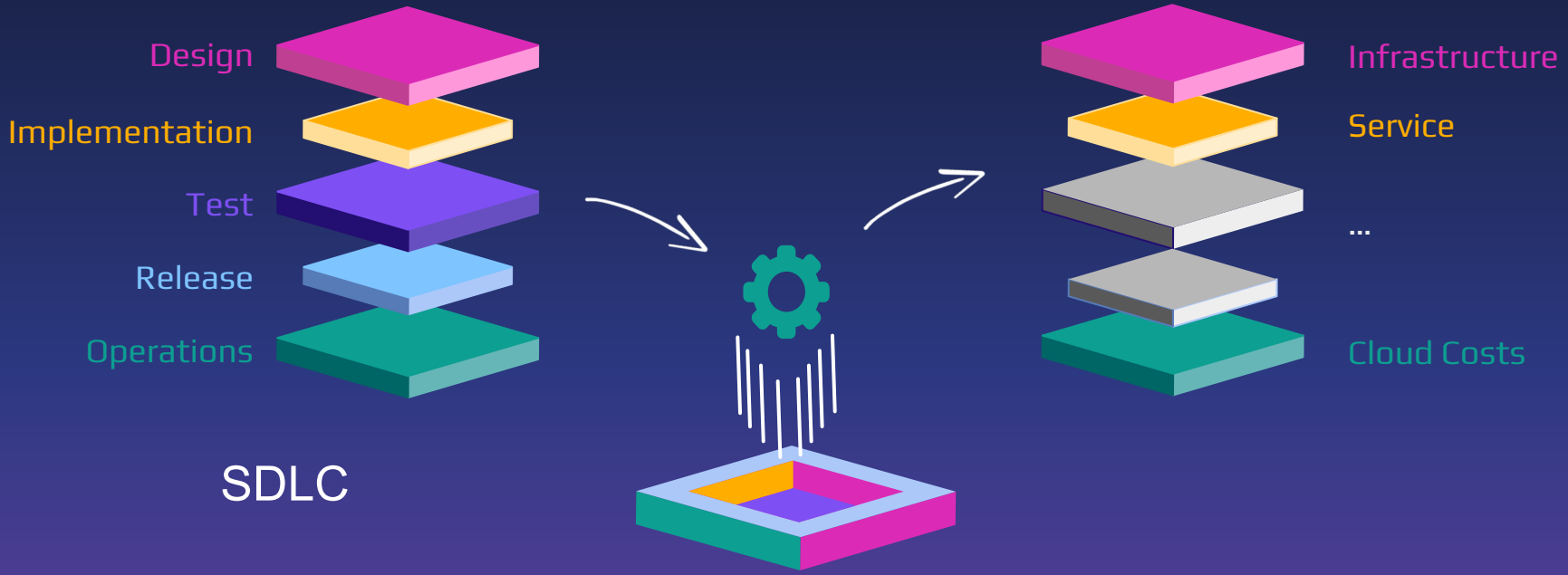
BEYOND CONNECTIVITY

FULL Life-Cycle Infrastructure Orchestration and Cost Engineering


TASTE
CARE
WELLBEING

Platform Engineering Team



Code

- Java 
- Python 
- Kotlin Multi-Platform 
- C# 
- Node.js 
- BitBucket 
- CircleCI 
- Jenkins 
- ArgoCD 
- Spinnaker 
- SonarQube 
- ....

Infra

- AWS 
- Azure 
- IBM 
- Google Cloud 
- Kubernetes 
- MongoDB 
- Postgres 
- Redis 
- Datadog 
- FireBase 
- Vault 
- Terraform 

ANYTHING FROM THE LIST?

DEVS

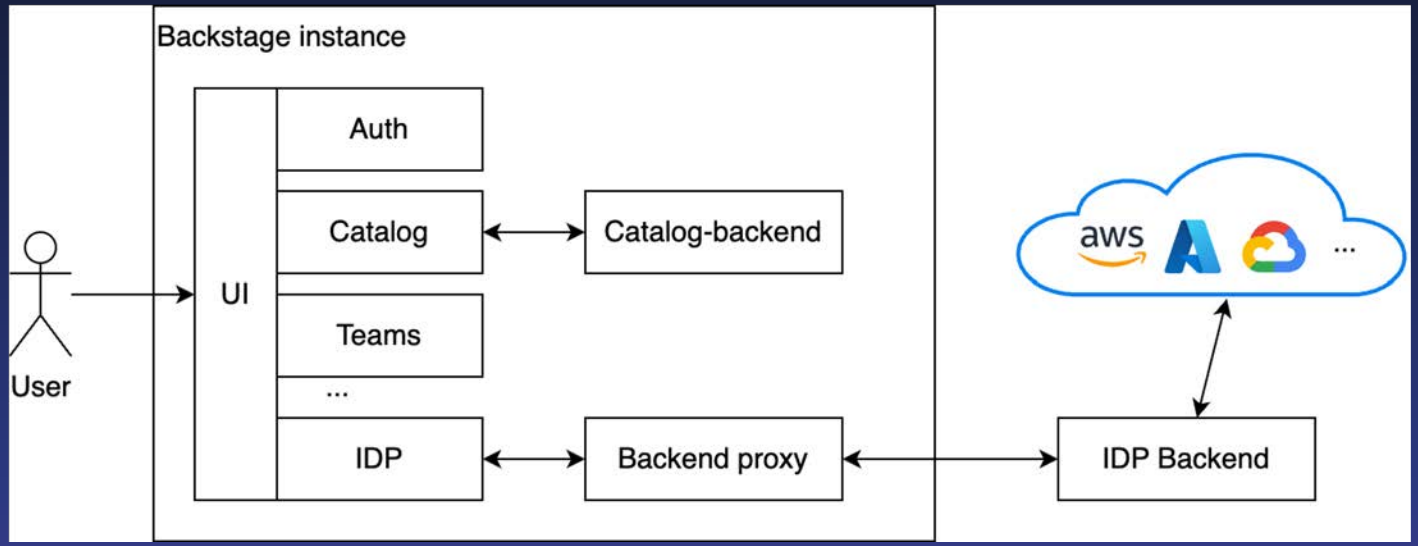
Different tech stack
Different tools
Multi-cloud set up
Outdated documentation
Long waiting time
Unclear process
Restricted permissions

