

# Mechanics of Open Source

Growing and Harvesting your Project

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# 1860, London

Trench, Coleridge, Furnivall

## Problems with dictionaries

- Missing many words (obscure, obsolete)
- Incorrect dates and citations of first use

## Set out to create a better dictionary

- Completeness
- Earliest, accurate dates and citations

Trench, then Coleridge the editors

# How?

Divide dictionary into sections (A-Z)

Establish sub-editors for each section

Solicit contributions of citations for each word

Need a system for accepting thousands of citations and organizing them

1861: First release (<12 months)

# The Citation Source Repository



# Changes in Editorship

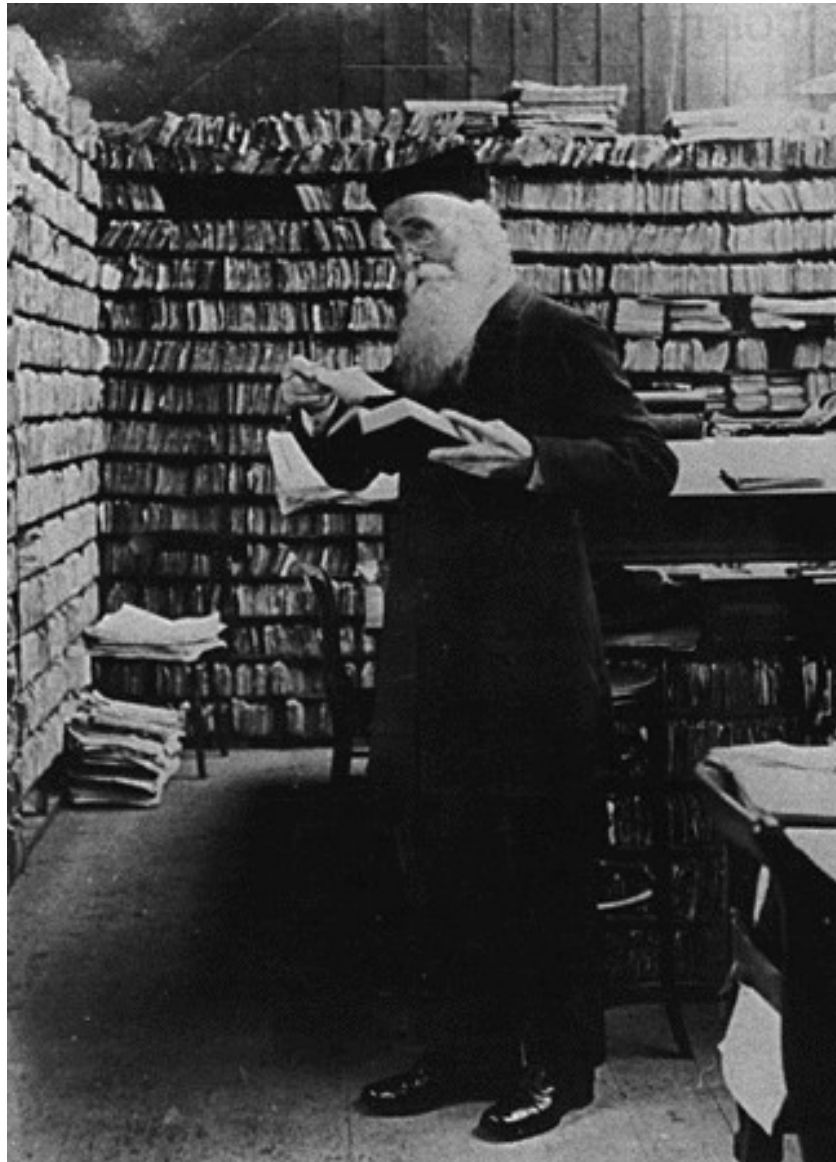
Trench is busy with being in the clergy;  
Coleridge dies of Tuberculosis 6 months after  
taking control.

