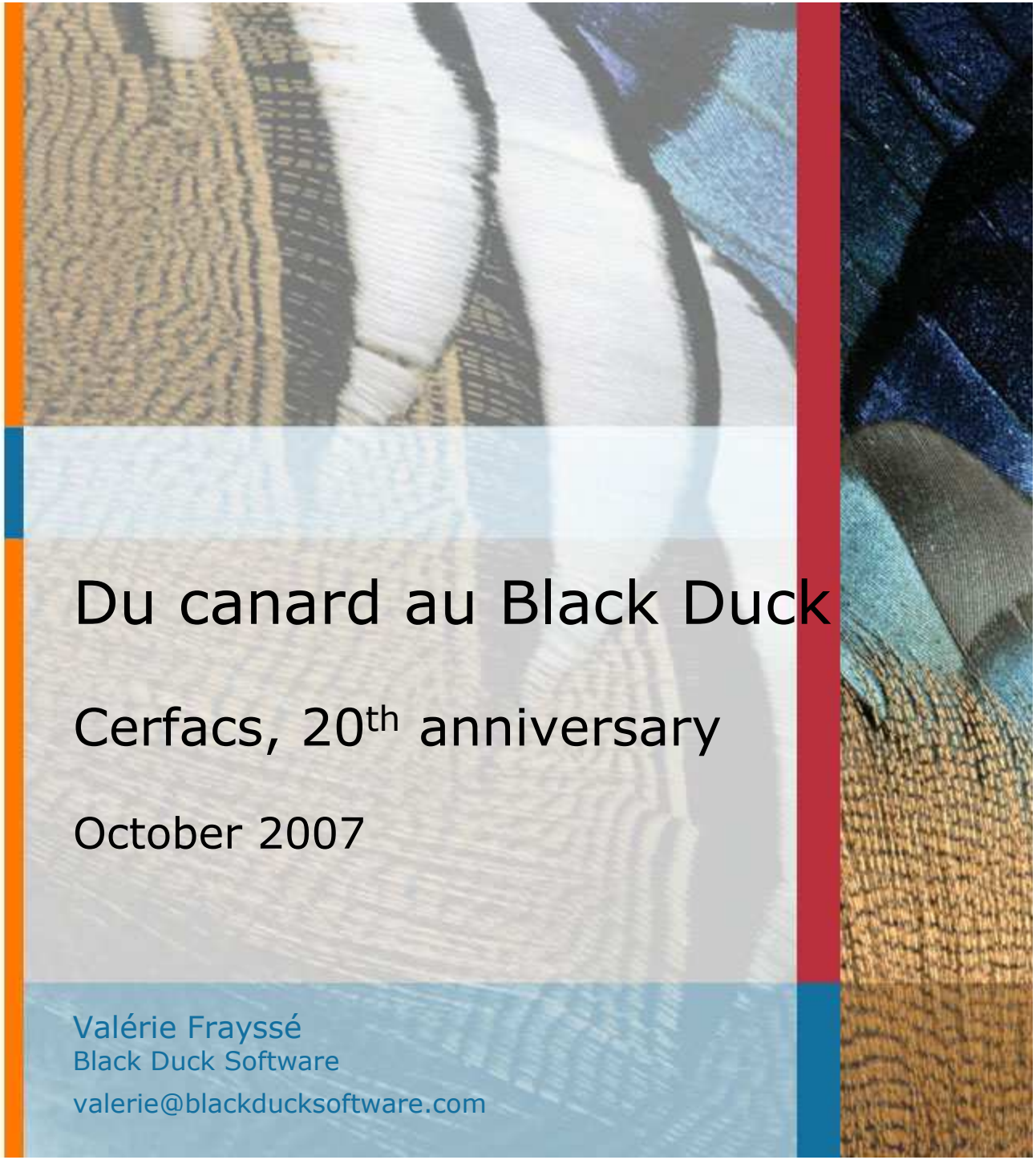


Du canard au Black Duck

Cerfacs, 20th anniversary

October 2007

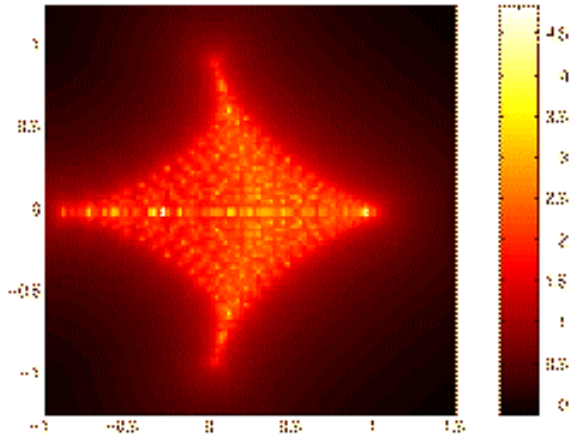
Valérie Frayssé
Black Duck Software
valerie@blackducksoftware.com

7 years ago, I had expertise in …

© www.chateau-bellevue-conserverie.com

The CERFACS years

- Turbulence
  - 1988 – 1989 – DEA trainee
- Parallel Algorithms Project – Qualitative Computing Group
  - 1989 – 1992 – PhD student
  - 1992 – 1994 – Post-Doc
  - 1994 – 2000 – Senior
- October 2000 – sabbatical



The connection

Alan Edelman (MIT, Thinking Machines, CERFACS, Akamai, Interactive Super Computing)

Palle Perdersen (Thinking Machines, Justa, (…), Kvasar, Black Duck)

Susanne Balle (Thinking Machines, Justa, HP)

Apply key concepts in supercomputing
distributed computing, sparse data, caching technologies
to the web

The Boston years

- 2000 – 2001 – Justa Technology Co
  - Web Site Content Management System
- 2001 – 2002 – Wallaware Inc.
  - Intelligent filtering and delivering of SMS content
- 2002 – now – Kvasar Technology LLC
  - Litle & Co,
    - network based secure payment system
  - Black Duck Software
    - Software compliance and IP management system

What is Open Source?