SRE

Toil
DMs/tickets
Context switching
Low-valuable meetings
No time for development


New message in #sre
Hi SRE team!
could I ask to restart this prod deployment?
New message in #sre
We have startup errors in staging when deploying service with below error. Looks like the process which copies the contents from vault and creates secret folder is missing. Could you check ?
New message in #sre
Hi, I am getting error when trying to apply terraform changes. Looks like I do not have access to autogenerated secrets. Could you apply the service below to staging EU?
New message in #sre
Hi SRE! I would need to add 3 new value to Vault on prod environment. Can somebody help me out with this?
New message in #sre
Hi SRE team!
We need your help again!
Can somebody help us with the following points please...
New message in #sre
Hello #sre . Can you help to create a IAM policy in ocp-staging?
New message in #sre
Hey! Just realised that I lost the access for Appliances plugin. Should I create another ticket?
New message in #sre
Hi #sre Could you please work on this below ticket?
//link/jira/infra-12345
New message in #sre
Hello #sre, there is one customer in Italy owning purifier bought on 27.03.2023. It is two days that it is OFFLINE in Google, while in the app it is online.
Is there anything wrong in the system now?
New message in #sre
Hello SRE team, I'm trying to access Datadog, but when I try to login using SSO, it tells me to wait for an email. The problem is that this email never arrives. So I think that my account has no permission to use it. Is there anything I should do?
New message in #sre
Hi SRE team!
We need your help again!
New message in #sre
Hi #sre Could you please work on this below ticket?
//link/jira/infra-12335
New message in #sre
Hi SRE! I would need to add 3 new value to Vault on prod environment. Can somebody help me out with this?
New message in #sre
Hello SRE. I have an service running in OCP (ocp-scheduler) which requires to connect to Mongodb in ECP.
Currently I am getting:
New message in #sre
We have startup errors in staging when deploying service with below error. Looks like the process which copies the contents from vault and creates secret folder is missing. Could you check ?
New message in #sre
Hi #sre Could you please work on this below ticket?
//link/jira/infra-4321
New message in #sre
Hello #sre ! We have a service called Care Advisor, which includes admin endpoints for R&D department to update the service's knowledge base. We need to provide them with API key values for all environments.
New message in #sre
Hello #sre . Can you help to create a IAM policy in ocp-staging?
New message in #sre
Hi #sre Could you please work on this below ticket?
//link/jira/infra-12335
New message in #sre
Hi SRE team!
could I ask to restart this prod deployment?
New message in #sre
Hi #sre. I am trying to publish to the kafka topic that was provisioned earlier today.

Internal Developer Platform using Backstage

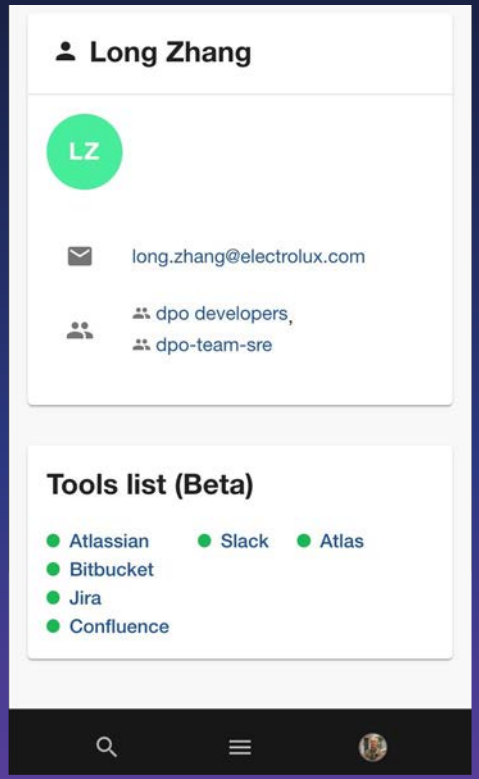


- Single entry for various platforms
- Unified UI
- Open for contributions from other teams

Ref: https://backstage.io/docs/overview/architecture-overview

User Onboarding

User Onboarding



- Pre-defined access policies based on the org structure
- One page for configuring access to all tools

Two Different Kinds of Needs From Devs

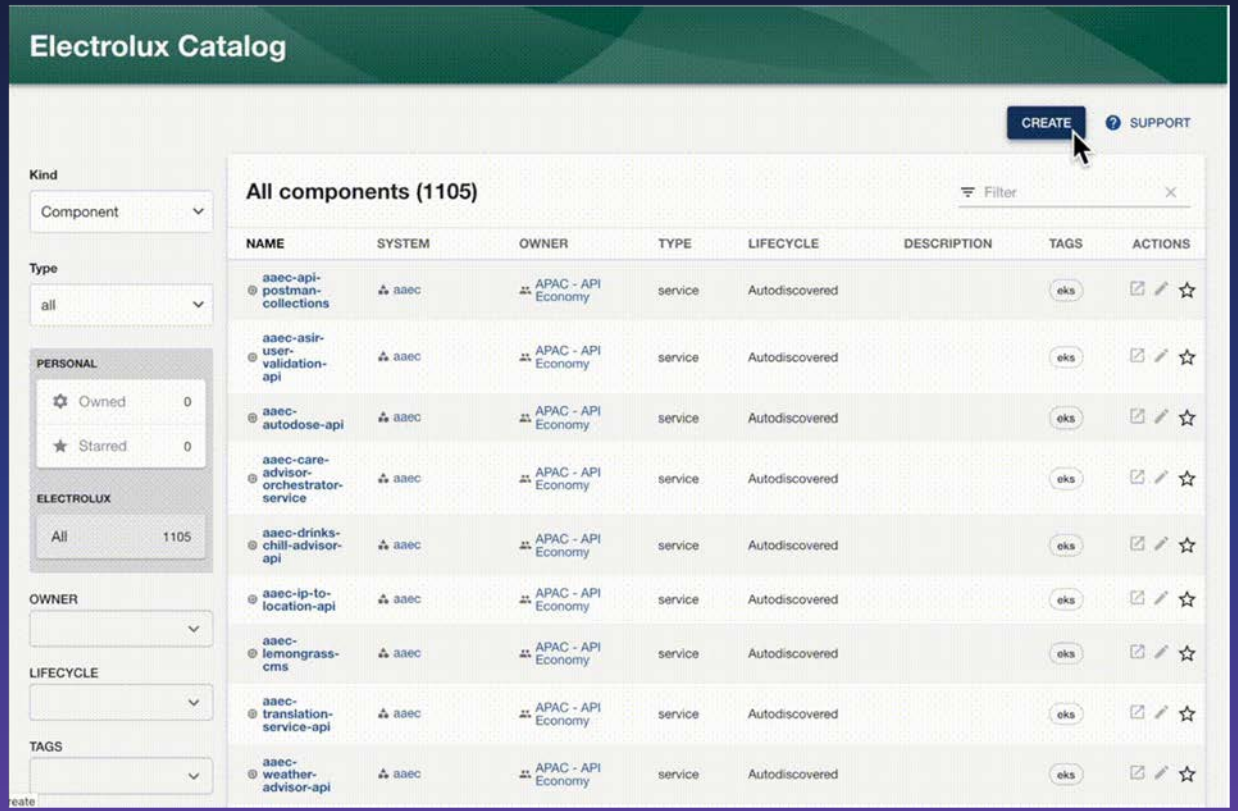
Cloud resources are all I need

Reuse the modules that adopt best practices and provision infrastructure with several clicks

