

# Free QA!

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OSCON ▪ July 22, 2010

Free as in beer

Free as in speech

Quality

+

Assurance

Quality is an ideal

Quality Assurance is  
what you can measure

# CPAN Testers is Free QA for CPAN

The objective of the group is to test **as many of the distributions** on CPAN as possible, on **as many platforms** as possible.

The ultimate goal is to **improve the portability** of the distributions on CPAN, and **provide good feedback** to the authors.

# CPAN is 15 years young

~135,000 uploads from ~5000 authors

~23,000 unique libraries uploaded

~21,000 active libraries available

~1,000 uploads every month

~200 new libraries every month

**CPAN Testers** is 11 years young

7.8 million reports

1000+ CPAN Testers

Peak month: 400,000+ reports



# Learning from Crisis

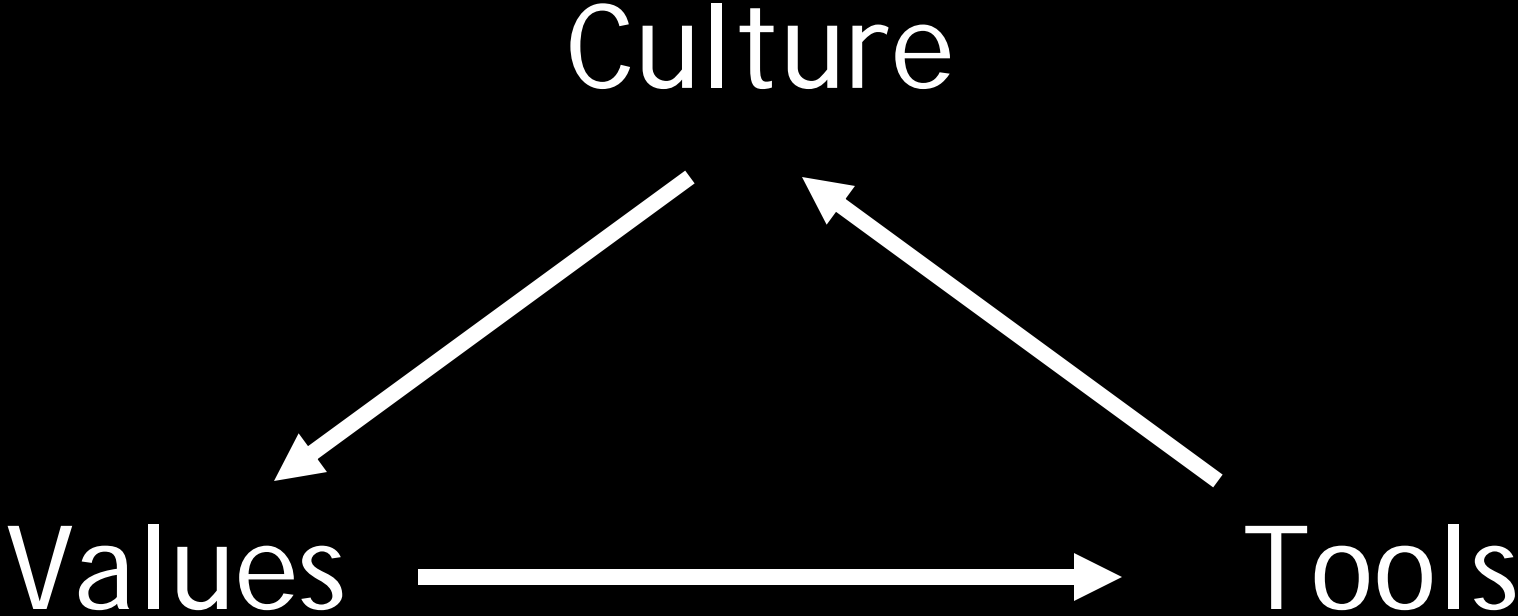
Four ideas  
for success

Culture

Fun

Mashups

Scale



```
$ perl Makefile.PL
```

```
$ make
```

```
$ make test
```

```
$ make install
```

```
$ perl Makefile.PL
```

```
$ make
```

```
$ make test
```

```
$ make install
```

CPAN (1995)

CPAN.pm (1996)

```
$ cpan File::Spec  
(runs 'make test')
```

We built tests  
into our tools



Thousands of people  
running CPAN tests

... and throwing them away

CPAN Testers (1999)

[cpan-testers@perl.org](mailto:cpan-testers@perl.org)

Reports submitted "by hand"

