goto; chicago

Use Terraform to scale your team

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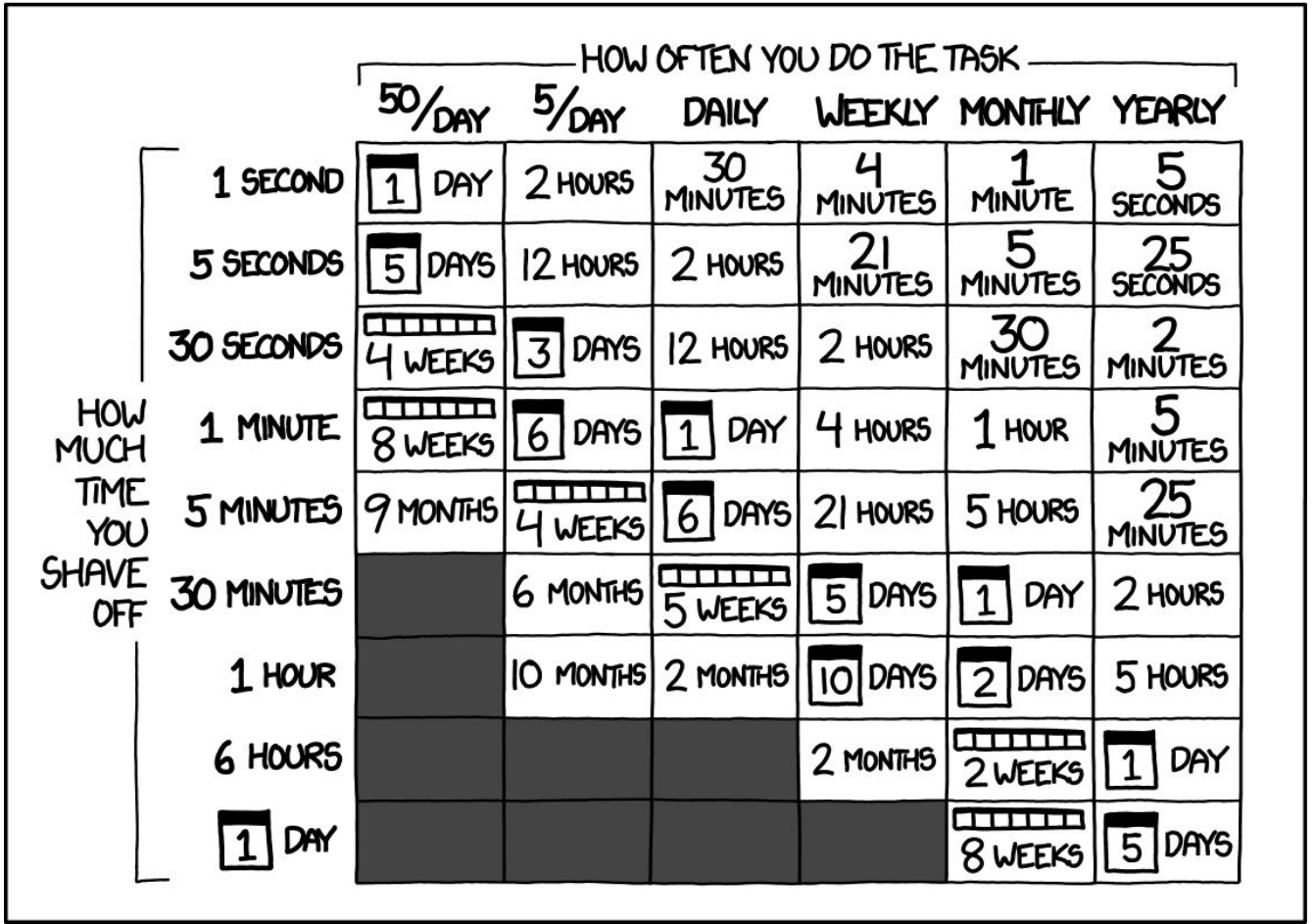
What is the problem?

https://xkcd.com/1205/

HOW LONG CAN YOU WORK ON MAKING A ROUTINE TASK MORE EFFICIENT BEFORE YOU'RE SPENDING MORE TIME THAN YOU SAVE?

(ACROSS FIVE YEARS)



What are we going to cover today?

