HTML5 and CSS3

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Web Browser

→ Fetches/displays documents from web servers

→ Mosaic 1993

→ Firefox,IE,Chrome,Safari,Opera,Lynx,Mosaic,Konqueror

- ***There are standards, but wide variation in features***

Desktop Browser Market Share

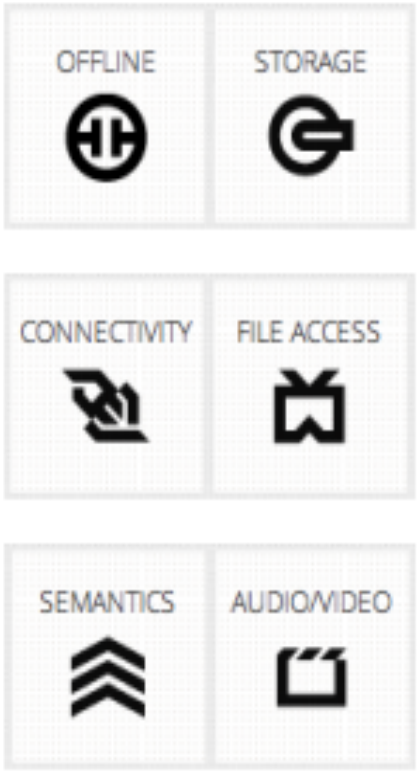
2015	Chrome	IE	Firefox	Safari	Opera
April	63.9 %	8.0 %	21.6 %	3.8 %	1.5 %
March	63.7 %	7.7 %	22.1 %	3.9 %	1.5 %
February	62.5 %	8.0 %	22.9 %	3.9 %	1.5 %
January	61.9 %	7.8 %	23.4 %	3.8 %	1.6 %

2014	Chrome	IE	Firefox	Safari	Opera
December	61.6 %	8.0 %	23.6 %	3.7 %	1.6 %
November	60.1 %	9.8 %	23.4 %	3.7 %	1.6 %
October	60.4 %	9.5 %	23.4 %	3.9 %	1.6 %
September	59.6 %	9.9 %	24.0 %	3.6 %	1.6 %
August	60.1 %	8.3 %	24.7 %	3.7 %	1.8 %

http://www.w3schools.com/browsers/browsers_stats.asp

HTML5: New Features

- Semantic elements and Markups
- Audio and video support
- Canvas
- Drag and drop
- Local data storage
- Offline applications
- Server events
- Geolocation



Semantic elements

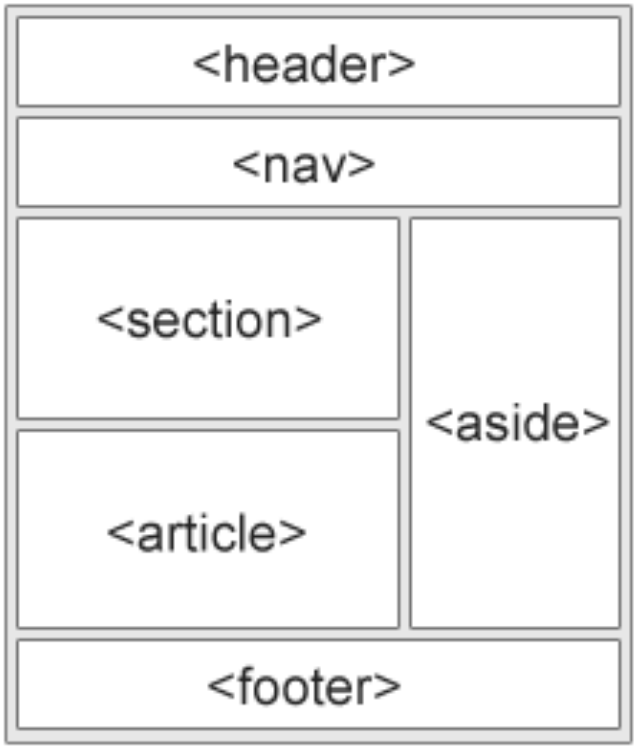
A semantic element clearly describes its meaning to both the browser and the developer.

Examples of non-semantic elements: and - Tells nothing about its content.

Examples of semantic elements: <form>, <table>, and <img> - Clearly defines its content.

