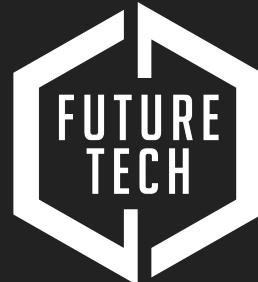


Will Git Be Around Forever?

A List Of Possible Successors

Hanno Embregts

@hannotify





Version Control 'By USB Stick'

Teaching a course on Git

SanDisk

prehistory

scm classic times

middle ages

the Renaissance

1982

1990

1992

1994

1995

2000

2005

2010

rcs

cvs

perforce

svn

bitkeeper

bazaar
git

dvcs age

clearcase

accurev

darcs
hg

embrace branching,
merging and
distributed...

pvcs

vss

welcome to hell

plastic

laggards

tfs



BitMover announces accelerated commercial development strategy and migration plan for Open Source users



SAN FRANCISCO, April 5th 2005 /PRNewswire/ -- BitMover, the technology leader of enterprise development tools, announced today that it will focus exclusively on the development of the commercial version of their industry leading configuration management system, BitKeeper.

"We've experienced explosive growth over the last two years." said Bob Burres, VP of Sales. "We're doubling year over year and our commercial users exceed those using BitKeeper on Open Source projects. Focusing our energy on our cutting edge commercial products will ensure we maintain our competitive advantage and allow us to continue delivering world class development tools."

"BitKeeper is already one of the most advanced SCM products on the market," said Holt Mebane, an architect in HP's Imaging and Personal Systems Group. "BitKeeper has an exciting roadmap, and we recognize that a BitKeeper product with these features will be invaluable to our firmware design efforts."

The commercial version of BitKeeper has an exciting roadmap which includes:

- Integration with major IDEs such as Eclipse
- Revamped GUI tools conforming to Windows standards
- Defect tracking database with a powerful integrated scripting language
- Peer review database system
- Cherry picking across branches
- Scaling to 1,000,000 changesets in one repository
- Scaling to an unlimited number of files
- Module (subtree) support
- Enhanced binary management
- Better license management and control
- Management reporting tools

BitMover looks forward to implementing our extensive roadmap and delivering advanced SCM technology to a wider market.

As part of this focus, BitMover has replaced the free version of BitKeeper with the recently released open source BitKeeper client. Those developers who desire additional functionality may choose to migrate to the more powerful commercial version of BitKeeper.

Major projects hosted at www.bkbits.net, such as the Linux kernel, will continue to be hosted and updated there.

Our relationship with the Open Source community has been evolving and many of the key developers have already migrated to the commercial version of BitKeeper. Those developers will continue to enjoy the full features of BitKeeper.

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tfs

welcome to hell



A photograph of Bill Gates, co-founder of Microsoft, speaking at a podium. He is wearing glasses, a dark suit, a white shirt, and a red tie. He is gesturing with his right hand while speaking. In the foreground, the back of a Dell computer monitor is visible, showing its ventilation grille and the "DELL" logo.

*"640K ought to be enough for anybody
for now..."*



Change is the only constant.

Heraclitus





Why did Git become so popular?

Main features of Git

- Distributed
- Free & open-source
- Fast
- Optimized for branching

WWCVSND?

