

Software Livre e de Código Aberto

Fernando Castor

Centro de Informática – Universidade Federal de Pernambuco

Alguns direitos reservados



O que essas organizações têm em comum?



- 1 O que é Software Livre?
- 2 O que é Software de Código Aberto?
- 3 Quais são as diferenças e semelhanças entre os dois?
- 4 Empresas estão interessadas em FLOSS?
- 5 Como você pode se beneficiar?



Software Livre



O que é Software Livre?

Ideologicamente

- Software cujos usuários têm liberdade para
 - executar
 - copiar
 - distribuir
 - estudar
 - modificar
 - melhorar
- Usuários **controlam** os programas e não o contrário
- **Premissa básica:** **liberdade** é uma **coisa boa** para indivíduos e sociedade
 - Software livre como um **Movimento Social**.



O que é Software Livre?

Estritamente falando

Um programa é **livre** se seus usuários têm as 4 liberdades essenciais:

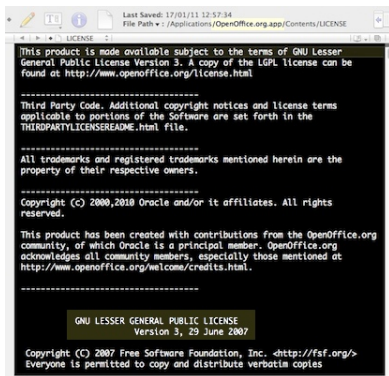
- 0 Liberdade de **executar** o programa, para qualquer fim.
- 1 Liberdade para **estudar** o funcionamento do programa e **modificá-lo** para fazer o que você **desejar**.
- 2 Liberdade para **redistribuir** cópias.
 - Assim, você ajuda seu vizinho.
- 3 Liberdade para **distribuir** cópias de suas **versões modificadas**.
 - Assim, a comunidade toda se beneficia com suas modificações.

Acesso ao código fonte é pré-condição para as liberdades 1 e 3.

O que é Software Livre?

Legalmente

- Software **distribuído** de acordo com uma **licença** que respeita as 4 liberdades



```
Last Saved: 17/01/11 12:57:34
File Path : /Applications/OpenOffice.org.app/Contents/LICENSE

This product is made available subject to the terms of GNU Lesser
General Public License Version 3. A copy of the LGPL license can be
found at http://www.openoffice.org/license.html

-----
Third Party Code. Additional copyright notices and license terms
applicable to portions of the Software are set forth in the
THIRDPARTYLICENSEREADME.html file.

-----
All trademarks and registered trademarks mentioned herein are the
property of their respective owners.

-----
Copyright (c) 2000,2010 Oracle and/or it affiliates. All rights
reserved.

This product has been created with contributions from the OpenOffice.org
community, of which Oracle is a principal member. OpenOffice.org
acknowledges all community members, especially those mentioned at
http://www.openoffice.org/welcome/credits.html.

-----
GNU LESSER GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

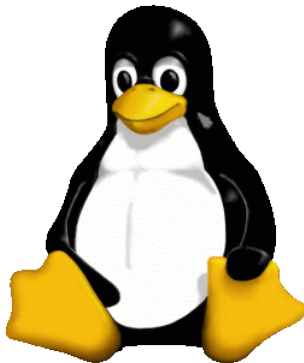
Copyright (C) 2007 Free Software Foundation, Inc. <http://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
```



Este programa é software Livre?



Este programa é software Livre?



Este programa é software Livre?



(considerando apenas a versão gratuita)



Software de Código Aberto



O que é Software de Código Aberto?

Ideologicamente

O foco do movimento Open Source **não é ideológico**.

Em poucas palavras...

- “Campanha de Marketing” em prol do Software Livre
 - Com foco em vantagens práticas
 - Sem viés ideológico
 - Para chamar a atenção de grandes corporações



Por que “Código Aberto”?

