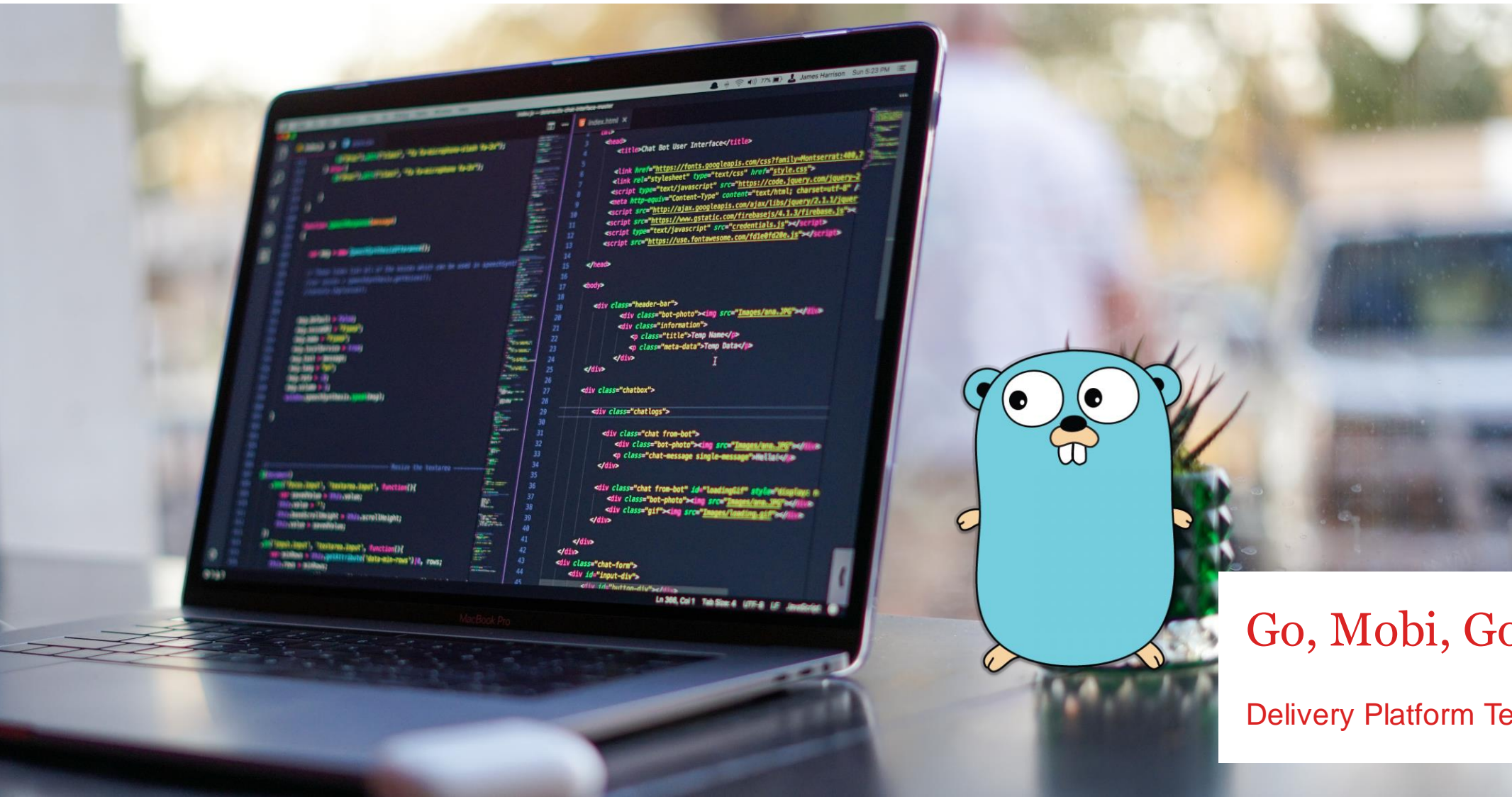


die Mobiliar



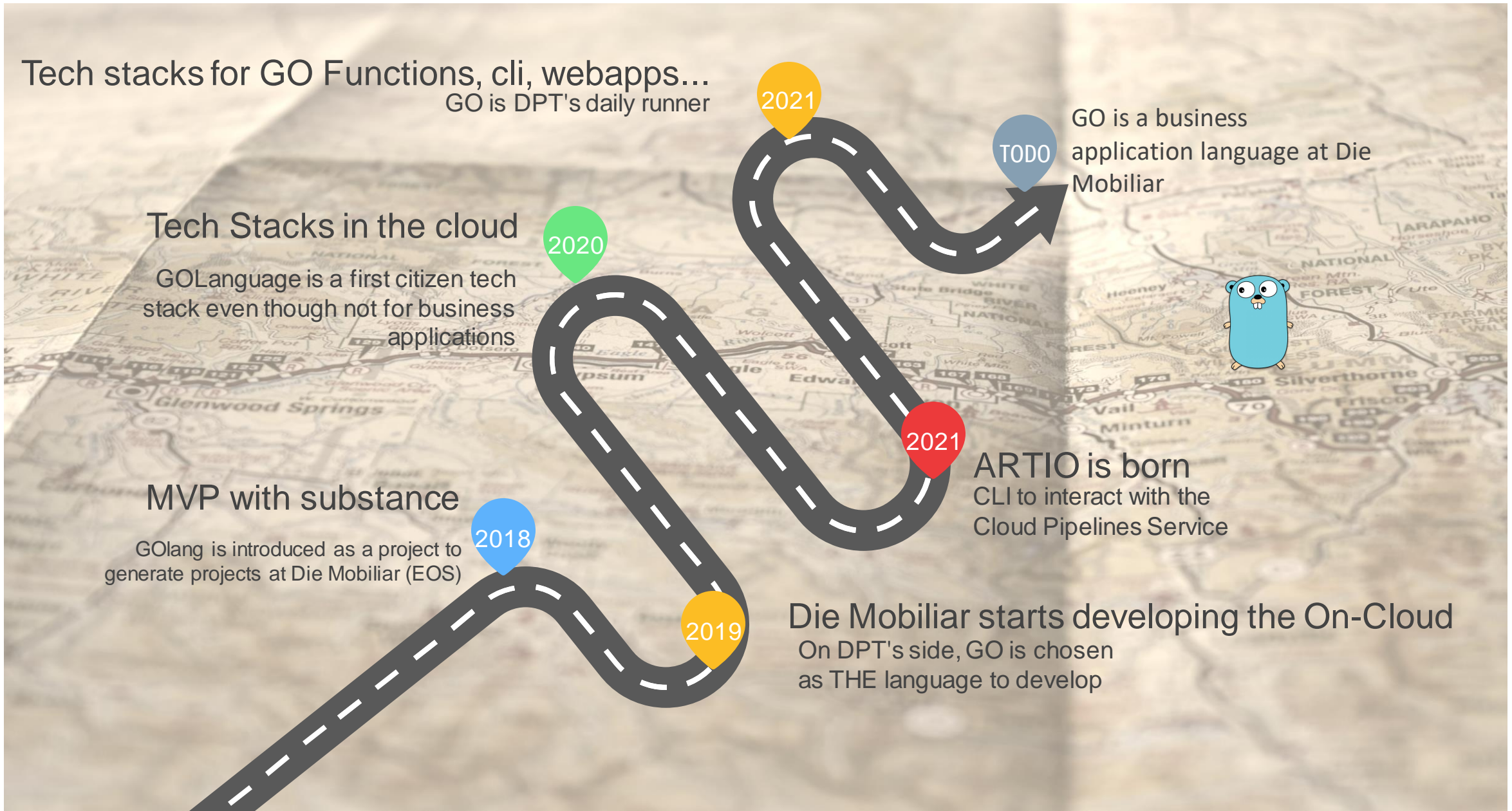
Go, Mobi, Go!

Delivery Platform Team

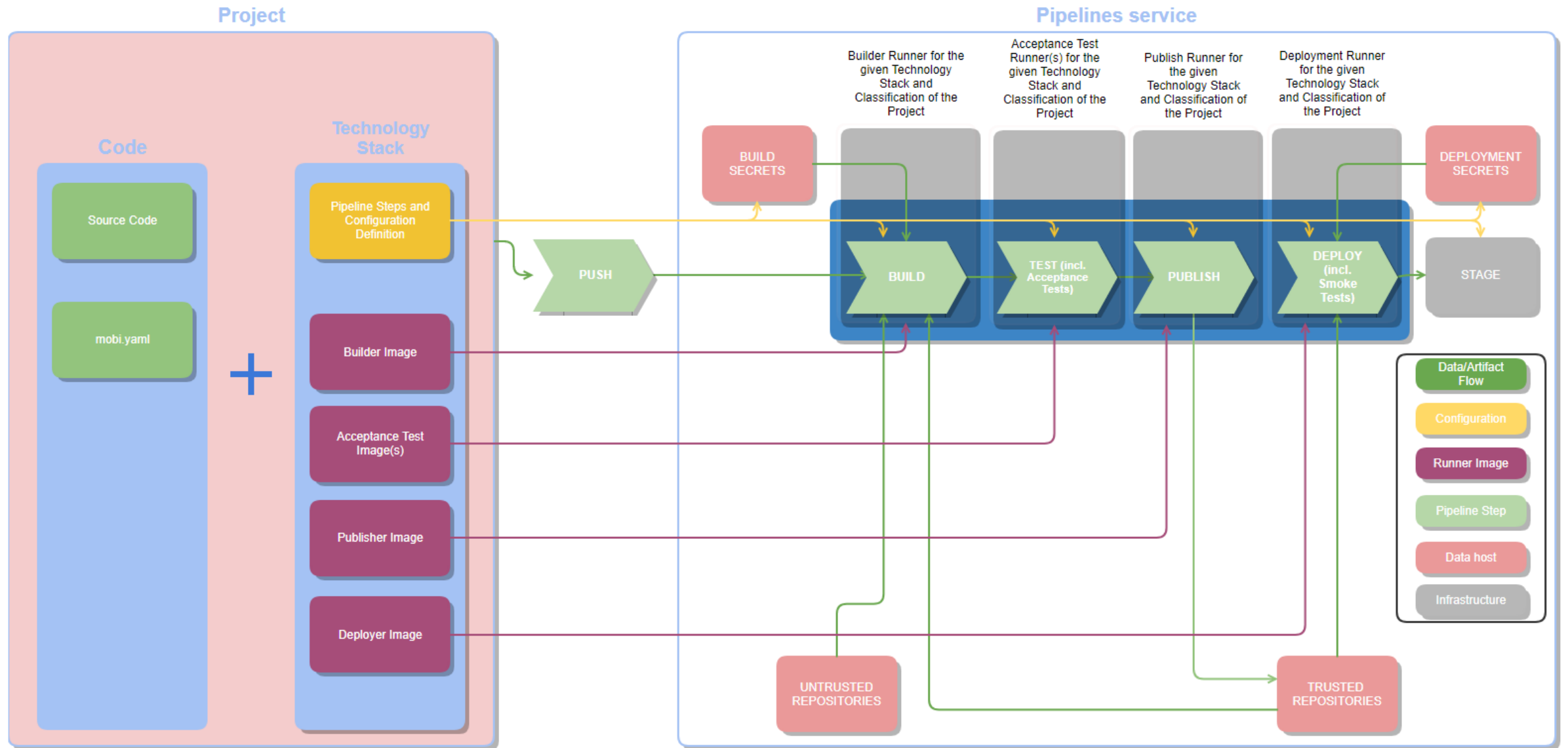
Agenda

1. Die Mobiliar's IT GO journey so far
2. Go Tech Stack(s)
3. Lessons learned
4. Questions
















Die Mobiliar's GO journey so far...





