



IBM Software Group

Open Source: A New Mental Model for Software

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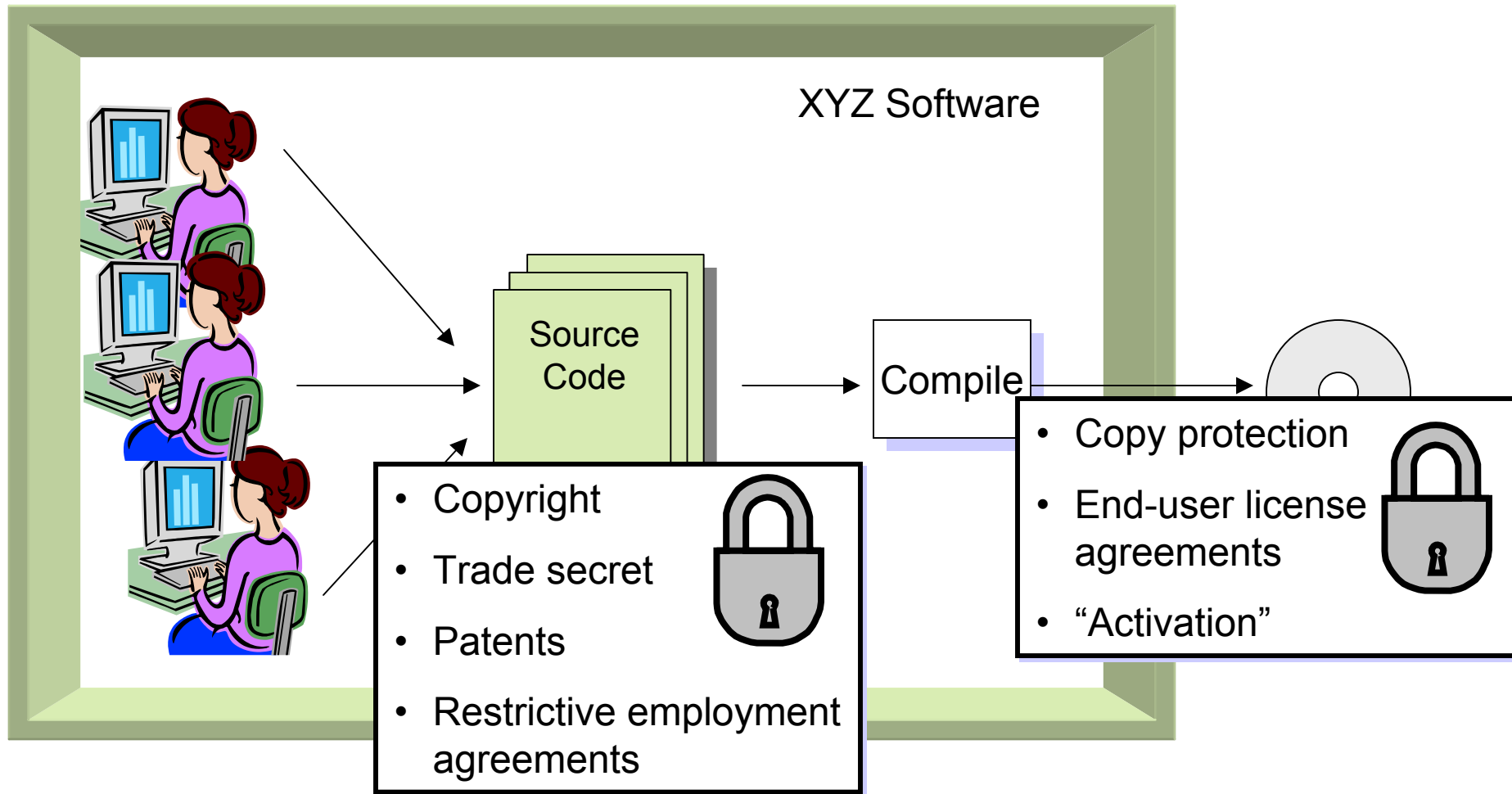
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Outline

- Software Models
 - Conventional
 - Open-source
- Major open-source successes
- My own experience: Eclipse



The Conventional Software Model



The Conventional Software Model: Development

- Formal management structure
 - Authority rests with management
 - People resources controlled by available budget
 - All people “on board” have roles
- People motivated by some combination of
 - Work for hire, i.e., pay
 - Corporate career path
 - Professional pride
- Various processes used in industry
 - Varying degrees of formality/rigidity/control
 - Varying quality