Furnivall takes over for 9 years

- Subeditors for A, I, J, N, O, P and W all quit
- Furnivall resigns

So begins the reign of James Murray

# The Scriptorium: 1,029 pigeon holes



# Better Communication

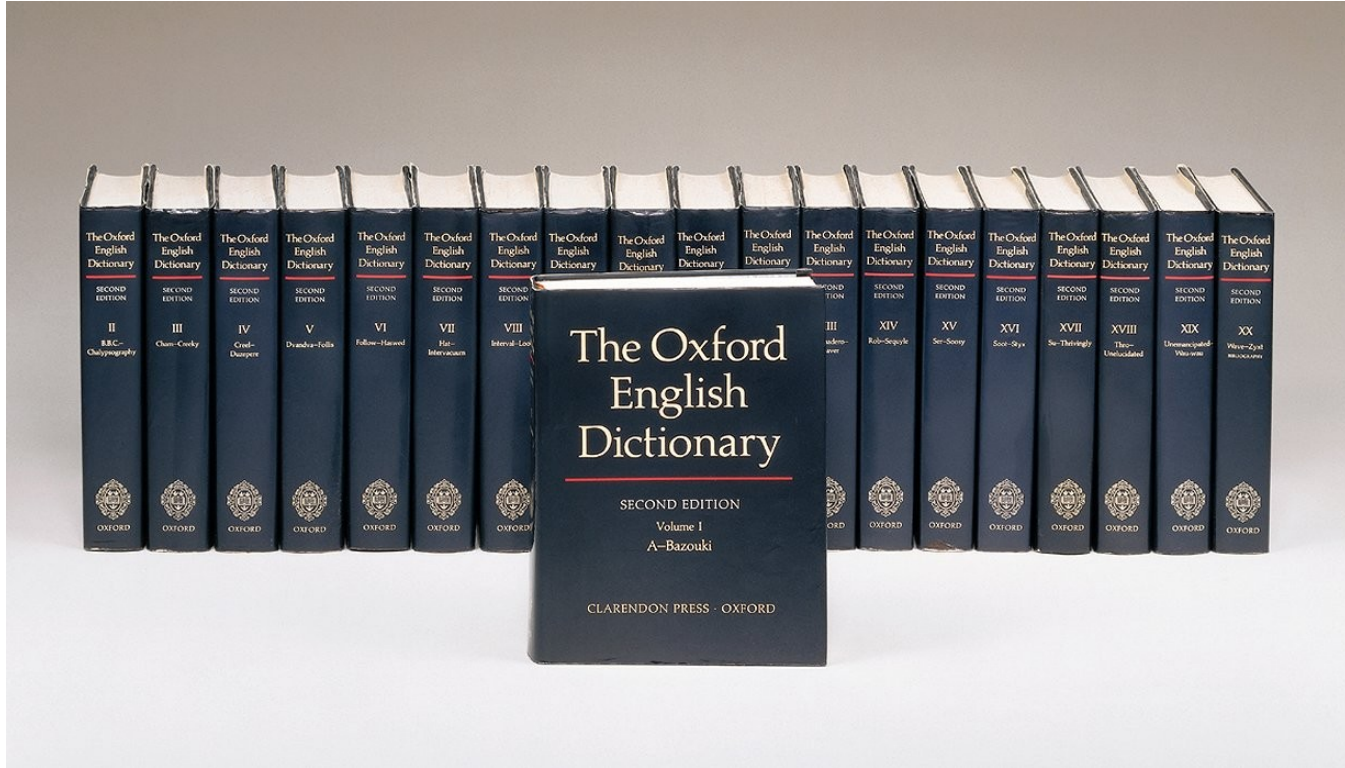
Murray was monomaniacal

Used newspapers to solicit contributors

Received 1,000 slips per day

By 1882: 3,500,000 slips in the scriptorium!

1884: Second release





# Lessons of the OED

Open source is more hierarchical than you think

# Lessons of the OED

“Given enough eyeballs, all bugs are shallow.”  
– Eric Raymond

# Lessons of the OED

You have to give people work to do.

Create an “architecture of participation” as Tim O'Reilly says.

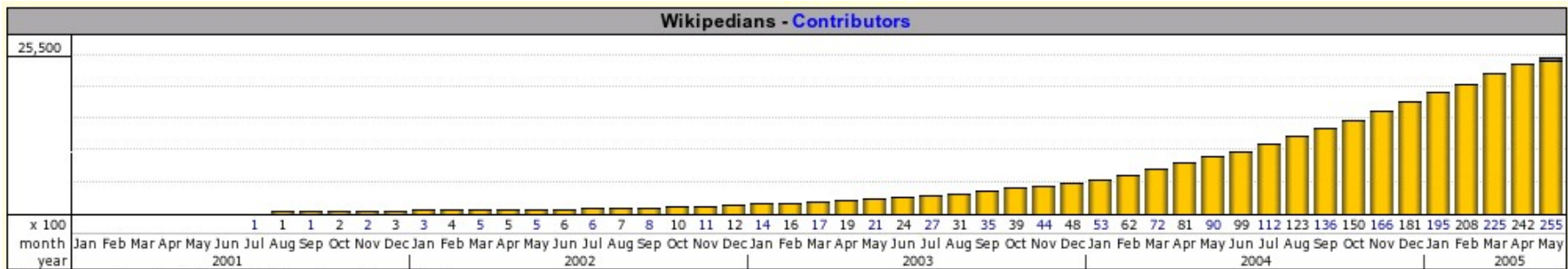
# Lessons of the OED

Open source does well with fine-grained, contained, parallelizable tasks

# Wikipedia



607,000 articles  
25,500 contributors



Wikipedians who edited at least 10 times since they arrived

# Licensing.

## Binds the communities

Roughly: right to use, modify, distribute, redistribute changes.  
Plenty to choose from.

