Open Source and Security

for the SSA National Capital Chapter

Sept 18, 2012

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Black Duck
Enabling Multi-Source Development at Enterprise Scale

OSS Abundance

- Over **650,000** projects; **>3M** person-years of development
- 85% of enterprises use OSS
- >60% lack policy, automation

Challenges:

- Selection
- Compliance
- Management

Vision: The Vendor that….

- **Organizations** trust for complete lifecycle management of FOSS in product app development

- **Developers** seek out as trusted source of FOSS knowledge (Ohloh.net)

Enterprise-Scale Solution

- Automates selection, approval, governance & secure use of FOSS
- Let's you "design-in" compliance
- Integrates with existing ALM tools & processes
- Scalable, extensible

Success

1000 Customers in 24 Countries

Know Your Code.™

Agenda

- **The Ubiquity of Open Source**
- Open Source Definition and Challenges
- Open Source and Security
- Conclusions / Q&A

First of all…

"Software is Eating the World"

Marc Andreessen (Netscape Founder)

August '11, Wall Street Journal

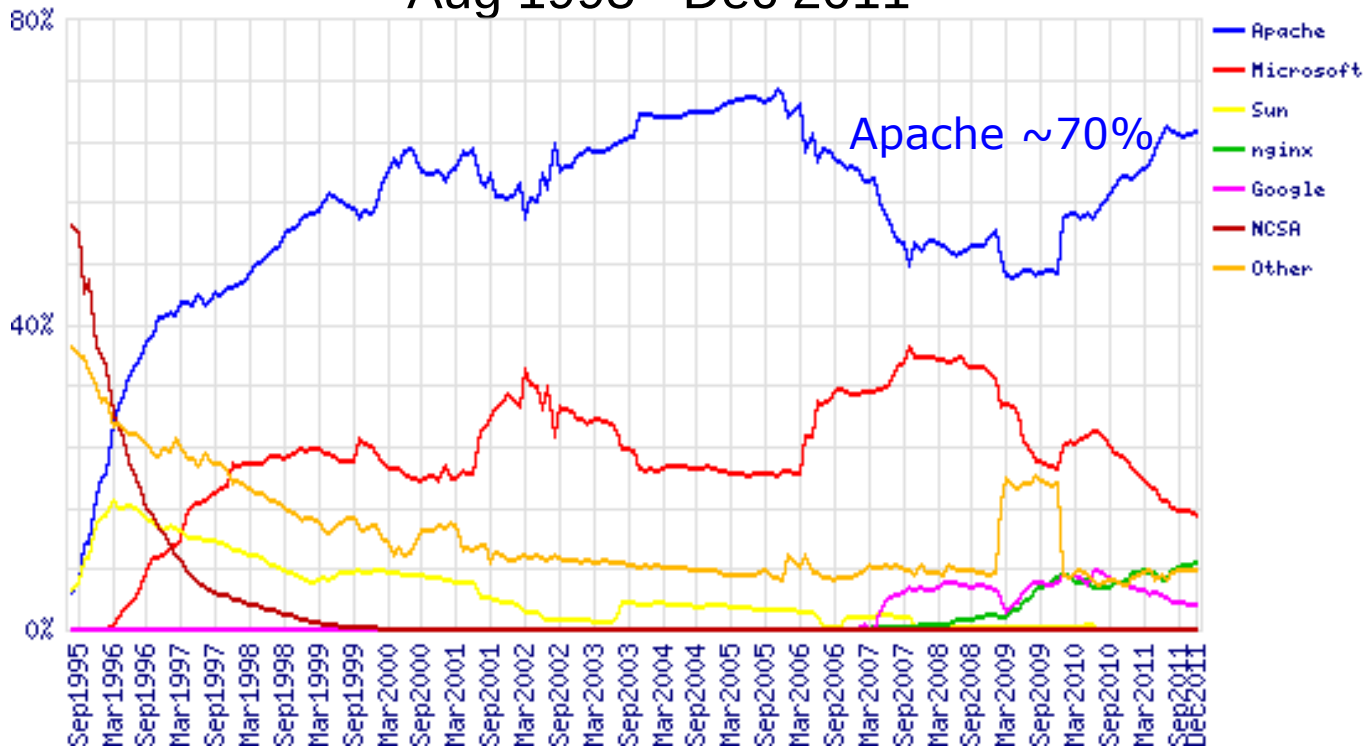
And there's a growing appetite for open source…