Semantic elements: some other

<header>
<section>
<aside>
<figcaption>
<details>
<mark>
<nav>
<article>
<figure>
<footer>
<summary>
<time>



Semantic Element example & Markups

http://slides.html5rocks.com/#semantic-tags-1

Audio & Video

Audio

```
<audio controls>
  <source src="horse.ogg" type="audio/ogg">
  <source src="horse.mp3" type="audio/mpeg">
Your browser does not support the audio element.
</audio>
```

Video

```
<video width="320" height="240" controls>
  <source src="movie.mp4" type="video/mp4">
  <source src="movie.ogg" type="video/ogg">
Your browser does not support the video tag.
</video>
```

Output: http://jsfiddle.net/mashiyat/g4hMX/

Canvas

<canvas> element is used to draw graphics, on the fly, via scripting (usually JavaScript).

→ only a container for graphics. You must use a script to actually draw the graphics.

Drag and drop

Drag and drop means when you "grab" an object and drag it to a different location.

→ In HTML5, drag and drop is part of the standard, and any element can be draggable.

Demo: http://slides.html5rocks.com/#native-drag-and-drop

Web Storage for local data storage & Offline app

Using HTML5 we can store data locally within the user's browser.

→ Earlier, this was done with cookies. However, Web Storage is more secure and faster.

→ The data is not included with every server request, but used ONLY when asked for. It is also possible to store large amounts of data, without affecting the website's performance.

→ The data is stored in name/value pairs, and a web page can only access data stored by itself.

→ Unlike cookies, the storage limit is far larger (at least 5MB) and information is never transferred.

Demo: http://slides.html5rocks.com/#web-storage

Web Storage for local data storage & Offline app

Use web store wisely!

Before using web storage, check browser support for localStorage and sessionStorage:

```
if(typeof(Storage) !== "undefined") {
    // Code for localStorage/sessionStorage.
} else {
    // Sorry! No Web Storage support..
}
```

Server events

A server-sent event is when a web page automatically gets updates from a server.

Before, the web page would have to ask if any updates were available. With server-sent events, the updates come automatically.

Examples: Facebook/Twitter updates, stock price updates, news feeds, sport results, etc.

Browser Support

Geolocation

The HTML5 Geolocation API is used to get the geographical position of a user.

Since this can compromise user privacy, the position is not available unless the user approves it.

Demo: http://slides.html5rocks.com/#geolocation

CSS3

http://www.w3schools.com/css/css3_intro.asp

http://slides.html5rocks.com/#css3-title

CSS3 (Vendor prefix)

The CSS browser prefixes are:

Android: -webkit-
Chrome: -webkit-
Firefox: -moz-
Internet Explorer: -ms-
iOS: -webkit-
Opera: -o-
Safari: -webkit-

CSS3 (Vendor prefix is temporary)

Just a few years ago, to set a rounded corner on a box you had to write:

```
-moz-border-radius: 10px 5px;
-webkit-border-top-left-radius: 10px;
-webkit-border-top-right-radius: 5px;
-webkit-border-bottom-right-radius: 10px;
-webkit-border-bottom-left-radius: 5px;
border-radius: 10px 5px;
```

