

# Ajax Unplugged

## Architecture and Tips for Taking Web Applications Offline

**J.J. Zhuang**

**[jjzhuang@zimbra.com](mailto:jjzhuang@zimbra.com)**

- Who's Zimbra?
- Why do we need offline Webapps?
- What options are there?
  - Review some "offline" technologies
- Demo!
- Architecture of Zimbra Desktop
- Challenges for the developer
- Questions?



- Lack of always-on internet access
  - Always-on need for information
- Travel – Air, Train, Auto, etc
- ISP service interruptions
  - Client or Server (Data Center)
- Remote; unconnected land and water
  - Even a remote office
- More and more data lives in ‘the cloud’
  - Today’s SaaS require network access
- That’s how a true desktop app works

# Why Offline AJAX?

---

- Performance (client and server)
  - Removes latency from network ops
  - Offloads \*even\* more work to client CPU
  - Allows server requests to be batched
- Same UI both online/offline
  - Saves \$\$ training users for one app
  - Saves \$\$ on software costs of separate offline app

# What solutions are out there today?

---

- **The Fancy Caching Approach**
  - **Firefox 3 Offline Support**
  - **Google Gears**
  - **Dojo Offline Toolkit**
- **The Desktop VM Approach**
  - **Mozilla XUL Runner**
  - **Adobe AIR (formerly Apollo)**
  - **Joyent Slingshot**
- **Roll your own**
  - **Zimbra Desktop**

- **Features**
  - **Anywhere Firefox runs (\*nix, Win, Mac)**
  - **Gecko rendering for HTML/JavaScript**
  - **WHATWG client-side storage, offline events**
  - **SQLite for offline storage**
- **License**
  - **MPL - Open Source**
- **Availability**
  - **Alpha 5**



Mozilla  
**Firefox**™

- **Features**
  - **LocalServer - Cache & Serve HTML, JS, CSS, etc**
  - **Database - SQLite with full-text search**
  - **WorkerPool - Async resource-intensive tasks**
  - **WinXP & Mac OS X 10.2+ & Linux**
  - **Firefox (Mac/Win/Linux), IE (Win)**
- **License**
  - **Open Source - New BSD License**
- **Availability**
  - **Public Beta**
  - **Google Reader Offline**
  - **Several Sample Apps**





## ■ Features

- Built on top of Google Gears
- Extends Gears with a higher level API
- Encryption support
- Simple Hashtable storage api

## ■ License

- Open Source like Dojo (AFL or BSD)

## ■ Availability

- Beta with Dojo 0.9
- Live Demos - Simple, Moxie (doc editor)

- **Features**
  - **Where Firefox runs (\*nix, Win, Mac)**
  - **Gecko rendering for HTML/JavaScript**
  - **JavaScript access XPCOM objects via XPCConnect**
- **License**
  - **MPL - Open Source**
- **Availability**
  - **Developer Preview**
  - **Shipping apps today (Google Adwords Editor)**



# AIR (formerly Apollo)

---

## ■ Features

- FileIO, On/Off-line, Windowing, Clipboard, DnD, Local Storage, Network APIs
- Eventually could be delivered via Flash
  - ▶ Or like Flash
- WebKit for HTML/JavaScript rendering
- WinXP SP2+ & Mac OS X 10.4.8+

## ■ License

- Plan to contribute rendering changes to WebKit
- Actual runtime free but closed source
- Developer tools cost (optional)

## ■ Availability

- Pre-release Beta
- Several demo apps (on their wiki)



## ■ Features

- Ruby on Rails
- ActiveRecord Sync
- SQLite local storage
- Mac OSX & WinXP
- Seems to lack OS native support



## ■ License

- Open Source under GPL v2; Commercial version
- Free if using Joyent's application hosting