## Open Source Initiative:

Open Source Definition.  
License certification.

## License choice:

Affects project growth.  
Adoption.  
Forks on the road or competing projects.

# Motivations: People

Fun factor, passion

Innovation

Learning

Challenge

Control, direction

Peer recognition

Community ties

Innovation:

- Not limited to companies.
- Prototype, explore
- A foundation to start from.

Localization

- India: 11 languages
- Spain: 4 languages
- Mexico: 8 languages.
- Vietnam: 200 dialects.

# Motivations

## Companies:

- Share development cost
- Keep investment alive
- Reduce cost of deployment
- Independence from vendors
- Strategic developments
- Level playing field

## Governments:

- Small budgets
- Documents must age
- Social contract, programs.

## Large deployments:

- Andalucia/Extremadura:  
200k deployments



# Open Source Development

## Internet links people together:

- Shared interests.
- Open source took off with the Internet.
- The Linux OS is the first joint product of it.

## Collaborative tools:

- Wikis.
- Mailing lists, discussion forums, web forums.
- Public bug tracking systems.
- Transparency.
- IRC channels
- Shared source code repositories (Subversion, CVS, Arch)

# Structures.

## Maintainer model

- Responsible.
- Good communicator.
- Conflict resolution.



## Case Study: Mono

# Mono Overview.

## A modern development platform:

- Open Source project, lead by Novell.

- Linux needed better development tools.

- Microsoft turned .NET to the ECMA standardization bodies.

- Brings the best-of-breed technology to Linux.

## Cross platform:

- The same program works across Windows, Linux, MacOS X, Solaris.

- Allows ISVs to bring their applications to Linux.

- Reuse existing applications, knowledge, training.

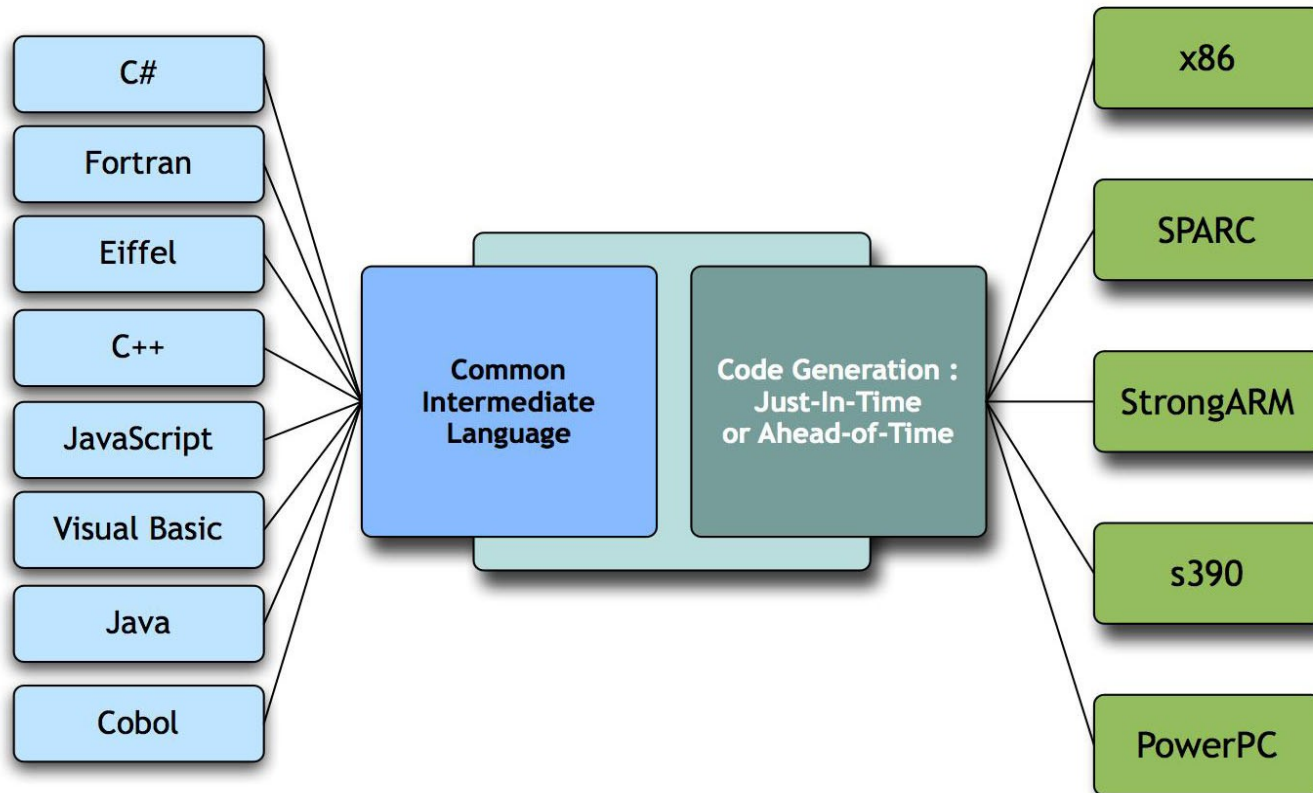
- No need to rewrite.