Technology Stacks in the Cloud Pipelines service





















Go stacks

>			base	
>			cli	
>			function	
>			module	
>			service	

Go base projects

▼  **base** 

-   **gol-base-appregistration-iaclib**  Maintainer
IaC Lib module to create App Registrations. App Registrations ar...
-   **gol-base-azure-golib**  Maintainer
Contains a library for simplified access to azure services. This sh...
-   **gol-base-builder-image**  Maintainer
This is a base builder image for all Go builder images (and theref...
-   **gol-base-deployer-image**  Maintainer
This is deployer image which can be used to deploy a Go service.
-   **gol-base-renovatebot-job**  Maintainer
Renovate Bot for GOL Stack Projects
-   **gol-base-stack-doc**  Maintainer
Basic Golang documentation. This contains basic Golang docum...



GOLANG STACK

Lifecycle

Build caching

- FUNCTIONS

Introduction

Getting started

Logging & Tracing

Local dev guide

- SERVICES

Introduction

Getting started

- MODULES

Introduction

Getting started

- CLI

Introduction

Getting started

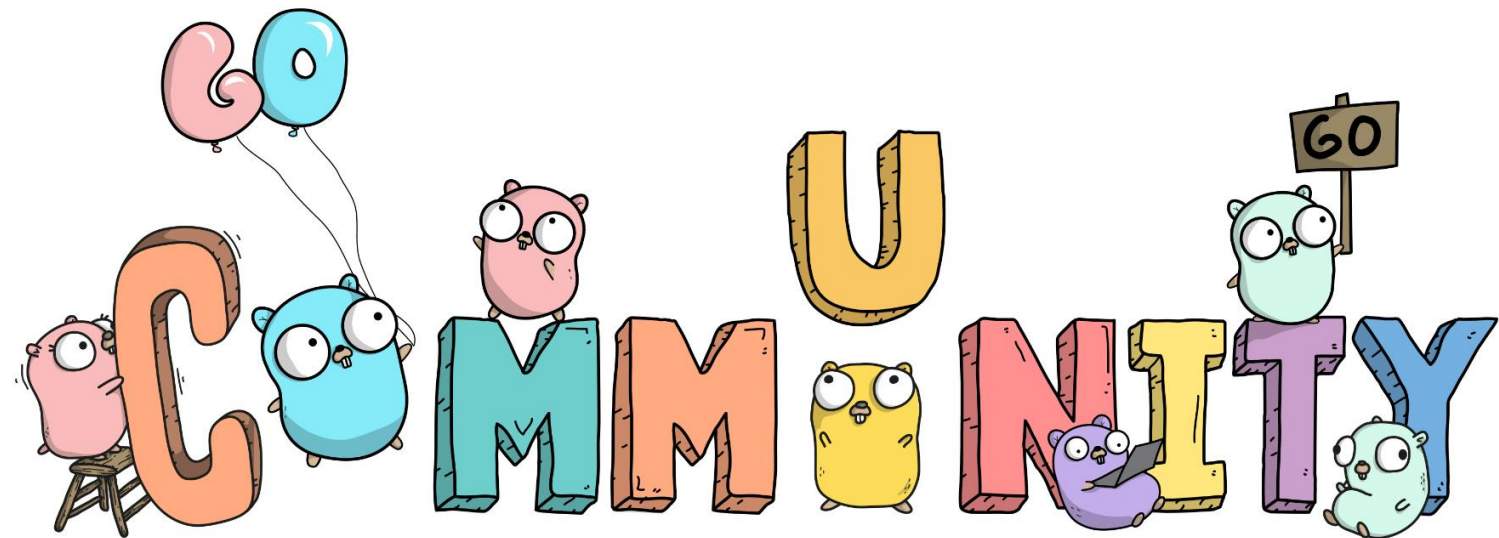
- HELP AND SUPPORT

Contact

Golang Stack / GOLANG STACK



Introduction



Welcome to the Go Mobiliar community! The following chapters will help you with the setup of your Go environment on the Mobiliar context and also explain what we have prepared to run services and functions in the Mobiliar Cloud environment.



Warning: Golang is only allowed to be used for infrastructure services, but not for any kind of business logic. Do not use Go for a microservice/function used in a Mobiliar business context.



gol-base-renovatebot-job

Project ID: 33558498 [Leave project](#)

chore(renovate): Update Go modules (by gol-base-renovatebot-job)

Edit

Code ▾



Merged

Z101074 requested to merge [renovate/gomod](#) into [master](#) 2 hours ago

Overview 0

Commits 1

Pipelines 1

Changes 2

This MR contains the following updates:

Package	Type	Update	Change
gitlab.com/diemobiliar/it/gol/function/gol-function-golib	require	patch	v0.1.651 -> v0.1.653
gopkg.in/yaml.v2	require	major	v2.4.0 -> v3.0.1

Release Notes

► [diemobiliar/it/gol/function/gol-function-golib](#)

► [go-yaml/yaml](#)

Configuration





Schedule: Branch creation - At any time (no schedule defined), Automerge - At any time (no schedule defined).



Automerge: Enabled.


Rebasing: Whenever MR is behind base branch, or you tick the rebase/retry checkbox.

Immortal: This MR will be recreated if closed unmerged. Get [config help](#) if that's undesired.

Go CLI stack



**cli**




gol-cli-example-cli

Maintainer

Example cli project to test the GOL cli stack.