# CPANPLUS (2002)

Can submit reports  
"automatically"  
when you test or install

# A step change in participation

Reports/  
Upload

50

45

40

35

30

25

20

15

10

5

0

2000

2001

2002

2003

2004

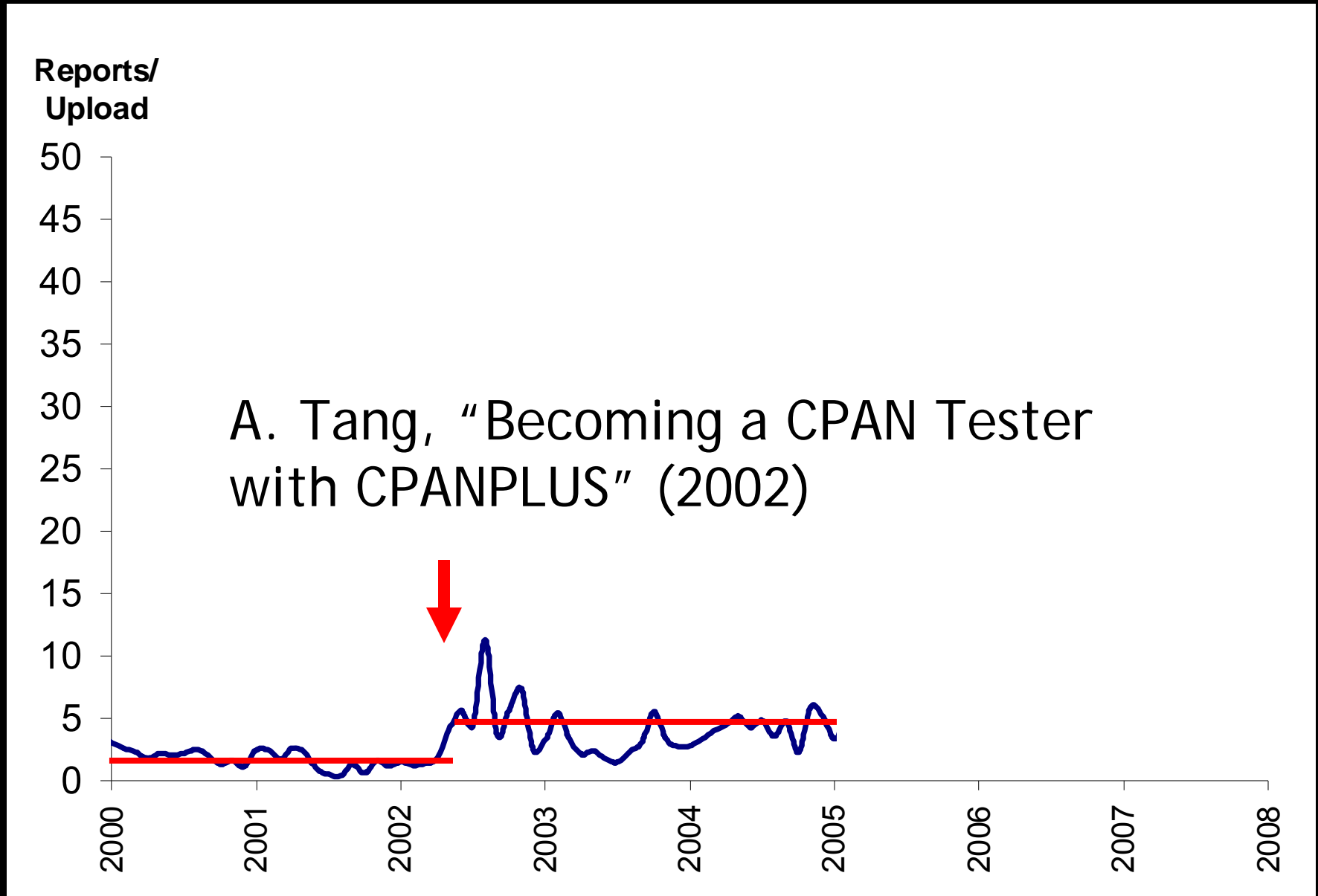
2005

2006

2007

2008

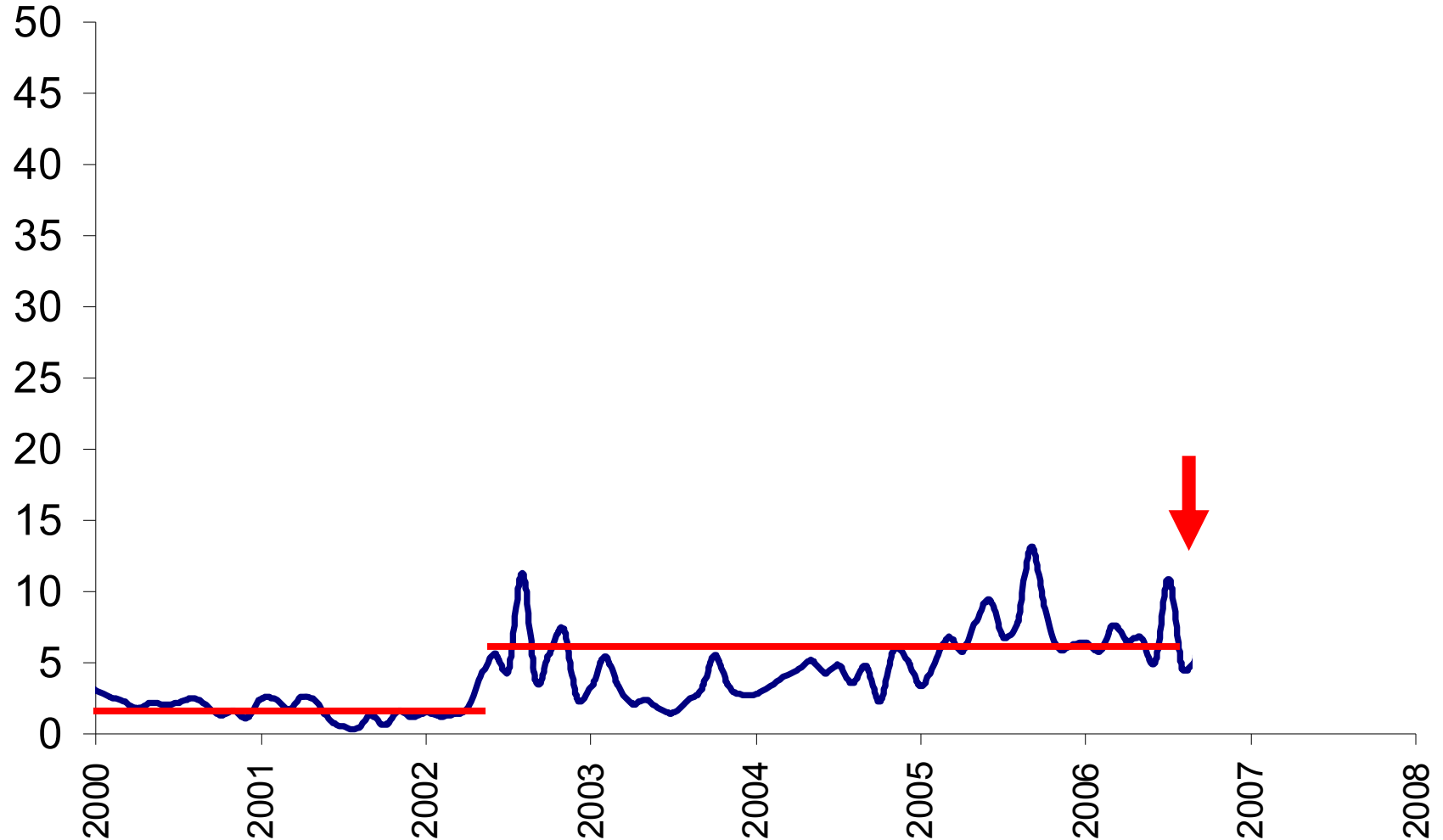
A. Tang, "Becoming a CPAN Tester with CPANPLUS" (2002)



We built tests  
and test reporting  
into our tools

# But still just ~5 reports per upload

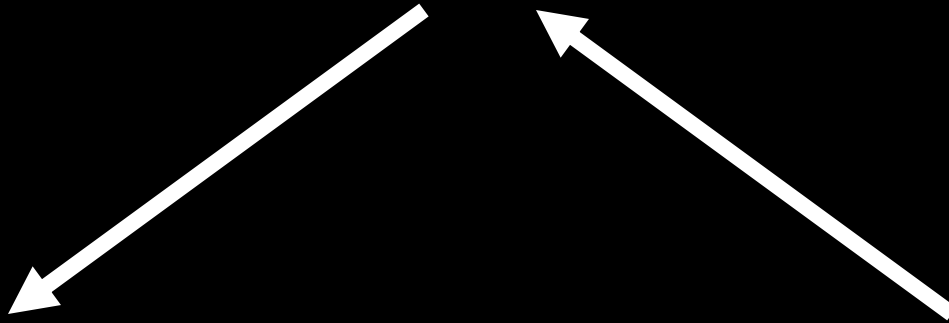
Reports/  
Upload



Crisis #1: Lack of coverage

CPAN Testers no longer a toy  
but not yet useful for much

Fun



Community



Competition



- *Ofun*

Step 1:

Make it *easy* to join

CPAN::YACSmoke (2005)

POE::Component::CPAN::YACSmoke  
(2006)

CPAN::Reporter (2006)

Step 2:

Build a community  
and give feedback

<http://stats.cpanesters.org/>  
(2006)

[cpan-testers-discuss@perl.org](mailto:cpan-testers-discuss@perl.org)  
(2007)

Barbie starts a monthly blog  
(2007)

Competition

September, 2007

*"The heat is on for **Chris Williams**, he only thought **Dave Cantrell** was chasing his heels, but **Andreas Koenig** has also stepped up his game too. It has been a staggering month for the sheer volume of reports..."*

- Barbie

Climb the leaderboard





# CPAN Testers Statistics

stats.cpan testers.org  
August 1999 - July 2010

- Blog
- Reports
- Wiki
- Statistics
- PASS Matrix
- Preferences
- Development
- CPAN Deps
- CPAN Matrix

Home > CPAN Testers > Leaderboard

## CPAN Testers Leaderboard

### Testers Menu

- Home
- Testing Trends
- Tester Leaderboard
- Interesting Stats
- Performance Stats
- Find A Tester
- Missing In Action

### CPAN Menu

- CPAN Trends
- CPAN Leaderboards
- Statistics of CPAN

### Monthly Stats

### TOP TESTERS OF ALL TIME

POSITION	SUBMISSIONS	TESTER
1	2423346	Chris Williams (BINGOS)
2	633964	Oliver Paukstadt (PSTADT)
3	623807	Andreas J. König (ANDK)
4	567210	Dan Collins (DCOLLINS)
5	473199	Serguei Trouchelle (STRO)
6	412317	Slaven Rezić (SREZIC)
7	376930	David Cantrell (DCANTRELL)
8	298521	David Golden (DAGOLDEN)
9	247344	George Greer

