An Overview of the Fluid Engage Architecture

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Topics We'll Cover

- Engage's technology goals
- The Fluid approach
- Shape of the Engage architecture
- How Infusion fits
- Services layer
- Mobile applications
- User interfaces and the exhibit toolkit
- Mapping and visualization

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Challenges

- Accessibility in the digital environment can be complex and confusing

- Lack of continuity across spaces

- Hard to weave together data & systems

- Mobile space is chaotic

- Hard to integrate visitor-generated content and social networking

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Engage's Technology Goals

- Enable great design
- Interconnected data
- Approachable: easy to extend/adapt
- Bridging: connect physical and online
- Scalable (up & down) and forward-looking
- Fun, cheaper, easier development

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The Open Web Today

- Multi-touch gestures
- Audio and video
- Vector graphics and animation
- Great accessibility
- All work on mobile today!
- Stable and deeply interoperable
- Everyone knows it

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Engage at a Glance

- Interconnected data: services and feeds
- Bridging spaces: mobile apps
- Exhibit toolkit: great user experiences
- Making connections: mapping
- Accessibility all the way through

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A Metaphor: UX Weave

freeform knit & crochet fabric by Prudence Mapstone
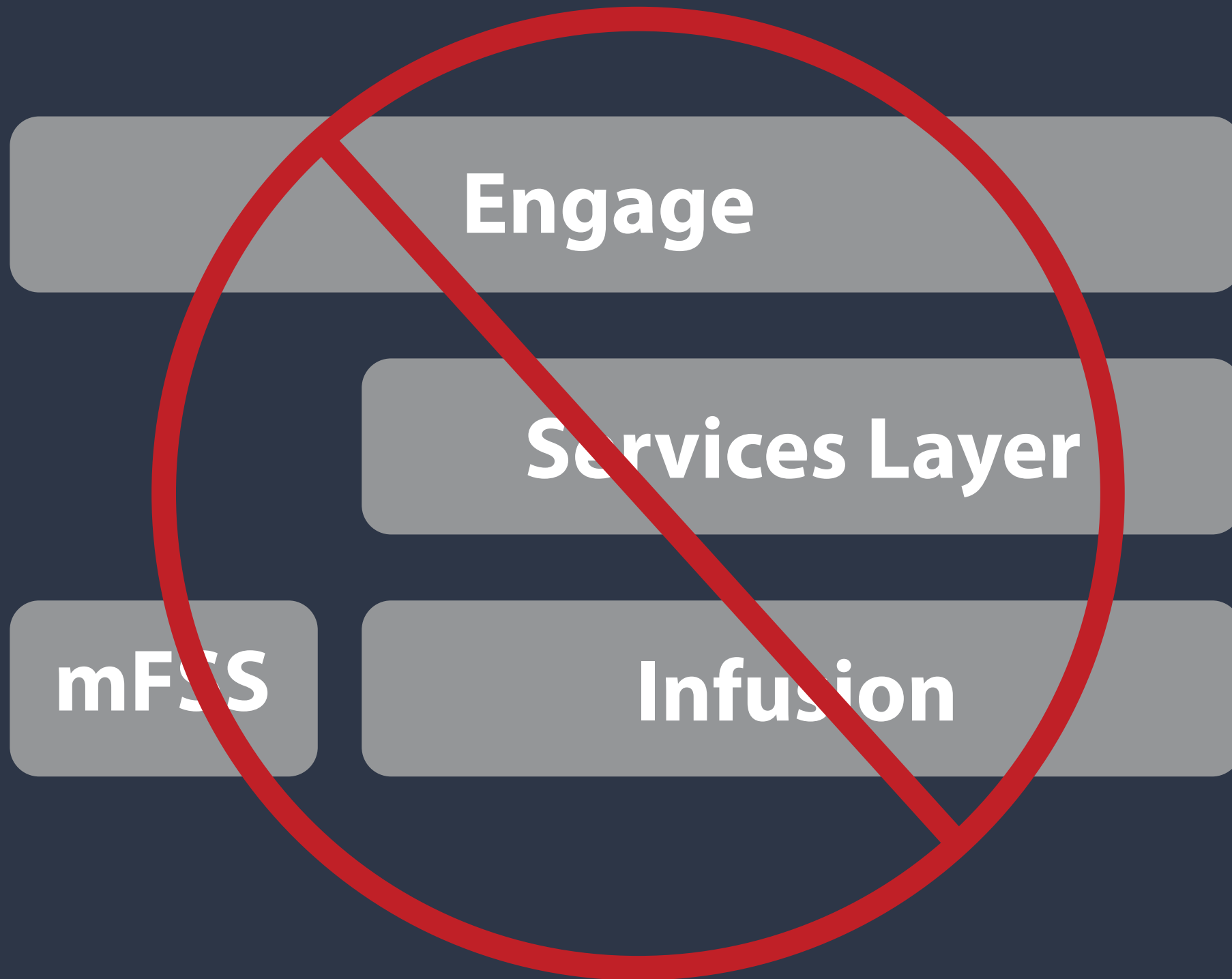
A Metaphor: UX Weave

hand-dyed weave by Felicia Lo

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Tech sandwiches...