- A palavra “free” em *Free Software* é problemática
 - “Free as in freedom, not free beer”



- Com “Código Aberto” a ênfase fica em algo mais palpável, o código




Open source doesn't just mean access to the source code

Práticas

- 1 Desenvolvimento distribuído
- 2 Depuração em massa, com usuários envolvidos no desenvolvimento
- 3 Software disponível cedo e frequentemente
- 4 Meritocracia
- 5 Sem uma hierarquia rígida e sem coerção
- 6 Abertura do código fonte é uma pré-condição



Software de Código Aberto também tem uma definição

**Open Source Initiative**

Home

Search this site:

Navigation

- ▶ About the OSI
- ▶ **The Open Source Definition**
 - Announcement
 - License Review Process
 - License Prohibition
- ▶ Open Source Licenses
- ▶ Trademarks and Logo Usage
- ▶ FAQ
- ▶ Open Standards
- ▶ Open Source Education
- ▶ Making lists
- ▶ Getting help
- ▶ Donate to the OSI
- ▶ OSI Individual Membership
- ▶ OSI Affiliate Membership
- ▶ Contact OSI
- ▶ Terms of Service
- ▶ OSI Corporate Sponsors

The Open Source Definition

Introduction

Open source doesn't just mean access to the source code. The distribution terms of open-source software must comply with the following criteria:

- 1. Free Redistribution**

The licensee shall not restrict any party from selling or giving away the software as a component of an aggregate software distribution containing programs from several different sources. The licensee shall not require a royalty or other fee for such sale.
- 2. Source Code**

The program must include source code, and must allow distribution in source code as well as compiled form. Where some form of a product is not distributed with source code, there must be a well-publicized means of obtaining the source code for no more than a reasonable reproduction cost preferably, downloading via the Internet without charge. The source code must be the preferred form in which a programmer would modify the program. Deliberately obfuscated source code is not allowed. Intermediate forms such as the output of a preprocessor or translator are not allowed.
- 3. Derived Works**

The licensee must allow modifications and derived works, and must allow them to be distributed under the same terms as the license of the original software.
- 4. Integrity of The Author's Source Code**

The licensee may restrict source code from being distributed in modified form only if the licensee allows the distribution of "patch files" with the source code for the purpose of modifying the program at build time. The licensee must explicitly permit distribution of software built from modified source code. The licensee may require derived works to carry a different name or version number from the original software.
- 5. No Discrimination Against Persons or Groups**

The licensee must not discriminate against any person or group of persons.
- 6. No Discrimination Against Fields of Endeavor**


The licensee must not restrict anyone from making use of the program in a specific field of endeavor. For example, it may not restrict the program from being used in a business, or from being used for genetic research.
- 7. Distribution of License**

The rights attached to the program must apply to all to whom the program is redistributed without the need for execution of an additional license by those parties.
- 8. License Must Not Be Specific to a Product**




The rights attached to the program must not depend on the program's being part of a particular software distribution. If the program is extracted from that distribution and used or distributed within the terms of the program's license, all parties to whom the program is redistributed should have the same rights as those that are granted in conjunction with the original software distribution.
- 9. License Must Not Restrict Other Software**

The licensee must not place restrictions on other software that is distributed along with the licensed software. For example, the licensee must not insist that all other programs distributed on the same medium must be open-source software.
- 10. License Must Be Technology-Neutral**

No provision of the license may be predicated on any individual technology or style of interface.



OpenSource.org site content is licensed under a [Creative Commons Attribution 3.0 License](#) | [Terms of Service](#)



SOFTWARE PRODUCTIVITY GROUP

“Open Source” é mais popular que “Free Software”



Diferenças e Semelhanças entre FS e OSS



Em pouquíssimas palavras...

