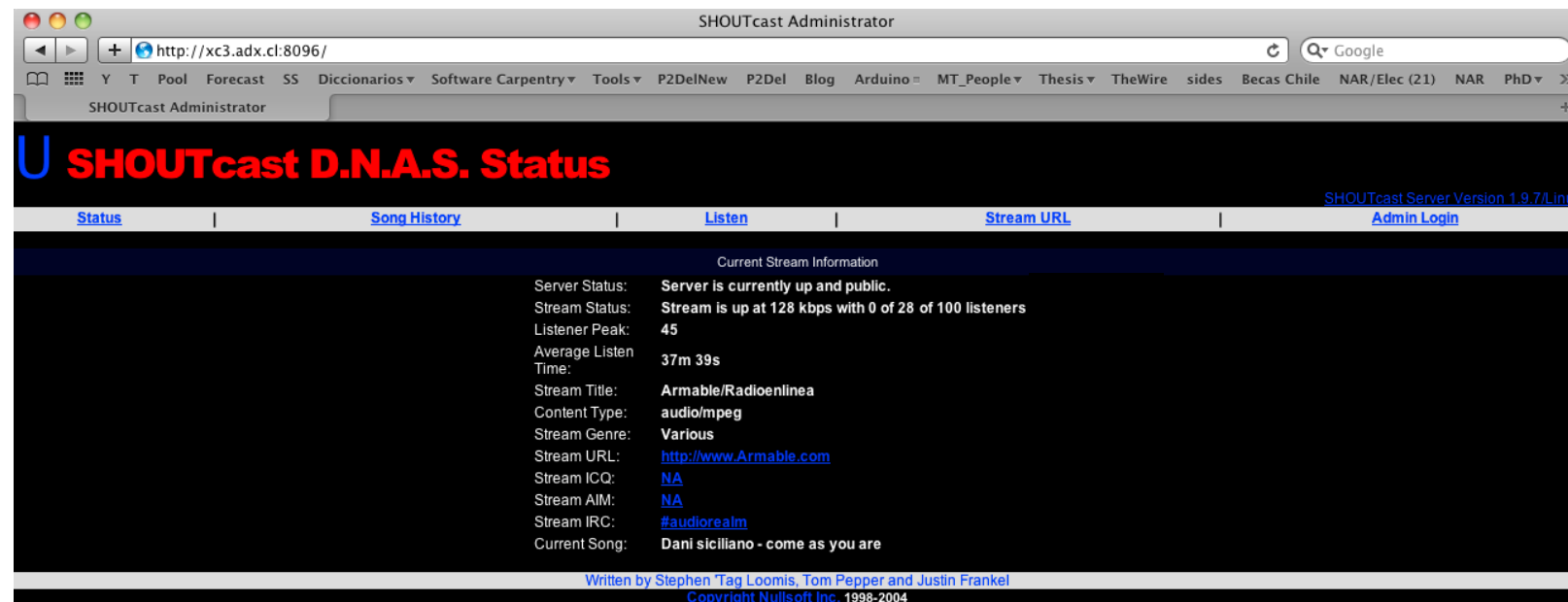
On-demand music services presentation

BREAK

HTML DOM

- "The W3C Document Object Model (DOM) is a platform and language-neutral interface that allows programs and scripts to dynamically access and update the content, structure, and style of a document."

- When a web page is loaded, the browser creates a Document Object Model of the page

