Leveraging Open Source for Effective Software Delivery

Rational. software

Open Source Discussion topics

▶ **What is it?**

▶ **Why might it be important?**

▶ **What is it really like?**

▶ **How does IBM engage in it?**

▶ **What are the challenges?**

▶ **Recommendations for you**

Open Source Is a Business Model *and* a Development Model

▶ **Open Source business models includes the following core attributes**

- Shared intellectual property
- Unrestricted use
- Free distribution and redistribution
- Limitations and/or obligations around derived works

▶ **Open Source development models includes the following core attributes**

- Collaboration
- Transparency
- Peer review
- Meritocracy

▶ **There are many different Open Source licenses, but most open source communities share these values**

Why is Open Source important ?

- ▶ **Can be a major source of innovation**
  - ▪ Collaboration combines resources across IT vendors, universities and individuals
  - ▪ Internet has enabled distributed collaboration

- ▶ **OSS is a good approach for driving emerging standards**
  - ▪ Popular open source projects can become the common implementations

- ▶ **Practitioners can benefit**
  - ▪ Lower costs and increased choice & flexibility
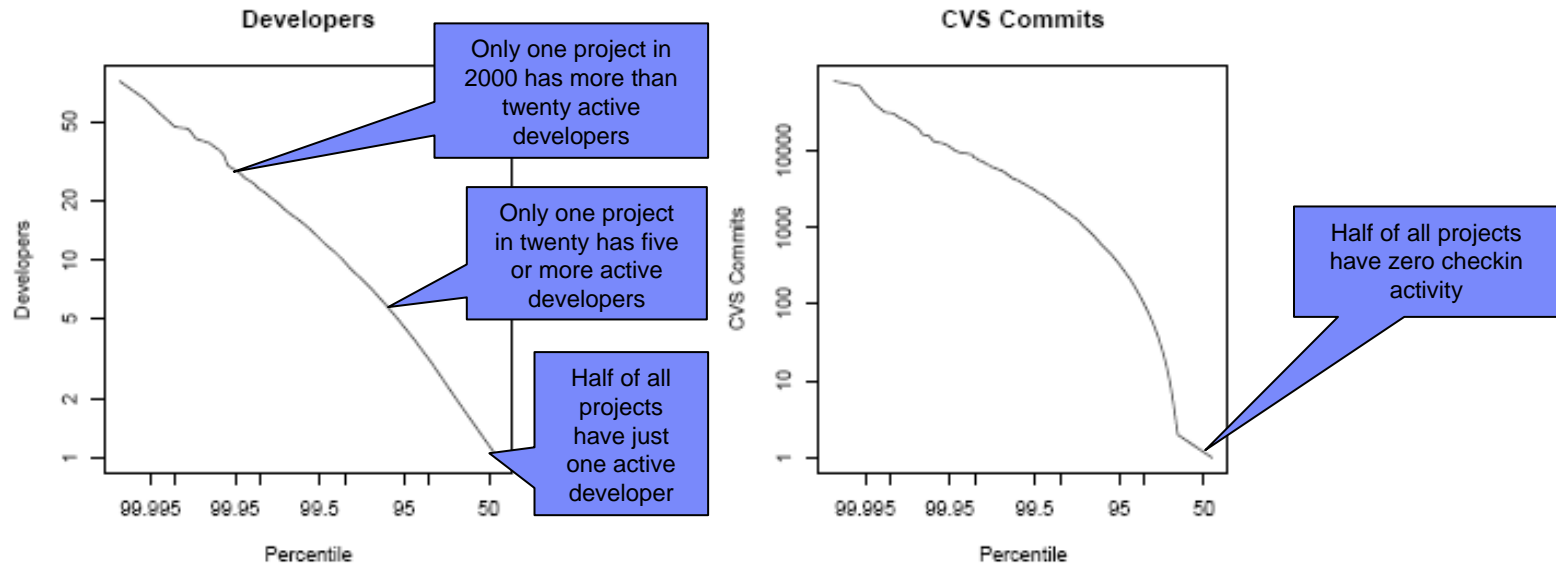
- ▶ **Can present new business opportunities**