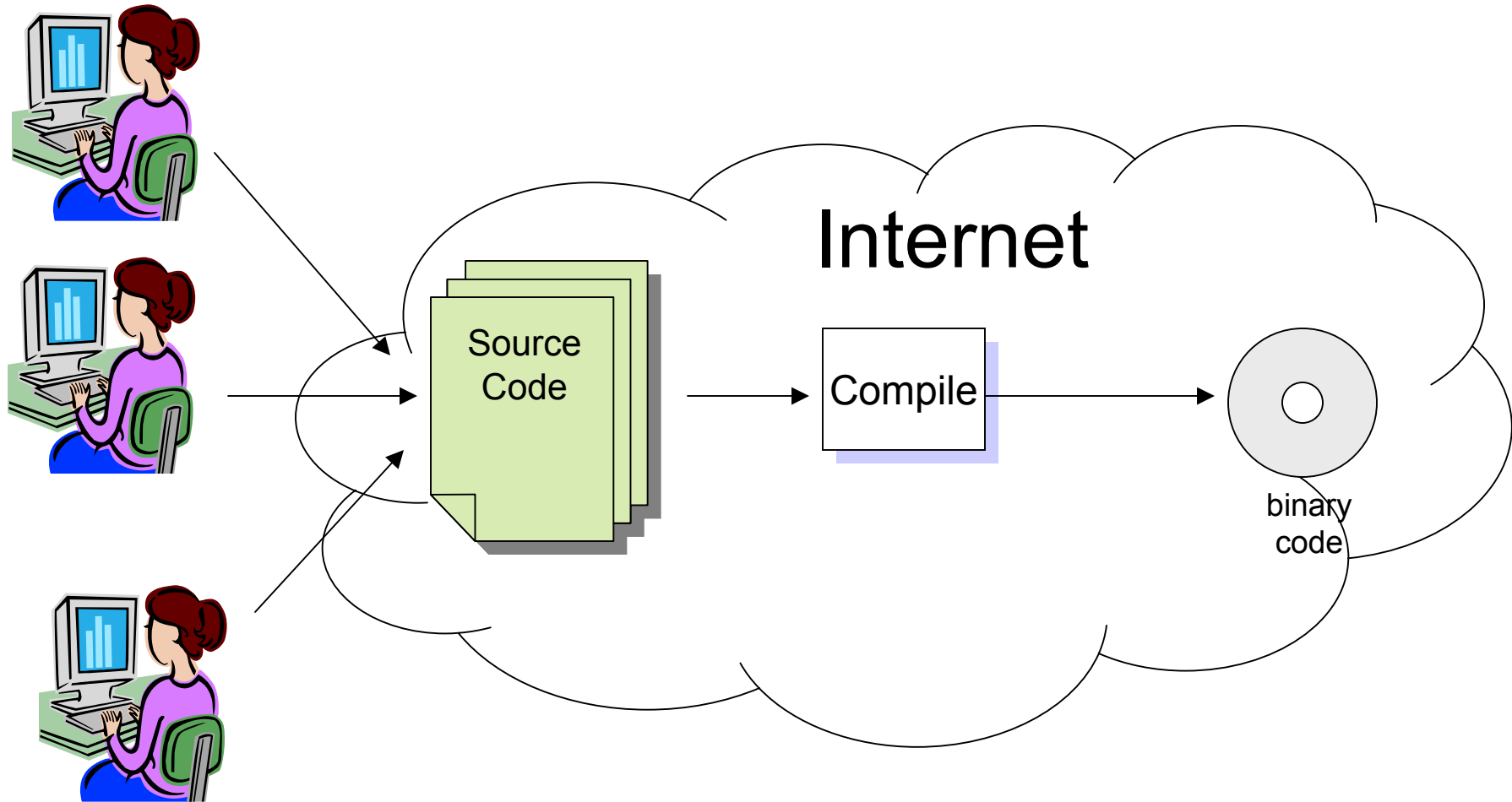


The Conventional Software Model: Business Model

- Only the vendor who owns the code can
 - Sell or lease the software (binary form only)
 - Sell support
 - Exploit knowledge of software internals
 - Give preferential access to “friends” (part of the MSFT anti-trust case)
 - Control the product’s “ecosystem”
 - Control the product’s evolution
- Anyone with enough product know-how can
 - Sell services and education



The Open Source Model



The Open Source Software Model: Developers

- Formal management structure replaced by social norms
 - People resources controlled by interest level and enthusiasm
 - Committers: Brutal, public meritocracy
 - Self-regulating: committers vote in other committers
- People motivated by some combination of
 - Professional pride / improve the world
 - Developers may or may not be working as employees of a company
 - Develop reputation to parlay into business opportunity (e.g., consulting)
 - Passion for “free software”
- Typically led by a small group of “super-programmers”
 - “Mere mortals” contribute bug reports and fixes
 - Some projects have thousands of people contributing bug reports