A democracia é um direito moral

vs

A democracia é o sistema mais
eficiente que se conhece



Pragmaticamente

- Práticas **indistinguíveis**
 - Principalmente após “The Cathedral and the Bazaar”
- Amplo espectro de pontos de vista
- Dois meios de atingir o mesmo fim



Aspectos Econômicos de Software Livre e de Código Aberto



Eu posso vender software livre? E de código aberto?

Resposta curta: **SIM!**

Na prática

- Não faz sentido
- E cobrar por instalações em máquinas, pode?
- Restringir uso comercial?



Por que se contribui com Software Livre?

- 1 Explicação ultrapassada:
Economia de Dom (*gift economy*)
 - Em particular, justifica a ação de **voluntários**
- 2 Não explica tão bem o interesse de corporações
 - Economia de **escassez**, teoricamente
 - Por que **gastar dinheiro** em algo disponível gratuitamente?
 - Por que alguém **abriria** o código do seu produto?



Um *potlach* dos Kwakwaka'wakw

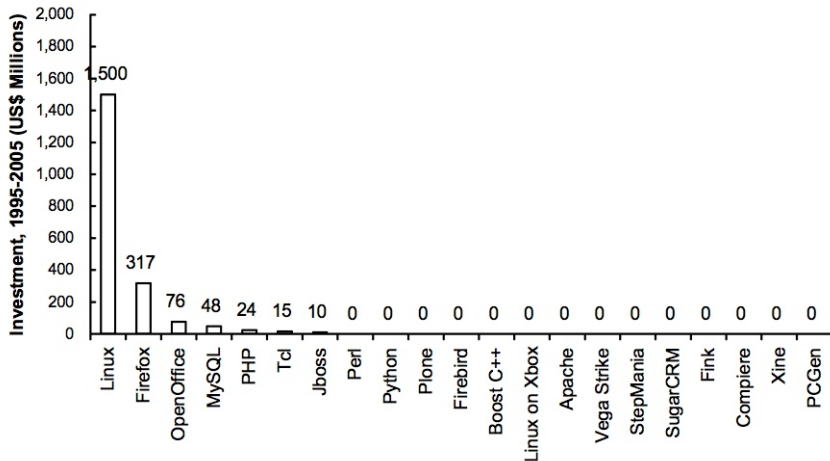
Free as in free beer?

- 1 A IBM gastou, entre 1995 e 2005, US\$ 1bi no Linux
 - Para fins de desenvolvimento e promoção
- 2 A Oracle (graças a **aquisições**) **era** dona, em 2010, de
 - MySQL
 - Java
 - Berkeley DB
 - OpenOffice
 - VirtualBox
- 3 O Google desenvolveu um dos melhores Web Browsers
 - E **abriu ele**, via projeto Chromium
 - Incluindo o **engenho V8** para JavaScript



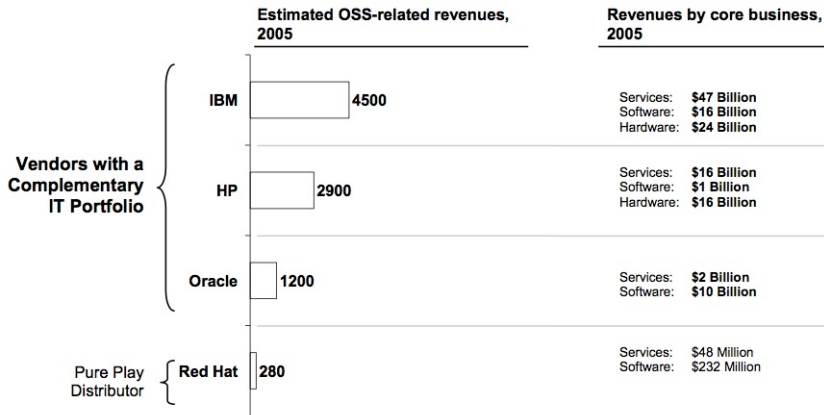


Investimento em projetos FLOSS, por projeto

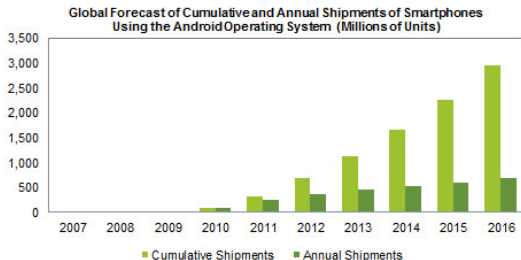


Receita relacionada a FLOSS vs. receita por área

Corporações não tem fins humanitários...



