

# Will Git Be Around Forever?

A List Of Possible Successors

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@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

pvcs

vss

scm redone...

plastic

embrace branching,  
merging and  
distributed...

laggards

tfs

welcome to hell



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

**BITKEEPER**  
WORLD WIDE DEVELOPMENT

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](http://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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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 and has a surprised or excited expression on his face. A microphone is positioned in front of him. 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

“ quotefancy

Photo credit: Ryan McGuire



# Why did Git become so popular?

# Main features of Git

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

# WWCVSND?

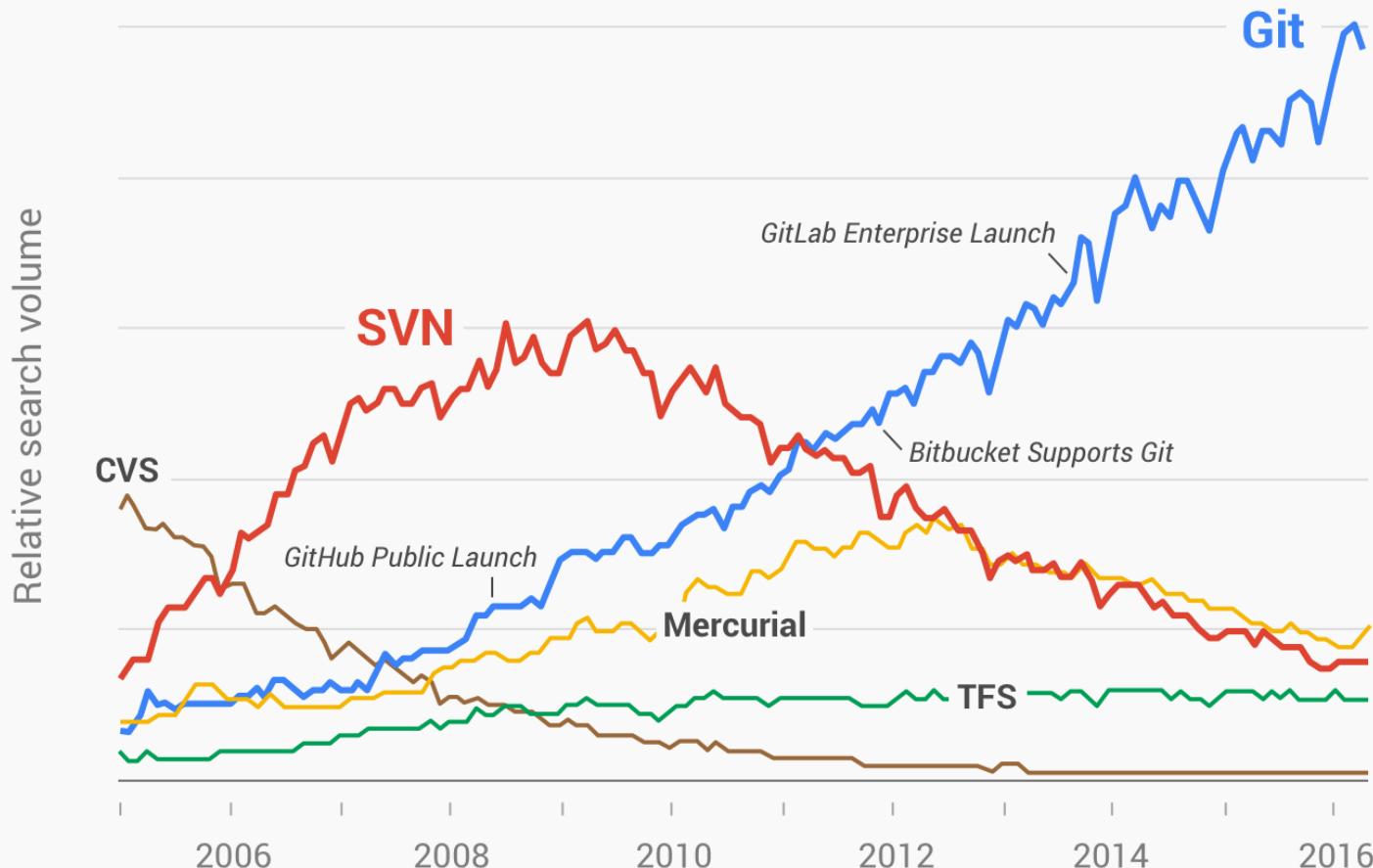
If in doubt, make the exact opposite decision.