Engage

Services Layer

mFSS

Infusion

Fluid

Tech sandwiches... not so tasty

Engage

Services Layer

mFSS   Infusion

Collections
Content Management Systems
Online Exhibit Web Sites
The Web at Large

Components

Tags
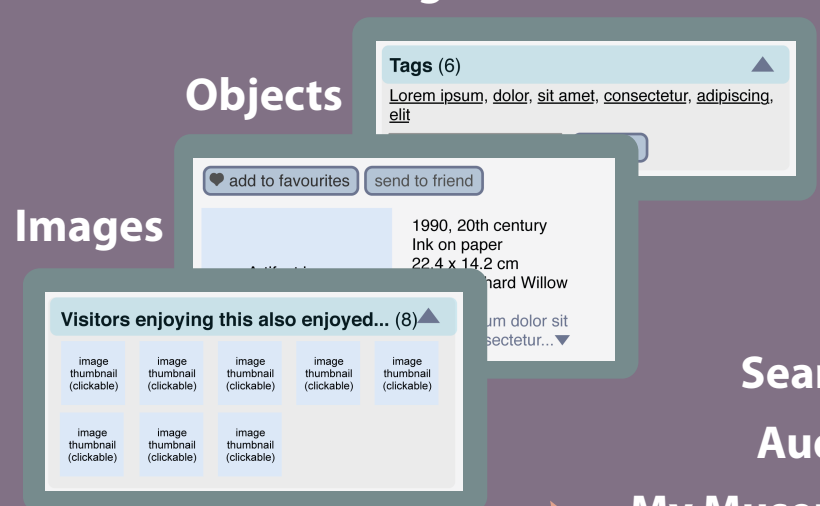
Tags (6)

Lorem ipsum, dolor, sit amet, consectetur, adipiscing, elit

Objects

add to favourites   send to friend

1990, 20th century
Ink on paper
22.4 x 14.2 cm
...hard Willow

...um dolor sit
...sectetur...

Images

Visitors enjoying this also enjoyed... (8)

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| image thumbnail (clickable) | image thumbnail (clickable) | image thumbnail (clickable) | | |

Search
Audio
My Museum
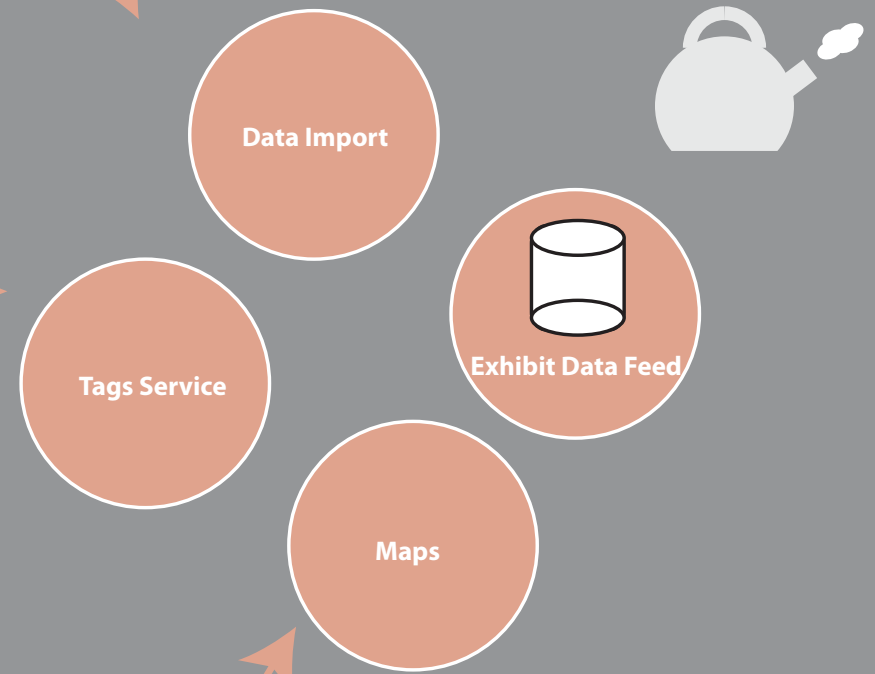
Services

Data Import

Tags Service

Exhibit Data Feed

Maps

Infusion

Fluid

How Does Infusion Fit?