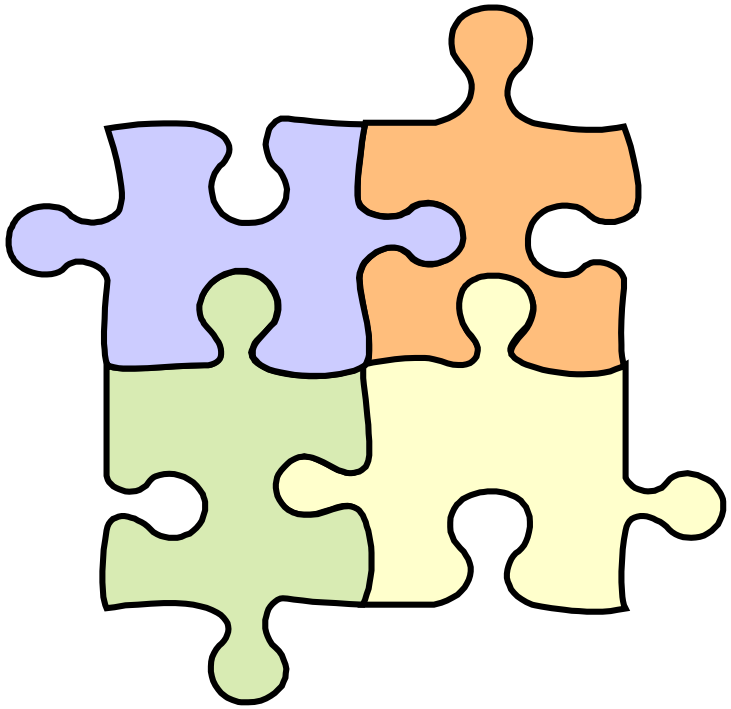
- Development model
  - Cathedral vs. bazaar
- Licensing model
  - Broad rights
    - Study, improve/modify, make derivative work, redistribute
  - *If* you distribute, abiding by open source terms is required:
    - Distribute source code
    - No charge
    - Includes derivative works, etc. ⇨ "viral"
- Business Model?

Why *Use* Open Source

- Extended developer community
- Higher degree of reliability
- Added features and functionality
- Accelerated product development
- Lower acquisition and support costs
- Faster time to market
- Compatibility with industry standards
- Freedom/not tied to vendor

Open Source Origins (the ’70s)

- 1960s: Academics share code
- 1970s: Unix (in synergy w/academia)
  - Kenneth Thompson, Dennis Ritchie

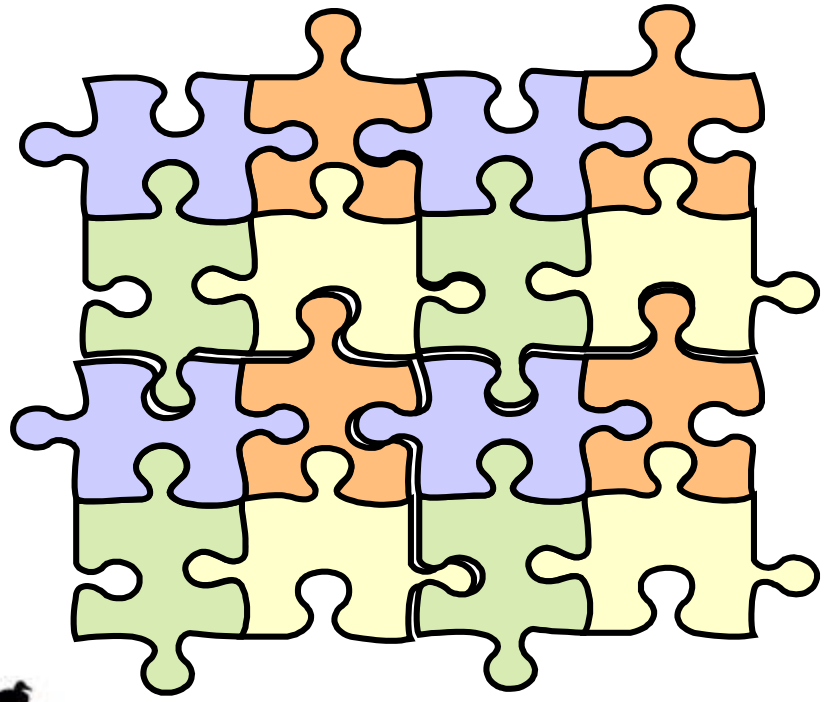


- Batch processing
- Databases
- Scientific Libraries
- Procedural Languages

Richard Stallman

Open Source Origins (the ’80s)

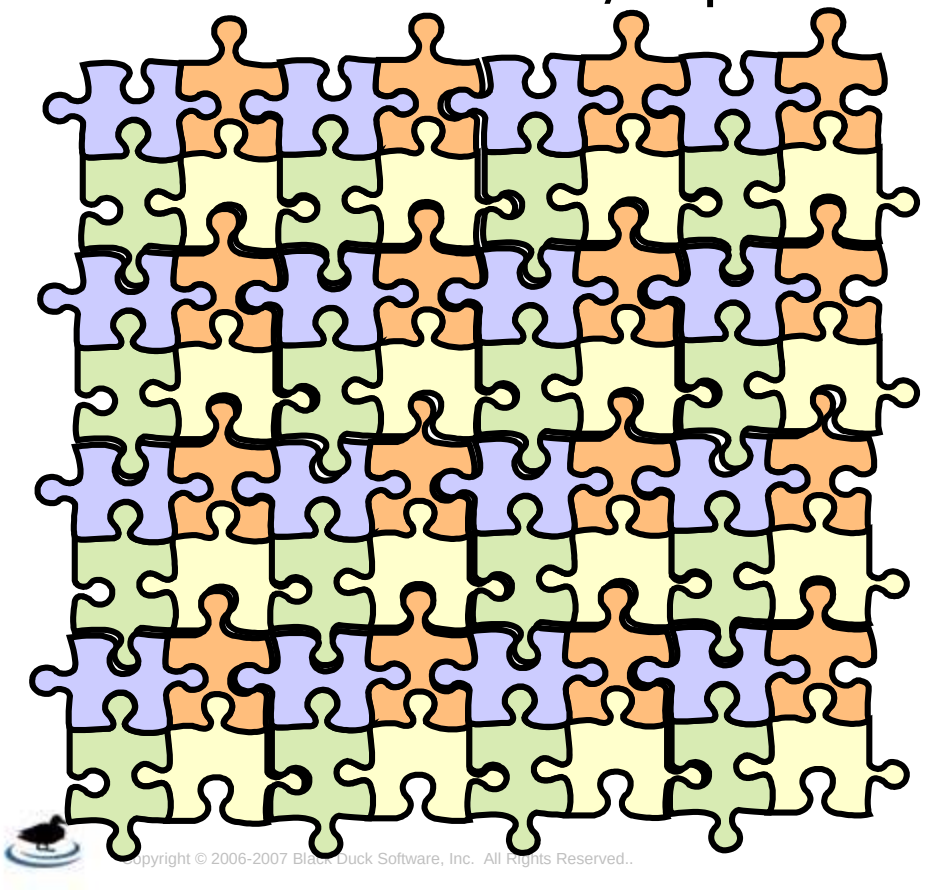
- 1984: Free Software Foundation
  - Richard Stallman
- 1989: GPL 1.0
- 1989: Cygnus Solutions
  - Michael Tiemann, John Gilmore, David Henkel-Wallace



- Interactive interfaces
- Graphics Libraries
- 4GLs & Databases
- Object-oriented
- CORBA
- Transaction monitors
- Virtual Basic

