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www.GDConf.com

HTML5: The New UI Library For Games

- Chad Austin
- Technical Director, IMVU

UBM

HTML IS WINNING

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Browser wars are hotter than ever

- Features like canvas, SVG, CSS3, becoming standard
- GPU accelerated compositing & rasterization
- Tracing JITs

Terminology

- HTML = markup + CSS + JS + Canvas + sockets + etc.
- Mozilla = Firefox = Gecko

HISTORY OF IMVU'S UI

2004-2007: C++ & OpenGL

C++, GL, Win32

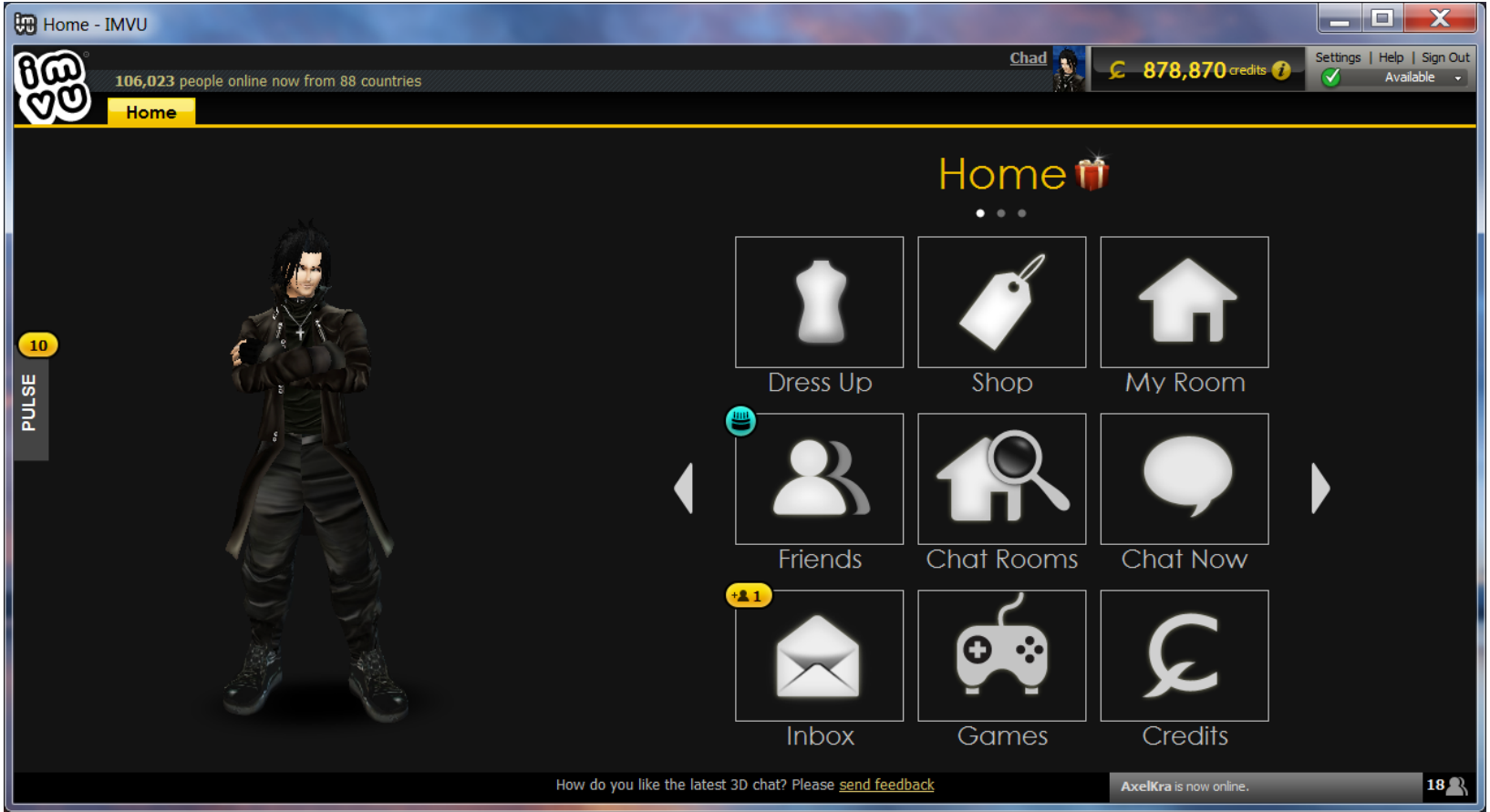
- Cons
  - Hard to find talent
  - Hard to maintain
  - Long recompiles and iteration times
  - Inflexible