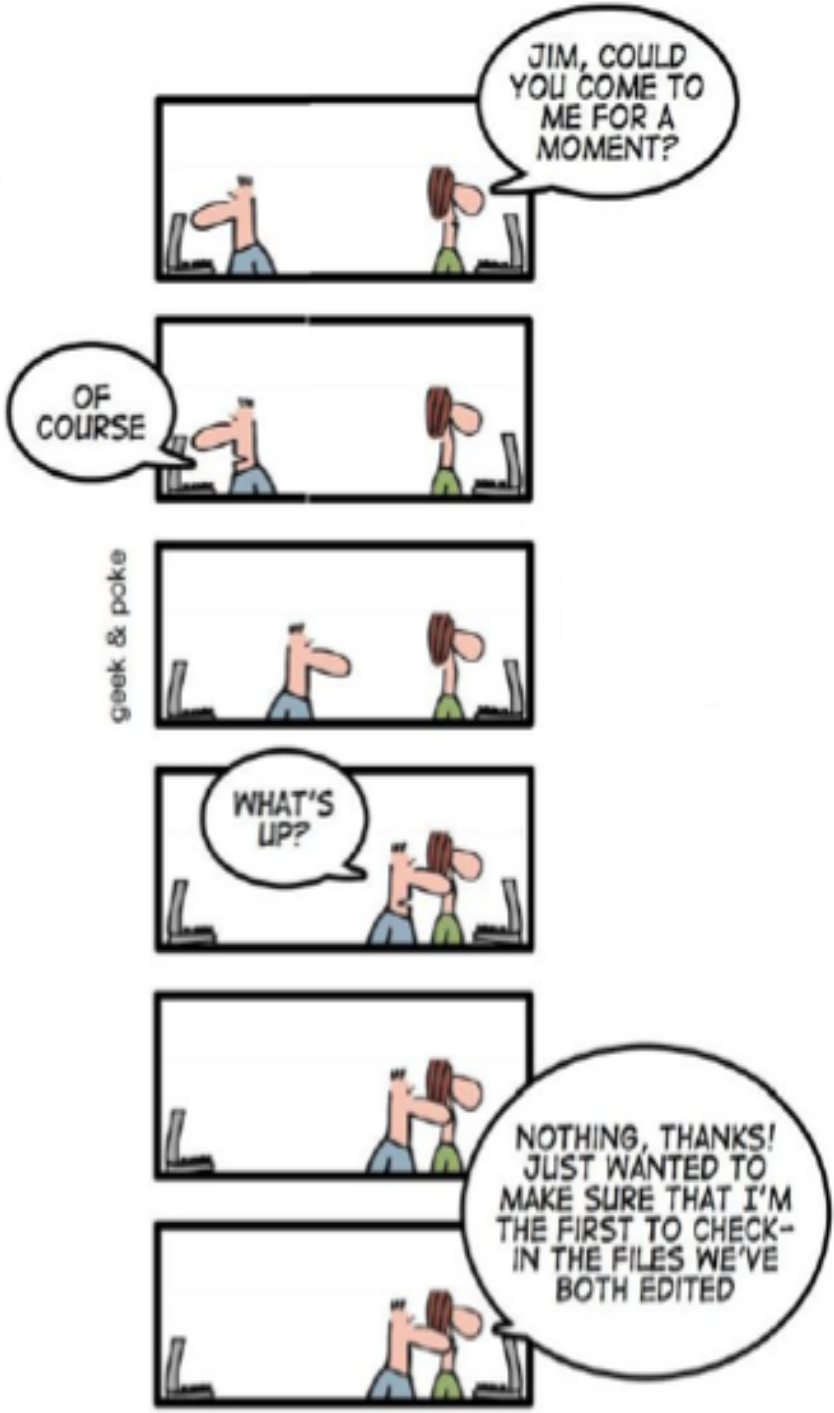
But now you really only need the standards version:

```
border-radius: 10px 5px;
```

References

1. http://www.w3schools.com/
2. http://slides.html5rocks.com/
3. http://www.cs.toronto.edu/~delara/courses/csc309/
4. http://uoft.fabspaces.cc/
5. http://jquery.com/
6. http://webdesign.about.com/od/css/a/css-vendor-prefixes.htm

Social Coding



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The Cathedral and the Bazaar

Eric S. Raymond

Cathedral model:

Source code is available with each software release, but code developed between releases is restricted to the code developers.