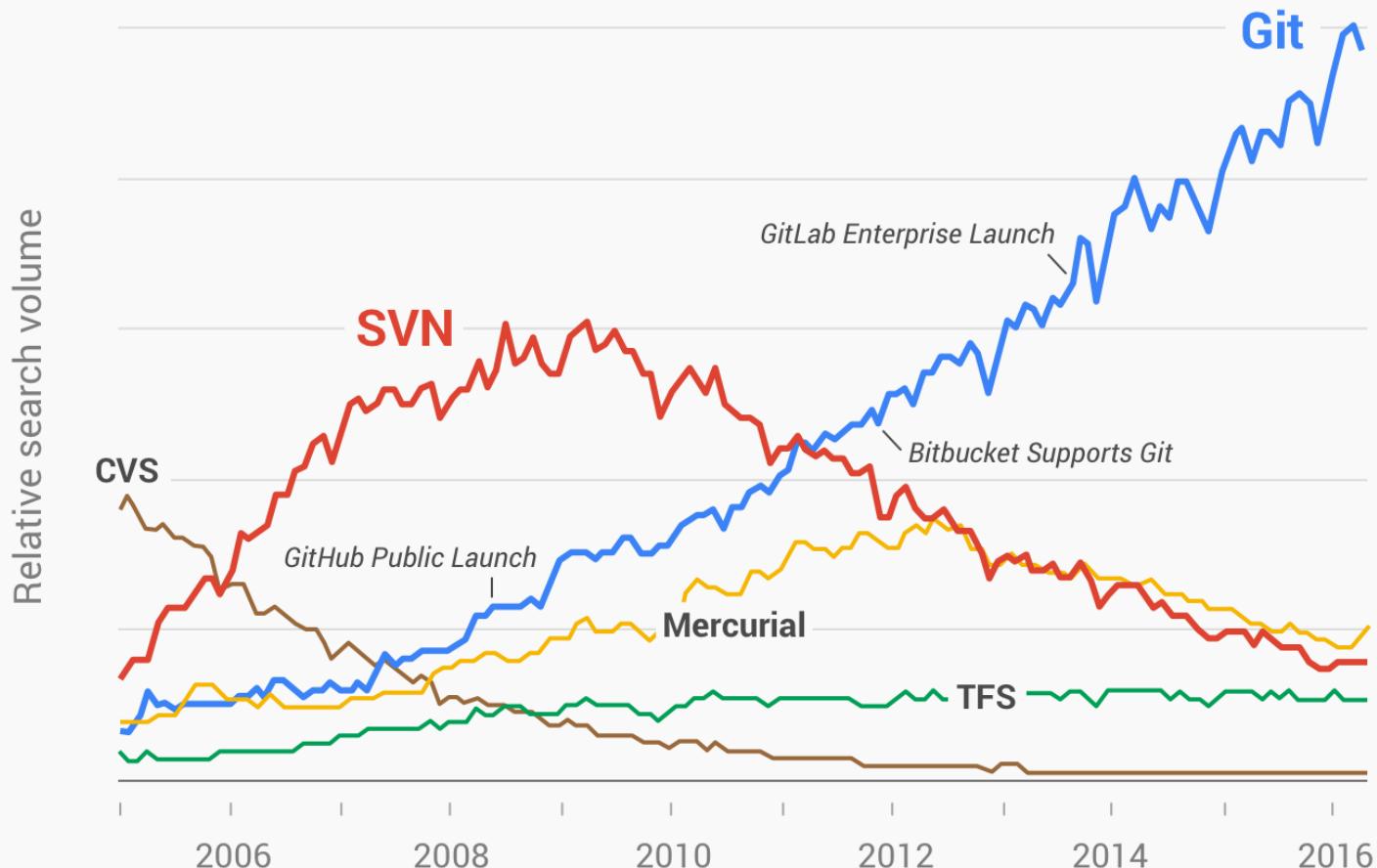
If in doubt, make the exact opposite decision.

Killer features.

prediction variable #1

How Did SVN Manage to Lose?

Version control interest over time



Create a repository

X

Repository type



Git



Git



TFVC



Add a README

A photograph of a person from behind, wearing a dark t-shirt, holding a large, reflective, spherical object. The sphere reflects a vibrant sunset over a body of water, with orange and yellow hues. The background is a blurred landscape of hills or mountains under a hazy sky.

Hosting platform support.

prediction variable #2

A photograph of a person from the waist up, wearing a dark t-shirt, holding a large, reflective, spherical object. The sphere reflects a vibrant sunset or sunrise over a body of water, with orange, yellow, and blue hues. The background is a blurred landscape.

Open-source community support.

