Google™ 10 I/O

HTML 5 Status Update

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Overview

- Recap: What's In "HTML5"?
- What's Happened Since I/O 2009?
  - Lessons Learned
  - New APIs
- What's Next?

Wave: http://bit.ly/9tstjC

What’s in HTML5?

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What Is Meant By “HTML5”?

- HTML5 quickly became a buzzword
- HTML5 spec itself has shed numerous features
- Storage specs are now separate
- File specs and others live in WebApps, DAP
- Geolocation
- WebGL
- …

Areas We Are Excited By

- We've Spent the Past Year On…
  - Offline (Appcache, Storage)
  - Media (Video, Audio, …)
  - Networking (Web Sockets)
  - CSS3, Paged Media, Layout
  - Platform Integration (Drag+Drop, Notifications, Geolocation, …)
- Focus is providing richer experience for web applications

Lessons Learned This Year

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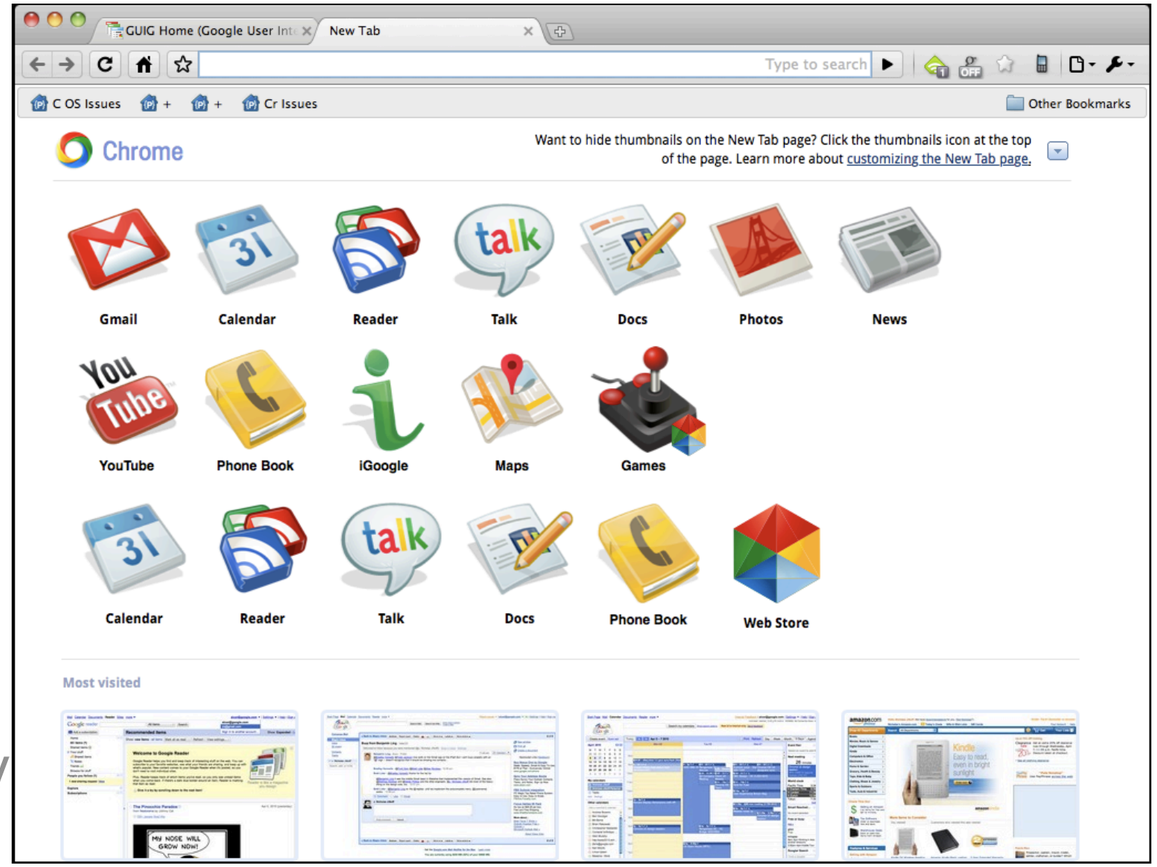
What We've Learned

Offline Apps

- Discovery and re-discovery
  - Remembering to type in exact URL is difficult
  - Many people don't use bookmarks
  - Web Store helps discovery and re-discovery



- Packaging as an "app" can bootstrap permissions that need to be granted before use

What We've Learned

Indexed Database API

- "Specability" concerns around SQL
- A simple database, no SQL
- Has a "key" (DOMString or long) and associated "value" (object, array, …)

```
var db = indexedDB.open('books', 'Book store', false);
if (db.version !== '1.0') {
  // …
}
// db.version === "1.0";
var index = db.openIndex('BookAuthor');
var matching = index.get('fred');
if (matching)
  report(matching.isbn, matching.name,
  matching.author);
else
  report(null);
```