The Cathedral and the Bazaar

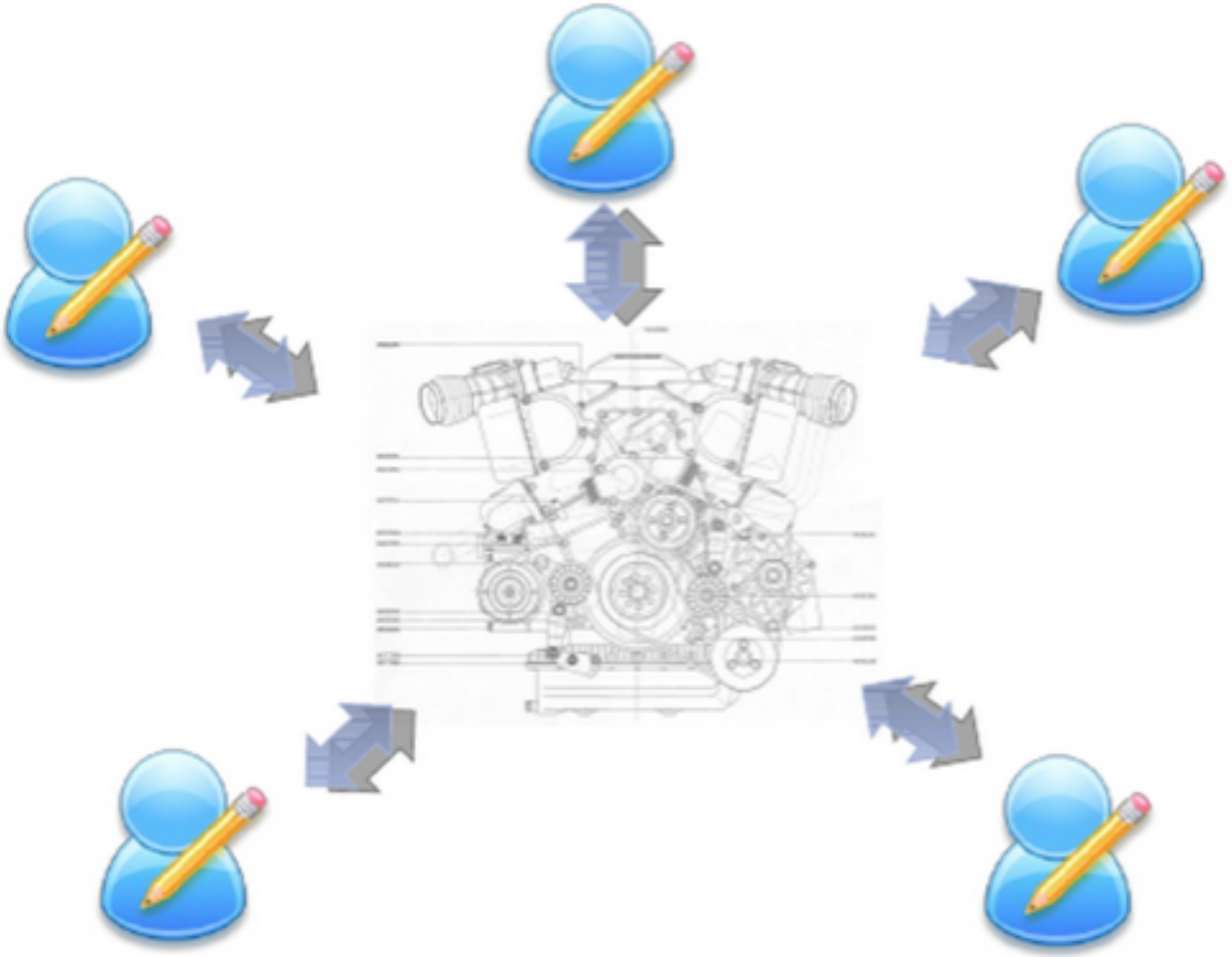
Eric S. Raymond

Bazaar model:
Code is developed over the Internet in view of the public.

The Bazaar

- Release early. Release often
- More transparent, users as co-developers
- Greater visibility of bugs, lots of testers
- Recognize good ideas (from others)
- More scrutiny, and experimentation possible.

