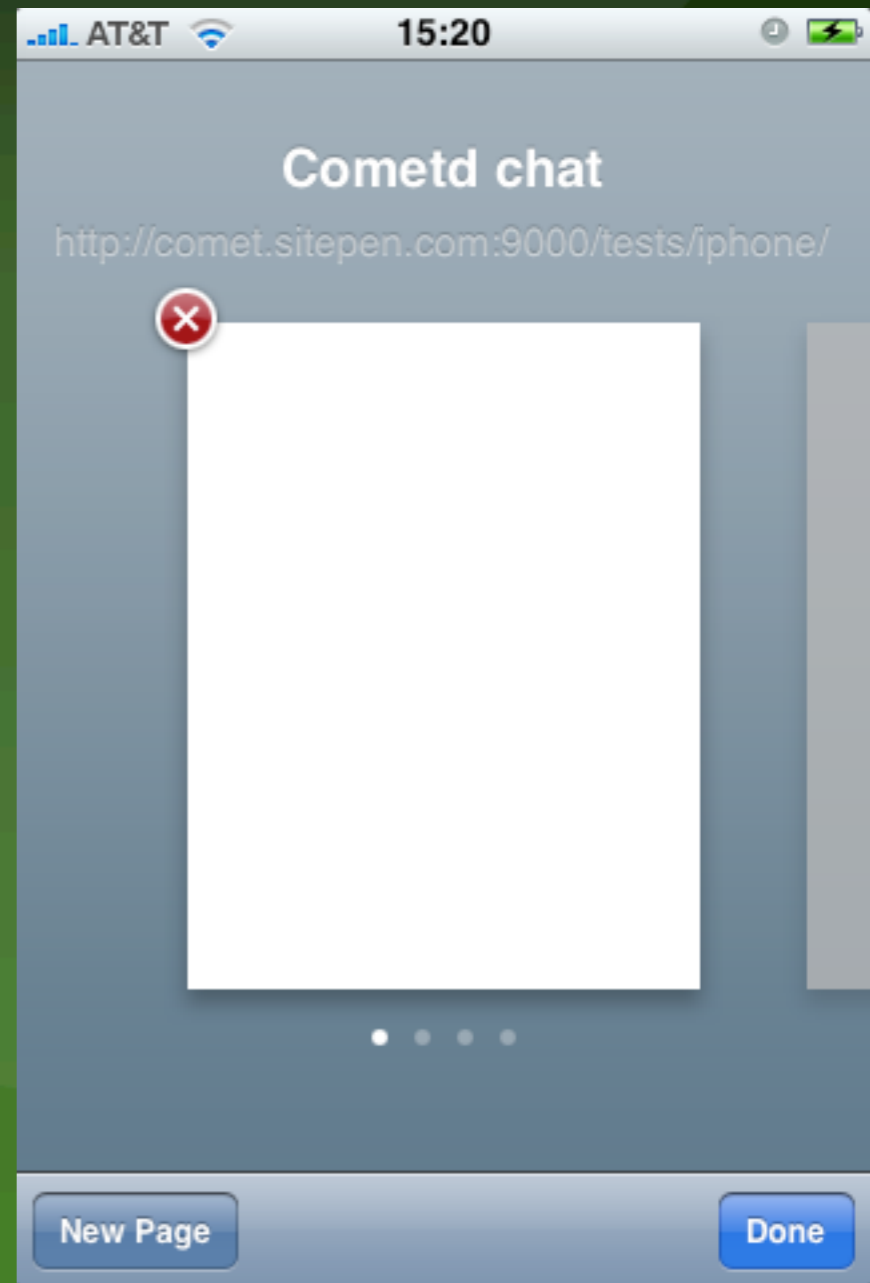
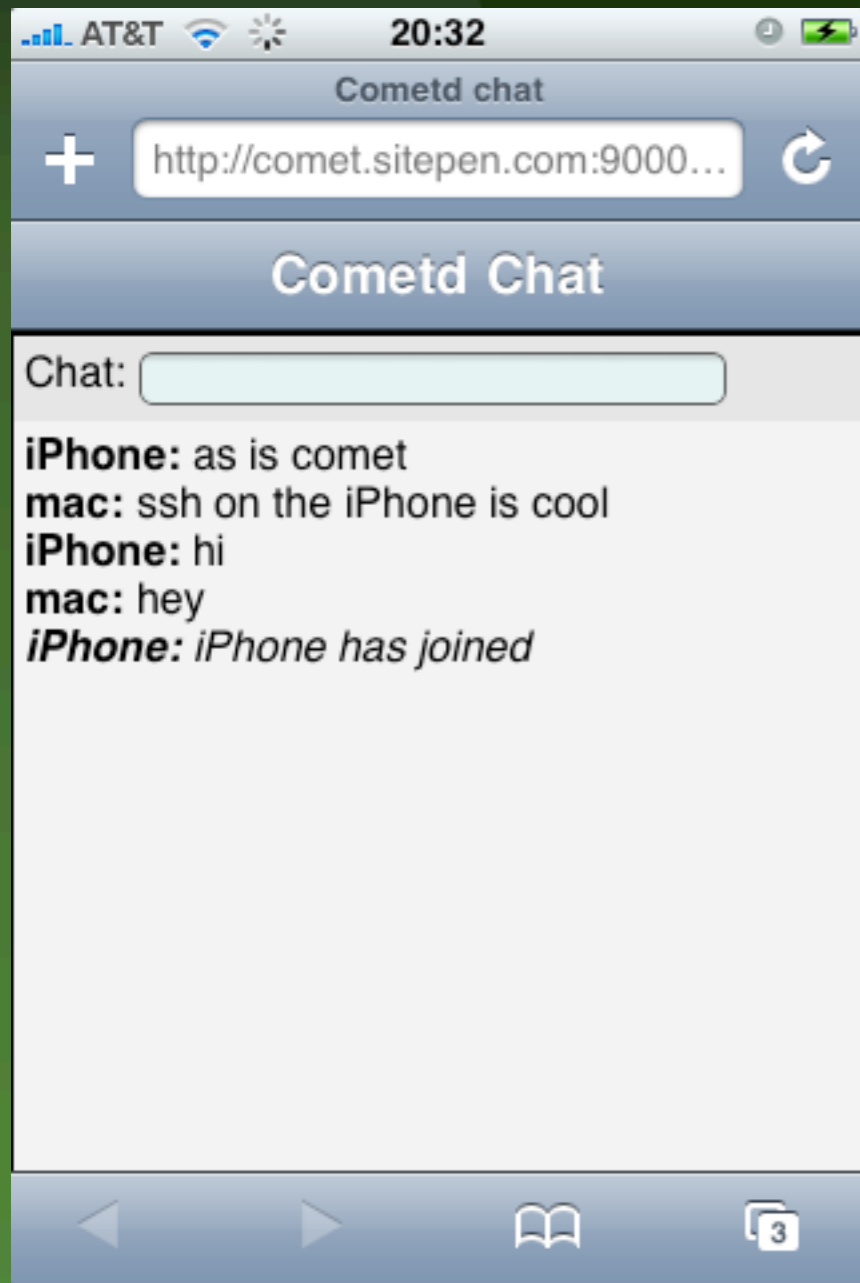