- The DOM is constructed as a tree of objects

```
                          Document
                             |
                      Root element:
                         <html>
                   _____|_____
                  |                 |
             Element:          Element:
              <head>            <body>
                 |           _____|_____
             Element:       |       |       |
              <title>   Attribute: Element: Element:
                 |        "href" — <a>      <h1>
              Text:                 |        |
           "My title"             Text:     Text:
                               "My link"  "My header"
```
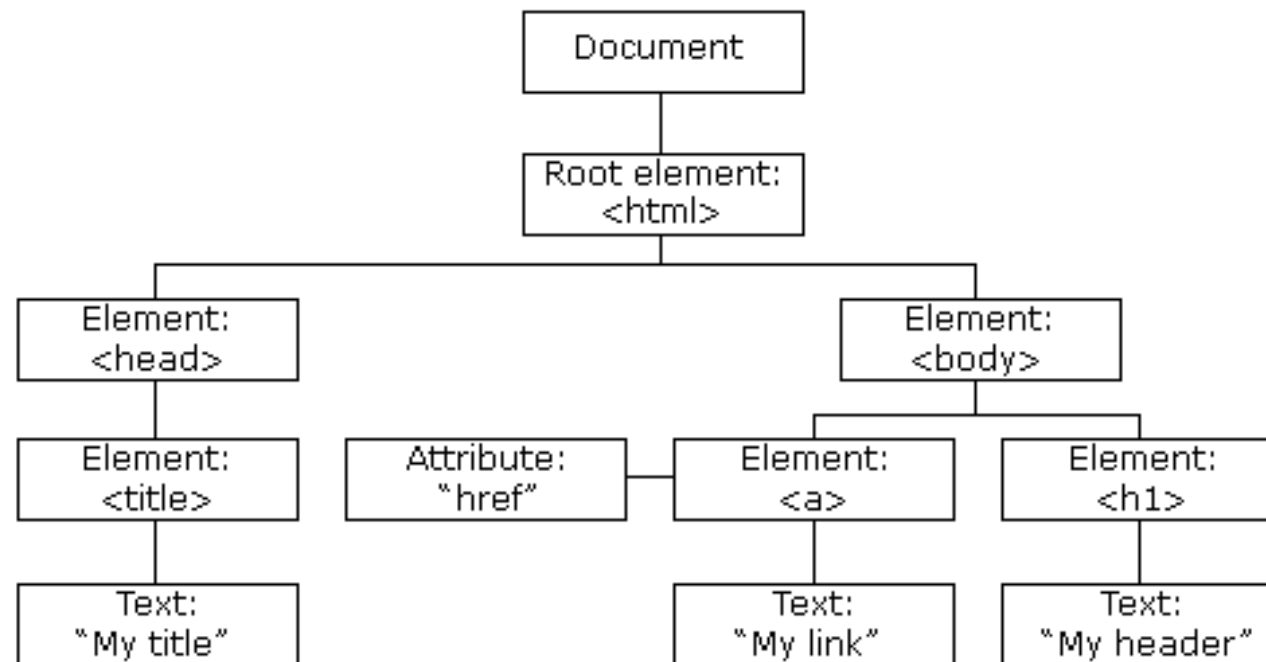
- <u>With the object model, JavaScript gets all the power it needs to create dynamic HTML</u>

Global music sales by format

All Formats 1973-2011 (millions)

LPs MCs CDs Singles Music Video Digital Albums
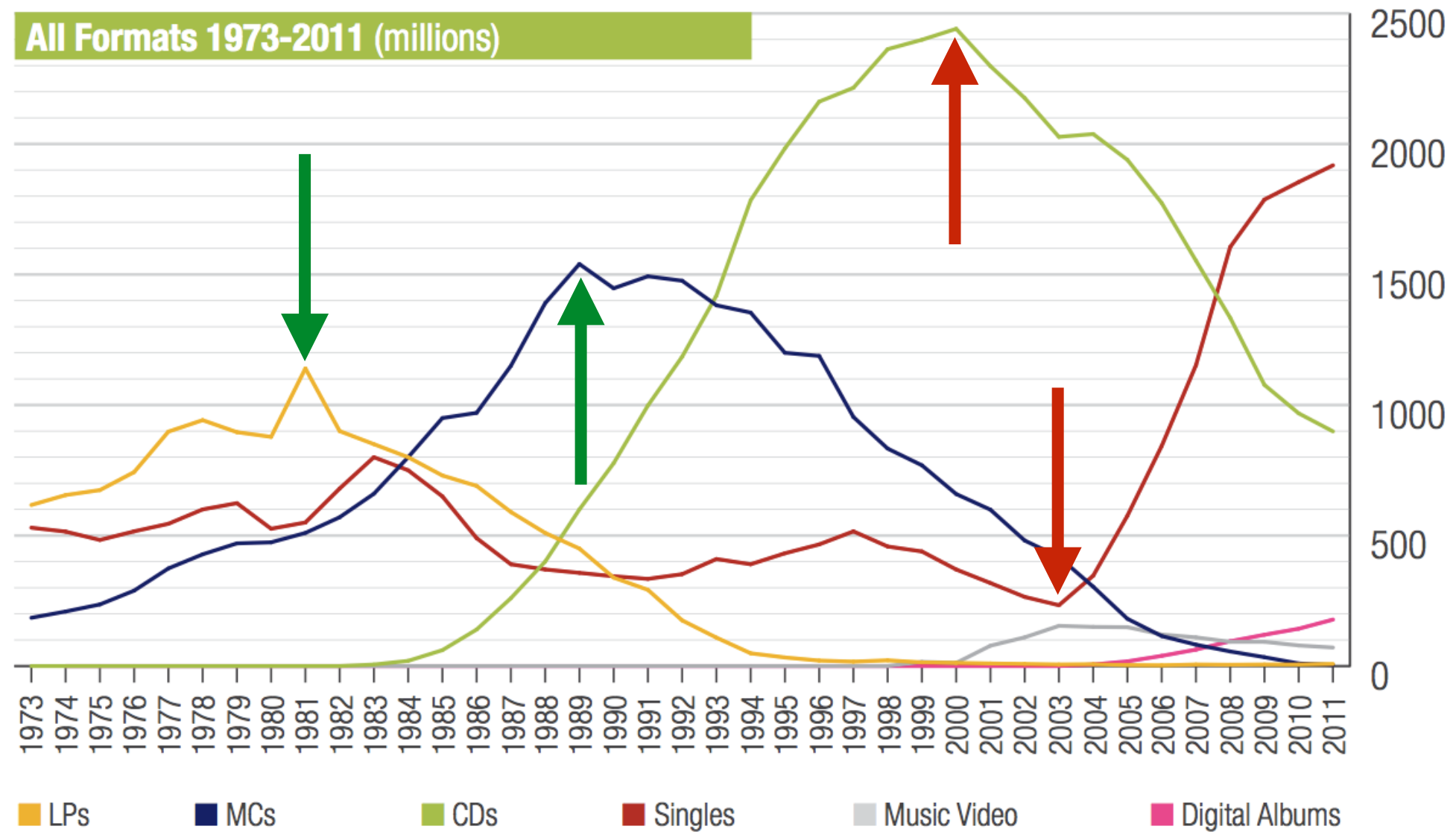
Taken from Record Industry in Numbers 2011 (IFPI)