What is Infusion?
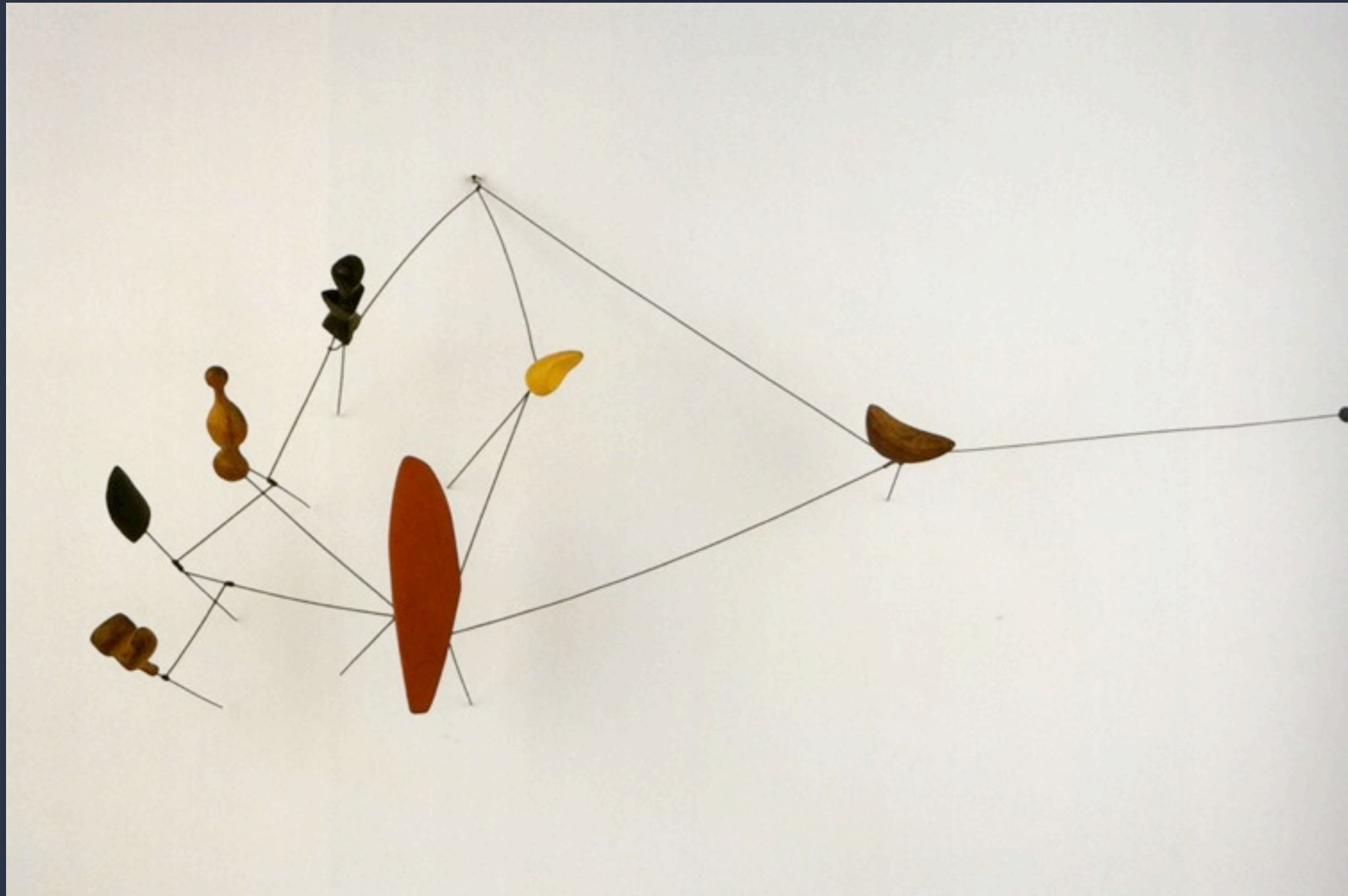
Constellation by Alexander Calder

What is Infusion?

- A toolkit built by the Fluid community
- Directly responds the hard stuff:
  - Accessibility
  - Better usability
- All the building blocks you need for creating great rich Web apps
- Solid, shipping product used around the world

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Uploader

Pager

UI Options & FSS

UI Options: High Contrast Theme

How We'll Use Infusion

- Infusion is the backbone of Engage
- Gives us accessibility, flexibility for UIs
- Infrastructure for doing mashups and social networking
- Works with any Web application
- Themes for great-looking mobile apps

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Services and Interoperability

Services and Interoperability

- It's hard to make systems talk
- Risk: duplicated data, redundant effort
- Goal: create an open architecture for sharing data
- Services and data feeds make up an Engage content ecosystem

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Engage's Approach to Data

- Every collection is unique
- Lots of different schemas and formats
- Hard to get everyone to agree on one
- Treat schemas as adaptable
- Document-oriented, schema-less

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Services Layer

- Collection of exhibit-related data feeds
- Services for common activities:
    - Importing and sharing exhibit data
    - Search
    - Social: tagging, discussion
    - Personal collections
- Standard Web tech: REST and JSON

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The Mobile Experience

Big Question for Museums:

What platforms should we support?