"Open source is ubiquitous, it's unavoidable….having a policy against open source is impractical and **places you at a competitive disadvantage"** **Mark Driver, Gartner**

Open Source Usage

Total for Active Servers Across All Domains

Aug 1995 - Dec 2011



Source: Netcraft – December 2011

Open Source Usage

- OSS is a reality in today's IT ecosystem
  - It is in servers and sever applications
  - It is in hubs, routers, and other networking gear
  - It is in desktop applications
  - It is in portable phones and PDAs
  - …and even cars

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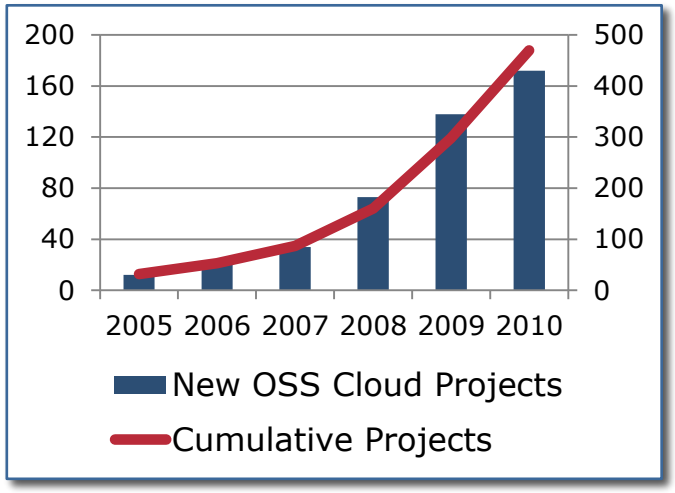
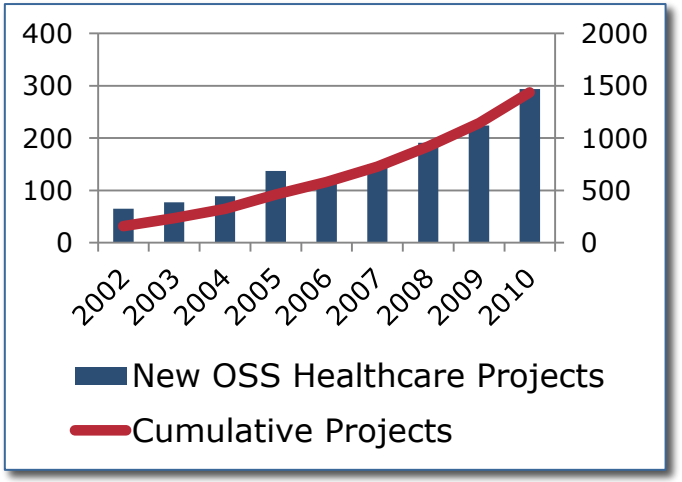
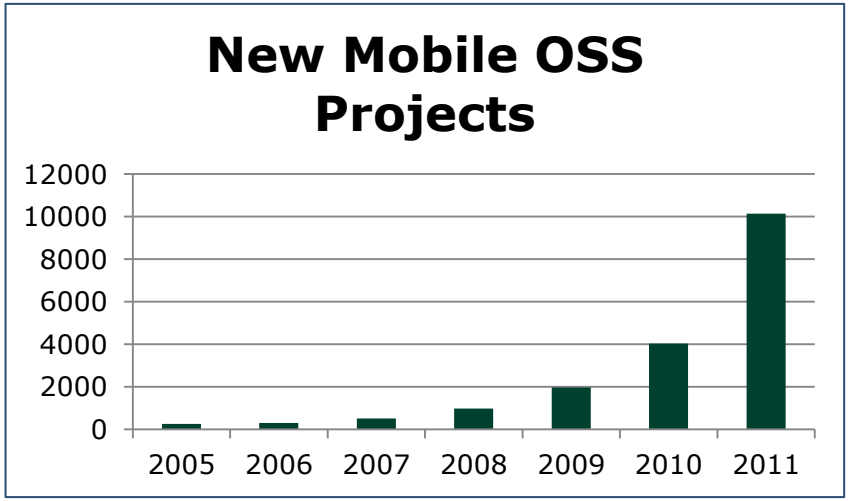
Wherever Software is Hot, Open Source is Hot







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Market Trends: OSS has gone Mainstream

- Accenture research on OSS (August 2010)
  - 73% of respondents: open source is changing the way business operates IT

- Forrester Research (Jeff Hammond, LinuxCon, Aug. 10, 2010)
  - "When it comes to Enterprise IT adoption, Open Source Has 'Crossed the Chasm'"
  - 79% of IT developers use open source in their development projects

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What is OSS?