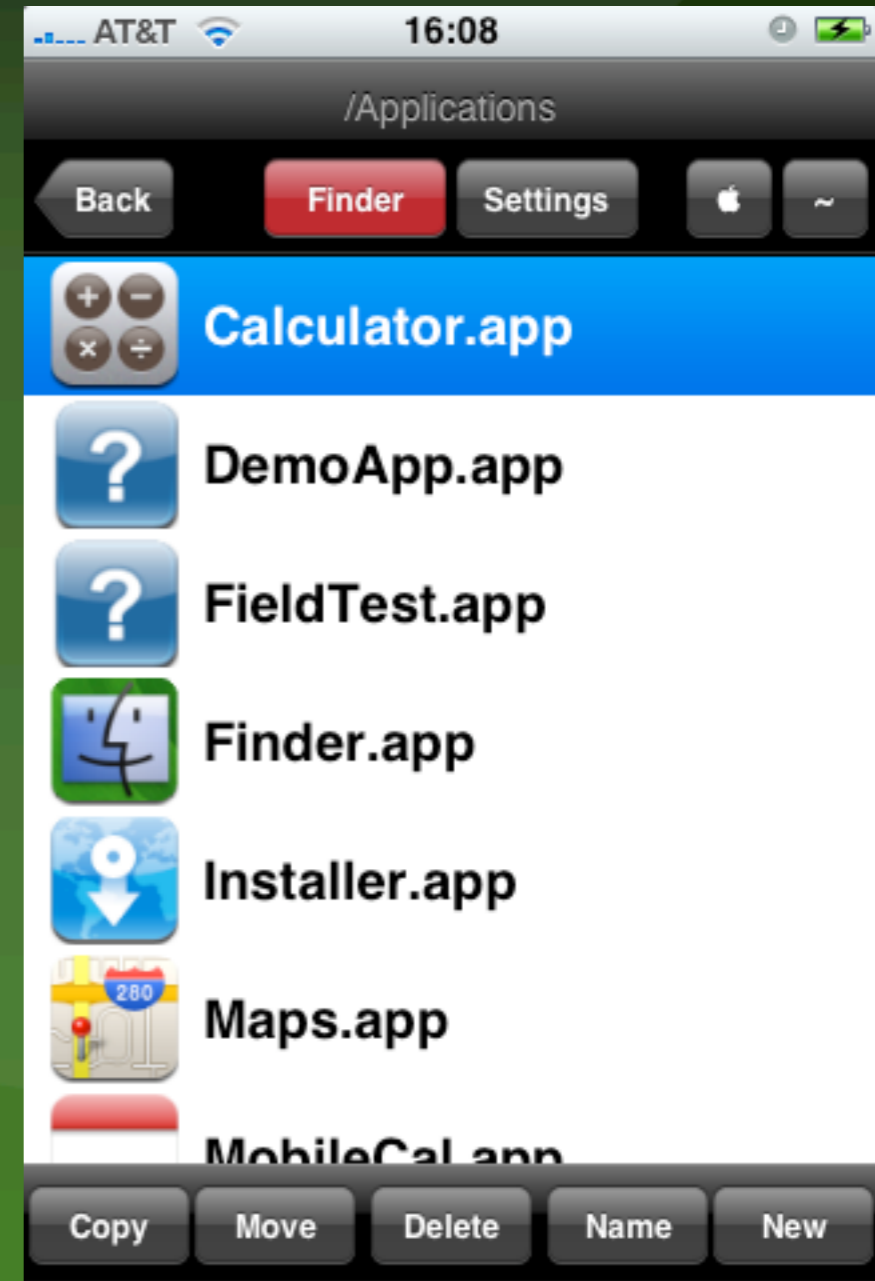