2007-2009: Flash

Flash, Flex

- Pros
  - Able to iterate
  - Easy animation, video
- Cons
  - High memory usage, address space leaks
  - Looong mxmlc compile times
  - Buggy

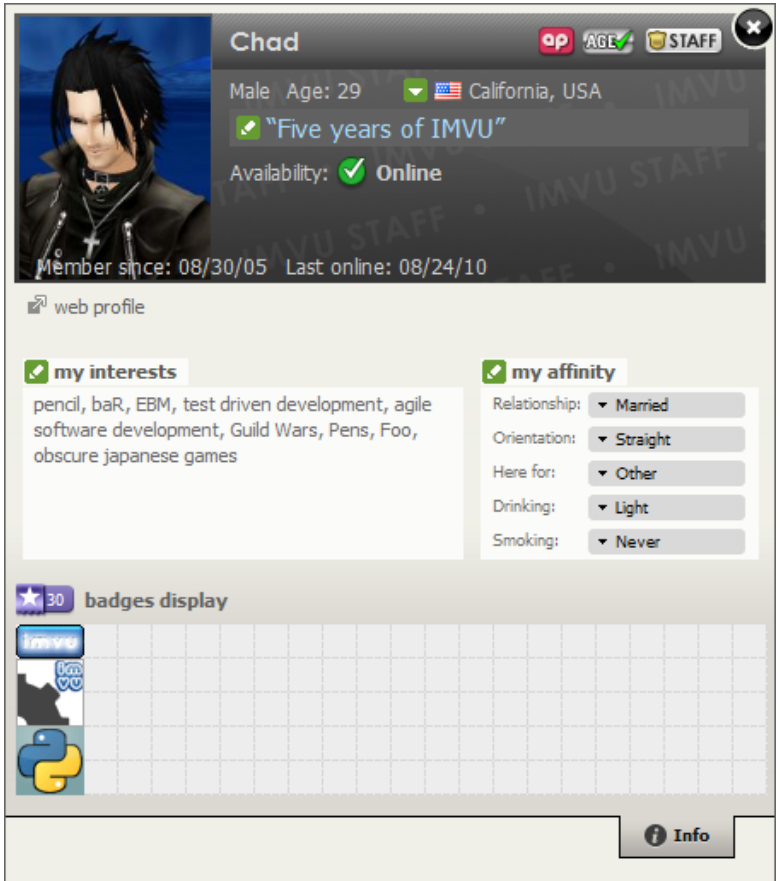
2009+: HTML


Home - IMVU
106,023 people online now from 88 countries
Chad
878,870 credits
Settings | Help | Sign Out
Available
Home
Home
10
PULSE
Dress Up
Shop
My Room
Friends
Chat Rooms
Chat Now
1
Inbox
Games
Credits
How do you like the latest 3D chat? Please send feedback
AxelKra is now online.
18

Pros!