# 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

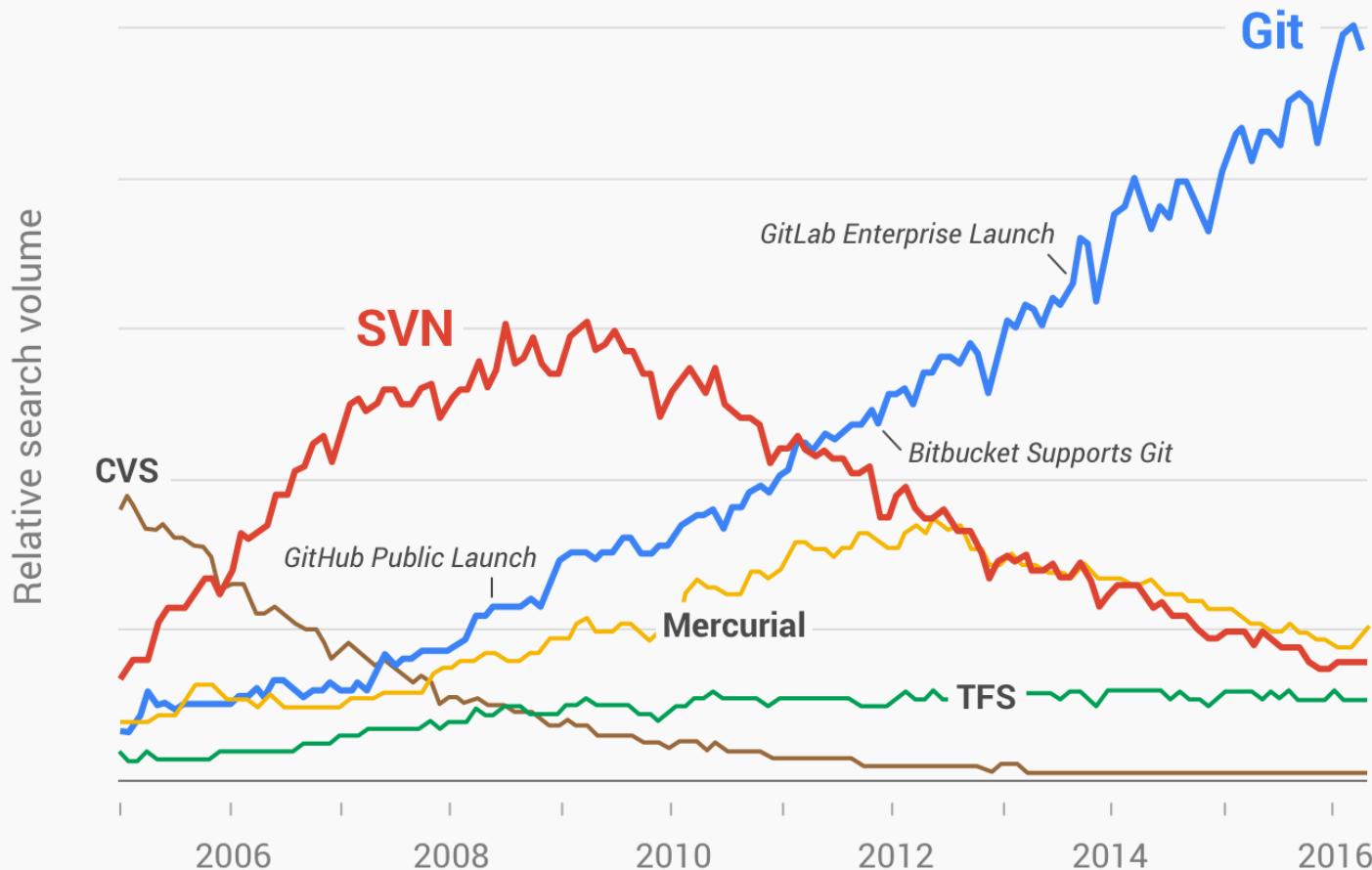
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- ① THOSE WHO CAN EXTRAPOLATE FROM INCOMPLETE DATA