- It's third party software

- No single "official" definition

- However…OSS is software licensed under an open source license. Open Source Initiative (OSI) definition http://www.opensource.org/

OSI License Definition (abbreviated)

- Must allow free redistribution
- Must make source code available
- Must allow derivative works
- No discrimination against people, groups or fields
- Must be non-product specific and technology neutral
- Can’t restrict other software (e.g. on same disk)

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Most Commonly Used Licenses

Rank	License	%
1.	GNU General Public License (GPL) 2.0	42.30%
2.	MIT License	11.50%
3.	Artistic License (Perl)	7.96%
4.	GNU Lesser General Public License (LGPL) 2.1	7.07%
5.	BSD License 2.0	6.81%
6.	GNU General Public License (GPL) 3.0	6.40%
7.	Apache License 2.0	5.51%
8.	Code Project Open 1.02 License	2.11%
9.	Microsoft Public License (Ms-PL)	1.90%
10.	Mozilla Public License (MPL) 1.1	1.02%
11.	GNU Lesser General Public License (LGPL) 3.0	0.88%
12.	Eclipse Public License (EPL)	0.71%
13.	Common Public License (CPL)	0.41%
14.	zlib/libpng License	0.35%
15.	BSD Two Clause License	0.34%
16.	Common Development and Distribution License (CDDL)	0.34%
17.	Academic Free License	0.31%
18.	Open Software License (OSL)	0.22%
19.	Microsoft Reciprocal License (Ms-RL)	0.21%
20.	Ruby License	0.19%

Source: http://www.blackducksoftware.com/osrc/data/licenses/#top20

DoD position on Open Source

- The "2009 memo" from David Wennergren, DoD CIO
- Open source is commercial software
- The DoD should always consider

> To effectively achieve its missions, the Department of Defense must develop and update its software-based capabilities faster than ever, to anticipate new threats and respond to continuously changing requirements. The use of Open Source Software (OSS) can provide advantages in this regard. This memorandum provides clarifying guidance on the use of OSS and supersedes the previous DoD CIO memorandum dated May 28, 2003 (reference (a)).

> a. In almost all cases, OSS meets the definition of "commercial computer software" and shall be given appropriate statutory preference in accordance with 10 USC 2377 (reference (b)) (see also FAR 2.101(b), 12.000, 12.101 (reference (c)); and DFARS 212.212, and 252.227-7014(a)(1) (reference (d))).

You have to use it; you have to manage it.

"Open source is ubiquitous, it's unavoidable….having a policy against open source is impractical and **places you at a competitive disadvantage"**

Gartner

- Key Benefits
  - Flexibility
    - Modify, mix, reuse code
  - Innovation
    - Leverage OSS and community
  - Cost Optimization
    - Reduce or eliminate acquisition costs
- Challenges
  - Technical Failure
    - Operational exposure
    - Needs to be audited, managed
  - Security Risks
    - Business exposure
  - IP Risks
    - Legal exposure