What We've Learned

Storing Files

- Currently implemented storage APIs (Local Storage, Session Storage, WebSQLDB) don't meet all the use cases
- Storing binary data in Local Storage, Database can have severe performance implications
- Need to be able to treat data as a file, e.g. <img src="some file">, <a href="some file">
- Filesystem API (and FileReader, FileWriter) gives web applications a sandboxed, per-origin filesystem

What We've Learned

Geolocation (aka "Security UI is hard")

- Access the user's location via a JavaScript API
- Accuracy varies based on device
- Permission model varies for embedded content (iframes)


```
function showMap(position) {
  // Show a map centered at (position.coords.latitude, position.coords.longitude).
}

// One-shot position request.
navigator.geolocation.getCurrentPosition(showMap);
```

New Work Areas This Year

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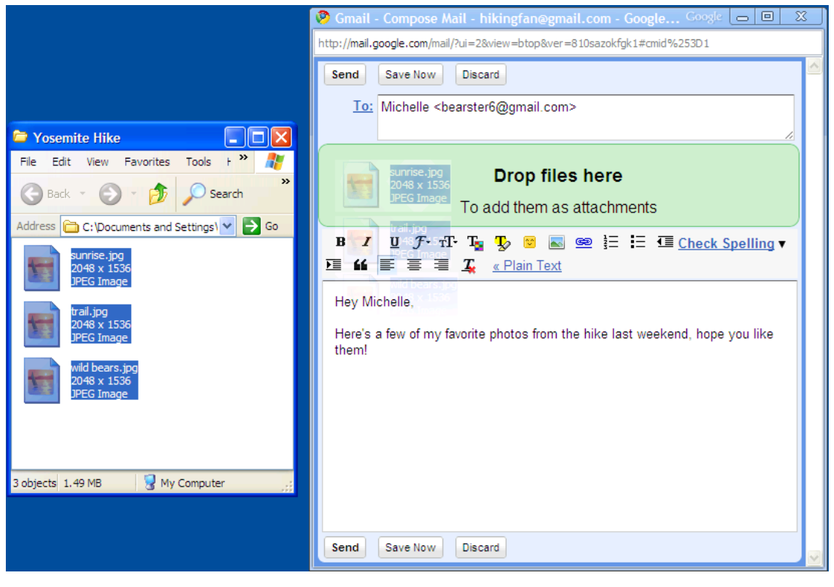
Shared State Between Pages

- Shared Worker
  - Standard, cross-browser
  - Works well for apps designed around message passing
  - No single script context
  - Can’t pass around parts of the DOM
    - Example: Controlling access to shared File System API resources from multiple tabs
- Magic IFrame
  - Can pass around parts of the DOM
  - Can share scripting contexts
  - Example: Gmail window tearoffs

Dragging Files On the Web Is A Drag

- Intuitive, simple ways to upload, download files
- Drag-in: desktop to browser
  - Listen to drop event
  - Obtain File object, send via XHR
- Drag-out: browser to desktop
  - DownloadURL format in DataTransfer object
  - Contains file type, name, URL



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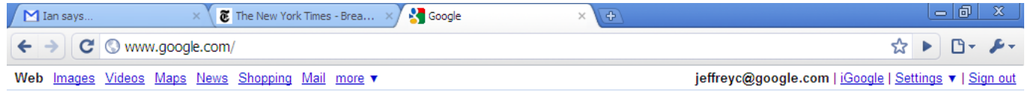
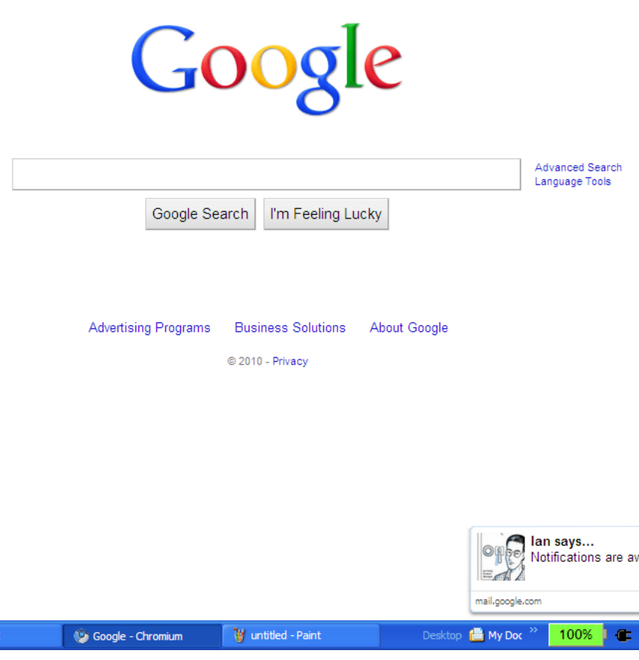
Notifications

- Let the app notify the user in an unobtrusive manner
- Developer can provide HTML or plain text content
- Permission is assigned on origin basis
- Currently two specs:
  - http://dev.w3.org/2006/webapi/WebNotifications/publish/
  - http://www.chromium.org/developers/design-documents/desktop-notifications
- Plan to deprecate latter spec in favor of standards-track spec