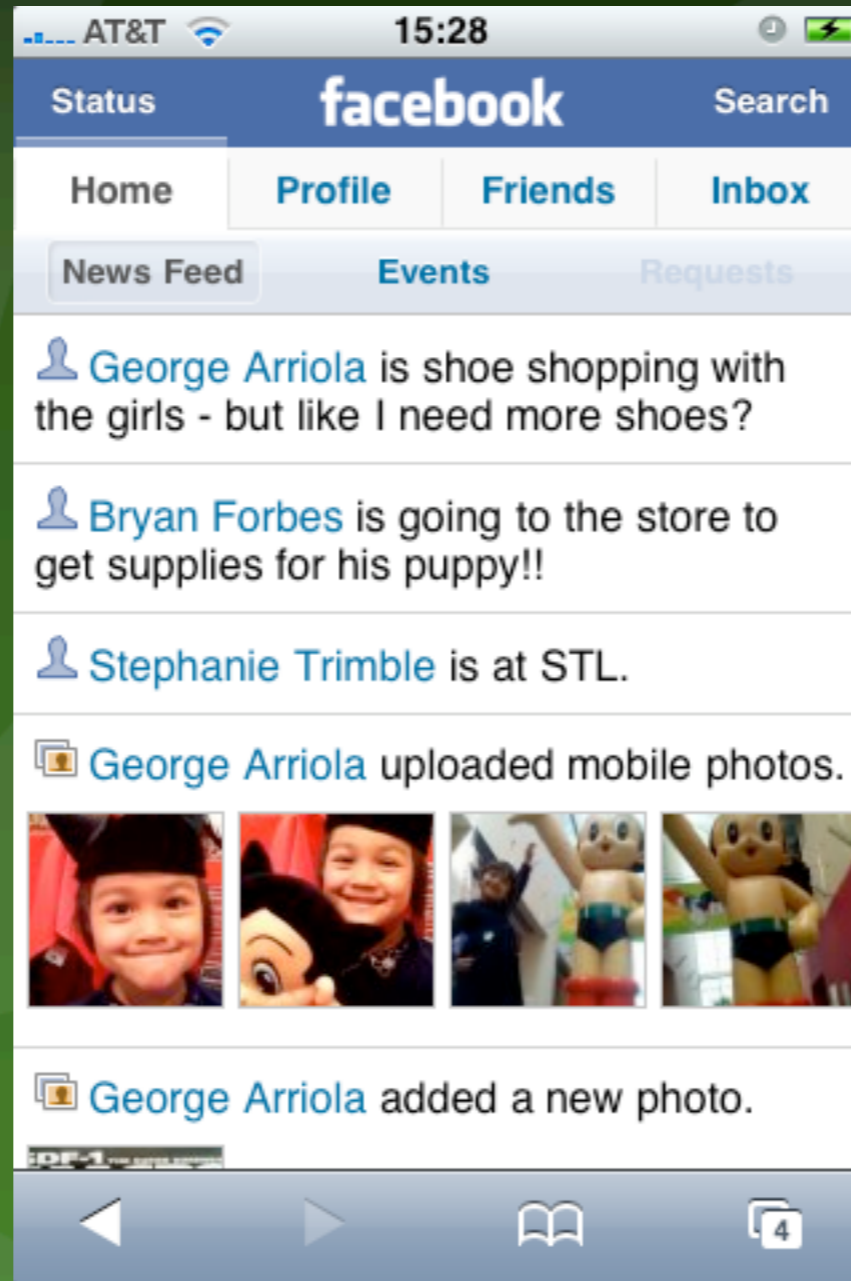
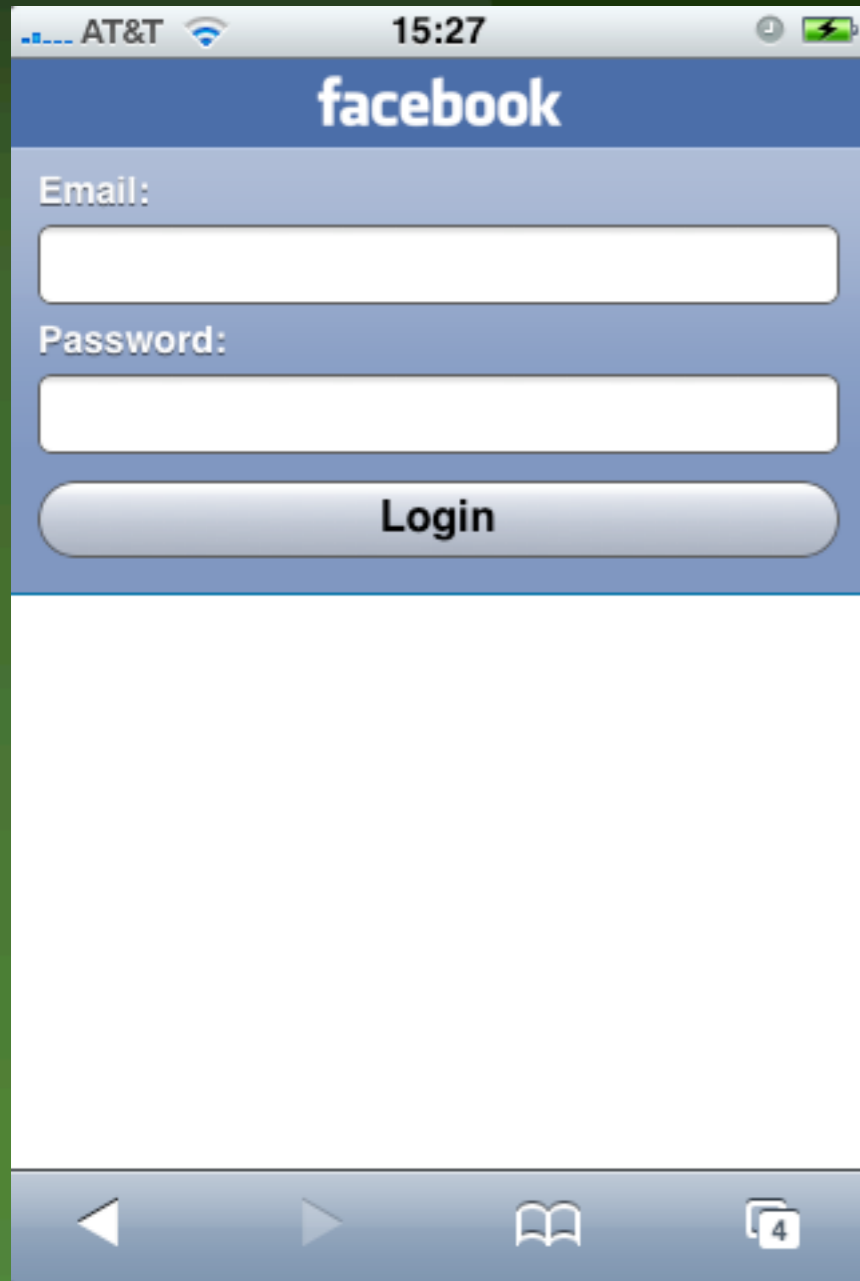