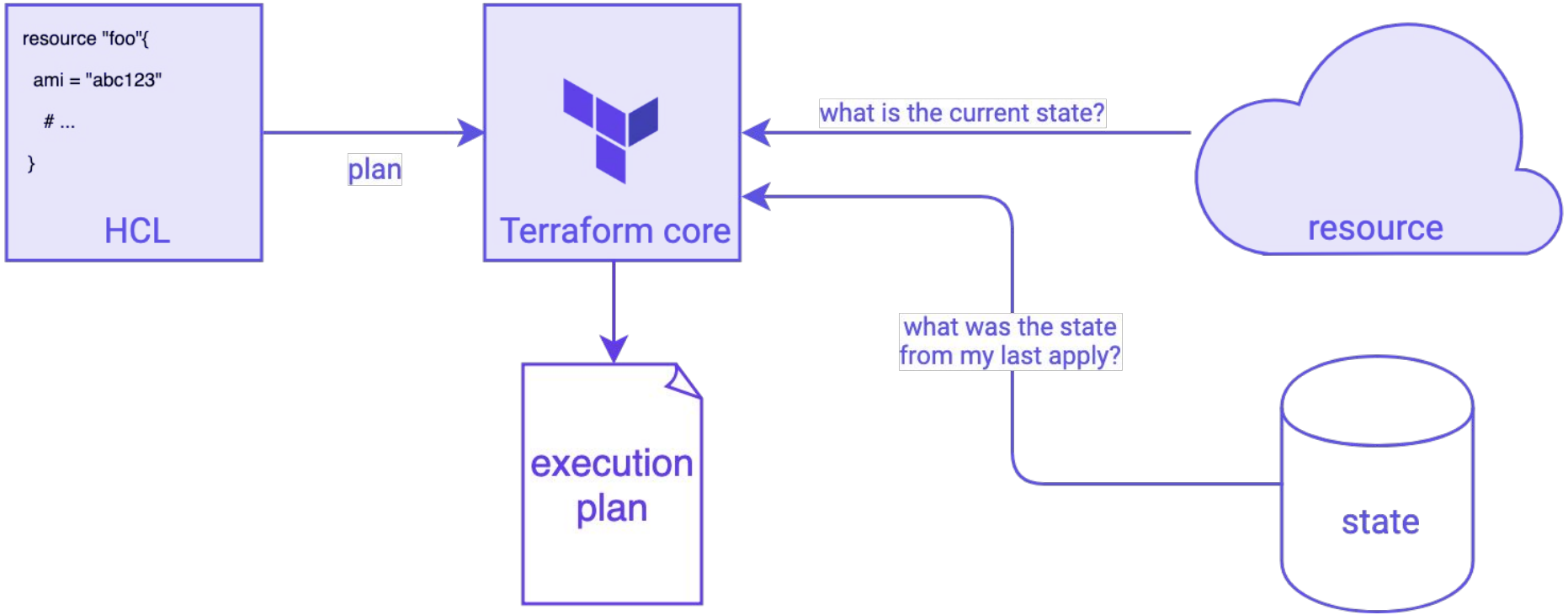
- Introduction to terraform
- Building our own provider
- Managing GitHub with Terraform
- Continuous deployment

🔥 Live demos 🔥

Tweet @openfaas 🛋️ 📸 @ewilde

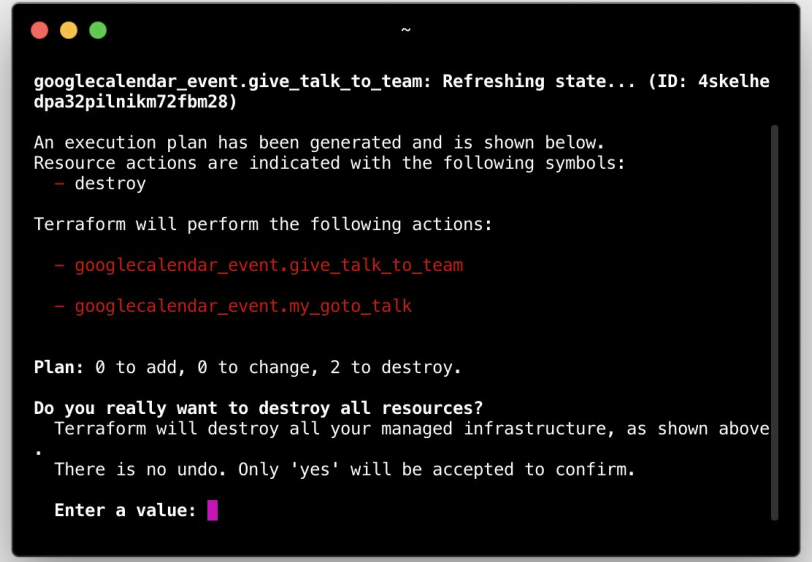
What is terraform?