Open Source Origins (the ’90s)

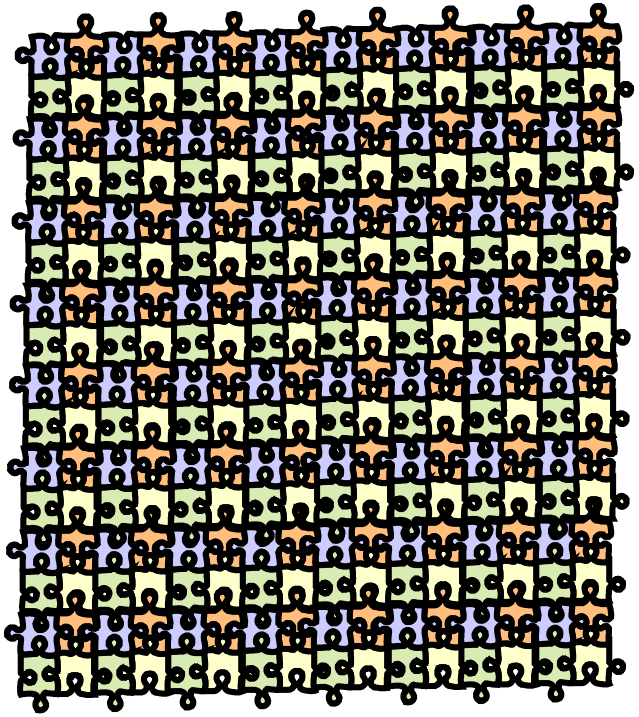
- 1991-3: GPL 2.0 / Linux / First Linux distributions
- 1995: Apache HTTP
- 1998-9: Mozilla / Apache Foundations



- The Internet
- Web browser UI
- Middleware
- Web servers
- J2EE
- Java
- HTML
- Linux & Apache
- RAD methods
- .net

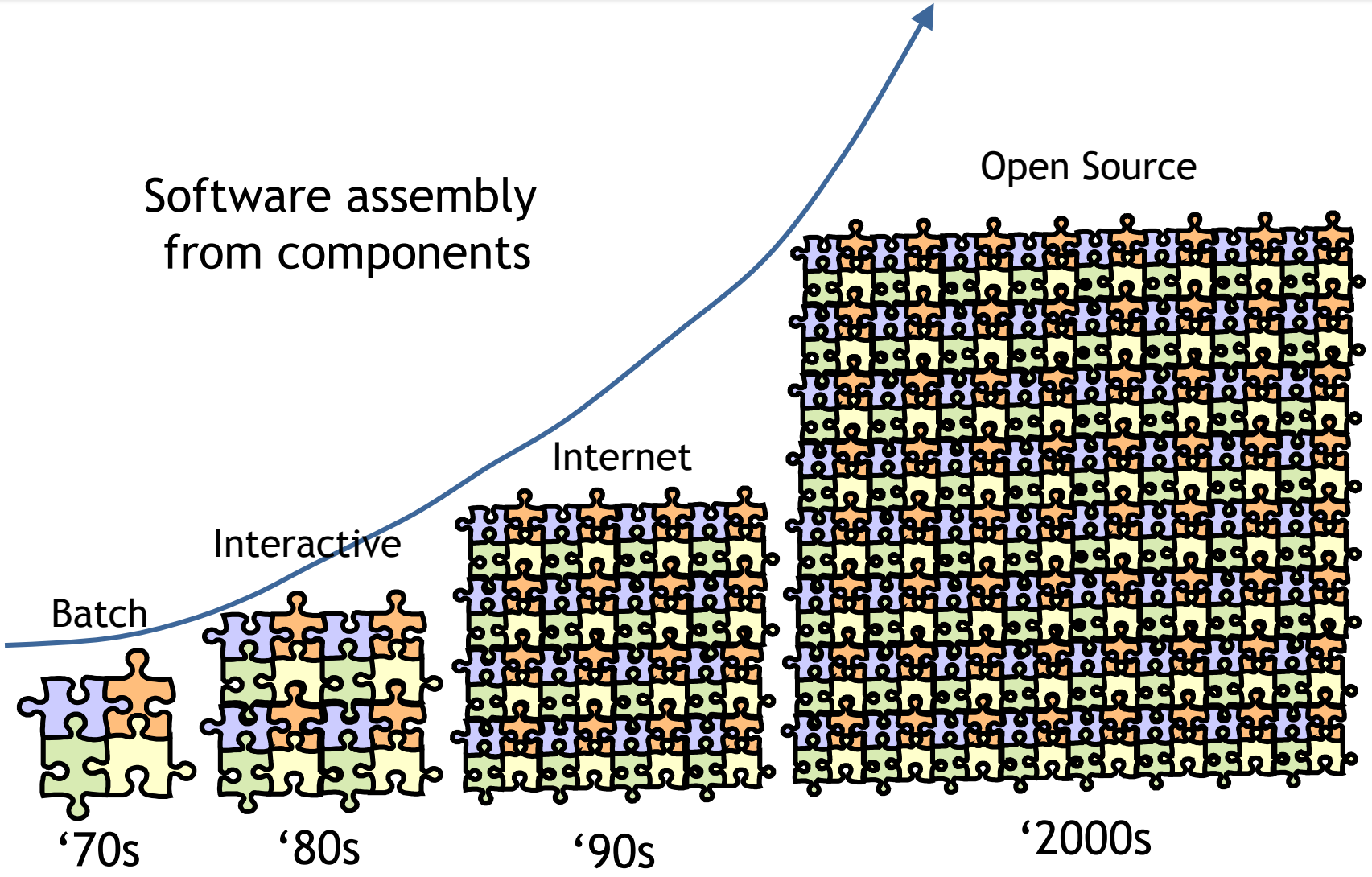
Open Source Origins (2000's)

- 2000: Open Source Development Labs (OSDL)
  - CA, Fujitsu, Hitachi, HP, IBM, Intel, Nippon Electric Corporation
- 2005: Open Invention Network (OIN)
  - IBM, Novell, Philips, Red Hat, Sony
- 2007: GPL 3.0

