

# MeeGo™ – Openness In Action

Intel Open Source Technology Center

## Introduction

Open source software has proven its viability in a wide range of applications ranging from web servers to databases to operating systems for mobile devices. Successful open source projects are built by communities based on the principles of inclusion, transparency, meritocracy, and an “upstream first” development philosophy.

The MeeGo open source platform is a relative newcomer to the world of open source operating systems for devices, but the project was founded on the same principles and best practices followed by other successful projects, such as the Apache and Mozilla projects.

In this paper, we will look at how the openness of MeeGo delivers significant value to device manufacturers and service providers by adhering to four key principles.

MeeGo is open to all contributors. There are no admission processes, contracts, or membership fees for MeeGo, just your desire to join the project and contribute.

## What Makes a Project Truly Open

The term “open” has been used in the computing world for many years, to the point where the meaning has become somewhat fuzzy. Even experts sometimes disagree on what constitutes open source software, as seen by the wide variety of licenses that are approved by the Open Source Initiative (OSI) as open source licenses (see <http://www.opensource.org/licenses/alphabetical> for details).

At its core, the open source software movement is built on a series of four development and organizational principles:

- Inclusion
- Transparency
- Meritocracy
- An “upstream first” philosophy

While it is possible to create open source software by ignoring some of these principles, the results are usually sub-optimal.

## Inclusion

Inclusion rather than exclusivity is a key open source tenet and path to delivering products that are often superior to proprietary products. The theory that underlies this principle is quite simple: no matter how many smart people your company employs, there are many other smart people in the world who can help improve your product.

Successful open source projects realize that contributions can come from anywhere and everywhere, and have figured out how to harness this ubiquitous innovation. An example of this is found in a recent study by The Linux Foundation entitled “Who Writes Linux\*?” (<https://www.linuxfoundation.org/sites/main/files/publications/whowriteslinux.pdf>), in which the authors found that more than 1,000 individual developers from over 200 companies contributed to the development of the Linux operating system, including many developers who worked independently. No one company could do alone what the Linux community has done together.

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One of the most effective ways to stifle innovation is to place barriers between potential contributors, such as requiring contributors to pay to join a project.

The MeeGo project is open to anyone who wants to make a contribution. As stated on the MeeGo web site, MeeGo is open to all contributors. There are no admission processes, contracts, or membership fees for MeeGo, just your desire to join the project and contribute. In addition, the MeeGo project uses a patch review policy similar to that used by the Linux kernel project, with clear guidelines on how to get a contribution considered for acceptance.

### Transparency

Transparency is critical for project contributors to know what is happening in an open source project. Some ways that projects encourage transparency include:

- Providing mechanisms for requesting new features
- Discussing technical issues publicly on a project mailing list and clearly articulating why specific decisions were made
- Having an open problem tracking database where project members can determine the status of known defects and provide input on defect resolution priorities
- Enabling active participation of key project developers and leaders on mailing lists and Internet Relay Chat (IRC)
- Conducting key project meetings openly using tools like IRC so that project participants can see and contribute to the discussion

Another important way that projects demonstrate transparency is through a “release early, release often” philosophy. This means, for example, that as new technologies are being incubated in the MeeGo project, source code for these technologies is released early in the development cycle, well before final project release. It also means that as

feedback and patches are received and incorporated, new releases of that component are provided to the project in a timely manner.

For device manufacturers and service providers, transparency translates directly into improved time-to-market and a level playing field. New features can be evaluated earlier in the development cycle and feedback given in time to influence the final feature release. In contrast, when new-feature source code is withheld until final release, those involved in the development have a built-in time-to-market advantage over those without early access.

### Meritocracy

One of the challenges of running a successful open source project is to balance innovation and creativity with stability. This job typically falls on the shoulders of the project’s maintainers, who make daily decisions on which contributions will be accepted. As contributors prove themselves through the quality and quantity of their contributions, their influence in the project grows. This is known as meritocracy, where a person’s influence on a project is directly proportional to the contributions that he or she has made.