Plan phase

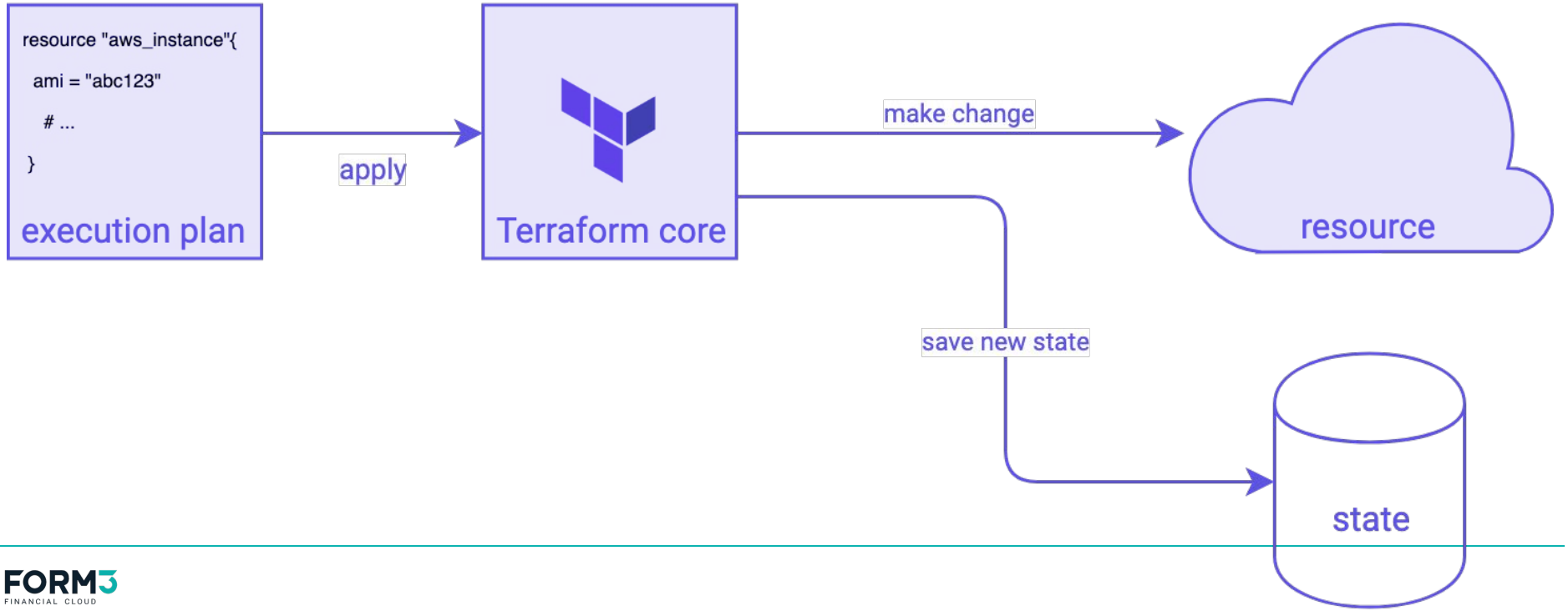

resource "foo"{
ami = "abc123"
# ...
}
HCL
plan
Terraform core
what is the current state?
resource
what was the state
from my last apply?
execution
plan
state

Okay?