Development is Collaborative



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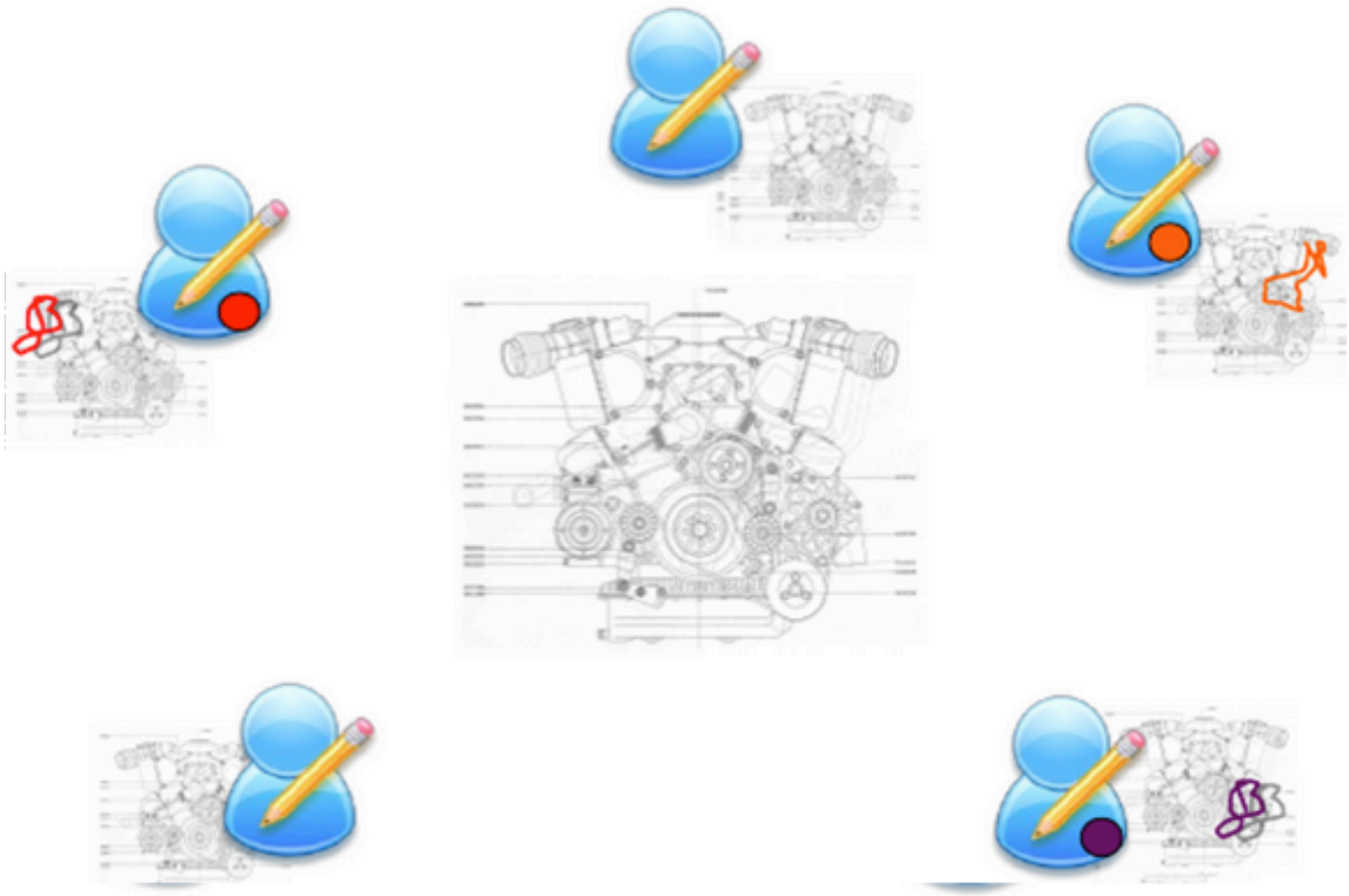