Source: Mark Driver, Gartner Group

Importance of Operational Management

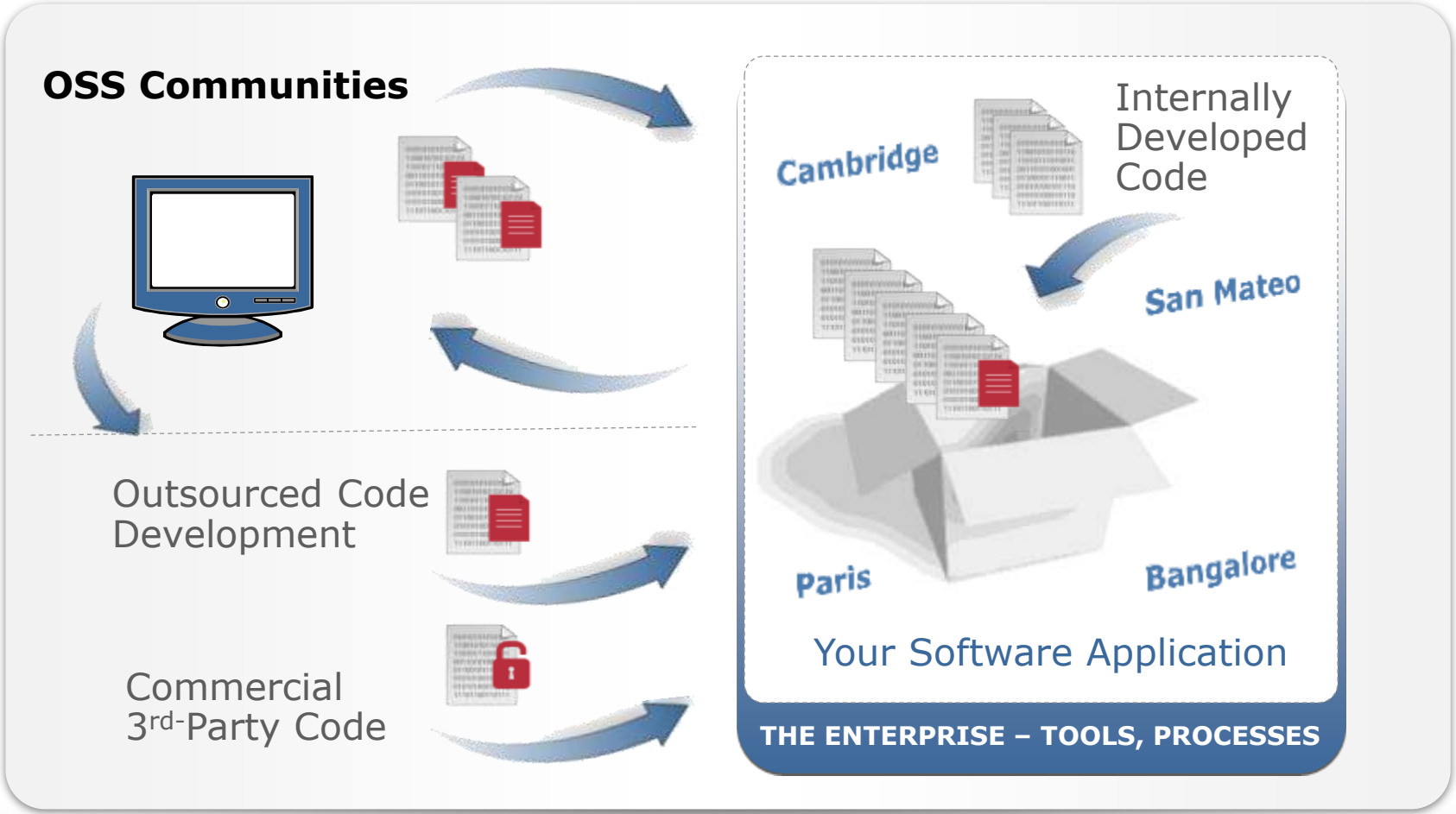
Gartner Research

Survey Analysis: Overview of Preferences and Practices in the Adoption and Usage of Open-Source Software

Average Enterprise uses 29% open source code.

50% of companies will face challenges due to lack of FOSS policy and management

This issue is not with “big chunks,” (Linux, Apache) it with custom development



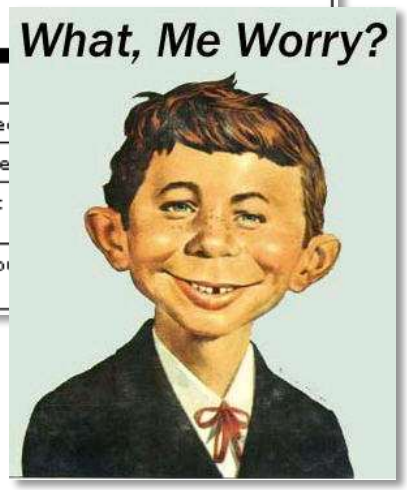
Root of General Concern with Open Source

- There are as many paths for code into a company as developers, so
- Most companies don't know what's in their code…often times despite believing they do
- Rough data gathered from Black Duck-performed audits
  - >20% of code we scan is open source
  - >90% of target code bases contain undisclosed open source code
  - >50% of code bases contain unknown or reciprocal licenses