# How Did SVN Manage to Lose?

Version control interest over time



# First Prediction

2010

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**Subversion** 44%

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**Git** 25%

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**Mercurial** 19%

---

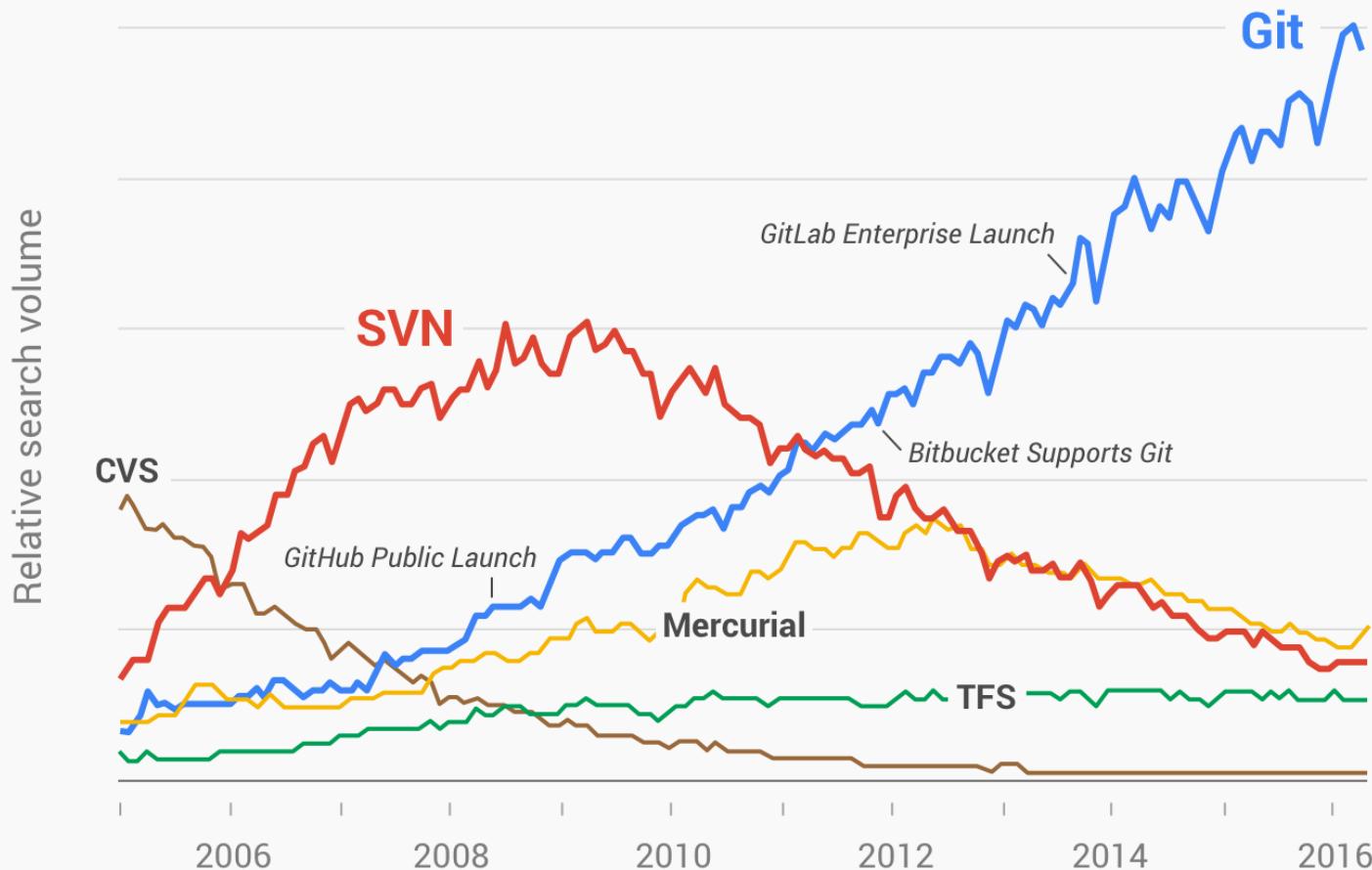
**TFVC** 7%

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**CVS** 5%