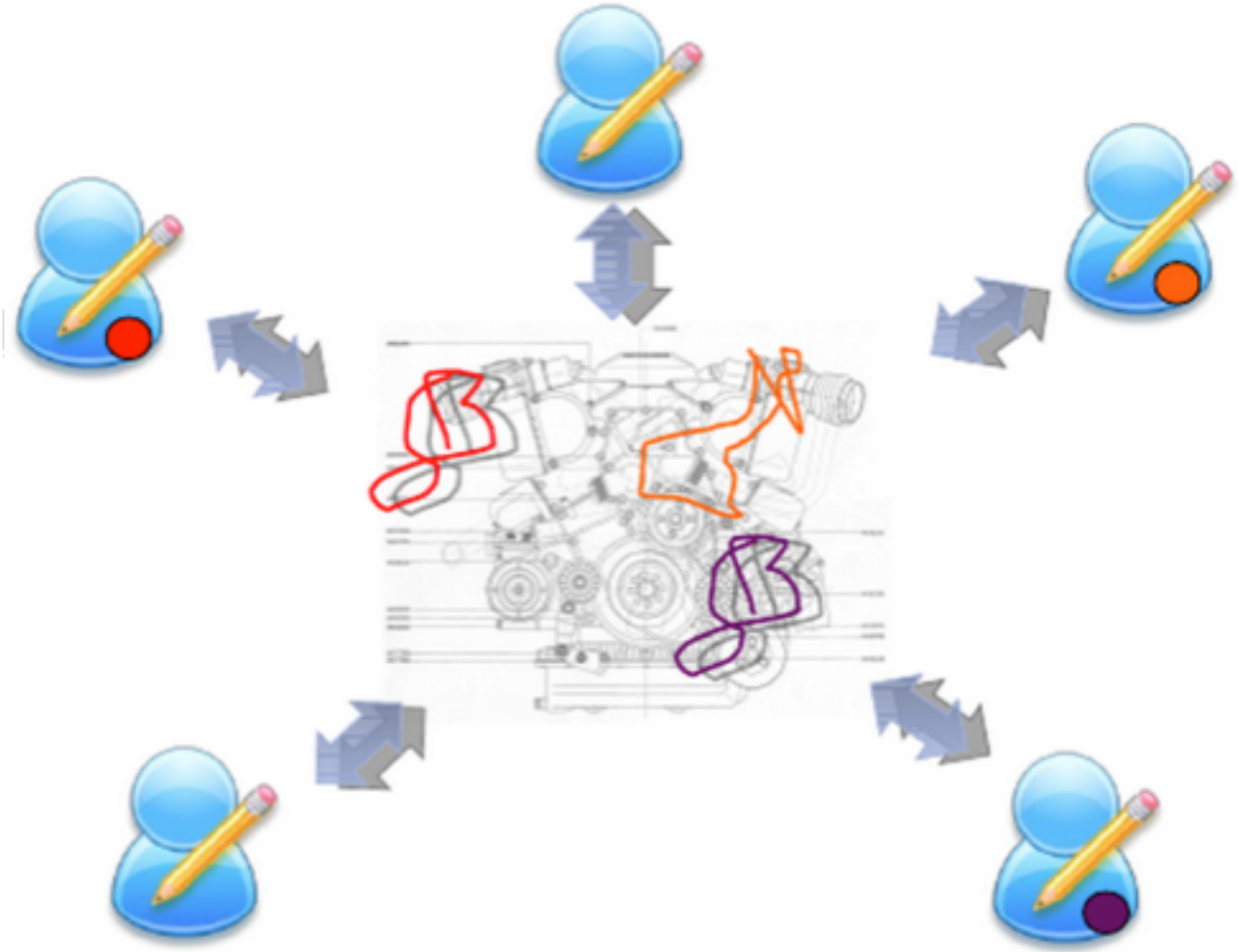
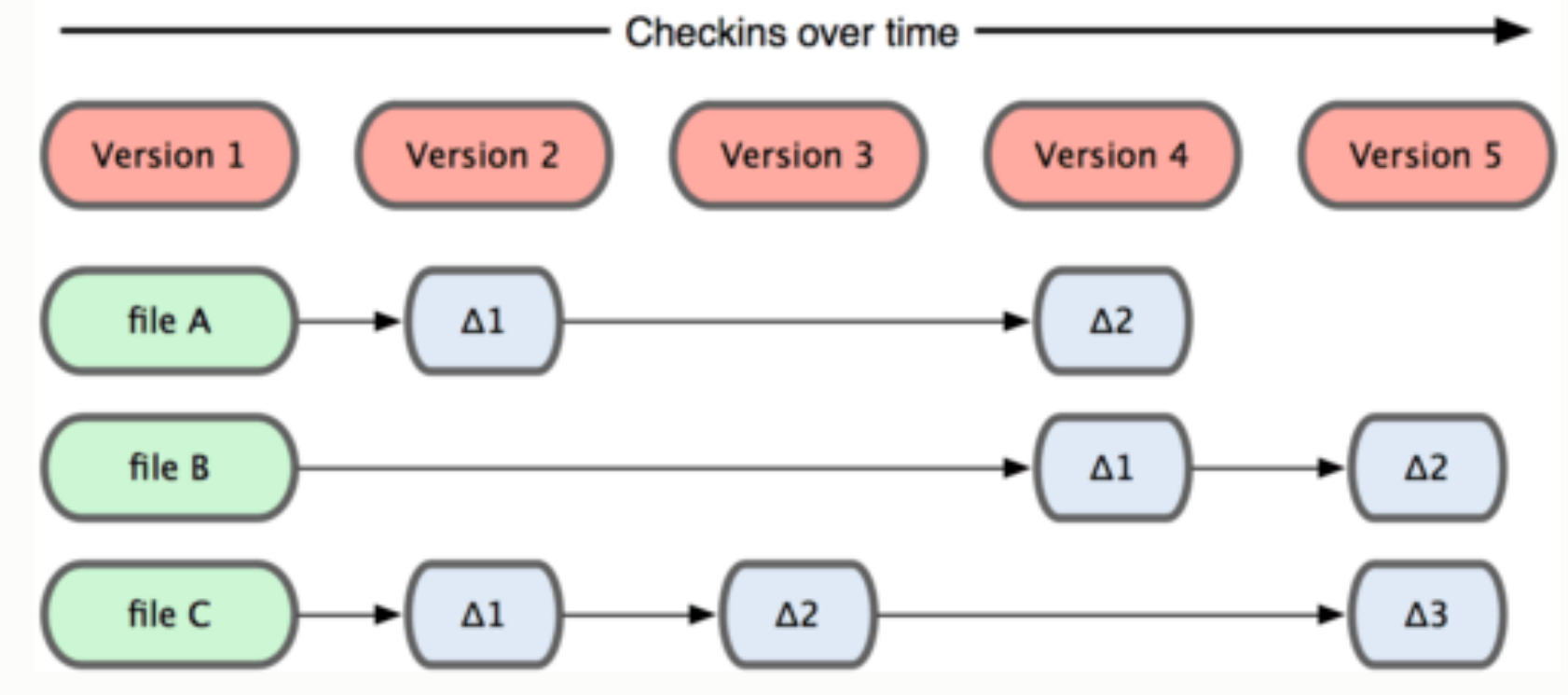
Development is Collaborative



