Day

Open Development

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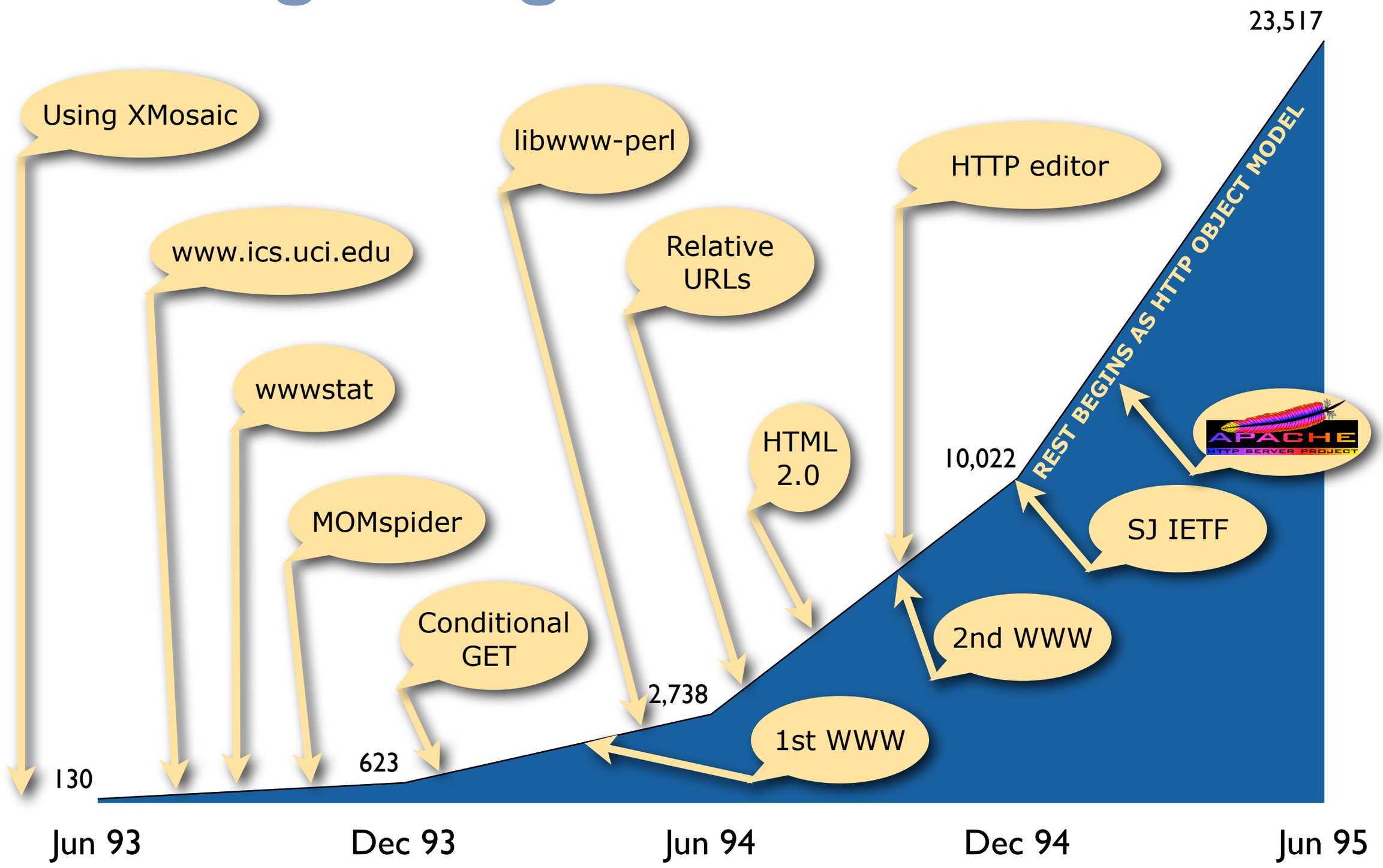
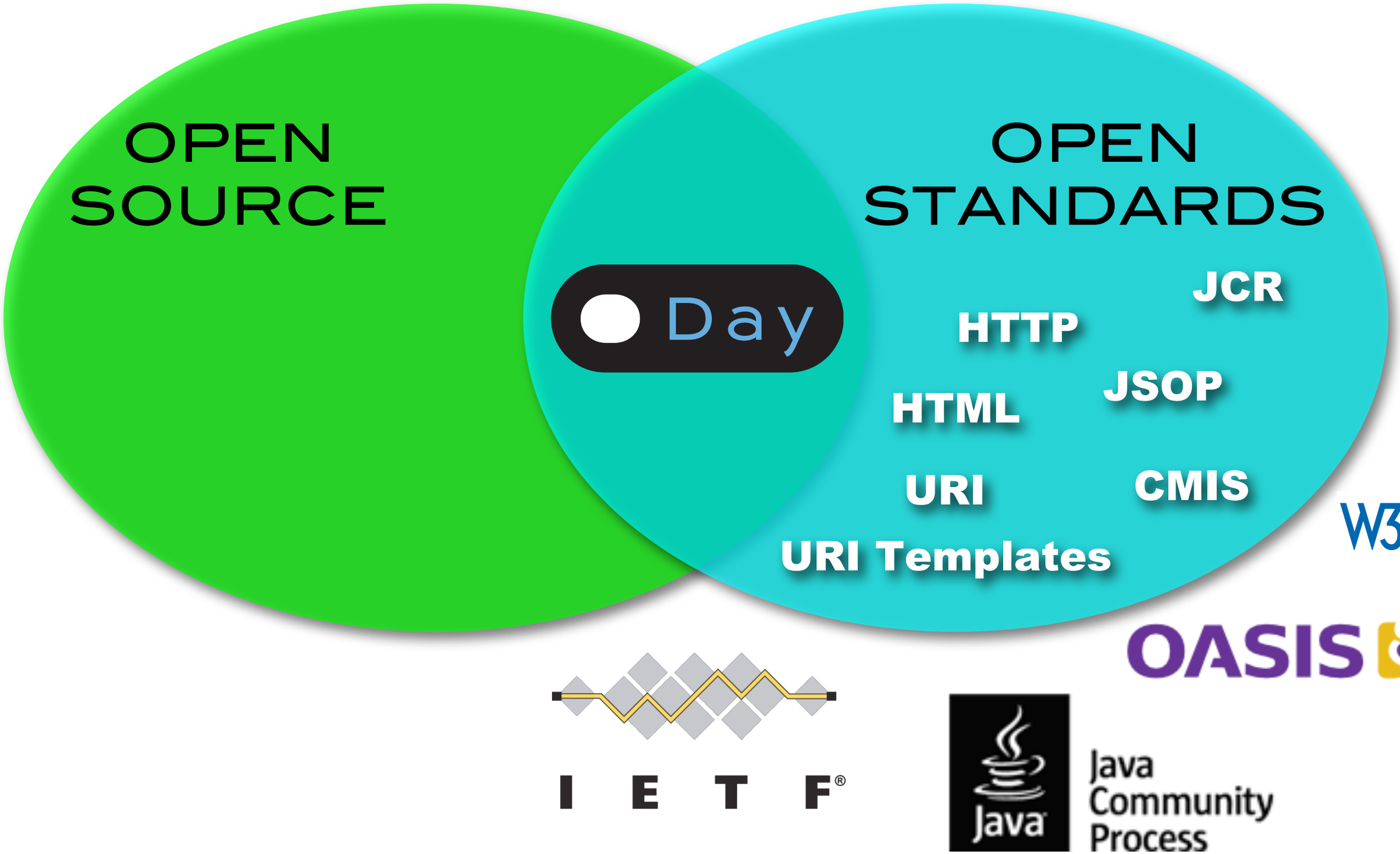
fielding@day.com

In the beginning ...

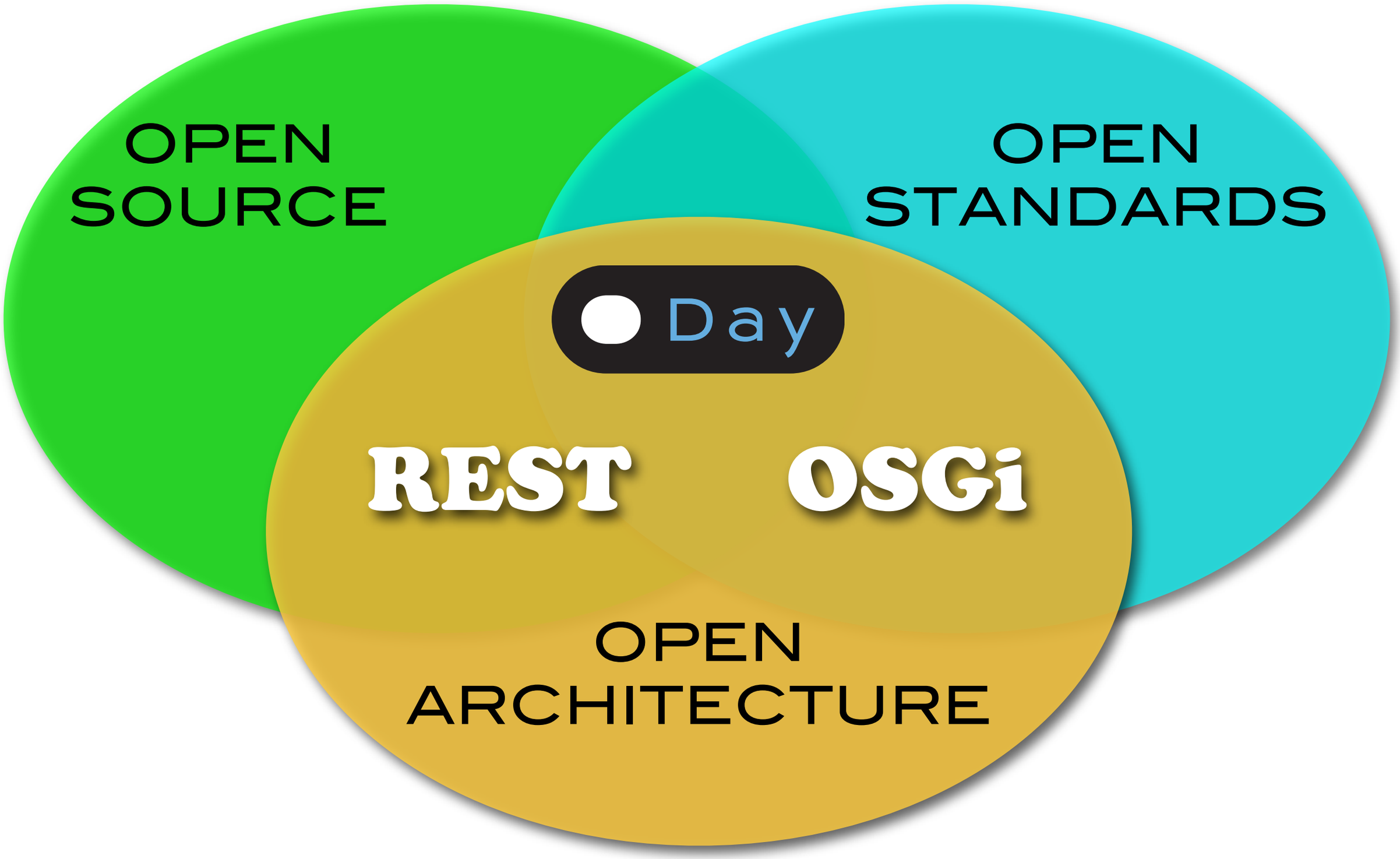


Overview

Overview


OPEN SOURCE
Day
OPEN STANDARDS
JCR
HTTP
JSOP
HTML
URI
CMIS
URI Templates
W3C
OASIS
IETF
Java
Java Community Process

Overview


OPEN
SOURCE
OPEN
STANDARDS
Day
REST
OSGi
OPEN
ARCHITECTURE

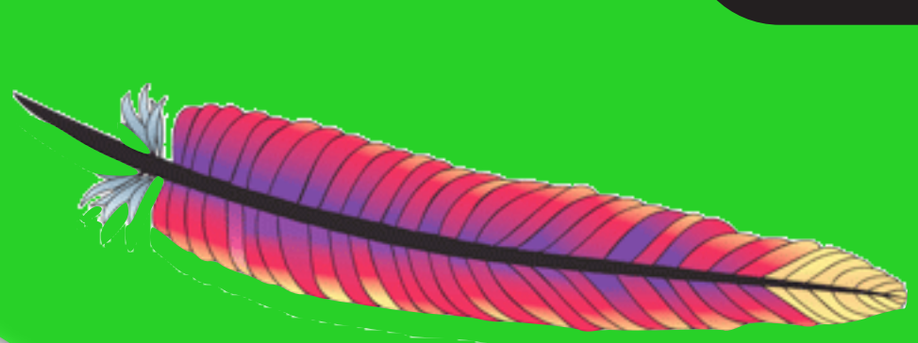
Day

Open Development

APACHE HTTP SERVER PROJECT

OPEN SOURCE

Day



Apache Jackrabbit

Sling

APACHE felix

COCOON

ESME

Let's talk about...

The ASF structure

How Day works with the ASF

How the ASF works with Day

What the benefits are for both

[Slides originally from Bertrand Delacrétaz]

It's all about

Collaboration

Day

The ASF in 2010

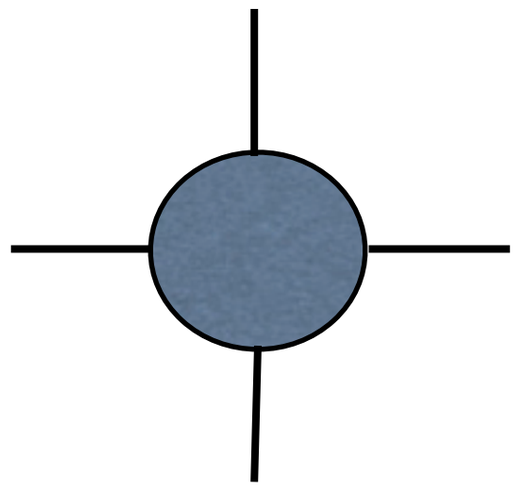
84 projects (+ 36 incubating)

> 2359 committers

ASF members: 330

3 TB/day www traffic

No offices
almost no f2f meetings
all decisions on mailing lists



Hundreds of releases

The ASF backbone?

revision control system

blogs

issue tracker

mailing lists + archives

IRC

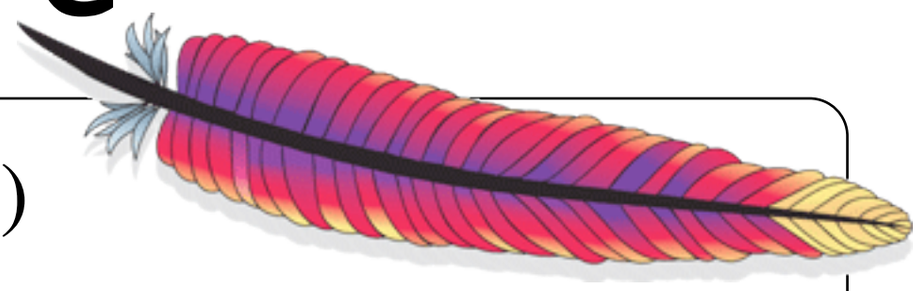
Instant messaging

httpd (of course)

automated builds

Wikis

ASF structure



Contributors (thousands)

Committers (~2360)

PMC members (~800?)

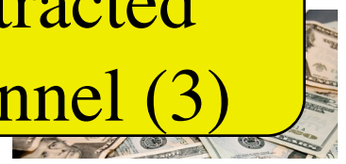
ASF members (~330)

Board of directors (9)

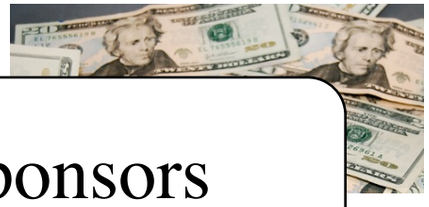
Officers

Legal advisors

Contracted personnel (3)



Sponsors



Collaboration

but how?