Helps to evolve you infrastructure, safely and predictably



Apply phase

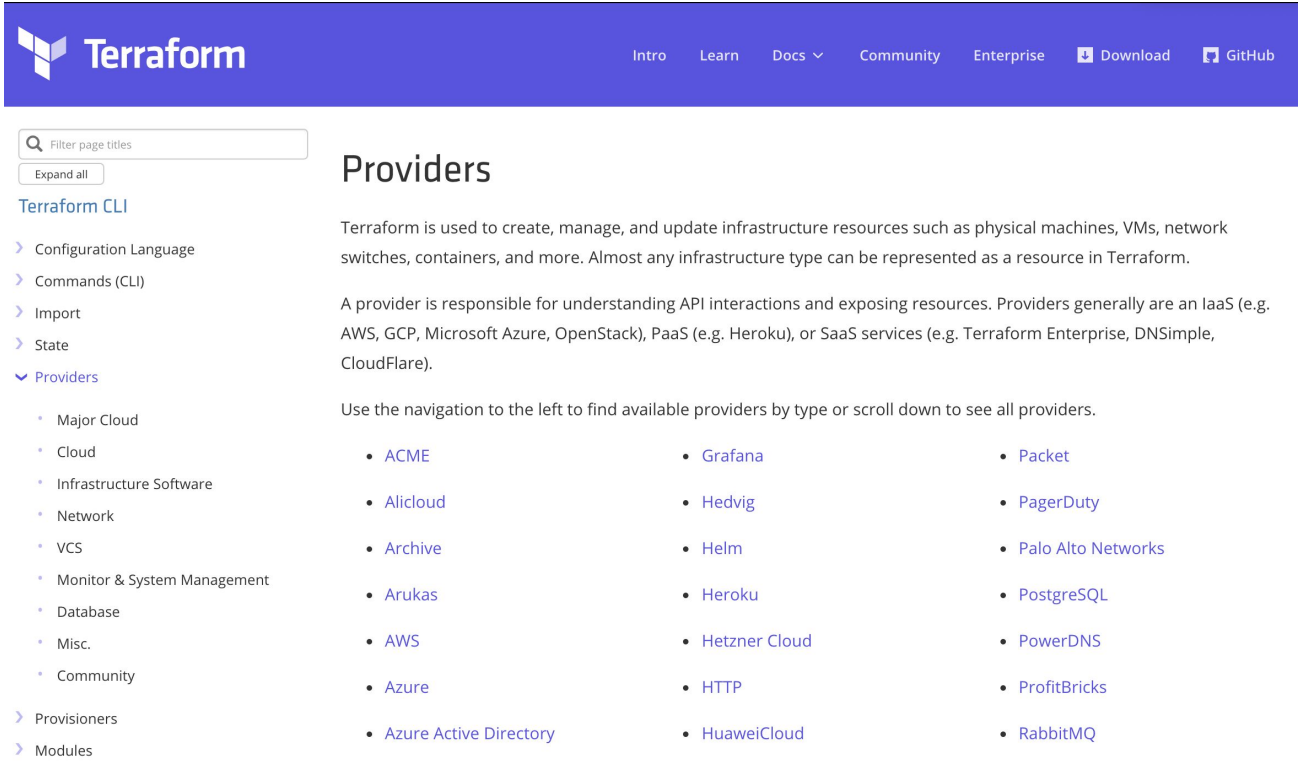

resource "aws_instance"{
ami = "abc123"
# ...
}
execution plan
apply
Terraform core
make change
resource
save new state
state

Let’s see it in action!