Dojo on the iPhone

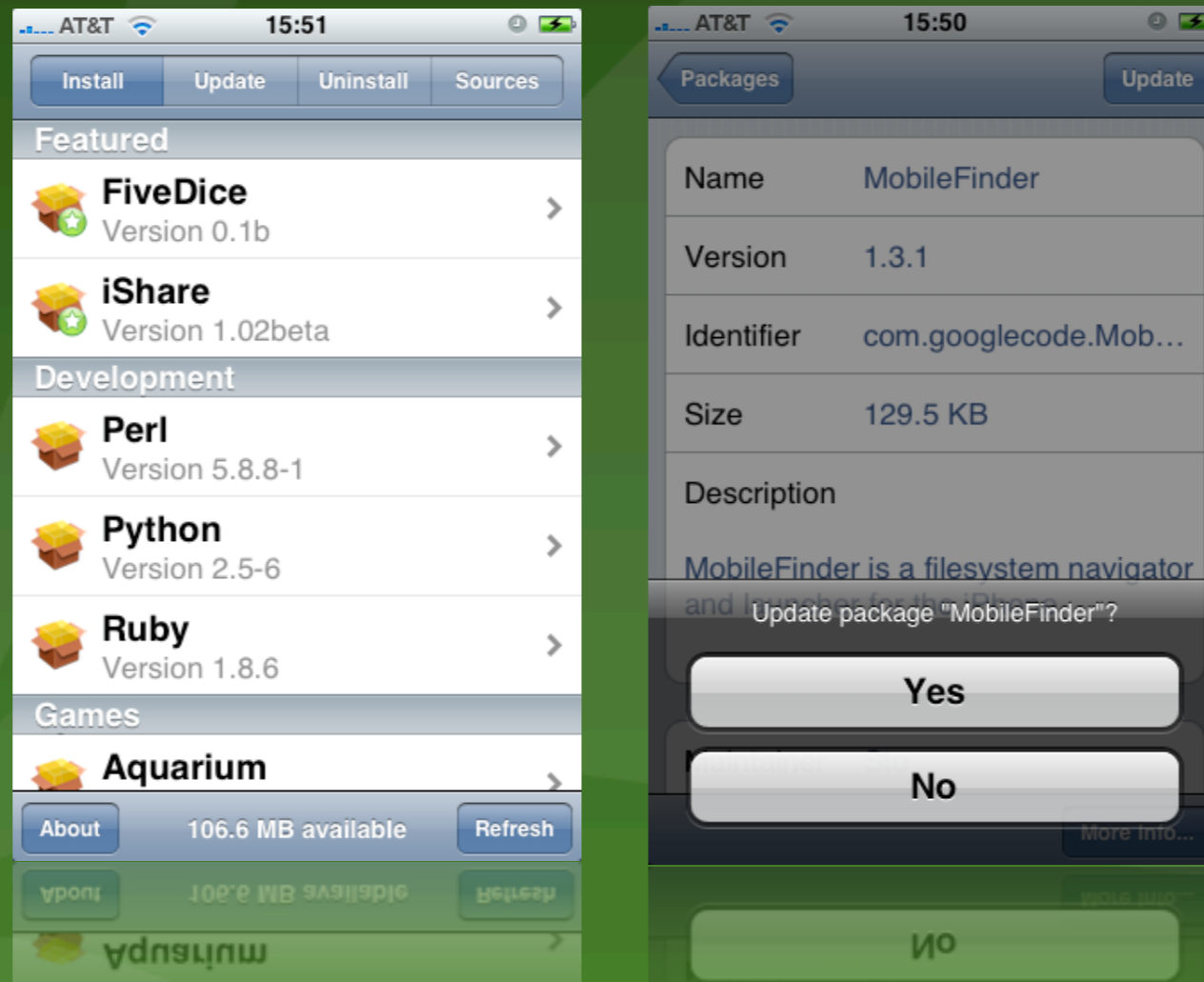
September 24, 2007
Dylan Schiemann

presented by
 sitepen





Hacking the iPhone



- AppTapp and Installer.app

Hacking the iPhone

A screenshot of an iPhone terminal window. The status bar at the top shows 'AT&T', signal strength, Wi-Fi, and the time '15:55'. The terminal text is as follows:

```
2007-09-09 15:55:29.140 sh[127:d03]
SummerBoardLoader: SummerBoardService
available.
# # ls
2007-09-09 15:55:34.694 ls[128:d03]
SummerBoardLoader: SummerBoardService
available.
Applications bin etc sbin var
Library cores mach tmp
System dev private usr
# #
```

- OpenSSH and MobileTerminal

Hacking the iPhone

```
launchd
(iPHUC) /tmp:
help: Enter a command to display its documentation string.
Commands accessible in this mode:
>> help <command> - Display help information on <command>. No args lists commands.
>> cd <path> - Change directory to <path>
>> lcd <path> - Change local directory to <path>
>> ls [path] - List directory at current working path or [path]
>> mkdir <path> - Create directory at <path>
>> rmdir <path> - Remove directory at <path>
>> activate <path> - Activate iPhone with .plist file at <path>
>> deactivate - Deactivate iPhone
>> readvalue <value> - Read <value>. No args lists known values.
>> enterrecovery - Enter recovery mode. **WARNING: You'll need to restore the iPhone.
>> reconnect - Exit current shell and reconnect to device.
>> startservice <service> - Starts service <service> on the iPhone. No args lists services
>> deviceinfo - Display device info.
>> getfilesize <path> - Display size of file at <path>
>> getfile <path> [localpath] - Get file on iPhone at <path> and write it to [localpath]
>> putfile <localpath> [path] - Put file at <localpath> on iPhone at [path]
>> fileinfo <path> - Display info for file at <path>
>> exit - Escape to shell. The other shell, the one whos child i am.
>> lpwd - Display the current local working directory.
>> pwd - Display the current remote working directory.
>> setafc <name string> - Set the name of the afc service to use.
>> run <path> - runs a script at <path>.
(iPHUC) /tmp: getfile foo_0.png
(iPHUC) /tmp: getfile foo_0.png
(iPHUC) /tmp:
reeses:~/downloads default$ ./iphuc
iphuc 0.6.1
>> By The iPhoneDev Team: nightwatch geohot ixtli warren nall mjc operator
CFRunLoop: Waiting for iPhone.
notification: iPhone attached.
AMDeviceStartService 'com.apple.afc': 0
(iPHUC) /: setafc com.apple.afc2
(iPHUC) /: cd /tmp/
(iPHUC) /tmp/: ls
(iPHUC) \rmb\ : ls
(iPHUC) \: cd \rmb\
(iPHUC) \: setafc com.apple.afc2
notification: iPhone attached.
CFRunLoop: Waiting for iPhone.
>> By The iPhoneDev Team: nightwatch geohot ixtli warren nall mjc operator
notification: iPhone attached.
```

● iPHUC

What Does Apple Think?



<http://www.engadget.com/2007/06/11/steve-jobs-live-from-wwdc-2007/>

What Does Apple Think?

- Q: “There is something so much better about being able to load a proper software app onto an iPhone... Do you guys feel that this is something that should just be a natural progression of where you are going?”

<http://www.engadget.com/2007/09/06/the-engadget-interview-phil-schiller-apple-senior-vp-of-worldw/>

What Does Apple Think?

- A: “No. I'm not sure that it needs to be. I won't predict about anything that we may or may not do in the future. But I think that there is a lot to do with these Web 2.0 apps and that's where my focus is.”
- Phil Schiller, Apple Senior VP

<http://www.engadget.com/2007/09/06/the-engadget-interview-phil-schiller-apple-senior-vp-of-worldw/>

What Does Apple Think?

- “And so you can write amazing Web 2.0 and AJAX apps that look and behave exactly like apps on the iPhone, and these apps can integrate perfectly with iPhone services.”
- Steve Jobs, Apple WWDC, June, 2007
- It depends on your definition of exactly

<http://www.engadget.com/2007/06/11/steve-jobs-live-from-wwdc-2007/>



Safari on the iPhone

Safari, but what version?

- WebKit/420+
- Safari/419.3
- Not Safari 3, but more advanced than Safari 2
- Leopard release expected in October
 - Based on Apple announcement
 - Hopefully will update to Safari 3
 - Especially in light of Safari for Windows

<http://developer.apple.com/internet/safari/uamatrix.html>

iPhone Safari Features

- (X)HTML
- CSS 2.1, and parts of CSS 3
- DOM
- Canvas
- JavaScript 1.4
- PDF and QuickTime
- “Tabbed” Browsing
- XHR

Limitations

- Power equivalent to a G3 Mac
- Image size constraints
- JavaScript resource limits
 - 5 second execution time
 - 10 MB memory allocation limit
 - 8 document limit
- No in-page embedding of audio or video

What's Missing?

