



Open Source Development Labs

**2005 Annual Report
to OSDL Members**

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Note from CEO Stuart Cohen

In 2005, OSDL remained focused on its mission to accelerate the adoption of Linux and open source software. It continues to provide value to the industry through engineering, legal and marketing activities that increase technical capability, confidence in the adoption of Linux and open source technologies, and awareness of advances in Linux and open source software.

In 2005, OSDL staff members were frequently called upon as experts and authorities on Linux around the world for the IT and business press, and as invited speakers at global technology and industry events. OSDL continues to be a trusted and authoritative source for information on a broad range of subjects, from open source legal issues to Linux on mobile phones, from Linux on the server and desktop, to kernel development and NFSv4 testing.

Looking back on 2005 New Initiatives: *Satisfying Member and Market Requirements*

Two major new initiatives were launched in 2005: the Patent Commons Project and the Mobile Linux Initiative (MLI).

The **Patent Commons Project** bolsters greater confidence in Linux and open source IP for developers and customers and has already garnered the support of many industry leaders, including CA, IBM, Intel, Novell, Red Hat, and Sun Microsystems. Patentcommons.org hosts searchable databases containing more than 500 patents and more than a dozen technical standards supported by patent pledges and covenants. The library is freely available to developers, users and vendors, where they can quickly view information about patents and technology pledges benefiting open source software and standards.

The Mobile Linux Initiative, launched in October with support from Intel, MontaVista Software, Motorola, PalmSource, Trolltech, and Wind River, was created to maximize the market opportunity for Linux-based mobile telephony devices. MLI participants focus on operating system technical challenges, fostering development of applications for Linux-based mobile devices, and delivering requirements that support the initiative.

Working Groups: Bridging Gaps

Ongoing work group activity was at an all-time high in 2005.

The **Data Center Linux Working Group** (DCL) reported on the growth of Linux in retail and worked heavily on testing and improving NFSv4. The **Carrier Grade Linux Working Group** (CGL) worked toward increasing Linux's real-time capabilities, testing workloads, and increasing security and reliability while the **Desktop Linux Working Group** (DTL) finished 2005 with a bang, pulling

together the desktop architects to create a common vision for the Linux desktop and launching the “Portland Project.”

OSDL Engineering: Driving Innovation

OSDL Engineering had a broad impact in 2005. Besides the continued development and refinement of the Linux kernel, OSDL technical teams supported community efforts in areas as diverse as device drivers and database workloads, targeting a variety of community and infrastructure projects.

Looking ahead to 2006

This year (2006) holds great promise for OSDL and for the open source community at large. IDC predicts that Linux growth will outpace all other operating systems through 2009. OSDL plans to broaden its engagement with the development community, with new programs aimed at bolstering support for developers on critical kernel projects and directly including development leaders in setting the directions and priorities for OSDL.

OSDL is also looking to expand its impact on the industry. As Linux goes increasingly mainstream, the issues and challenges before open source will begin to shift naturally to other areas. OSDL will shift its priorities and resources as well. We believe that the open source customer value proposition propelling the rise of Linux can also be extended to productivity applications on the desktop and even to programming languages such as Java. Indeed, the success of Linux has transformed business around the world. There are many lessons still being learned. A vendor neutral organization like OSDL – working closely with developers and customers – can play a critical role in the rise of future technologies that may prove as important as Linux. I ask you to join with us on this journey to the future.



Stuart F. Cohen
CEO, Open Source Development Labs



A Message from Linus Torvalds and Andrew Morton

The message from the kernel team for the past year has been “steady as she goes.” The team at kernel.org continues to use the “new” incremental kernel development model, which has actually been in place for several years. With this model, the kernel team has been delivering enhancements to the 2.6 Linux kernel with significant updates made roughly each quarter.

The various stakeholders in kernel development are satisfied with how the process is proceeding and serving the community. For example, features that vendors wish to ship to their customers are making their way into the public kernel reasonably promptly and with quality sufficient to ensure vendors’ ability to create platforms and to deliver them to market within short time frames.