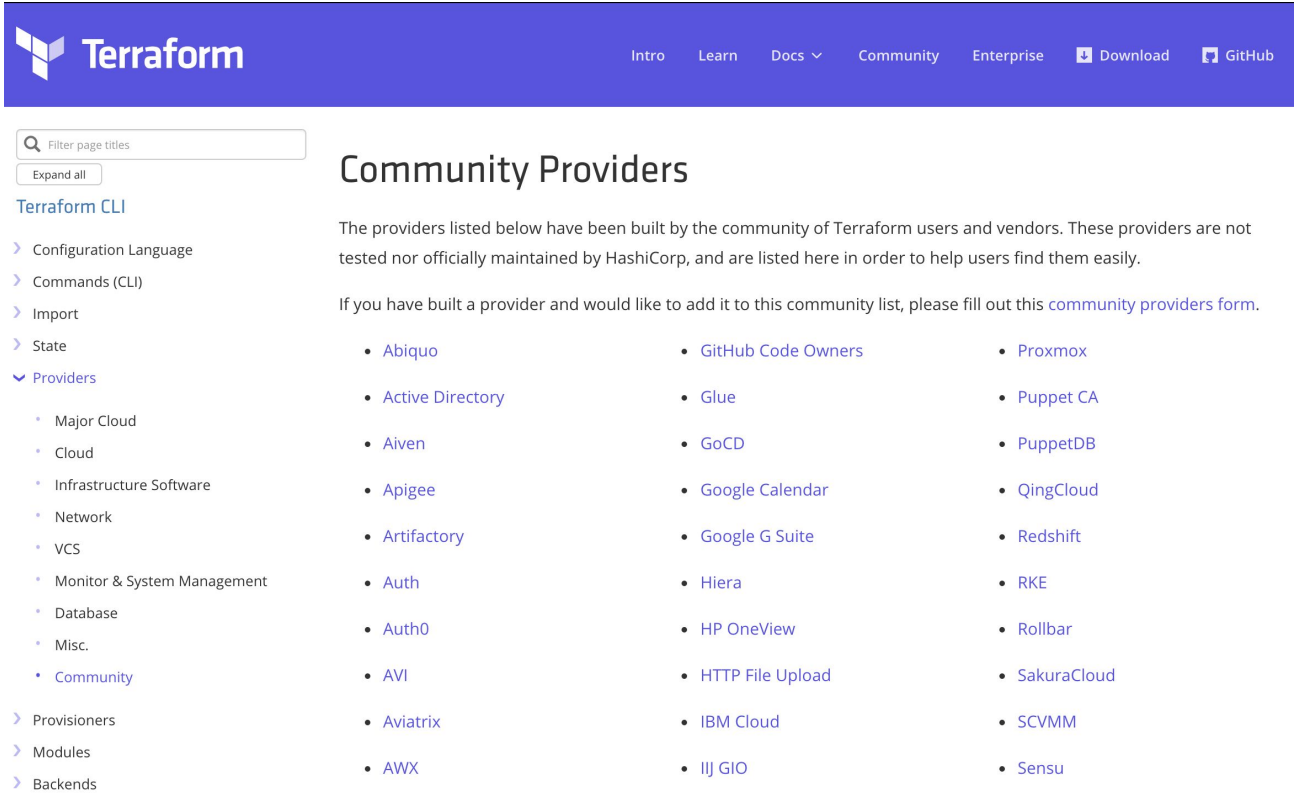
Review

- Plan
- Apply
- State file

Providers

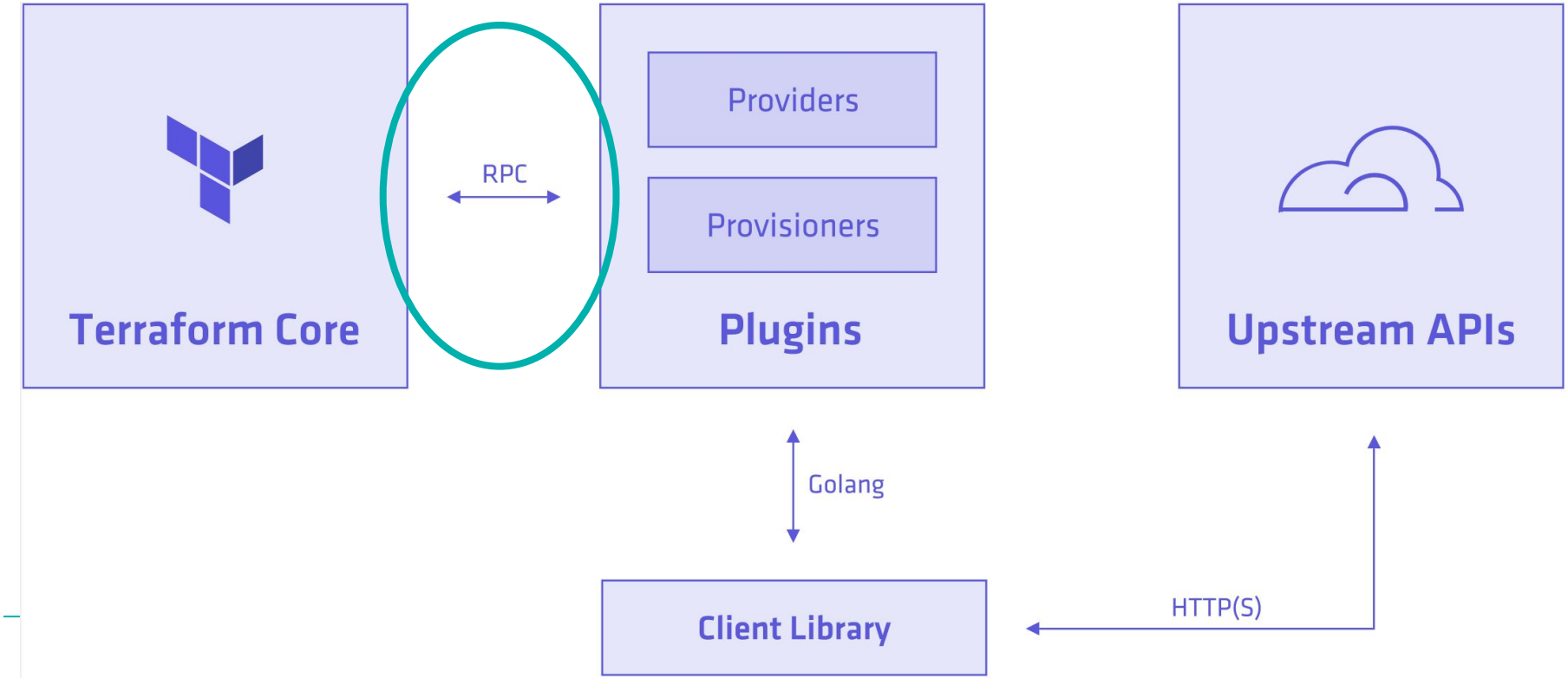


> 100 official providers



~10% contributed by Form3

Provider architecture



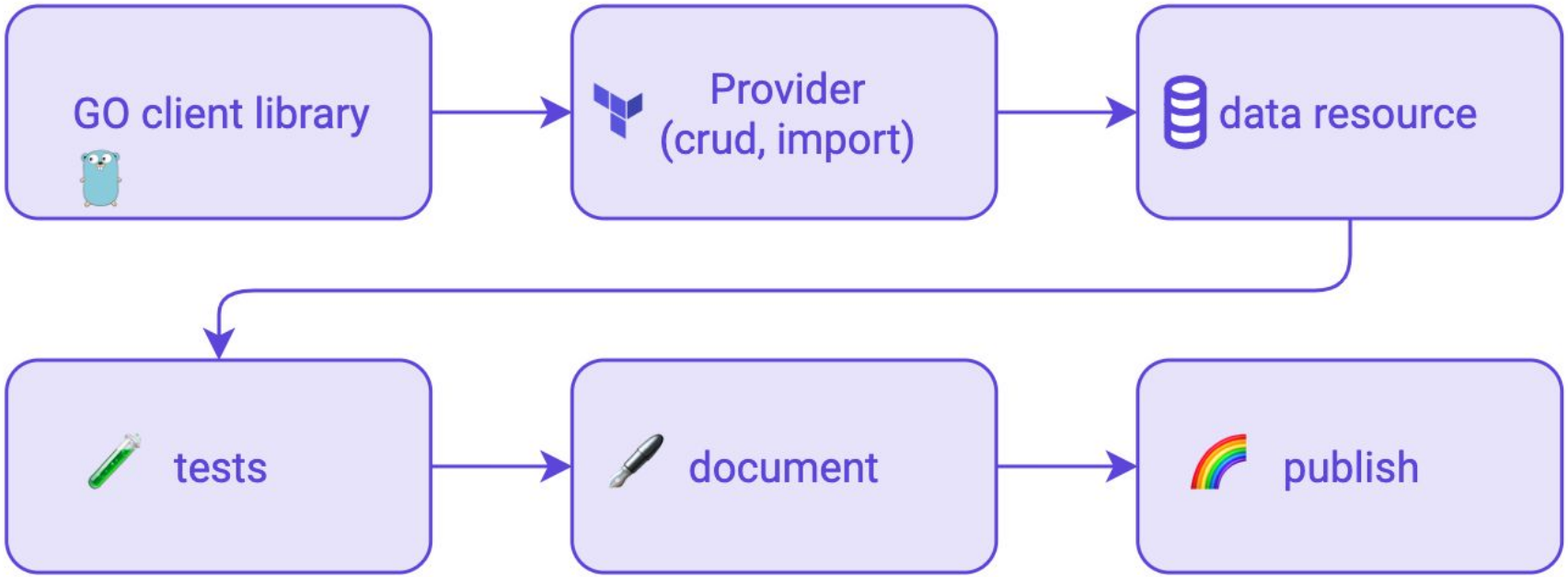
Simple plugin types help you create new providers

```
type Provider struct {

    Schema map[string]*Schema

    ResourcesMap map[string]*Resource

    DataSourcesMap map[string]*Resource

    ConfigureFunc ConfigureFunc

}
```