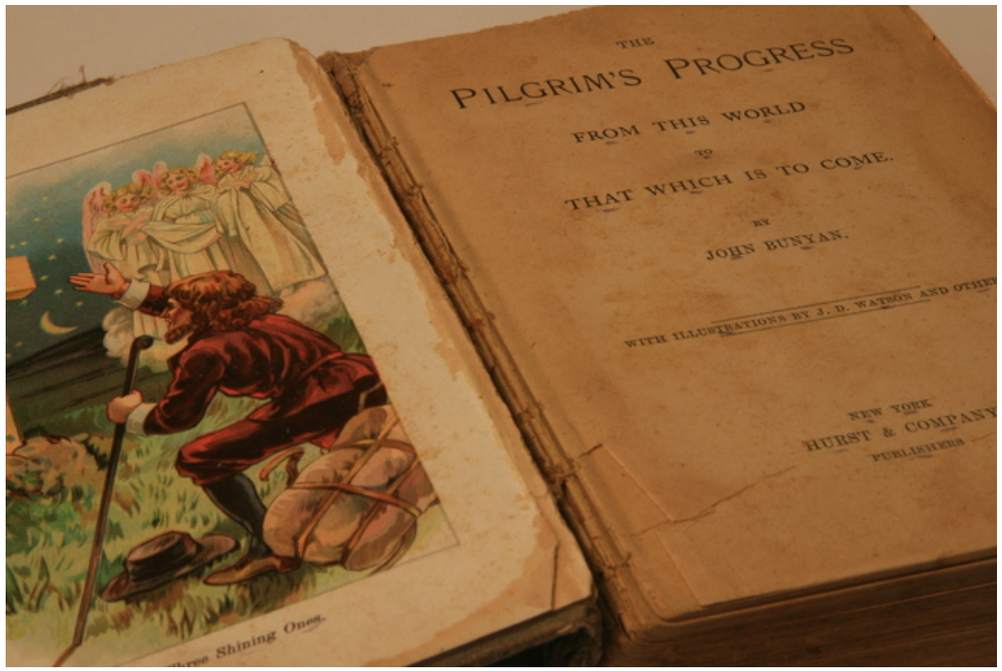
Day

Collaboration

Shared vision

Real-time updates

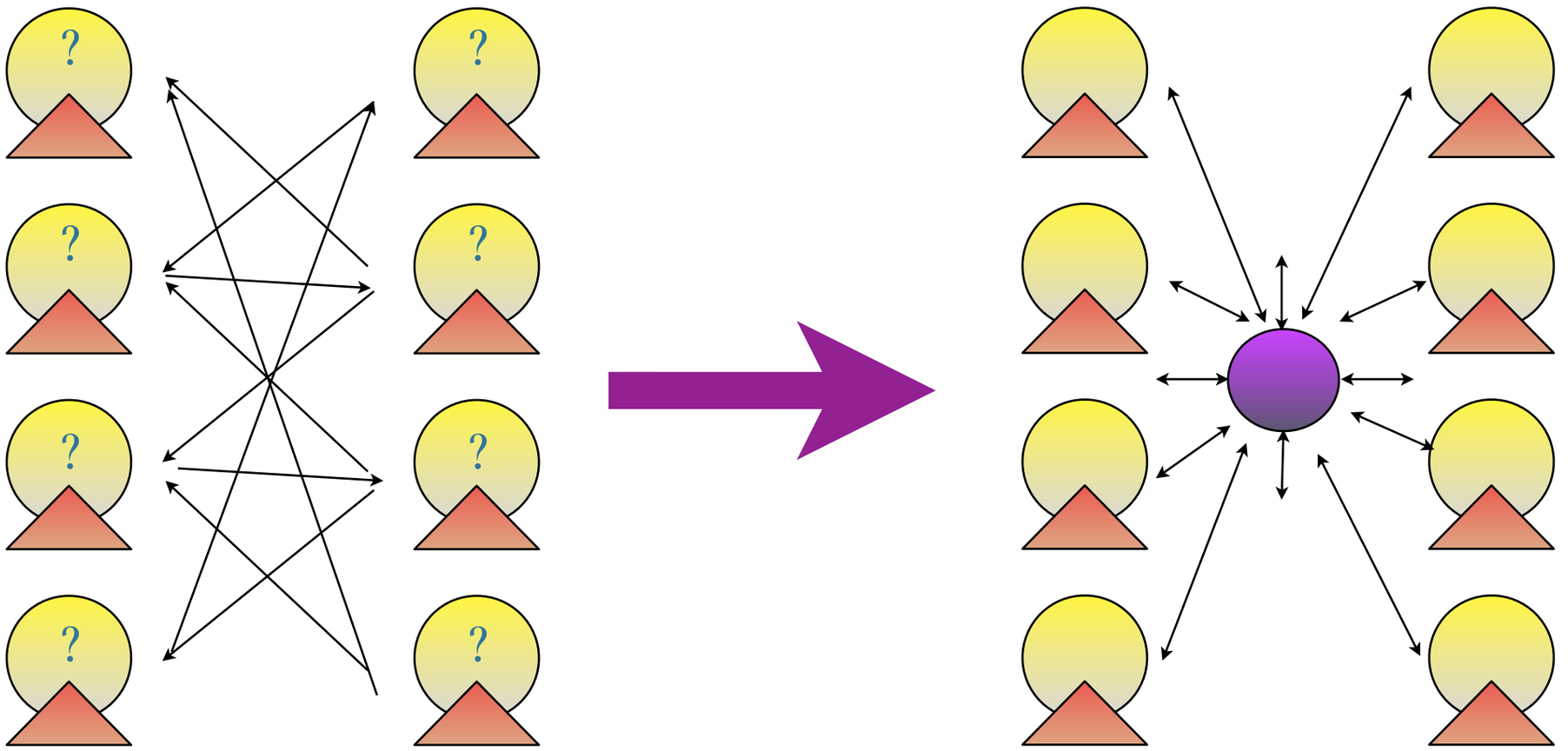
Real-time help requests



Self-service archives

Sharing the Vision

Sharing the vision?



Mess Media?
oral tradition?

Central Hub
permanent record

Sharing the vision.

verba volant, scripta manent...

MARK Mail

mailing lists + archives

Searchable mailing lists instead of 1-to-1 email

Wikis

Wikis instead of email attachments

blogs

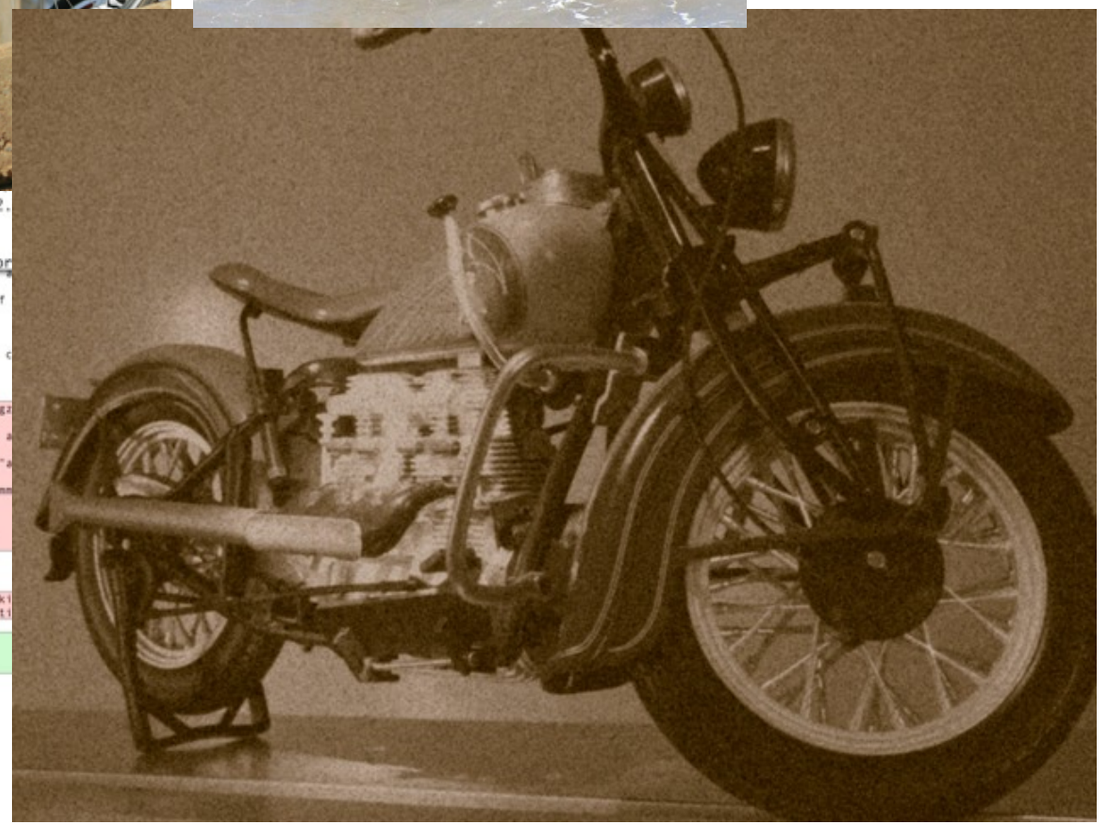
Blogs help for out-of-band conversations

Day

Real-time updates

Day

We need fast feedback!



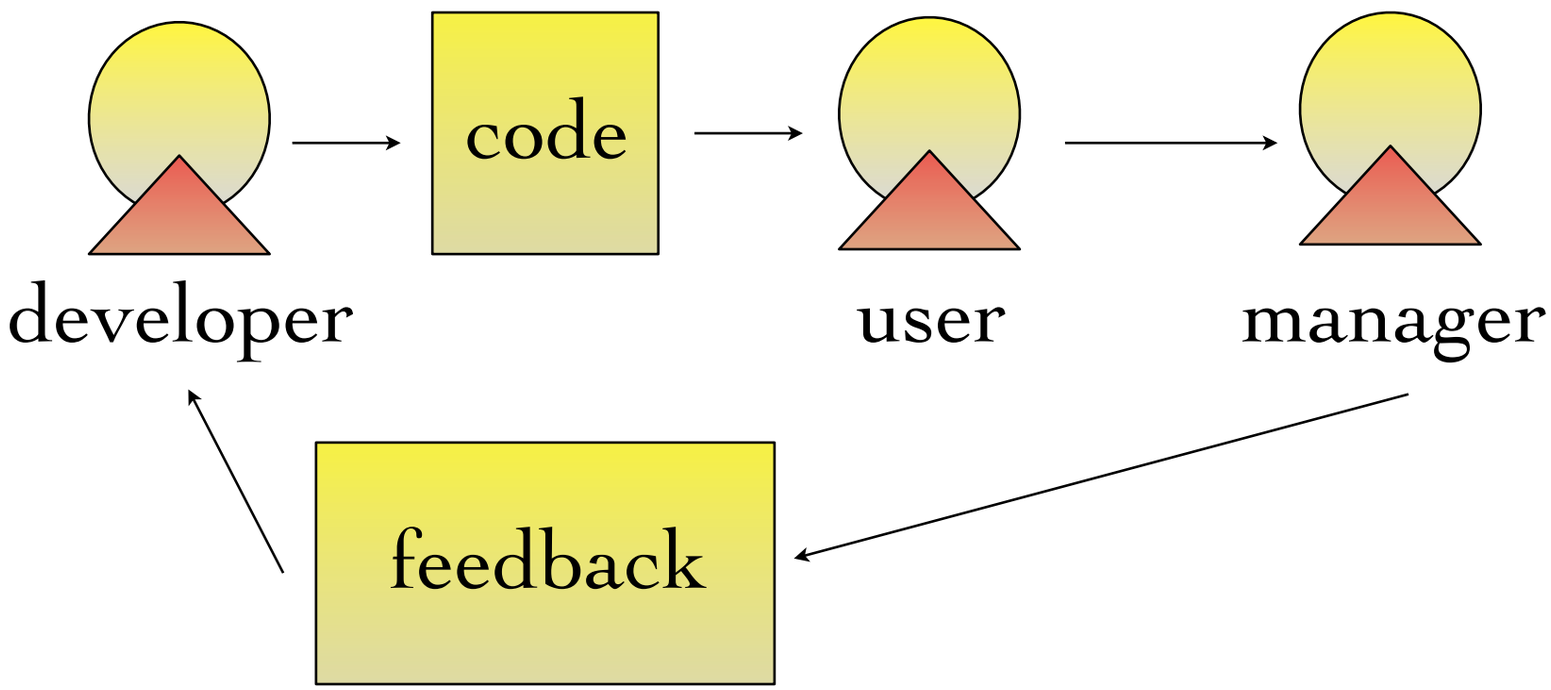
```
Working file: status.xm 1.155      (antonio  25-Sep-03):      Update lib commons-lang to 2.
head: 1.158             1.154      (antonio  25-Sep-03):    </action>
----------------------- 1.151      (sylvain  24-Sep-03):    <action dev="SW" type="add">
revision 1.158          1.151      (sylvain  24-Sep-03):      New event-handling system for
date: 2003/09/28 05:01:05;  author: a
Update status.xml
----------------------------
revision 1.157
date: 2003/09/26 14:46:23;  author: b
YAPT presentation tool sample added
----------------------------
revision 1.156
date: 2003/09/25 16:57:44;  author: c
   <action dev="CZ" type="add" fixes-
services.com">
     Fixing release of Source in the
```

lide: Part One: Tools
int-style: LittleText
. quick refresher about CVS.
ote: User view of these toc
lide: CVS
ODO screenshots: commit/mer
lide: Bugzilla
ODO screenshots: task listi
lide: Wiki
ODO screenshots: Wiki linki
lide: Weblogs
ODO screenshots: stories, a
lide: Part Two: analysis
int-style: LittleText
hat does each tool bring?

note: User view of
slide: CVS
TODO screenshots: c
slide: Bugzilla
img_rightHalf: bugz
Structured author a
Simple workflow ("a
Task history ("comm
Attachments
Powerful queries.
slide: Wiki
img_rightHalf: wiki
Easy content creati
Easy linking.
Fully open.

Day

Feedback loop



How fast is your loop?
Seconds? Weeks?

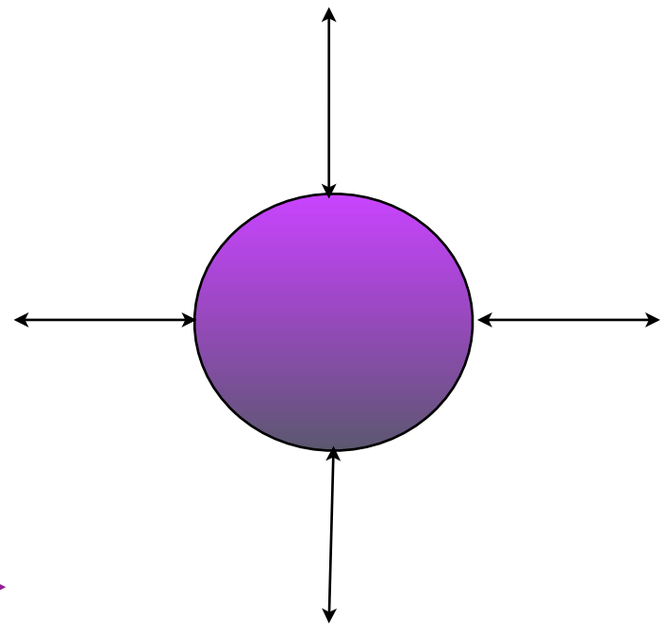
Real-time updates?

code

tests

bugs

decisions



subscriptions

email events

RSS feeds

Collaboration hub!

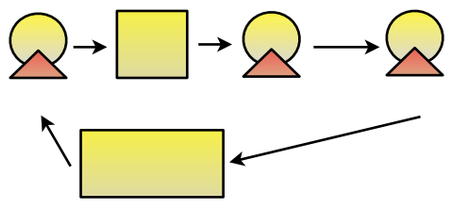
Real-time updates

Source code control system instead of “code on the fileserver”.