- Media embedding
- SVG
- No Flash and Java (feature or bug?)
- APIs for touch events, zoom, pinch, viewport rotation, "media conclusion"
- Debugging Tools

What's Missing?

- Drag-N-Drop
- Copy and Paste
- Selection
- File Upload
- Reliable DOM Events

DOM Events are a mess

- Mouse, keyboard events
 - fire inconsistently
 - throttled
- Form events
 - onsubmit, input events fire inconsistently
- Zooming, dragging
 - impact seemingly unrelated events
- Two steps forward, one step back

<http://www.sitepen.com/blog/2007/08/02/safari-on-the-iphone-2-steps-forward-1-step-back/>

.select on an Input Node

- Expected:
 - Call the onfocus event
- Actual:
 - Doesn't fire anything.. until you either scroll the page or zoom the page. If you scroll the page, onfocus and onblur fire. If you zoom, onfocus is fired while you're zooming and onblur fires when you lift your fingers

onmouseup Event Firing

- Expected:
 - onmouseup shouldn't fire until after UI reflects the key event
- Actual:
 - onmouseup fires before the UI reflects the key event

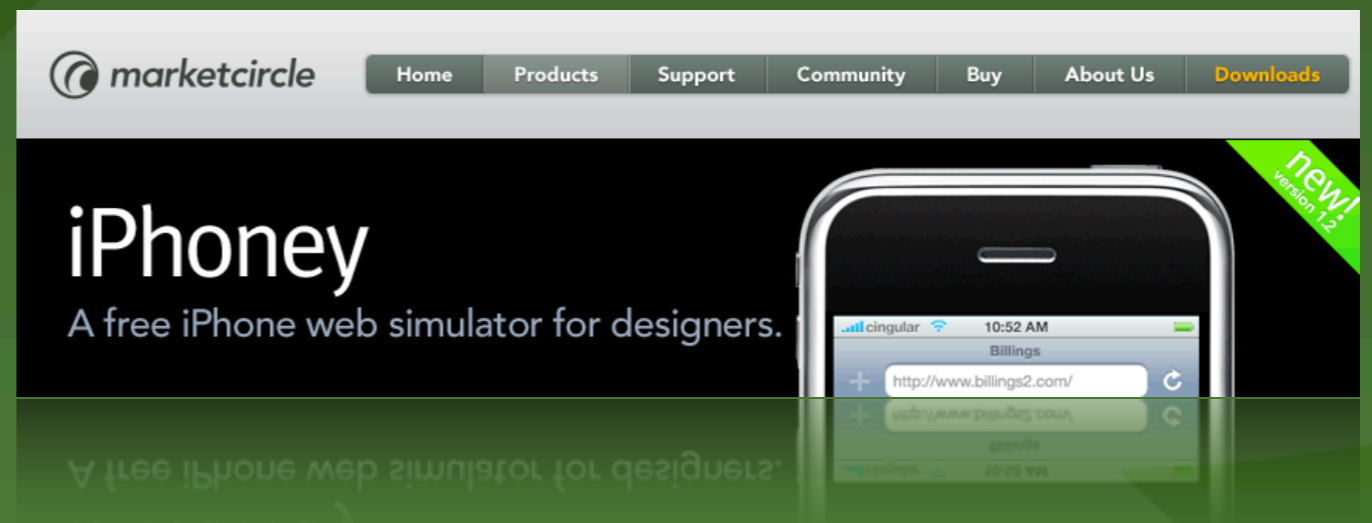
onkeyup Event Firing

- Expected:
 - onkeyup should fire even if preventDefault is used in onkeydown or onkeypress
- Actual:
 - onkeyup doesn't fire if preventDefault is called

Development Tools

iPhoney

- Simulates dimensions, zooming, and other basic features
- Uses Safari 3 Beta, not an exact match



iPhone Desktop Simulator for Mac OS X

Debug Console

- iPod Touch
- iPhone, coming soon?

Developer Settings

The Debug Console can help you resolve webpage errors. When turned on, the console appears automatically when a webpage error occurs.

Turn the debug console on or off

- Choose Safari > Developer, and turn Debug Console on or off.

Apple's Debug Console

Firebug

- Same API as popular Firebug Console
- Python-based remote server for receiving messages



Remote debugging console

iUI

- Navigational Menus from JSON objects
- Navigation headers and as much of the UI with the canvas tag (speed)
- Phone rotation events
- Provide a more "iPhone-like" experience to Web apps (on or off the iPhone)
- 1.8 KB with gzip and Dojo ShrinkSafe

Music		Search
Artists		>
Settings		>
Stats		>
About		>
Nothing		

Um, what about...