## Wide range of uses:

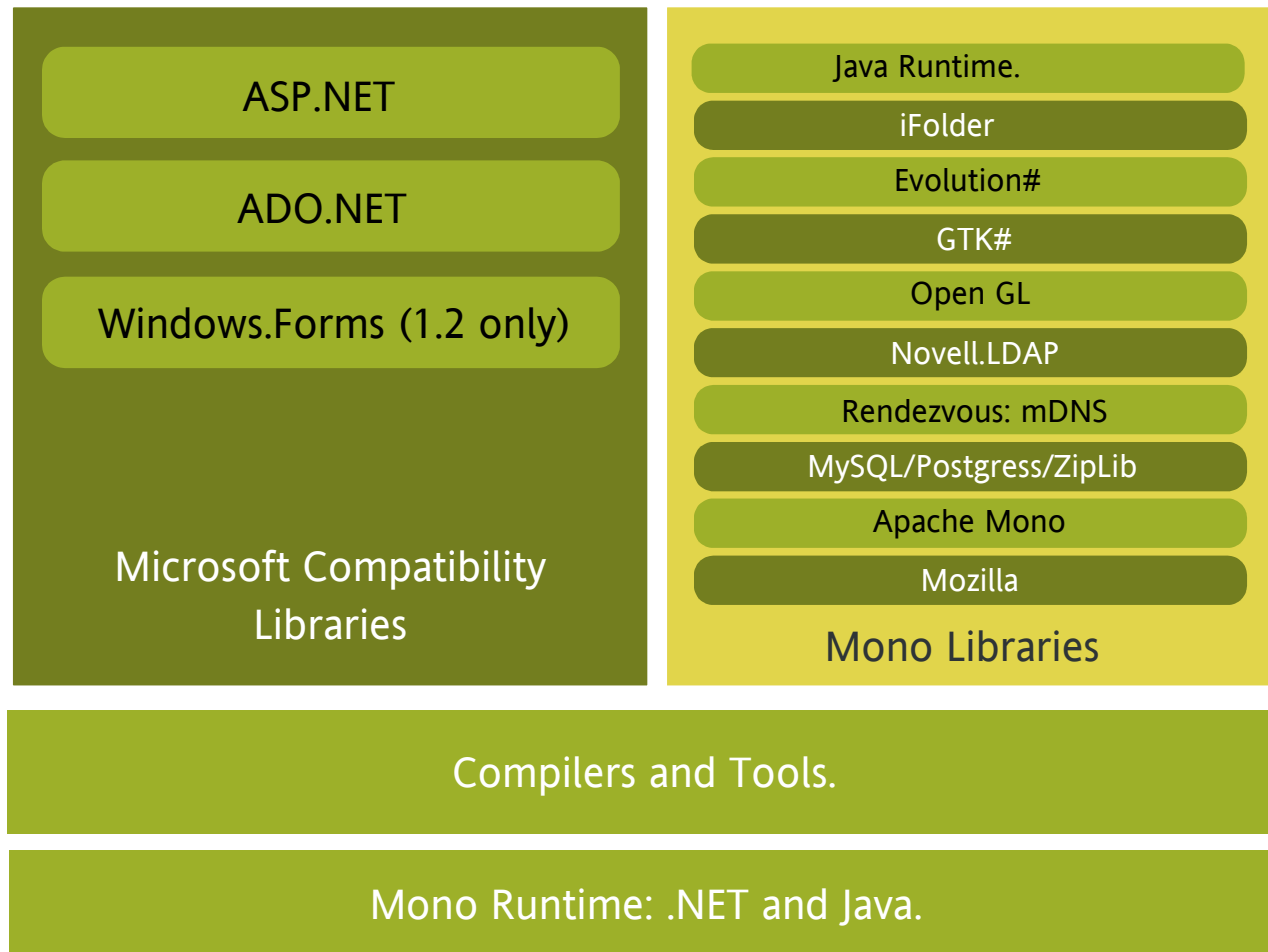
- GUI applications.