Test more or weirder  
Perls and platforms

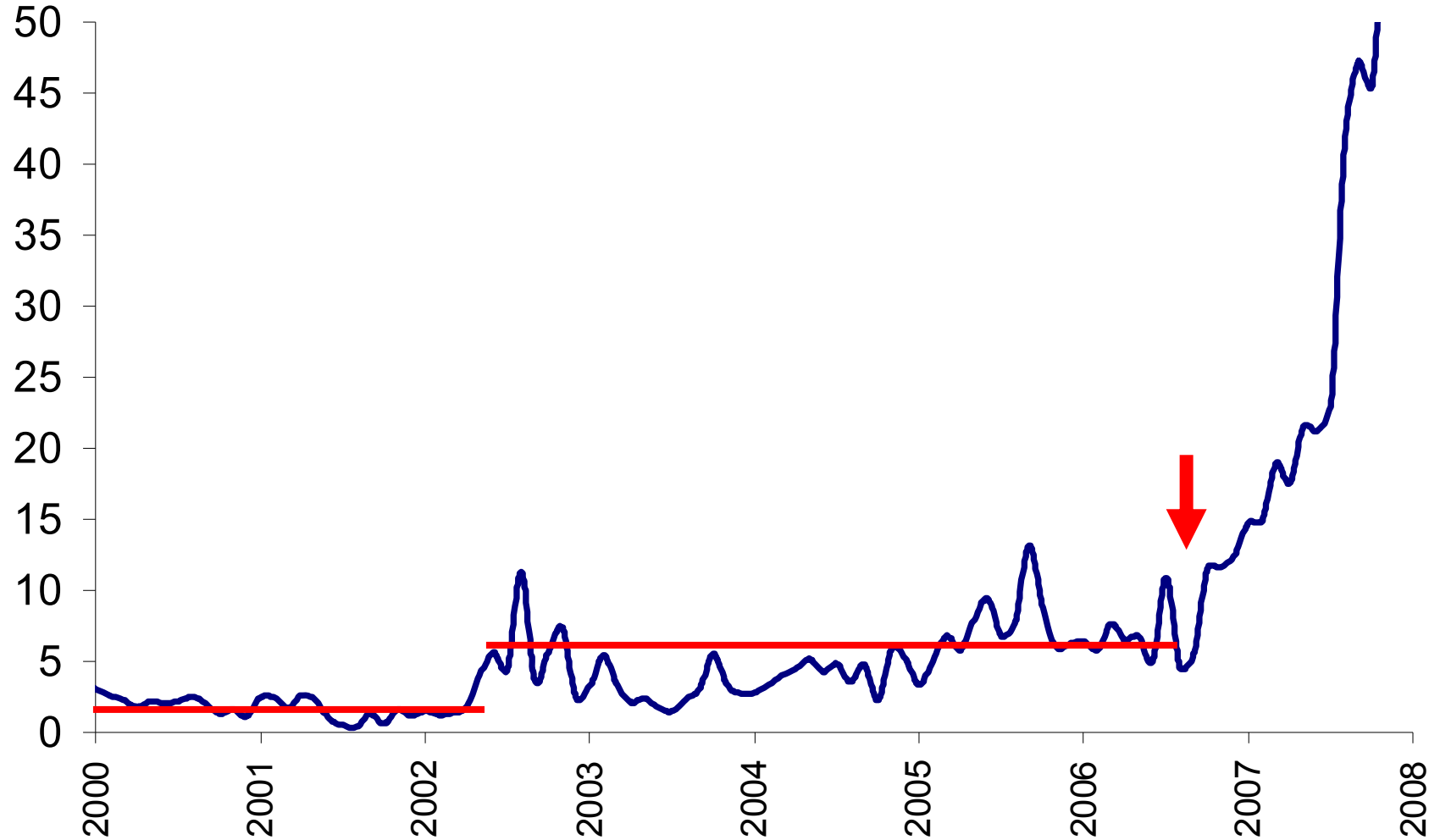
# Perl version and OS coverage

OS/Perl		5.13.3	5.13.2	5.13.1	5.13.0	5.12.1	5.12.0	5.10.1	5.10.0	5.8.85	5.8.9	5.8.8	5.8.7	5.8.6	5.8.5	5.8.4	5.8.3	5.8.2	5.8.1	5.8.0	5.6.2	5.6.1	5.6.0	5.5.670	5.5.660	5.5.650	5.5.640	5.5.5	5.5.4	5.5.3	5.5.2	5.5.1	5.4.75	5.4.4	
	Totals	534	25803	23903	24966	74804	80488	104470	134866	1	88851	118061	41339	36808	30661	24355	17233	13816	18521	16409	37846	13308	4841	90	37	65	17	8460	103	2000	6	1	12	433	
Linux	205528	294 374	13084 16727	13885 16727	4776 5254	13547 18913	13468 10130	18748 10267	20355 112338	-	13274 20832	16300 17731	13718 8777	14880 11448	1440 1832	1473 12745	2547 864	1236 2574	1779 3827	1634 13437	10305 16278	1411 1438	1055 2351	90 108	37 44	65 83	17 19	382 479	103 134	668 1954	3 6	-	12 13		
FreeBSD	150748	-	148 151	164 181	129 147	18734 19472	17888 13483	18871 10211	18010 21333	-	11273 19413	10788 16273	1626 1022	1821 10484	1821 10484	2149 4489	1460 2048	2444 4794	1606 2221	2003 3557	17118 11177	1929 2855	33 38	-	-	-	-	1079 1174	-	354 461	-	-	-		
NetBSD	144980	-	-	11405 1274	6225 1837	16180 10242	13818 10242	13818 10242	17408 10148	1	8048 7789	14111 17241	6088 10212	1828 1334	1632 1779	1482 1823	6641 1073	1448 1734	1485 1712	1554 2424	4117 1438	581 741	-	-	-	-	-	-	-	-	-	-	-	-	
SunOS/Solaris	140723	-	-	-	692 783	18734 11812	18888 10383	18881 10383	17408 10148	-	11117 7822	10788 16273	1626 1022	1821 10484	1821 10484	2149 4489	1460 2048	2444 4794	1606 2221	2003 3557	17118 11177	1929 2855	33 38	-	-	-	-	-	-	-	572 1332	-	1 1	-	-
Mac OS X	98570	-	-	-	1483 1834	1871 11812	1888 10383	17408 10148	14888 10148	-	1448 10383	14888 10383	1626 1022	1821 10484	1821 10484	1658 3054	1653 2892	2444 4478	1606 2221	2003 3557	17118 11177	1929 2855	33 38	-	-	-	-	-	-	-	-	-	-	-	-
Windows (Win32)	97413	240 240	13123 1847	1677 2520	13817 11812	13888 10383	13888 10383	18748 10267	134866 88338	-	10881 2144	10881 17921	1740 4080	1589 3305	1312 10842	960 1881	447 656	8 62	13 65	382 663	-	1482 1038	571 837	-	-	-	-	-	-	60 110	-	-	-	-	
OpenBSD	40275	-	-	-	448 457	1707 1751	1818 10383	1818 10383	1818 10383	-	8048 7789	14111 17241	-	490 1152	629 1435	621 822	-	55 55	9 9	1410 1900	-	308 415	425 644	-	-	-	-	-	-	-	-	-	-	-	
Windows (Cygwin)	23597	-	24 24	-	73 84	23 23	1818 10383	1818 10383	1818 10383	-	811 894	1411 1724	1187 813	1849 4332	58 71	-	-	-	200 245	-	315 435	1 1	500 694	13 13	-	-	-	-	-	-	-	-	-	-	
Dragonfly BSD	14486	-	-	-	20 20	-	1818 10383	1818 10383	1818 10383	-	1772 1811	1411 1724	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
MidnightBSD	11895	-	-	-	-	-	1818 10383	1818 10383	1818 10383	-	1088 1628	154 284	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
IRIX	9051	-	-	-	-	-	-	90 134	-	-	103 173	-	-	-	31 34	10 10	-	-	-	120 273	-	254 298	194 418	-	-	-	-	-	-	-	2 4	-	-	-	
MirOS BSD	2274	-	-	-	-	-	-	934 1448	-	531 590	809 1418	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
HP-UX	1490	-	-	-	-	-	-	-	-	-	4 53	4 11	-	-	-	-	2 21	-	1 1	11 15	-	187 273	850 1881	-	-	-	-	-	-	-	26 33	-	-	-	
AIX	1015	-	-	-	-	-	-	942 1057	11 11	-	2 4	45 82	-	2 4	-	-	-	5 6	-	1 1	-	6 6	-	-	-	-	-	-	-	-	1 1	-	-	-	
GNU Hurd	476	-	-	-	-	-	-	213 397	101 127	-	-	161 300	-	1 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SCO	319	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	319 507	-	-	
Tru64	292	-	-	-	-	-	-	-	-	177 255	-	-	1 1	-	-	-	-	-	-	90 108	-	21 24	2 2	-	-	-	-	-	-	-	-	-	-	-	-
Mac OS classic	90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4 4	-	-	-	-	-	-	-	-	-	-	-	-	-
Haiku	36	-	-	-	-	-	-	36 37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS/2	17	-	-	-	-	-	-	-	17 18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BSD/OS	15	-	-	-	-	-	-	-	-	-	-	-	13 17	-	-	2 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VMS	14	-	-	-	-	-	-	-	-	-	-	-	14 20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BeOS	8	-	-	-	-	-	-	-	-	-	8 9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OS390/zOS	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1 1	-	-	
Totals		534	25803	23903	24966	74804	80488	104470	134866	1	88851	118061	41339	36808	30661	24355	17233	13816	18521	16409	37846	13308	4841	90	37	65	17	8460	103	2000	6	1	12	433	

OS/Perl		5.13.3	5.13.2	5.13.1	5.13.0	5.12.1	5.12.0	5.10.1	5.10.0	5.8.85	5.8.9	5.8.8	5.8.7	5.8.6	5.8.5	5.8.4	5.8.3	5.8.2	5.8.1	5.8.0	5.6.2	5.6.1	5.6.0	5.5.670	5.5.660	5.5.650	5.5.640	5.5.5	5.5.4	5.5.3	5.5.2	5.5.1	5.4.75	5.4.4
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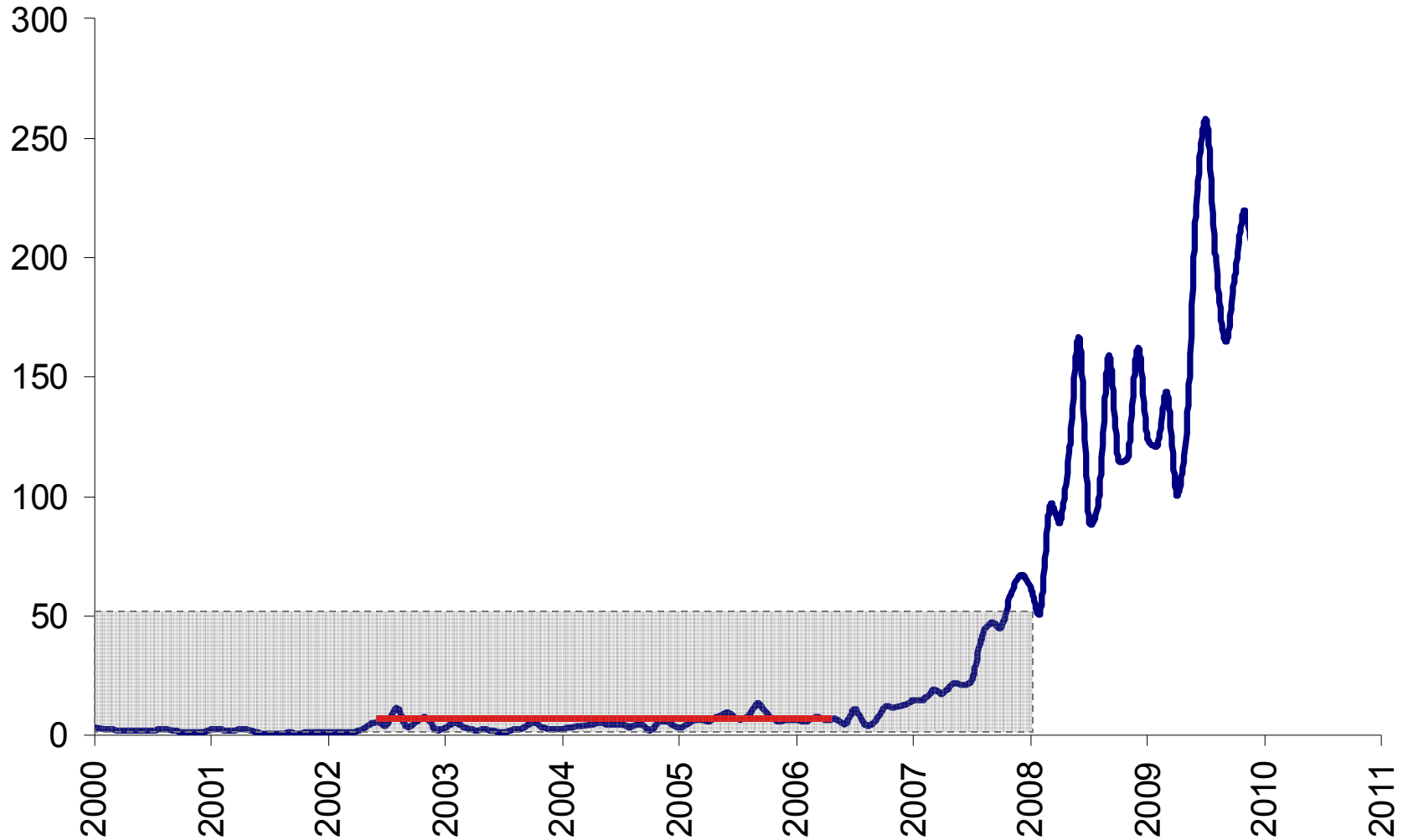
# The result of -Ofun