For the past three and a half years the public kernel has been updated at a constant rate of 6,000 lines added or removed per day. This level of activity, while responsible for the dynamic and rapid evolution of Linux, of course also carries with it challenges to maintaining code quality; with such a high change rate, regressions are nearly inevitable. In response, the kernel team is placing increasing emphasis upon promptly identifying and rectifying regressions. To support a higher level of quality, the team is investing in more formal processes.

Probably the kernel development team’s greatest asset is the corps of individual developers and end users who download and test the latest development trees and report problems as they encounter them. Experience tells us that this community of testers is far more successful at identifying kernel faults than any formal quality assurance program. Such a community-based approach yields results from the broad variety of hardware employed by these testers and from the range of workloads they apply to the Linux kernel.

Most of the members of our testing community are enthusiastic, community-minded individuals; many invest significant time and energies in making Linux better and do it “just for fun.” But community-based testing should not be limited to “grass roots.” The more testing done, the better Linux can be. To supplement and complement the efforts of individual testers, the kernel team needs the help of larger organizations, too. To continue building the test base, we encourage companies that use and deploy Linux and other open source software to allocate a modest set of engineering resources to help test the latest kernel development tree against their workloads, in the enterprise data center, on the desktop, or even in embedded applications. Only by continuing to grow the community of testers, will we be able to identify and rectify performance and correct regressions at the earliest stage, which benefits everyone.

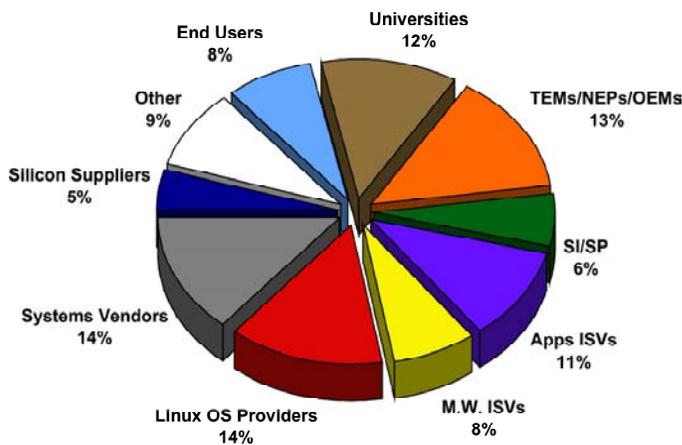
Linus Torvalds and Andrew Morton
April 2006

OSDL Membership

Membership Profile

OSDL membership remains impressively diverse, with representation from nearly every part of the IT industry and Linux software/hardware ecosystem. Notable trends in membership include:

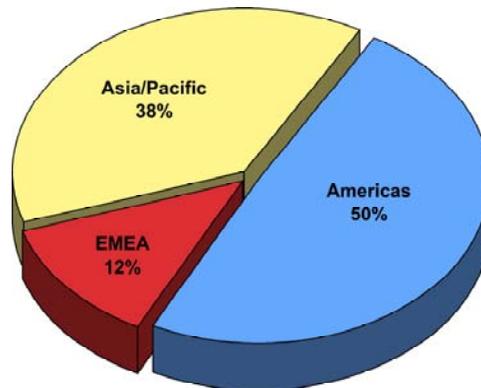
- Influx of members from Asian countries, especially Korea
- New members from the wireless/handheld ecosystem, attracted by the new Mobile Linux Initiative
- Increase in ISVs, service providers and integrators



OSDL Membership by Category

Geographic Distribution

North America, while still the largest base for OSDL membership, now stands on par with the international roster. North American membership continued to grow in 2005, followed by Asia, where it is interesting to note that membership expansion came from outside of OSDL's primary base in Japan.



OSDL Membership by Region

Major OSDL Programs for 2005

OSDL Engineering

The following outline provides a taste of the important work performed by OSDL engineering in 2005.