A popular image of Open Source

▶ A seething ferment of innovation, where millions of the brightest minds toil selflessly to create new software, where competition weeds out the weak and selects the best, with the result being given away free to the unqualified benefit of the consumer

The Cathedral and the Bazaar – a more sober evaluation

Developers

Only one project in 2000 has more than twenty active developers

Only one project in twenty has five or more active developers

Half of all projects have just one active developer

CVS Commits

Half of all projects have zero checkin activity

▸ **For successful open source projects, most collaboration takes place around a "platform" defined by the project, not within the project code itself**

- Even very successful projects (e.g. Apache webserver) may have only a dozen primary coders
- The majority of projects have just one active developer!
- Defining a platform allows many more people to contribute to the ecology of the project, without becoming experts on the project code
- Example success stories: Apache webserver and mods; Eclipse and plug-ins; Firefox and extensions

Source: The Ecology of Open-Source Software Development, Kieran Healy & Alan Schussman, University of Arizona, January 14, 2003. Analysis of over 45,000 projects on Sourceforge.

Open Source presents both benefits and challenges

Potential Customer Benefits

▶ **Low acquisition cost**

▶ **Frictionless access to software**
  ▪ Light weight and easy to use
  ▪ Rapid prototyping

▶ **Choice and Flexibility**
  ▪ Hardware portability and software flexibility
  ▪ Modularity and extensibility
  ▪ Range of support options

▶ **Quality of software**
  ▪ Peer review of source code
  ▪ Broad community testing ("many eyes")
  ▪ Fast cycle time of releases and bug fixes

▶ **Community innovation**
  ▪ Opportunity for two-way involvement with developers
  ▪ Harvest commoditized components and use freed-up resources for innovation

Potential Customer Challenges

▶ **Investment Protection**
  ▪ Short life
  ▪ Stability not valued as much as "coolness"
  ▪ Lack of control and influence

▶ **"Commercial grade" features**
  ▪ Accessibility
  ▪ Internationalization

▶ **Legal and compliance**
  ▪ IP rights

▶ **Support**
  ▪ Who will help with your problems?
  ▪ training and documentation
  ▪ Consulting

▶ **Availability of applications**
  ▪ Open source developers tend to focus on their own needs/interests*
  ▪ No correlation between user interest and developer activity*

*Source: The Ecology of Open-Source Software Development, Kieran Healy & Alan Schussman, University of Arizona, January 14, 2003.

Balancing open source value and risk

Potential Customer Benefits

Potential Customer Challenges

Recommendations

▶ **Balance: Commercial Software on an OS base is an ideal blend**
- IBM Rational Software Delivery Platform
- Eclipse support offerings

▶ **Communities are not companies. Open source solves its needs**
- not necessarily your business needs
- have criteria for when and where to use open source

▶ **Open source works best when you have a strong governance model**
- and a strong platform approach of which open source is one aspect
- proactively determine where/when to use and leverage open source
- open source is not a "spectator sport" – participation is key

▶ **Explore how community models can enhance teaming and employee satisfaction (e.g., peer review models, business/technical alignment, etc)**

How IBM relates to open source

1 **Contribute to it**

2 **Build on it**

3 **Learn from it**

4 **Compete with it**

Example - What is Eclipse

1 **Contribute to it**

▸ **A Technology**
- Universal platform of frameworks and exemplary tools that make it easy and cost-effective to build and deploy software in today's connected and unconnected world
- Integration platform, rich client platform, world class Java IDE
- Beginning push into selected industry verticals: Healthcare

▸ **An Open Source Project**
- www.eclipse.org... The people collaborating under open source rules to produce the technology

▸ **A Community led by the Eclipse Foundation, Inc.**
- consortium of major software vendors, solution providers, corporations, educational and research institutions and individuals working together to create an eco-system that enhances, promotes and cultivates the Eclipse open platform with complementary products, services and capabilities

IBM Rational Software Delivery Platform and Eclipse
Raising the level of abstraction, transforming development

