



Working

Together

Better

Participation in a World of Choice

Perspectives on Open Source and Microsoft





Introduction

We recognize that today's technology users have diverse needs that neither a single vendor working alone, nor any one way to make software, are likely to meet. Thus, under conditions where developers, end users, and technology entrepreneurs make choices based on their goals—such as value for cost, productivity, or economic opportunity—the additional options for software development and distribution commonly associated with open source are constructive and welcome additions to the “tools in the toolbox.”

Open source software (OSS) has established itself as an enduring part of the information and communication technology (ICT) environment. OSS does not, however, signal a “revolutionary paradigm shift” for software engineering.¹ One leading researcher succinctly characterizes OSS as having proven to be “neither a fad, nor a silver bullet.”²

Today Microsoft is actively participating in open source, and shares the view with many others that “[m]ost likely, software users will continue to see a comingling of free, open source, and proprietary software products for as far as the eye can see.”³ In this “world of choice,” OSS products and practices may in some cases provide healthy competition that challenges us to innovate in new and different ways.

In others, OSS may complement Microsoft technologies, or even become a core part of Microsoft product group business and technical strategy.

Microsoft's open source strategy is grounded in recognition of the value of openness to working with others—including open source communities—to help customers and partners succeed in today's heterogeneous “world of choice.” This includes, for example, increasing opportunities for business partners regardless of their underlying development model, and increasing opportunities for developers to learn and create by combining community-oriented open source with traditional commercial approaches to software development.⁴



An Overview of the OSS Landscape

Fundamentally, we see respect for healthy competition and choice in the fast-changing ICT industry—of which OSS is now a part—and openness to working with others in new ways as unambiguously consistent with shareholder value, and with Bill Gates’ original vision of the role of Microsoft as a commercial software company in making technology more widely available to more people than previous generations would have imagined.

The term “open source” was coined in 1998.⁵ In the research literature, OSS has been characterized as software for which the source code can be read (seen), written (modified), and acquired free of charge or for a nominal fee.⁶ This is a readily measurable empirical set of criteria for code itself—however, there are also social and business dimensions to OSS. As a result, there are a range of variations on the concept of source-available code, each reflecting more or less emphasis on different developer or user priorities.

The Open Source Initiative (OSI), a widely respected independent advocacy group, describes the history of the “open source label” as intended to differentiate a “pragmatic, business case-based” approach from a “moralizing” attitude previously associated with the term “free software.”⁷ Today, the OSI certifies as “open source” only software that complies with all 10 criteria of the Open Source Definition (OSD).⁸ The landscape continues to evolve: for example, the OSI has recently become

more accommodating of some forms of license that require attribution, in part based on the emergence of “Web 2.0” businesses.⁹ One industry analyst firm sees a “community source” model based on collaborative development emerging in the public sector.¹⁰ (See table 1, below, for an overview.)

Just as casual use of the term “open source” subsumes different variations on source-available software, the often-used phrase “the open source community” subsumes many constituencies with differing interests in OSS. There are no hard-and-fast boundaries—the same person may play a role as a volunteer OSS developer, a systems administrator or end user of OSS, and a paid developer working on OSS while on the payroll of a large corporation. The research literature has identified some broad patterns summarized in table 2, on the following page.

Among volunteer OSS developers who contribute code, a personal sense of creativity and opportunities for enjoyment rank highly as motivations.¹¹

Table 1. Variations on Source-Available Code

Descriptor	Characteristics	Source/Examples
Open Source (OSI-certified)	Complies with all 10 criteria of the Open Source Definition (OSD)	As defined by the Open Source Initiative (OSI)
Free Software	Complies with “Four Freedoms”	As defined by the Free Software Foundation
Shared Source, Community Source, Casual use of the term “open source”	Source code is available but with some limitations on availability and terms of use or redistribution	Cooperative development agreements, Academic use licenses, Some trademark licenses

Conversely, many IT administrators and end users make use of OSS much as they would any other software, attracted by characteristics like ease of downloading.¹² Established ICT vendors have been characterized as seeking to leverage open source in ways that complement their established lines of business.¹³

In summary, the technical, social, and commercial aspects of OSS are not monolithic. Any sound OSS strategy, therefore, will recognize and reflect this diversity, as well as the growing body of evidence that the costs and benefits of OSS are unlikely to be a “one size fits all proposition.”