Smartphones com o sistema Android



Source: IHS iSuppli/Screen Digest Research September 2012

Cada um desses smartphones...

- é um ponto de entrada para pessoas conectarem-se à Internet;
- funciona bem com as ferramentas do Google;
- e coleta informações que o Google pode usar!

Dois pontos de vista complementares

Software pode ou não ser um diferencial de negócios

- 1 Software livre não é a principal fonte de receita para IBM, HP ou Google
- 2 Mas **ajuda a dividir custos e riscos** para produtos que **não são um diferencial de negócios**
- 3 Se software não é a diferenciação, é um centro de **custo**, não de lucros

Tecnologia meio vs. tecnologia fim

- 1 Software pode ser uma tecnologia “possibilitadora”
- 2 Desenvolvimento de software proprietário é uma **minoria**
 - Menos de 10% das vagas para desenvolvimento de software
 - Mais de 70% estão em empresas que são “usuárias de TI”

Como Você Pode se Beneficiar?



Pode aumentar sua empregabilidade!

Education

Experience

- *September 2009 - December 2009.* Travelled from Japan to England without flying.
- *December 2008 - September 2009.* Mathematical Systems, Tokyo: statistical software consultancy. Member of Knowledge Engineering team doing custom development in Common Lisp for NTT.
 - Monitoring system for large numbers (100k) of routers, with Holt-Winters' seasonal exponential time series forecasting to detect aberrations.
 - Visualisation of large (cyclic) directed graphs by condensing nodes while attempting to preserve the graph structure.
 - Efficient storage and retrieval of routing tables.
 - Portable persistent memory-mapped object database integrating into Lisp object system with the Meta-Object Protocol (MOP), including a precise compacting garbage collector and atomic transactions ([manardb](#)).
- *January 2006 - November 2008.* Travelled in the Middle East, South East Asia, China, North Korea, India, and Japan.
- *October 2004 - December 2005.* Alphamosaic (bought by Broadcom), Cambridge: semiconductor company specialising in low-power video. Engineer on the software research team.
 - Embedded C software development: system-wide and video codec performance optimization, dynamic DMA resource management infrastructure, lightweight reliable mutual exclusion without malloc, H.264 video decode (dramatically increased performance of an already heavily optimized system, directly benefiting the video iPod project), virtual filesystem layer, device drivers.
 - Algorithm evaluation for hardware design: image sensor pipeline (image processing in Matlab), and simulated performance of different i-cache and d-cache sizes and associativities.
 - On-site customer support at Samsung on DMB (mobile TV) phone project. Starting with a dysfunctional project, rebuilt trust with Samsung.
 - High-level ASIC design and software emulation of components for next generation platform (JPEG acceleration).
- *Winter 2003.* Volunteer at NGO wifi ISP in Mozambique.
- *Easter 2003.* Hospital in Bethlehem. Volunteer IT system administrator. Continued regularly until 2007.
- *2002-2004.* Trinity College Students' Union.
- *2001-2002.* Cambridge University Computing Society. Chairman.
- *Summer 2000.* Linux Information Systems AG, Munich: productivity software start-up. Intern.
- *Spring 2000.* Linux kernel. Contributor. USB driver for a scanner; accepted and integrated into the Linux kernel ([drivers/usb/misc/rotoc.c](#)). Userspace program to assist reverse engineering ([usb-robot](#)).
- *1998.* Unreleased game framework in C++ with dynamic code generation.