Everything?
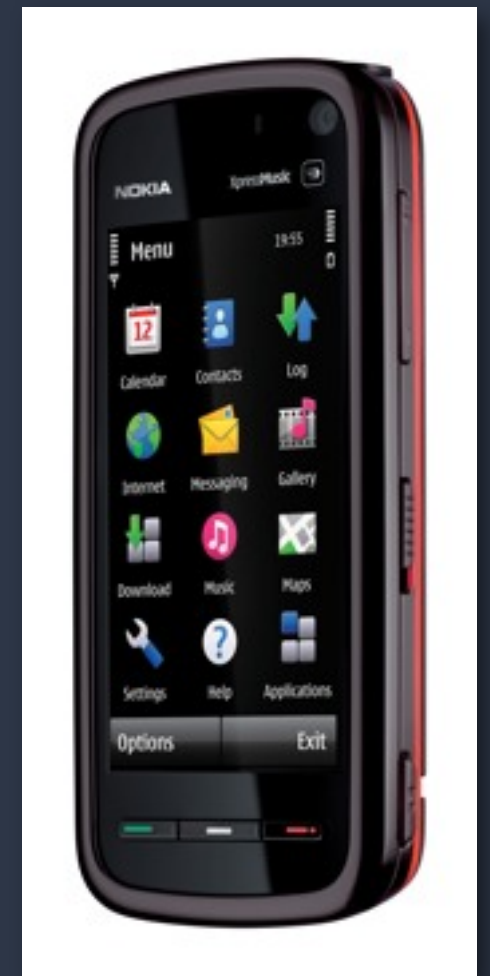
Everything?

Objective-C

Java

C++
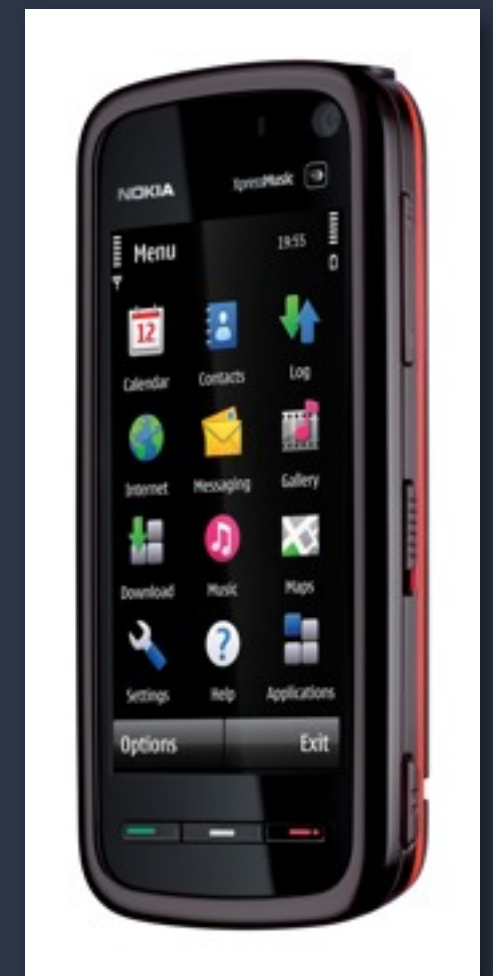
Cocoa Touch

Android SDK

Carbide

Only One?