Issue tracker events instead of “what did you do today”?

Mailing list “events” instead of “yell around the office”.

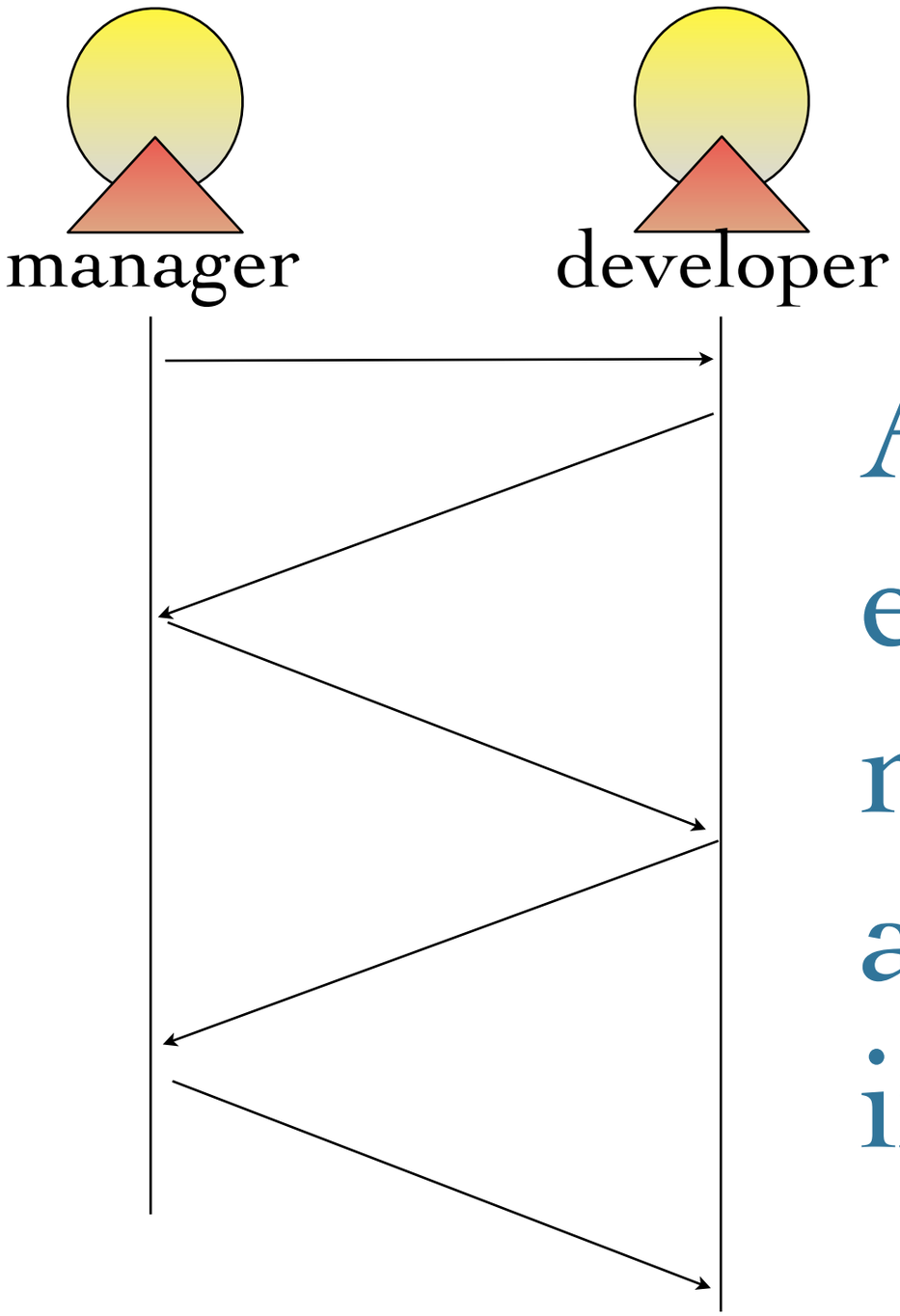
Automated builds instead of “wait for Bob to build it on Linux”.



Real-time help requests

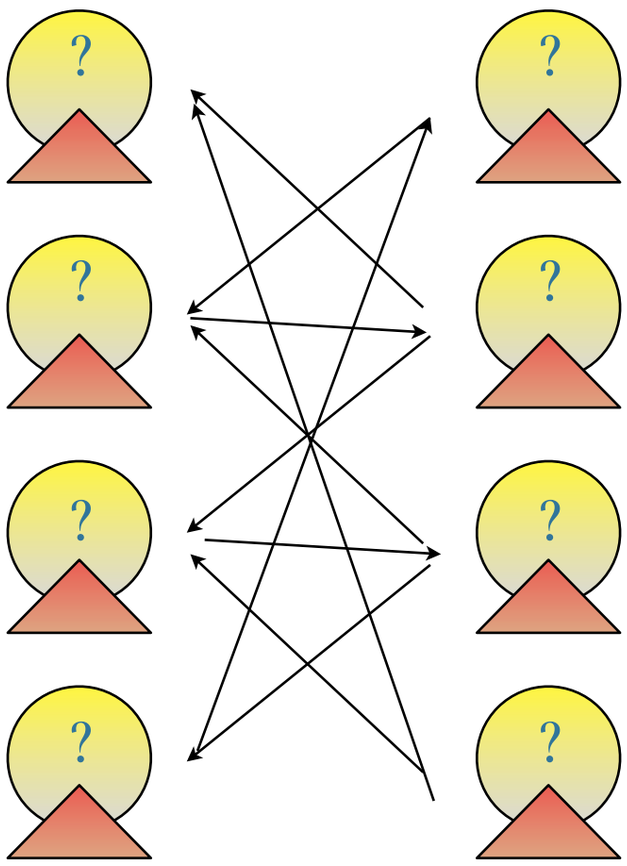
Day

Real-time help requests?



A help (feature, enhancement) request is a dialog, and history is important.

Real-time help requests



Mess Media?

Issue Navigator

Displaying issues **1** to **50** of **51** matching issues.

Current View:
Browser (**Current Fields** | Printable | Full Content) | XML | RSS (Issues | Comments) | Word | Excel (All fields | Current fields) | Charts

Bulk Change: **all 51 issue**
Configure your Issue Nav

1 | 2 | Next >>

T	Key	Summary	Assignee	Reporter	Pr	Status	Res
	SLING-7	Implement better Node Type Management	Unassigned	Felix Meschberger		Open	UNRESOLVED
	SLING-3	Use RequestProgressTracker to log request processing steps	Unassigned	Felix Meschberger		Open	UNRESOLVED
	SLING-53	Add request filter for method overwrite	Unassigned	Felix Meschberger		Open	UNRESOLVED
	SLING-77	Provide an easy-to-use Javascript API for JCR	Unassigned	Lars Trieloff		Open	UNRESOLVED
	SLING-147	Add support for org.osgi.framework.system.packages enhancement	Unassigned	Felix Meschberger		Open	UNRESOLVED
	SLING-156	JSTL Bundle	Unassigned	Carsten Ziegeler		Open	UNRESOLVED
	SLING-166	JavaScript: Enable request processing limitation	Unassigned	Felix Meschberger		Open	UNRESOLVED
	SLING-160	Group bundles by symbolic name rather than by bundle id.	Unassigned	Tobias Bocanegra		Open	UNRESOLVED
	SLING-190	The Sling class of the launcher should verify minimum JDK requirement and fail properly	Felix Meschberger	Felix Meschberger		Open	UNRESOLVED
	SLING-196	allow custom handlers in repository loader	Unassigned	Tobias Bocanegra		Open	UNRESOLVED
	SLING-199	Implement Request Filter management in the virtual resource tree	Unassigned	Felix Meschberger		Open	UNRESOLVED
	SLING-247	Provide Scripting variables as request attributes for JSP	Unassigned	Felix Meschberger		Open	UNRESOLVED
	SLING-245	After reinstalling sling core, server shutdown hangs	Unassigned	Tobias Bocanegra		Open	UNRESOLVED
	SLING-81	SLING-77 ↳ Add write-support to Javascript API for JCR	Unassigned	Lars Trieloff		Open	UNRESOLVED
	SLING-249	Allow mapping nodes to internet domains	Unassigned	Vidar S. Ramdal		Open	UNRESOLVED
	SLING-251	Add mapping for user homes	Unassigned	Tobias Bocanegra		Open	UNRESOLVED
	SLING-268	Replace old JSON content import by new importer	Unassigned	Felix Meschberger		Open	UNRESOLVED
	SLING-284	Use bundle context of scripts for service locator aka sling script helper	Unassigned	Carsten Ziegeler		Open	UNRESOLVED

Issue Tracking

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Real-time help requests

issue tracker

Issue tracker instead of "just ask Bob to fix this".

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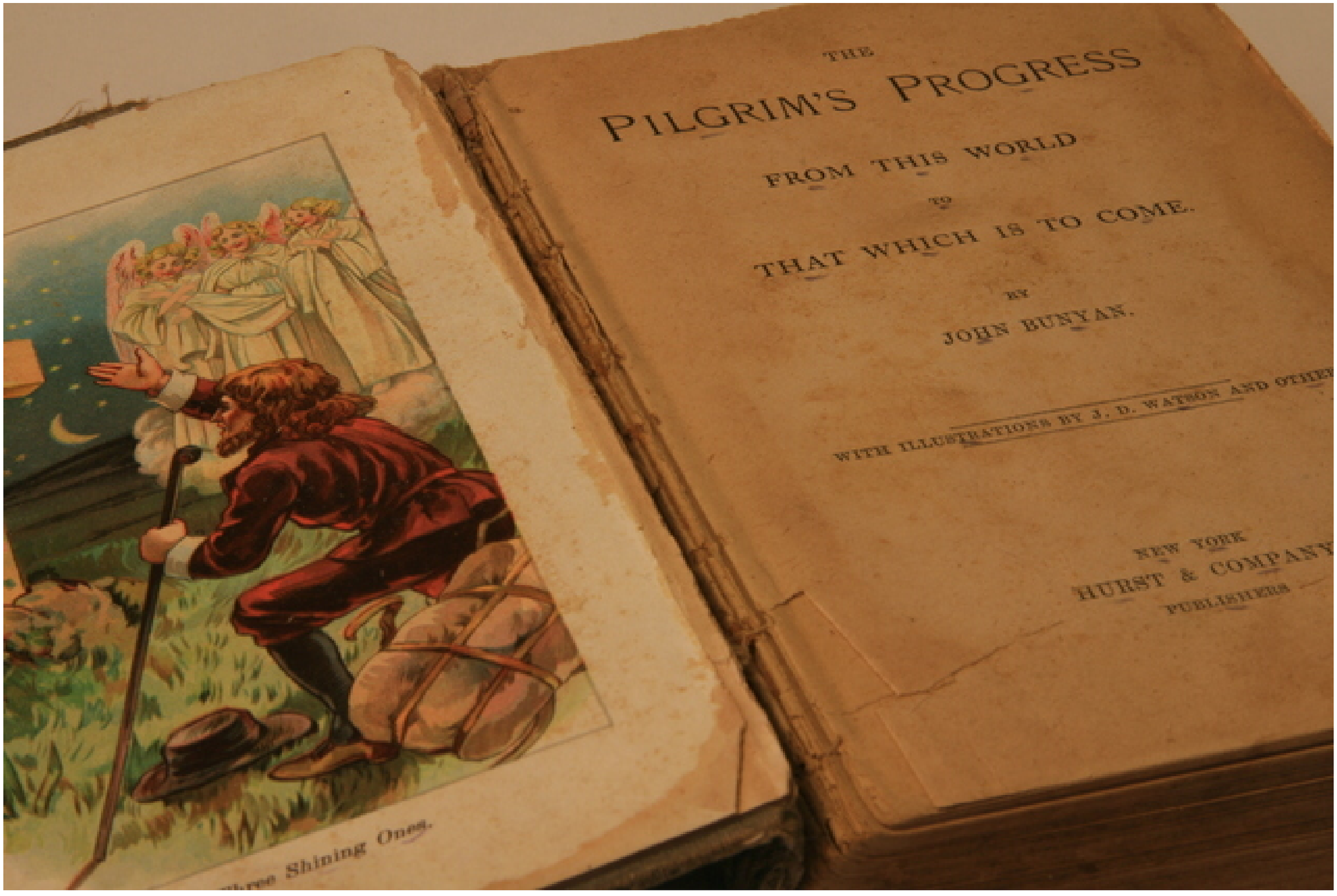
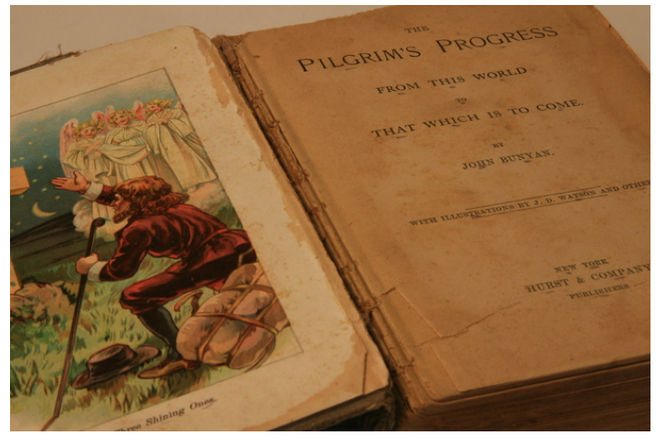
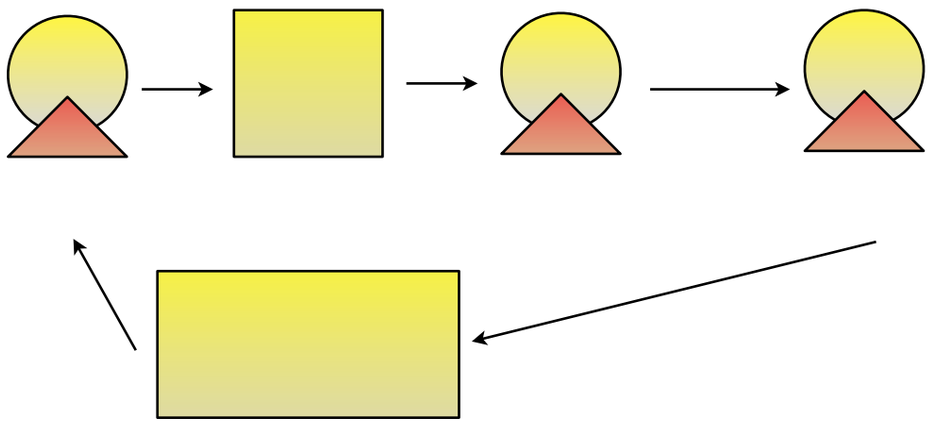


Self-service archives

Day

Self-service archives?

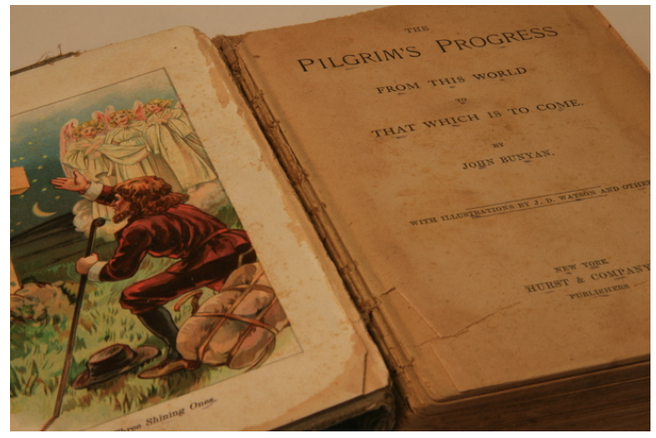




No time to document everything that happens.

But new project members need the information, self-service.