Recent hobby projects

- [lopecode2](#), a high-performance web application platform in Common Lisp, directly calling Linux system calls. Benchmarked serving more than 10k dynamically generated pages per second on one processor core.
- [dysfuncky.com](#), ranked seventh out of about three hundred teams in the ICFP 2009 programming competition.



Pode aumentar sua empregabilidade!

Education

Experience

- *September 2009 - December 2009.* Travelled from Japan to England without flying.
- *December 2008 - September 2009.* Mathematical Systems, Tokyo: statistical software consultancy. Member of Knowledge Engineering team doing custom development in Common Lisp for NTT.
 - Monitoring system for large numbers (100k) of routers, with Holt-Winters' seasonal exponential time series forecasting to detect aberrations.
 - Visualisation of large (cyclic) directed graphs by condensing nodes while attempting to preserve the graph structure.
 - Efficient storage and retrieval of routing tables.
 - Portable persistent memory-mapped object database integrating into Lisp object system with the Meta-Object Protocol (MOP), including a precise compacting garbage collector and atomic transactions ([manardb](#)).
- *January 2006 - November 2008.* Travelled in the Middle East, South East Asia, China, North Korea, India, and Japan.
- *October 2004 - December 2005.* Alphamosaic (bought by Broadcom), Cambridge: semiconductor company specialising in low-power video. Engineer on the software research team.
 - Embedded C software development: system-wide and video codec performance optimization, dynamic DMA resource management infrastructure, lightweight reliable mutual exclusion without malloc, H.264 video de-code (dramatically increased performance of an already heavily optimized system, directly benefiting the video iPod project), virtual filesystem layer, device drivers.
 - Algorithm evaluation for hardware design: image sensor pipeline (image processing in Matlab), and simulated performance of different i-cache and d-cache sizes and associativities.
 - On-site customer support at Samsung on DMB (mobile TV) phone project. Starting with a dysfunctional project, rebuilt trust with Samsung.
 - High-level ASIC design and software emulation of components for next generation platform (JPEG acceleration).
- *Winter 2003.* Volunteer at NGO with ISP in Mozambique.
- *Easter 2003.* Hospital in Bethlehem. Volunteer IT system administrator. Continued regularly until 2007.
- 2002-2004. Trinity College Students' Union.
- 2001-2002. Cambridge University Computing Society. Chairman.
- *Summer 2000.* Linux Information Systems AG, Munich: productivity software start-up. Intern.
- *Spring 2000.* Linux kernel. Contributor. USB driver for a scanner, accepted and integrated into the Linux kernel ([drivers/usb/misc/retrotek.c](#)). Userspace program to assist reverse engineering ([usb-robot](#)).
- 1998. Unreleased game framework in C++ with dynamic code generation.

Recent hobby projects


- [icepdec2](#), a high-performance web application platform in Common Lisp, directly calling Linux system calls. Benchmarked serving more than 10k dynamically generated pages per second on one processor core.
- [dysfuncky.com](#), ranked seventh out of about three hundred teams in the ICFP 2009 programming competition.



- *Spring 2000*. Linux kernel. Contributor. USB driver for a scanner; accepted and merged (drivers/usb/microtek.c). Userspace program to assist reverse engineering (usb-r



Há muitas oportunidades para trabalhar com FLOSS!

 **CAREERS 2.0**
by stackoverflow

[home](#) [search jobs](#) [companies](#) [my profile](#) [for employers »](#)

368 jobs 151 company pages

368 Open Source jobs sort by: Search relevance

★ **Big Data Architect** 1 week ago

Bloomberg L.P. - New York, NY

The RoleWe are looking for individuals with experience in Big Data Technologies such as BigTable, Ha...

hadoop cassandra rdbms cloud open-source

★ **Innovation Engineer** 2 weeks ago

Consumer Reports - New York, NY

The Innovation Engineer is a key role in the TIC (Technology Innovation Center) located in New York City...

frontend api backend open-source agile

★ **Analyst/Programmer (Foundation) - Library** 1 week ago

California State University San Marcos - San Marcos, CA

California State University San MarcosAnalyst/Programmer (Foundation)LibraryUnder the direction of the...