Only One?
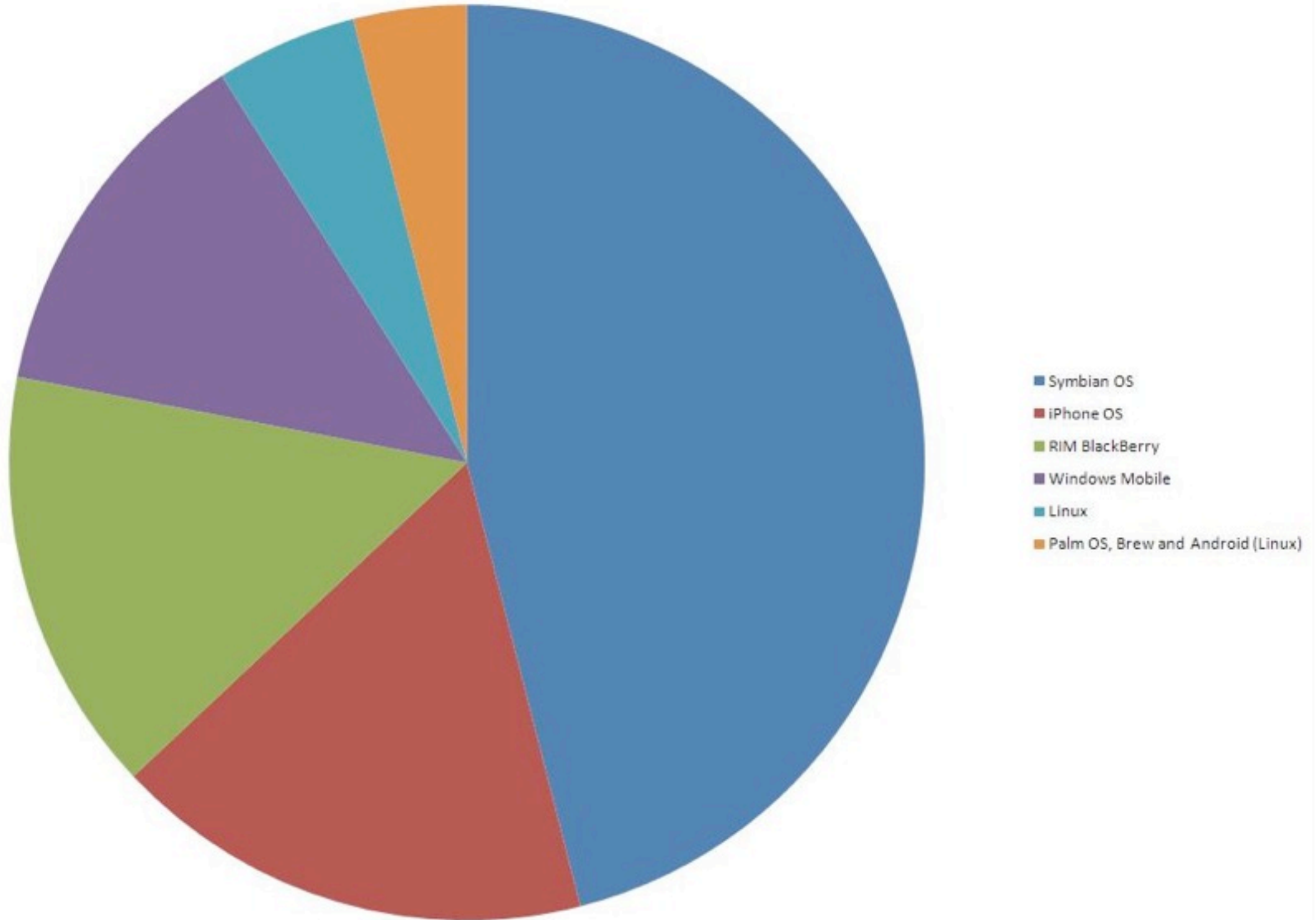
Mobile: Embrace the Web

- Phones now have *great* browsers built in
- Web design is ubiquitous and familiar
- Use standard HTML, CSS, and JavaScript
- Blends seamless into existing sites
- Thin native apps provide access to interactive features (camera, bluetooth)

