

# The Business of Open Source

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### Observation



As long as there has been software, there has been free and open source software





### What is Open Source Software?

Software where everyone has access to the source code for the executable program

Compilable or interpreted programming language

Scripts, libraries and everything needed to run program

Software that is licensed under a mechanism that defines appropriate uses for the program and the rules for distributing changes to the source code

Software supported by a community of interest, including source code committers

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# Free and Open Source Software (Part I)

Early days of computing

Much software developed in public domain

No market for commercial software

Too many different machines and languages to be very useful

AT&T Unix (1974) and Berkeley Unix (1978-83)

Licensed in source code form to many non-profit institutions at very low cost (\$500 US)

US Department of Defense funded UC Berkeley to develop Unix further (porting to VAX, virtual memory, etc.)

UC Berkeley distributes BSD Unix in source form; SPICING USE requires a commercial license from AT&T (\$44,000)

# Free and Open Source Software (Part II)

BSD Unix as catalyst for additional development BSD license allows use of BSD software in commercial products

Sun Microsystems uses BSD Unix (1982) and later closes it for SunOS and Solaris

Other software distributed using BSD licensing terms

BSD Unix used in almost every top US computer science department

Free Software Foundation

Richard Stallman, MIT

GNU as response to Unix (GNU is Not Unix)

FSF created GPL (1985)

(Social Moditical, and economic movement, not just

# Free and Open Source Software (Part III)

Linux arrives (starting 1991)

"Open Source" becomes an official term (1998)

Distinguished from "Free" to enable commercialization

Governance and licensing issues for development and distribution

Formal organizations to promote open source development and use (e.g., Apache Software Foundation)

Commercialization of Linux (RedHat, SuSE, many others)

Companies to distribute, support, develop open

Venture funding of open source companies

# Open Source is Everywhere (even on Windows™)

#### Infrastructure

Web server, application server, DBMS, content management systems, web browsers, email servers and clients, portal development, collaboration tools, operating system

#### Application development

Modeling, compilers, development environments, testing, issue tracking, version control, configuration management, project management, installers

### **Applications**

Finance, CRM, SFA, vertical apps, image management, drawing, audio/video Carnegie Mellon

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### The State of Open Source Software

Complete platform and infrastructure support available

Extensive range of development and collaboration tools

Growing support and service offerings

Wide acceptance by developers

Slower adoption by large corporate IT organizations

Entrepreneurs and investors creating commercial businesses around open source software



# Open source business models - ≥ 10 kinds



**Subscription models** for updated versions of open source products

**Support and training model** with books, courses **Packaging model** to integrate open source software into a product stack

**Hosted model** to provide an online service based on open source

**Dual license model** to offer free and licensed versions

Advertising model to obtain revenue from displaying ads

Patronage model to drive open standards and other company businesses

Commercial enhancement model building on open

## **Examples of various busines models**

**Subscription models** – RedHat, Novell, Canonical

**Support and training model -** SpringSource, O'Reilly

Packaging model - SugarCRM, OpenLogic

Hosted model - Google, Yahoo, SugarCRM

**Dual license model - MySQL** 

**Advertising model** - Google

Patronage model - IBM, Sun

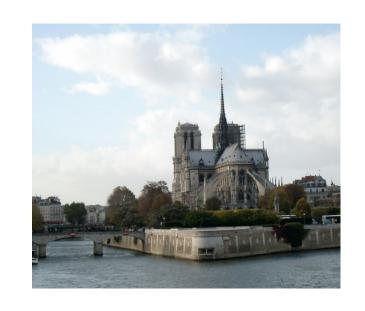
Commercial enhancement model - RedHat, Novell, Oracle Carnegie Mellon

**Strategy-** Accenture, IBM, Wipro

### What drives commercialization?

Growing acceptance of leading open source products (Linux, Apache, Firefox, JBoss, Eclipse)

Relatively high quality of leading open source products User unhappiness with traditional software and fee structures





# **Evaluation Issues for Company Adoption of Open Source Software**

Licensing issues

Fitness for use (functions, usability, performance, ...)

Comparison with commercial products

**Product quality** 

Support and training

Corporate IT policies concerning use of open source

Management of updates

Integration with other software

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Management fear and uncertainty
Different style of doing business
OS software not on IT-approved list
Effective prevention by commercial vendors
Concerns about support and training
Missing or inferior features/functionality
compared to commercial products
Licensing and litigation concerns





### **Business Readiness Rating**

An open framework for evaluating the readiness of open source software, with evaluation criteria divided into 7 categories

Functionality
Operational Software
Characteristics
Documentation
Service and Support
Software Technology
Attributes
Adoption
Development Process









Increasing commercialization

Pure Stable Foundation-basedrd-party Vendor Researchproject project commercial developed support and supported





### The OpenBRR project

Community-based effort to develop and enhance BRR

Volunteer-based activities

Define functional capabilities for different software categories

Build tools to support evaluation process

Contribute evaluations

Review the draft framework

Contribute to discussion forums

How to get started

Register at http://openbrr.org



# Implications for research community



Ability to use same software as being used in industry

Vast body of code for analysis and case studies Better opportunity to have research-originated projects adopted by industry

Better understanding of what is required to gain widespread adoption

FOSS goes mainstream





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### Socioeconomic Issues

Open source changes the business model for software companies: no license revenue
Open source lowers barriers to entry for people in developing countries: no money sent to vendors in advanced economies
Industry becomes more geographically and economically distributed