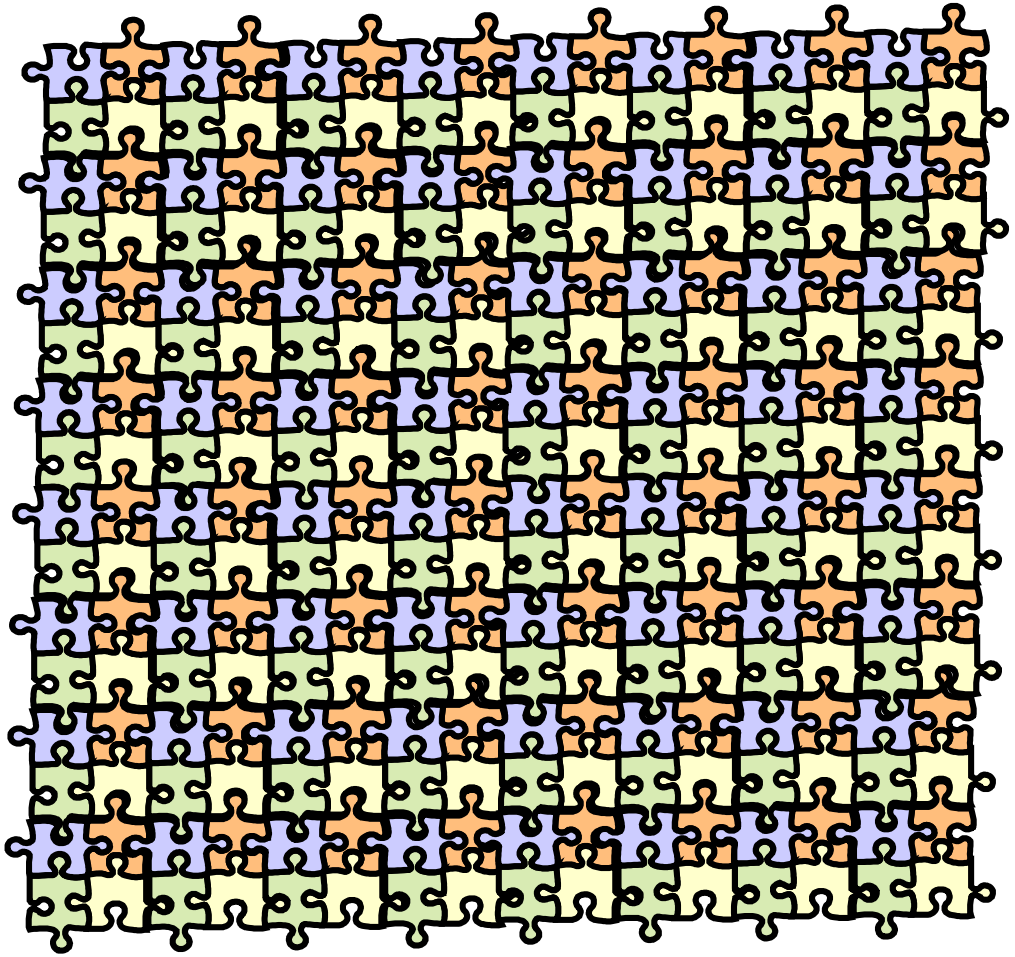


- Open Source
- SourceForge
- Web UI
- Middleware
- Servers
- LAMP stack
- Web services
- XML
- Extreme Programming

The Sea Change is Happening

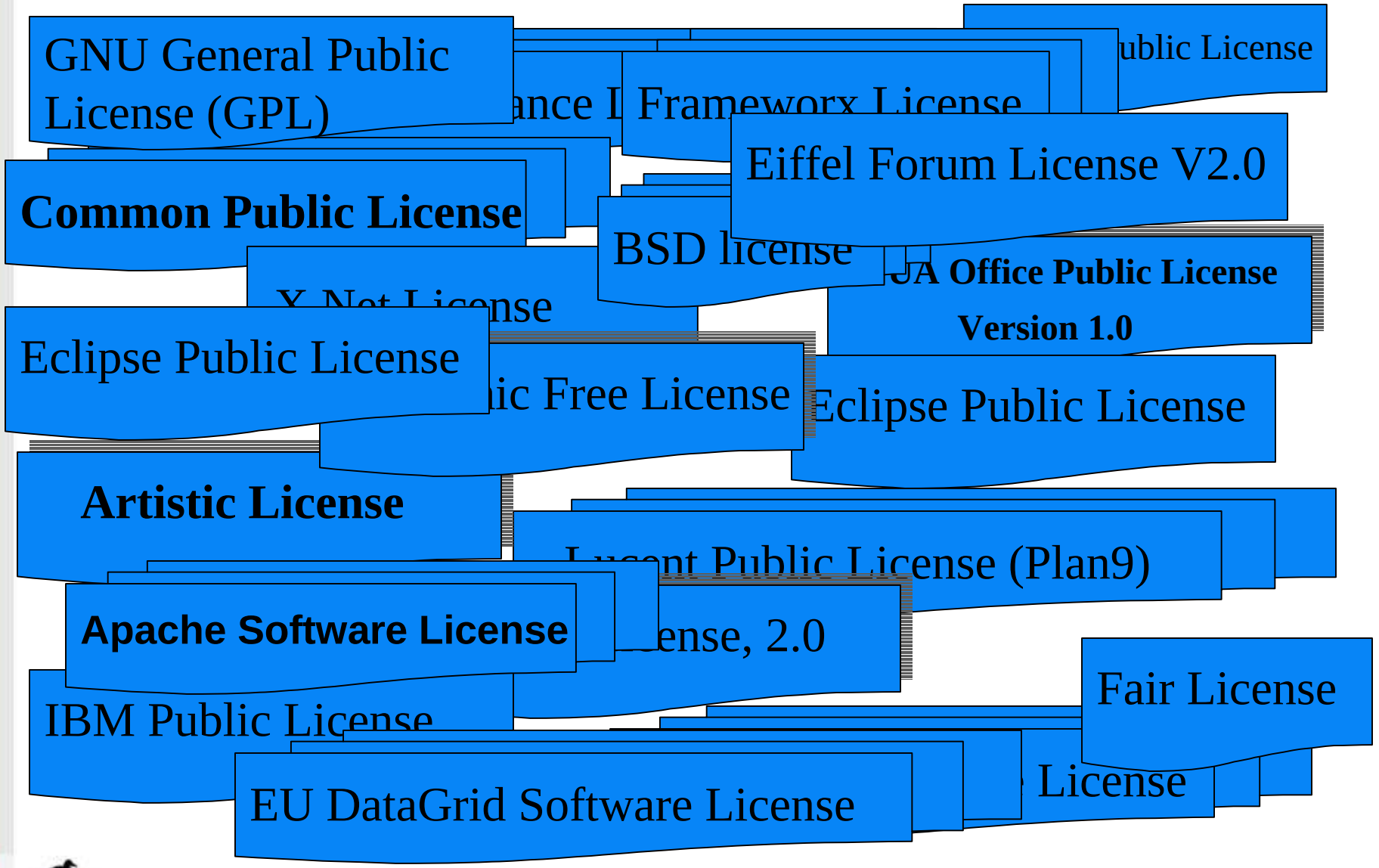


Complexity:
Each Component has Owner & License



- Who's code is this?
- What is in this release?
- What are the obligations?
- How to keep track?
- What is compatible?
- How to combine legally?