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Hybrid App Illustrated

Mobile Device

Native App

Embedded Web View
WebKit

Web Content

JavaScript Bridge
using JavaScriptCore

Infusion-powered
Online Exhibit

HTML

CSS

JavaScript

Device OS APIs
WiFi, *Camera, Bluetooth*

Fluid
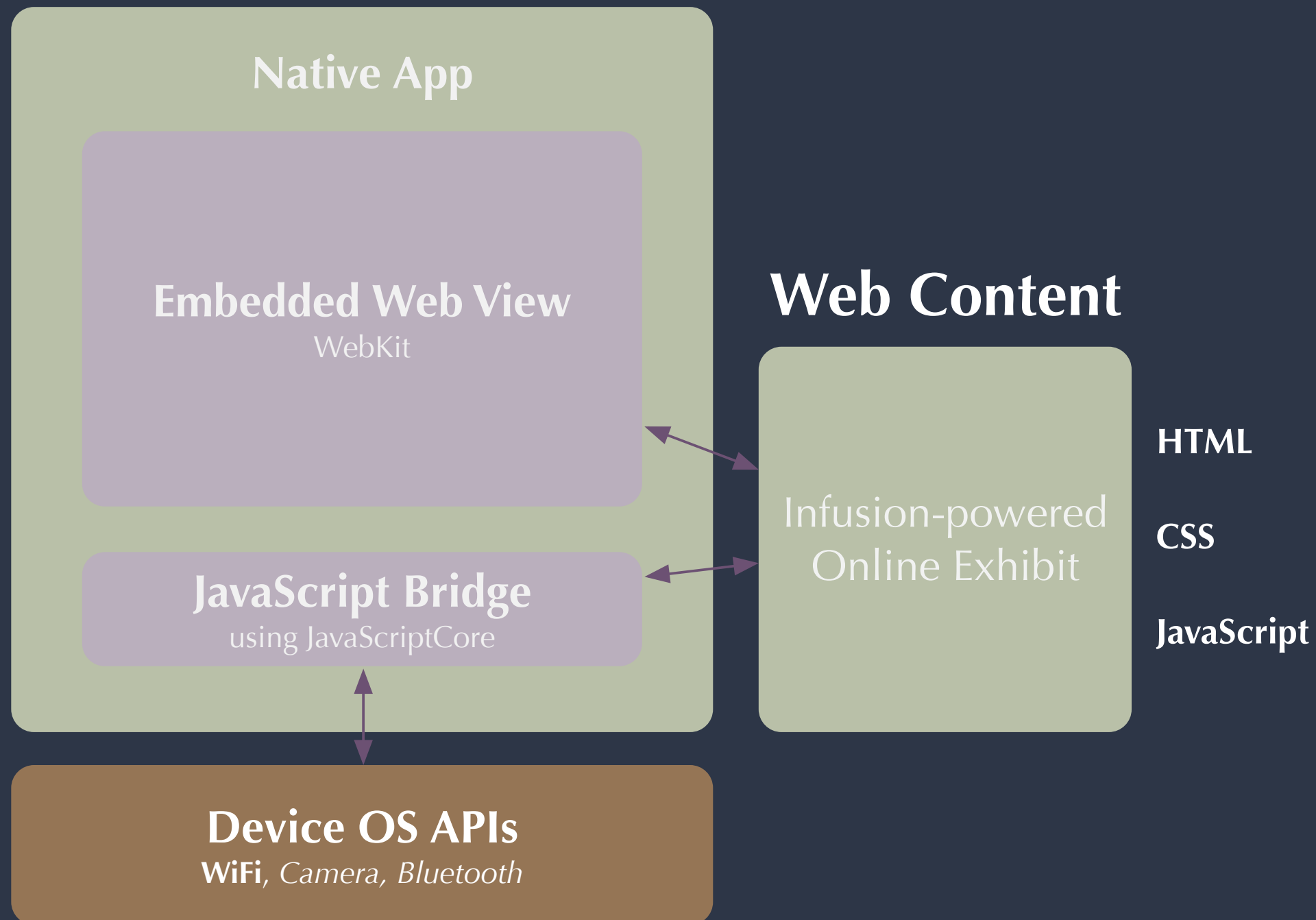
Mobile FSS
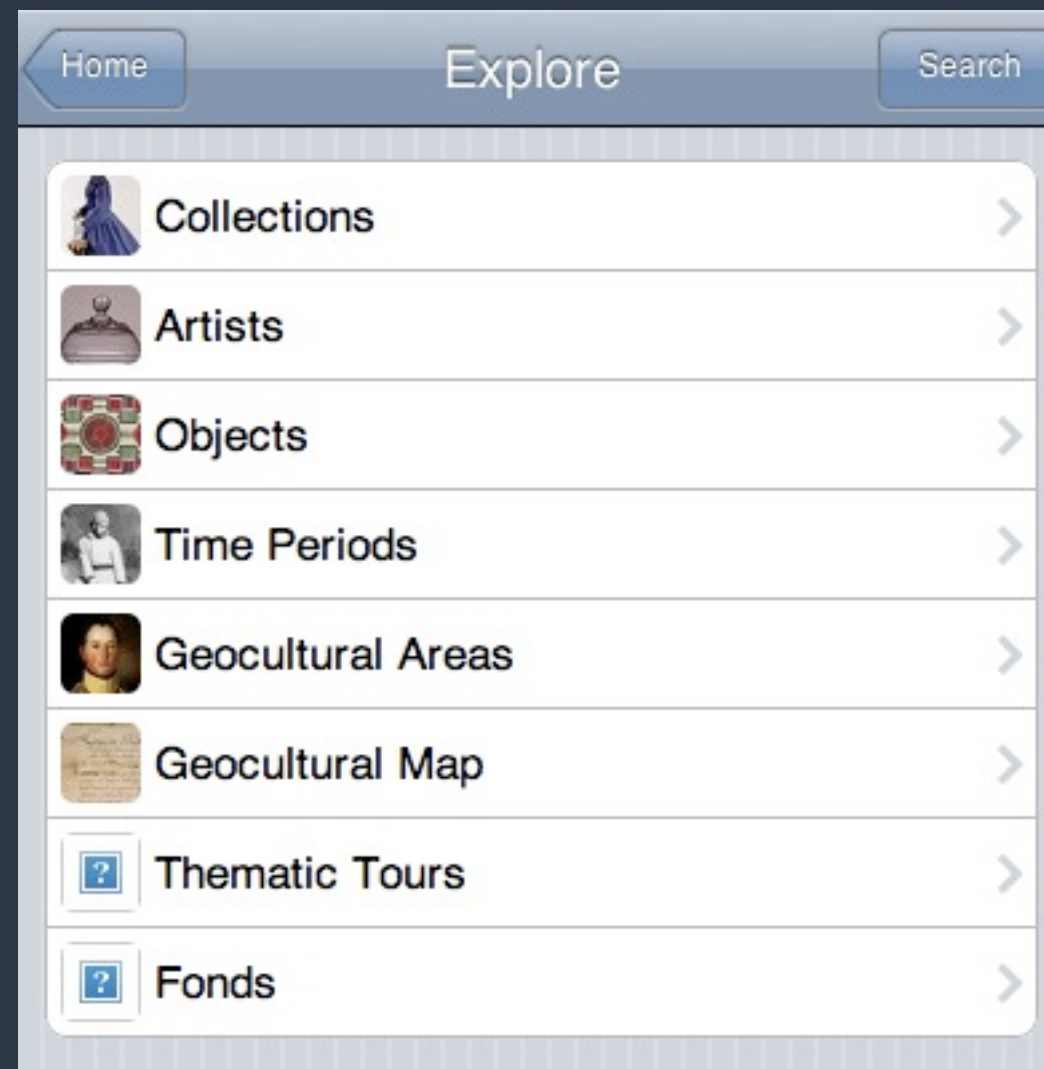
Exhibit Toolkit