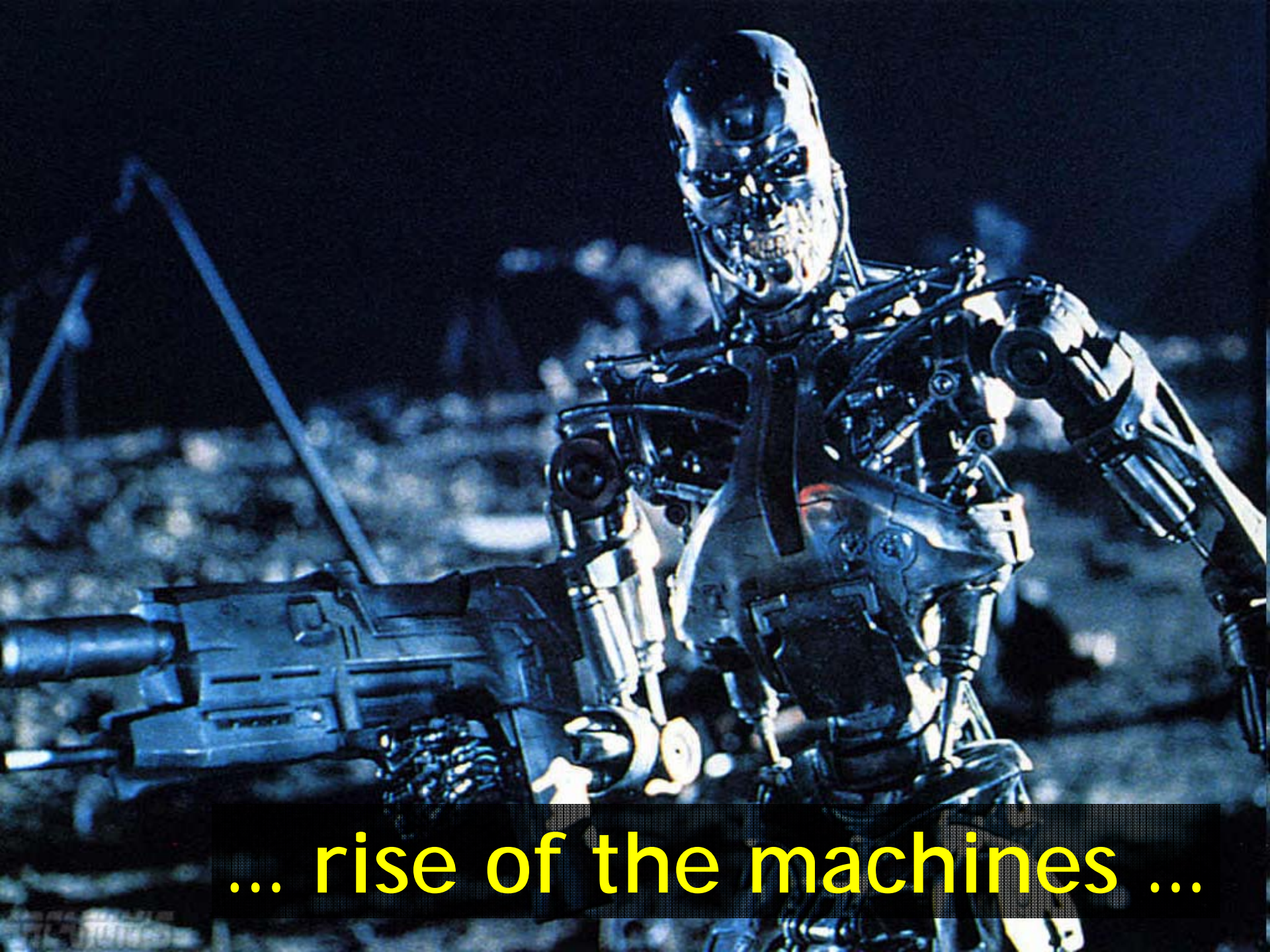
Reports/  
Upload



# Zooming out

Reports/  
Upload





... rise of the machines ...

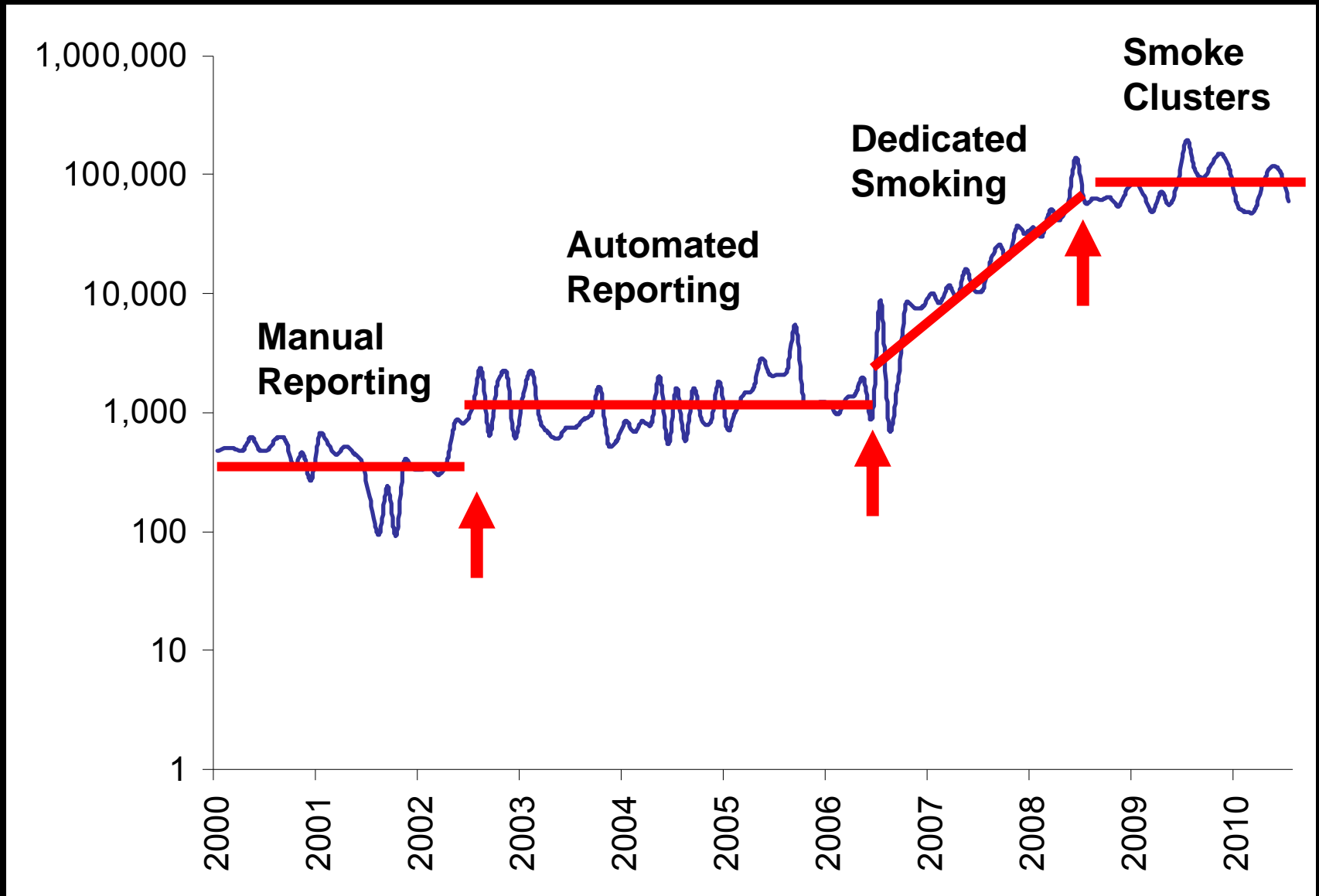
CPAN::Reporter::Smoker (2008)