Infrastructure customization

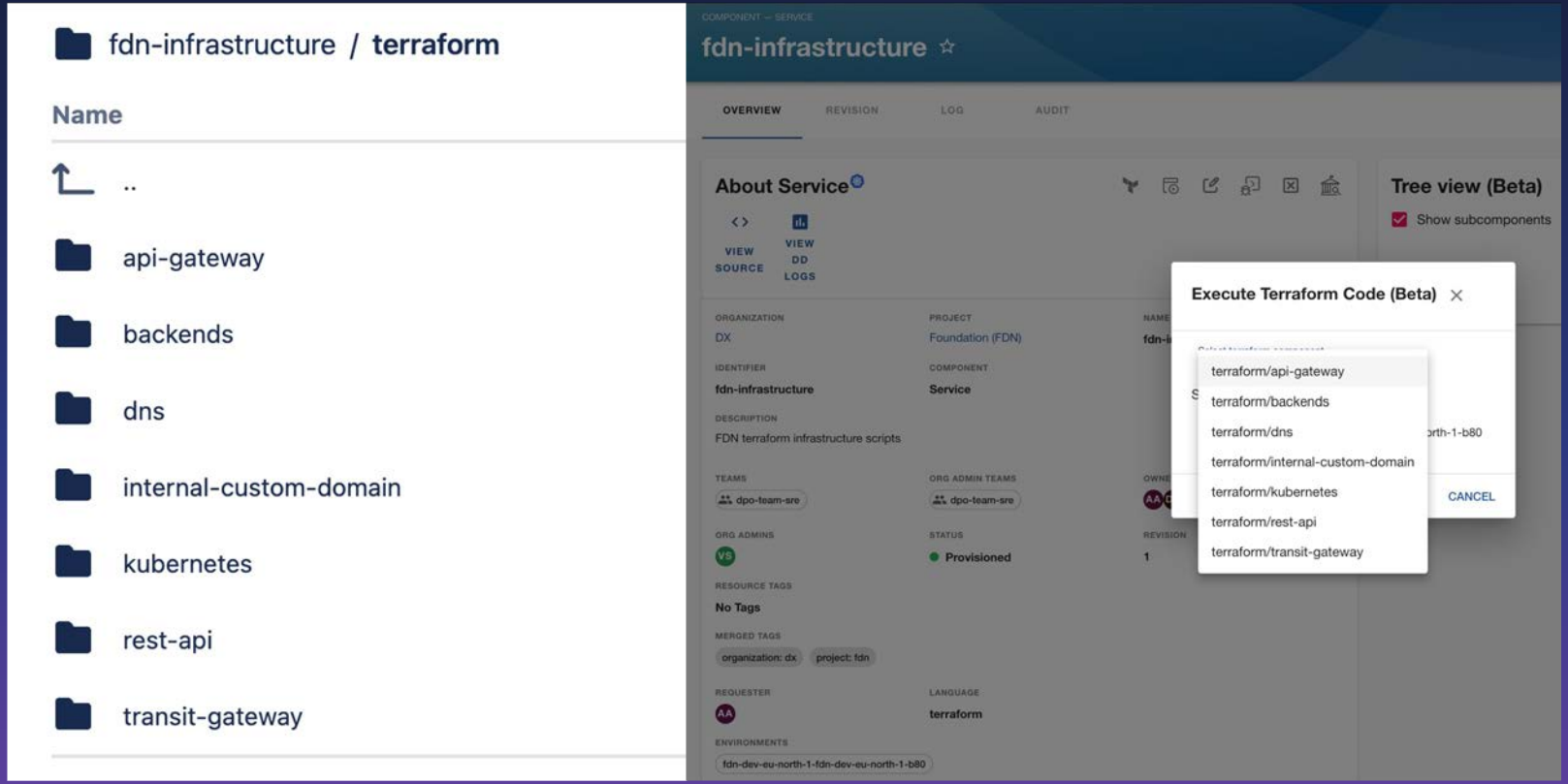
Define my own modules that can be maintained via IDP