# How Did SVN Manage to Lose?

Version control interest over time

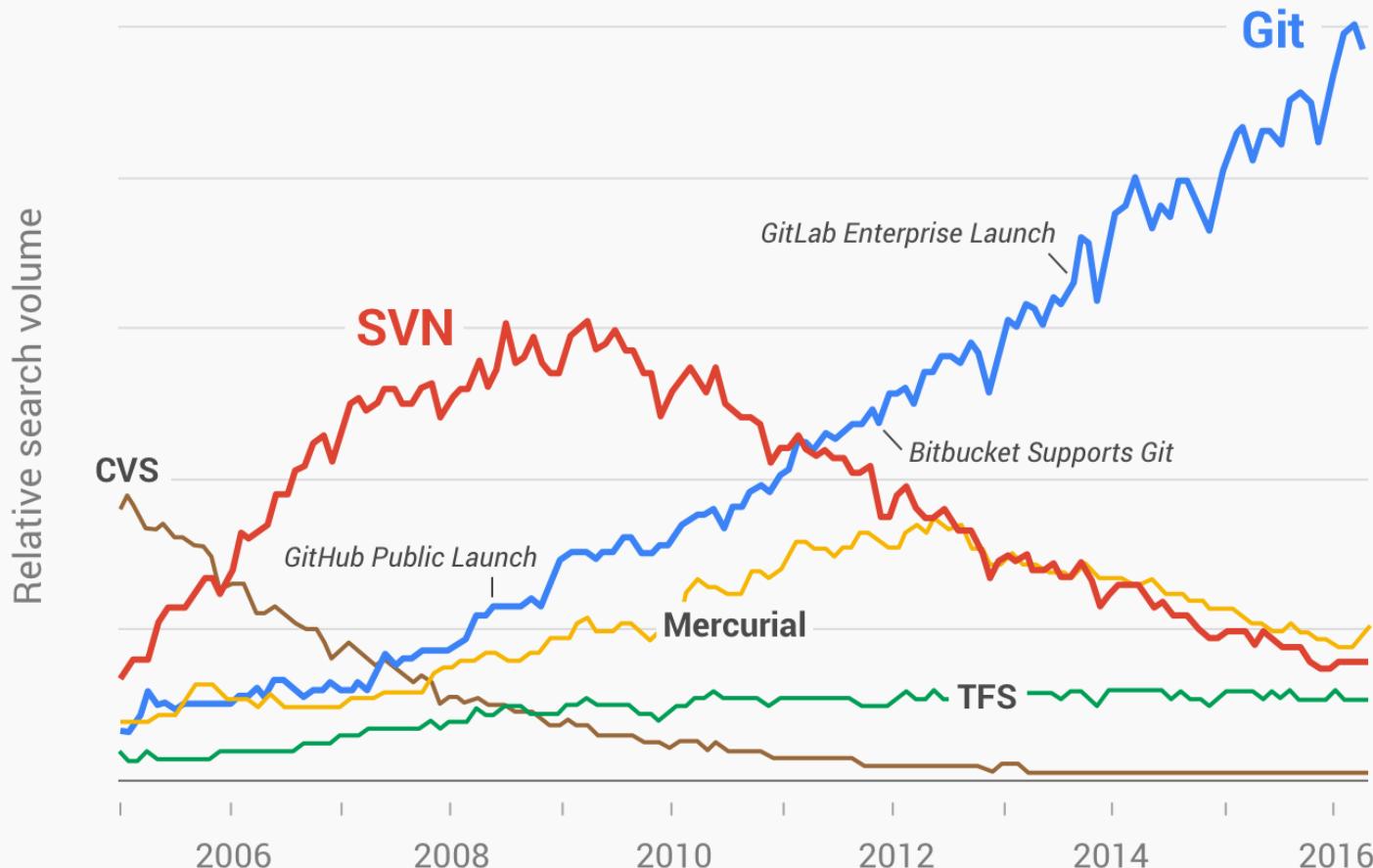


# First Prediction

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

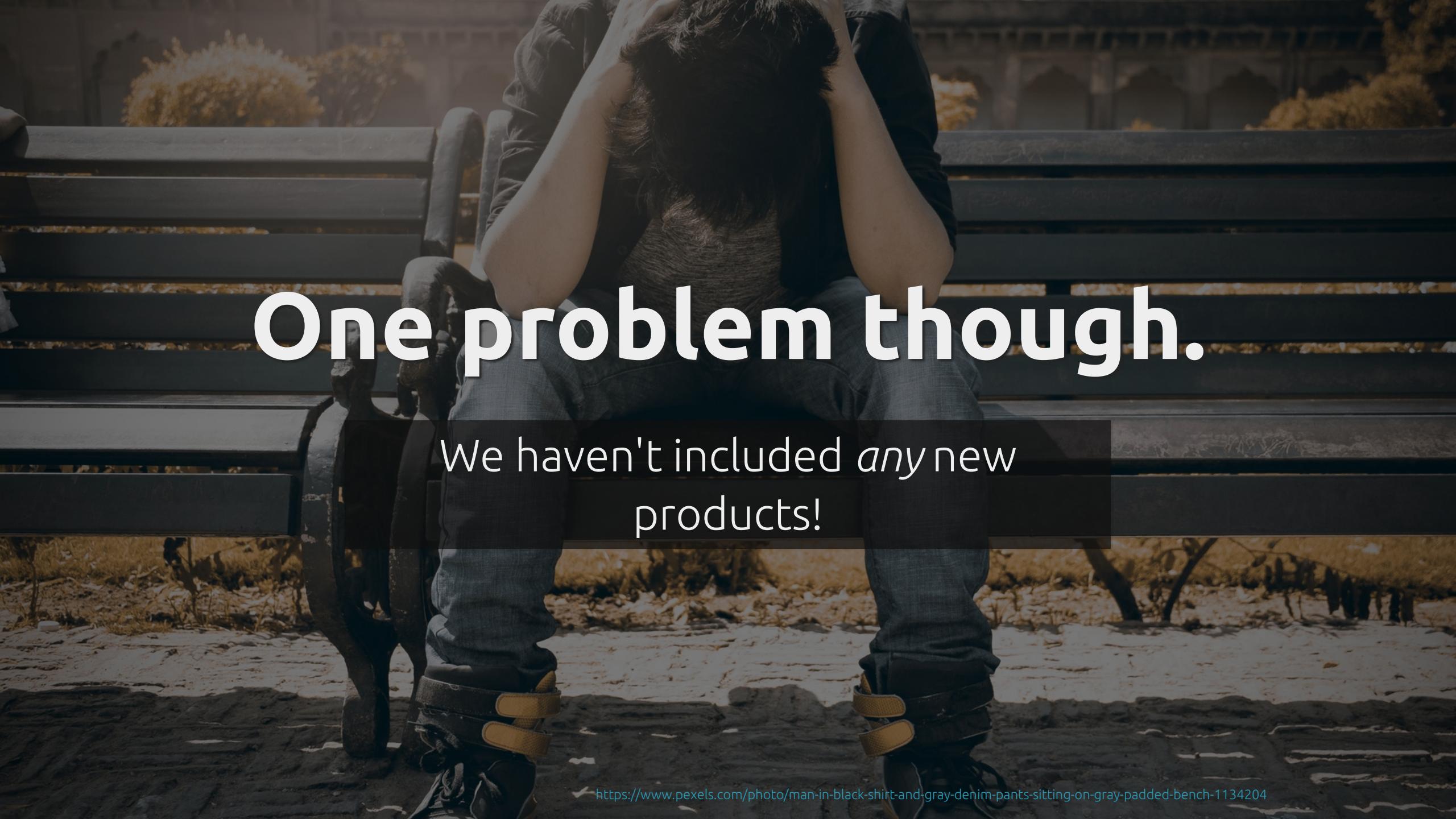
# How Did SVN Manage to Lose?