POE::Component::SmokeBox (2008)

CPANPLUS::YACSmoke (2009)

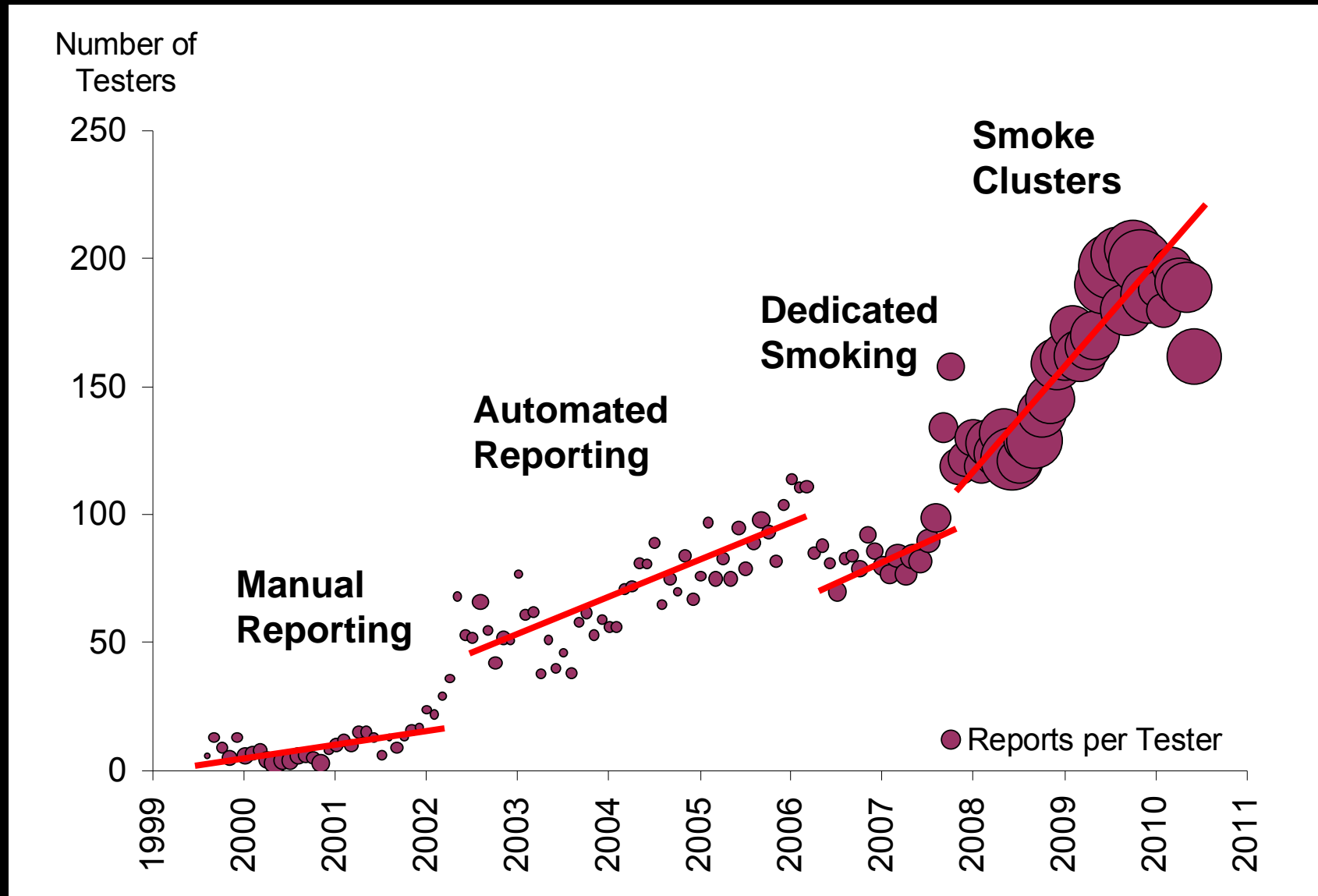
minismokebox (2009)

# Reports by #1 tester each month





# More testers & reports per tester



## Crisis #2: Spam

~15,000 reports a month (2006)

~250,000 reports a month (2008)

By email

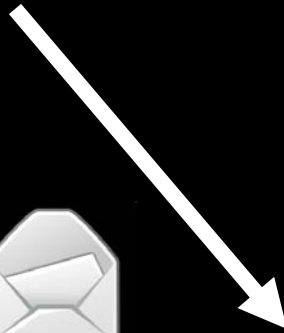
# 2006: ~5 reports/upload



Joe Tester

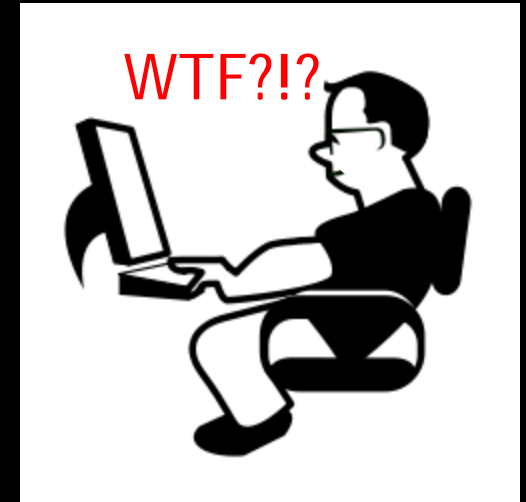
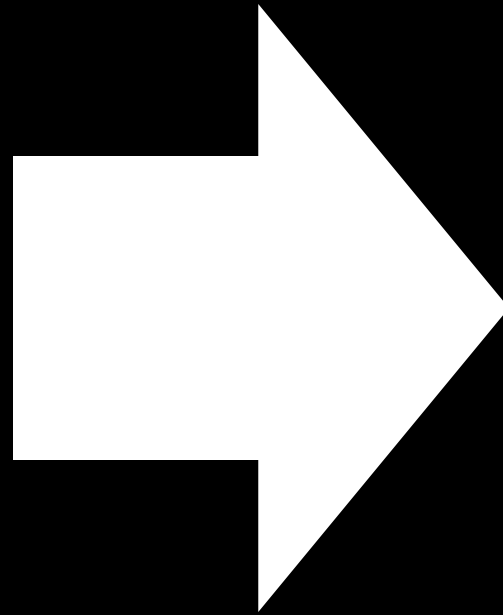
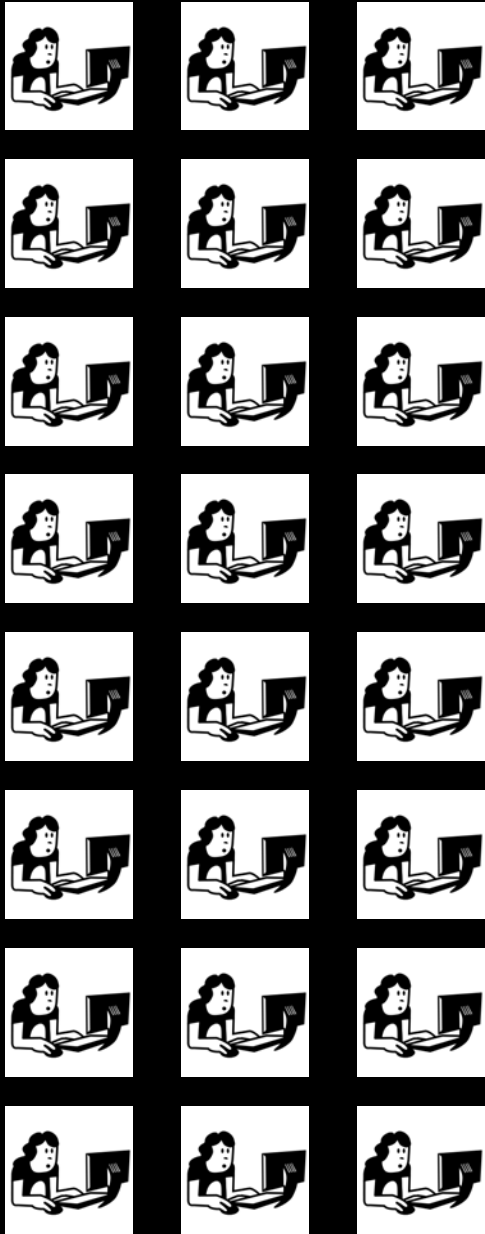


Cc: AUTHOR@cpan.org



To: cpan-testers@perl.org

2008: ~120 reports/upload



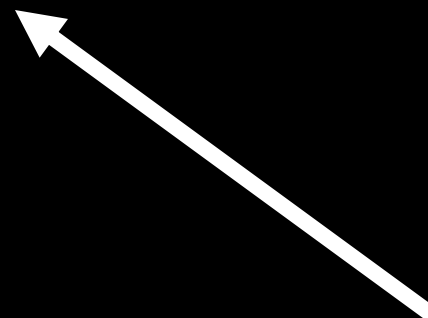
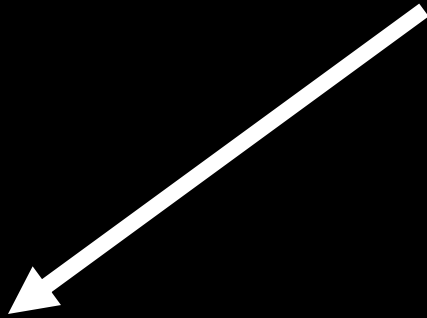
"Stop SPAMMING me!"