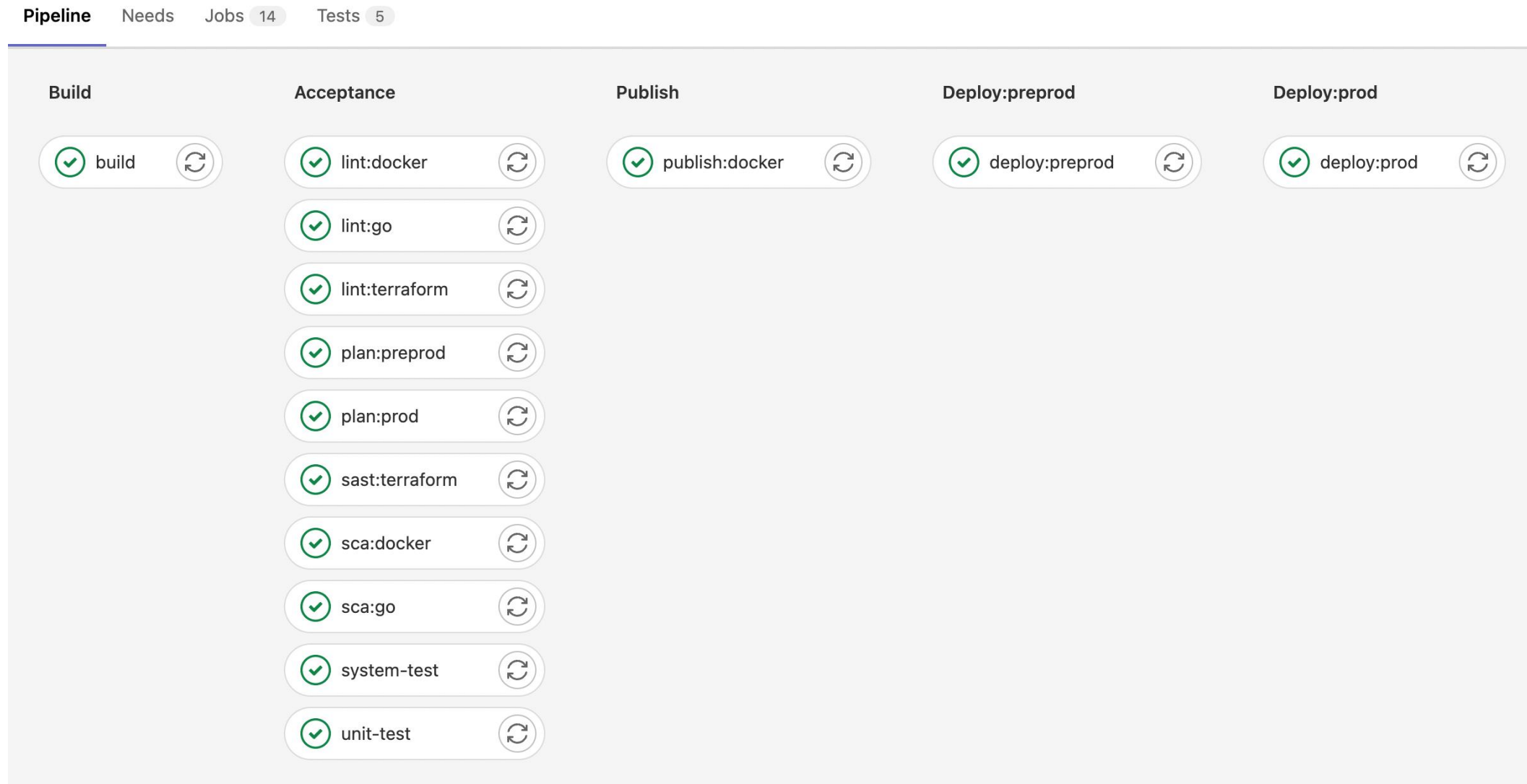


gol-cli-stack

Maintainer

Components of the gol-cli stack.

A typical deployment pipeline





dlp-devprocess-artio-cli

Project ID: 16457290 [Leave project](#)

```
Restored session: Fri Sep  2 14:56:27 CEST 2022
```








```
~ > █
```