Version control interest over time



# First Prediction

	2010	2021	2032
<b>Subversion</b>	44%	8%	4%
<b>Git</b>	25%	73%	80%
<b>Mercurial</b>	19%	12%	9%
<b>TFVC</b>	7%	7%	7%
<b>CVS</b>	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%  |

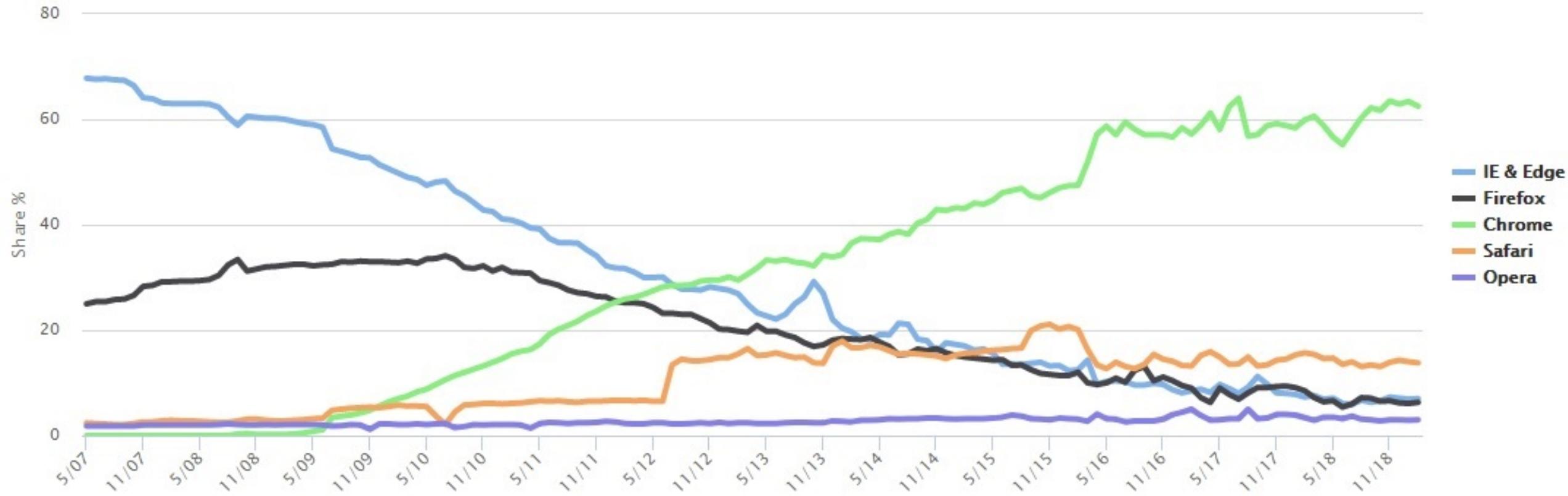
# In ten years time...

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.