This is also true for the legal treatment of OSS. From a licensing perspective, there are a range of mixed models, including “open core,” “assembled open source,” “open-and-closed,” as well as “dual licensing” and closed approaches.¹⁴ None is inherently better than another—rather, the bottom line for how they endure, evolve, and combine will be their case-by-case success in meeting customer needs.

For example, two different approaches widely regarded as successful to date include the mixed approaches taken by MySQL AB, a company that began as an open source start-up, and Apple, one of the longest-established traditional vendors in the ICT industry, respectively:

- Sun Microsystems, following its acquisition of MySQL AB, continues a dual-licensing practice of offering the MySQL database under both a reciprocal open source license and a traditional commercial license “designed to meet the development and distribution needs of commercial distributors.”¹⁵
- Apple shifted to what has been called an “embrace and layer” strategy for its consumer operating system by leveraging permissively licensed open source BSD code for functionality such

as networking infrastructure, while focusing its commercial R&D on building a proprietary graphical user interface (GUI) “on top,” and licensing the resulting product as a whole under a traditional commercial license.¹⁶

In any given circumstance, consideration of OSS is a matter for pragmatic, empirical evaluation:

- For example, industry analyst Mark Driver of Gartner Group has predicted that “80 percent of all commercial software applications will include open source components by 2012” —while at the same time, “through 2013, 50 percent of mainstream IT projects using OSS will not achieve cost savings over closed source alternatives.”¹⁷
- Another industry analyst firm, the 451 Group, identified more than 100 ICT companies who rely on OSS to generate a significant portion of their revenue. At the same time, it found “the majority of open source vendors utilize some form of commercial licensing to distribute, or generate revenue from, open source software.” It found that “[f]or the most part, vendors that build revenue streams around open source software do not choose between open source and proprietary development and licensing; they choose business strategies that attempt to make the best use of both open source and proprietary development and licensing models in order to maximize their opportunities for generating revenue and profit.” This and other findings related to the revenue-generation strategies commonly used by OSS and traditional vendors alike led 451 Group to conclude that “[t]he line between closed and open source has blurred as FOSS [free and open source software] is embedded in proprietary products and commercial extensions have been added to FOSS.”¹⁸

Table 2. Representative Open Source Constituencies and Motivations

Constituency	Key Motivations	Recommended Reading
Developers	Creativity, learning; “Scratching an itch”	Lakhani and Wolf 2002, “Why Hackers Do What They Do”
IT Administrators, End Users, Entrepreneurs	Ease of acquisition	Fitzgerald 2005, “Has Open Source Software a Future?”
Established ICT Vendors	Complementing existing lines of business	Iansiti and Richards 2006, “The Business of Free Software: Enterprise Incentives, Investment, and Motivation in the Open Source Community”



An Overview of the Microsoft Technology Landscape

Today, Microsoft is a participant in the OSS technology ecosystem. More than 80,000 OSS applications run on the Windows operating system, 30,000 of which were built specifically to run on Windows.

Microsoft offers an open source project hosting site (or “forge”), www.CodePlex.com, and maintains an internal collaborative development practice (“Codebox”).¹⁹

However, the diversity of Microsoft’s lines of business combined with the diversity of OSS communities and technologies frequently result in popular attention to a few highly visible cases. These cases—such as competition between commercial products like the Windows Server operating system and Red Hat Enterprise Linux—can obscure the breadth of OSS and Microsoft’s evolving social, technical, and business engagements.

Microsoft’s strategy is to ensure each product group pragmatically evaluates OSS in relation to a sustainable business model for meeting the needs of key customers and partners. The outcome of each evaluation will reflect a business case for offering differentiated value coupled with thoughtful analysis of the strengths and limitations of OSS approaches. These might include, for example, indications that:

- OSS approaches tend to be relatively more successful when the end users of a technology are themselves developers, as opposed to nontechnical end users;²⁰
- Volunteer developers are highly motivated by opportunities to be creative, while necessary but mundane tasks such as security debugging

or low-level coding (such as the Linux kernel) are more likely to require payment or incentives to developers.

Examples specific to three Microsoft product groups are summarized below.

Windows Server and IT Infrastructure

Windows Server product strategy continues to focus on offering a product that IT administrators will choose over alternatives (including Linux), because it is highly manageable with readily available skills, supported by a wide range of third-party applications, and offers the lowest total cost of ownership (TCO).