Self-service archives



SUBVERSION

Subversion logs, traceability of code.

JIRA

Structured and searchable issue tracker data.

MARK Mail

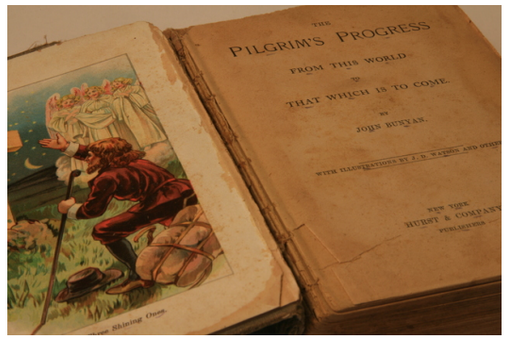
Semi-structured and searchable mailing lists.

Blogs and Wikis stay around.

Zero effort if using the rights tools!

Day

Are We There Yet?

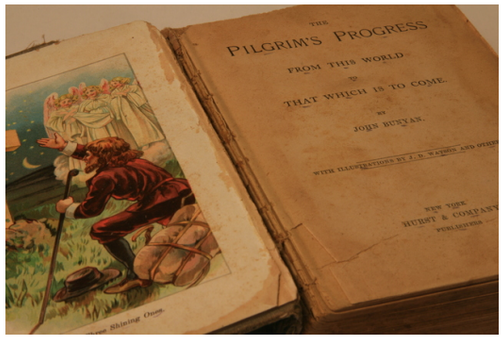


Collaboration

Vision

Updates

Help



Archives

MARK Mail

SUBVERSION

JIRA

SUBVERSION

JIRA

JIRA

MARK Mail

JIRA

MARK Mail

continuum

Extra tools:

Day

Day and the ASF

Apache Jackrabbit

alexkli, angela, dpfister, fielding [*], fmeschbe, jukka, mreutegg, ppiegaze, stefan, tripod, uncled

Day™

Sling

bdelacretaz [*], cziegeler, fmeschbe

cocoon

Apache Tika

APACHE felix ESME

Committers, PMC members and mentors on these projects, and others

[*] member of the Board of Directors

What does Day get out of this?

Great infrastructure software.
Many eyeballs.

Industry recognition (+ JSR-170)

Credibility with world-class people.

Shared vision

Real-time updates

Real-time help requests

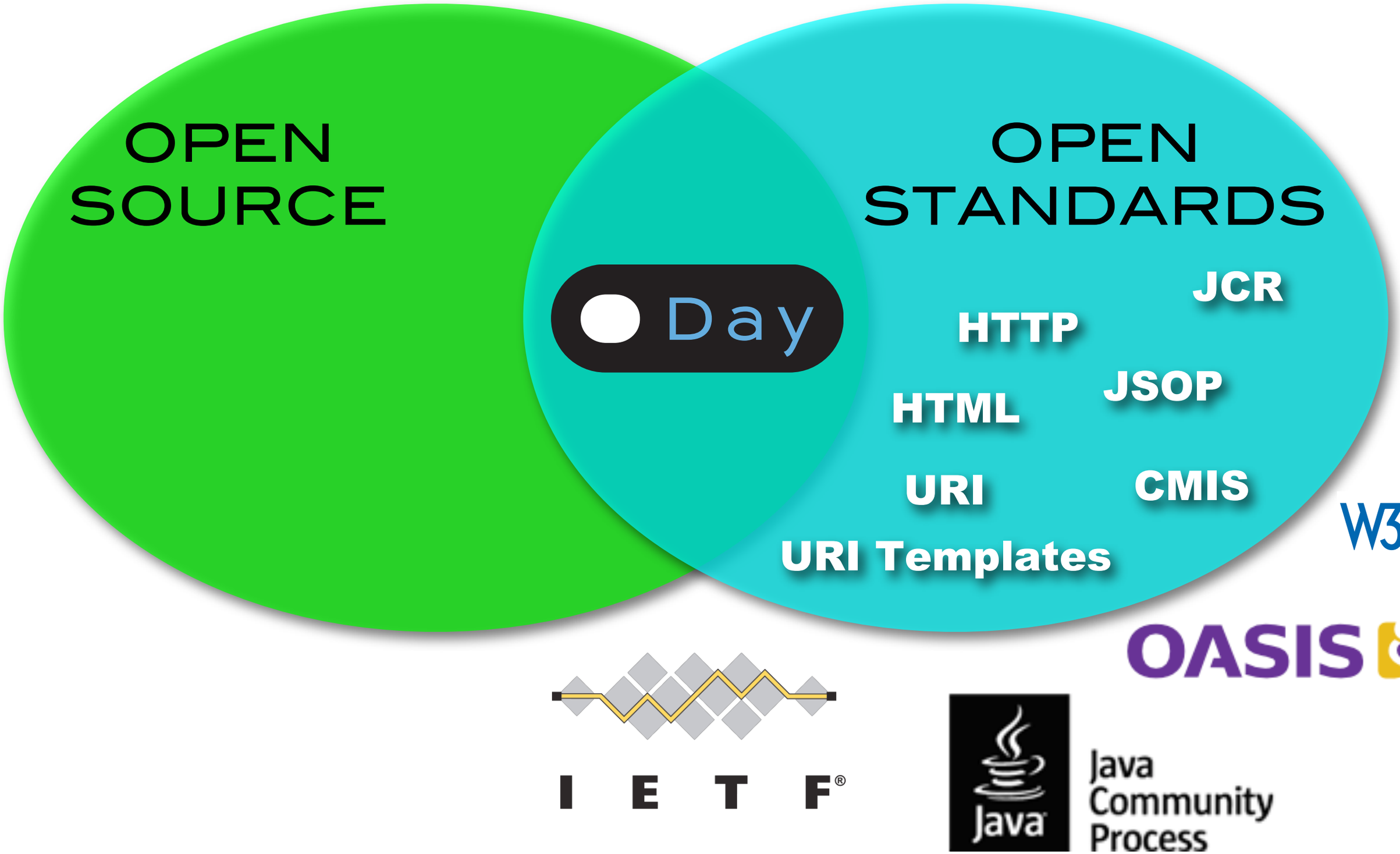
Self-service archives

The Open Source way of working.
Works inside the company as well.

Contacts. Networks. Ideas.

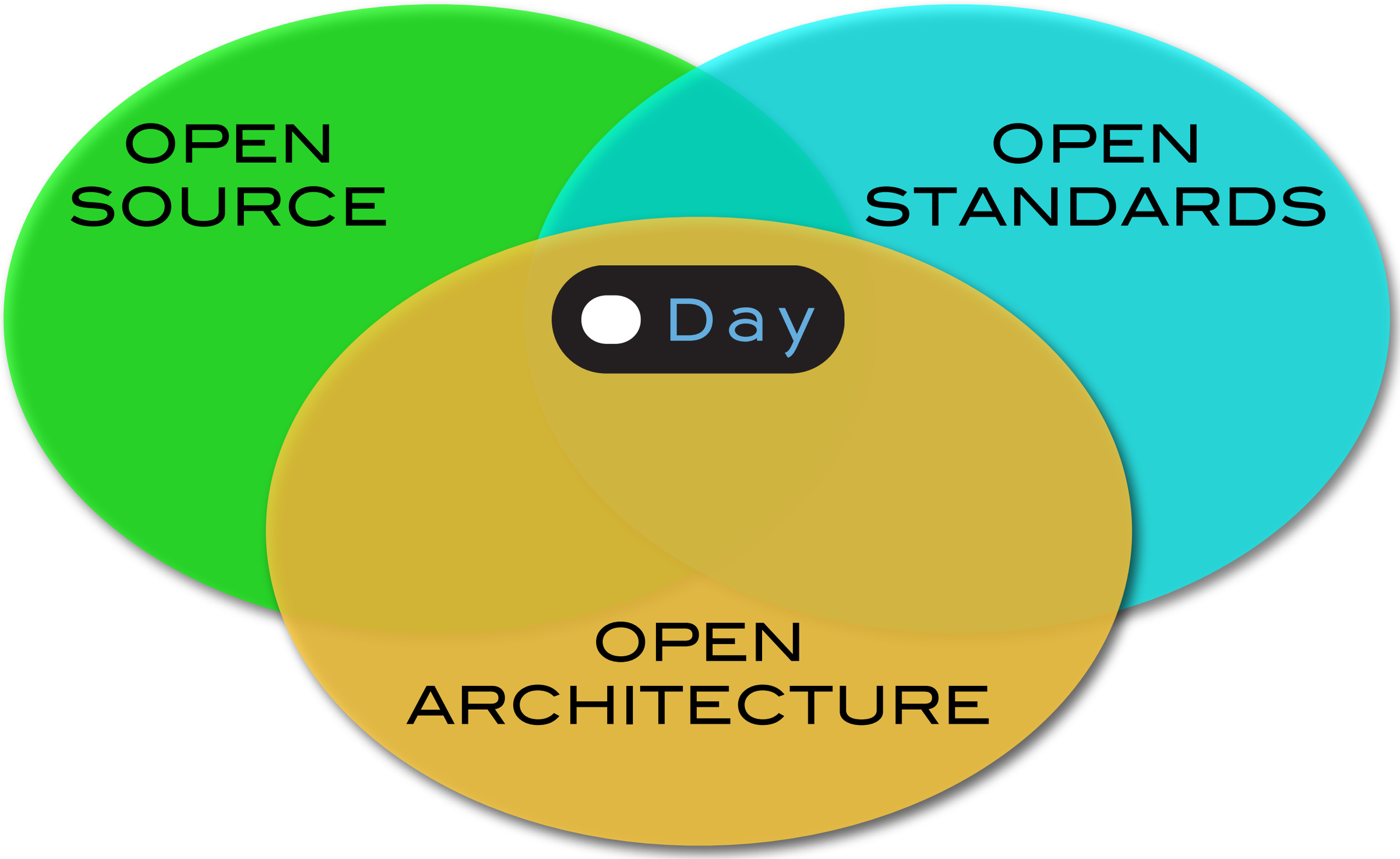
Day

Open Development: Standards

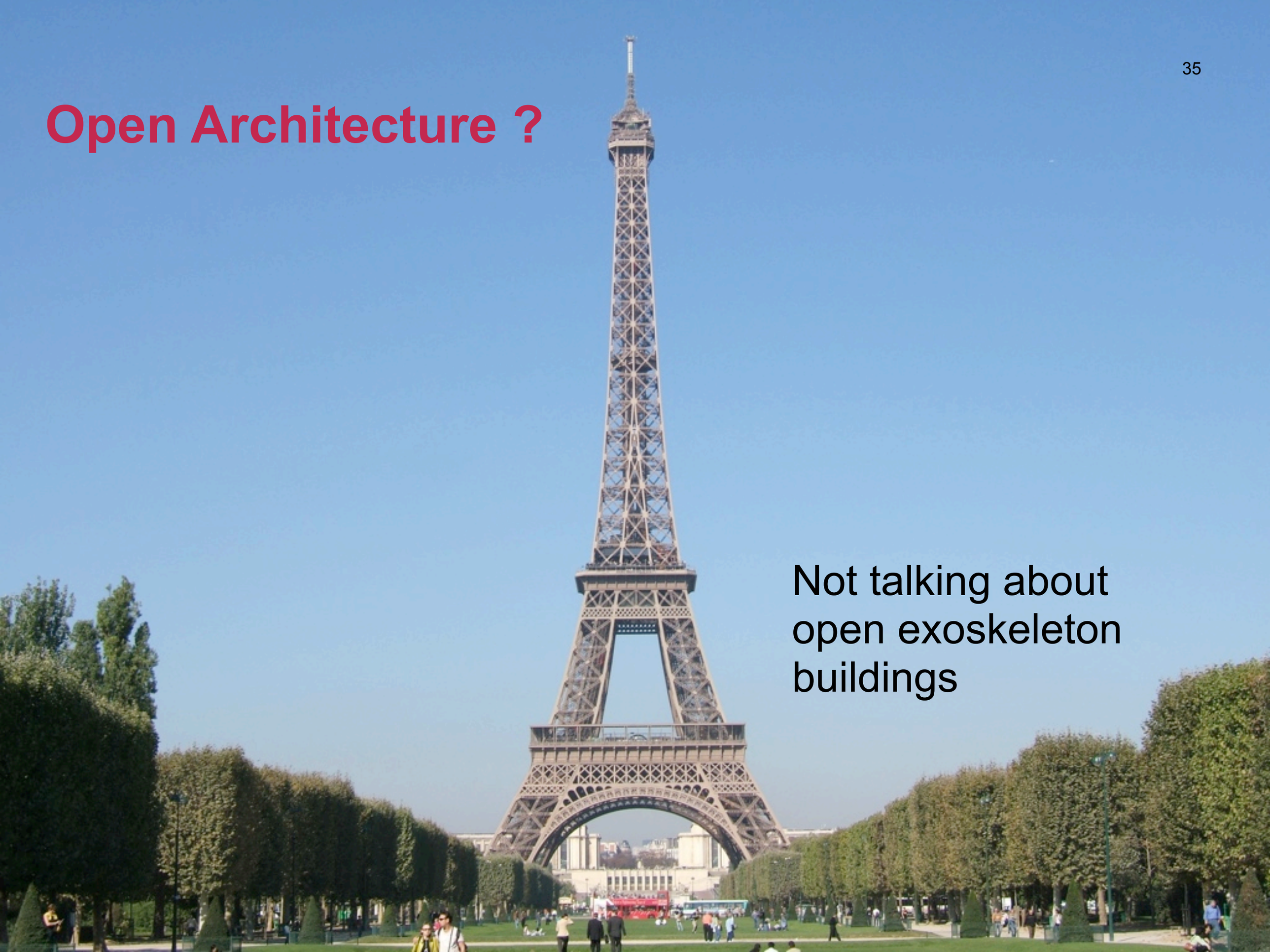


Day

Open Development: Architecture



Open Architecture ?



Not talking about open exoskeleton buildings

Open Architecture ?

Not talking about
Open Sourced Architecture

Find Current Projects | Open Architecture Network

http://www.openarchitecturenetwork.org/projects

Google

Open Architecture Network beta 0.2

Register or Log in

Search

Welcome, guest: please register or log in to your account!

ABOUT | PROJECTS | COMPETITIONS | PEOPLE | RESOURCES

Find Current Projects

Start a Project

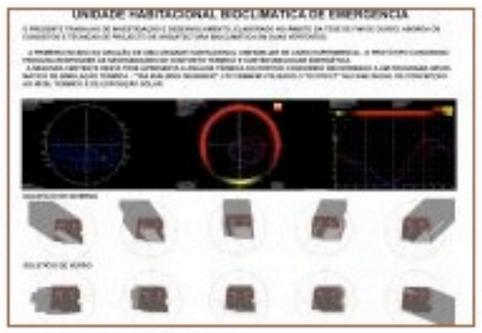
By Attributes

Search by keyword or use the Filter Criteria Search tools to narrow down your results.

1081 total projects.

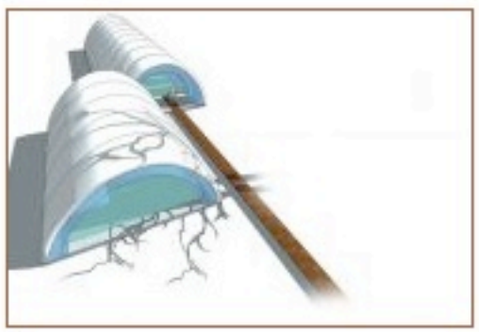
Sort by: Overall Rating

WatAir



Bioclimatic Shelter

Navajo Elder Straw Bale....