NOT fun for CPAN authors

Disabled author CC's  
Notification through  
a central service

Added author contact preferences

Mashups



Innovation



Insight

Open data  
allows  
innovation

# Test matrix

## [CPAN Testers Matrix: Capture-Tiny 0.07](#) (latest distribution)

Distribution (e.g. DBI, CPAN-Reporter, YAML-Syck):

CPAN User ID (e.g. GAAS, TIMB, JHI):

You can click on the matrix cells or row/column headers to get the list of corresponding reports.  
Alternative color schemes are available: try [View > Page Style](#) or [View > Use Style](#) in your browser.

<a href="#">ALL</a>	<a href="#">MSWin32</a>	<a href="#">cygwin</a>	<a href="#">darwin</a>	<a href="#">freebsd</a>	<a href="#">irix</a>	<a href="#">linux</a>	<a href="#">midnightbsd</a>	<a href="#">netbsd</a>	<a href="#">openbsd</a>	<a href="#">solaris</a>
<a href="#">5.13.0</a>										
<a href="#">5.12.1</a>										
<a href="#">5.12.0</a>										
<a href="#">5.11.5</a>										
<a href="#">5.11.4</a>										
<a href="#">5.11.3</a>										
<a href="#">5.11.2</a>										
<a href="#">5.11.1</a>										
<a href="#">5.10.1</a>										
<a href="#">5.10.0</a>										
<a href="#">5.8.9</a>										
<a href="#">5.8.8</a>										
<a href="#">5.8.7</a>										
<a href="#">5.8.6</a>										
<a href="#">5.8.5</a>										
<a href="#">5.8.3</a>										
<a href="#">5.8.0</a>										
<a href="#">5.6.2</a>										

- [Max version with a PASS](#)



# Dependency tree

(Get results in XML)

- 0.	<a href="#">Web::Simple</a>	<a href="#">S</a> <a href="#">B</a> <a href="#">R</a> <a href="#">D</a>		86 PASSEs, 0 UNKNOWNs, 0 FAILs, 12 NAs
- 1.	<a href="#">ExtUtils::MakeMaker</a>	<a href="#">S</a> <a href="#">B</a> <a href="#">R</a> <a href="#">D</a>		548 PASSEs, 0 UNKNOWNs, 9 FAILs, 0 NAs
2.	<a href="#">Data::Dumper</a>	<a href="#">S</a> <a href="#">B</a> <a href="#">R</a> <a href="#">D</a>		Core module
- 3.	<a href="#">File::Spec</a>	<a href="#">S</a> <a href="#">B</a> <a href="#">R</a> <a href="#">D</a>		546 PASSEs, 5 UNKNOWNs, 2 FAILs, 0 NAs
- 4.	<a href="#">Scalar::Util</a>	<a href="#">S</a> <a href="#">B</a> <a href="#">R</a> <a href="#">D</a>		304 PASSEs, 2 UNKNOWNs, 2 FAILs, 0 NAs
- 5.	<a href="#">Test::More</a>	<a href="#">S</a> <a href="#">B</a> <a href="#">R</a> <a href="#">D</a>		754 PASSEs, 5 UNKNOWNs, 1 FAIL, 0 NAs
6.	<a href="#">Test::Harness</a>	<a href="#">S</a> <a href="#">B</a> <a href="#">R</a> <a href="#">D</a>		430 PASSEs, 1 UNKNOWN, 9 FAILs, 0 NAs
7.	<a href="#">File::Path</a>	<a href="#">S</a> <a href="#">B</a> <a href="#">R</a> <a href="#">D</a>		Core module
8.	<a href="#">Test</a>	<a href="#">S</a> <a href="#">B</a> <a href="#">R</a> <a href="#">D</a>		Core module
9.	<a href="#">File::Basename</a>	<a href="#">S</a> <a href="#">B</a> <a href="#">R</a> <a href="#">D</a>		Core module
- 10.	<a href="#">Pod::Man</a>	<a href="#">S</a> <a href="#">B</a> <a href="#">R</a> <a href="#">D</a>		259 PASSEs, 0 UNKNOWNs, 0 FAILs, 0 NAs
- 11.	<a href="#">Pod::Simple</a>	<a href="#">S</a> <a href="#">B</a> <a href="#">R</a> <a href="#">D</a>		153 PASSEs, 0 UNKNOWNs, 1 FAIL, 1 NA
12.	<a href="#">Pod::Escapes</a>	<a href="#">S</a> <a href="#">B</a> <a href="#">R</a> <a href="#">D</a>		1215 PASSEs, 5 UNKNOWNs, 0 FAILs, 0 NAs
13.	<a href="#">Text::Wrap</a>	<a href="#">S</a> <a href="#">B</a> <a href="#">R</a> <a href="#">D</a>		612 PASSEs, 0 UNKNOWNs, 0 FAILs, 0 NAs
14.	<a href="#">constant</a>	<a href="#">S</a> <a href="#">B</a> <a href="#">R</a> <a href="#">D</a>		Core module
	<b>Chance of all tests passing</b>			80% (but <a href="#">note</a> that this doesn't mean much)

# "Volatile 100"

# "FAIL 100"

## CPAN Top 100

Home Heavy 100 **Volatile 100** FAIL 100 META 100

#	Score	Author	Distribution
1	12847	JESSE	<a href="#">perl</a>
2	12781	FERREIRA	<a href="#">Exporter</a>
3	12769	MUIR	<a href="#">Text-Tabs+Wrap</a>
4	12766	ANDYA	<a href="#">Test-Harness</a>
5	12764	SBURKE	<a href="#">Pod-Escapes</a>
6	12763	DWHEELER	<a href="#">Pod-Simple</a>
6	12763	GBARR	<a href="#">IO</a>
6	12763	GBARR	<a href="#">Scalar-List-Utils</a>
6	12763	JV	<a href="#">Getopt-Long</a>
6	12763	MAREKR	<a href="#">Pod-Parser</a>
6	12763	MSCHWERN	<a href="#">ExtUtils-MakeMaker</a>
6	12763	MSCHWERN	<a href="#">Test-Simple</a>
6	12763	RKOBES	<a href="#">ExtUtils-Manifest</a>
6	12763	RRA	<a href="#">podlators</a>
6	12763	SAPER	<a href="#">constant</a>
6	12763	SBURKE	<a href="#">Test</a>
6	12763	SMUELLER	<a href="#">Data-Dumper</a>
6	12763	SMUELLER	<a href="#">PathTools</a>

## CPAN Top 100

Home Heavy 100 Volatile 100 **FAIL 100** META 100

#	FAILure	Author	Distribution
1	191445 <a href="#">↗</a>	GBARR	<a href="#">IO</a>
2	160083 <a href="#">↗</a>	VPARSEVAL	<a href="#">List-MoreUtils</a>
3	153192 <a href="#">↗</a>	ANDYA	<a href="#">Test-Harness</a>
4	114867 <a href="#">↗</a>	MSCHWERN	<a href="#">ExtUtils-MakeMaker</a>
5	102104 <a href="#">↗</a>	DLAND	<a href="#">File-Path</a>
5	102104 <a href="#">↗</a>	SMUELLER	<a href="#">PathTools</a>
7	87604 <a href="#">↗</a>	MSERGEANT	<a href="#">XML-Parser</a>
8	67340 <a href="#">↗</a>	GBARR	<a href="#">libnet</a>
9	63815 <a href="#">↗</a>	GBARR	<a href="#">Scalar-List-Utils</a>
9	63815 <a href="#">↗</a>	MSCHWERN	<a href="#">Test-Simple</a>
11	40579 <a href="#">↗</a>	PETEK	<a href="#">HTML-Tree</a>
12	39494 <a href="#">↗</a>	AMS	<a href="#">Storable</a>
13	36520 <a href="#">↗</a>	MANU	<a href="#">Net-IP</a>
14	34293 <a href="#">↗</a>	PMQS	<a href="#">DB_File</a>
15	32775 <a href="#">↗</a>	PAJAS	<a href="#">XML-LibXML</a>
16	31178 <a href="#">↗</a>	JHI	<a href="#">Time-HiRes</a>
17	25562 <a href="#">↗</a>	FERREIRA	<a href="#">Exporter</a>
18	25528 <a href="#">↗</a>	SBURKE	<a href="#">Pod-Escapes</a>

# Regression analysis and failure correlations

- o OS, architecture, perl version, perl configuration
- o test output, e.g. "failed at line ..."
- o tester, test framework