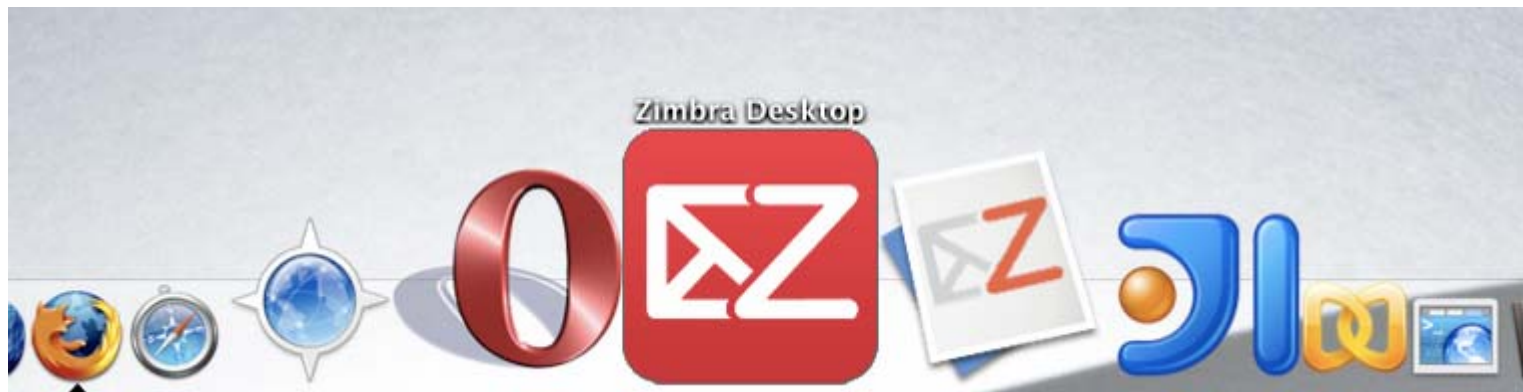
## ■ Availability

- OSS Public Release
- Several apps ported





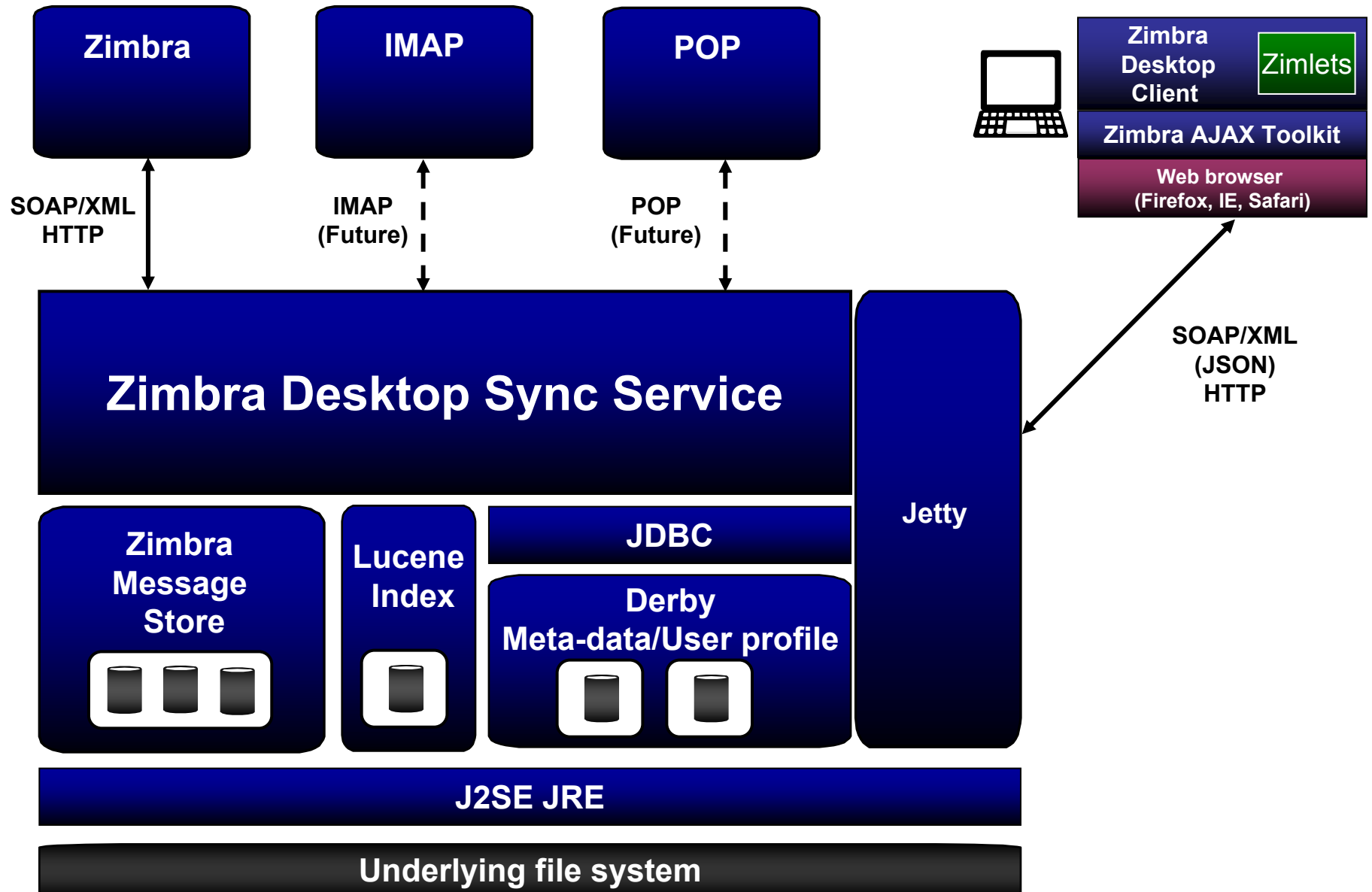
# Demo



- **Features**
  - **Linux, Win32 and Mac (Intel)**
  - **Firefox, Internet Explorer and Safari**
  - **Identical AJAX interface to online version**
  - **Micro Server for sync, persistence, and search**
    - ▶ **Derby (Meta Data, User Profile)**
    - ▶ **Lucene (Full text search)**
    - ▶ **Jetty (HTTP, JSP)**
    - ▶ **Filesystem for messages**
  - **Support for large datasets multi-GB**
- **License**
  - **Open Source - MPL/ZPL**
- **Availability**
  - **Zimbra Desktop Alpha**



# Zimbra Micro Server Architecture



# Challenges for the Developer

---

- **Selecting *\*what\** to take offline**
  - Security risks
  - Does the user need it?
  - Can they use it offline?
- **Sync is hard**
  - Conflict resolution
  - Multi-user and multi-client
- **End-User Desktop Support**
  - Risk of increased support/debugging costs
- **Upgrades and Patches**
  - Have a plan *\*before\** you release