★ **Software Engineer** 2 days ago

CrowdSurge - New York City, NY

ABOUT US:Our company was established in January 2008 to provide white-label e-commerce softwar...

go c c++ python java

★ **Senior Mobile Software Architect** 1 week ago

Jun Group Productions LLC - New York City, NY

Writing code is like writing a novel. It's an art form that many practice but few can do well. So who's...

ruby ruby java rails javascript

★ **Senior Software Engineer, DevOps -000000099674** 2 days ago

Nokia - Berlin, Germany

HERE, a Nokia business, offers the world's freshest maps and location experiences across multiple...

splunk cmake linux c++ python

search jobs

what "open source"

where city, country or zip code

distance (use slider) 20 miles

☐ Work remotely

☐ Offers relocation

search view all

company spotlight

StackExchange

Join the team that brought you Stack Overflow, Server Fault, Careers 2.0 and the Stack Exchange network.

[View Stack Exchange job listings](#)

Looking for a job?

Create a Careers 2.0 profile and let employers come to you.

- Employers search our database and contact you
- Import easily from LinkedIn
- Link to Stack Overflow, GitHub, CodePlex and more

Há muitas oportunidades para trabalhar com FLOSS!

[Find Jobs](#) [Find Resumes](#) [Employers / Post Job](#)



what:

Open Source developer

job title, keywords or company

where:

city, state, or zip

Find Jobs

[Advanced Job Search](#)

Open Source developer jobs

My recent searches

[Open Source](#) - 8,467 new

[Open Source Developer](#) - 2,084 new

[clear searches](#)

Sort by: **relevance** - [date](#)

Salary Estimate

\$50,000+ (6797)

\$70,000+ (4839)

\$90,000+ (2468)

\$110,000+ (1026)

\$130,000+ (463)

Title

Company

Location

Job Type

Employer/Recruiter

Tip: Enter your zip code in the "where" box to show results in your area.

[Upload your resume](#) - Let employers find you

Jobs 1 to 10 of 7,624

Lightweight App Server

[www.ibm.com/open_plus](#) Speed App Development & Deployment w/Liberty & WebSphere App Servers.

Ads

Open-Source Test Software

[www.kulanaqa.com/](#) Wraps Selenium, TestNG, SoapUI & More. Free Download & Support!

Accenture Linux Jobs

[www.accenture.com/](#) Careers for Linux Experts. Develop Your Potential at Accenture

Show: **all jobs** - [2,084 new jobs](#) - [only "Easy Apply" jobs](#)

Open Source Developer - new

Scholastic ***** [97 reviews](#) - New York, NY

The Digital Services Group of Scholastic, Inc is seeking a full time **Open Source Developer** to assist in the creation and management of **Open Source** development...

1 day ago - [save job](#) - [email](#) - [more...](#)

Senior Open Source Developer - new

Samsung Information Systems America, Inc. (SISA) ***** [400 reviews](#) - San Jose, CA
reviewer, maintainer, etc., and have a passion for **open source** software, enjoy collaborating with the global community of **open source** developers, and...

Samsung - 6 days ago - [save job](#) - [email](#) - [more...](#)

Senior Open Source Web Developer - Oldham - £35k - new

Stephen James Consulting - Alabama

Our client a leading multi-faceted technology company are searching for a Senior **Open Source Web Developer** to be responsible for developing innovative, reusable... \$30,000 - \$35,000 a year
Loffredemploi - 5 days ago - [save job](#) - [email](#) - [more...](#)

Open Source Software Developer - new

HireNetworks - Durham, NC

Job Responsibilities of the **Open Source Software Developer** include: Translation of business requirements into working code.... \$70,000 - \$100,000 a year

5 days ago - [save job](#) - [email](#) - [more...](#)

☒ Get new jobs for
by email

My email:

You can cancel email alerts at any time.