EKS Provisioning as an Example

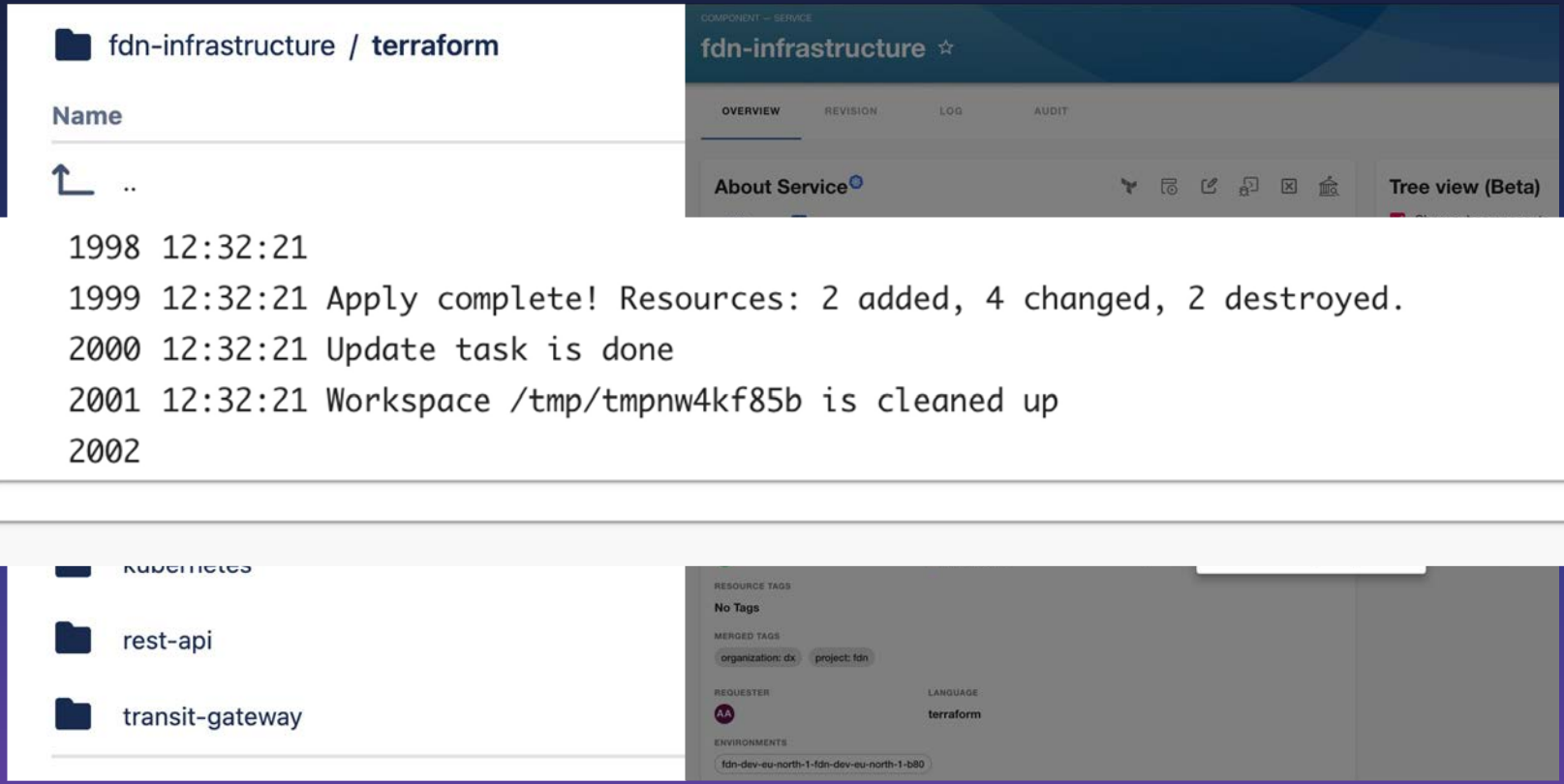


- Purely from UI
- Minimum input
- Follow standards

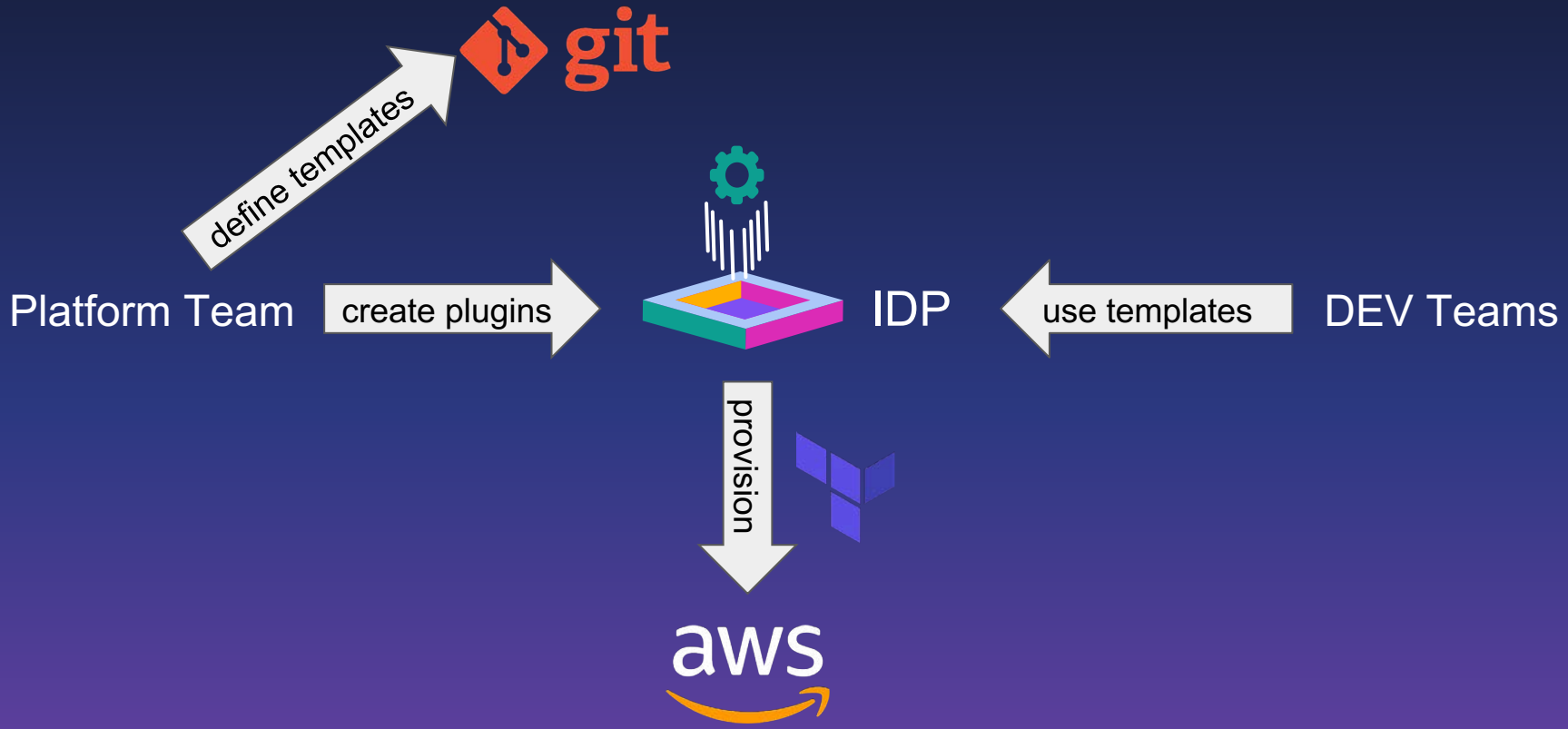
Infrastructure Provisioning & Orchestration



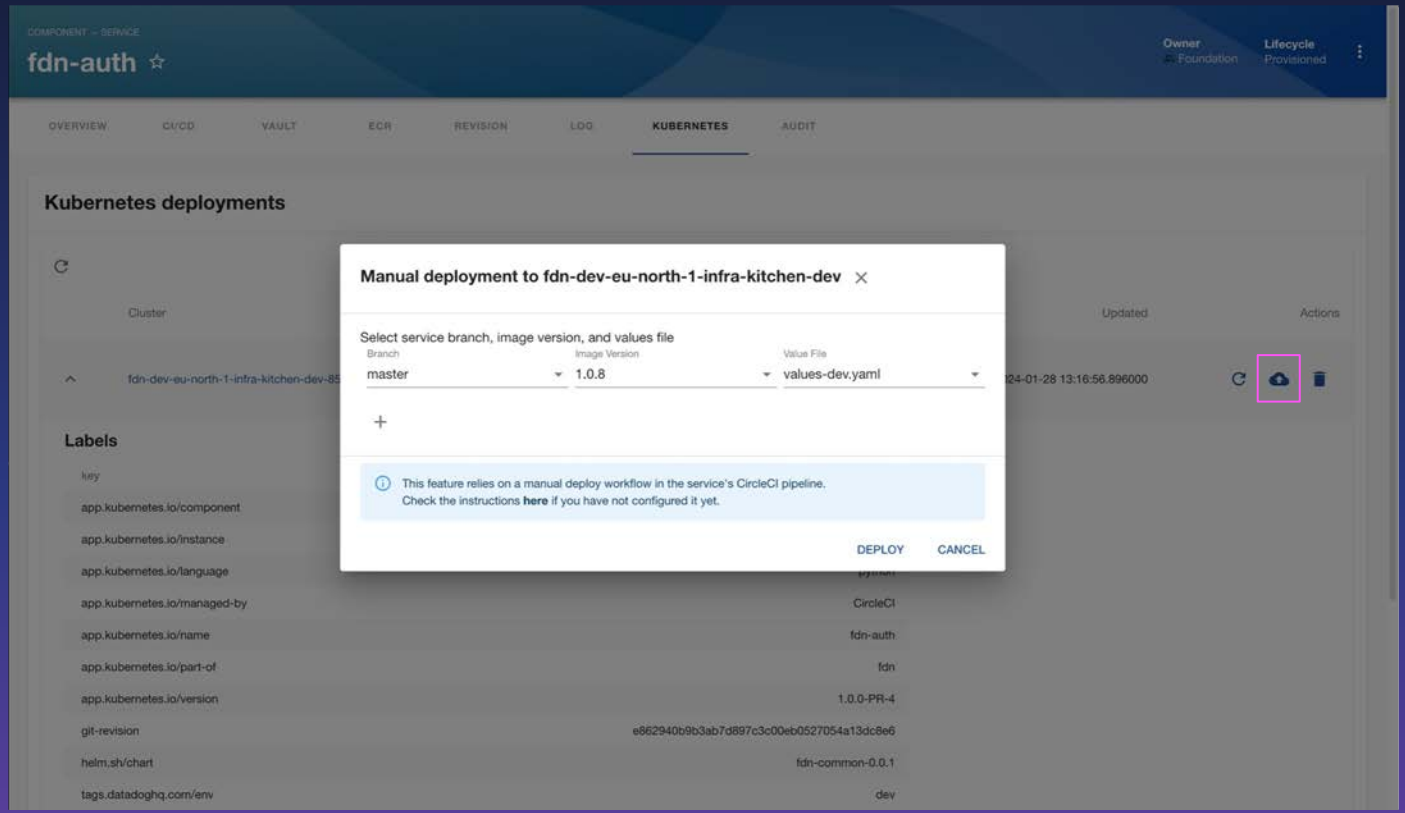
Infrastructure Provisioning & Orchestration