The Open Source Model: Business Models

- Free Software movement: profit from software is “immoral”
- Sell
 - Support
 - Services and education
 - Enhancements, e.g., easy install, better documentation
 - Customization
- Level playing field: competitors can't control
- Multi-vendor ecosystem



The Open Source Model: Customer View

- No vendor lock-in
- Lower risk of depending on a company that fails
- Low cost
- Reliable software
- Excellent informal community support
 - More rapid response than from most vendors
 - Vendor participation in community



Example: GNU (“Gnu’s Not Unix”)

- Richard Stallman and Free Software Foundation (started late '70s)
Build a Unix-like system unencumbered by corporate licenses
- “Copyleft” license
 - Can freely redistribute and produce derivative works, but must make source for product available
 - Must inherit “copyleft” in derivative works
- Major impact on software community, especially academic
 - Emacs
 - GNU compilers
 - Many programmer tools
- Corporations were puzzled and leery in the 80's and early 90's
 - License problematic because of its impact on patents and derivative works
 - Gradually loosened slightly to allow commercial derivative works
- All system vendors other than MSFT now embrace/support GNU



Example: Apache

- Started with basic web (http) server
- Quickly became the dominant http server (2/3rds “share”)
 - Extremely reliable
 - Performs well
 - Free
- Corporate reaction (mid-90’s)
 - IBM embraced
 - Killed it’s own http server and incorporated Apache into products
 - Provided legal advice to incorporate and formulate license
 - IBM employees participate as (part of) their jobs
 - Donated significant technology
 - Other vendors (e.g., Sun, HP, many smaller players) now participate
- Now key player in other web technologies too