Device Drivers

- Launched Open Driver information portal at <http://developer.osdl.org/dev/opendrivers/> to provide resources for developing and merging open source drivers in the main kernel tree
- Provided a repository for training material developed by kernel engineers
- Hosted Open Driver forum

Database

- Continued support of open database workloads
- Tested releases on platforms available to the PostgreSQL community to assure performance integrity and to assist in solid design decisions based on results
- OSDL's database tool kits were used by many leading companies and government throughout the world and averaged 211 downloads per month

Networking

- Acted as maintainer of iproute2 utilities, key to IT administrators needing to network large numbers of systems through simple configuration and management utilities
- Acted as maintainer of bridging code following ANSI/IEEE standards to facilitate network interconnection
- Launched Linux-net information portal at <http://linux-net.osdl.org> to provide documentation and other resources for networking application developers

Security

- Lead the Security Special Interest Group and maintained the Linux Security Modules component of the kernel

Storage

- Evaluated, enhanced and verified Linux capability to identify large numbers of LUNs (device Logical Unit Numbers) – up to 16,000 LUNs

Testing

- Addressed Andrew Morton's concern over the lack of testing in the kernel by applying OSDL engineering resources to test the kernel in the areas of file system performance, asynchronous I/O, Hot Plug and kernel performance tests
- Released OSDL open test framework in collaboration with other companies such as Beijing Software Test Center
- Initiated cross-industry discussions with other companies and end users to develop a common shared open source test harness

- Initiated NFSv4 testing
 - Launched NFSv4 test information web site at <http://developer.osdl.org/dev/nfsv4/>
 - Worked with the NFSv4 community and tested its development releases on a variety of platforms
 - Enabled an NFSv4 testing community to organize testing efforts and share test results
 - Hosted and jointly administered bug tracking NFSv4 defects
- Hot Plug CPU and Memory testing
 - Automated testing at OSDL to help Hot Plug community as it developed code and merged it with the kernel

Infrastructure & Community Projects

- OpenAIS Support
 - Contributed extensively to OpenAIS clusters project, adding event service functionality based on SA Forum APIs
- Supported relocation of master kernel.org server from California to Oregon
- Hosted ISV Forum
- Created new Special Interest Groups (SIGs)
 - Clusters SIG
 - Security SIG

OSDL Initiative Working Groups

Carrier Grade Linux (CGL)

Carrier Grade Linux (CGL), OSDL's longest-running initiative, did not rest upon its laurels in 2005. CGL membership continued investing in driving the CGL specification forward and in supporting adoption by a dynamic ecosystem. OSDL membership and the communications industry at large engaged in a variety of CGL-focused activities:

- Six Linux distribution and platform providers registered their wares against the Carrier Grade Linux version 2.1 specification: AsianNux, FSMLabs, MontaVista Software, Novell/SuSE, and Wind River.
- CGL membership approved and published the CGL version 3.1 specification.
- CGL membership issued a draft 3.2 specification, slated for final release in February of 2006.
- Non-member companies have begun to self-register both commercial-off-the-shelf and internal Linux platforms against the CGL specification; the first such example in 2005 was FSM Labs Real-time Carrier Grade Linux with more to follow in 2006.

The CGL marketing sub-group, along with OSDL marketing resources, worked in concert to support regional and international events and also to publish and revise a range of outbound marketing deliverables to support the CGL initiative and to promote Linux adoption in the communications industry.



Data Center Linux (DCL)

In 2005, data center adoption continued to grow, with industry focus on financial services, insurance, retail, and medical markets, to name a few. OSDL DCL focused specifically on driving Linux adoption on mission critical applications deep into the data center, beyond the edge or infrastructure server where adoption is already prevalent. As a result, technical work in 2005 focused on reliability, scalability and community test coordination and development.

• Storage/Networking – NFSv4 Testing

DCLs focus on NFS centered on testing. By expanding the OSDL test matrix and formalizing testing efforts, DCL helped deliver higher quality and performance to NFS end users, keeping Linux competitive with legacy / proprietary data center platforms. NFSv4 testing by DCL was also highlighted as the cover story of the May 2005 issue of LinuxWorld Magazine.