Infrastructure Management



Use Cases for Service Onboarding



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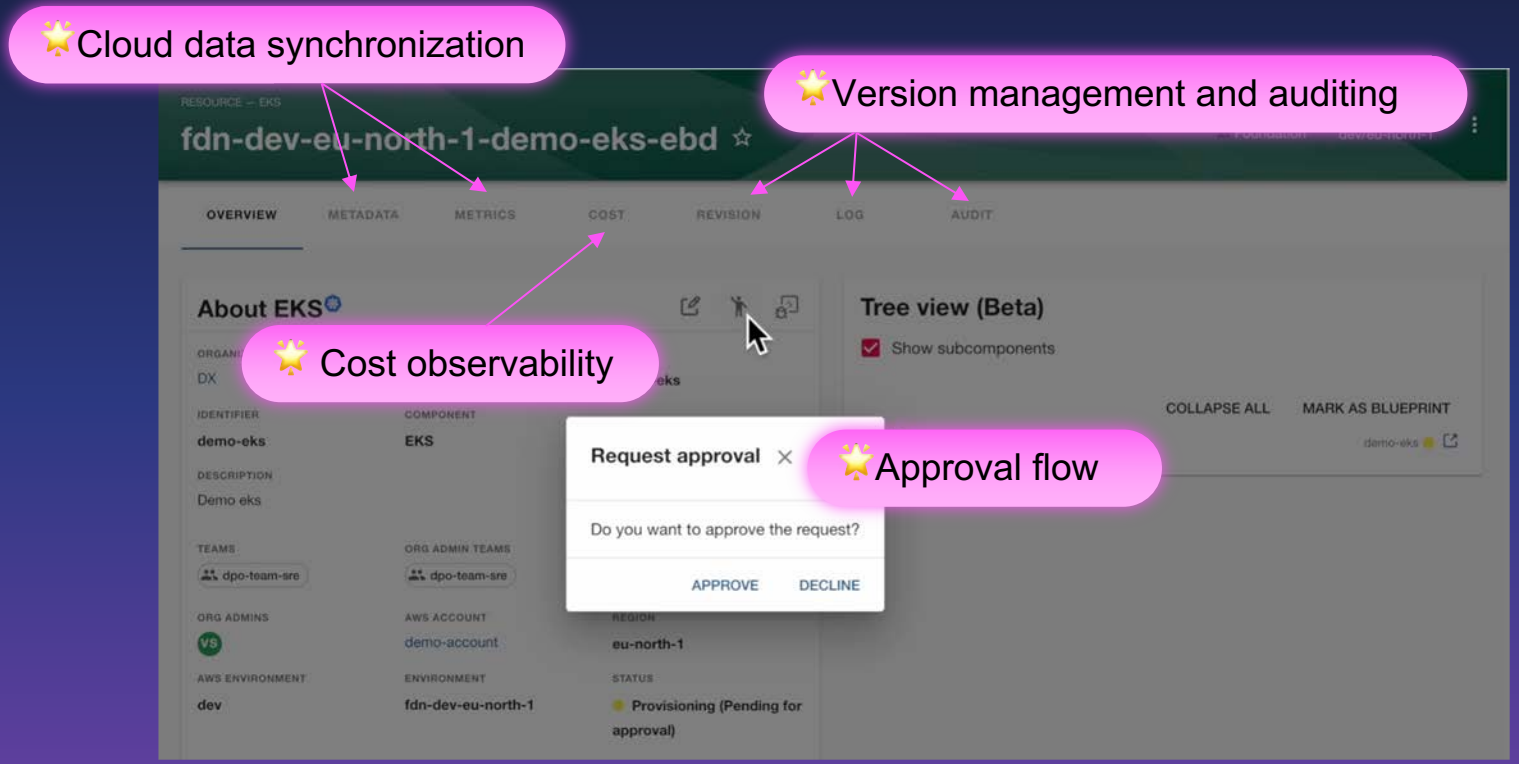