[analysis.cpan testers.org](http://analysis.cpan testers.org) - but offline! ☹️

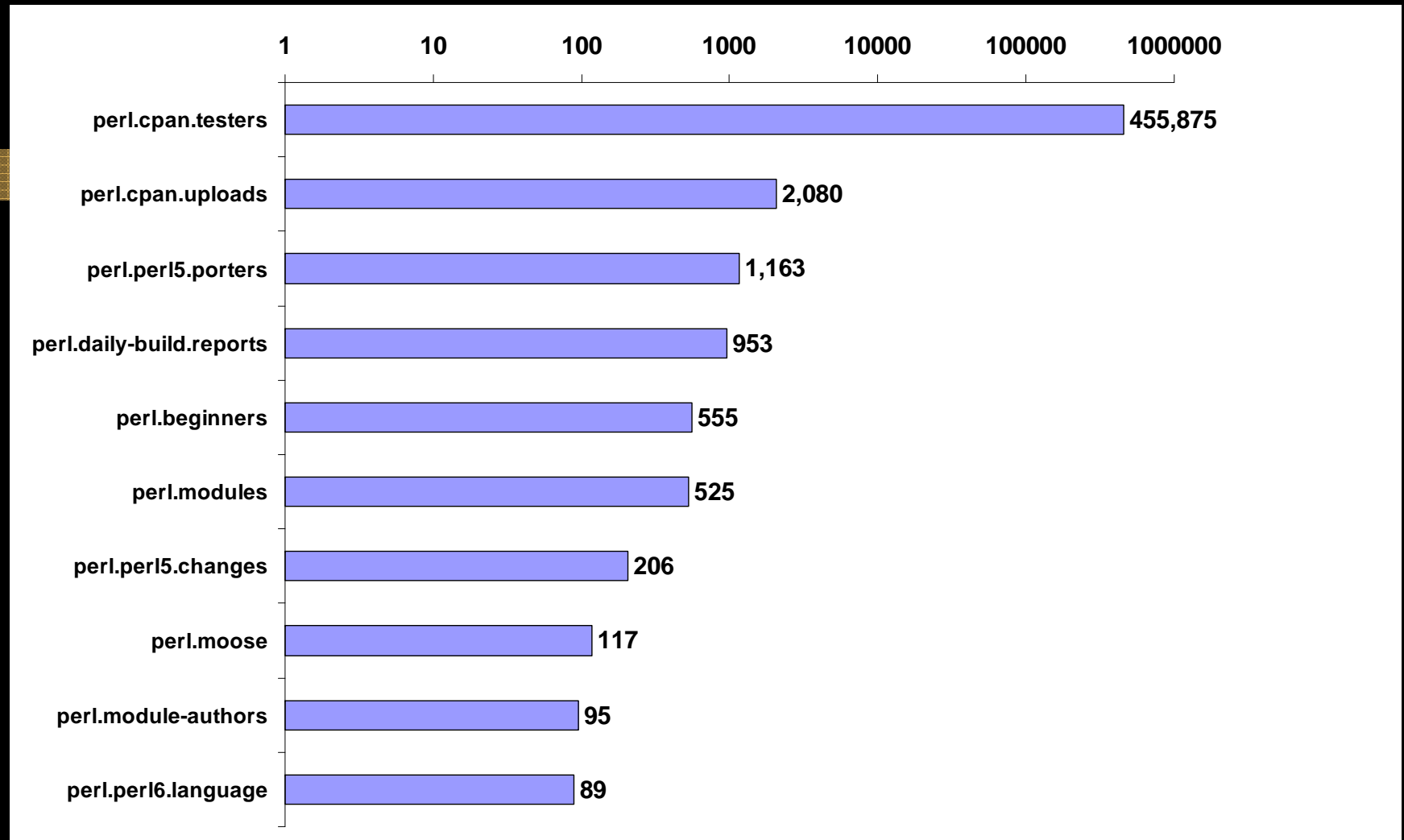
# Crisis #3: Email overload

Reports sent by email

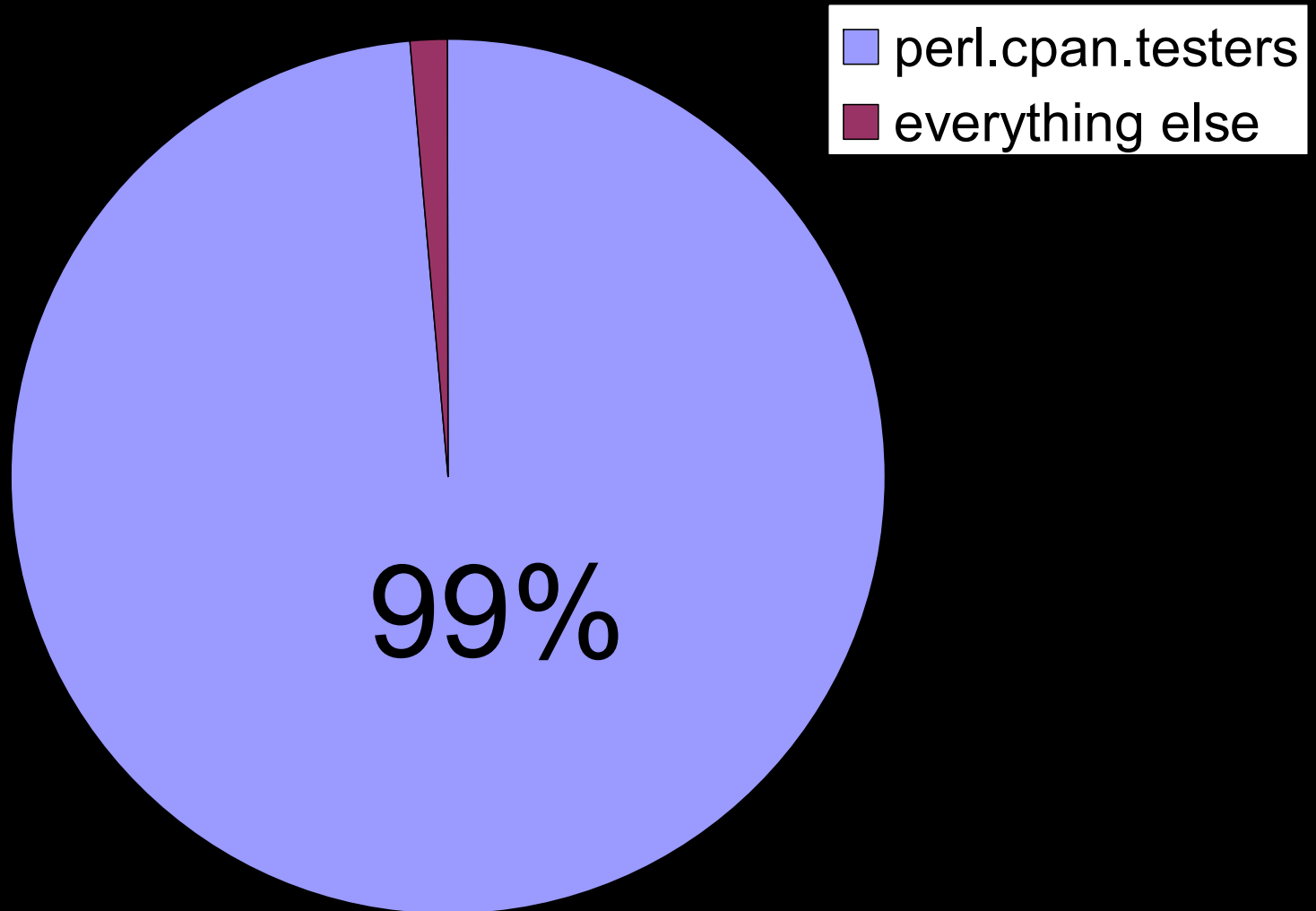
Reports re-distributed via NNTP

# Success? Failure?

## November 2009 perl.org mailing list monthly volume

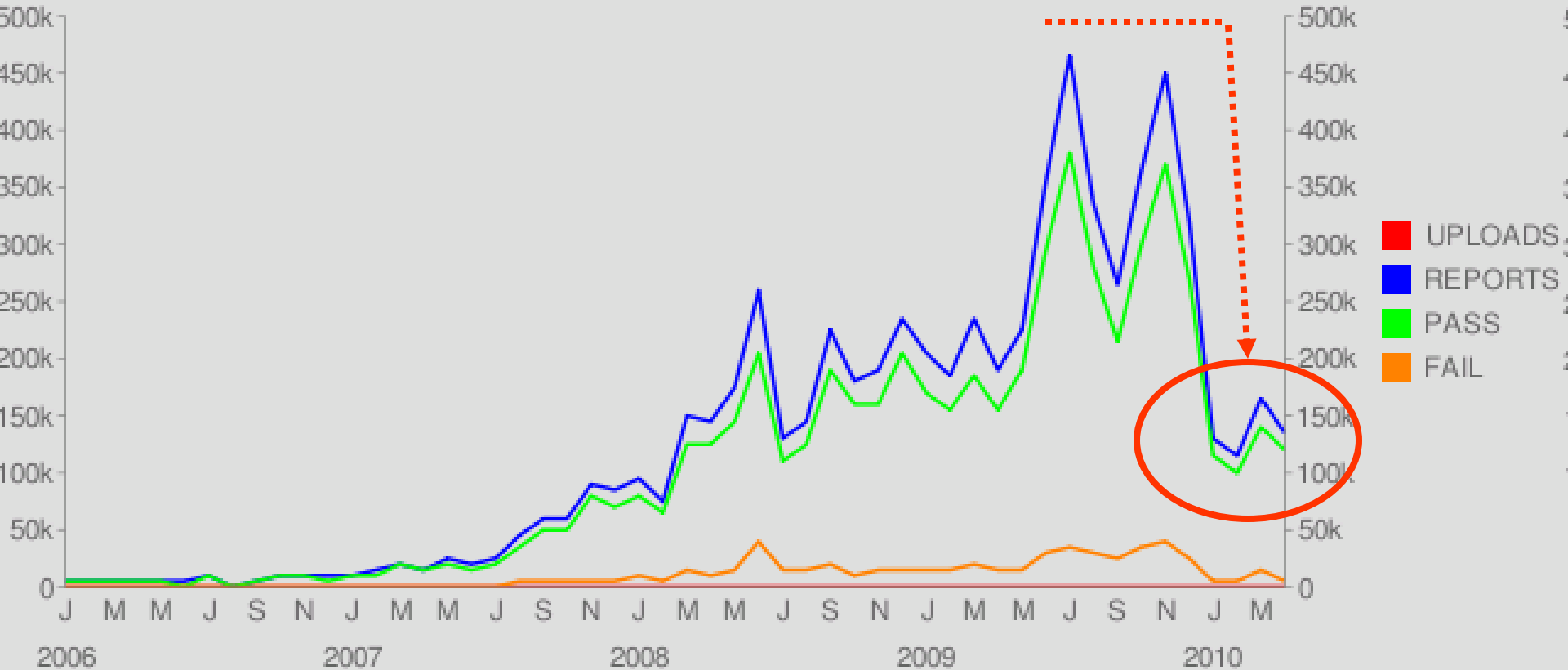


# The way perl.org sees email

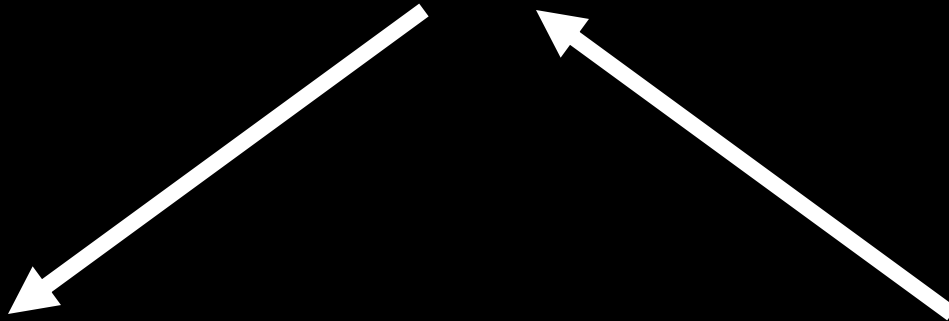


# November 2009: throttling back

CPAN Testers Statistics - Reports



Scale



Anticipation



Leverage



Scale is not always  
a technical problem!

Visualize  
wild success

But don't build  
for it right away

Email worked!

NNTP worked!

For 10 years

1. Anticipate the breakpoint

2. Do something about it

FAIL

We should have seen  
it coming sooner

We built 2.0  
by designing an API for  
server components  
and implementing  