At the same time, Microsoft engineers have contributed patches to widely used OSS applications, and are working with Zend, the commercial PHP company, and the PHP community to ensure Windows Server and other Microsoft products are great platforms for PHP applications and the open source PHP development language.

System Center Operations Manager, Microsoft’s systems management product, offers cross-platform systems management across Windows, UNIX, and Linux in part by working with an OSS technology called OpenPegasus. The Microsoft System Center Operations Manager product team has

stated its interest in contributing code back to the OpenPegasus project community.

Developer Community and Platform Technologies

The Microsoft Developer Division continues to focus on offering a product (Visual Studio) designed to be the leading choice for developer productivity, and on offering innovative, differentiated technologies like Silverlight for rich Web experiences.

For developers, the entire .NET Framework is available as a reference source to enable them to debug against the source code; the .NET Dynamic Language Runtime (DLR) has been released under an OSI-approved open source license (the Microsoft Public License, or MS-PL); and ILanguage implementations like IronRuby are being developed as open source projects, with contributions by both Microsoft engineers and the developer community at large.

Silverlight itself is a cross-browser, cross-platform technology, and Microsoft is working with commercial Linux vendor Novell to enable Moonlight, an open source implementation of Silverlight for the Linux operating system.

Emerging Technologies

This is a time of significant change in the ICT industry. The advent of “cloud computing,” for example, appears poised to alter the business and technical landscape. Windows Azure—Microsoft’s cloud services operating system—was debuted by Ray Ozzie, Microsoft’s Chief Software Architect, who explained how it was specifically “built from the ground up to be consistent with Microsoft’s commitment to openness and interoperability.”²¹ Microsoft technical teams offered cross-platform software development kits (SDKs) for Java and Ruby simultaneously with those for .NET; demonstrated how a developer could use the open source Eclipse development environment to write an application that runs on Windows Azure; and how a blog engine hosted on Windows Azure could authenticate users with open source OpenID technology.²²

In a different area of changing technology—console gaming—development of games for game consoles (such as Microsoft Xbox or Sony PlayStation) has typically been limited to those with specialized skills and expensive toolsets. Microsoft’s XNA development tools and Xbox console teams have committed to “democratizing game development” by bringing tools and technologies to a wider audience.²³ As a result, today there is a growing global community ecosystem with nearly 200 open source or shared source XNA games and game components.²⁴

It is important to acknowledge that the relationship between open source and Microsoft has at times been characterized by strong emotions and harsh words, including assertions that neither open source nor Microsoft could thrive if the other continued to exist.²⁵ The past decade, during which Microsoft as a technology provider and the commercial and community-based open source ecosystems all have grown, has proven that these claims do not reflect the dynamic and continuously evolving ICT environment.

“Well, my position toward open source generally is that it’s a part of the environment. We have a software business that is based on proprietary software. We tactically or strategically, depending on how you look at it, will take certain aspects of what we do, and we’ll open source them where we believe there is a real benefit to the community and to the nature of the growth of that technology in open sourcing it. ...we live in a world together with open source, and we have to make it possible for you to build solutions and for customers to build solutions that incorporate aspects of both.”

Microsoft Chief Software Architect Ray Ozzie, remarks at the 2008 MVP Summit.



A Look Ahead at the Industry

If anything, today change is accelerating across the entire ICT landscape. IT professionals and developers are increasingly working in mixed environments, often including Windows, Linux and UNIX. In addition, applications being deployed today are often a mix of open source and traditional commercial software. Because of these realities, customers are looking for software providers to deliver business value and to respect choice in a heterogeneous world, regardless of the underlying development model.

Our belief is that open source clearly can offer value “on its own” to many participants in the ICT ecosystem—it is also equally clear that open source is not the only source of value for all participants in the diverse ICT ecosystem. We also believe Microsoft products and technologies can offer differentiated value “on their own” to many participants in the ICT ecosystem—but we recognize that Microsoft products and technologies will not be the only source of value for all the participants in the diverse ICT ecosystem. Above all, we believe that the future is not so much about one of these versus the other, but about how to combine approaches and integrate the best of what each has to offer.