- Server applications.

# Challenge.



# The Stacks



# Mono Genesis.



Evolution: award winning email, calendar, contact client.

Want: reduced cost of development

Want: develop more in less time.

Microsoft's .NET Framework

A good match for our needs.

Not available on Linux.

A startup could not do this alone.

We started the project

Provide a core working group

Open up the development

# Challenge

Interesting and challenging problem

Based on a public specification:

- Helps divide the work.
- Clear boundaries.
- Clear requirements.



# State Today.

Mono 1.0: June 2004

Changes: 18,149 changes since the release.

Seventh largest open source project:

Lead and maintained by Novell.

~350 contributors involved in the effort.

Novell: 20 developers.

Mainsoft: 8 developers.

Other companies: ~10.

Monthly releases:

~70 developers involved each month.

About 20% different each month.

# Focus.

Novell engineers:  
Long-term projects.  
Hard components.  
QA.

Open source community:  
Fun components.  
Smaller pieces.

# Licensing of Mono.

## Designed for maximum adoption:

- Class libraries: MIT X11.
- Runtime: LGPL.
- Compilers: GPL.
- Effectively, free for all.
- Proprietary edition remains a possibility.
- No licensing fears (embedded systems, commercial)

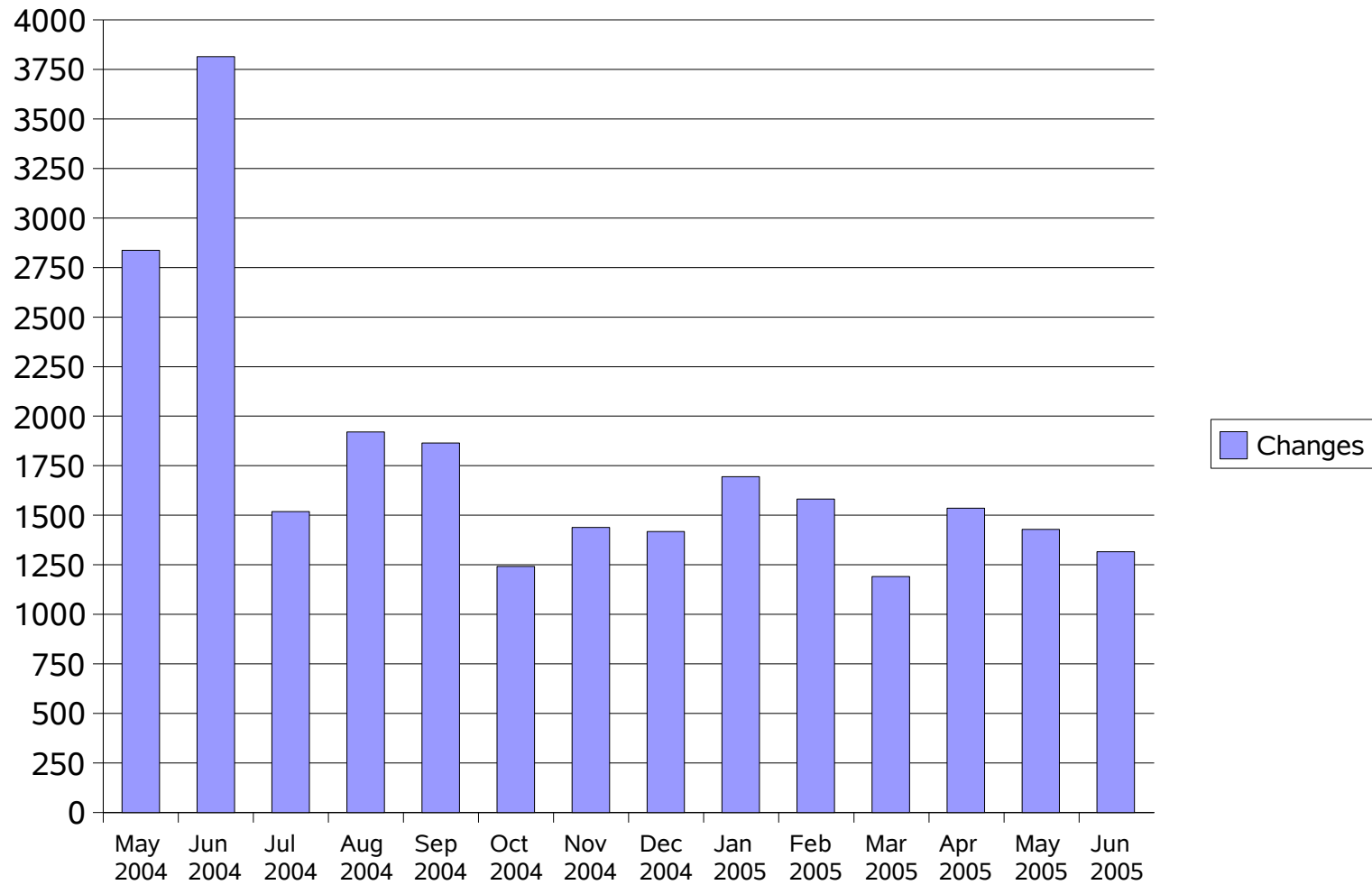
## Downsides:

- Potential that not everyone contributes back.

## Reality:

- Key players contribute back.
- Cost of fork maintenance too high.

# Number of Changes Across Time.



# New Applications.

Innovation realization.

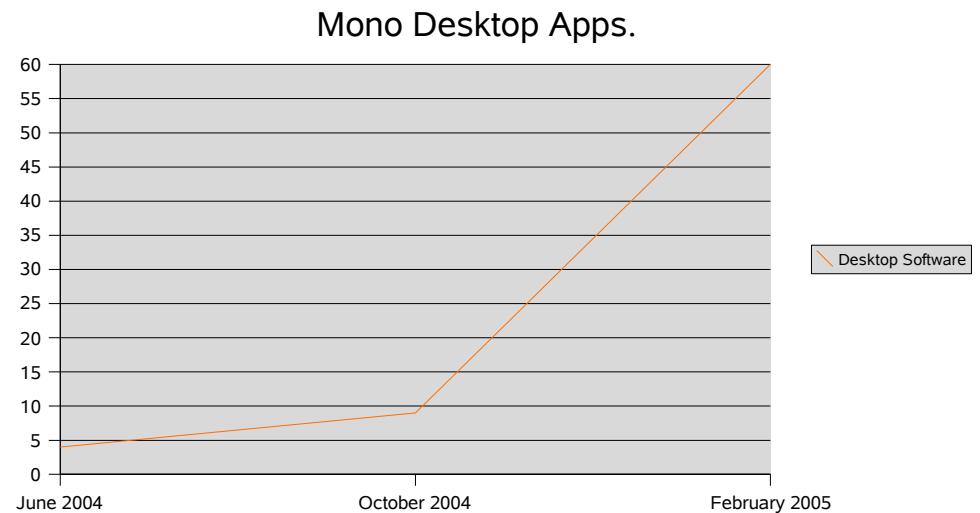
Many new applications being created.

Desktop Growth: open source applications.

June 2004: 4 applications.

October 2004: 9 application.

February 2005: 60 applications.



# Use at Novell.



## iFolder File Sharing

- Server and client components.

ZenWorks client on Windows and Linux.



## Desktop Applications:

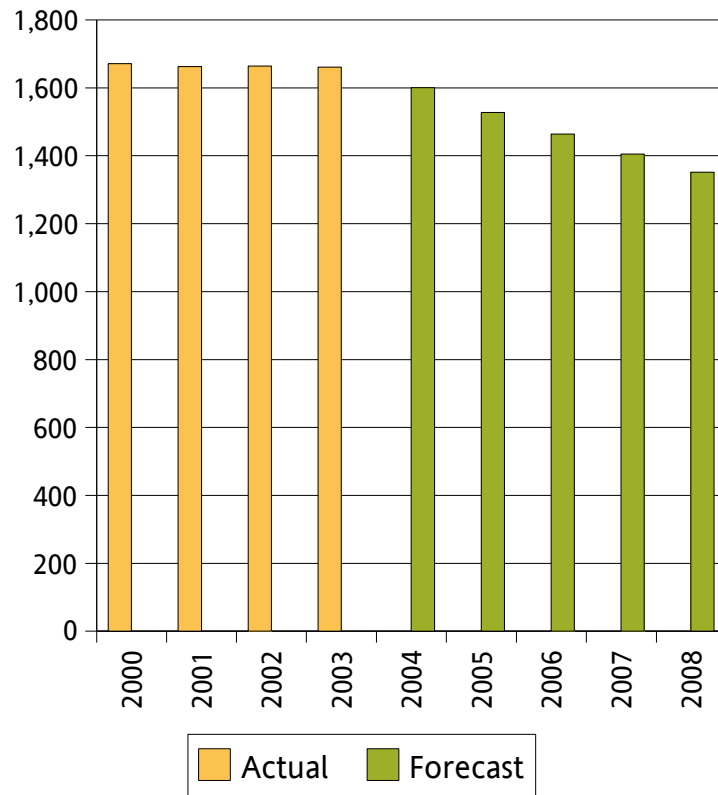
- Beagle desktop search.
- F-Spot photo management software.
- Media playback.