Development is Collaborative



Development is Collaborative



Version Control System (VCS)

CVS, SVN, Git, Mercurial, Dropbox(!), etc.

- Keeps multiple (older and newer) versions of everything (not just source code).
- Requests comments regarding every change.
- Typically synchronize through “check in” and “check out”.
- Displays differences between versions.

Version Control System (VCS)

Local Version Control saves changes to files in a database.

Centralized Version Control saves changes to a shared server

Distributed Version Control allows for easier sharing of files then LVC and also eliminates problems that could occur if access to the server is lost under a CVC system.

Distributed Version Control

DVC clients have a complete backup of the files on their computer. If the server is lost the client just waits to regain contact and then uploads changes.

-- Each client has a complete history of all changes stored locally.

-- The client can also access all changes made to the files historically with a simple command.

-- Git monitors all file change, constantly.

DVC

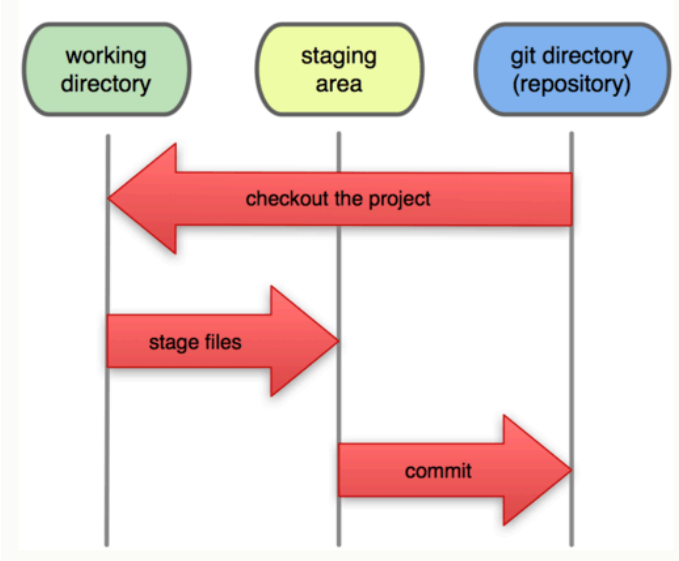
Distributed systems like Mercurial and Git are newer and are gradually replacing centralized systems like CVS and Subversion.

Git

- Created in 2005
- Designed for speed
- Support for many parallel branches
- Distributed, promotes local work
- Able to handle large projects

Git (Create a new repository)

```
touch README.md
git init
git add README.md
git commit -m "first commit"
```