In MeeGo, there are a wide variety of roles, including program management, development, validation, documentation, and community relations. While many of these positions are filled by employees of Intel and Nokia, which are the founders of the MeeGo project along with The Linux Foundation, contributors are being added based on their demonstrated ability to add value. Everyone is held to the same standard, regardless of company affiliation.

### “Upstream First” Philosophy

It is easy to simply be a consumer of open source software, using it to help get your product to market more quickly or at a lower cost than using proprietary alternatives. But contributing to the community that helped you is a much better model that helps to ensure that others will be able to reap the same benefits.

This is one of the reasons that MeeGo has embraced the “upstream first” philosophy of development. In this model, developers who have changes to components that MeeGo integrates from other “upstream” projects work to get those changes accepted into the upstream project rather than in MeeGo itself. This approach results in two benefits. First, not only MeeGo but other “downstream” projects benefit for those enhancements. Second, the MeeGo project does not incur the maintenance expense associated with maintaining a “branched” version of the upstream project.

A corollary to the “upstream first” philosophy is taking advantage of existing open source software projects rather than adopting a “not invented here” attitude and re-creating work already done by others. For this reason, MeeGo makes extensive use of existing open source software such as the Linux kernel, the X\* Window System, the Fennec\* and Chrome\* browsers, and the Qt\* UI toolkit as foundation technologies. This enables the MeeGo project to focus on innovation and creating new technologies that drive the platform forward.

### MeeGo Open Source Platform Enables Innovation

As an open platform, MeeGo enables device manufacturers and service providers to shorten time-to-market for innovative products and services. An example is Amino Communication’s MeeGo-based IPTV set-top box.

Amino Communications, Ltd. is a world-leading IPTV and hybrid/“over the top” (OTT) innovator, bringing new entertainment products and solutions to a global market. With over three million devices sold to 850 customers in 85 countries, Amino’s award-winning solutions are deployed by network operators and service providers worldwide.

When Amino was approached by a major European cable TV service provider to deliver a new set-top box with advanced features, Amino turned to Intel and MeeGo as the basis for its new product. On the hardware front, Amino’s product uses the Intel® Atom™ processor CE4100, which provides advanced features such as multi-stream video decoding and processing hardware, dedicated multi-channel dual audio DSPs, and a powerful 3-D graphics engine enabling advanced user interfaces (UIs) and electronic program guides (EPGs).

When Amino began development, the MeeGo (then Moblin) community had a netbook software stack available, which Amino engineers downloaded and examined. Amino choose to base its software on the MeeGo open source operating system because it found that the MeeGo open architecture and extensive use of proven open source components, such as the Linux kernel, X Window System, and OpenGL\* 3-D graphics library, provided a solid foundation on which it could deliver new, innovative features. Amino also found that MeeGo

enabled extensive re-use of existing Linux-based software components, which significantly reduced the time-to-market for its new product. The time from winning the contract to deploying the product for the service provider was just six months, versus the 12 to 18 months typical for such a development effort.

Amino’s new set-top box enables consumers to access free high-definition terrestrial television content, paid video on-demand content, personal digital video recorder functions, and free web-based video content, as well as the ability to download applications such as stock and weather widgets and social networking applications.

Dominique Le Foll, Chief Technology Officer of Amino Communications, puts it this way: “Traditionally in the embedded world, we have to develop the software after the hardware, creating a long lead time for the full product. For the first time, with the X86 architecture and MeeGo, we have the capability to decouple completely the hardware and the software. Adding to that the full ecosystem, we could really create a product which can be available only a few months after the availability of the silicon. This has enabled us to get into a tier 1 western European service provider, which is an achievement which would not have been possible otherwise.”

## Summary

Being an open source project is about more than simply releasing the source code publicly when the project is done. The MeeGo project follows the best practices of other successful open source projects to deliver a software platform that provides strategic advantage to device manufacturers and service providers operating in a highly competitive environment.

To learn more about the MeeGo project, visit:

[www.meegozone.com](http://www.meegozone.com)

[www.meego.com](http://www.meego.com)

[www.appdeveloper.intel.com](http://www.appdeveloper.intel.com)

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