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Global recorded music revenues

GLOBAL RECORDED MUSIC INDUSTRY REVENUES 2005-2015 (US$ BILLIONS)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Synchronisation	0	0	0	0	0	0.3	0.3	0.3	0.3	0.3	0.4
Performance rights	1.0	1.0	1.2	1.3	1.3	1.4	1.4	1.6	1.8	2.0	2.1
Digital	1.1	2.1	2.9	3.7	4.1	4.3	4.9	5.5	5.8	6.1	6.7
Physical	17.9	16.2	14.0	11.8	10.3	8.9	8.1	7.5	6.7	6.1	5.8
Total revenue	20.0	19.3	18.1	16.8	15.7	14.9	14.8	14.8	14.6	14.5	15.0

■ Physical   ■ Digital   ■ Performance rights   ■ Synchronisation

Source: IFPI

Taken from http://www.ifpi.org/downloads/GMR2016.pdf

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Music industry

Music industry of physical goods

P2P & piracy

Music industry of digital goods

2014

Peer to peer (P2P)

(a) Client-server   (b) Peer-to-peer   (c) Peer-assisted

Figure 1.1: Three types of protocols.

Taken from Kreitz, G. 2011. Aspects of Secure and Efficient
Streaming and Collaboration. PhD Thesis. KTH Computer Science and Communication.

iTunes Store songs sold

- Apple's iTunes Music Store is credited with finally getting people to pay for digital music, unveiled in 2003

Number of Songs Sold on the iTunes Store

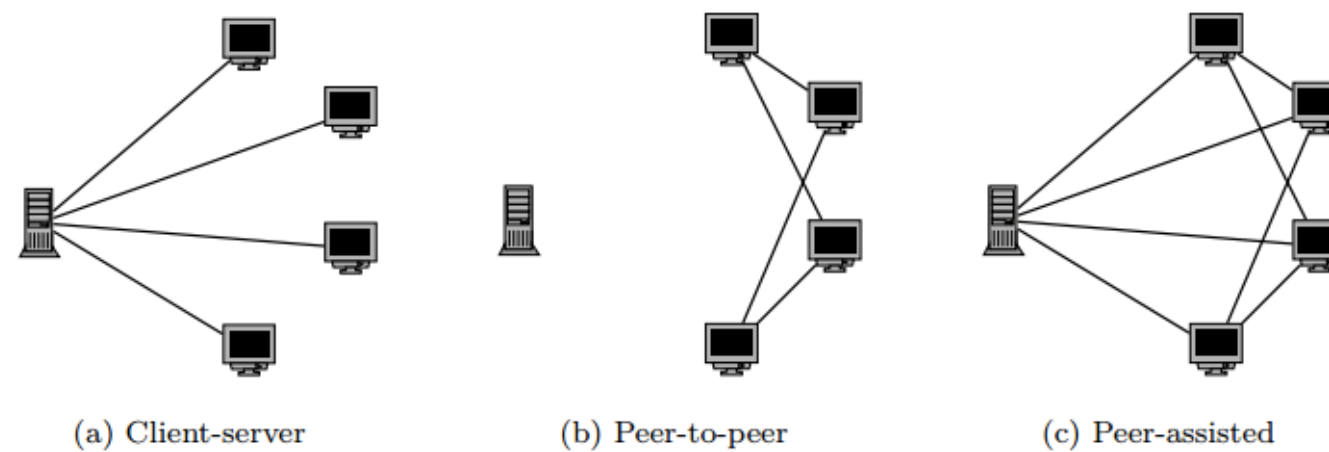| Billionth Song	Days taken	Songs per day
1st	1033	968,054
2nd	322	3,105,590
3rd	203	4,926,108
4th	169	5,917,159
5th	157	6,369,426
6th	202	4,950,495
8th	197	5,076,142
10th	109	9,174,311