The NFS testing effort also represented steps forward in the community testing process, with improved visibility for ongoing activities and testing quality, and in reducing duplication of effort. In particular, OSDL implemented:

- Formal NFSv4 bug tracking
- Multi-platform cross compiling
- Test configurations specified by DCL storage SIG as mechanisms to enhance NFSv4 code quality

NFSv4 performance and interoperability tests, while interesting in themselves, are most useful in context. To allow publication of comparative results, OSDL legal counsel brokered agreements with Sun attorneys to allow posting of Solaris 10 test data alongside data for NFSv4 (normally prohibited by the Solaris license).

Other DCL activities included:

- Published *DCL Goals & Capabilities Version 1.1*
- Worked with OSDL LUACs (Linux User Advisory Councils) to gather and align requirements
- Performed integration testing with a large number of disk devices (4,000) with an open source logical volume manager and multipath I/O configurations
- Supported OSDL lab activities by donation of equipment and money
- Developed regression tests for CPU Hot Plug add and remove

Desktop Linux (DTL) Working Group

DTL finished 2005 with a huge amount of press coverage and interest in desktop Linux thanks to the Desktop Linux Survey and the Linux Desktop Architects Meeting.

Desktop Linux Survey

In October 2005, DTL launched a month-long online survey that received more than 3300 responses. The goal of the survey was to determine the key issues



driving Linux progress on the desktop as well as the major barriers to Linux desktop adoption.

Key Findings

Top reasons for deploying Linux on the desktop

- Employees requesting Linux (user demand)
- Competitors have successfully deployed Linux
- Total Cost of Ownership

Applications critical to Linux deployment

- Email / messaging
- Office Productivity Tools (text documents, spreadsheets, presentations, databases)
- Browsers

Top inhibitors to Linux desktop adoption

- Application support
- Peripheral support
- End user training

DTL plans to leverage the survey results to show ISVs and the market as a whole that Linux on the desktop is getting close to reaching the tipping point of mass adoption.

Linux Desktop Architects' Meeting

OSDL hosted the Linux Desktop Architects' meeting in Beaverton, Oregon. More than 40 different projects were represented, including Freedesktop.org, GNOME, KDE, Mozilla and Ubuntu. The group focused on the technical and ecosystem issues most critical to the evolution of Linux on the desktop.

From the Architects' meeting emerged the "Portland Project," which is focused on working toward a desktop integration interface. The objective of the Project is to simplify ISV efforts to retarget and run their applications on multiple Linux desktop environments.

Mobile Linux Initiative (MLI)

In October 2005, OSDL launched its fourth working group, the Mobile Linux Initiative (MLI). MLI already includes members spanning the mobile telephony ecosystem – chipset manufacturers, Linux distribution and platform suppliers, ISVs, handset manufacturers, integrators, and mobile/wireless carriers. Dubbed "Carrier Grade Linux for handsets" by several OSDL members, MLI will strive to address platform challenges "from the kernel up" to accelerate Linux adoption on mobile phones and other converged voice and data devices.

The MLI mission is to to accelerate Linux adoption in the mobile space with a specific focus on:

- Identifying and addressing technical and non-technical industry requirements



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- Creating and fostering implementations in open source
- Advocating and explaining industry needs to the kernel/open source community
- Promoting mobile Linux (including education of carriers about the benefits of open source)
- Clarifying legal and regulatory issues surrounding mobile phones as they relate to Linux and open source
- Enabling and fostering pre-platform developer ecosystem

On the technical front, MLI membership has identified a list of key gaps to address:

- Development Tools
- I/O and Networking
- Memory Management
- Multimedia
- Performance
- Power Management
- Security
- Storage

MLI membership is keenly aware that breaking down barriers to mobile Linux adoption extends beyond the technical domain. To that end, MLI has also identified non-technical gaps to address, including:

- Legal concerns of using Linux on cell phones
- Silicon Provider Alignment – orchestrating the OSS work of semiconductor suppliers to avoid fragmentation
- Mainstreaming – migrating mobile enabling capabilities into the main Linux kernel tree

In strong contrast to other industry groups, MLI intends to focus on solution creation, not merely publishing APIs and new standards that can end up as unfunded mandates. MLI members are today marshalling resources to create implementations to meet handset OEM, carrier and operator needs, foster the advancement of existing open source projects, and open existing internal technologies for the benefit of the MLI audience and the community in general.