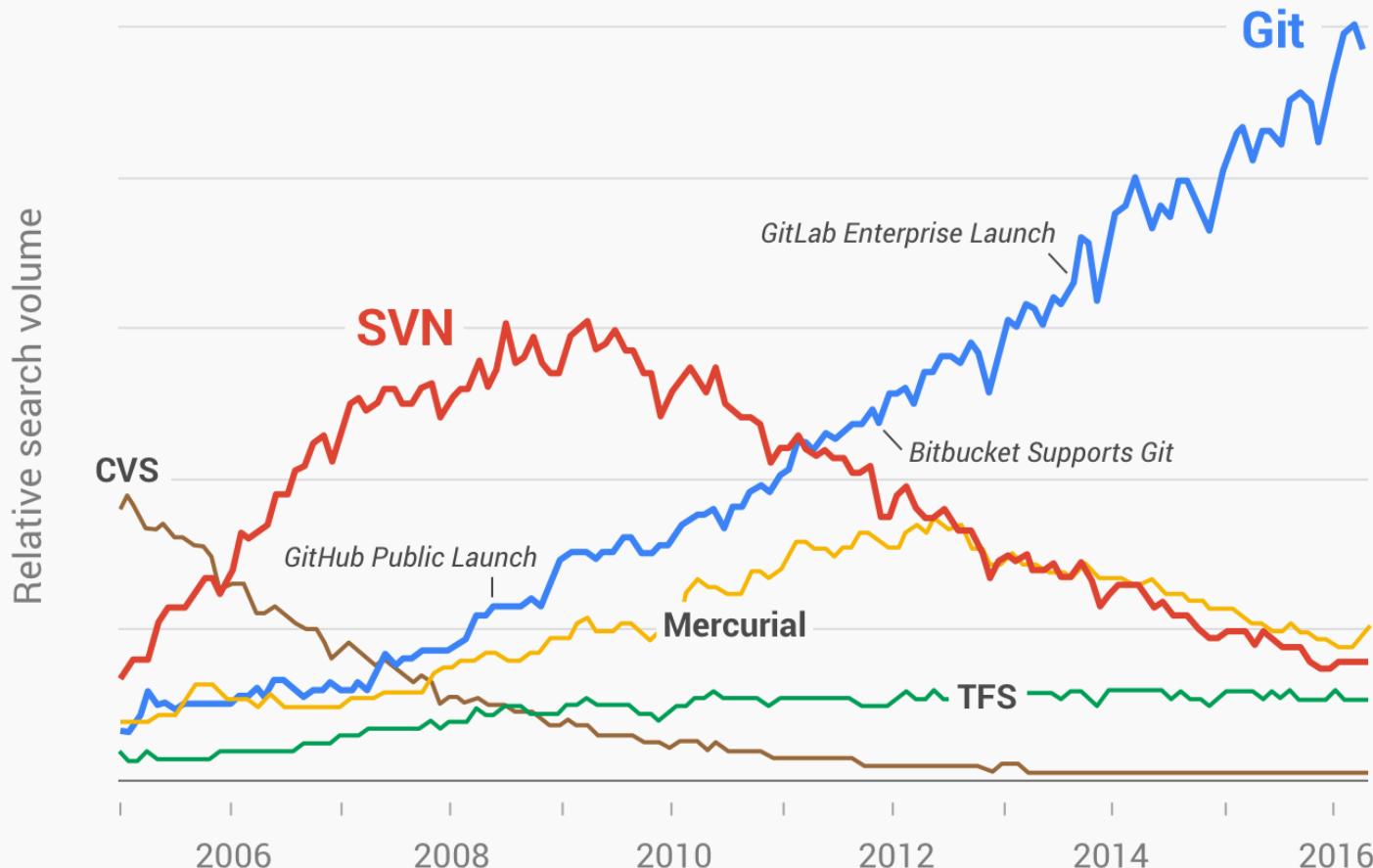
prediction variable #3

THERE ARE TWO TYPES OF PEOPLE

- ① THOSE WHO CAN EXTRAPOLATE FROM INCOMPLETE DATA

How Did SVN Manage to Lose?