# Case Study: Hula

# The ICE market is flat, with on-going fears of decline

## Integrated Collaborative Environment Revenues

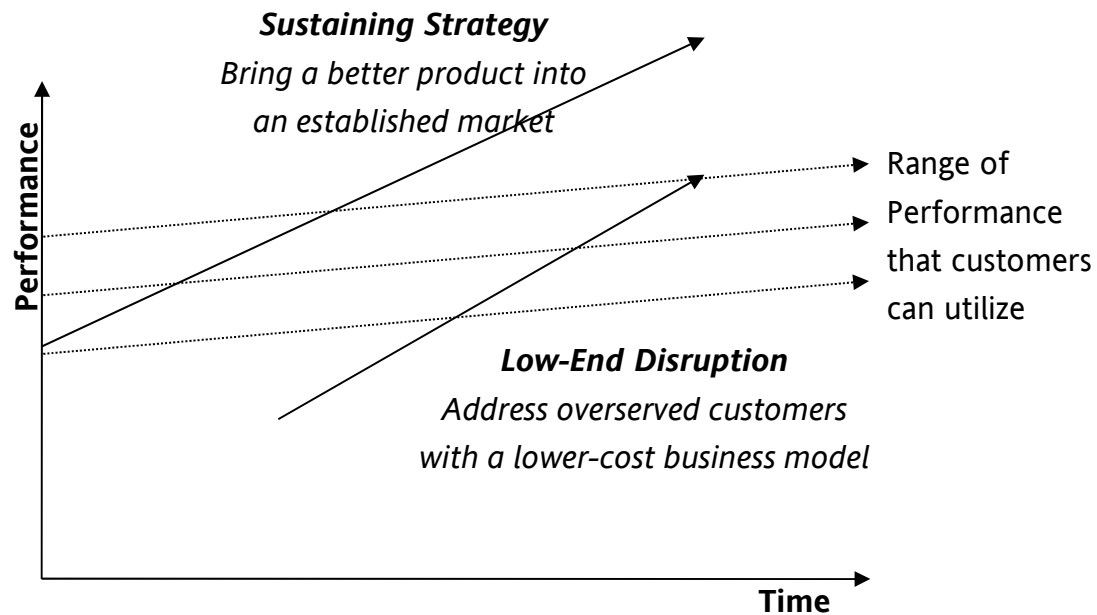
Source: IDC



- Two large, entrenched competitors (Exchange, Notes) with possibly limited market opportunities
- ICE is a stable, mature market



# Use open source as a disruptive technology



- Leverage community resources

## How to do it?

### Open source/commercial model

- Open source project
- Commercial product

### Start from scratch?

- Long ramp-up to basic functionality

### Open Source GroupWise?

- Enormous, scary codebase
- Cannot build a community
- Substantial delay to current GW customer
- GroupWise is already “done”

### Enter NetMail

# NetMail

An existing product

250,000 LOC

Written using Unix/C/Internet “idioms”

Developed by relatively few people

Clean IP

Simple design

## Preparing to release: “Scrubbing”

- 100,000 LOC scrubbed in 2 man months
- Make sure you own it!
  - Proprietary developers are *terrible* at IP
- Security scan was necessary
- “Open sourcing NetMail has made the code a lot better” -- a NetMail engineer
- Convert code base to using Open Source tools and idioms
- Choose a style guide, implement and publish
- Code readability has a high priority!

# Ingredients for an OSS community

- Maintainer
  - Makes the go/no-go decision on patches
  - Is responsible for releases
  - Best to choose someone who knows what they're doing



# Ingredients (cont.)

- A good name
  - Simple
  - Memorable
  - Easy to spell and pronounce in most cultures
  - Does not include your company name
  - Non-explanatory but catchy (Apache, Linux, Mono, Mozilla)

## Ingredients (cont.)

- A great logo
  - Good for the web site
  - Good for t-shirts
  - Just use it everywhere