Many Open Source Licenses



Open source and numerical software

NA Digest Monday, August 27, 2007 Volume 07 : Issue 35

From: Stephen Boyd <boyd@stanford.edu>

Date: Wed, 22 Aug 2007 15:33:42 -0700

Subject: CVX 1.1 released

Version 1.1 of CVX, our MATLAB-based modeling package for disciplined convex programming, has been released. You are invited to download it From http://www.stanford.edu/~boyd/cvx/

(…)

CVX is free, open-source software (with GNU license).

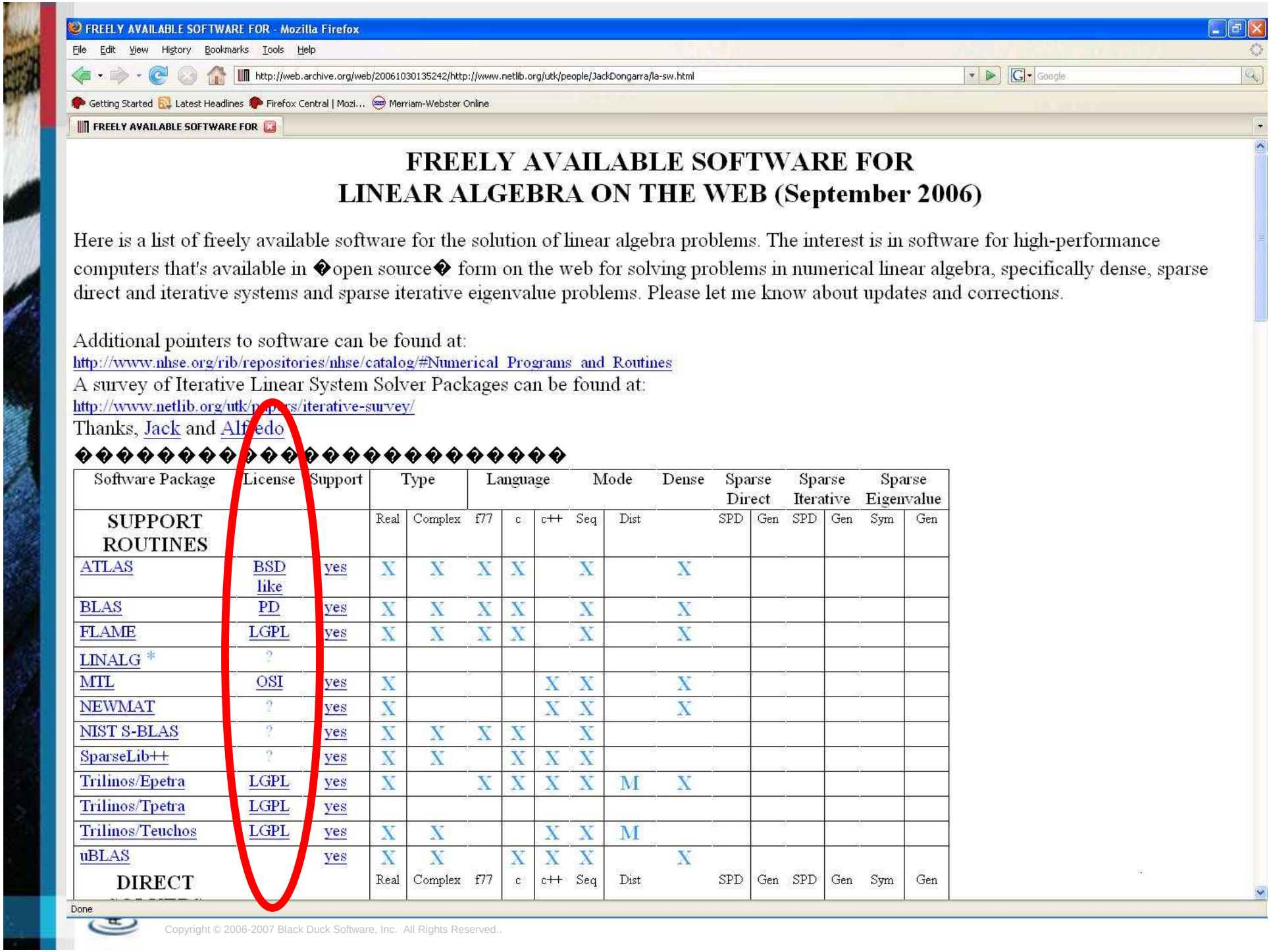
Stephen Boyd & Michael Grant

FREELY AVAILABLE SOFTWARE FOR LINEAR ALGEBRA ON THE WEB (May 2004)

Here is a list of freely available software for the solution of linear algebra problems. The interest is in software for high-performance computers that's available in "open source" form on the web for solving problems in numerical linear algebra, specifically dense, sparse direct and iterative systems and sparse iterative eigenvalue problems. Please let me know about updates and corrections.

Additional pointers to software can be found at:
http://www.nhse.org/rib/repositories/nhse/catalog/#Numerical_Programs_and_Routines
A survey of Iterative Linear System Solver Packages can be found at:
http://www.netlib.org/utk/papers/iterative-survey/
Thanks, Jack
"""""""""""""""""""""""""""""""

Software Package	Support	Type		Language			Mode		Dense	Sparse Direct		Sparse Iterative		Sparse Eigenvalue	
SUPPORT ROUTINES		Real	Complex	f77	c	c++	Seq	Dist		SPD	Gen	SPD	Gen	Sym	Gen
ATLAS	yes	X	X	X	X		X		X						
BLAS	yes	X	X	X	X		X		X						
FLAME	yes	X	X	X	X		X		X						
LINALG *	?														
MTL	yes	X				X	X		X						
NEWMAT	yes	X				X	X		X						
NIST S-BLAS	yes	X	X	X	X		X								
PSBLAS	yes	X	X	X	X		X	M							
SparseLib++	yes	X	X		X	X	X								
uBLAS	yes	X	X		X	X	X		X						
DIRECT SOLVERS		Real	Complex	f77	c	c++	Seq	Dist		SPD	Gen	SPD	Gen	Sym	Gen
LAPACK	yes	X	X	X	X		X		X						
LAPACK95	yes	X	X	95			X		X						
NAPACK	yes	X		X			X		X			X		X	
PLAPACK	?	X	X	X	X			M	X						
PRISM	no	X		X			X	M	X						
ScaLAPACK	yes	X	X	X	X			M/P	X						
SPARSE DIRECT SOLVERS		Real	Complex	f77	c	c++	Seq	Dist		SPD	Gen	SPD	Gen	Sym	Gen



