



Unlocking Flash To Build The Next Great MMO

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WWW.AUSTINGDC.NET

MacDaddy4ever: ..v. ..

LittleLadyRed: mov

MacDaddy4ever: b...

matreo: pay me 1 furni to skip the long long line and go str8 in!!!!!!!!!!!!!!!!!!!!



Room: *WonderWorld Theme Park*
Owner: Coolmandan6

Say

bookgurl





Right after the adoption, you are shown your pet's room. You start off with 2000 in KinzCash, which you can use to redecorate your room.....



SPEAK TO PET

THINGS TO DO

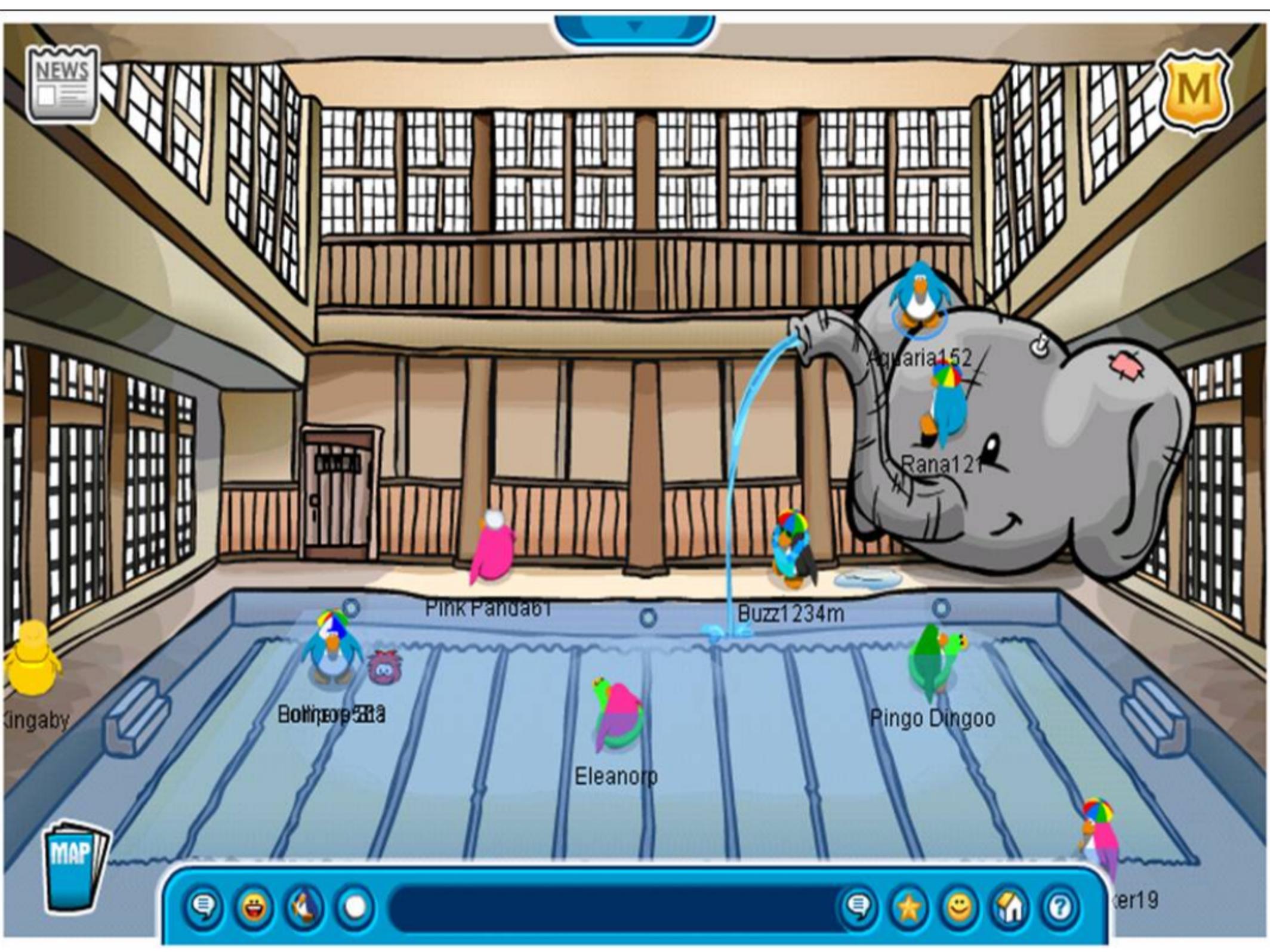
Scruffy



😊	Happy		20
♥	Health		20
🍴	Hunger		20
W	:2000	🕒	12:00 pm KT

Food Objects Furniture





Aguaria152

Rana121

Pink Panda61

Buzz1234m

Boltonop33a

Eleanora

Pingo Dingoo

Gingaby

er19



Navigation bar with icons for chat, smile, walk, and other actions.