Go CLI projects

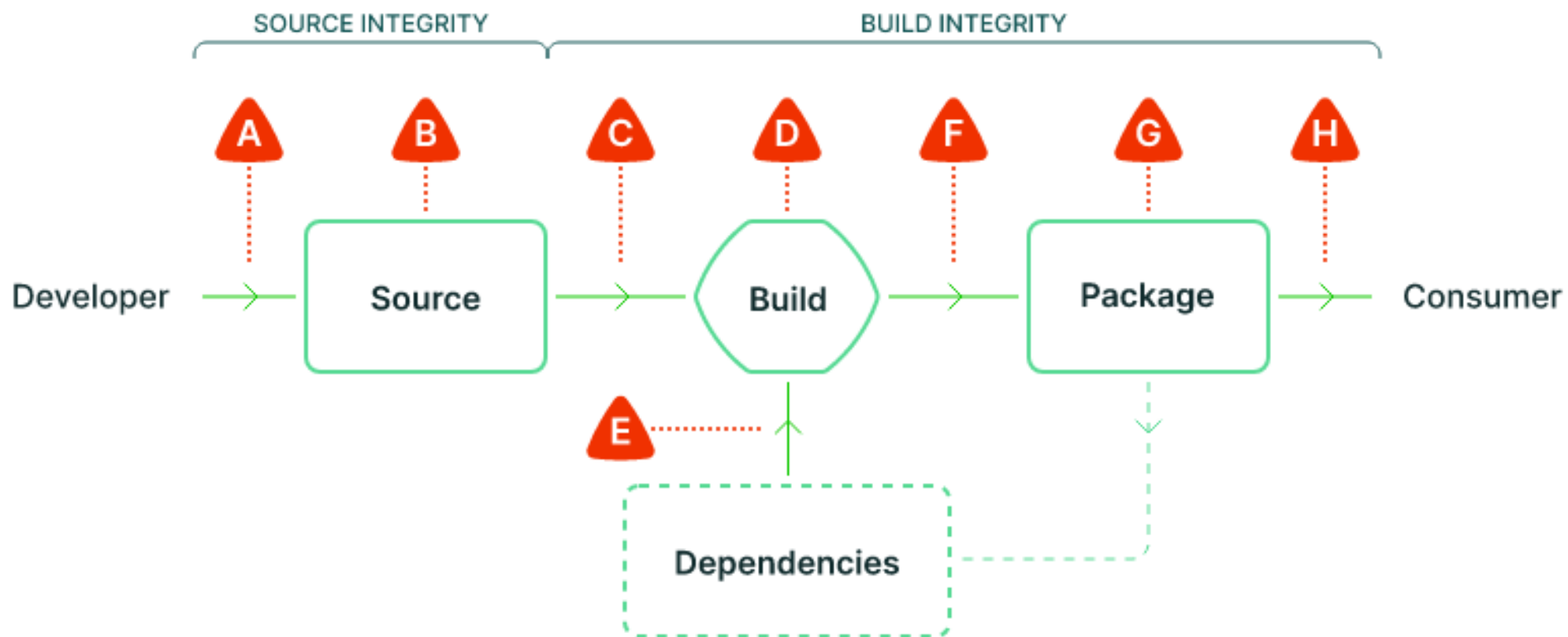
Project	Tech Debt				Pipeline History (14 days)		Pipeline Overview
	Tech Debt	SAST	SCA	Test			
cin-terraform-codemods-cli	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div>5%</div></div>	no data		
cin-terraform-xterrafile-cli	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	no data		
dlp-cicd-commonscripts-image	<div><div>1</div></div>	<div><div></div></div>	<div><div></div></div>	<div><div>87%</div></div>	Build	Acceptance	Publish
dlp-cicd-piedpiper-cli	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div>84%</div></div>	Build	Acceptance	Publish .post
dlp-devprocess-artio-cli	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div>86%</div></div>	Build	Acceptance	Publish
dlp-runnerpool-kube-cli	<div><div>1</div></div>	<div><div></div></div>	<div><div></div></div>	<div><div>90%</div></div>	Build	Acceptance	Publish
gol-cli-example-cli	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div>92%</div></div>	Build	Acceptance	Publish
gol-module-example-cli	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div>100%</div></div>	Build	Acceptance	Publish
had-lab-privatelink-cli	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div>21%</div></div>	Build	Acceptance	Publish

Go function stack

function

-  **gol-function-appserviceplan-iaclib** Maintainer
Module to deploy an App Service plan which can be used with functions.
-  **gol-function-example-fn** Maintainer
Example usage of a Go deployed to Azure Functions
-  **gol-function-golib** Maintainer
This module contains basic functionality for go functions.
-  **gol-function-iaclib** Maintainer
Module to deploy an azure function.
-  **gol-function-runtime-image** Maintainer
3rd party image for Azure Functions
-  **gol-function-slot-iaclib** Maintainer
Abstraction of a go based function on Azure using staging and production slot ...
-  **gol-function-stack** Maintainer
Components of the gol-function stack