Code Label	
Sendmail 8.12.11	
Code Base 5.870MB	
	% Content
Total Open Source 3.244MB	**55%**
Reciprocal as Components 0MB	0%
Reciprocal as Files 0MB	0%
Permissive 3.244MB	55%
Owned 0MB	0%
Total Proprietary 2.626MB	**45%**
Licensed 3rd Party 0MB	0%
Owned 2.626MB	45%
Total Unknown 0MB	

- BSD 2.0 <1%
- GPL 2.0 [modifie
- Sendmail License
- [template] Basic License 45%

Cannot be used for p
Production Use



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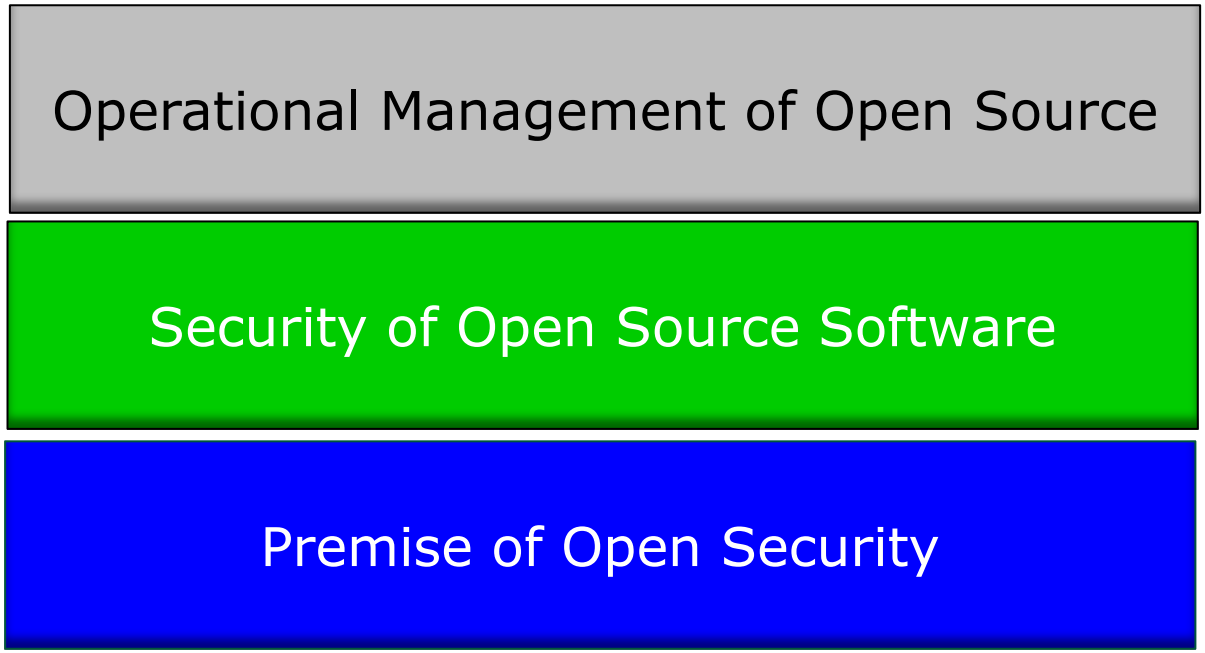
Open Source Security Issues "Stack"



Open Security and Open Source Software

- Open Security
  - Kirchhoff's Principle v. Security through Obscurity
  - By and large born out by experience
  - NVD example