OSDL-hosted Carriers/NEPs Meeting

For the past several years, OSDL has hosted meetings to help build a community and ecosystem around Carrier Grade Linux. These events provide a vendor-neutral forum for carriers, service providers, network equipment providers and telecommunication equipment manufacturers, as well as representatives from the OSDL Carrier Grade Linux and Mobile Linux Initiatives, to discuss common challenges, exchange best practices and deployment experiences, and preview new technologies that relate to Linux based platforms.

In 2005, OSDL hosted two Carriers/NEPs meetings in Paris in May and Beijing in October. Meeting attendees included Alcatel, Alcatel Shanghai Bell, British

Telecom, China Mobile, China OSS Promotion Union, China Software Industry Association, China Unicom, Flextronics, France Telecom R&D, GDLC Linux Center, Haansoft, Huawei, Motorola, NEC, Nokia, Nortel, NTT DoCoMo, NTT Comware, NTT Labs, Texas Instruments, and ZTE.

OSDL Legal Activities

OSDL significantly stepped up its legal support of Linux and open source software in 2005. Open source software has become mainstream, and with that evolution comes a demand for legal support that meets the level of activity and complexities in this dynamic market. Building on its support of open source developers with the Linux Legal Defense Fund (LLDF), OSDL embarked on a number of new legal initiatives and projects in 2005.

The Patent Commons Project

The most significant legal program of the year came to fruition in August when the Patent Commons Project was announced at LinuxWorld San Francisco. With a very deliberate eye on finding ways to reduce the risk software patents pose for open source developers, OSDL designed and launched its Patent Commons Project to provide a central location where software patent pledges and covenants not to sue could be housed for the benefit of the open source development community and industry. By November, the Patent Commons website was live and had catalogued pledges in searchable databases freely available to developers, users and vendors. The website continues to mature as a central resource on patents as they apply to software.

IP Support Fund

In February, OSDL and its members committed to raise more than \$4 million to help support IP initiatives. The Software Freedom Law Center, the pro bono law resource headed by Columbia Law School Professor and leading IP attorney Eben Moglen, is the first recipient of these funds. Since the SFLC opened its doors in February 2005, it has added staff and signed a number of leading open source projects as new clients, including the Wine Project, Plone, X.Org and others.

Open Source as Prior Art

OSDL participated in a landmark meeting in December to kick off a formal relationship with the U.S. Patent and Trademark Office (USPTO) and other industry leaders concerned about the quality of software patents being issued. This was the culmination of efforts undertaken throughout 2005 to create a process and methodology by which open source software developers can electronically publish their source code and have it considered by the USPTO as possible prior art in order to prevent poor quality patents from being issued.

Open Source Licenses

OSDL engaged with the Open Source Initiative (OSI) in 2005 to address the issue of license proliferation through participation on the License Proliferation Committee. Together with other industry leaders and members of the open source community, OSDL continues to push for a reduction in the number of licenses used by new projects. This effort continues and will remain a focus in 2006 as participants vet the prioritized license recommendations being made by the Committee.

Education/Awareness

In 2005, OSDL put more emphasis on legal education and awareness through public appearances and presentations at industry events such as the Open Source Business Conference. Diane Peters, general counsel, also lent her pen to ComputerWorld and other industry publications with a number of columns on mitigating legal risk for Linux and open source software. She also participates as an advisory board member for openbar.org, a nonprofit organization dedicated to providing legal education on open source software issues.

The Linux Mark Institute (LMI)

OSDL helped to reorganize the LMI into an independent organization with a focus on protecting Linus Torvalds' global Linux-brand trademark rights. OSDL spearheaded efforts to revise and find support for LMI's sub-licensing program through which authorization to use the Linux trademark is given to Linux distributors and service providers. OSDL remains dedicated to reinforcing the strength of the Linux trademark and holds a seat on the LMI board of directors.



OSDL in the News



In 2005, Linux and open source software remained on the radar of both technology and mainstream business publications. OSDL's vendor-neutral voice provided reporters with a credible source; as a result, OSDL was included in a large majority of the media coverage on Linux and open source software, and OSDL executives were regular contributors to BusinessWeek, ComputerWorld, LinuxWorld, Embedded Computing Design, and other leading industry publications.

