STATE OF THE GOPHER NATION
AUG 2017
WHERE WE’VE BEEN
MAJOR GO MILESTONES
GO’S TIMELINE

Major milestones for the Go Project over the last 10 years

2007
- Birth
  - Started at Google as a 20% project

2009
- Open Source
  - 2 years later, Go is open sourced

2012
- 1.0
  - After nearly 5 years of development, Go 1.0 is released and attention shifts to using Go
2014

GopherCon

The first major Go conference held. By all accounts, it was an overwhelming success.

2015

Go In Go

As of Go 1.5 the Go compiler and runtime are written in Go.

2015

WWG & GOB

Women Who Go and GoBridge are formed to support inclusion and diversity.

2016

SSA

The SSA backend is released in Go 1.8, bringing further speed improvements.

2017

Go 2 anncc.

Russ Cox announces the intent to start working on Go 2.
ACCOMPLISHMENTS
GO’S GARBAGE COLLECTION: A STORY IN TWEETS
Amazing GC pause time improvements in Go 1.5.
They did it again in Go 1.6 RC 1!
Excited to canary Go 1.7! Continued improvement in GC pause, and improvements in various request latencies/perf!
SUB. MILLISECOND. PAUSE. TIME. ON. AN. 18. GIG. HEAP.

(Trying out Go 1.8 beta 1)

Go 1.7.3

App Warmup

Go 1.8 (beta 1)
Go #5 most loved, #3 most wanted on Stack Overflow
Go is go to language for:
- Reliability
- Scalability
- Durability
- Simplicity
- Performance
Go's Dependency Management story isn't good (yet). We realized our deficiencies in this space later than we should have.
New User Experience

The Go new user experience is intimidating and needlessly complex. It often takes users 30 - 90 minutes before they are able to use Go.
Community Culture

Like many developer communities Go has had its struggles with diversity, inclusiveness and elitism.
Go’s development has largely been led by Google. Google’s engineers’ experiences have helped shape Go into the language we love, but has also led to a limited perspective where experiences by others aren’t well understood.
Project Participation

It’s too hard and too intimidating for many in the community to contribute to the Go project.
TODAY
Interest over time

- golang

![Graph showing interest over time for golang on Google Trends from Jan 1, 2010 to Mar 1, 2014. The trend line is increasing significantly over time.](image-url)
Go breaks into the Tiobe Top 10

Go language soars to new heights in popularity

For the first time, Go makes the top 10 in the Tiobe index of programming language popularity.

With an all-time high rating of 2.363 percent, Go ranks as the 10th most popular programming language in this month's index, ahead of languages such as Perl, Swift, Ruby, and Visual Basic. The Tiobe Programming Community index assesses language popularity using a formula based on
Go #9 on GitHub usage & 2\textsuperscript{nd} fastest growing
<table>
<thead>
<tr>
<th>Language Rank</th>
<th>Types</th>
<th>Spectrum Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Python</td>
<td>![Icon] ![Icon] ![Icon]</td>
<td>100.0</td>
</tr>
<tr>
<td>2. C</td>
<td>![Icon] ![Icon] ![Icon]</td>
<td>99.7</td>
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<td>3. Java</td>
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<td>99.4</td>
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<td>4. C++</td>
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<tr>
<td>9. Go</td>
<td>![Icon] ![Icon] ![Icon]</td>
<td>76.1</td>
</tr>
<tr>
<td>10. Swift</td>
<td>![Icon] ![Icon] ![Icon]</td>
<td>75.3</td>
</tr>
</tbody>
</table>

Go #9 on IEEE rankings

Go #14 on Stack Overflow Survey (usage)

https://insights.stackoverflow.com/survey/2017#technology
How Many Go Developers Are There?

Posted on Thursday, July 13, 2017.

How many Go developers are there in the world? My best estimate is between half a million and a million.