SLSA in a nutshell



A Submit unauthorized change

B Compromise source repo

C Build from modified source

D Compromise build process

E Use compromised dependency

F Upload modified package

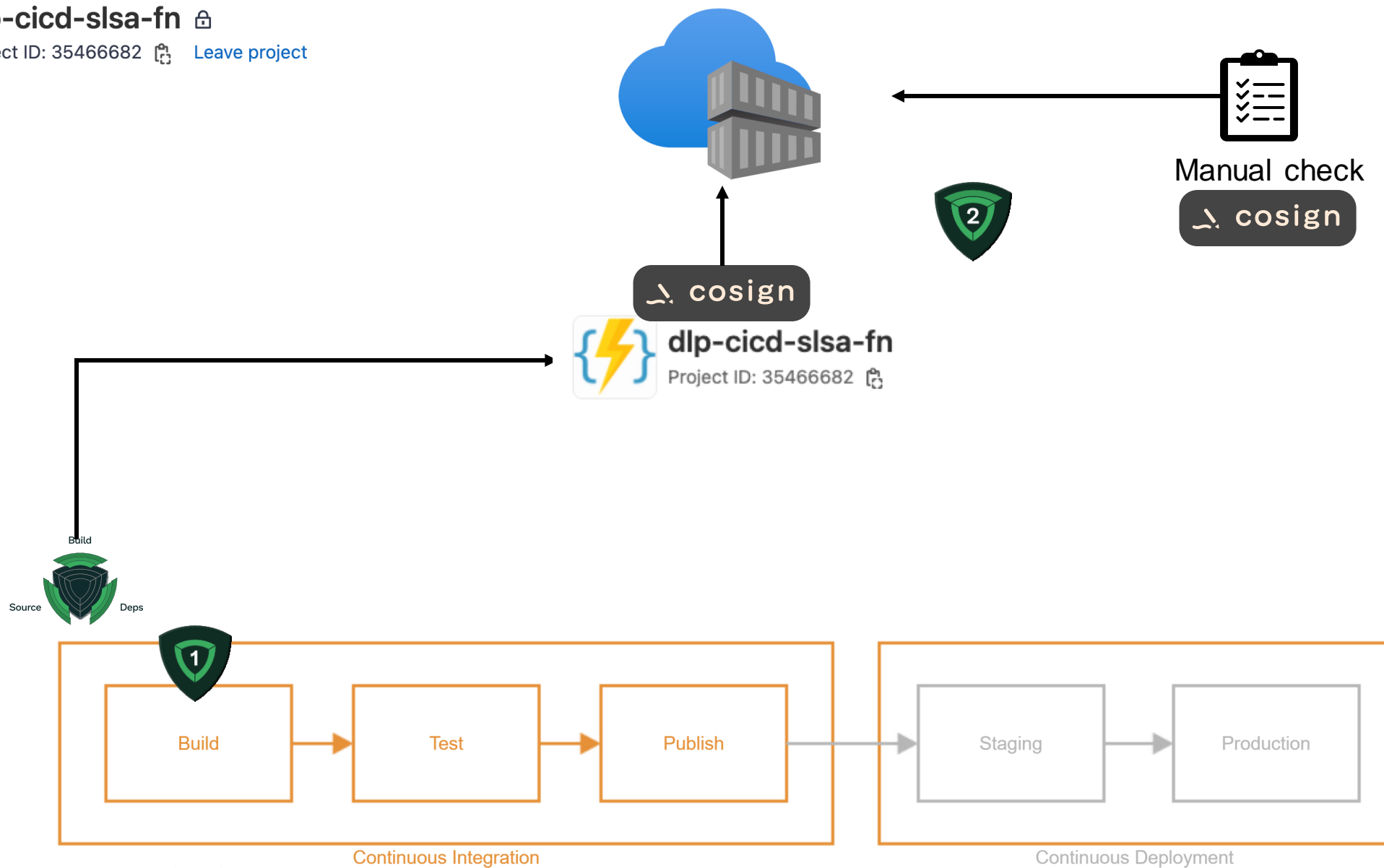
G Compromise package repo

H Use compromised package



dlp-cicd-slsa-fn

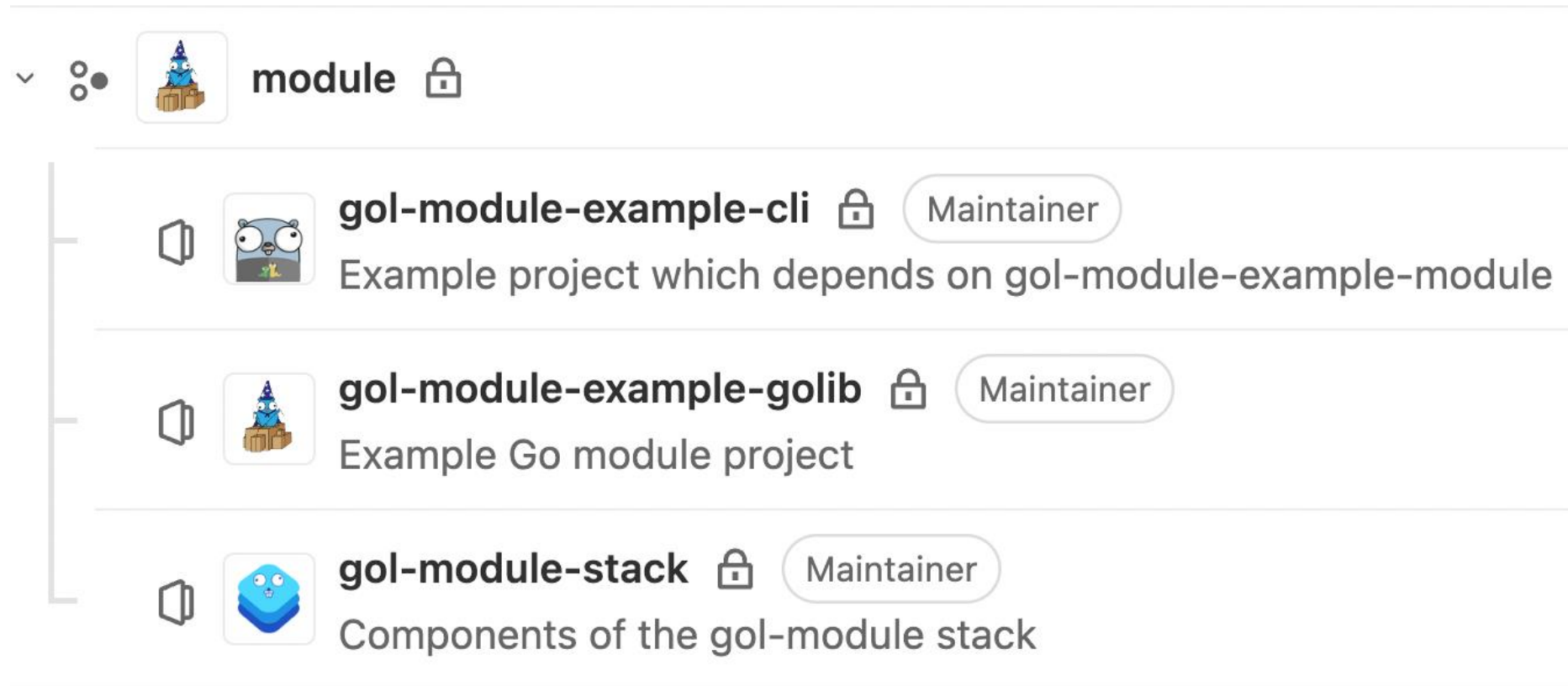
Project ID: 35466682 [Leave project](#)