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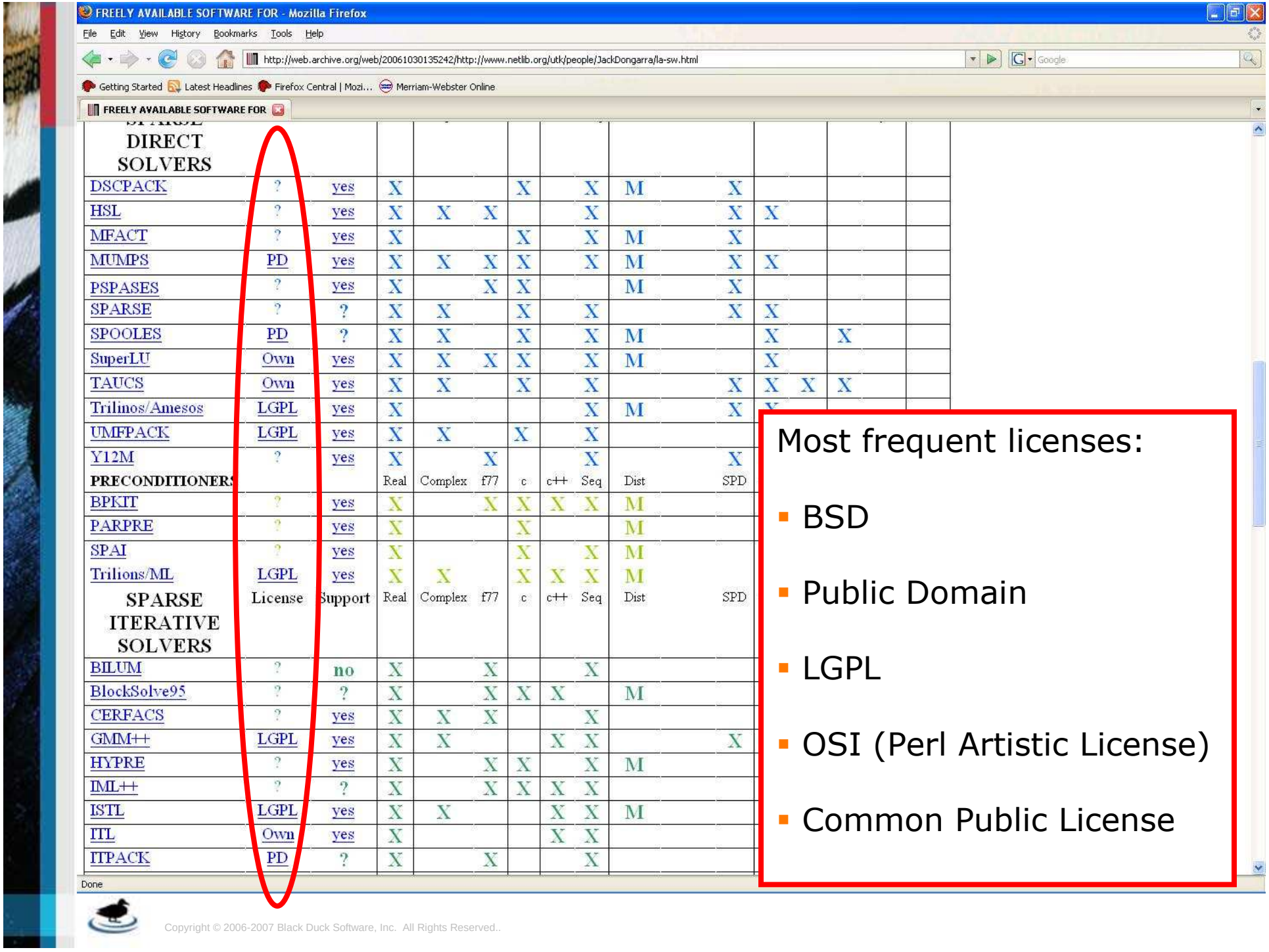
Thanks, Jack and Alfredo

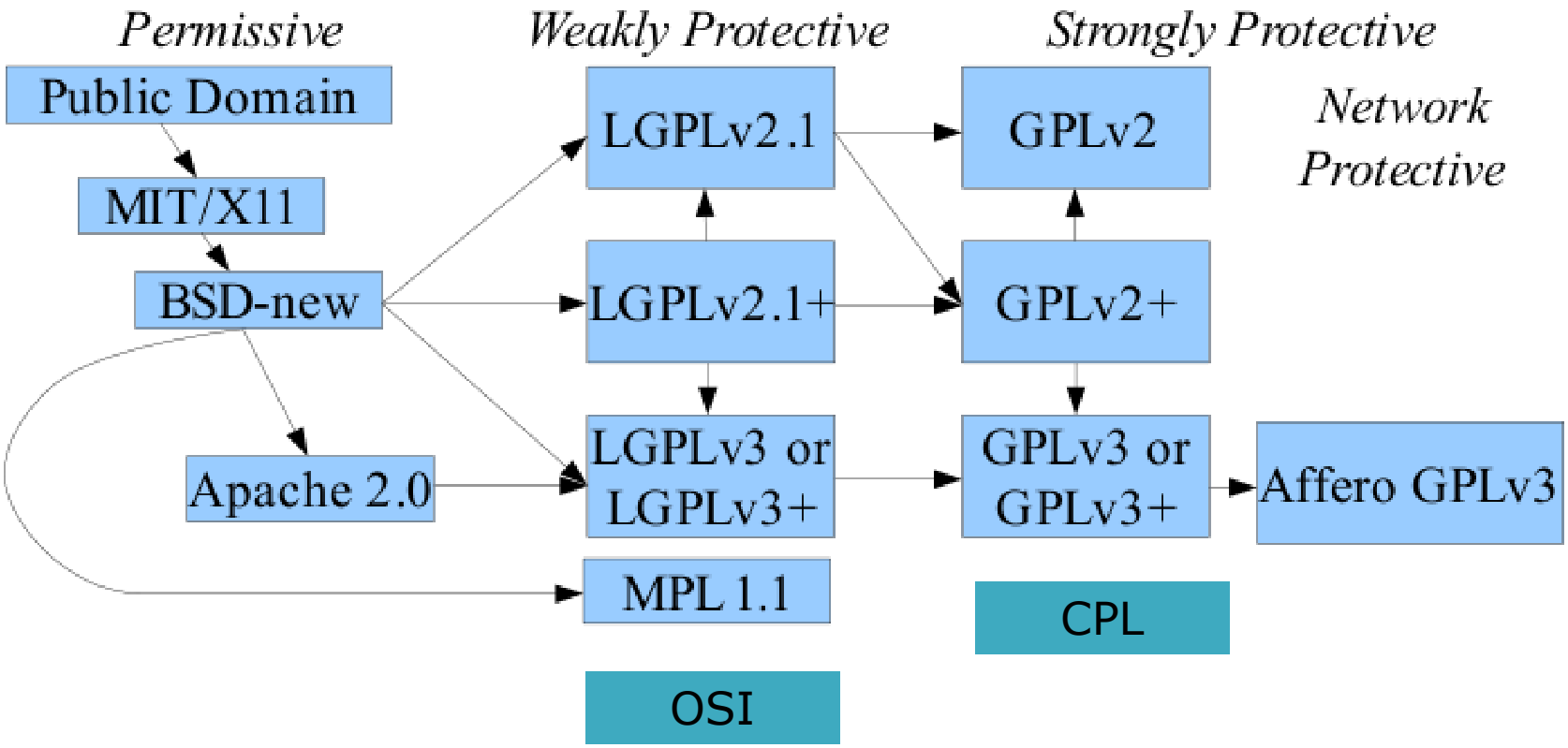
Software Package	License	Support	Type		Language			Mode		Dense	Sparse Direct	Sparse Iterative		Sparse Eigenvalue	
SUPPORT ROUTINES			Real	Complex	f77	c	c++	Seq	Dist		SPD	Gen	SPD	Gen	Sym	Gen
ATLAS	BSD like	yes	X	X	X	X		X		X						
BLAS	PD	yes	X	X	X	X		X		X						
FLAME	LGPL	yes	X	X	X	X		X		X						
LINALG *	?															
MTL	OSI	yes	X				X	X		X						
NEWMAT	?	yes	X				X	X		X						
NIST S-BLAS	?	yes	X	X	X	X		X								
SparseLib++	?	yes	X	X		X	X	X								
Trilinos/Epetra	LGPL	yes	X		X	X	X	X	M	X						
Trilinos/Tpetra	LGPL	yes														
Trilinos/Teuchos	LGPL	yes	X	X			X	X	M							
uBLAS		yes	X	X		X	X	X		X						
DIRECT			Real	Complex	f77	c	c++	Seq	Dist		SPD	Gen	SPD	Gen	Sym	Gen