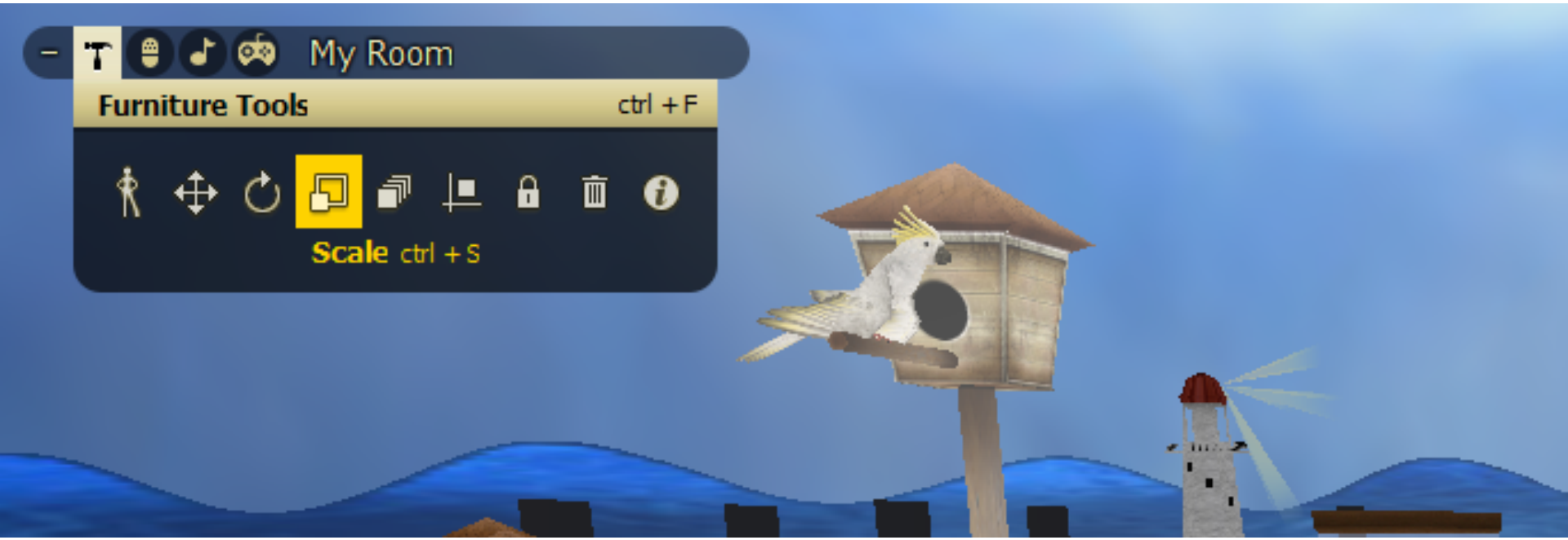
- Very fast iteration
- Matched intended design to the pixel
- Performance was fantastic
- Render to texture and composite in 3D scene

2009+: HTML


Chad
STAFF
Male Age: 29
California, USA
"Five years of IMVU"
Availability: Online
Member since: 08/30/05 Last online: 08/24/10
web profile
my interests
pencil, baR, EBM, test driven development, agile software development, Guild Wars, Pens, Foo, obscure japanese games
my affinity
Relationship: Married
Orientation: Straight
Here for: Other
Drinking: Light
Smoking: Never
badges display
Info