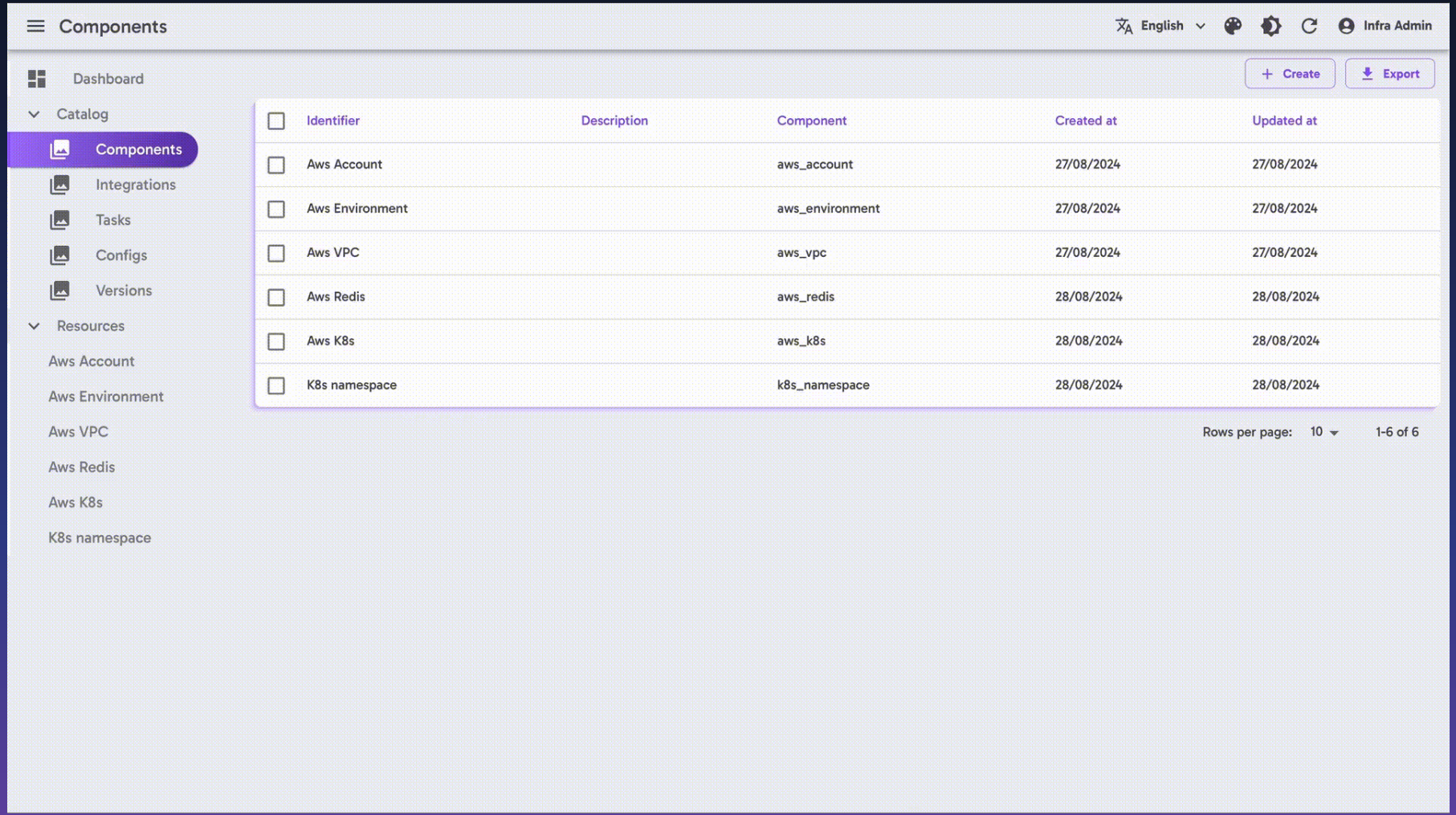
Components
English
Infra Admin
Dashboard
Catalog
Components
Integrations
Tasks
Configs
Versions
Resources
Aws Account
Aws Environment
Aws VPC
Aws Redis
Aws K8s
K8s namespace
Create
Export
Identifier
Description
Component
Created at
Updated at
Aws Account
aws_account
27/08/2024
27/08/2024
Aws Environment
aws_environment
27/08/2024
27/08/2024
Aws VPC
aws_vpc
27/08/2024
27/08/2024
Aws Redis
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28/08/2024
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Aws K8s
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28/08/2024
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K8s namespace
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Rows per page:
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1-6 of 6

Summary - Infrastructure Orchestration

- 👨‍💻 To be dependency free from your infrastructure team
- 👷 Modules are fundamental and the engine does the magic
- 👥 Self-manageable infrastructure is much more efficient

Infrastructure/Service Burns Money?

Two Different Kinds of Needs for Costs

From management

- What is the total cost of project X?
- What is the trend?
- How to optimize cloud costs?
- ...

From developers

- How much does my service cost?
- What is the correlation between usage and cost?
- ...

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From developers

- How much does my service cost?
- What is the correlation between usage and cost?
- ...

Cost Engineering

Multi-cloud cost aggregation

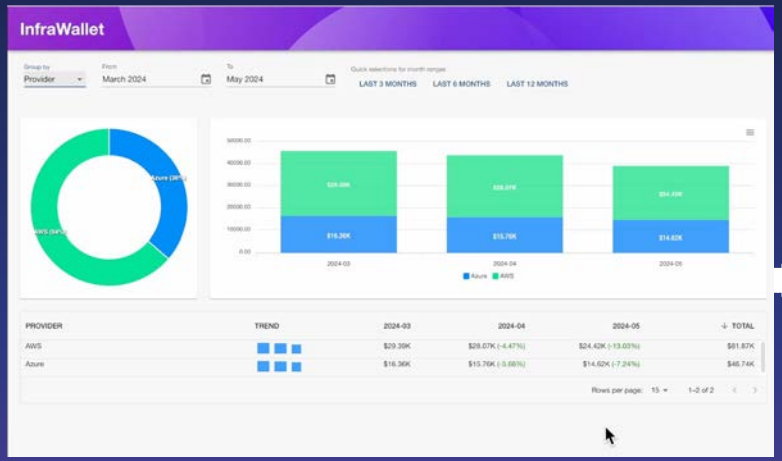
- Many third-party solutions in the market
- Might be overwhelmed by the features
- The subscription might not be cheap while you only need several key features

Fine-grained cost breakdown

- Cloud providers usually provide nice tools
- One provider, several dashboards
- Users have to switch among dashboards when they have multi-cloud costs