Version control interest over time



First Prediction

2010

Subversion 44%

Git 25%

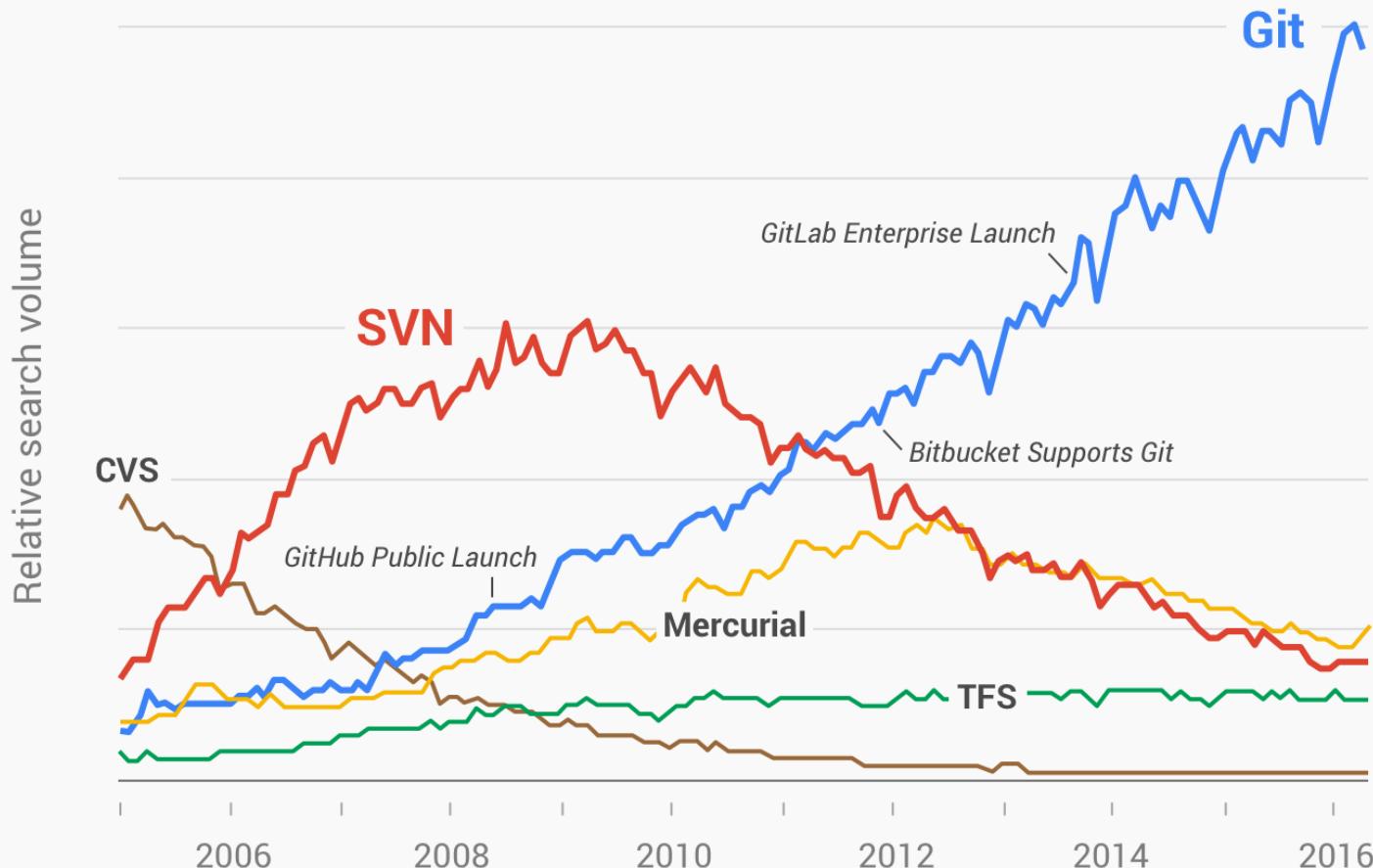
Mercurial 19%

TFVC 7%

CVS 5%

How Did SVN Manage to Lose?