2009+: HTML

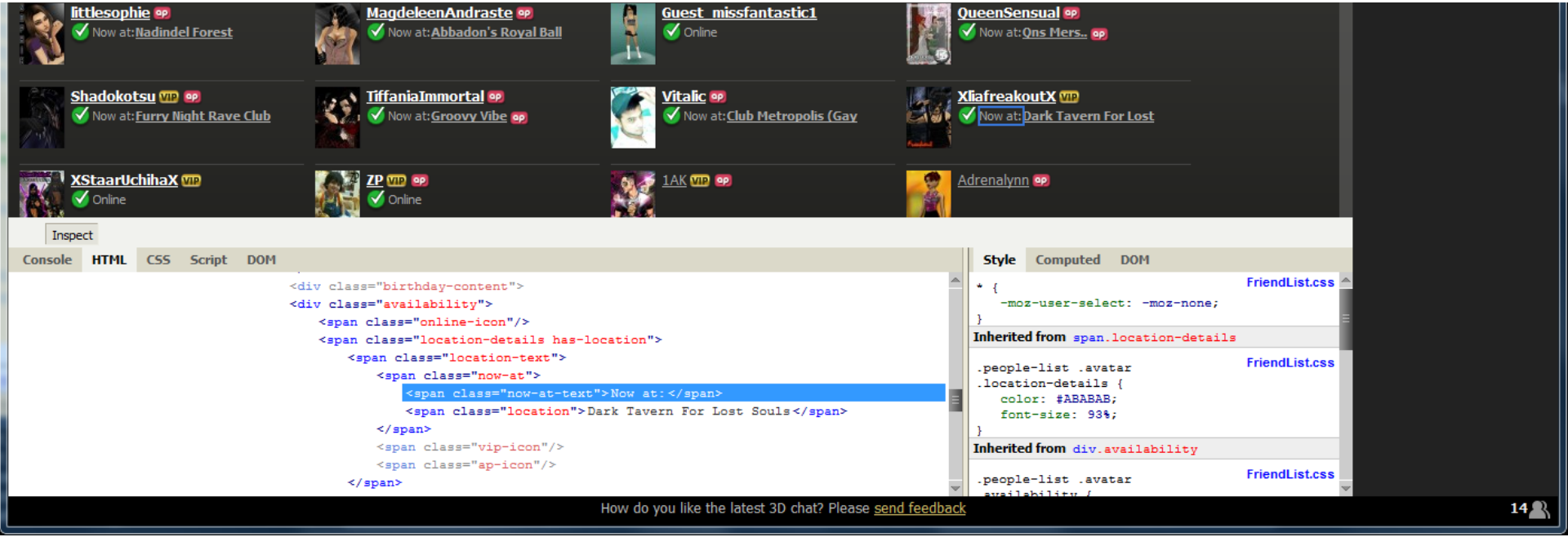
2009+: HTML



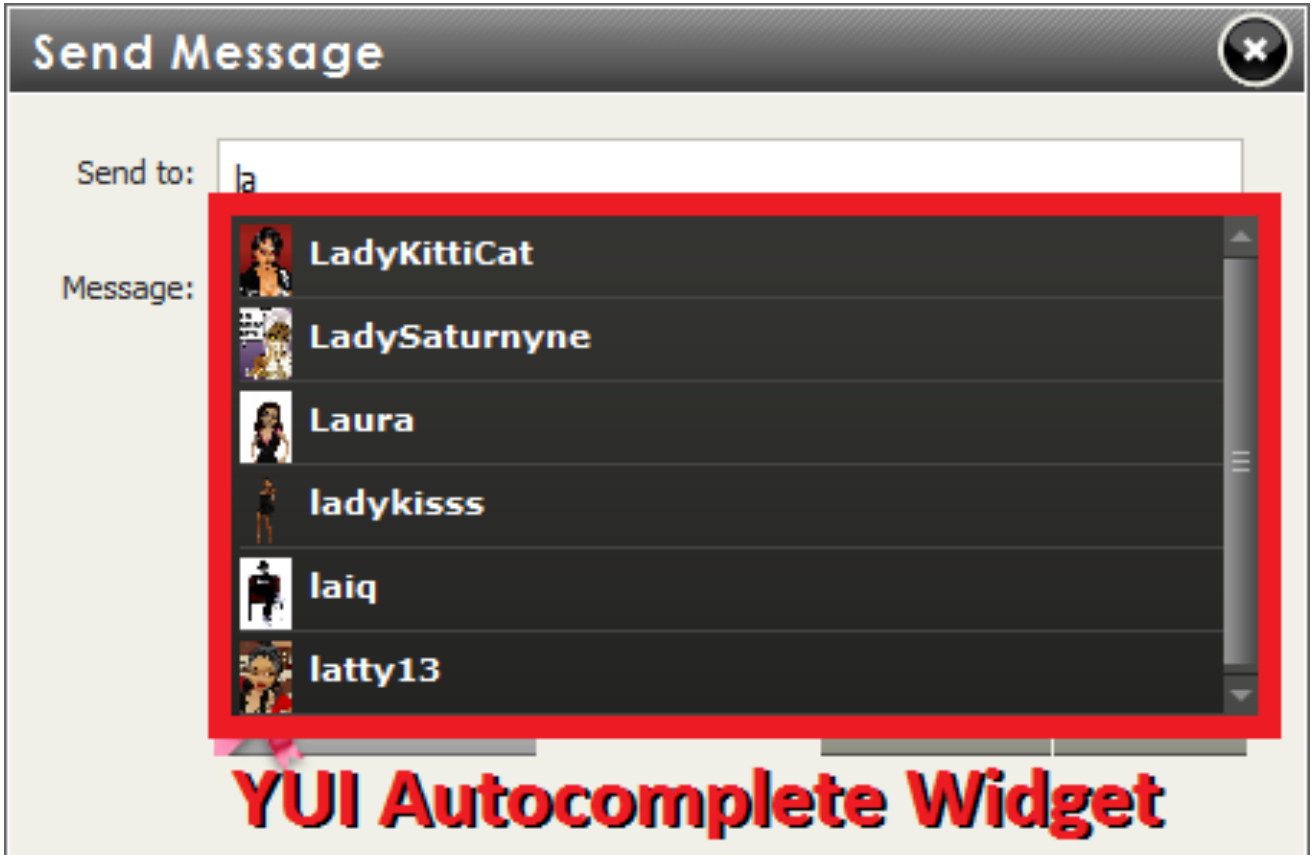
BENEFITS OF HTML

Lingua Franca