SEARCH PROJECTS

Search

Enter a keyword, i.e. "Cob" or "Straw"

FILTER CRITERIA SEARCH

STATUS

All Statuses (1081)
Design development (1212)
Design complete (92)
In construction (54)
Construction complete (95)

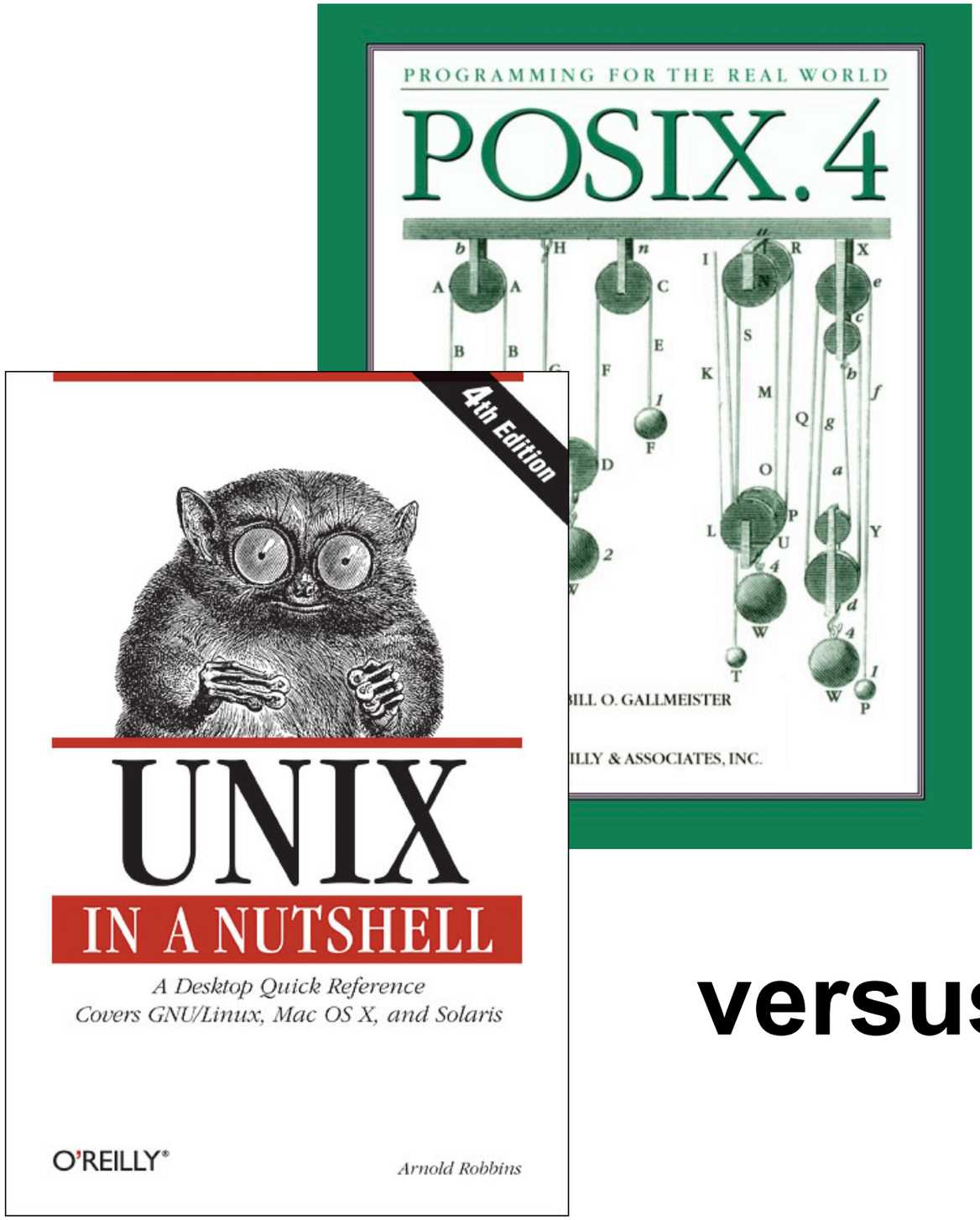
REGION

All Regions (1081)
Africa & Arab States (190)
Asia & Pacific (175)
Europe & Former Soviet States (37)
Latin America & the Caribbean (110)

Open Architecture ?

Not even talking about personal computer open architecture

Open Architecture ?



versus

Mainly talking about
design for
open systems

Why talk about Open Architecture?

Open Development

Collaborative open source development

- emphasizes **community**
- takes advantage of the **scalability** obtainable through Internet-based virtual organizations
- **adapts** to the volunteer nature of developers

Why talk about Open Architecture?

Open Development
+
Conway's Law

Any organization that designs a system (defined broadly) will produce a design whose structure is a copy of the organization's communication structure.

Melvin E. Conway, *Datamation*, April 1968
http://www.melconway.com/law/index.html

Why talk about Open Architecture?

Open Development
+
Conway's Law

True open development (a.k.a, Community-driven Design) will only occur when the design of your system reflects the organizational structure of open development!

Why talk about Open Architecture?

Open Development

+

Conway's Law

+

Change is inevitable!

Decentralized Software Evolution
(or rapid obsolescence)

Decentralized Software Evolution

Requires Architecture by Design

open (software) architecture

used by open development projects

to enable decentralized software evolution

so that others can continue to design the software

and fulfill Conway's Law

leading to success over time!

Challenges

Trade-off between Adaptability and Consistency

- what changes are possible?
- what assurances are provided?

Where to place the open points

- behavioral junctions (APIs, callback hooks)
- virtual machines (command tables, scripting)
- data flow (filters, plug-ins)

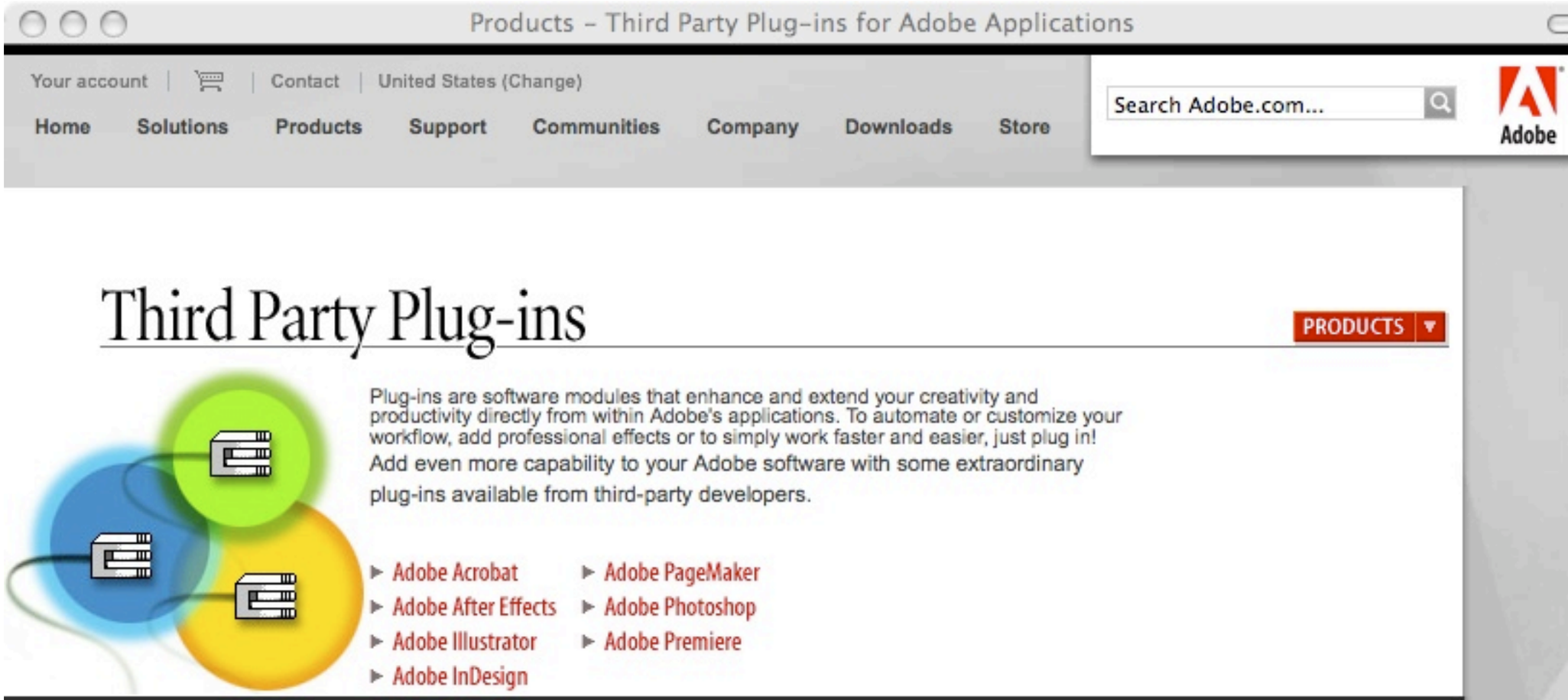
Consistency

- independent third-parties may change the application in incompatible ways

Closed Source Examples

Adobe

- extensive plug-in architecture
- diverse commercial community



Closed Source Examples

Apple iPhone Ecosystem

Open Development and Open Source

What is common to all of the largest and most successful open source projects?

a software architecture

designed to promote anarchic collaboration

through extensions

while preserving control over the core interfaces

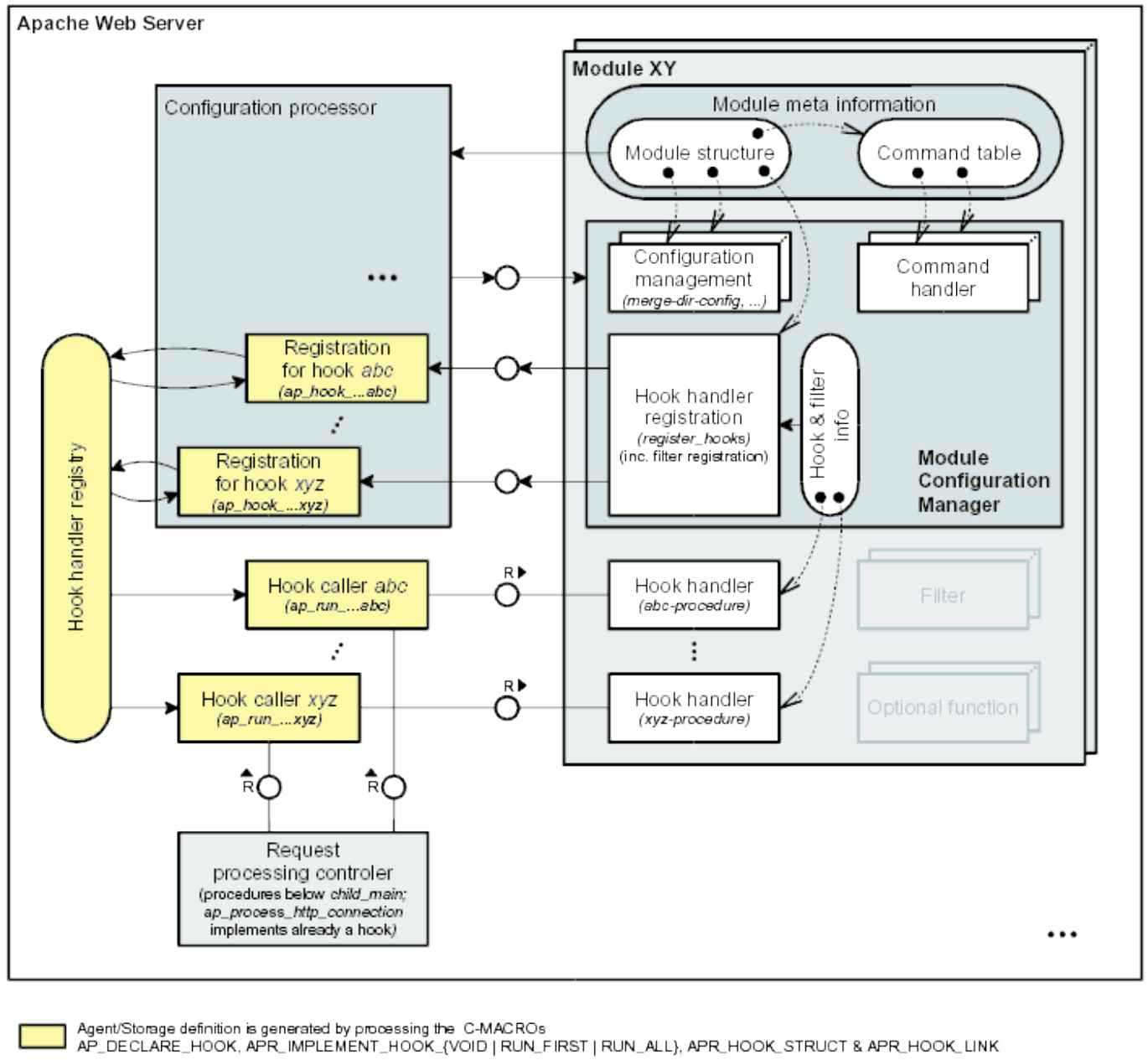
Apache httpd: modules

Modules

- simplify core
- enable independent development
- promote experiments

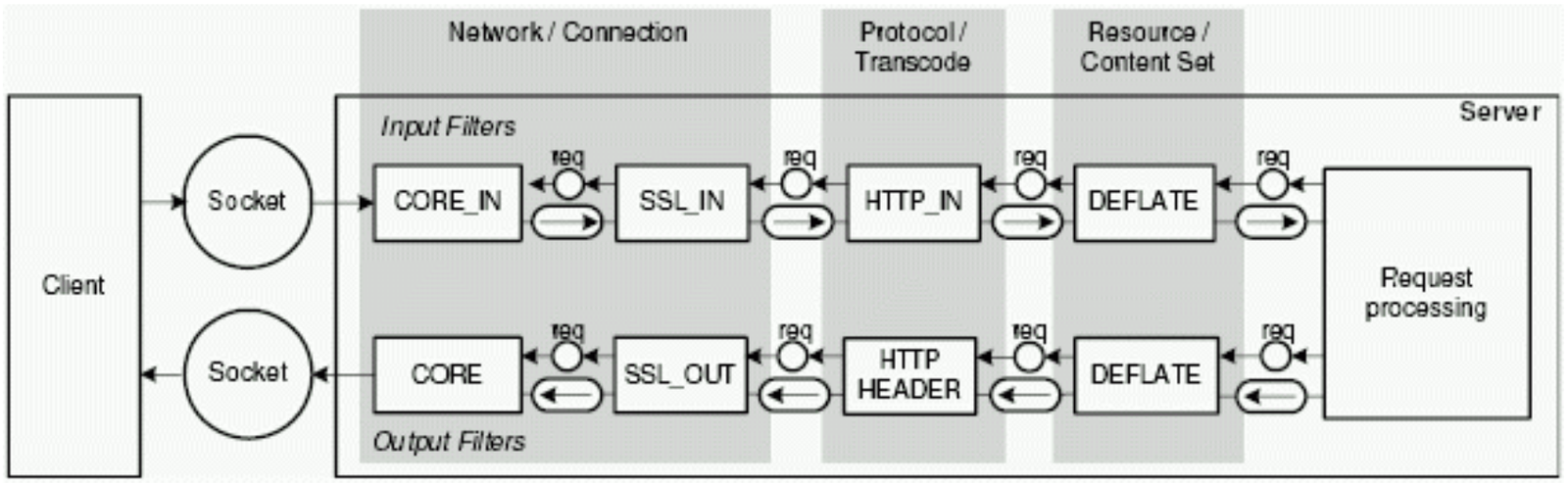
Project improves

- reduced friction
- anarchic growth
- more features
- less communication



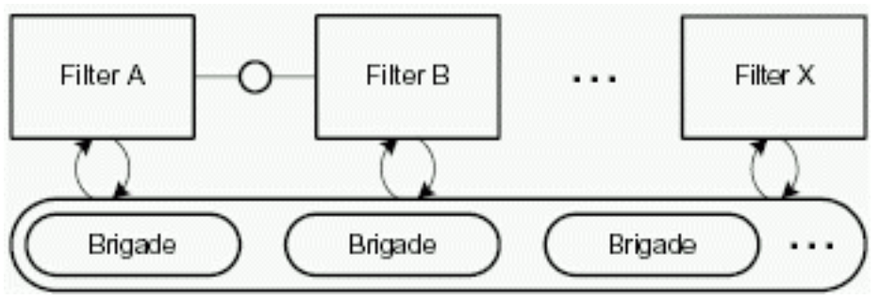
[Apache Modeling Project, f-m-c.org]