2 **Build on it**

Analyst	Architect	Developer	Tester	Project Manager	Deployment Manager

Eclipse

Model Services (UML2 ext, other Meta-Models, Code Gen APIs, …)	TPTP

J2EE, Web Services, UML2 Models, GMF

CM, Merge, Traceability….	GEF	EMF	JDT/CDT	Team

Eclipse Core
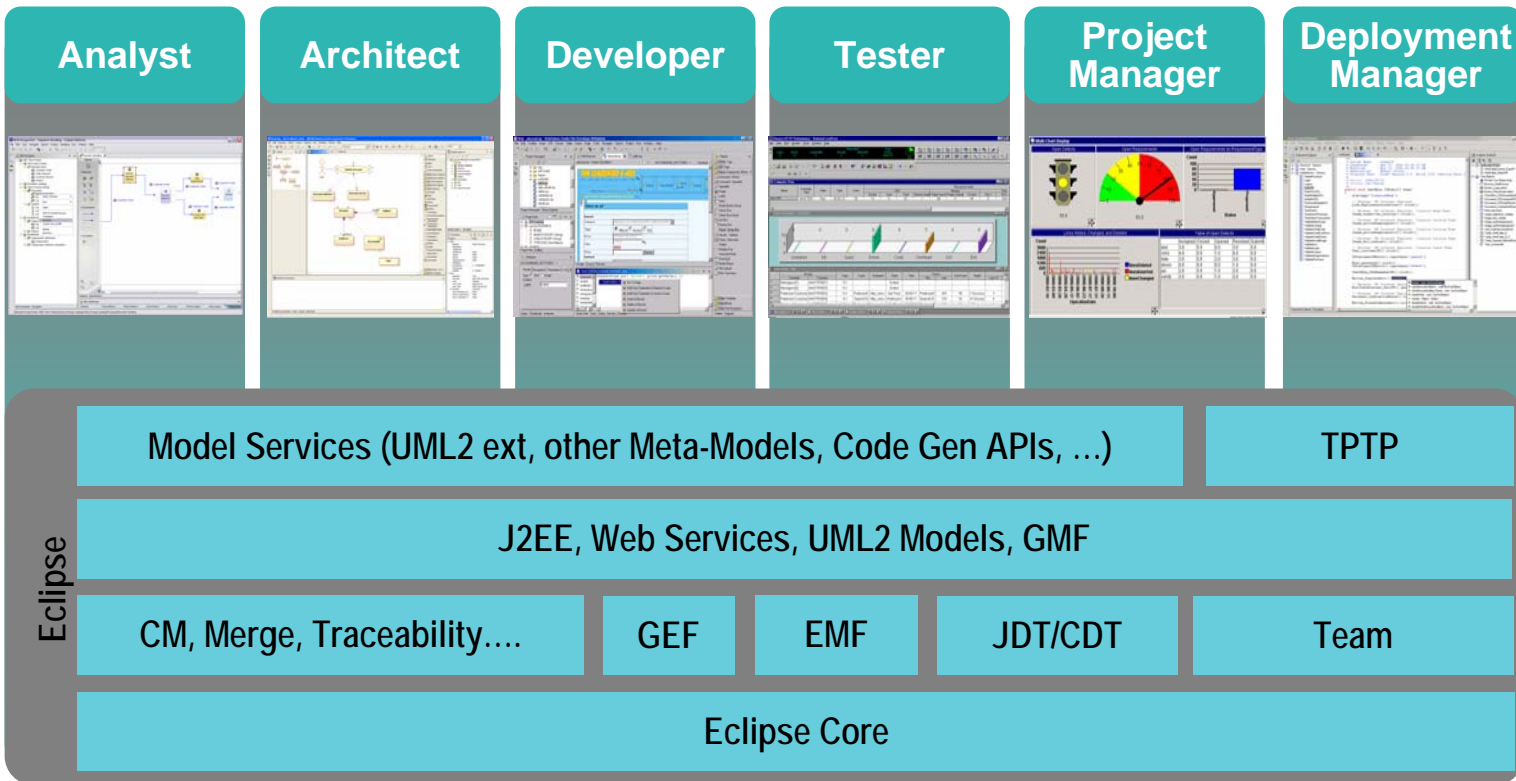
Eclipse and IBM

2 **Build on it**

▸ **IBM Commercial offerings add value to open source in several ways**

- Additional function
    - E.g., by developing additional plug-ins and offering these only in commercial products
- Deeper integration
    - Eclipse enables integration
    - Inter-tool integration requires work between the tool providers
- Test and QA
    - Testing and providing patches to harden an open source base for commercial use
- Support
    - Acting as a proxy for customer
- Intellectual Property Reviews
    - Assuring the integrity of open source code
- Internationalization
    - IBM translates selected Eclipse components into 23 languages