# Thank You!

# Questions?

**Zimbra** in:junk Email Search Save Advanced Kevin Henrikson Quota: 6.4 GB of unlimited

Mail Address Book Calendar Briefcase Options Help Setup

New Folder New Get Mail Reply Reply to All Forward Not Junk View 1 - 100

From	Subject	Folder	Size	Received
greeting-cards.com	You've received a greeting ecard from a Neighbour! - Hi. Neighbou			4:08 PM
postcards.org	You've received a postcard from a Mate! - Hi. Mate has sent you a p			3:30 PM
Content-filter at dogfood.	VIRUS (Trojan.Downloader-11827) in mail TO YOU from <tiburcic			3:08 PM
Alonzo Campbell	photo - Hello! I am tired this afternoon. I am nice girl that would like to c			2:23 PM
Preston Pagan	Fwd: Thank you, we are accepting your refinance appication - Yo			2:16 PM
Minna	abuse			2:16 PM
Евгений	Жилищные споры (помощь адвокатов)		kkvdfw	1:41 PM
Фалилеев	Fw: решим твои проблемы - Помощь отчаявшимся и одиноким! БАЖЕНА МЕД			1:38 PM
Дедова	[1]: ПРЕДУПРЕЖДЕНИЕ ИНФЕКЦИОННЫХ ЗАБОЛЕВАНИЙ!!!			1:38 PM
Hermon Ball	Секреты успешных руководителей - Сосредоточтесь на оновном виде деятель			1:28 PM
Wesley Hall	OEM Software - OEM means Original Equipment Manufacturer. So OEM i			1:28 PM
АНТОН	fwd: помощь в бизнесе - Помощь отчаявшимся и одиноким! БАЖЕНА МЕДВЕД			1:27 PM
Ерошин	[15]: САНПАСПОРТА НА АВТОТРАНСПОРТ!!!			1:27 PM
Importadora Puro Precio	Oportunidad Unica de Productos Exclusivos - Si no puede ver este e			1:19 PM
William Bridges	Как грамотно организовать свой бизнес?			1:11 PM
Anatolio Daniel	Предлагаю разработку сайтов-визиток			12:26 PM
nt-Pharmacy is	(см. алдейт от 1:			12:04 PM
ollins's famous	about. Discoun'			11:56 AM
人单位查收,	ком Информац			11:40 AM
				11:25 AM
				11:23 AM
				11:20 AM
				11:05 AM
				11:02 AM

July 2007

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4
5	6	7	8	9	10	11

**More Information:**  
[www.zimbra.com/desktop](http://www.zimbra.com/desktop)  
[www.zimbra.com/blog](http://www.zimbra.com/blog)  
[www.zimbra.com/forums](http://www.zimbra.com/forums)

# Some Related Links

---

- <http://blog.monstuff.com/archives/000272.html>
- [http://developers.sun.com/javadb/overview/product\\_tour/readme.jsp](http://developers.sun.com/javadb/overview/product_tour/readme.jsp)
- <http://labs.adobe.com/technologies/apollo/>
- <http://www.sitepen.com/blog/2007/01/02/the-dojo-offline-toolkit/>
- [http://codinginparadise.org/projects/dojo\\_offline/release-02-20-2007/demos/storage/editor.html](http://codinginparadise.org/projects/dojo_offline/release-02-20-2007/demos/storage/editor.html)
- <http://joyeur.com/2007/03/22/joyent-slingshot>
- <http://blog.magnetk.com/2007/03/22/joyent-slingshot/>
- <http://www.bluishcoder.co.nz/2007/02/offline-zimbra-with-firefox.html>
- [http://weblogs.mozillazine.org/roc/archives/2007/02/offline\\_web\\_app.html](http://weblogs.mozillazine.org/roc/archives/2007/02/offline_web_app.html)
- <http://ejohn.org/blog/offline-events/>
- <http://developer.mozilla.org/en/docs/XULRunner>
- [http://blogs.salesforce.com/features/2006/03/offline\\_edition.html](http://blogs.salesforce.com/features/2006/03/offline_edition.html)
- <http://www.tiddlywiki.com/>
- <http://www.zimbra.com/desktop>

# Zimbra Snapshot

## Next-Generation Integrated Messaging & Collaboration Solution

- Mail, Contacts, Calendar, Web Documents, Wiki, VOIP, RSS, Mash-ups, Search, Sharing, Web services, etc.

## Customers:

- 8M+ paid mailboxes: enterprises, SMBs, hosting providers, EDU & ISPs
- 1400+ customers

## What Makes ZCS Different?

- Innovation – rich, ubiquitous user experience + cost-effective administration
- Open Source – transparency, community, extensibility
- Compatibility – diverse environments & user groups support, investment protection, flexibility, application integration

## Partners:



## Awards:



# Zimbra Collaboration Platform