My approach is to compute:

\[
\text{Number of Software Developers} \times \text{Fraction using Go}
\]

Maybe the Evans estimate is too high. The details of their methodology are key to their business and therefore not revealed publicly, so we can’t easily tell how strict or loose their definition of developer is. In January 2017, PK of the DQYDJ blog posted an analysis titled “How Many Developers are There in America, and Where Do They Live?” That post, which includes an admirably detailed methodology section, used data from the 2016 American Census Survey (ACS) and included these employment categories as “strict” software developers:
WORLDWIDE COMMUNITY
100’s of Go meetups all around the world
20+ Women Who Go chapters around the world
Conferences Across the World
GO ADOPTION – GAMING / MEDIA
GO ADOPTION – TECH

Logos of various tech companies and projects.
GO ADOPTION – GENERAL
GO ADOPTION – GLOBAL COMPANIES
ADDRESSING OUR CHALLENGES
Go’s Dependency Management story isn’t good (yet). We realized our deficiencies in this space later than we should have.
Managing Dependencies

1. Dependency Management Working Group

2. Dep tool as "official experiment"
   Prototype for dependency management integrated with go tool
New User Experience

The Go new user experience is intimidating and needlessly complex. It often takes users 30 – 90 minutes before they are able to use Go.
Improving New User Experience

1. Developer Experience Working Group
2. User Personas
3. One line Installer
Community Culture

Like many developer communities Go has had its struggles with diversity, inclusiveness and elitism.
Improving Culture

1. Establish, live by, and support the Go Code of Conduct

2. Support efforts like Women Who Go and Go Bridge

3. Talking about our mistakes
Go’s development has largely been led by Google. Google’s engineers’ experiences have helped shape Go into the language we love, but has also led to a limited perspective where experiences by others aren’t well understood.
Increasing User Feedback

1. Go User Survey with 3500+ responses

2. Experience Reports

   Expanding the Go team to include more diverse viewpoints

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The following apply to me: (multiple choice)

- 2,386 (66%) I program in Go outside of work
- 2,235 (62%) I program at work in Go
- 2,004 (56%) I program at work in another language
- 618 (17%) I manage a programming team
- 337 (9%) I am a student
- 78 (2%) Other
- 10 (0%) No response

Reading the data: This question was “multiple choice,” so the percentages add up to well over 100%. All graphs in this post show both the total count and the corresponding percentage of the 3,595 surveys completed.

I work in the following areas: (multiple choice)

- 2,272 (63%) Web development

Experience Reports

Justin Clift edited this page 11 hours ago - 64 revisions

This page collects experience reports about problems with Go that might inform our design of solutions to those problems. These reports should focus on the problems: they should not focus on and need not propose solutions. To propose solutions, see the proposal process.

We hope to use these experience reports to understand where people are having trouble writing Go, to help us prioritize future changes to the Go ecosystem. (We do not promise to reply to these. If you need immediate help answering questions about Go, see https://golang.org/help/ for resources.)

The best experience reports tell: (1) what you wanted to do, (2) what you actually did, and (3) why that wasn’t great, illustrating those by real concrete examples, ideally from production use. Please write these reports about the problems most significant to you, post them on your own blog, or on Medium, or as a Github Gist (use a .md extension for
Project Participation

It’s too hard and too intimidating for many in the community to contribute to the Go project.
Expanding Go Team & Contributors

1. Formation of Working Groups to extend leadership
2. Contribution Workshop
3. Contributor Summit

https://twitter.com/joshropp/status/886358586468687872
MAKING AN IMPACT
In roughly a week’s time, I went from initial commit to shipping replacement backends.

- Matt Robenolt @ DISQUS
You can write in Go as easily as Python, but it can save you a lot of machine resources.

- Alexander Ponomarev @

(translated from Russian)
GO @ DROPBOX

- Most of Dropbox infrastructure is written in Go
- We have over 150 Go contributors @ Dropbox to our server repo
- Over 1.3 million lines of Go @ Dropbox
WHERE WE’RE GOING
GO – THE LANGUAGE OF THE CLOUD
THE CLOUD IS BUILT IN GO
"We’ve had great experiences with tools written in Go and now we are adopting it for our next project"

- Cloud Users in 2018
GO 2
First and foremost, Go 2’s main goal will be to fix the most significant ways Go 1.x fails at scale.

- Russ Cox
“Maybe we can do two or three [changes], certainly not more than five.

- Russ Cox
Experience Reports

We need your help!

We need people to write experience reports to clearly define and communicate real issues they are experiencing using Go.
NEW OPPORTUNITIES
Go's Messaging Problem

Go's value isn't in one key feature. People that use Go love it but struggle to communicate why to others.

“Try it and you’ll love it” has limited success in communicating the value Go brings to organizations.
Go’s Accessibility Issue

Go’s docs have an implicit audience of systems programmers having a formal CS education.

The work to define personas is the first of many steps to meeting Go’s audience where they are.
The Go project will never reach its potential without contributions from people like you.