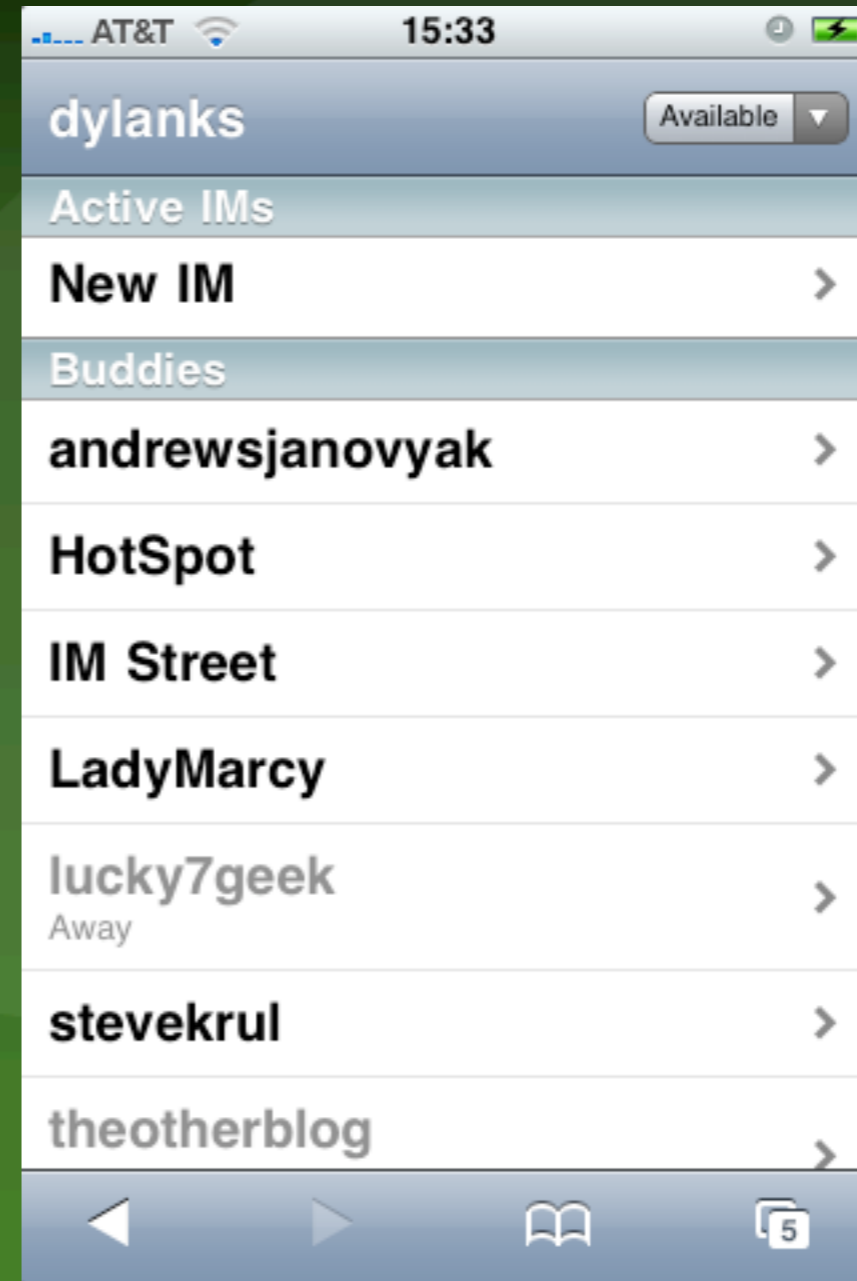
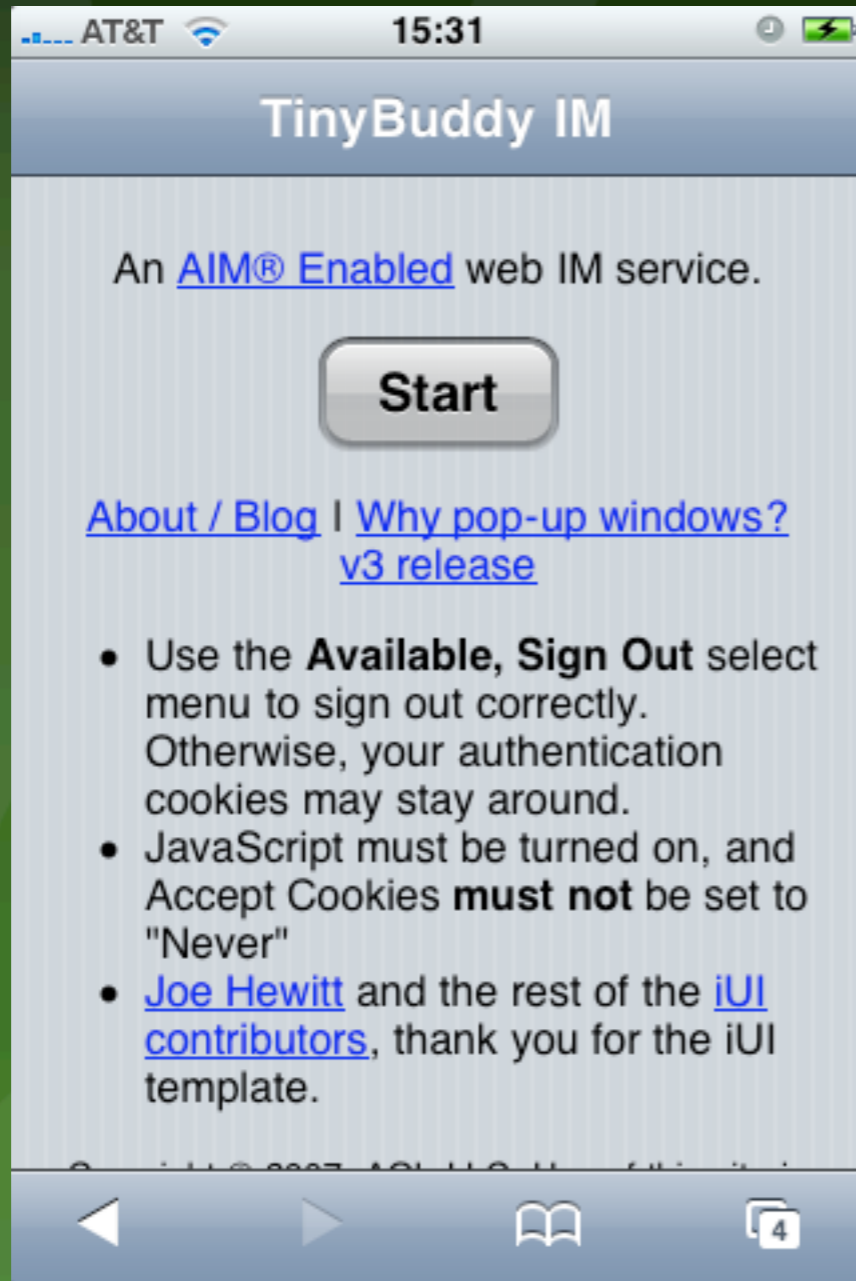
dōjō

Dojo 0.9

- 25 KB base with gzip
- Most APIs “just work”
 - ajax, comet, dijit, data, packages, behavior, etc.
- Some not so much
 - gfx, dnd, charting, offline, storage, flash
 - animations, CPU-intensive tasks challenge us
 - event handling quirks require rethinking UI
- Resource constraints and EDGE vs. Wi-fi