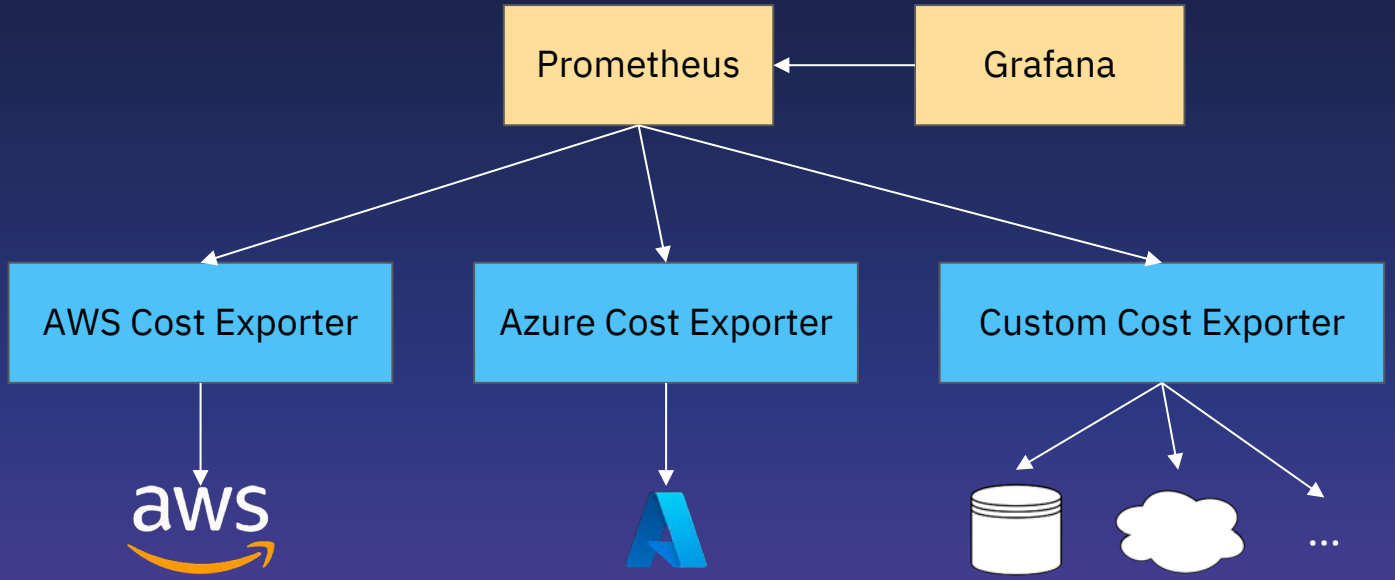
Cost Engineering

Multi-cloud cost aggregation



Fine-grained cost breakdown

Cost Metric Exporters

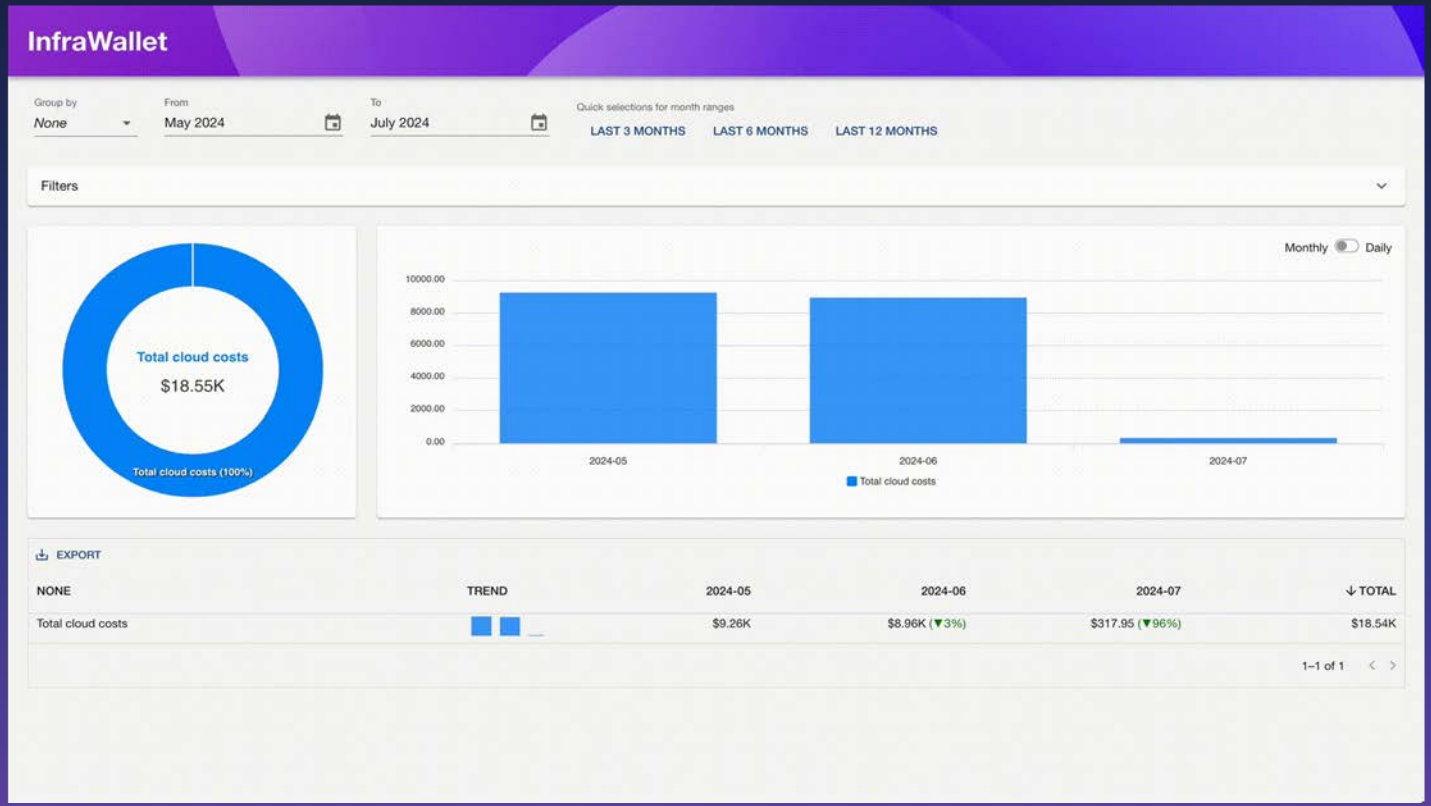


- Vendor-neutral
- Extensible
- Scalable

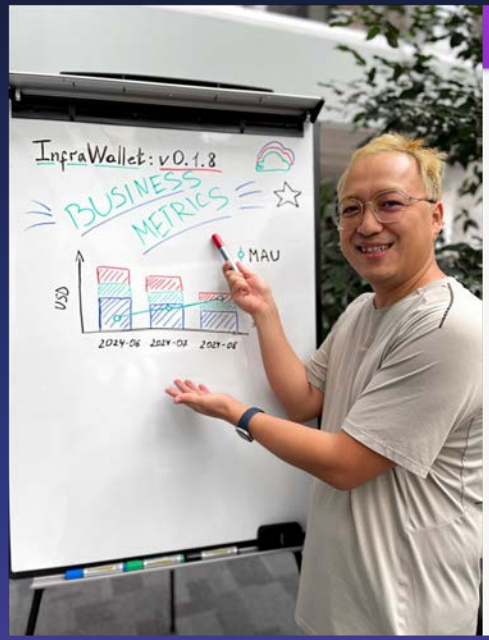
Ref: https://prometheus.io/docs/instrumenting/exporters/#finops