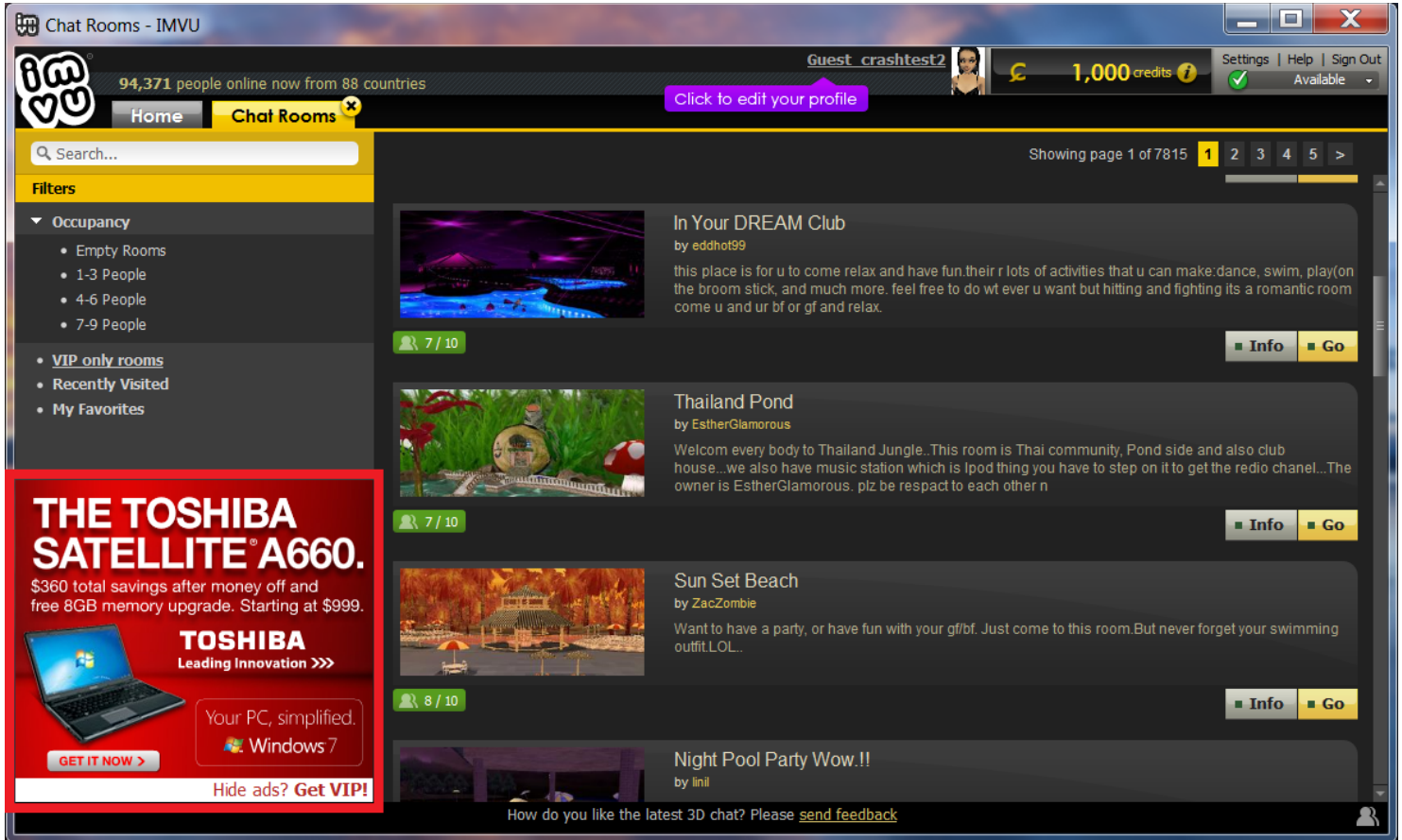
Hot Reloading, Firebug



jQuery, YUI


Send Message
Send to:
la
Message:
LadyKittiCat