Manages infrastructure resources

```
type Resource struct {
    Schema map[string]*Schema

    Create CreateFunc
    Read   ReadFunc
    Update UpdateFunc
    Delete DeleteFunc
    Importer *ResourceImporter
    Timeouts *ResourceTimeout
}
```

Provider development workflow



OpenFaaS provider demo

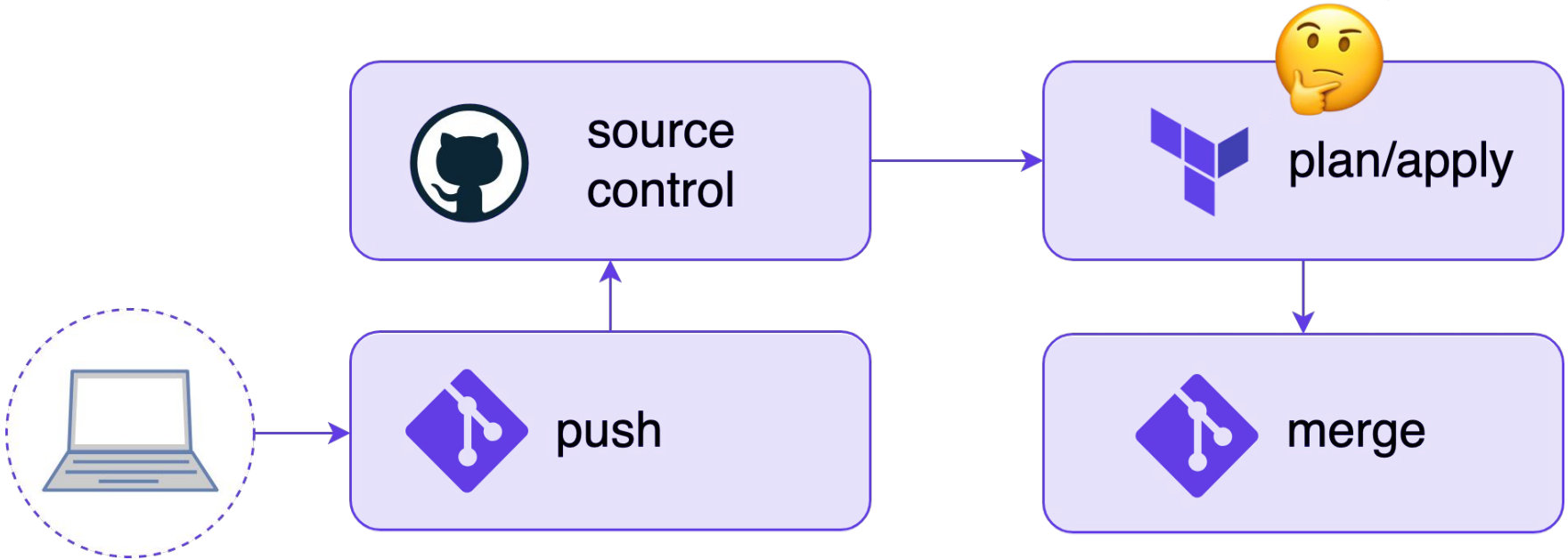
Review

- Provider config
- Resources
- Testing

Useful core Terraform golang packages

Acctest	Random strings, certificates
Encryption	GPG helpers
Logging	Level, correct log output
Schema	Provider and resource related structures
Validation	Pre-canned functions to help you validate schema attributes

Deployment workflow



Continuous deployment

- Atlantis

- Terraform Enterprise

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Let’s see it in action

Wrapping up

- Terraform
  - Manage complex infrastructure
  - Get access to popular providers
  - Extend your own with ease
- Automate your processes
  - Security / compliance
  - Growing your team

Get started today!

Other useful tools



- Writing custom providers https://www.terraform.io/docs/extend/writing-custom-providers.html
- Terraform golang packages https://github.com/hashicorp/terraform/tree/master/helper
- OpenFaaS Provider https://github.com/ewilde/terraform-provider-openfaas
- Atlantis https://www.runatlantis.io/
- Terraform enterprise https://www.hashicorp.com/products/terraform/enterprise
- Terraform-docs https://github.com/segmentio/terraform-docs/
- Blast radius https://github.com/28mm/blast-radius
- Tfenv https://github.com/tfutils/tfenv
- Example code from talk https://github.com/12factor-io/goto-terraform