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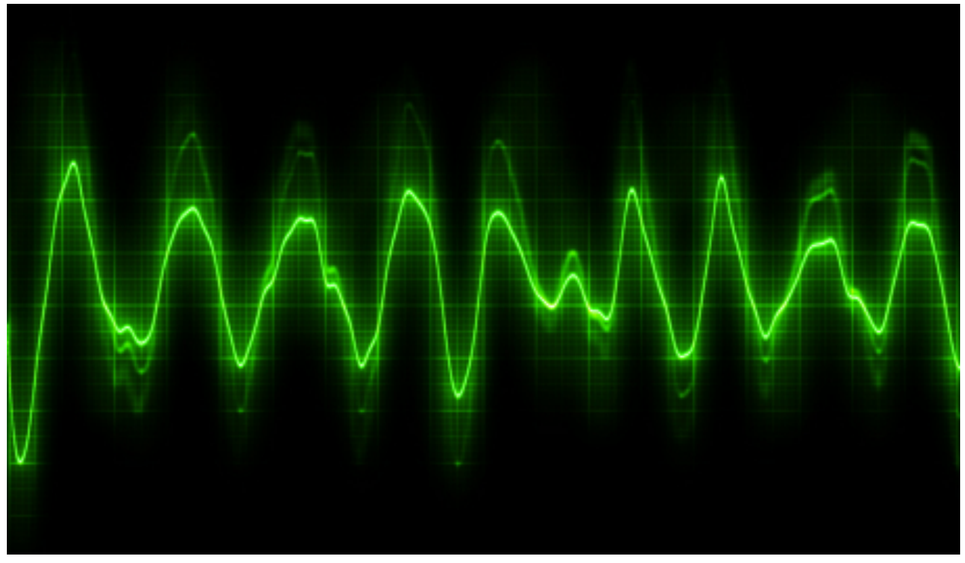
What's Over The Horizon?

TTS + Voice Recognition

- Voice is the hot new thing in Mobile
- Let a web app accept voice commands and input
- Speak results to the user



```
<input type="speech" grammar="..." onchange="..." autostop="..." ...>
<tts value="some text" onplay="..." onended="..." ></tts>
```

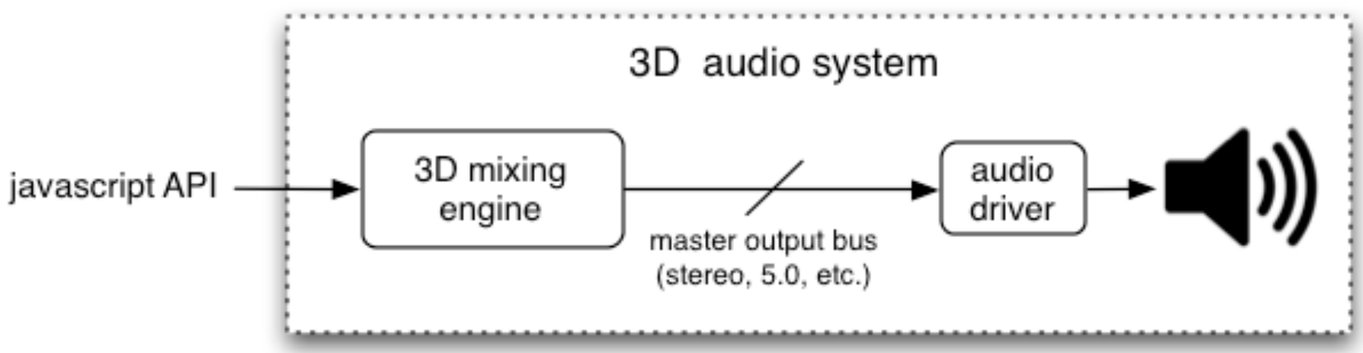
Webcam / microphone access

- Laptops and phones today ship with integrated webcams, microphones
- Many use cases for accessing these devices
  - Videoconferencing
  - Taking a picture (profile pics)
  - Scanning barcodes
  - Letting the world hear you sing a Lady Gaga song

- Looking to expose APIs that let you capture a single blob (a photo, for instance) and a stream (live video)

Positional Audio

- Games use 3D video and positional audio to create sense of immersion
- Adding JS apis for enhanced audio functionality
- Give control over position, orientation vector, velocity, volume, send configuration and gain, inner/outer cone, distance attenuation curve, pitch, occlusion, obstruction, reverb blend, effects, and effect parameters, looping, etc.



Web GL

- JS bindings to OpenGL
- Allows creation of 3D games in the web
- Can also be used to add splashes of 3D for eye candy
- Pioneered by Firefox, now being implemented in Google Chrome, Apple Safari, and more

```
var canvas = document.getElementById('canvas1');
var context = canvas.getContext('webgl',
                                { antialias: false, stencil: false });
```

Q&A: http://bit.ly/9tstjC

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