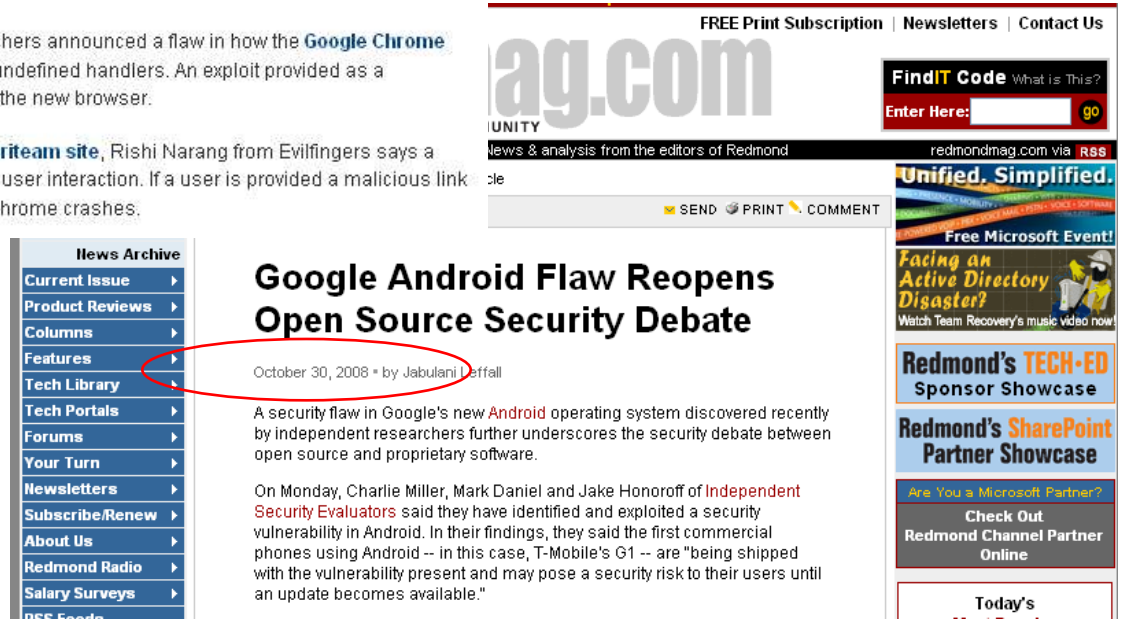
- Is Open Source Software secure?
  - Solid arguments on both sides
    - YES- Eyeballs, clear code, quick fix, social pressure
    - NO- Right eyeballs?, expertise?, time from exposure to fix
  - Reality
    - scan.coverity.com
    - Apache v. IIS
    - Linux, OpenSSL
  - OSS *can* be secure
    - Popularity is more the issue. – John Viega, CTO McAfee

Fundamental Sources of Risk

- OSS Abundance and Variation
  - >650K+ projects; multiple versions; 100B+ LoC
  - >5200 sites
  - >2000 licenses
  - Wide ranging in terms of security, quality, maintainability

- Inherent difficulty of control
  - 50% of companies don't have policies...fewer have governance
  - Individual developers doing what they do/ typically not trained
  - 99% of code bases contain unknown open source code
  - Tracking. Vulnerabilities may pop of after the developer is done
- Management Disconnect
  - Tacit "Don't ask; don't tell"
  - Without governance…they can't know

Well run companies screw this stuff up…



- These vulnerabilities discovered within 24 hours of release
- Easily avoided with the right solution