Here is a snapshot of the year's press highlights:

January 31, 2005

***BusinessWeek* (Cover Story)**

TITLE: Linux Inc.,

"The organization supporting Linux has matured more dramatically than most outsiders realize. While Torvalds remains at its center, he has ceded some control and accepted lots of help, thanks to some prodding from individual programmers like McVoy and some coaxing from tech giants whose fortunes have become inextricably linked to Linux. One important step was the move by IBM, Intel, and others to set up OSDL as the focal point for accelerating Linux adoption."

February 1, 2005

The New York Times

TITLE: An effort to help free software developers avoid suits

"A nonprofit legal center opening today, backed by \$4 million in initial financing from a corporate consortium, will provide advice from specialists that is intended to minimize the risk that developers and users of free software will be sued. The initial funding for the center comes from the Open Source Development Labs, a consortium that seeks to accelerate the adoption of Linux."

March 15, 2005

Investor's Business Daily

TITLE: Open Source movement now in hands of hired guns

"Somewhere along the way, Linux turned pro. Today, less than 5% of core Linux developers are volunteer programmers, estimates Andrew Morton, one of Torvalds' main deputies. Most -- like Torvalds himself -- are now hired hands of corporations hoping to cash in on the free operating system.

"As Linux goes mainstream, the market gets bigger and the dollars available around the world grow, it becomes a great business opportunity," said Stuart Cohen, chief executive of Open Source Development Labs, the nonprofit industry consortium that employs Torvalds. "Nobody wants to miss out."

July 14, 2005

The Times Online

TITLE: Open source group reboots Europe campaign

“In 1993 Microsoft’s most senior executives failed in a last-gasp effort to persuade the Mayor of Munich not to switch his administration’s computers to Linux from Windows in what became a heavily publicised coup for OSDL. Mr Cohen believes that by lobbying national and local governments and businesses OSDL will be able to propagate an open source “ecosystem” in Europe.”

August 10, 2005

eWeek

TITLE: OSDL begins open source patent commons

“This week at San Francisco’s LinuxWorld, Open Source Development Labs, a global consortium dedicated to accelerating the adoption of Linux, announced the OSDL patent commons project. The OSDL patent commons is meant to provide a central location for open-source-friendly software patents and patent pledges.”

October 14, 2005

CNET

TITLE: Linux calling: Are cell phones ready?

“OSDL’s Mobile Linux Initiative is intended to improve Linux for the small, but increasingly powerful, devices. It’s also set up to spur development of applications, outline requirements for different cell phone uses and host related open source development projects.”

October 22, 2005

The Economist

TITLE: An open secret

“In May, Nokia said it would not assert its patents against the inner code of Linux, a popular open source computer operating system. In June, Red Hat, a big Linux distributor, said that it, too, would contribute to a patent commons. In September, Computer Associates donated 14 patents for free use by the open-source community. Open Source Development Labs, an industry forum, has offered to act as a repository for patent-commons projects.”

November 8, 2005

BusinessWeek

TITLE: Linux answers phone makers’ call

“Another Linux advantage: It reduces costs, since there’s no royalty on the operating system. There’s also a large base of third-party developers who can create games and other applications based on Linux. Finally, Motorola was drawn to the prospect that it will be able to influence the development of the Linux mobile platform. Motorola is a key player in the Open Source Development Labs’ new Mobile Linux Initiative, a consortium aimed at making Linux the predominant operating system on phones.”



November 28, 2005

ComputerWorld

TITLE: Patent Visibility

“What if we didn’t have to worry about being blindsided by software patents? What if software developers had a much better idea of exactly which software inventions have been patented, which ones are safe for programmers to use and which are sure to be trouble? If you think I’m talking about the Open Source Development Labs’ new Patent Commons Web site, you’re right. It’s a great start at dealing with one piece of the software patents problem.” Frank Hayes, Columnist, ComputerWorld.

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OSDL would like to thank its employees, members, affiliates and associates for making 2005 a success.