Examples

TinyBuddy IM

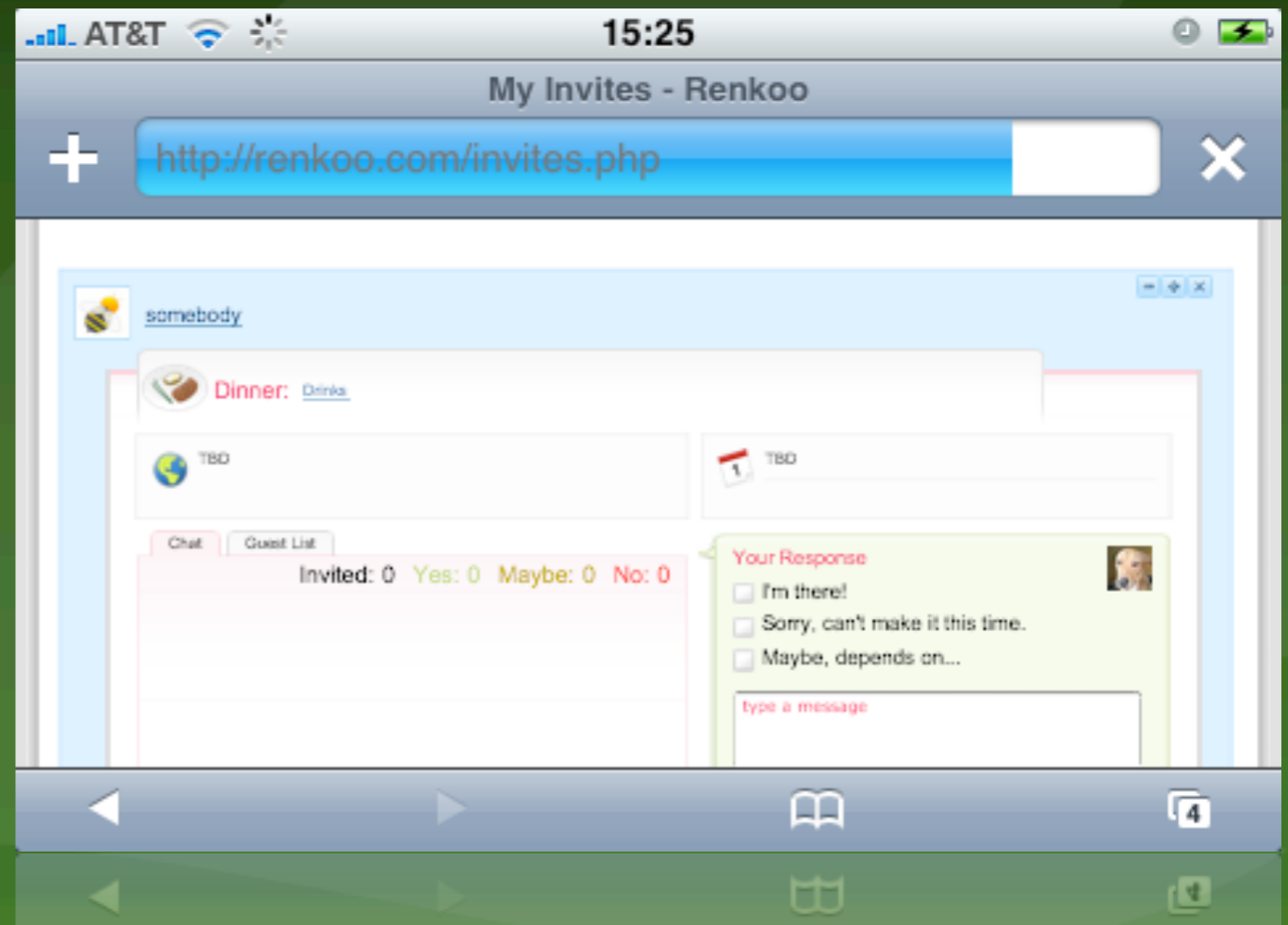


TinyBuddy IM

```
dojo.addOnLoad(function(){
    // ... set params, start the IM setup.
    aim.wim.apiKey = key; var authPageUrl = location.href;
    var authPageUrl = authPageUrl.substring(0,
        authPageUrl.lastIndexOf("/") + 1);
    aim.wim.authPageUrl = authPageUrl + "auth.html";
    if(true || agent.indexOf("iphone") != -1 ||
        agent.indexOf("safari") != -1){
        // set a bunch of app specific params for the iPhone}
    });
    if(typeof(dojo) == "undefined"){
        window.onerror();
    }else{
        isLoadComplete = true;
        dojo.byId("signInButton").style.display = "inline";
        dojo.byId("signInStatus").innerHTML = "";}
```