## Ingredients (cont.)



- Community forums
  - Public bug tracking system – Bugzilla
  - IRC channel on freenode.org
  - Mailing lists: 1 for users, 1 for developers
    - hula-general
    - hula-devel
  - Subversion for version control
    - Anonymous access is critical!
  - An aggregator for blogs ([planet.hula-project.org](http://planet.hula-project.org))
  - Live, running snapshots of the latest code ([live.hula-project.org](http://live.hula-project.org))



## Ingredients (cont.)



- Low barrier to entry
  - Easy to build in one step
  - Very few, very simple dependencies (Hula has *none*)
  - Knowledge of existing tools applies
  - Current source code must always be buildable and runnable

# Changing the Team



- Decisions cannot be made in a total vacuum
  - Internal discussions need to be moved externally
- In the open source community, figure out who to listen to and who to ignore
- Be ready to get flamed!
- Spend your first month or two building community, on the IRC channel, etc

## Give people work!



- Get people involved early and often by spewing out lists of small things to do
- Provide development mentors to help them
- Design an *architecture of participation* where possible
  - Plugin architectures
  - Skins
  - Modular design
  - Test frameworks

## Progress to Date



896 registered, 70 active contributors to [hula-project.org](http://hula-project.org)

40 outside code contributions

11 hackers have signed copyright assignment

Support for Fedora, Debian, Ubuntu, Windows from outside contributors

Design and initial development of innovative Ajax UI

Design and initial development of CalDAV API

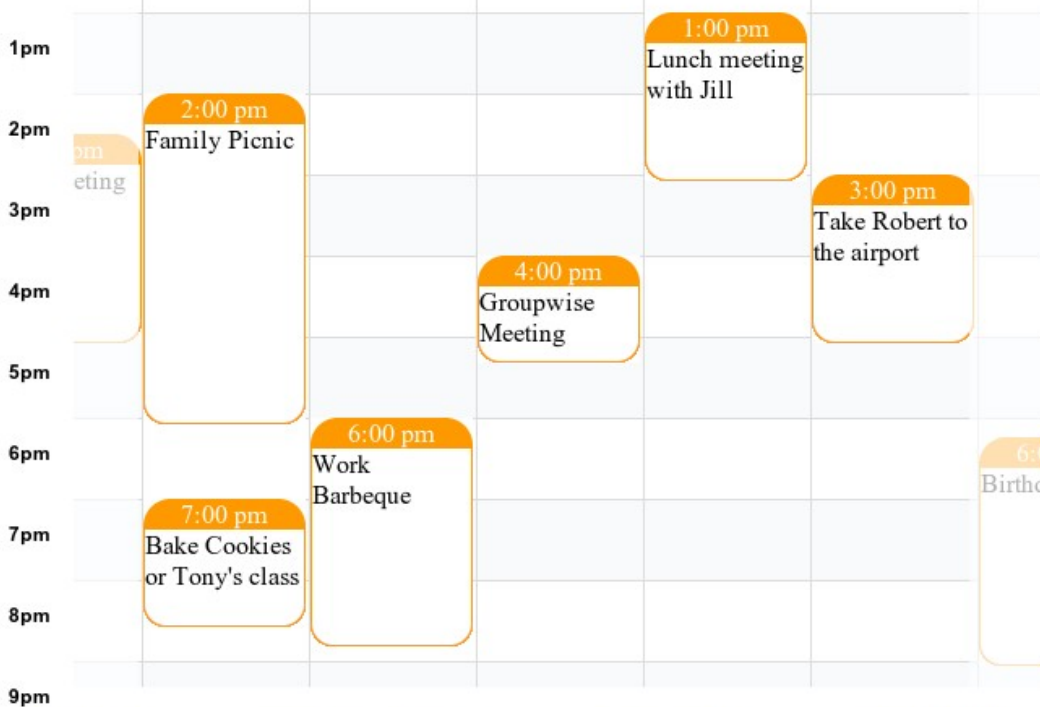
Chosen to host the CalConnect conference in January

Established as the most promising brand in OSS groupware by far!



Joe Gasiorek Sign Out Mail Calendar Contacts

y 15 Saturday 16 Sunday 17 Monday 18 Tuesday 19 Wednesday 20 Thurs



Nat's Party's GNOME Release Scheduling National Holidays Friends Birthdays

July 2005

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
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31						

7:00am X

**Drive** SLC Airport  all-day

Monday, January 30 at 7:00am  
Monday, January 30 at 9:30am

Calendar  Private

Type  Travel

Occurance  Once

Delta Flight 1115 - Salt Lake City  
7:00am Seat A30 / Terminal 2  
Sara Milhouse: (801) 527-3349

Publish Event Invite People

# Q&A

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## Projects:

<http://www.hula-project.org>

<http://www.mono-project.com>

Open source leader:

<http://www.novell.com>

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