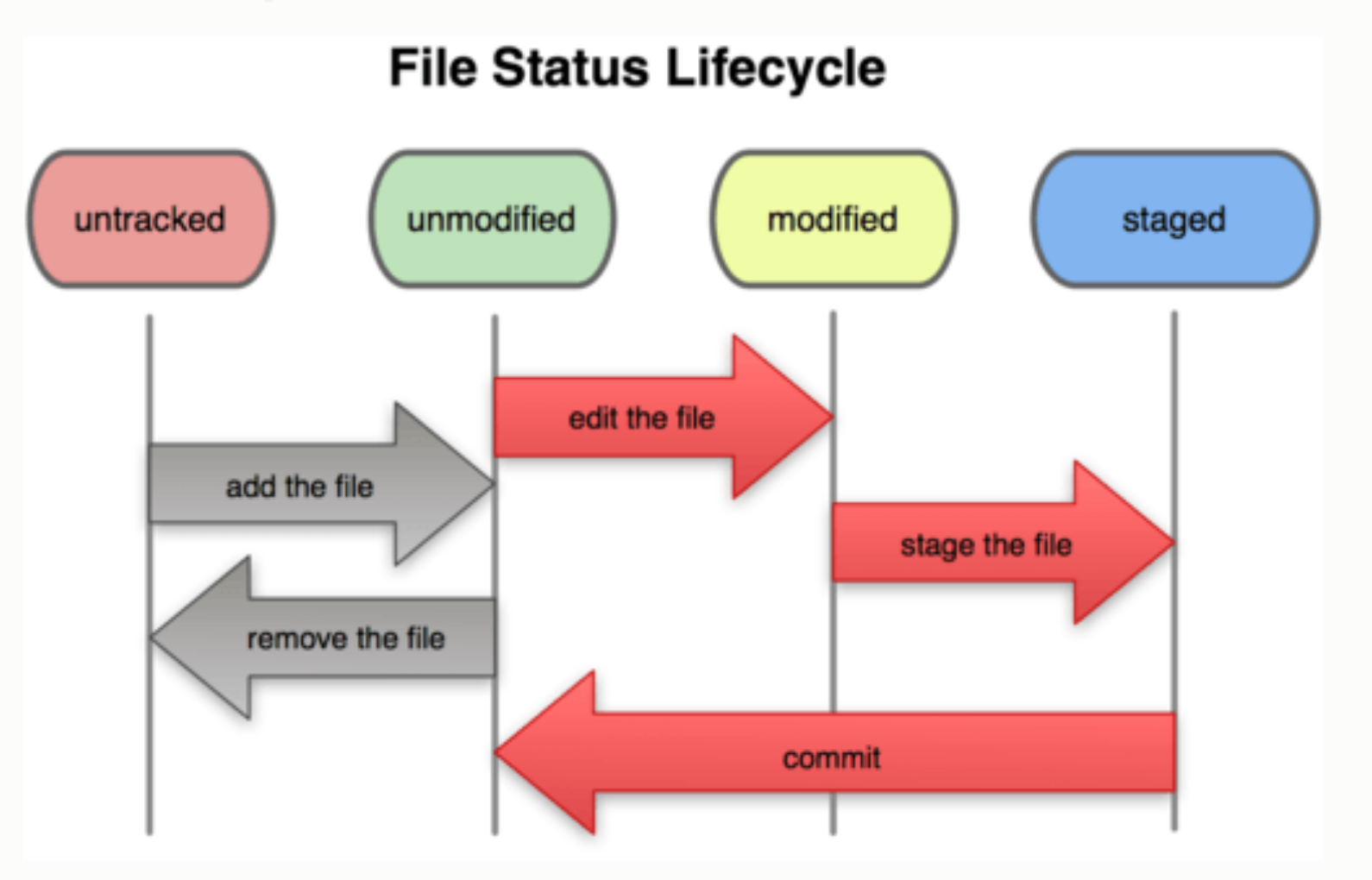

```
git remote add origin https://github.com/
mashiyat/CSC309.git
git push -u origin master
```

Git (pushing existing repository)

```
git remote add origin https://github.com/
mashiyat/CSC309.git
```

```
git push -u origin hotfix
```

File status lifecycle in Git



Git

For free private repo

https://bitbucket.org/

Social Coding (Real Time)

For real time collaboration

https://c9.io/

Task Tracking System

GitHub

https://github.com/jquery/jquery-mobile/issues

Other Free alternative

https://Freedcamp.com

Organizing your tasks and thoughts

Trello (https://trello.com)

https://www.youtube.com/watch?v=aaDf1RqeLfo#t=15

Online Task Manager

https://www.online-task-manager.com/

-- Trello is weak in tracking time estimations.

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References

http://en.wikipedia.org/wiki/The_Cathedral_and_the_Bazaar
http://git-scm.com/book/en/Git-Basics-Recording-Changes-to-the-Repository
http://git-scm.com/book/en/Git-Branching-Basic-Branching-and-Merging
http://www.newthinktank.com/2014/04/git-video-tutorial/