What are the benefits of Flash?

98% penetration rate

- Everyone has it...
- ... and they keep up to date.

What are the benefits of Flash?

ActionScript 3

Easy to use language with good features:

- Java-esque classes and interfaces
- First class XML support
- Closures, Easy Syntax

Good Runtime

- JIT on x86 and PPC.
- Efficient GC

What are the benefits of Flash?

Flex Builder, an Eclipse-based IDE

- Debugger and Profiler!
- Intellisense
- Wizards

What are the benefits of Flash?

Good object model for building interactive apps.

- Designed for streaming content.
- Sprite hierarchy
- Graphics API



Presentation Layer

How are we gonna display our game?

Flash has built in sprite architecture

- Depth sorting
- Packaging art

PV3D and other techs allow decent 3D

Other options

- Rasterization via the graphics object.
- Pixel rendering via BitmapData
- Write your own rendering code.



PI's today 0 0 0 0 0

@ servertime

Calendar < >

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Sep - 08

City, Country

Ireland

Navigation and control bar containing icons for rotation, zoom, and a 'reset' button.

User Interfaces

Flash's UI system is for graphic designers

Closures make UI coding simple

Options:

- Use fl.*, set up each dialog in code
- Flex with CSS, use designer & MXML
- You can bake UI into a SWF and download on the fly

RSLs/cached code libraries

Welcome

Cancel **OK**

Disabled

1st **2nd** 3rd

PopUp Button ▾

Editable ▾

Lorem ▾

0 ▲ ▼



Radio Button 1

Radio Button 2

Check Box



Lorem Ipsum



LOADING

Lorem

enter text...

Link Bar | Lorem Ipsum

Ipsum

Dolor

Column 1	Column 2	Column 3

Panel

◀ September 2008 ▶

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ControlBar

Title Window

- ▶  Lorem Ipsum
- ▶  Quisque eget lorem
- ▶  Aenean arcu
- ▶  Rhoncus non
- ▶  Gravida vestibulum
- ▶  Vehicula non massa



August 2007						
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Networking

Flash 9 only supports limited TCP
Flash 10 has some UDP



Networking

Protocol options

- Raw TCP
- XMLSocket
- AMF
- DS?

Or develop your own - not too hard.

- (Come see my Robust Efficient Networking talk tomorrow)



Networking

Middleware

- ElectroTank
- BlazeDS
- Multiverse

bob
100 / 100
Level: 1

pentagram
Level: 0

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e-aÄ□?2èÜ?7□□
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rafrac
100 / 100
Level: 1

bob
100 / 100
Level: 1

Leave Group

Greeter starts 'Welcome Traveler'.
rafrac: hiii
rafrac: hi theerer yguyg

Level 1 XP: 0 / 100

Main Menu

Security/DRM

Flash isn't super hardened

All the normal client-side security concerns apply.

- There will be theft, not much you can do about it technically
- You can match the DRM, but nothing special here.

Be concerned about server emulators.

- Sue pirates?

Give people a reason to use your servers (and not the pirate ones). :)

Streaming Content

Flash has good support for streaming

Just about anything can be streamed

- art: graphics/animations/movies/audio
- user interface
- code

Provide a consistent API for loaded objects

- event system allows modular design and less code dependency

Streaming Content

You'll need a caching system

Make sure to break content into appropriate sized pieces.

Streaming UIs - powerful technique

Game objects need to deal with absent content OK.