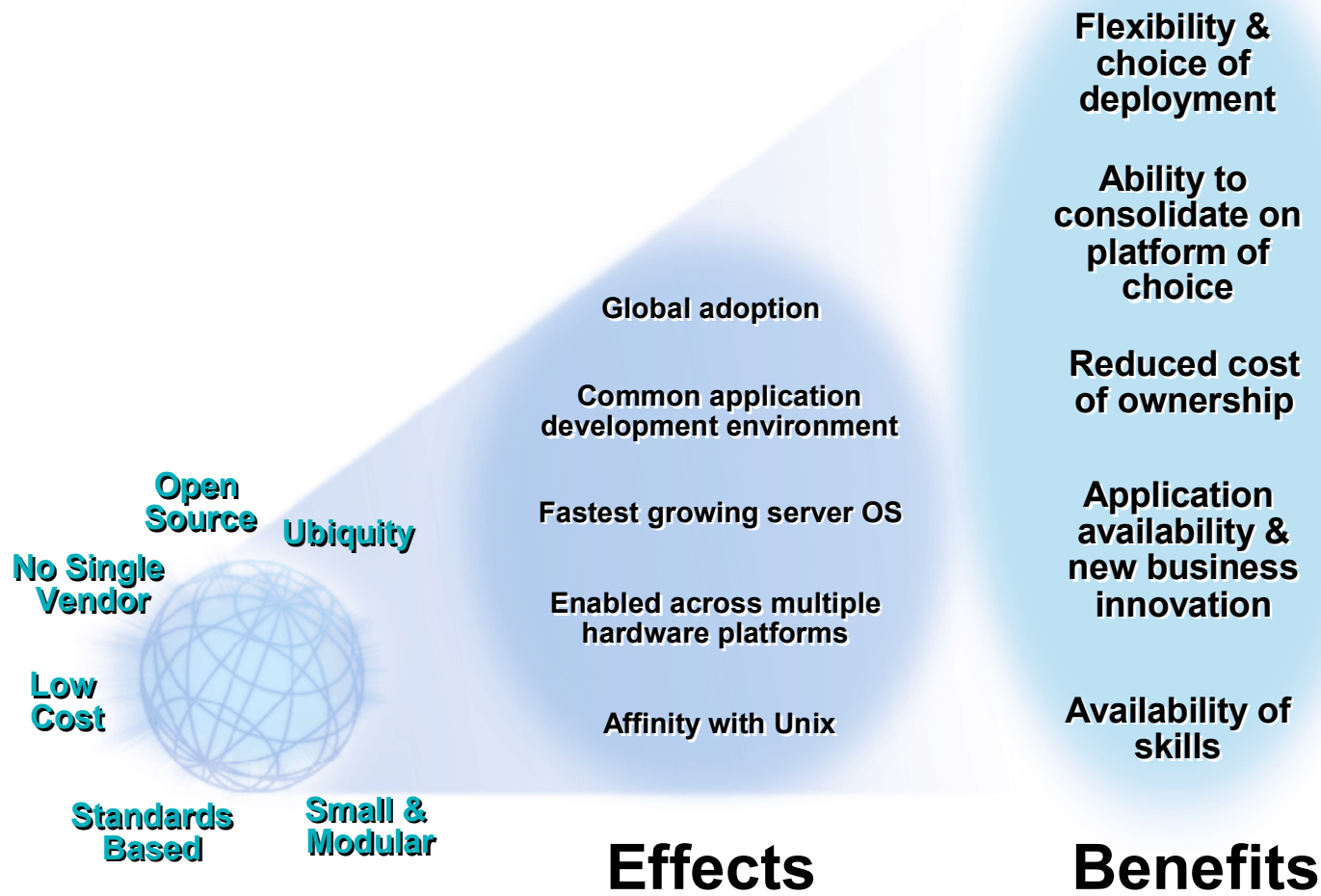
Example: Linux



- Unix-like operating system
- Linus Torvalds built the initial core (early '90s)
- Captured ISPs with its small size, reliability, and zero price
 - Rode the Internet phenomenon
- Rise (and fall) of Linux distributors, e.g., Red Hat, Suse, VA Linux
- Ported to essentially all interesting hardware platforms
 - With or without vendor help
- IBM embraced and gave it legitimacy in enterprise computing