Apache httpd: I/O filters



Filters provide more extensibility

- protocol replacement
  - httpd, ftpd, nntpd, ...
- stackable content manipulation
  - extensions that can extend other extensions



[Apache Modeling Project, f-m-c.org]

Linux Kernel Modules

Modules

- simplify core
- enable independent development
- promote experiments

Project improves

- reduced friction
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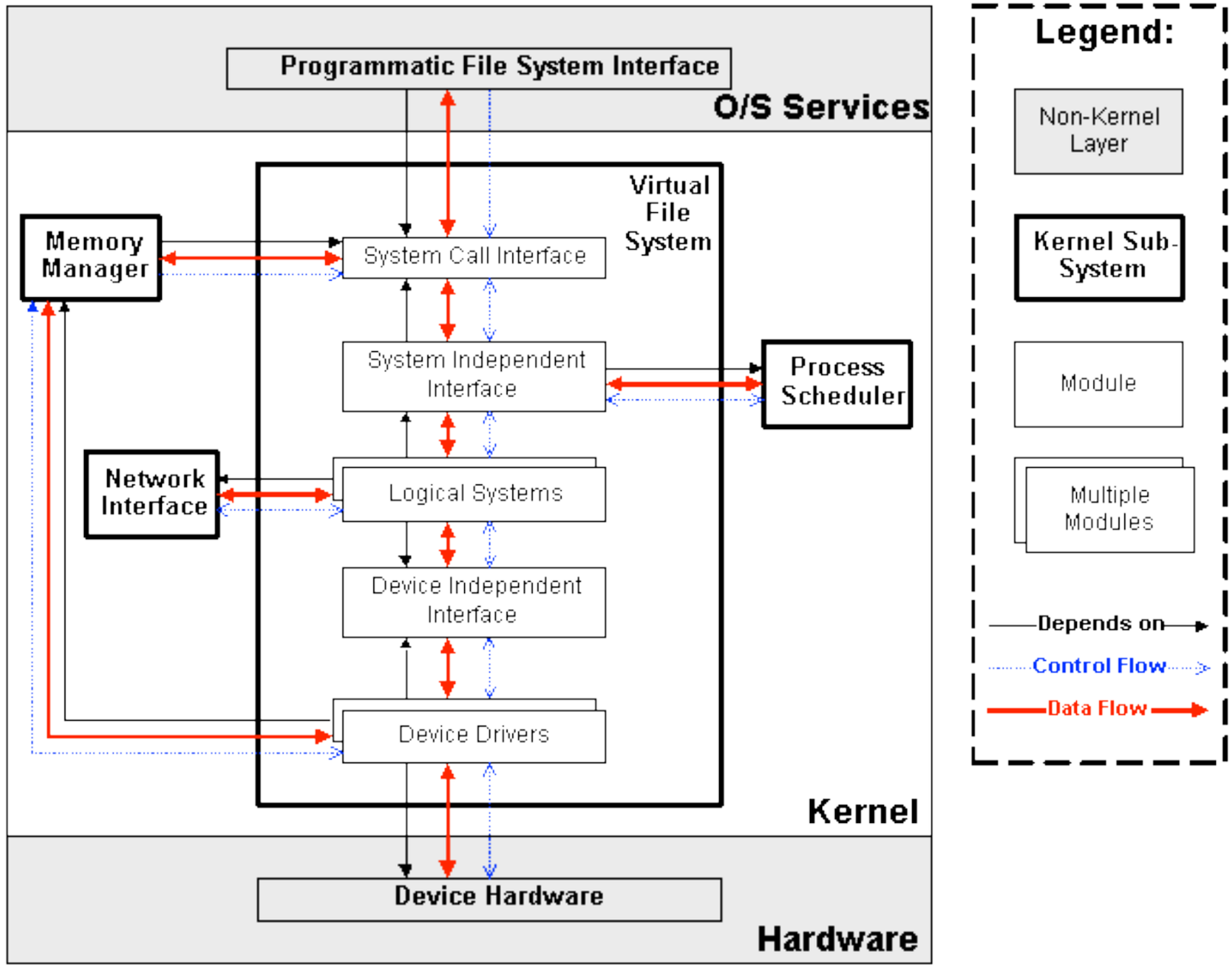
- more features
- less communication



[diagram from Ivan T. Bowman, 1998]