a version of it on AWS

Clouds give leverage



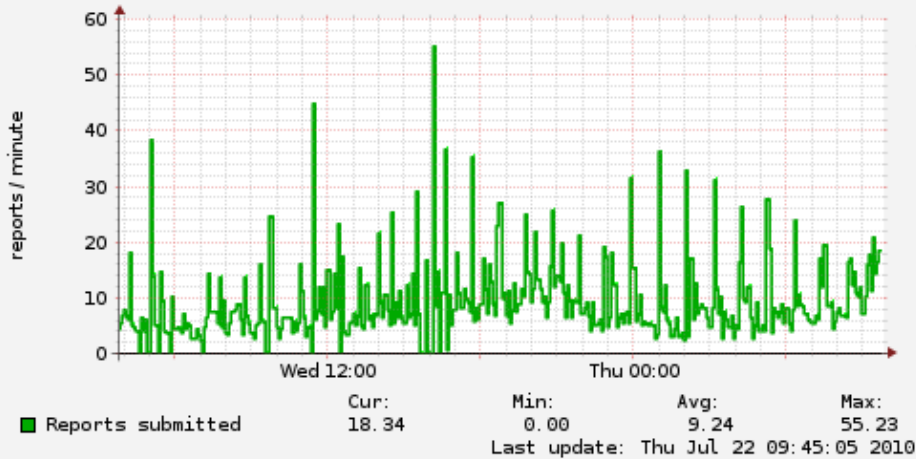
Technical scale  
Administrative scale

Volunteer time  
is more scarce than  
nominal cloud costs

# CT 2.0 running in beta since April

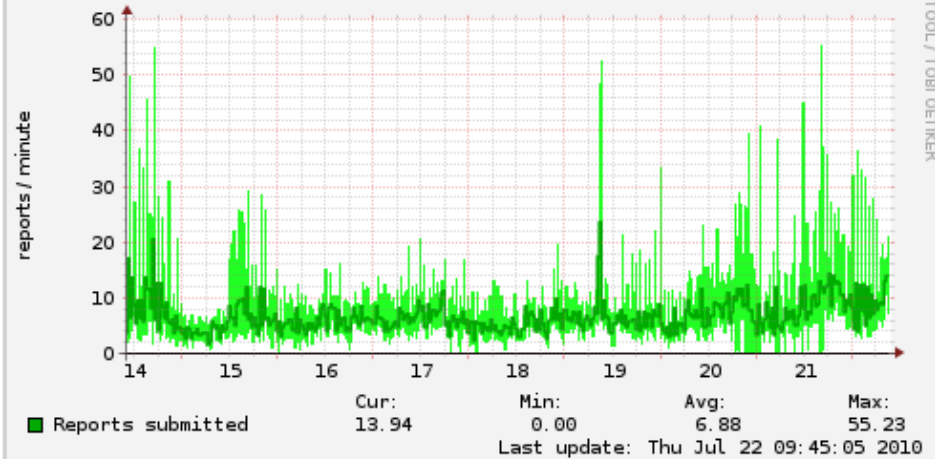
CPAN Testers 2.0 Reports Submitted - by day

RRDTOOL / TOBI OETIKER



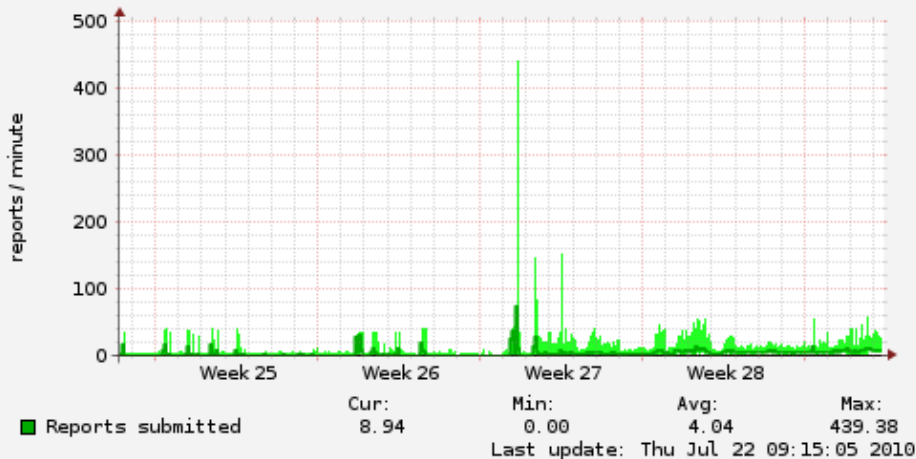
CPAN Testers 2.0 Reports Submitted - by week

RRDTOOL / TOBI OETIKER



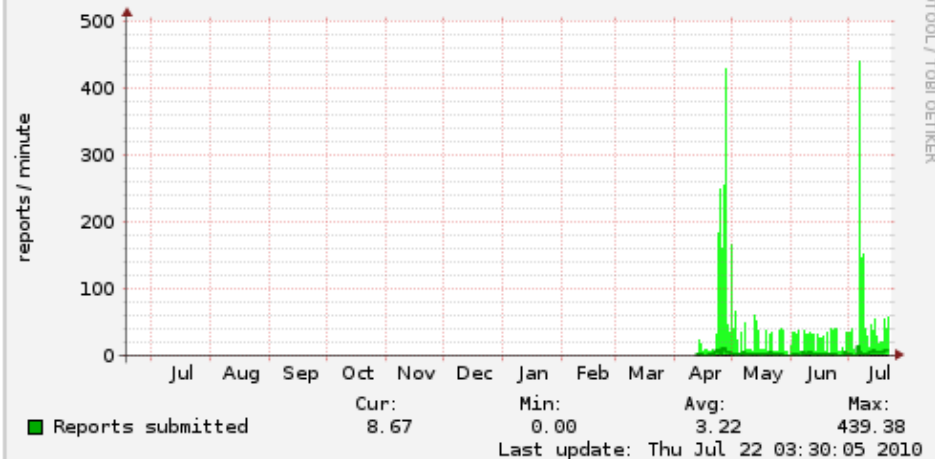
CPAN Testers 2.0 Reports Submitted - by month

RRDTOOL / TOBI OETIKER



CPAN Testers 2.0 Reports Submitted - by year

RRDTOOL / TOBI OETIKER



Culture within values and tools

Fun from community and competition

Mashups spur innovation and insight

Scale needs anticipation and leverage

Thank you for coming!

Your QA task:

Rate this talk, leave comments and  
tell me what could be better