Example: Linux – What the Customer Gets



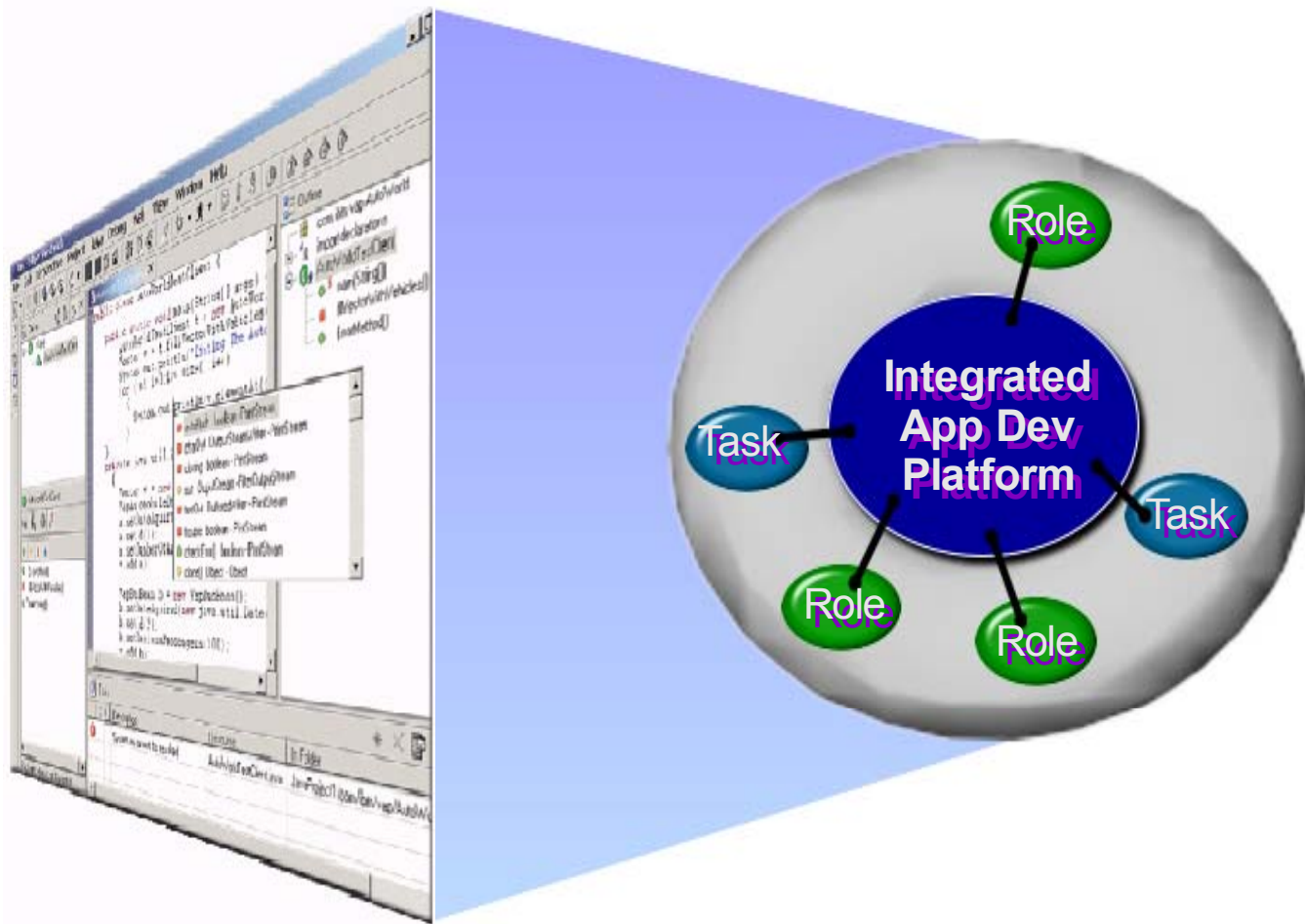
Example: Linux



- Now fastest growing operating system
- Vendors making significant contributions of people and technology to make Linux meet enterprise needs
- Significant threat to all proprietary Unix systems
 - IBM's AIX, HP's HP-UX, Sun's Solaris
- Microsoft views Linux as major long-term threat to Windows
 - Strong support from governments around the world
 - China and India are major advocates
 - There is no one to “attack”



Eclipse: The Customer Problem



Eclipse: Establishing a Platform

- Challenge
 - Tools from different companies do not work well together
 - Developers have better things to do than integrate tools
 - Tool vendors have better things to do than reinvent wheels
- Visual Studio is the tools platform in the Windows world
- No credible platform in the Java world
- Eclipse
 - Designed to be a highly extensible platform
 - Plus out-of-box function and quality to attract developers
 - Plus endorsement (i.e, products) by some major tool vendors
 - Plus open-source



Eclipse: Momentum and Community Building

- Eclipse.org established in November 2001
 - IBM donates software developed at a cost of \$40M
 - Initial board members: Borland, IBM, Merant, QNX, Rational, RedHat, SuSE, TogetherSoft, WebGain
- More than 2.5 Million downloads in first year
 - Over ~300K developers, companies, or organizations
 - 17% Linux downloads, 80% Windows downloads, 3% Solaris
 - Number of testers grew 10x from version 1.0 to 2.0
- Over 100 open source or freeware plug-in projects
 - Visit www.eclipse-workbench.com and eclipse-plugins.2y.net
 - In French, visit: www.eclipsetotale.com
 - Wiki at <http://eclipsewiki.swiki.net>



Eclipse: The Pundits Love It

Gartner

Hot! IBM's Eclipse Seeks to Revive Best-of-Breed Tool Concept

"IBM is first to launch a 'community property, best-of-breed' AD platform to integrate a variety of tools from a variety of vendors ... the implications are not only significant, but far-reaching."



IBM Attempts to Eclipse Competition with Open Source Developer Alliance

"Eclipse will very likely be a quick & cost-effective way of forging alliances in the all-important battle for developers ... using open standards & open source software as the means to gather those developer resources."

FORRESTER

Eclipse Will Fuel IBM's Software Might

"IBM's new Eclipse initiative ... will boost WebSphere's marketshare and challenge Microsoft and Sun ... a strong move for IBM"

Illuminata

IBM's Eclipse: Aggressively Open, Openly Aggressive

"This is IBM's most audacious open source gambit so far," says James Governor, analyst with IT advisory firm Illuminata, Inc. "The company is driving the development of an open platform that provides many of the underlying services software developers need, bringing tight integration to the tools market. This is not just a framework or set of APIs; it's real code designed to do real work."



"Eclipse is a break from the proprietary pattern, it comes at a critical time in the industry...its a very aggressive move. [IBM] is betting that opening up the software tools ecosystem will work to its advantage"



Eclipse: The Pundits Love It



"The name of this new open source initiative is Eclipse, as in overshadowing of Microsoft's proprietary approach ... it may take a long time, but the open-source movement eventually will accomplish what the government failed to do .."



"IBM is leading the pack with its new development tools"



"IBM's plans can change the entire industry. As revolutions go, this one is a bargain"



"IBM Aims to Eclipse Tools Market...for Microsoft, Eclipse presents something of a problem...they will have to content with yet another open source threat on a relatively unprotected flank..."



Eclipse: Vendors on the eclipse.org Board



Eclipse: IBM's Business Model (IBM is not a charity!)

- Ultimate goal: bring developers to IBM's WebSphere e-business platform
- IBM WebSphere Studio product
 - Revenue
 - Partner opportunities
 - IBM server tools
- IBM WebSphere Studio Workbench
 - Aimed at partners



It's all about ecosystem