LadySaturnyne
Laura
ladykisss
laiq
latty13
YUI Autocomplete Widget

Advertising



DEMO

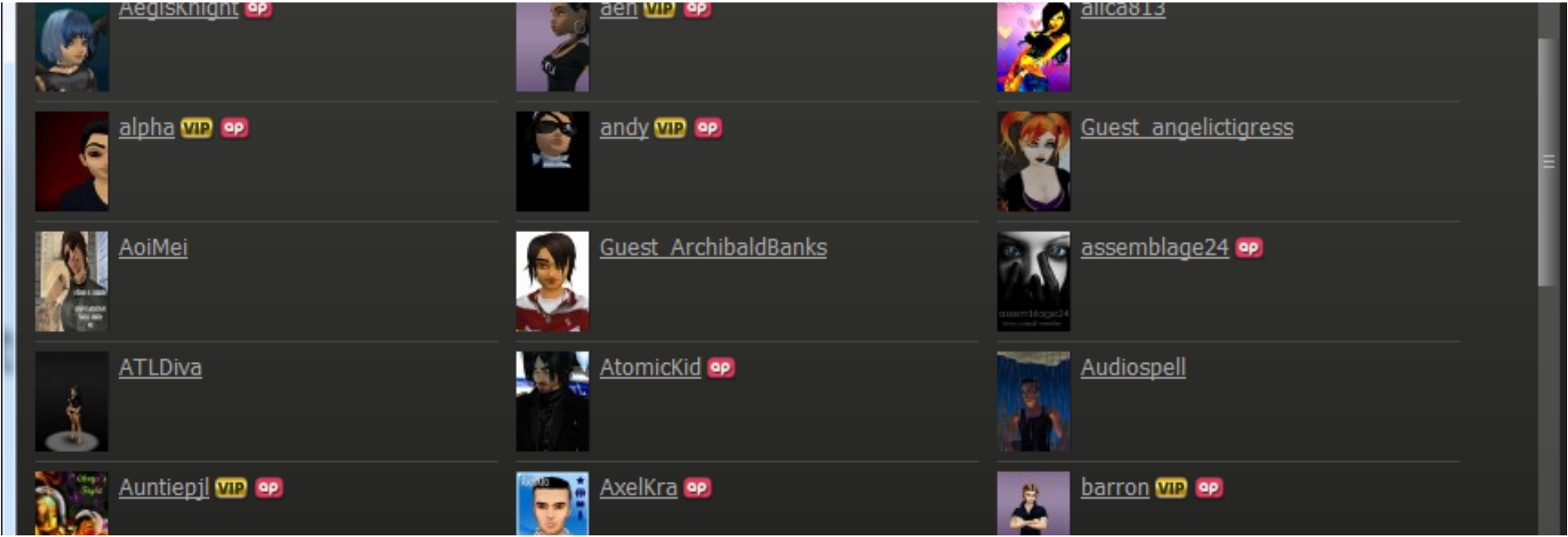
PERFORMANCE?