As every participant in the industry works to understand and adapt to new technological and business trends, we believe exponential creativity across the entire ecosystem will be fostered by an environment in which the bottom line for any technology, development and distribution approach, or business model is grounded in providing technology professionals and end users with “the best tool for the job.” In part, realizing the full potential of this “mixed source” and “mixed model” paradigm will depend on an ICT policy that sustains a pro-consumer trend toward the creative energy of the industry focusing not on arguments about “doing it my way,” but rather on figuring out how to pragmatically “do what works” for customers.

One key, supporting principle is respect for the diverse—and continually evolving—ways that individuals and companies choose to build and market what they create. No efficient, effective technical solution should be precluded or advantaged because an individual, a vendor, or a development community has chosen a particular business model—whether based on software licensing, service and support, advertising, or increasingly, some combination thereof.

A second key principle is a balance that preserves constructive competition and healthy incentives: when individuals and companies are rewarded for creative differentiation, customers benefit from a dynamic marketplace that offers more product choices. Incentives for commercial investment in new innovation should coexist and coevolve alongside practical mechanisms for sharing intellectual property (IP)—with the overarching focus on a dynamic industry that continues to bring great ideas to customers.

For Microsoft, this has meant energizing our own approach to the “mixed source” world. The aspiration to empower third-party innovation has deep roots at Microsoft: the PC itself has been recognized as an archetypal “generative” technology; one that is open to “unprompted change driven by large, varied, and uncoordinated audiences.”²⁶ We have long sought to contribute to the growth of an open ecosystem, whether through publicly documenting thousands of application programming interfaces (APIs) or releasing more than 1 million lines of freely reusable code annually through MSDN, newsgroups, and other online channels. But over the last several years, we have expanded the scope and variety of methods and programs for working with others and for sharing information. This has included:

- More than 500 commercial IP agreements with companies from a wide range of industries—including companies building their businesses around OSS;
- Offering a range of technologies under new, broadened terms defined by the Open Specification Promise—an irrevocable promise from Microsoft designed to be compatible with OSS development;²⁷
- And we have stated broad openness to noncommercial OSS development through the Patent Pledge for Open Source Developers.²⁸



“...Before I say anything else, I do want to say this: We at Microsoft respect and appreciate the important role that open source software plays in our industry. We respect and we appreciate the passion and the great contribution that open source developers make in our industry. We respect and we appreciate the important role that open source software plays for our customers, customers who almost always have heterogeneous computer networks with software and hardware and services that, as you all well know, come from multiple vendors. That is not what you have always heard from us, and I recognize that. But I did want to start by saying that...”

Microsoft General Counsel Brad Smith,
Keynote at the 2008 Open Source Business Conference (OSBC).



Conclusion

We expect that these steps represent the start, rather than the end, of a journey—and we expect that finding the right balance may not always be easy or uncontroversial. But we are encouraged by the extent to which respectful dialogue has generated mutual understanding and productive solutions that help meet real-world customer needs in creative ways.

We recognize that in the future, Microsoft’s relationship with OSS may be punctuated by strong emotions and the possibility of interests that at times will be in conflict. But we are profoundly optimistic that openness to exploring new ways of working together on areas of common concern, whether meeting the needs of shared customers in heterogeneous datacenters, or bringing access to technology to the next 5 billion people around the world who have yet to enjoy its full benefits—will surface new opportunities for Microsoft and open source to “grow together” in purposeful and complementary ways.

We hope the constructive, respectful, and customer-focused dialogues in which we have already joined many researchers, policy makers, developer community leaders, and commercial companies around open source and Microsoft continue and expand. This is good for our customers and partners, good for our shareholders, and fundamentally consistent with increasing the social and economic benefits of the ICT industry for current and future generations.

More information on open source and Microsoft is available at <http://microsoft.com/opensource>.

Blogs, news and dialogue with the technical community using open source and Microsoft technologies together inside and outside Microsoft are available at Port25, the portal for the Open Source Software Lab at Microsoft, <http://port25.technet.com>.

The full text of Microsoft General Counsel Brad Smith’s keynote at the Open Source Business Conference is available online: <http://www.microsoft.com/presspass/exec/bradsmith/03-25osbc.msp>.

The full text of Microsoft Chief Software Architect Ray Ozzie’s full remarks at the MVP Summit is available online: <http://www.microsoft.com/presspass/exec/ozzie/04-17MVP.msp>.

End Notes

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