Version control interest over time

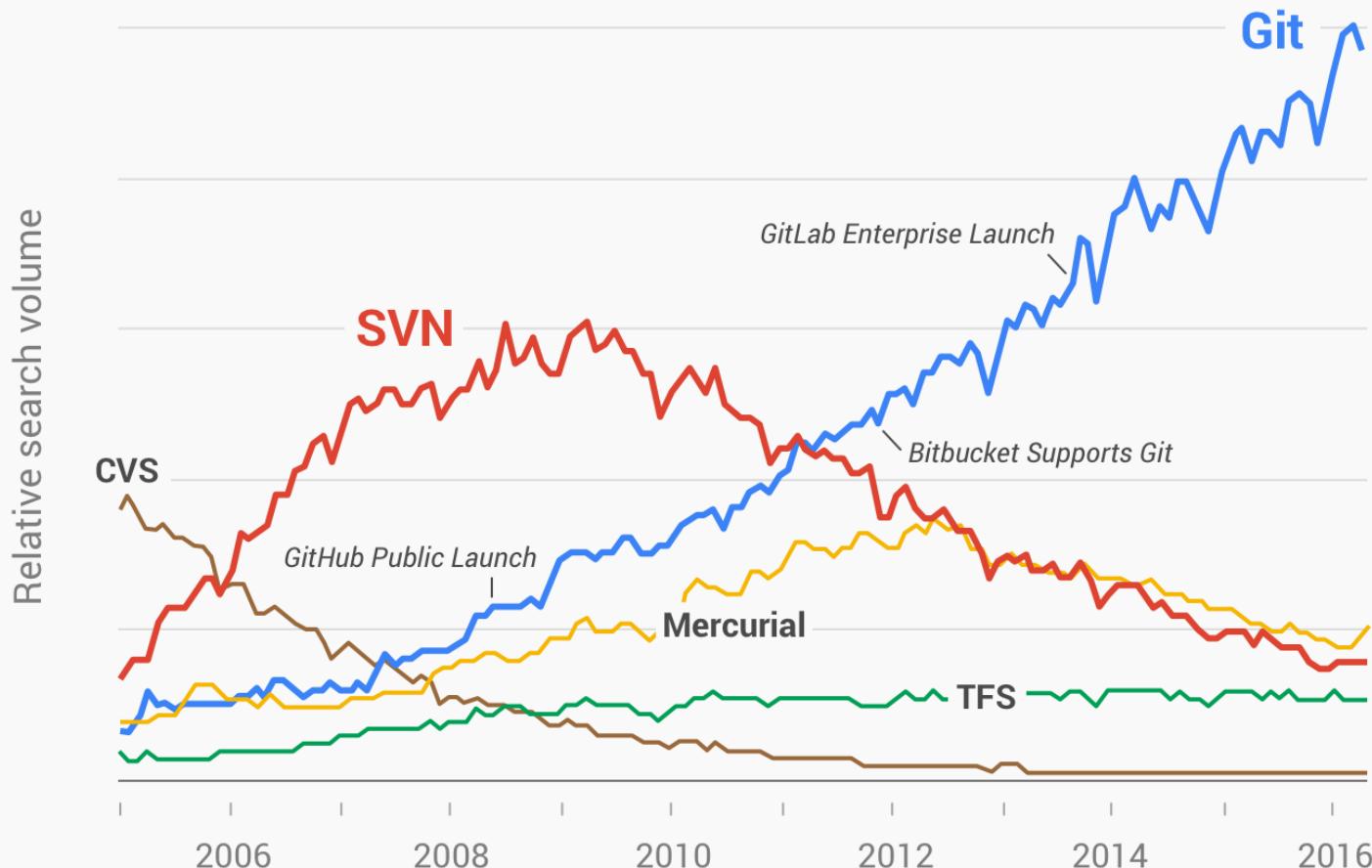


First Prediction

	2010	2021
Subversion	44%	8%
Git	25%	73%
Mercurial	19%	12%
TFVC	7%	7%
CVS	5%	<1%

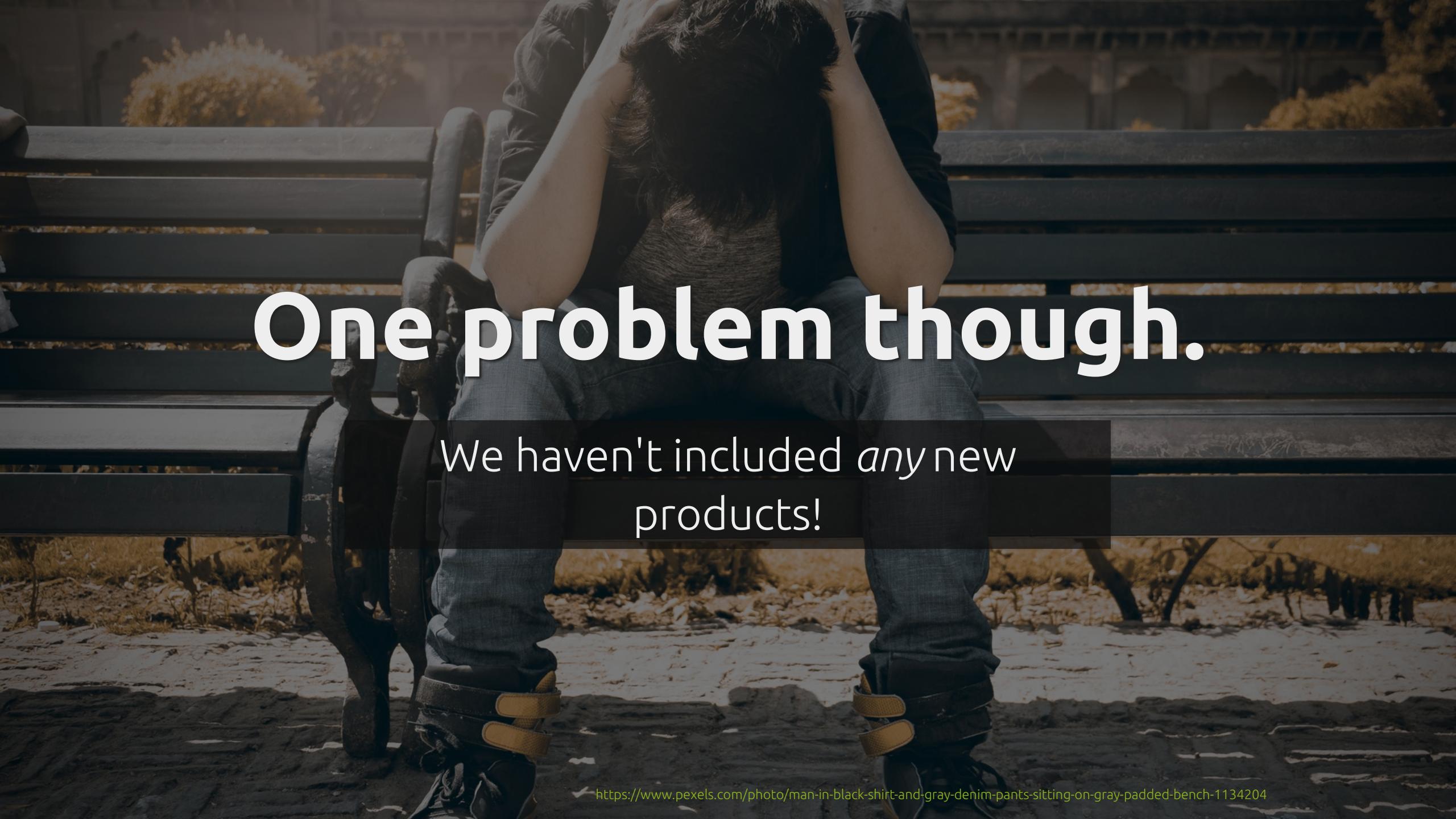
How Did SVN Manage to Lose?