Go function projects

Project	Tech Debt	SAST	SCA	Test							
cos-alerts-sending-fn	2	<div><div></div></div>	<div><div></div></div>	83%	Build	Acceptance	Publish	Deploy:preprod	Deploy:prod		
cos-availability-be-fn	4	<div><div></div></div>	<div><div></div></div>	96%	Build	Acceptance	Publish	Deploy:preprod	Deploy:prod		
cos-availability-fe-fn	5	<div><div></div></div>	<div><div></div></div>	92%	Build	Acceptance	Publish	Deploy:preprod	Deploy:prod		
cos-availability-fn		<div><div></div></div>	<div><div></div></div>	46%	no data						
dlp-cicd-azureadtest-fn		<div><div></div></div>	<div><div></div></div>	92%	Build	Acceptance	Publish	Deploy:preprod	Deploy:prod		
dlp-cicd-slsa-fn	2	<div><div></div></div>	<div><div></div></div>	83%	Build	Acceptance	Publish	Deploy:preprod	Deploy:prod		
dlp-cicd-whitesourcecleanup-fn	3	<div><div></div></div>	<div><div></div></div>	88%	Build	Acceptance	Publish	Deploy:preprod	Deploy:prod		
dlp-gitlabgov-backup-fn	2	<div><div></div></div>	<div><div></div></div>	75%	Build	Acceptance	Publish	Deploy:preprod	Deploy:prod		
dlp-gitlabgov-permission-fn	2	<div><div></div></div>	<div><div></div></div>	86%	Build	Acceptance	Publish	Deploy:preprod	Deploy:prod		
dlp-gitlabgov-runner-fn		<div><div></div></div>	<div><div></div></div>	92%	Build	Acceptance	Publish	Deploy:preprod	Deploy:prod		
dlp-gitlabgov-settings-fn	1	<div><div></div></div>	<div><div></div></div>	94%	Build	Acceptance	Publish	Deploy:preprod	Deploy:prod		
dlp-gitlabgov-validator-fn	1	<div><div></div></div>	<div><div></div></div>	89%	Build	Acceptance	Publish	Deploy:preprod	Deploy:prod		
dlp-information-azurelogpersister-fn	1	<div><div></div></div>	<div><div></div></div>	86%	Build	Acceptance	Publish	Deploy:preprod	Deploy:prod		
dlp-information-bmcchange-fn	3	<div><div></div></div>	<div><div></div></div>	87%	Build	Acceptance	Publish	Deploy:preprod	Deploy:prod		
dlp-information-gitlabcrawler-fn	3	<div><div></div></div>	<div><div></div></div>	86%	Build	Acceptance	Publish	Deploy:preprod	Deploy:prod		
dlp-information-gitlabeventlistener-fn	4	<div><div></div></div>	<div><div></div></div>	88%	Build	Acceptance	Publish	Deploy:preprod	Smoke:preprod	Deploy:prod	Smoke:prod
dlp-information-projectmetadatagen-fn	2	<div><div></div></div>	<div><div></div></div>	83%	Build	Acceptance	Publish	Deploy:preprod	Deploy:prod		
dlp-information-runnerlogger-fn	2	<div><div></div></div>	<div><div></div></div>	98%	Build	Acceptance	Publish	Deploy:preprod	Deploy:prod		
dlp-runnerpool-vmScaler-fn	2	<div><div></div></div>	<div><div></div></div>	86%	Build	Acceptance	Publish	Deploy	Deploy:preprod	Deploy:prod	
gol-function-example-fn	1	<div><div></div></div>	<div><div></div></div>	93%	Build	Acceptance	Publish	Deploy:preprod	Deploy:prod		
mcl-backup-marketingcloud-fn		<div><div></div></div>	<div><div></div></div>	84%	Build	Acceptance	Publish	Deploy:preprod	Deploy:prod		

Go module stack



Authentication with Azure in Go

```
210 // GetAuthorizer creates an Authorizer configured from environment variables in the order:
211 // 1. Client credentials
212 // 2. Client certificate
213 // 3. Username password
214 // 4. MSI
215 func (settings EnvironmentSettings) GetAuthorizer() (autorest.Authorizer, error) {
216     //1.Client Credentials
217     if c, e := settings.GetClientCredentials(); e == nil {
218         logger.Instance.WriteLine(logger.LogInfo, message: "EnvironmentSettings.GetAuthorizer() using client secret credentials")
219         return c.Authorizer()
220     }
221
222     //2. Client Certificate
223     if c, e := settings.GetClientCertificate(); e == nil {
224         logger.Instance.WriteLine(logger.LogInfo, message: "EnvironmentSettings.GetAuthorizer() using client certificate credentials")
225         return c.Authorizer()
226     }
227
228     //3. Username Password
229     if c, e := settings.GetUsernamePassword(); e == nil {
230         logger.Instance.WriteLine(logger.LogInfo, message: "EnvironmentSettings.GetAuthorizer() using user name/password credentials")
231         return c.Authorizer()
232     }
233
234     // 4. MSI
235     logger.Instance.WriteLine(logger.LogInfo, message: "EnvironmentSettings.GetAuthorizer() using MSI authentication")
236     return settings.GetMSI().Authorizer()
237 }
```



gol-base-azure-golib





Project ID: 27165768 [Leave project](#)




```
126 func (c *mobiAuthConfig) GetCredentials() (azcore.TokenCredential, error) {
127     if c.cachedCredential == nil {
128         err := c.validateConfig()
129         if err != nil {
130             return nil, err
131         }
132
133         if c.UseMsi {
134             miOptions := &azidentity.ManagedIdentityCredentialOptions{
135                 ID: azidentity.ClientID(c.ClientID),
136             }
137             c.cachedCredential, err = c.adapter.NewManagedIdentityCredential(miOptions)
138             return c.cachedCredential, err
139         }
140
141         if c.hasClientSecretCredentials() {
142             c.cachedCredential, err = c.adapter.NewClientSecretCredential(c.TenantID, c.ClientID, c.ClientSecret, nil)
143             return c.cachedCredential, err
144         }
145
146         // Here we assume that we are using azure cli credentials or browser interactive login
147         azCLI, err := c.adapter.NewAzureCLICredential(nil)
148         if err != nil {
149             return nil, err
150         }
151
152         var fallbackCred azcore.TokenCredential
153         if c.allowBrowserLogin {
154             fallbackCred, err = c.adapter.NewInteractiveBrowserCredential(nil)
155         } else {
156             fallbackCred, err = c.adapter.NewDeviceCodeCredential(nil)
157         }
158
159         if err != nil {
160             return nil, err
161         }
162
163         c.cachedCredential, err = c.adapter.NewChainedTokenCredential([]azcore.TokenCredential{azCLI, fallbackCred}, nil)
164         if err != nil {
165             return nil, err
166         }
167     }
168     return c.cachedCredential, nil
169 }
```