Exhibit Toolkit

- Goal: fit seamlessly into existing workflow
- UI components, templates, and data feeds
- Wire them up to create great experiences
- Use them with any Web authoring tool

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Some Component Ideas

- Collection Browse and Search
- Image Gallery
- Audio Tour
- Interactive Map
- Tagging
- Comments, Discussion, Stories
- My Museum/My Collection

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Components + Services

Artifact Component

Tagging Component

Image Gallery Component

Artifact Data Feed

Tags Service

Media Service

Devices

Content/Collections Systems

mFSS
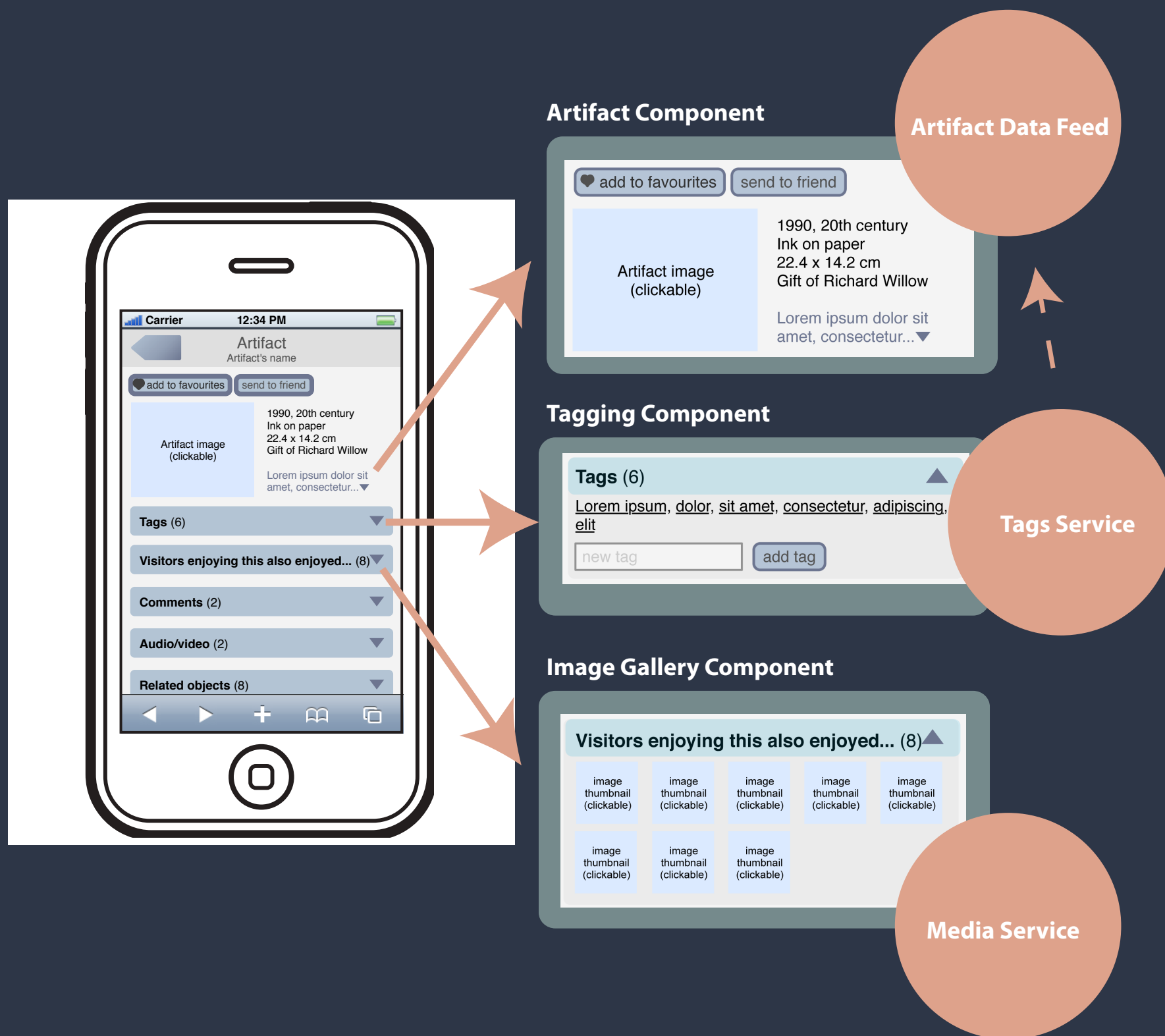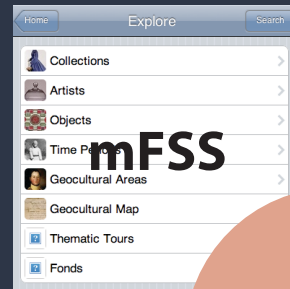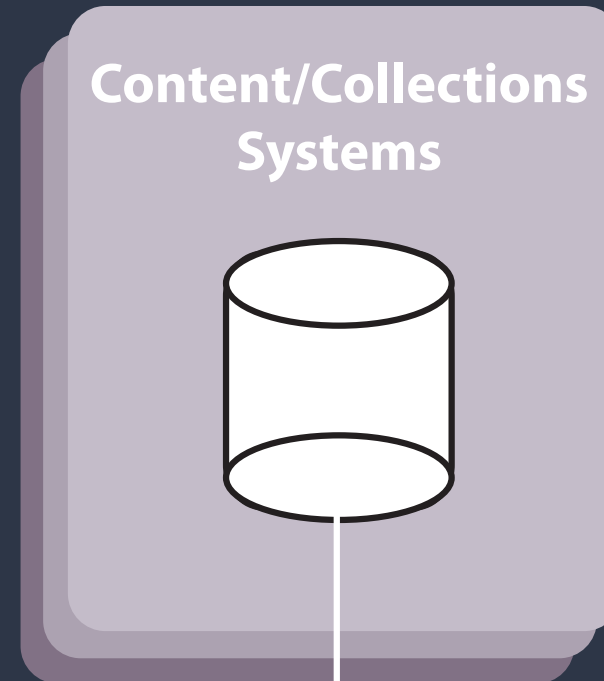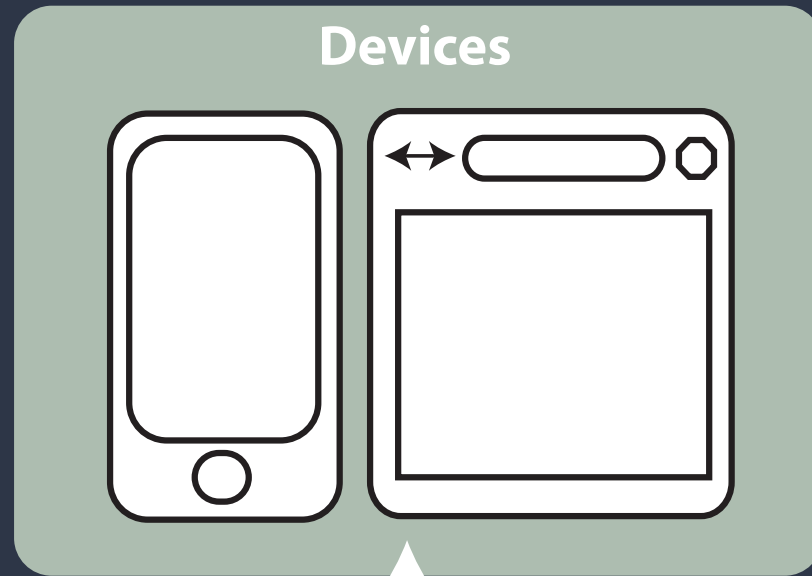
Exhibit Presenter