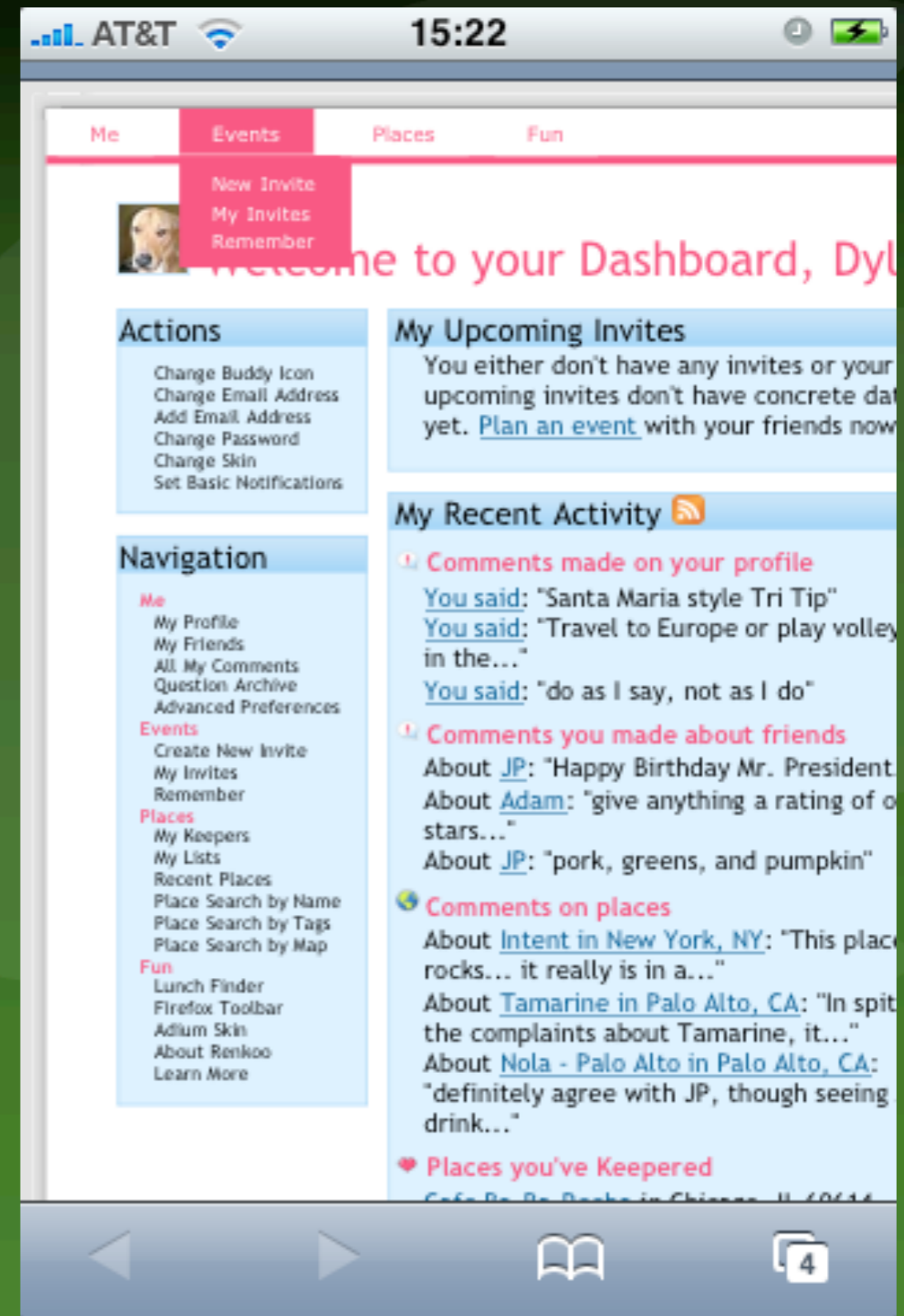

Renkoo

- Dojo 0.4
- Comet (repubsub)
- Not “iPhone-optimized”



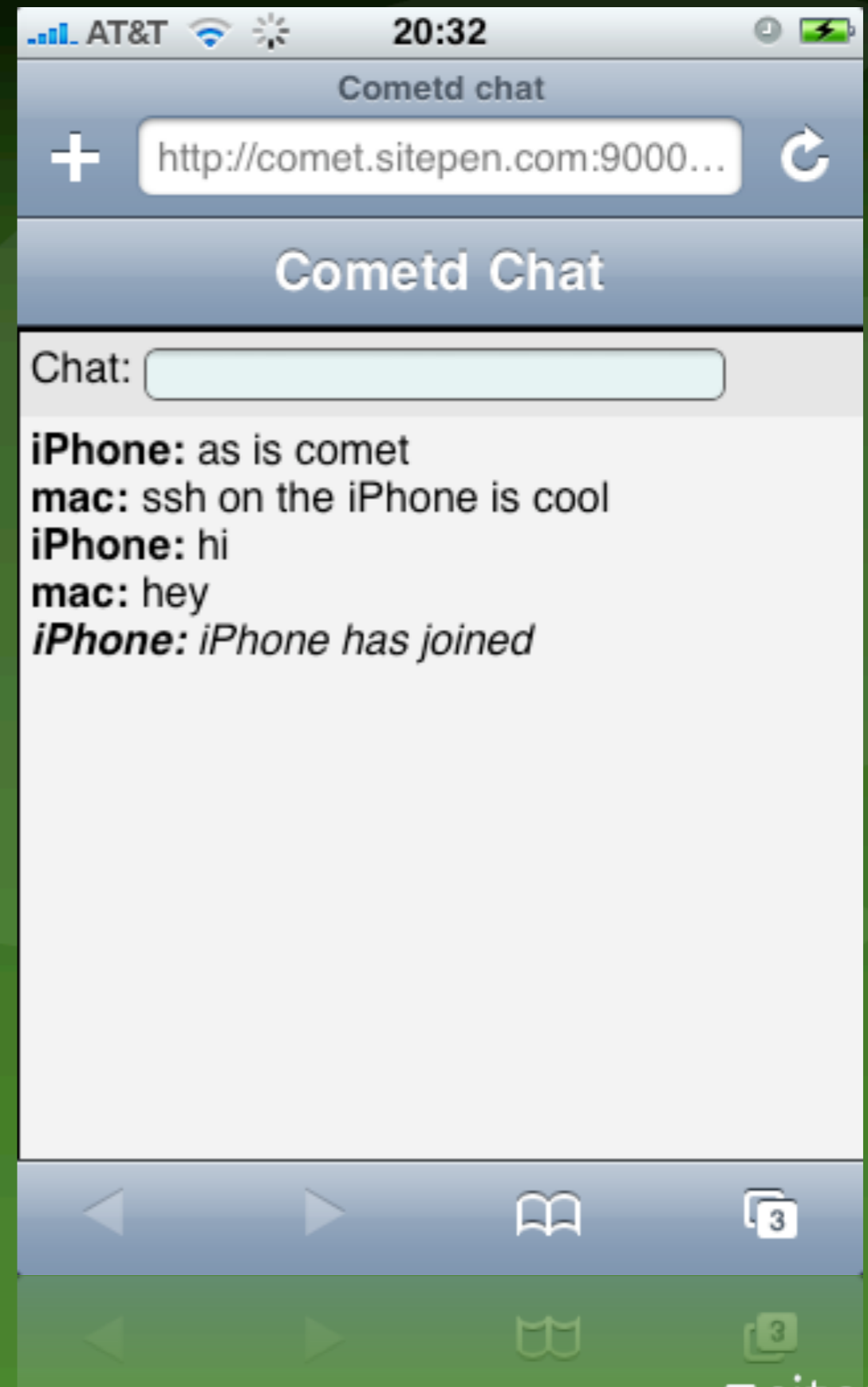
Renkoo

- Drop-down navigation
- Functional, but not easy to use
- Not “iPhone-optimized”



Cometd Chat

- Demo-quality
- Dojo 0.9
- Python Cometd server
- Low-latency
- Try it



Cometd Chat Initialization

```
_init: function(){  
    dojo.byId('join').className='';  
    dojo.byId('joined').className='hidden';  
    dojo.connect( dojo.byId("joinB"), "onclick", null,  
        function(event){  
            room.join(dojo.byId('username').value);  
            return false;  
        });  
    dojo.connect(dojo.byId("phrase"), "onblur", null,  
        function(event){  
            if(dojo.byId('phrase').value.length > 0) {  
                room.chat(dojo.byId('phrase').value);  
                dojo.byId('phrase').value='';  
            }  
        });  
}
```

Cometd Chat Publish

```
dojox.cometd.publish("/chat/demo", { user: room._username,  
chat: text});
```

Cometd Chat Subscribe

```
dojox.cometd.subscribe("/chat/demo", room, "_chat");
```

Optimized Dojo Build?

- Squeeze out every last unnecessary KB
- Remove unsupported features
- Not yet trying to fix iPhone bugs, waiting for things to stabilize
- Optimized build to be released in time for Dojo 1.0 in late October

Conclusions

- Dojo's power and speed work on the iPhone
- You have to test the experience on the iPhone
 - ... especially on the EDGE network
 - Rethink UI in terms of touching and zooming
- Ajax, Comet, DOM work really well
- iUI supplies great CSS and a few other niceties
- When possible, utilize the iPhone UI experience
- No real developer tools from Apple, yet

Thanks!
Q&A Anyone?