Mozilla Firefox

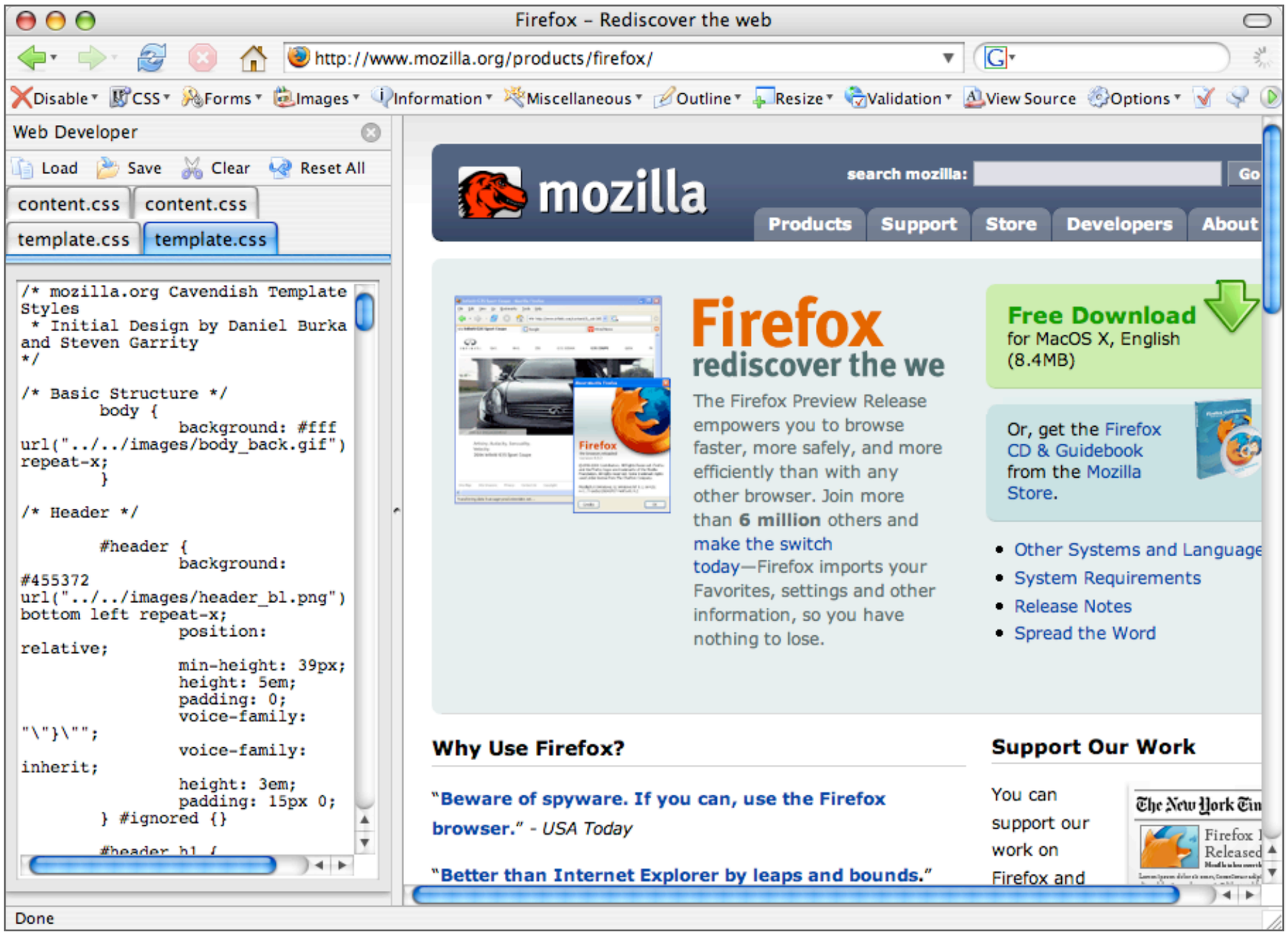
Open Source

Extensible Architecture

Plug-in Tools

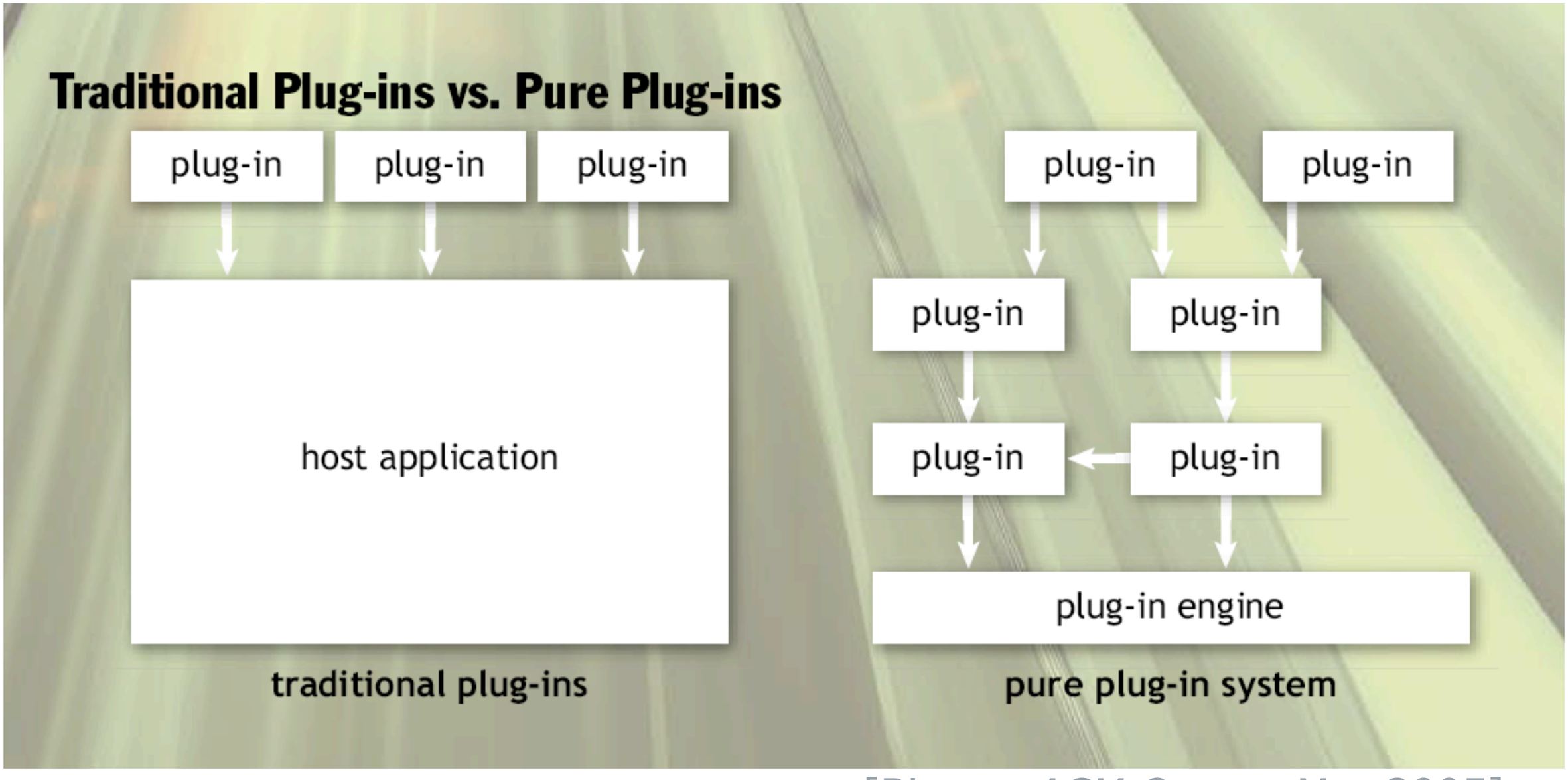
Layered CSS

Editor Platform



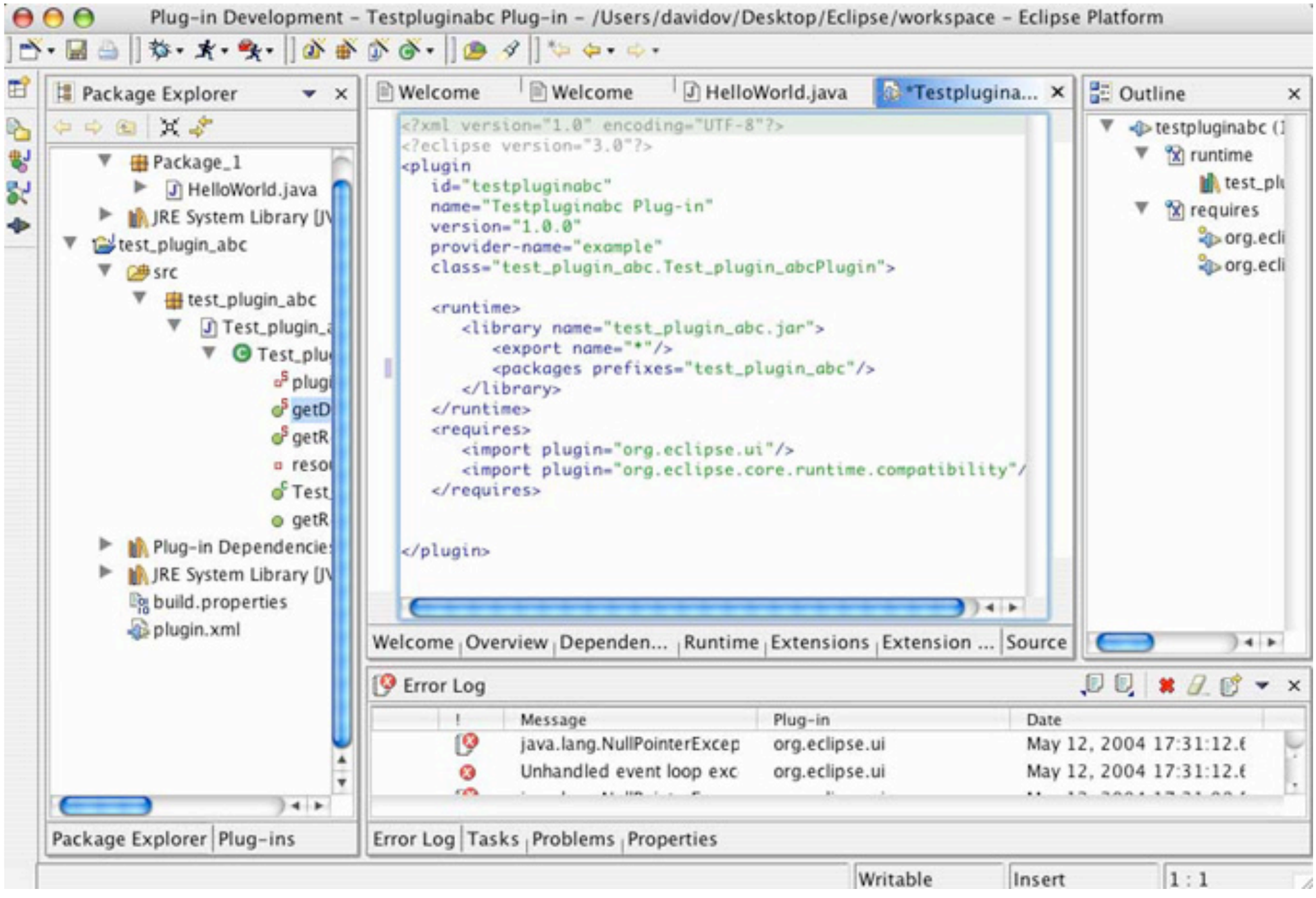
Eclipse Platform

Taking modular extensibility to the next level

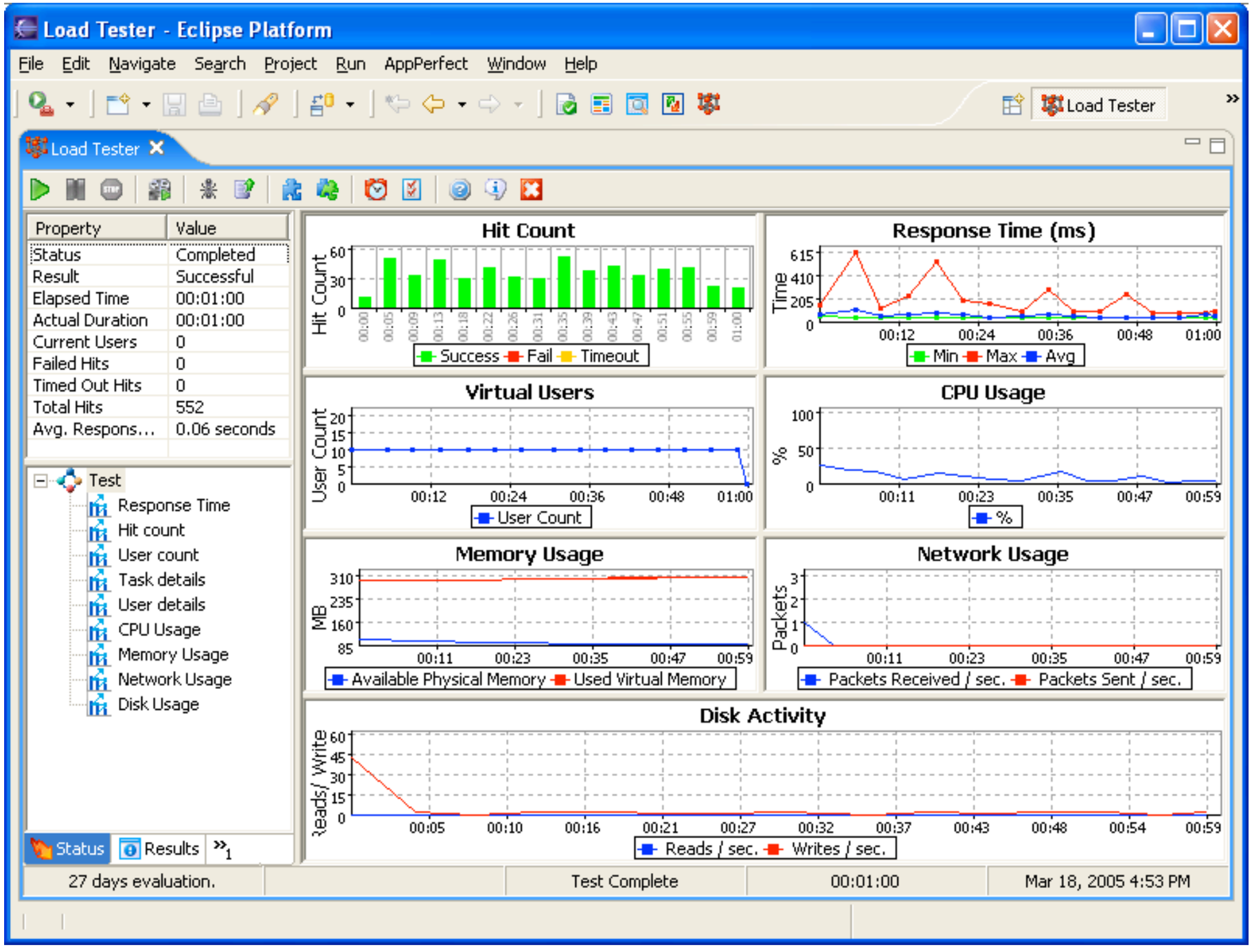


[Birsan, *ACM Queue*, Mar 2005]

Eclipse Platform



Eclipse Platform



Apache Sling

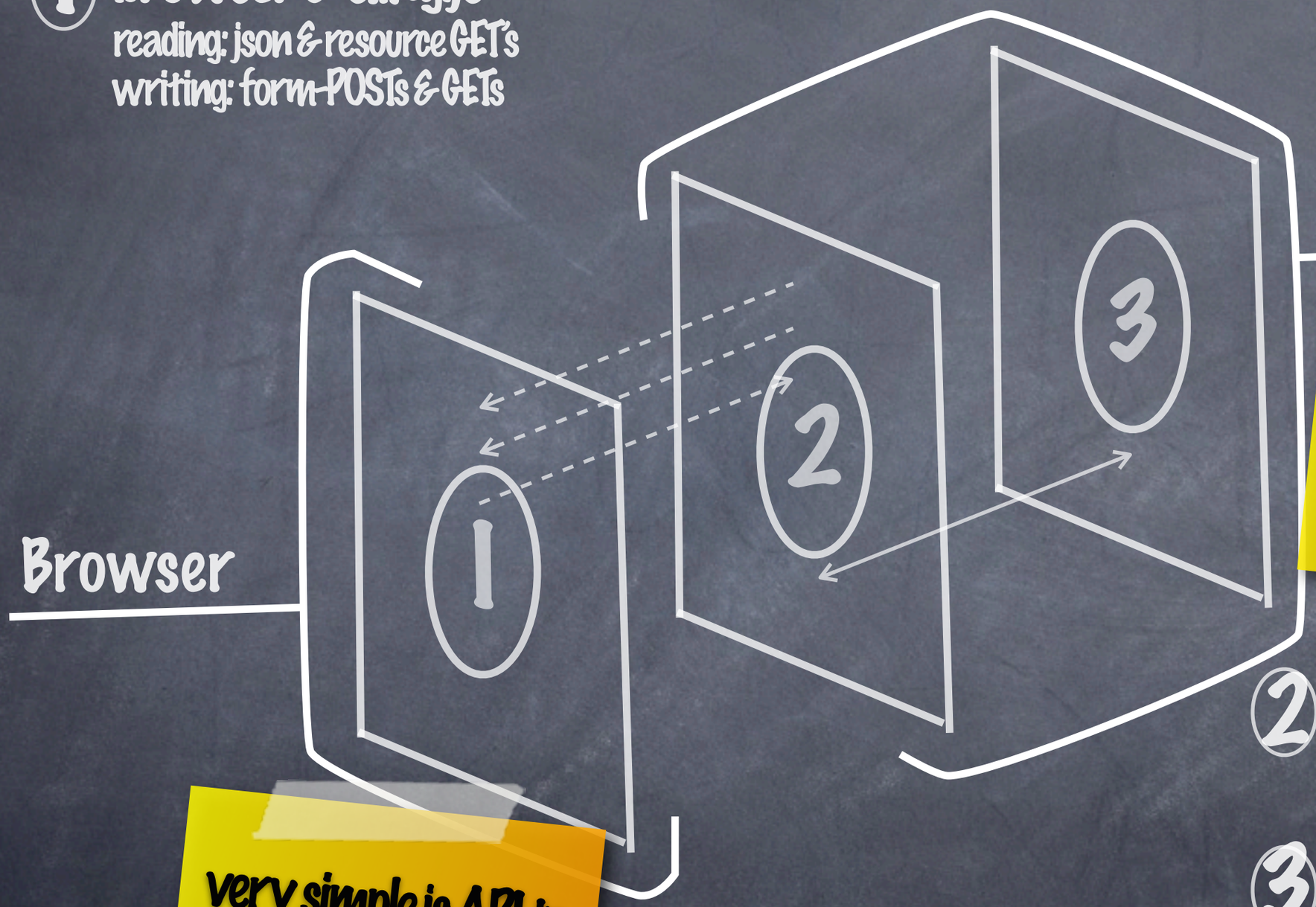
Drop-in Extensibility using OSGi Bundles

... jsp, groovy, esp, ruby, scala

+

JCR backed Content-oriented WebDAV-able REST-based

1 browser & sling.js
reading: json & resource GET's
writing: form-POSTs & GETs



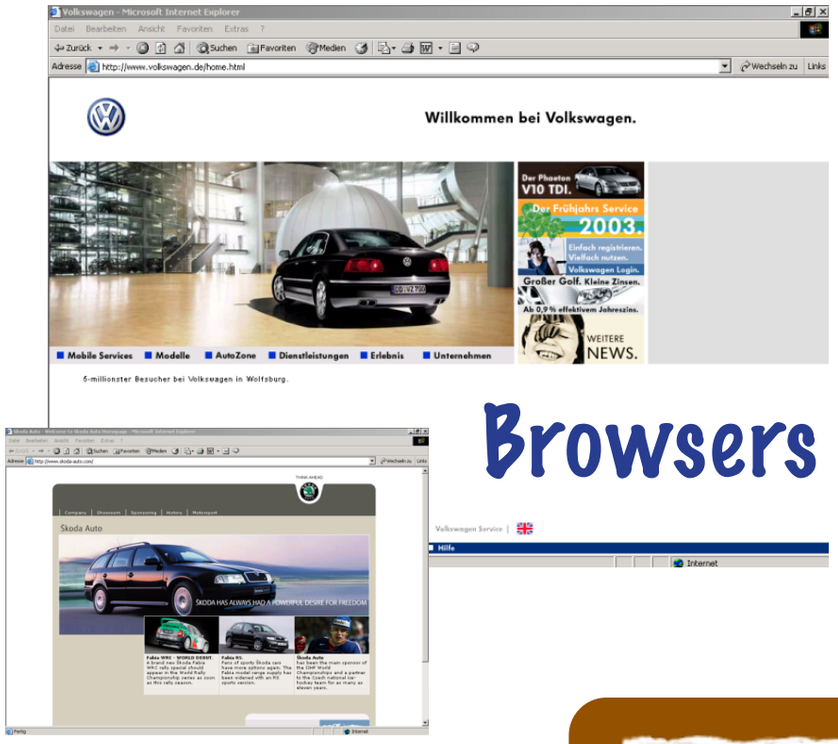
very simple js API to read content, Forms to write content