If your browser can handle this…

Performance

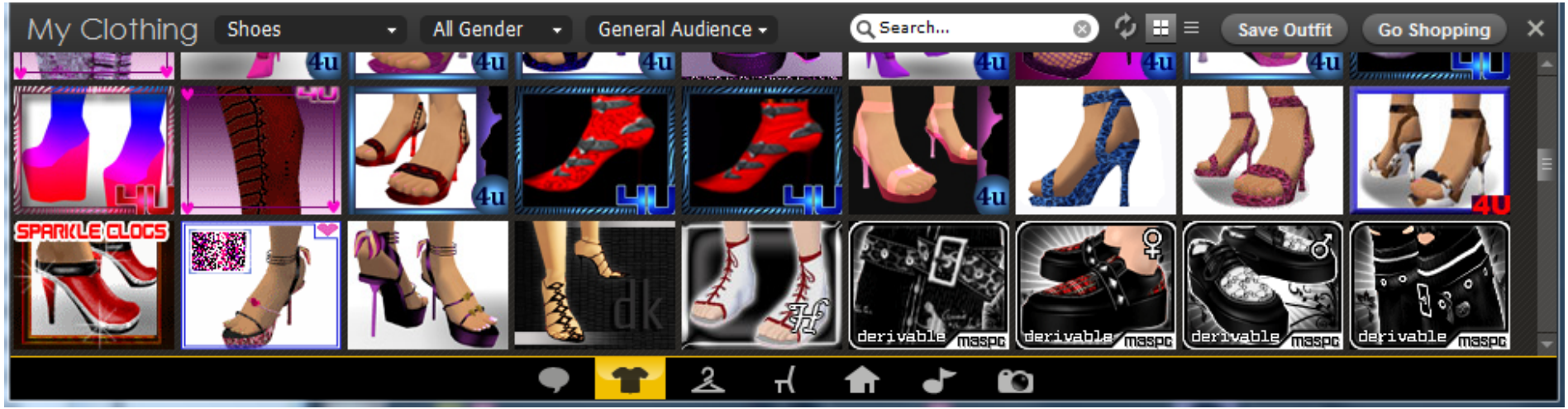
- Not a bottleneck for us
- Even 3D overlays!
- <1 MB per Gecko document loaded
  - 1000s of friends, inventory items

Performance (Friends)



Some DOM ops are O(n), use b-tree

Performance (Inventory)