Version control interest over time



First Prediction

	2010	2021	2032
Subversion	44%	8%	4%
Git	25%	73%	80%
Mercurial	19%	12%	9%
TFVC	7%	7%	7%
CVS	5%	<1%	<1%

A photograph of a man sitting on a grey wooden bench outdoors. He is wearing a black t-shirt, blue jeans, and brown boots. His head is buried in his hands, and he appears to be in distress or deep thought. The background shows a bridge and some foliage.

One problem though.

We haven't included *any* new products!

The Browser wars



Marktaandeel browsers (januari 2005):

- | | |
|------------------------|--------|
| 1. Microsoft IE 6.0 | 80.95% |
| 2. Mozilla Firefox 1.0 | 4.58% |
| 3. Microsoft IE 5.0 | 4.18% |
| 4. Microsoft IE 5.5 | 3.66% |
| 5. Mozilla 1.x | 2.77% |
| 6. Opera 7.x | 1.29% |

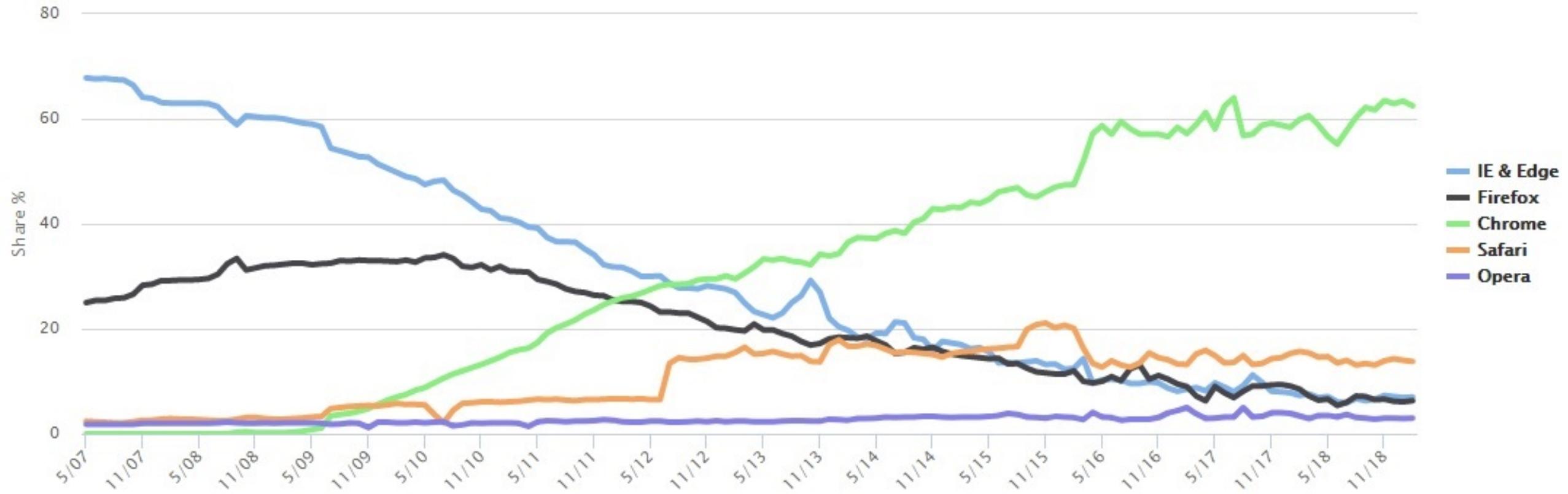
In ten years time...