Data Import

Components

Tags (6)
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image thumbnail (clickable)   image thumbnail (clickable)   image thumbnail (clickable)

Home   Explore   Search
Collections
Artists
Objects
Time P...
Geocultural Areas
Geocultural Map
Thematic Tours
Fonds

Exhibit Data Feed

Fluid

Wednesday, August 19, 2009

Mapping & Visualization

Mapping

- Mapping is a bridge between physical and online

- Broad definition: conceptual and spatial

- Draw relationships between objects

- Maps locate and visualize data and services (eg. search identifies object location)

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Mapping Technology

- Authoring tool:
  - bring in your designed maps
  - tag and layer with information
- Interactive visualizations using Web technology: HTML 5

Location Awareness

Location Awareness

Location Awareness

- We're taking it slow, learning from others
- Start simple: focus on content
- Lots of potential in this space
    - Triggered audio tours
    - Context-aware information about exhibit
    - Accessible wayfinding

Potential Technologies

- 2D barcodes + phone camera
- WiFi positioning (WIPS is awesome)
- Bluetooth beacons
- Scene recognition
- Simple RFID tags

Technology Specifics

Technologies

- Things we've decided on:
  - Infusion + HTML, CSS & JavaScript UIs
  - Hybrid Web/native mobile apps
  - Schema-less database
  - RESTful services
  - Canvas for visualization

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Technologies

- Things we'll decide on this week:
  - Specific database: CouchDB
  - Server technology: JavaScript + JSGI
  - Visualization: Processing.js?

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JavaScript on the Server

- We looked at PHP, Ruby, Python: always just a slice of the developer pie

- JavaScript is the most-used language in the world

- Shared infrastructure: client and server

- A little crazy, but pretty solid

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Technologies

- Things we'll decide along the way:
  - Location awareness:
    - RFID, 2D barcodes, WiFi?
  - More interoperability:
    - Museum APIs?
    - TourML, steve.museum, etc?

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More Reading

http://wiki.fluidproject.org/display/fluid/Engage+Architecture

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