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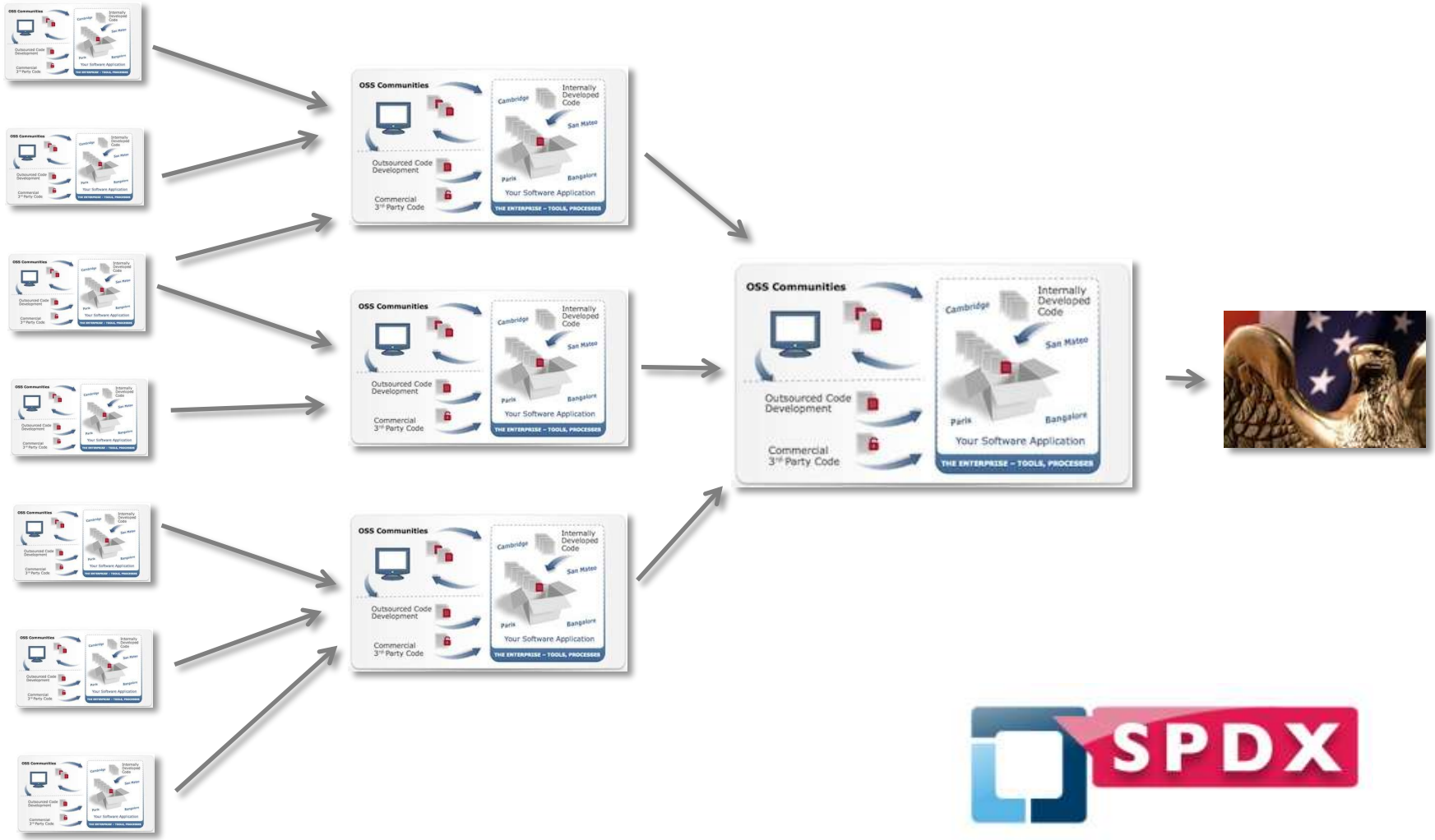
Supply Chain Just Complicates Further



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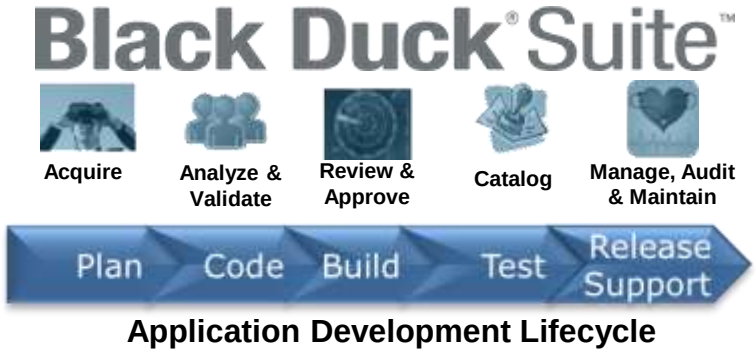
Conclusions

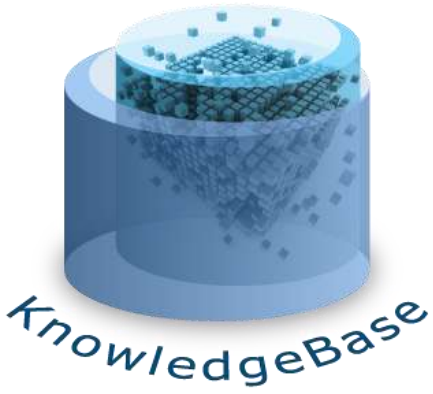
- Open Source *can* be secure
- Key is knowing what's in the code
- Requires
  - Policy (and developer education)
  - Processes (to keep them on track)
    - Including on going monitoring
  - Tools (for efficiency)
- Procurement Implications
  - Ask for "Bill of Materials"
  - SPDX standard
  - Probe into process behind