Large Worlds

Room-based worlds are simple

Large worlds require stronger object state management

- objects, not just avatars, can appear at any time

Terrain management



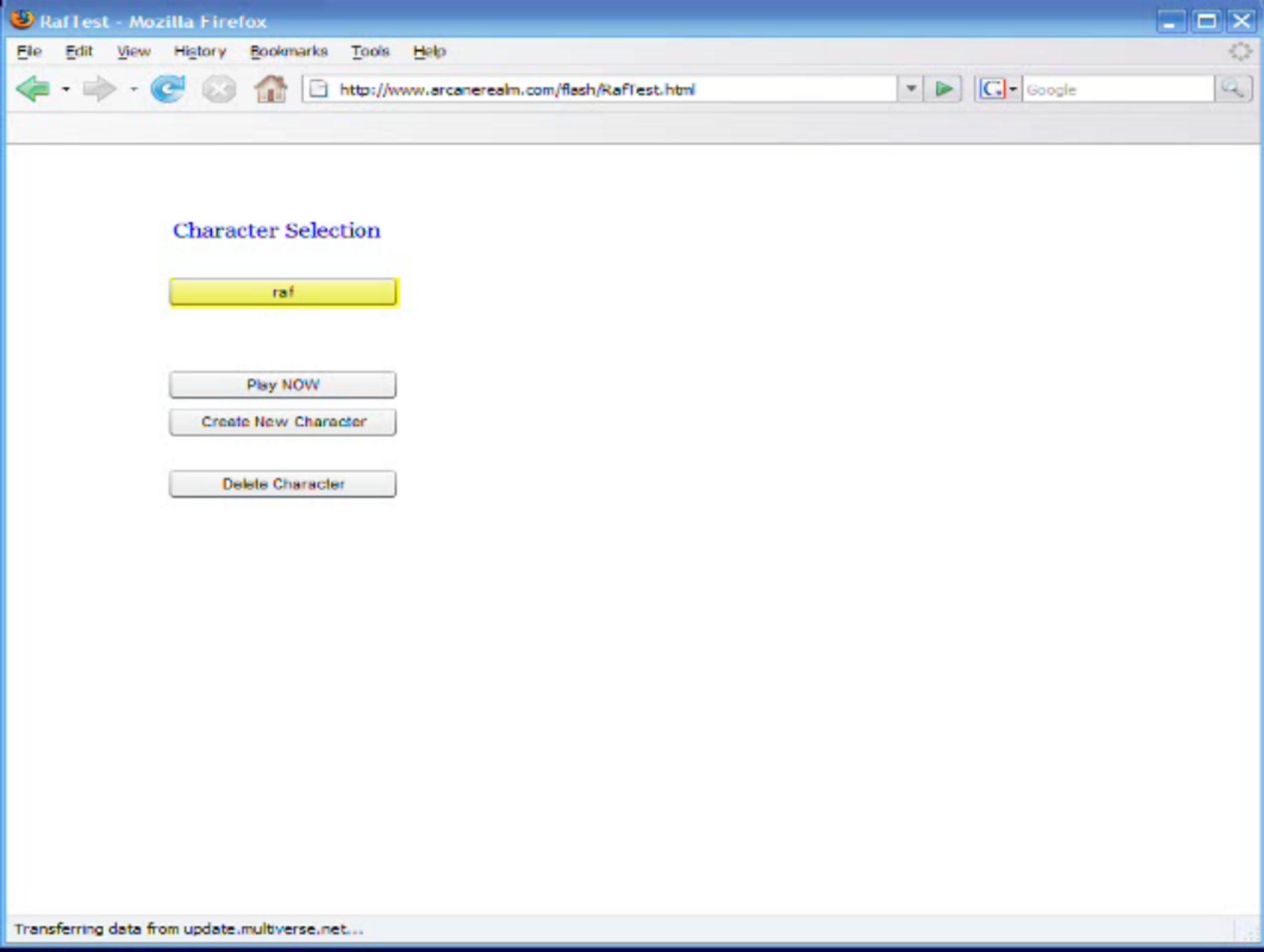
Large Worlds

Coordinate spaces between peers

- Large worlds may need coordinate localization to deal with precision loss

Instancing

- Backend design issue not addressed in this talk



Character Selection

raf

Play NOW

Create New Character

Delete Character

Content Creation

Flexible

- You can write loaders for a variety of formats.

Create content in Flash

- Create art in Flash 9
- Package content into a SWF
- Load in game

Content Creation

How do you handle animations on the Flash side?

- Last-frame actions
 - Repeats
 - Jump to frame
 - Notify Flash client code
- Priority for animations
- When do you go to some data driven + art file vs. loading SWFs?

Complex Avatars

Build an avatar from pieces

- Various clothing
- Various swords
- Body types, hair

Complex Avatars

Different Solutions:

- In 3d - share animations but vary geometry, mount objects
- With Swift3D - combine sprites, require same animation for all sprites
- Fake 3d compositing in 2d.
- Gaia Online route - don't show equipment, stylized look to avoid the problem

Deployment and Updates

Everything is static HTTP content.

Use existing infrastructure:

- Content Delivery Networks (Akamai, S3)
- Don't need fancy autoupdate tools

Deployment and Updates

On-the-fly updates

- Streaming system can deal with a lot of this.
- For big updates, force reconnection.

Working set for client is not going to be too big, even if assets in general are large.

Gameplay Logic

- MMOs don't require much logic on client.
 - We predict a few generic things (movement, cooldowns)
 - Not heavy duty prediction like an FPS
 - Not really a big deal
 - Most goes on the server
 - AS3 is a good language for building game logic, although you won't need it in most situations.

Closing Points

Flash is a solid, proven platform for building MMOs

Go out and make good MMOs!

Closing Points

Thanks for coming!

Any questions?

Slides available at

<http://coderhump.com/austingdc08/>

Misc. Tech (not shown)

- Collision
 - Not built in
 - Write your own
 - Build on another lib (like Box2D)
- Audio
- Particles/SFX