Most frequent licenses:

- BSD
- Public Domain
- LGPL
- OSI (Perl Artistic License)
- Common Public License

FLOSS Licenses



© David A. Wheeler, **The Free-Libre /Open Source Software (FLOSS) License** Slide, July 2007. Available at http://www.dwheeler.com/essays/floss-license-slide.pdf

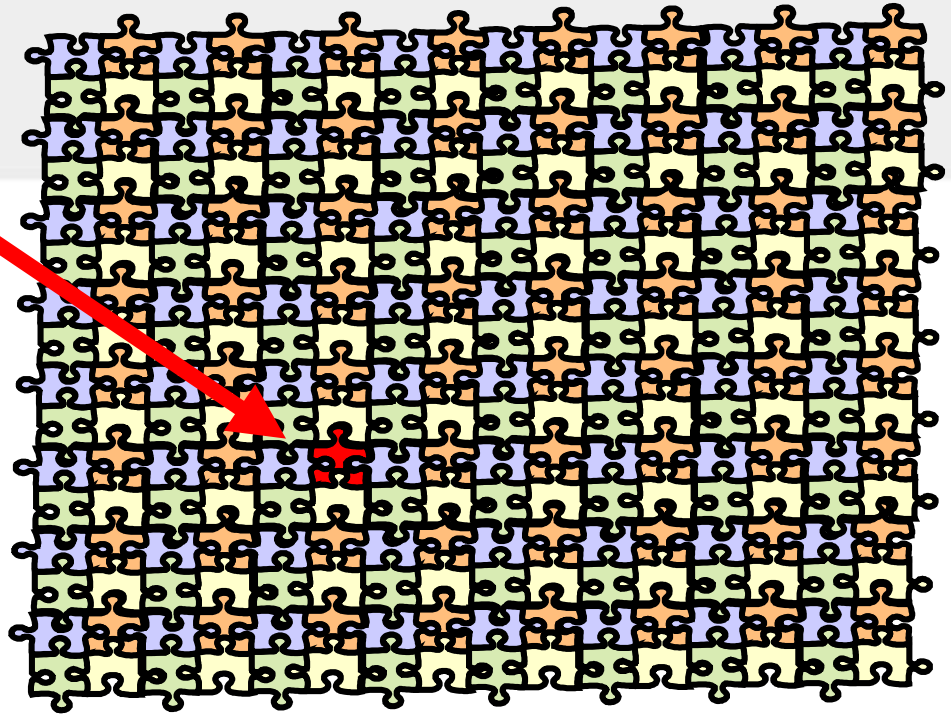
GPL v3.0

- Issues by the FSF on June 29, 2007

- Clarify language about reciprocity
- Compatibility mechanism
- Digital Right Management (“DRM”)
- Express patent license

- On-line functionality: GNU-Affero license

Legal Risks

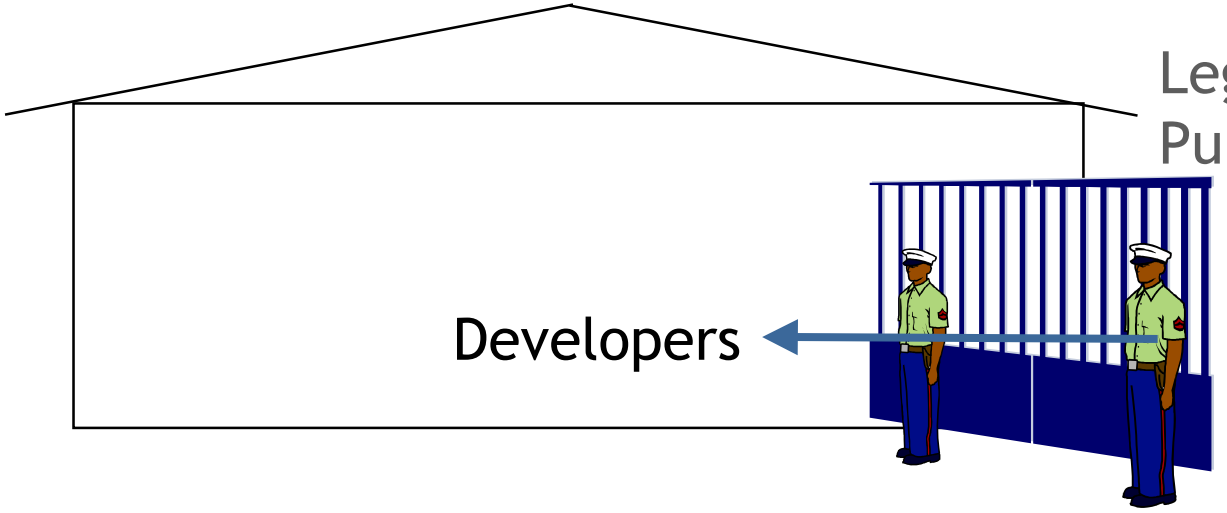


- Fuzzy IP provenance
- Loss of IP rights
- Risk of IP infringement
- No warranties or indemnifications

- Open Source can be high quality software
- "Community Brands" are safe
- Most enterprises will deploy an Open Source stack
- Key software markets will be commoditized, creating more Open Source business opportunities
- This is one of the biggest trends in IT