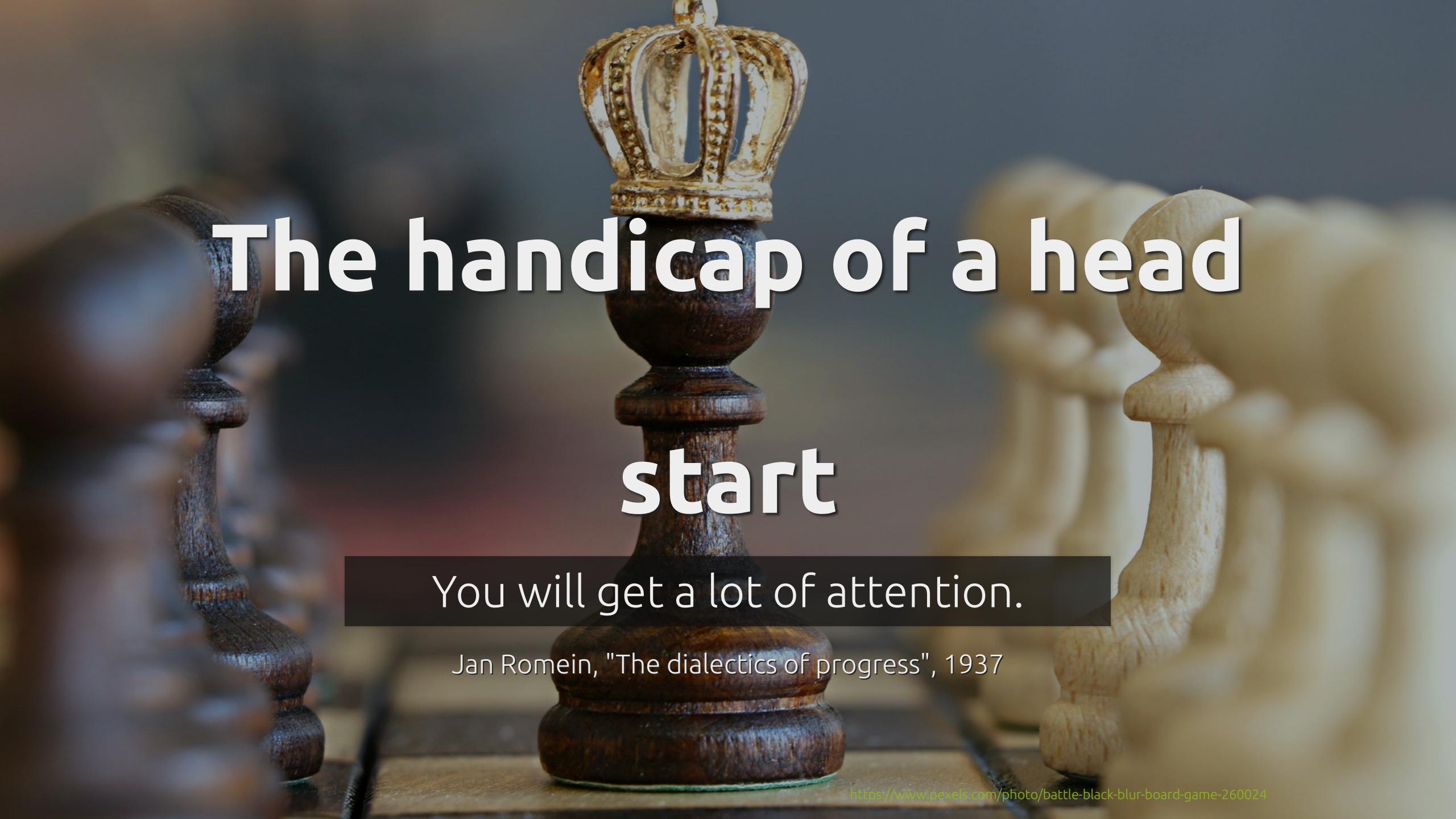
1. ...Internet Explorer would be surpassed as the top browser family;
2. ...Mozilla Firefox would surpass Internet Explorer;
3. ...Mozilla Firefox would be the top browser.

In ten years time...