▸ **Eclipse-based offerings from IBM do all of this**

▸ **Critical factor: having committers and leaders on projects**

- Control is proportional to participation
- Provides influence, authority, and public perception of leadership

▸ **This value add is central to IES delivery and management**

Apache governance model

3 Learn from it

- **Board of Directors**
  - Governs the Apache Foundation

- **Project Management Committees**
  - Composed of committers
  - Govern the projects

- **Centralized**
  - Infrastructure and security
  - Licensing
  - PR and liaison

- **Principles**
  - Meritocracy
  - Roles
  - Collaborative consensus-based process
  - Do-ocracy: Power of those who do

The Apache Software Foundation
http://www.apache.org/

Source: www.apache.org/foundation/how-it-works.html

Governance Innovation in Action:
IBM Community Source example

3 **Learn from it**

▸ **Open source-style behind the firewall, focused on building shared components**

▸ **Producers get**
- More users → tighter feedback loop
- Broader testing and tuning

▸ **Consumers get**
- Early access to capabilities
- Ability to invest for a unique need

▸ **Both get transparency and better trust**

▸ **Today more than 400 products at IBM use open source components**

Enterprises use both Open Source and Commercial Source

3 **Learn from it**

Open Source
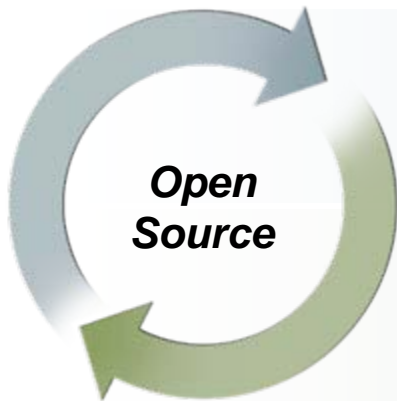
Commercial Source

Creating software that is commercial source and <u>innovative</u> - intended to <u>differentiate</u> the vendor and deliver <u>value</u> to the client.

Creating, maintaining, and enhancing software through open, <u>collaborative</u> communities driving evolution of <u>standards</u> and <u>innovation.</u>

Open Source software will continue to co-exist with Commercial software

Most (not all) open source software licenses allow combination and distribution of open source software and Commercial source code under a commercial license

A new family of community types is emerging: Open Commercial Development

Rational Jazz

3 **Learn from it**

Goals for
Open Commercial Development

3 **Learn from it**

- Deliver higher quality products that more closely meet the needs of our customers

- Provide higher degree of responsiveness to customer needs and questions

- Provide new features, through betas and incubators, as soon as they are ready

- Create a healthy ecosystem of third party extensions and products

- Showcase a live demonstration of the latest technology being used by the Jazz development team to build Jazz and Jazz-based products

- Ultimately, to have happier customers

Does IBM compete with open source?

4 Compete with it

▶ **Yes, obviously**

- Linux versus AIX

- Eclipse versus VisualAge/Java

- MyEclipse versus RAD

- Subversion versus ClearCase

▶ **And No**

- Customers understand the value of vendor-backed software
  - ▶ We see business growth in exactly the areas you'd expect Open Source competition to bite

- Much open-source adoption is in situations where buying vendor software was not an option anyway

- Vendor products on open-source bases gives customers "best of both"

▶ **And Maybe**

- It keeps vendors on their toes

Customer Resources

- **Rational and Eclipse**
  - http://www-306.ibm.com/software/rational/eclipse/

- **DeveloperWorks**
  - Rational
    - http://www-128.ibm.com/developerworks/rational/
  - Eclipse
    - http://www.ibm.com/developerworks/opensource/top-projects/eclipse.html

- **Eclipse**
  - www.eclipse.org

- **Eclipse Technology on alphaWorks** http://www.alphaworks.ibm.com/eclipse

- **Ready for IBM Rational software Plug-in Central**
  - http://www.ibm.com/developerworks/websphere/downloads/plugin/

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