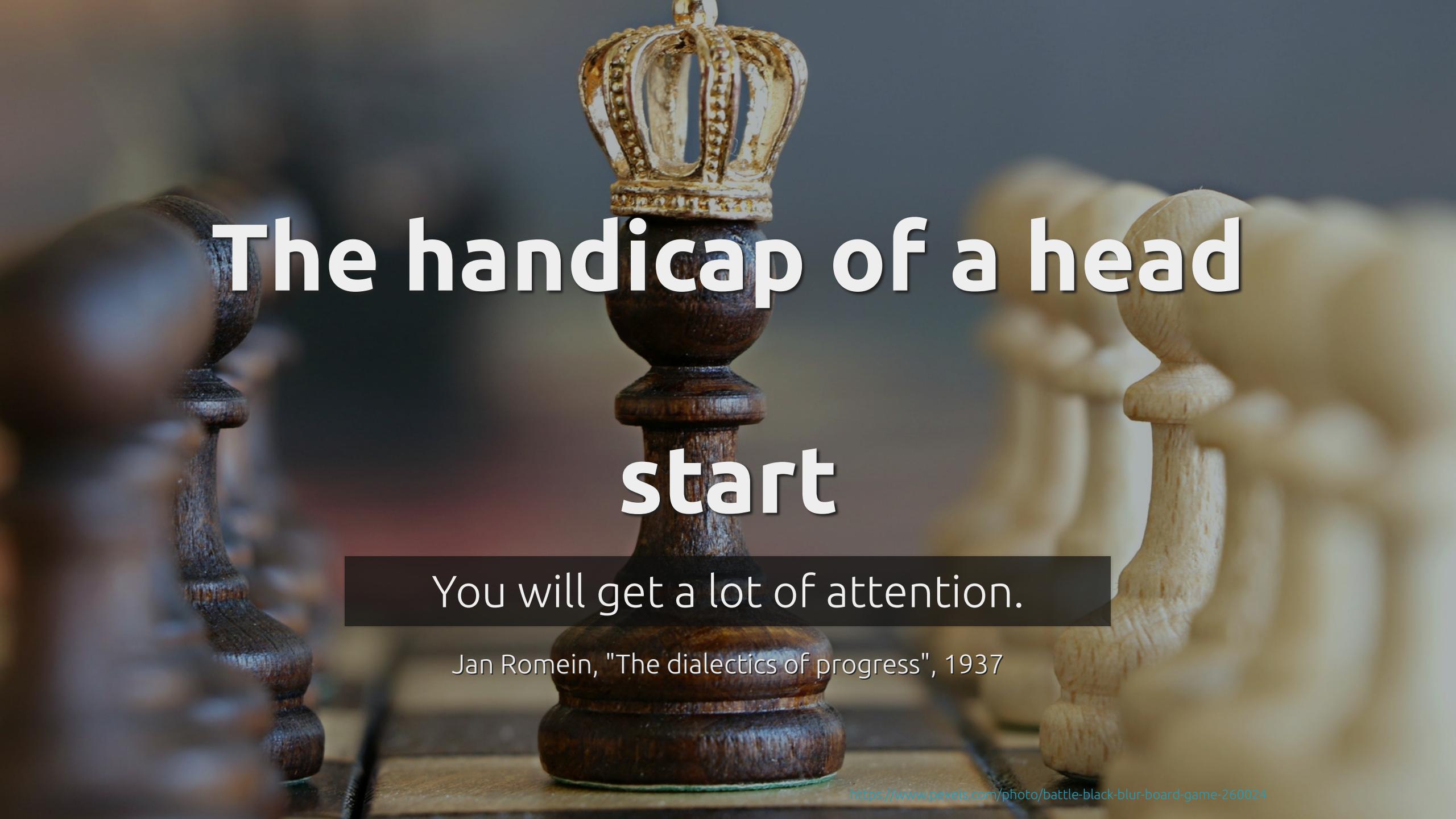
# In ten years time...

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

A collection of various USB flash drives (SanDisk, EMTEC, Transcend) scattered on a textured surface.

# Two New(er)

# Kids On The Block

# Two new(er) kids on the block

- Fossil (2006)
- Pijul (2015)

# Fossil

SanDisk

EMTEC

Transcend  
8GB

leefco.com  
Designed in California

# 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

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

# Git vs. Fossil

	<b>Git</b>	<b>Fossil</b>
<b>Sample project</b>	Linux kernel	SQLite
<b>Contributors</b>	5,000+	4
<b>Engagement</b>	Global	Personal
<b>Workflow</b>	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

# If commits were bank transactions

	snapshot	patch
<b>initial balance</b>	100	+100
<b>salary</b>	400	+300
<b>heating</b>	0	-400

# 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.

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

**2032**

---

**Git** 80%

---

**Mercurial** 9%

---

**TFVC** 7%

---

**Subversion** 4%

---

**CVS** <1%

	2032	2032
<b>Git</b>	80%	77%
<b>Mercurial</b>	9%	8%
<b>Pijul</b>		5%
<b>TFVC</b>	7%	4%
<b>Subversion</b>	4%	4%
<b>Fossil</b>		2%
<b>CVS</b>	<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 user. **So try Pijul for a change!**



Any  
questions?

# Thank you! 😊

[nest.pijul.com/hannotify/will-git-be-around-forever](http://nest.pijul.com/hannotify/will-git-be-around-forever)

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[hanno.codes](http://hanno.codes)

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@hannotify

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