Traditional Controls

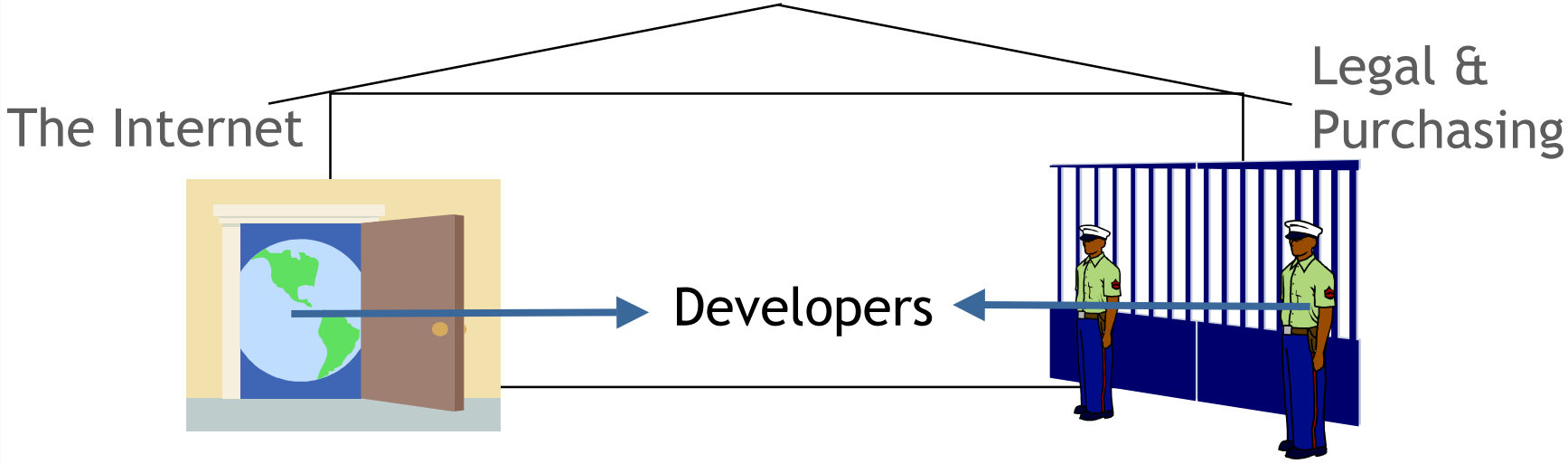
Every component license and service agreement checked



Yesterday
10's of Components & Services
Per Year

Traditional Controls Won't Work

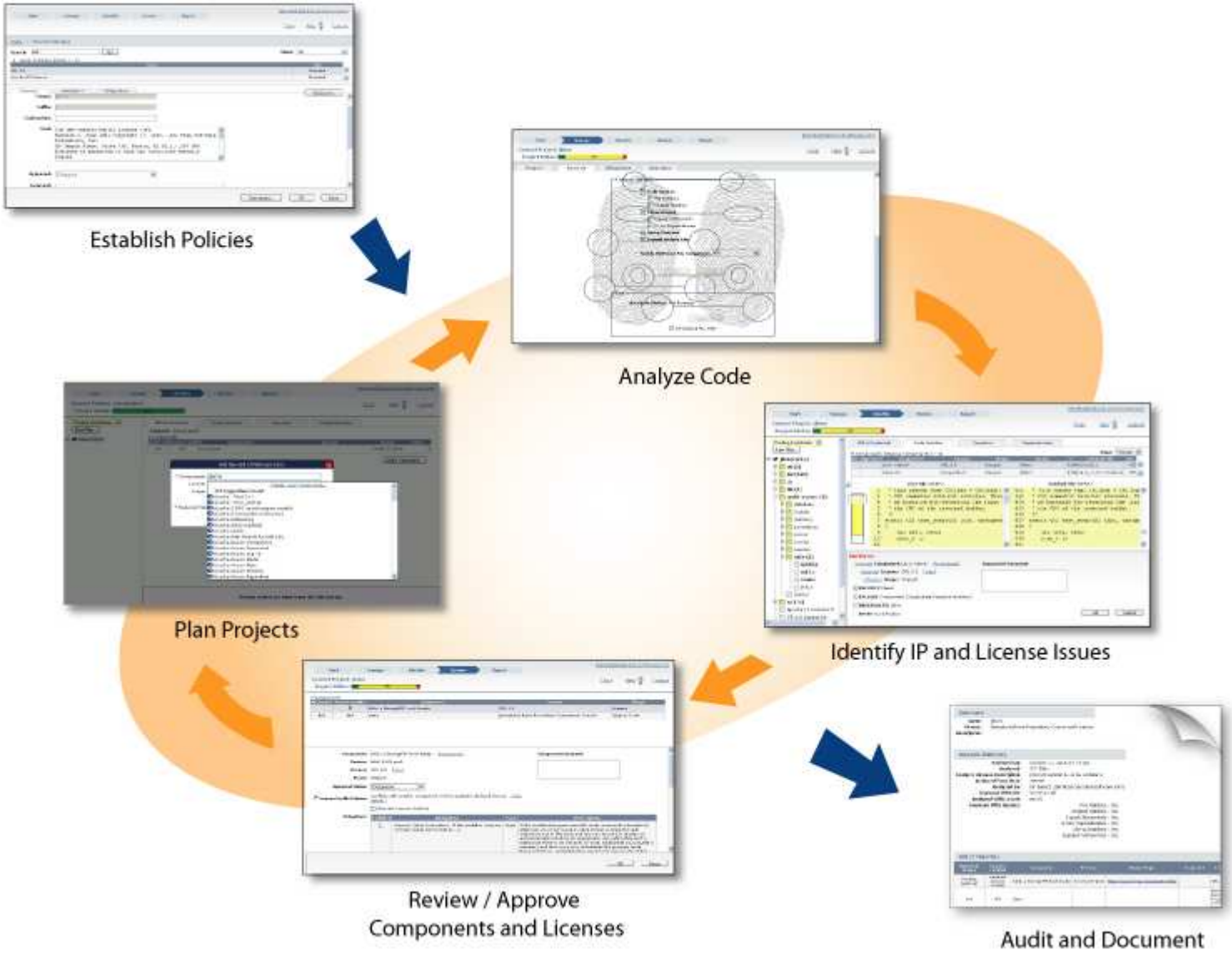
Every component license and service agreement **not** checked



Tomorrow
100's of Components & Services
Per Week

Yesterday
10's of Components & Services
Per Year

How does Black Duck protexIP™ help?



Tribute to CERFACS

- Speak English!
- Reach up to high standards!
- Join an international scientific community!
- Diverge, bifurcate!
- Meet great friends!

Thank you! Questions?