15th / Jun 2011

20th / Sep 2012

25th / Feb 2013

35th / May 2014
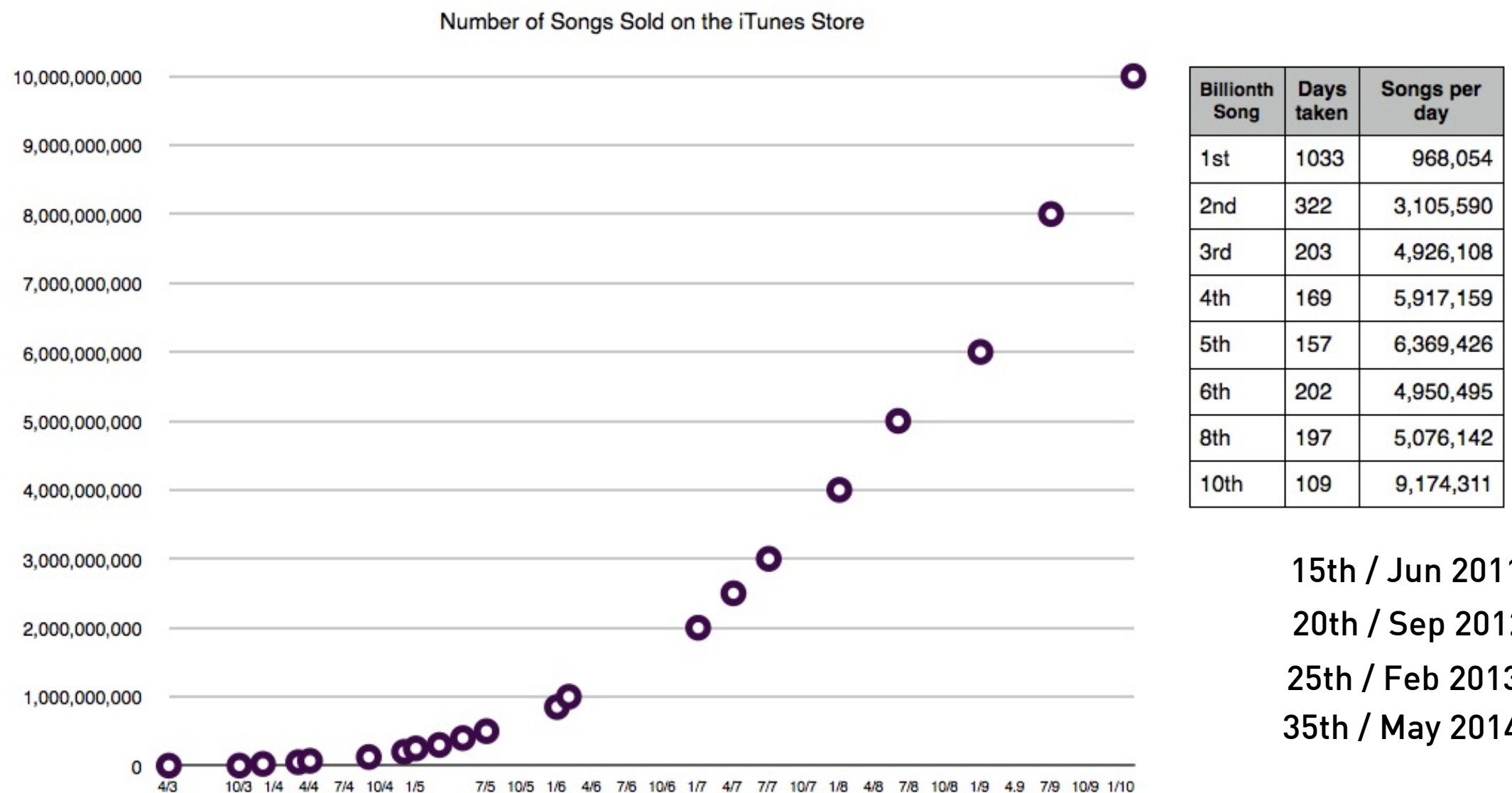
https://en.wikipedia.org/wiki/ITunes_Store

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Digital music distribution models

- Music stores (buy to own)
- Music tracks are delivered online
- Music locker
- Music streaming via subscription

The musician's POV

- None of the digital music services will let you in directly
- Artists need to be signed to a major (or big indie) record label
- Or use a **digital music distributor** to get in a digital music service