Go module projects




Project					Pipeline History (14 days)		Pipeline Overview
	Tech Debt	SAST	SCA	Test			
dlp-cicd-slsa-golib	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div>72%</div>	Acceptance	Publish	
dlp-information-golib	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div>98%</div>	no data		
gol-base-azure-golib	<div><div></div>1</div>	<div><div></div></div>	<div><div></div></div>	<div><div></div>87%</div>	Acceptance	Publish	
gol-function-golib	<div><div></div>1</div>	<div><div></div></div>	<div><div></div></div>	<div><div></div>92%</div>	Acceptance	Publish	
gol-module-example-golib	<div><div></div></div>	<div><div></div></div>	<div><div></div></div>	<div><div></div>100%</div>	Acceptance	Publish	.post

Go service (webapp) stack




**service** 

**gol-service-example-service**  Maintainer

This is an example service to demonstrate and test the build and deployment p...

**gol-service-pipeline-canary**  Maintainer

Testing runners in the gol stack. Used to monitor build and deployment runners.

**gol-service-stack**  Maintainer

Components of the gol-service stack



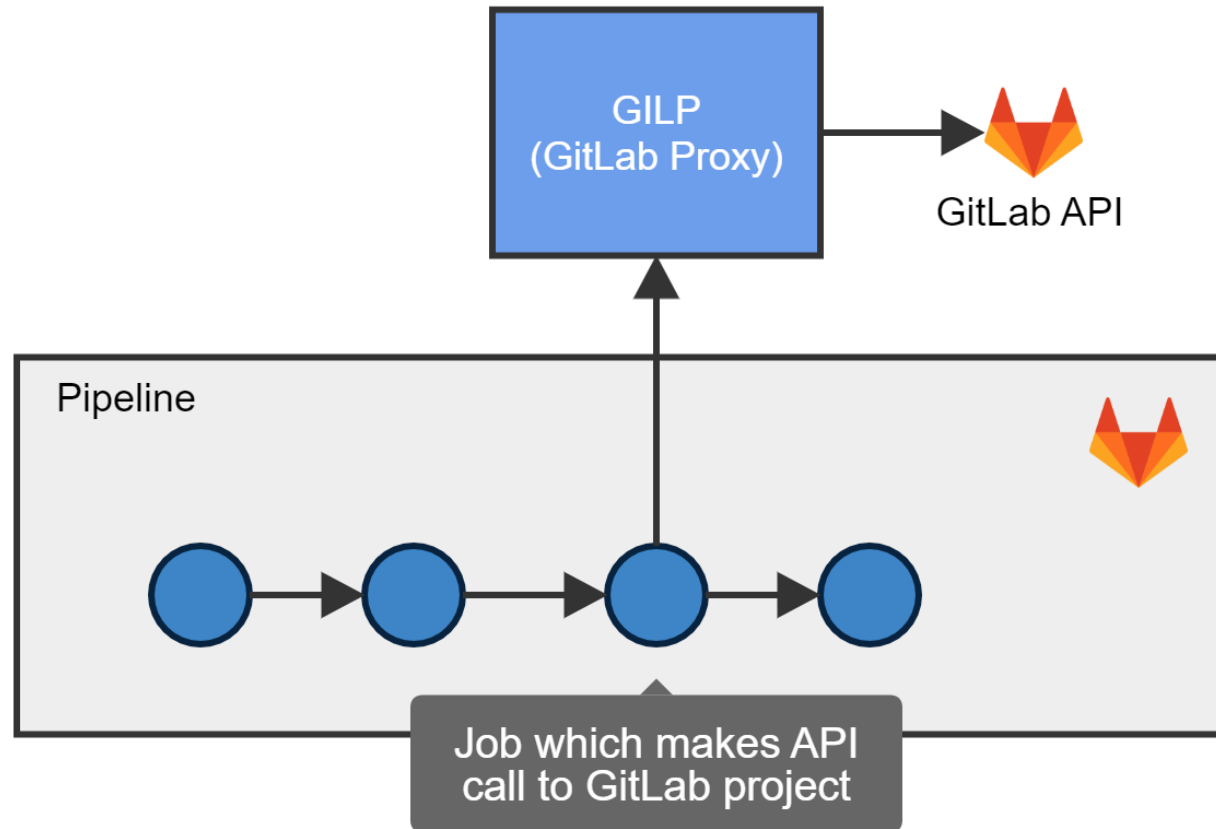
go-containerregistry





dlp-cicd-gitlabproxy-webapp 🔒

Project ID: 35175131 📄 [Leave project](#)



Lessons learned



The stack concept helped introduce Go in a controlled manner



Go is an excellent choice for infrastructure automation



It takes time and practice to become proficient (as for every language)

Questions?



Go (and Rust) workshops at cloudday.ch :)

Conference Ticket (14 Sept)

Visit all conference sessions on Wednesday, 14 Sept. Coffee, snacks, lunch, apéro and party included! Only valid for the conference day - dedicated ticket required for the workshops.

[JOIN WAITING LIST](#)

Full-Day Workshop: Argo CD (13 Sept)

Visit the full day workshop on Tuesday 13 Sept. Coffee, snacks, lunch included! Only valid for the workshop and not for the conference.

CHF 600 ×
Inc. MwSt. @7.7%

Full-Day Workshop: Go (13 Sept)

Visit the full day workshop on Tuesday 13 Sept. Coffee, snacks, lunch included! Only valid for the workshop and not for the conference.

CHF 600 ×
Inc. MwSt. @7.7%

Full-Day Workshop: Rust (13 Sept)

Visit the full day workshop on Tuesday 13 Sept. Coffee, snacks, lunch included! Only valid for the workshop and not for the conference.

CHF 600 ×
Inc. MwSt. @7.7%

[Continue](#)