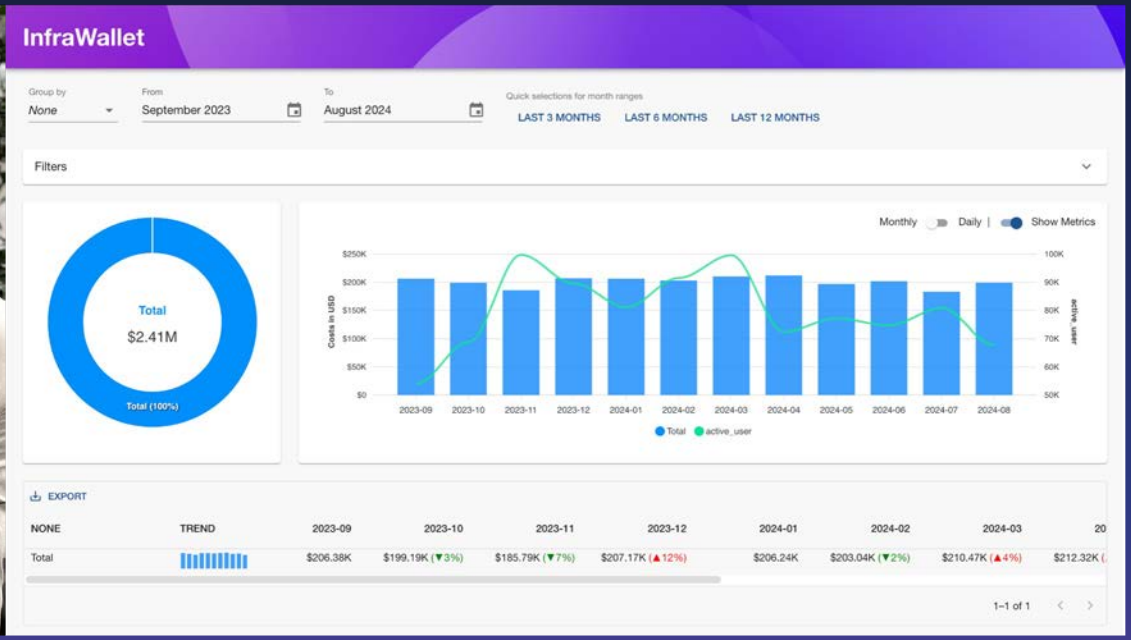
Cost Engineering for Managers

```
backend:
  infraWallet:
    integrations:
      azure:
        - name: <unique_name_of_this_account>
          subscriptionId: ...
          tenantId: ...
          clientId: ...
          clientSecret: ...
        - name: <unique_name_of_this_account>
          subscriptionId: ...
          tenantId: ...
          clientId: ...
          clientSecret: ...
      aws:
        - name: <unique_name_of_this_account>
          accountId: '<12-digit_account_ID_as_string>'
          assumedRoleName: ...
          accessKeyId: ...
          accessKeySecret: ...
        - name: <unique_name_of_this_account>
          accountId: '<12-digit_account_ID_as_string>'
          assumedRoleName: ...
          accessKeyId: ...
          accessKeySecret: ...
```



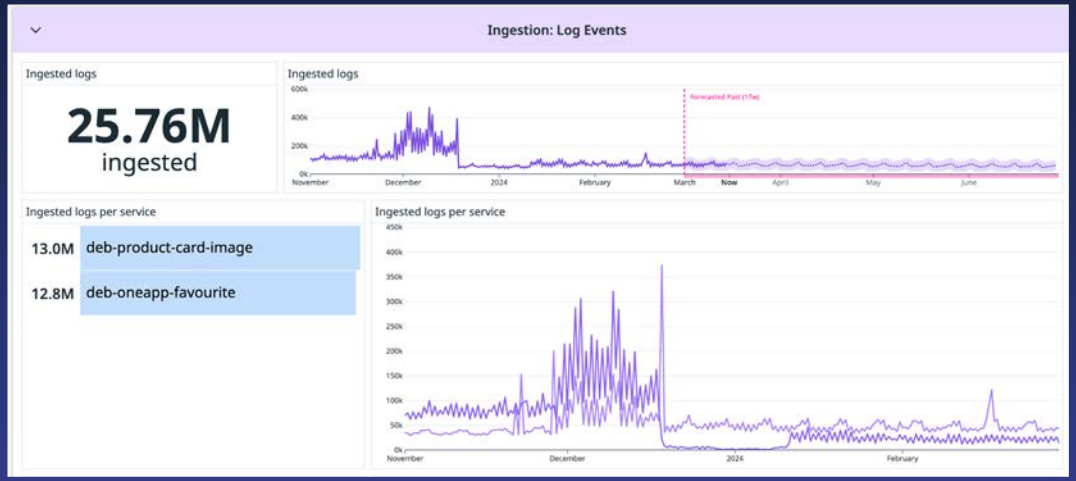
Cost Engineering for Managers

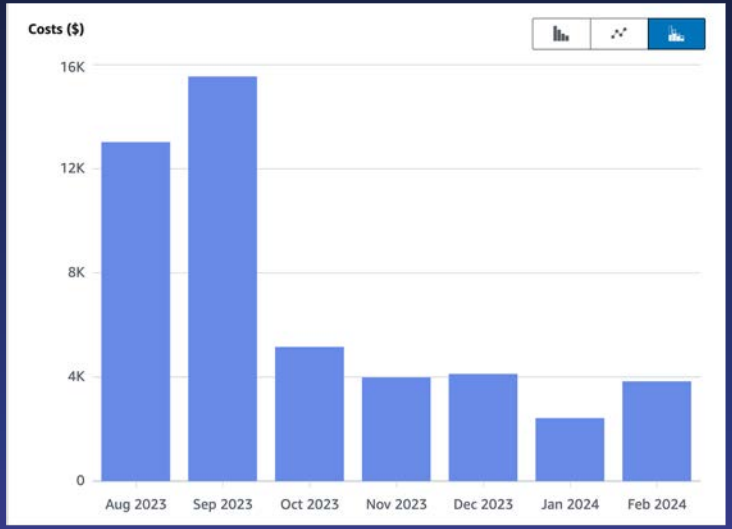




- Unit economics: a crucial metric to understand the business efficiency
- Business metric examples: MAU, transactions, connected devices, etc.

From Cost Observability to Cost Optimization





CLOUD SAVINGS

DATABASE

STORAGE

MESSAGING

LOGS

APM

METRICS

CI/CD

TOTAL

$32'101/month

Summary - Cost Engineering

- 👷‍♂️ From cost awareness to cost efficiency
- 👷 Follow FOCUS™ and make it vendor-neutral
- 👥 Not only about techniques, but also about culture (e.g., a cost optimization program)

Ref: https://focus.finops.org/#specification

ANYTHING FROM THE LIST?

DEVS

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- Different tools
- Multi-cloud set up
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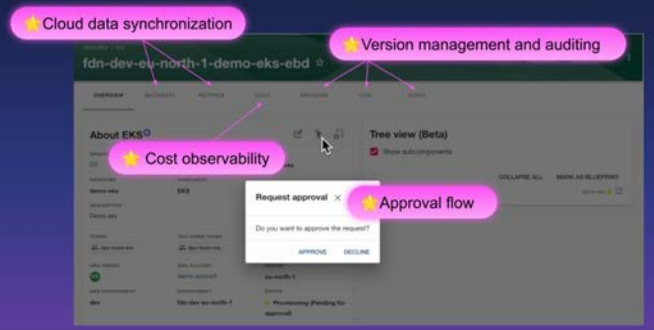

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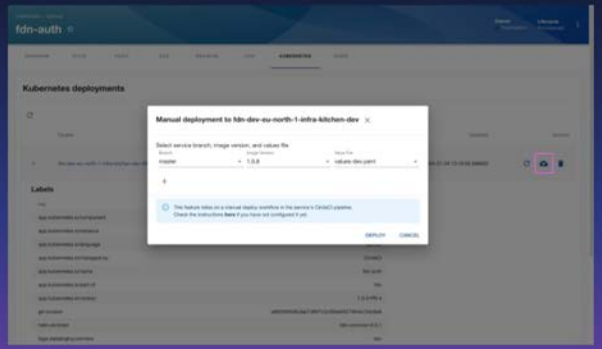

Cost Engineering

Opensource

https://github.com/electrolux-oss