handles all the heavy lifting, particularly security

2 Sling Servlets
translating requests to JCR calls

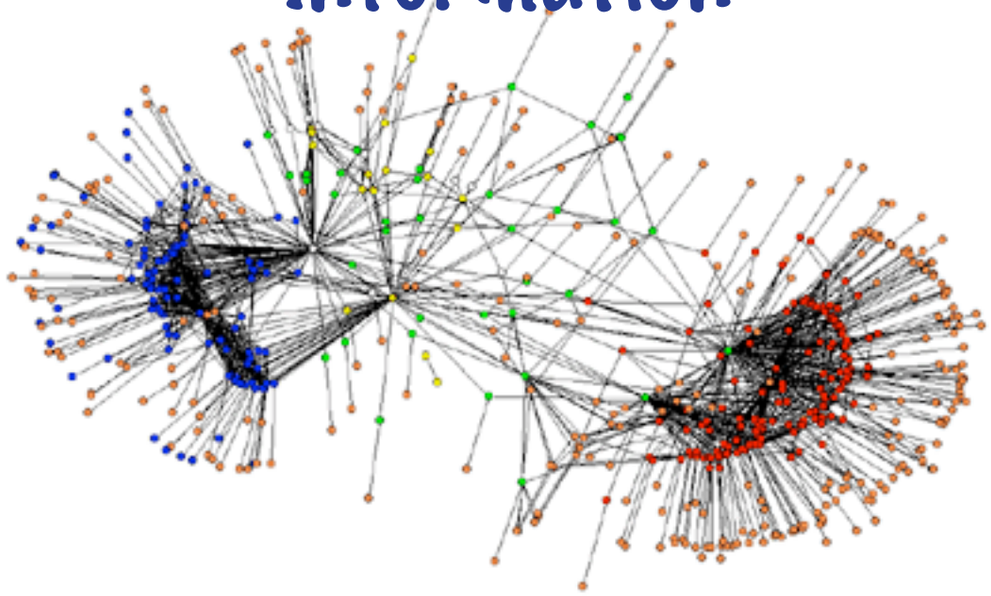
3 JCR Compliant Content Repository

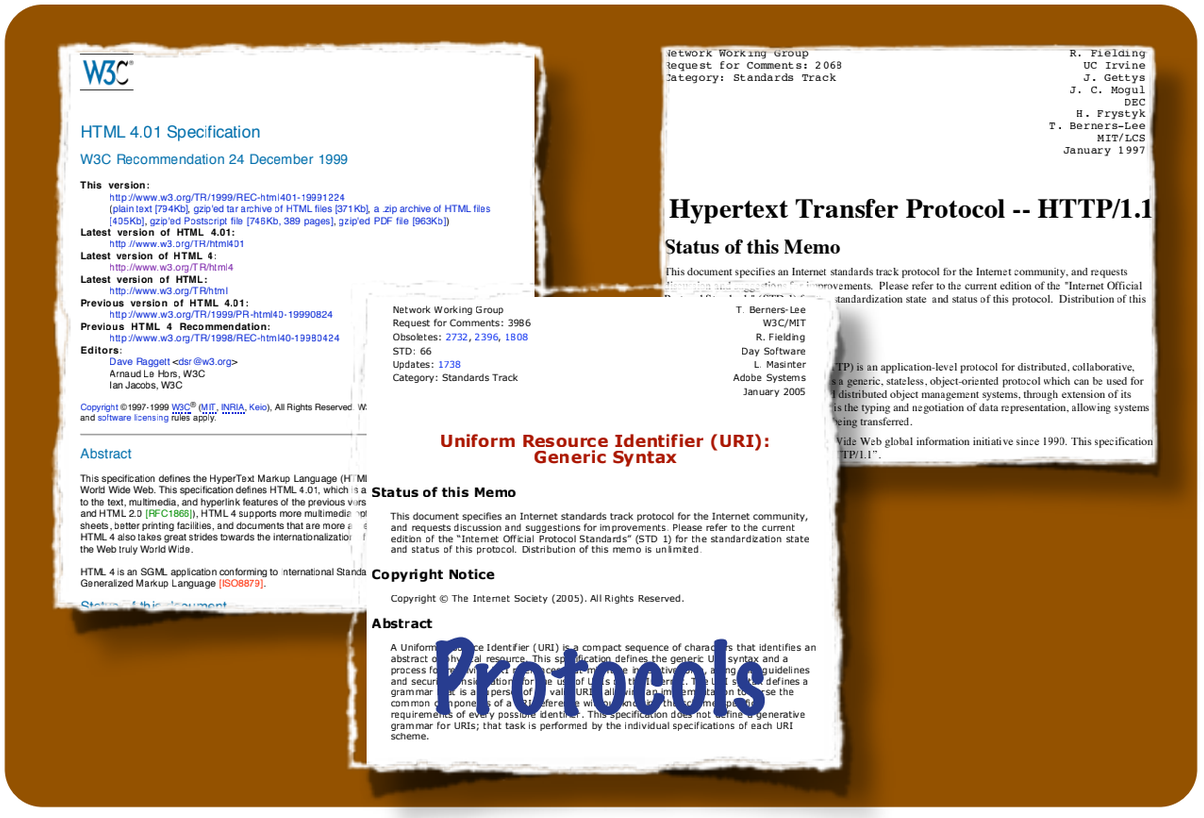
The World Wide Web Project



Browsers

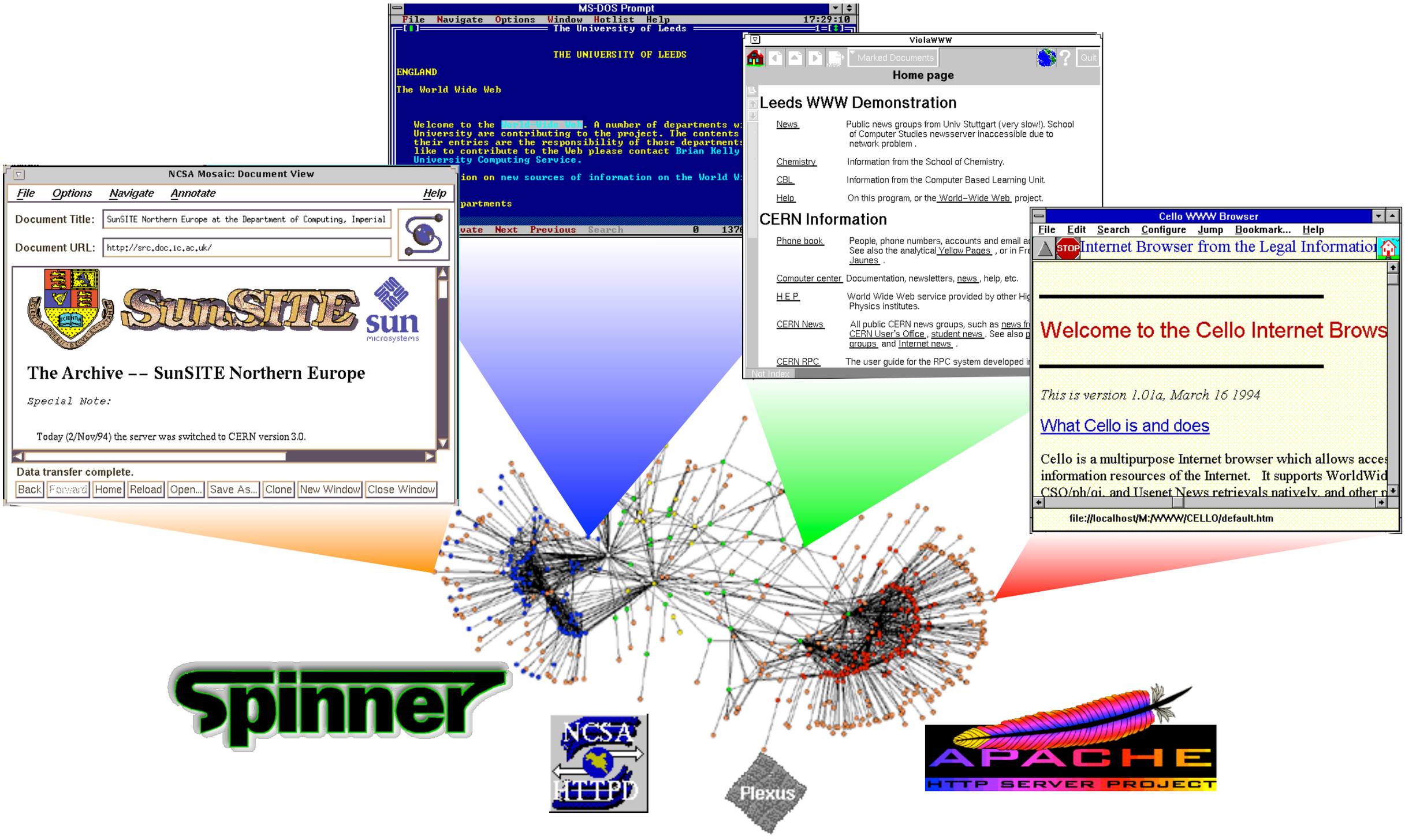
Information



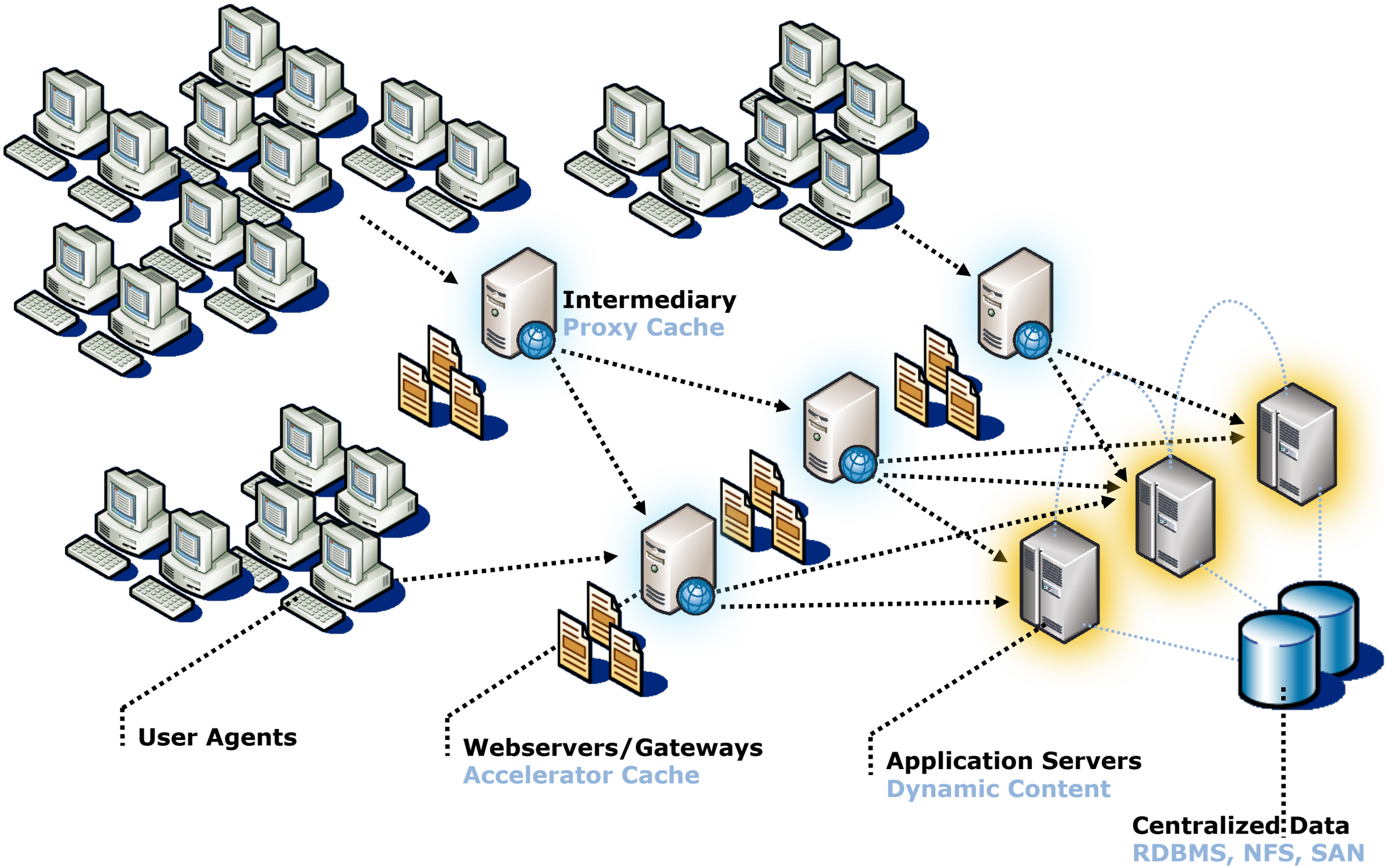


Protocols

Web Implementation (user view)

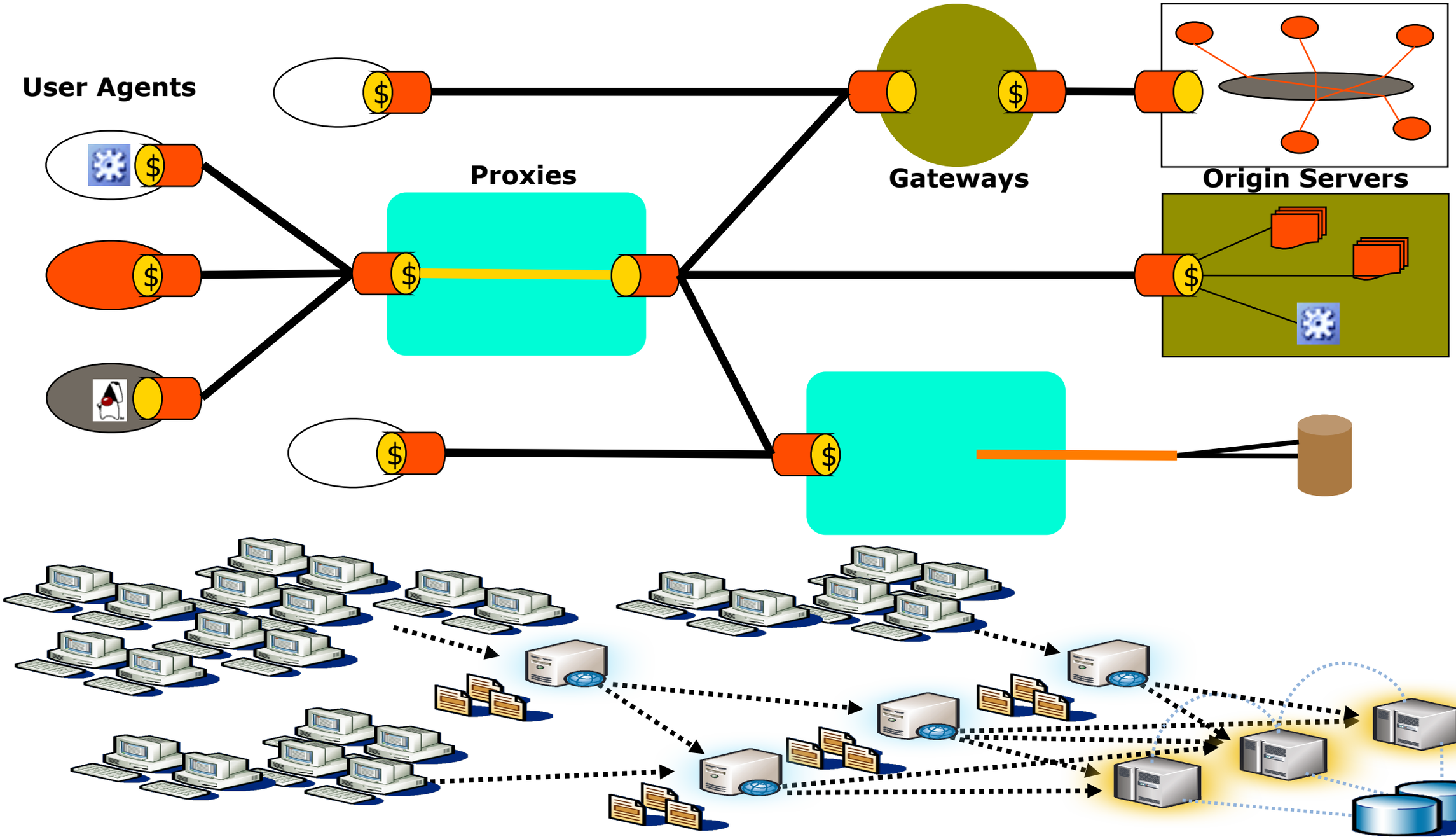


Web Implementation (origin view)



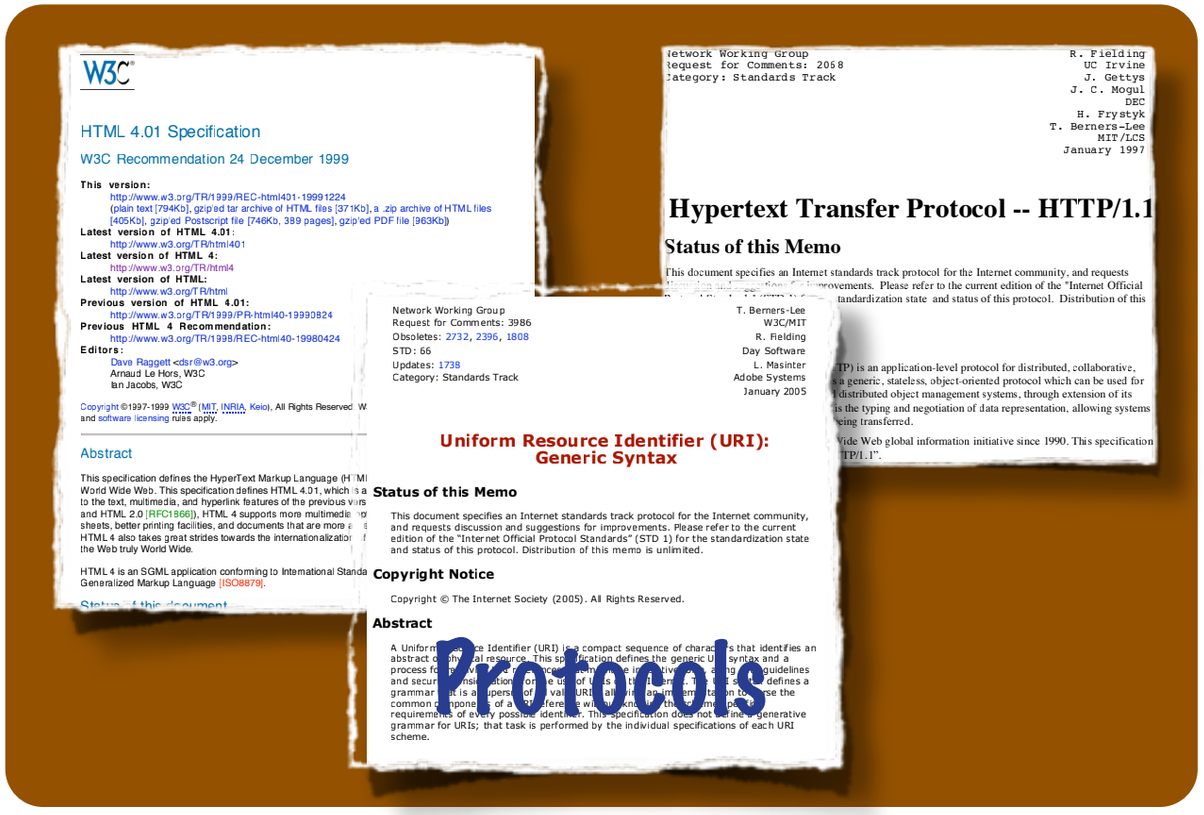
Web Architecture

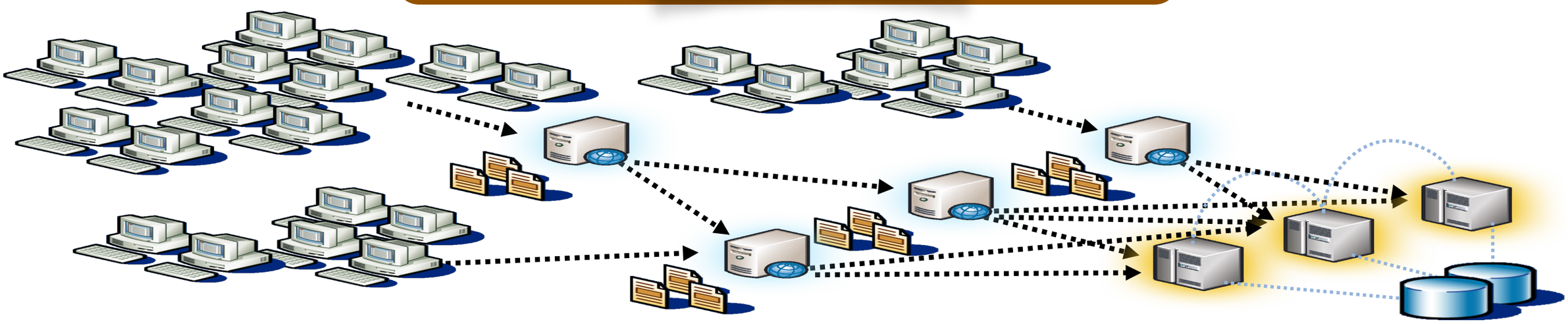
A **vertical abstraction** on implementation



Web Architecture

A **vertical abstraction** on implementation





It's all about

Architecting

for

Open Development