Sua empresa pode economizar!

BLACK DUCK SOFTWARE ESTIMATES DEVELOPMENT COST OF OPEN SOURCE SOFTWARE AT \$387 BILLION



Reuse of Open Source Software Could Save U.S. Companies \$22 Billion a Year

WALTHAM, Mass., April 14, 2009 - Black Duck Software, a leading provider of products and services for accelerating software development through the managed use of open source software (OSS), estimates the total development cost of open source software at more than \$387 Billion U.S.

To put this figure into perspective, the cost to develop open source software code is equivalent to nearly 50 percent of the U.S. government's recently passed stimulus bill, the \$787 billion "American Recovery and Reinvestment Act."

Black Duck Software has the industry's most comprehensive database of open source software and related metadata. According to the company's research, there are over 200,000 open source projects representing over 4.9 billion lines of code. Using its detailed knowledge of open source projects and applying standard industry cost estimation techniques, Black Duck estimates that the total development cost of OSS exceeds \$387 billion and represents a collective investment of more than two million developer years.

An additional analysis, which estimates that 10 percent of IT application development spending is redundant with existing open source projects, indicates U.S. companies could realize savings of more than \$22 billion a year through the reuse of OSS in application development.

Sua empresa pode economizar!

BLACK DUCK SOFTWARE ESTIMATES DEVELOPMENT COST OF OPEN SOURCE SOFTWARE AT \$387 BILLION



Reuse of Open Source Software Could Save U.S. Companies \$22 Billion a Year

WALTHAM, Mass., April 14, 2009 - Black Duck Software, a leading provider of products and services for accelerating software development through the managed use of open source software (OSS), estimates the total development cost of open source software at more than \$387 Billion U.S.

To put this figure into perspective, the cost to develop open source software code is equivalent to nearly 50 percent of the U.S. government's recently passed stimulus bill, the \$787 billion "American Recovery and Reinvestment Act."

Black Duck Software has the industry's most comprehensive database of open source software and related metadata. According to the company's research, there are over 200,000 open source projects representing over 4.9 billion lines of code. Using its detailed knowledge of open source projects and applying standard industry cost estimation techniques, Black Duck estimates that the total development cost of OSS exceeds \$387 billion and represents a collective investment of more than two million developer years.

An additional analysis, which estimates that 10 percent of IT application development spending is redundant with existing open source projects, indicates U.S. companies could realize savings of more than \$22 billion a year through the reuse of OSS in application development.

Obrigado!

Resumo

- **(0)** executar, **(1)** estudar e modificar, **(2)** distribuir e **(3)** distribuir versões modificadas
- Software Livre e Software de Código Aberto são dois lados da mesma moeda
- Vale a pena abrir o código para
 - ① software que **não é um diferencial** de negócios
 - ② software que é uma **tecnologia possibilitadora** para vários negócios
- Há muitas formas de se beneficiar profissionalmente com FLOSS

Contato: castor arroba cin.ufpe.br

Slides: http://github.com/fernandocastor/talk_a_bit

Licença



Você tem o direito de:

Compartilhar — copiar e redistribuir o material em qualquer formato

Adaptar — remixar, transformar, e criar a partir do material

De acordo com os seguintes termos:

Attribution — Você deve atribuir o devido crédito, fornecer um link para a licença e indicar se foram feitas alterações. Você pode fazê-lo de qualquer forma razoável, mas não de uma forma que sugira que o licenciante o apoia ou aprova o seu uso.

NonCommercial — Você não pode usar o material para fins comerciais.

ShareAlike — Se você remixar, transformar ou criar a partir do material, tem de distribuir suas contribuições sob a mesma licença