1. ...Internet Explorer would be surpassed as the top browser family;
2. ...Mozilla Firefox would surpass Internet Explorer;
3. ...~~Mozilla Firefox~~ would be the top browser.

Browser Family Monthly Usage Share





The handicap of a head start

You will get a lot of attention.

Jan Romein, "The dialectics of progress", 1937

A photograph of a person from behind, wearing a dark t-shirt, holding a large, reflective, spherical object. The sphere reflects a vibrant sunset over a beach and ocean. The sky is filled with orange, yellow, and blue hues. The person's hands are visible at the bottom of the sphere.

The handicap of a head start

prediction variable #4

Two New(er) Kids On The Block

Two new(er) kids on the block

- Fossil (2006)
- Pijul (2015)

Fossil

SanDisk

leefco.com
Designed in California

EMTEC

Transcend
8GB

Features that Fossil promises

- distributed version control
- integrated bug tracking, wiki, forum and technotes
- built-in web interface
- both autosync and manual merge mode
- show descendants of a check-in
- supports operations on multiple repositories

Quick facts

- Written in C and SQL
- Is the VCS of choice for the SQLite project
- Free code hosting at:
 - Chisel - <http://chiselapp.com/>
- Or simply host it yourself using an SQLite database and a web server

Uses a relational database

- a repository is stored in a single SQLite database file
- contains relations between check-ins to be able to produce both ancestors and descendants of a check-in



'Github in a box'

- repository UI (fossil ui)
- wiki, ticketing & bug tracking
- embedded documentation
- technical notes
- forum

Quick demo

- Up and running
- Using the web interface (`fossil ui`)
- Retrieving descendants of a checkin

The Bad

- Dealing with large files
- Dealing with large commits

<https://www.omyagames.com/blog/2014/02/15/farewell-fossil-version-control>

Git vs. Fossil

	Git	Fossil
Sample project	Linux kernel	SQLite
Contributors	5,000+	4
Engagement	Global	Personal
Workflow	Hierarchy	Trust

Pijul

SanDisk

EMTEC

Transcend
8GB

leefco.com
Designed in California

pi · jul

or *crotophaga sulcirostris*, a bird
known to do collaborative nest
building.

Features that Pijul promises

- distributed version control
- simple, because of its basis on a sound theory of patches
- fast, because it aims to fix the Darcs performance issues
- interactive recording

Quick facts

- written in Rust
- bootstrapped since April 2017
- free code hosting at <https://nest.pijul.com>

Patch-oriented design

- A patch is an intuitive atomic unit of work.
- It focuses on *changes*, instead of *differences between snapshots* (i.e. Git commits).
- Applying or unapplying a patch *doesn't change* its identity.
- The end result of applying several patches is always the same, regardless of the order in which they

GIT

one line
two line
three line

two line
one line
four line

two line
four line
four line

two line
four line
four line

Pijul

+ one line
+ two line
+ three line

- one line
+ one line
- three line
+ four line

- one line
+ four line

two line
four line
four line

Quick demo

- Up and running
- Recording patches
- Reordering patches

Pijul's current status

- v1.0-beta
<https://pijul.org/posts/2022-01-08-beta>

Predictions

Prediction variables

- Killer features.
- Hosting platform support.
- Open-source community support.
- The handicap of a head start.

	Git	Hg	TFVC	Fossil	Pijul
Features	-	-	-	+	++
Hosting	++	+	-	0	0
Open-source	++	++	--	-	+
Dominant	--	-	0	0	0
	+1	+1	-4	0	+3

2032

Git 80%

Mercurial 9%

TFVC 7%

Subversion 4%

CVS <1%

	2032	2032
Git	80%	77%
Mercurial	9%	8%
Pijul		5%
TFVC	7%	4%
Subversion	4%	4%
Fossil		2%
CVS	<1%	<1%

Further reading

Further reading

- "Beyond Git" (by Paweł Świątkowski)
<http://katafrakt.me/2017/05/27/beyond-git/>
- "Fossil vs. Git" (by the Fossil team)
<https://www.fossil-scm.org/home/doc/trunk/www/fossil-v-git.wiki>
- "Merging, patches and Pijul" (by Joe Neeman)
<https://jneem.github.io/pijul/>

Now what?

- A lot of projects are nothing like the Linux kernel.
So try Fossil for a change!
- Git's snapshotting might be too technical for the average Git user. **So try Pijul for a change!**



Any
questions?

Thank you! 😊

nest.pijul.com/hannotify/will-git-be-around-forever

hanno.codes

@hannotify

hanno.embregts@infosupport.com