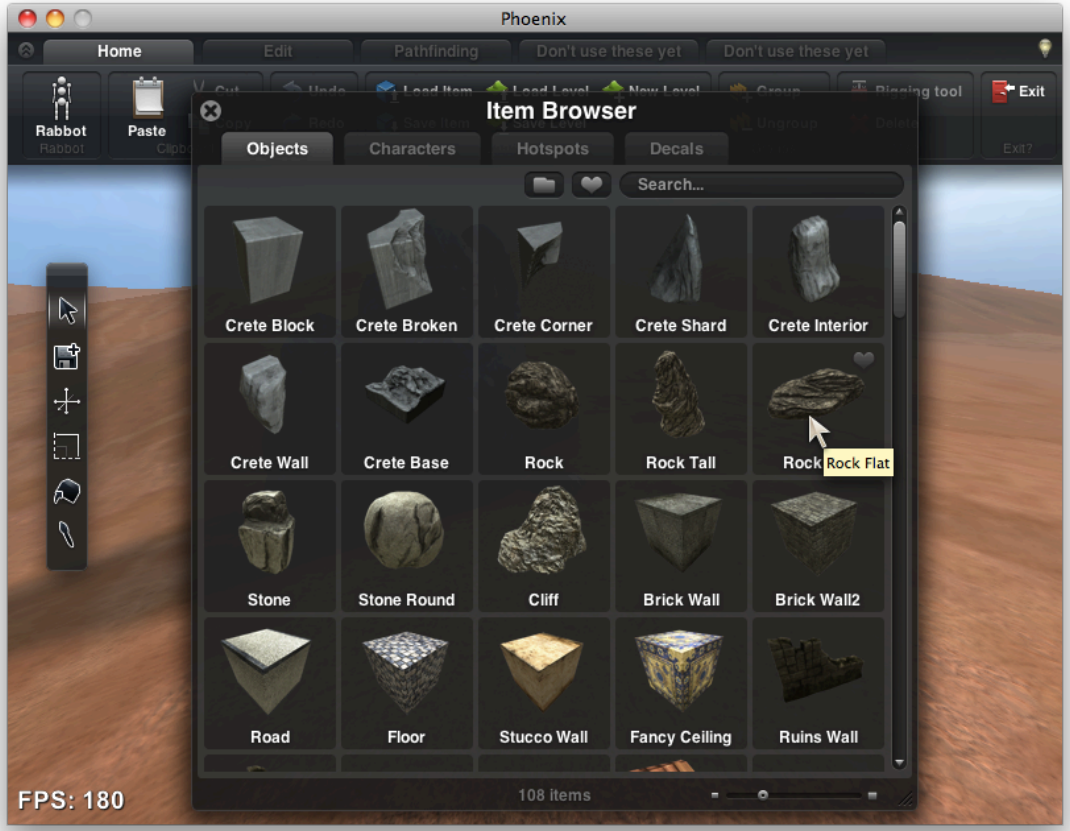


Today's Drawbacks

- Elaborate animation still easier in Flash than SVG/Canvas/JS
- 3D: WebGL not prime time yet
- Tracing JITs hungrier than Lua/C++

WHO ELSE USES HTML FOR UI?

Wolfire – Overgrowth



Wolfire – Overgrowth (con’t)

Script Editor

```
45  wk.open = function() {
46    if(tabCount == 0)
47      wk.createTab();
48  }
49  wk.closeTab = function(uid) {
50    if (typeof(uid) == 'object') {
51      uid.stopPropagation();
52      uid.stopImmediatePropagation();
53      uid.preventDefault();
54      uid = $(this.parentElement).attr('uid');
55    }
56    var curTab = $('.tab[uid=' + uid + ']');
57    var curFrame = $('.frame[uid=' + uid + ']');
58    if (getUID() == uid) {
59      var newuid;
60
61      if (curTab.next().hasClass('tab'))
62        newuid = curTab.next().attr('uid');
63      else if (curTab.prev().hasClass('tab'))
64        newuid = curTab.prev().attr('uid');
65
66      if (newuid)
67        activateTab(newuid);
68    }
69    console.log('closeTab: ' + uid);
```

Electronic Arts – Skate 3

Netflix on PlayStation 3

In-game Browsers

- Second Life
- CCP – EVE Online
- Funcom – Anarchy Online, Age of Conan
- ArenaNet – Guild Wars 2

Getting Started

- WebKit http://webkit.org/ vs. Gecko https://developer.mozilla.org/en/Gecko
- We chose Gecko, most use WebKit (EA's PS3 port: http://gpl.ea.com/skate3.html)
- Leverage entire stack: stream pixels from HTTP into texture

Wrappers

- http://ubrowser.com/
- http://wiki.secondlife.com/wiki/LlMozLib
- http://wiki.secondlife.com/wiki/LLQtWebKit
- http://www.khrona.com/products/awesomium/
- http://berkelium.org/

Recap

- HTML and web technologies are advancing quickly
- Already suitable for in-game UIs
- Rapid development and iteration
- Worked for us, may work for you!

Questions?

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http://engineering.imvu.com

We're hiring!