Technology Solutions

Automate Governance & Management; Designed-in Compliance



- Acquire, Scan, Analyze and Validate OSS and other Code
  - Make better choices acquiring code
- Identify Security Vulnerabilities
  - Ensure use of most secure FOSS components
- Configurable, Role-based Approval Workflow
  - Accelerate acquisition of new components
- Catalog Components
  - Validated, approved components eliminate redundancy, facilitate re-use
- Code Search
  - Find and track code in-use
- Integrates with Existing Development Tools
  - No need for changes to development environment



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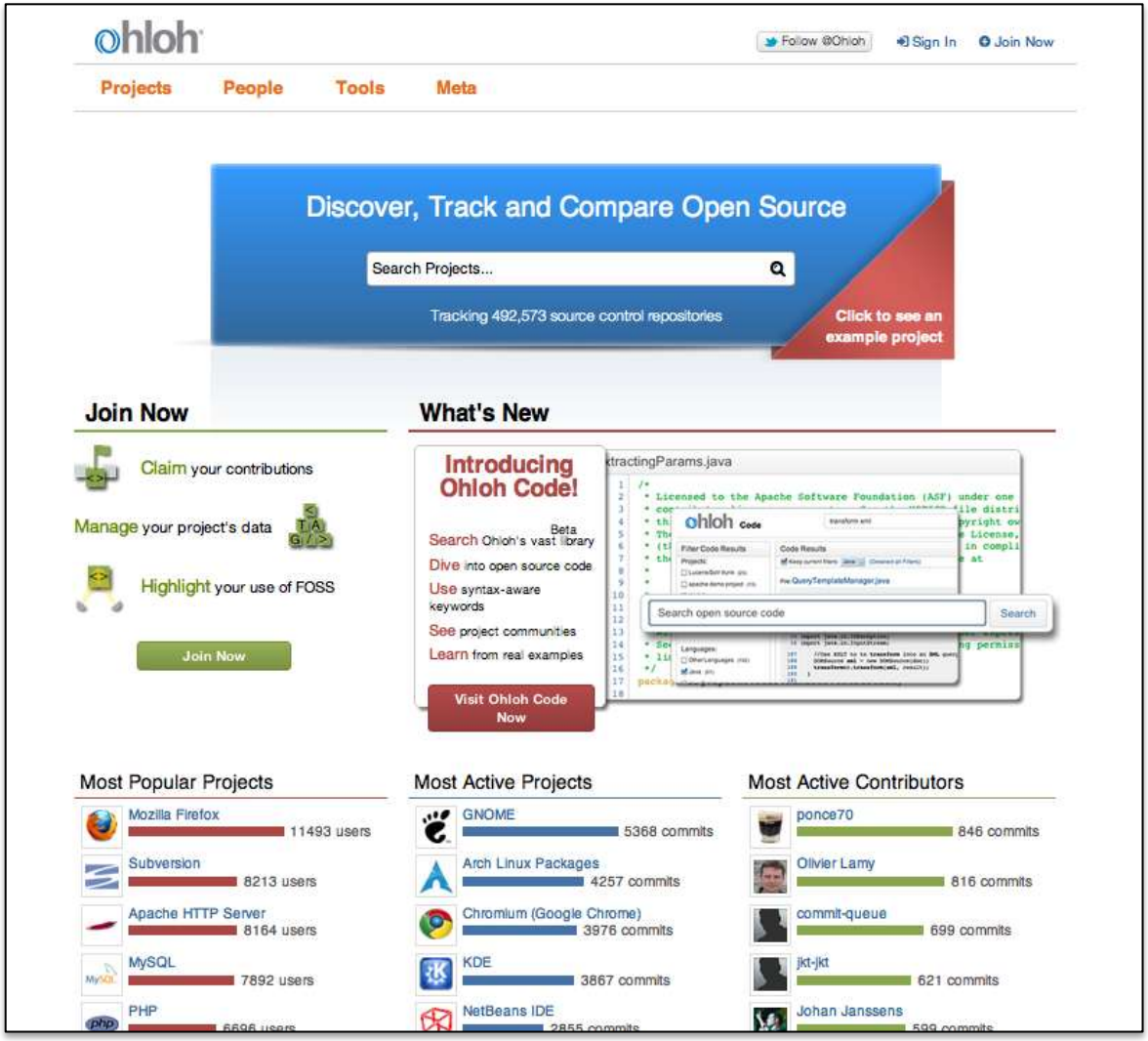
Free resource: Ohloh - Trusted Source for FOSS Project and Developer Content



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Questions