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### **A Brandtech Company**

Headquarters : **UK** 



### Problem statement

Developing features at Pencil was challenging due to complex LLM integrations and **dependencies** across multiple micro services. Local testing was difficult, and relying on a **shared environment made issue isolation and debugging slow**. A solution was needed to provide each feature with its own isolated environment to speed up development and testing.



feat: implement AI-powered ad variations

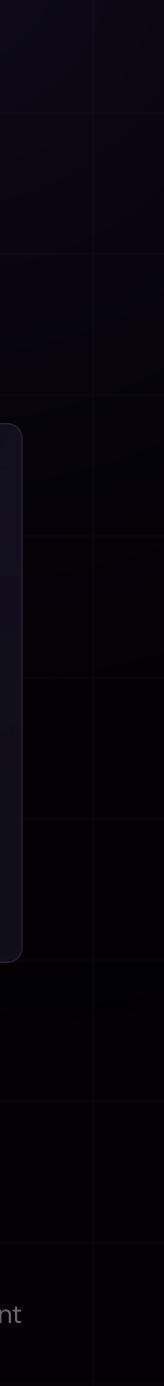
feat: introduce asset tagging for easier searching

feat: add AI-powered video ad creation

feat: add dynamic image ad creation with templates

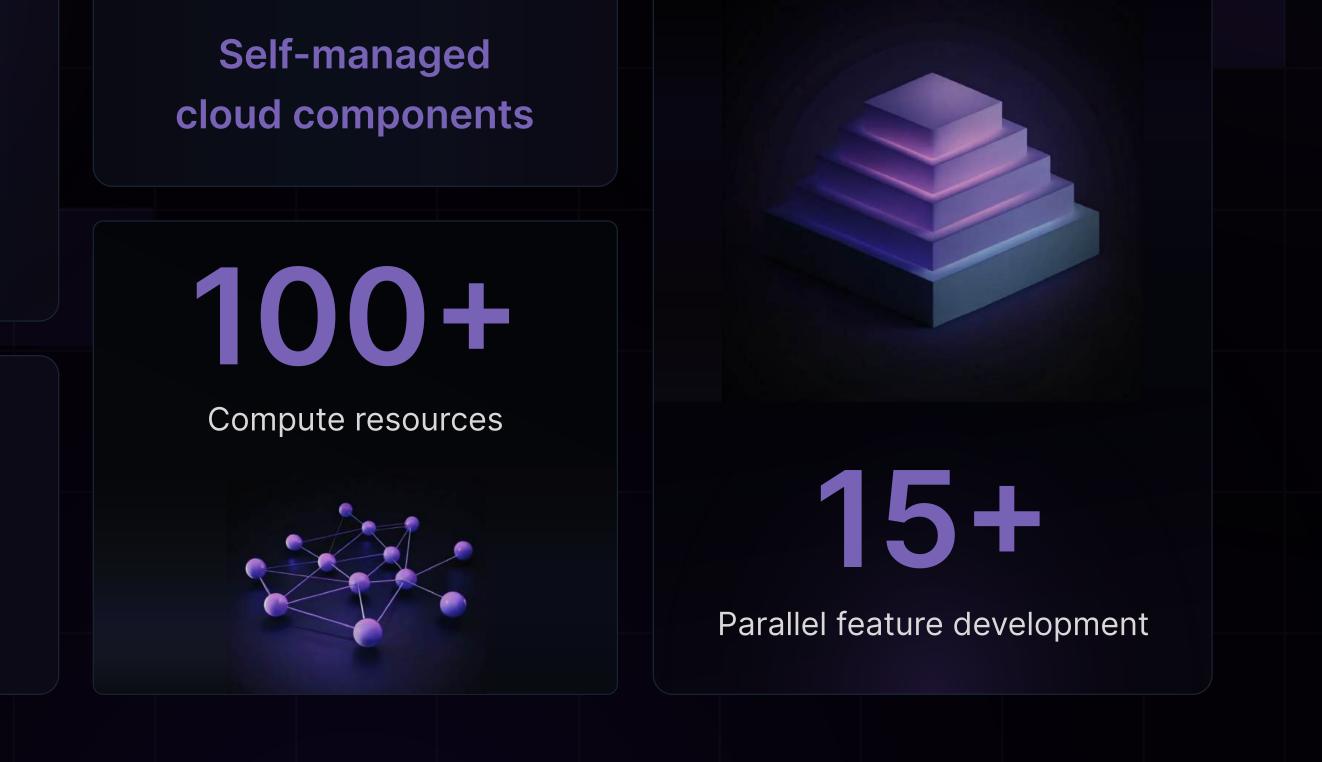
feat: introduce customizable templates for video and image ads

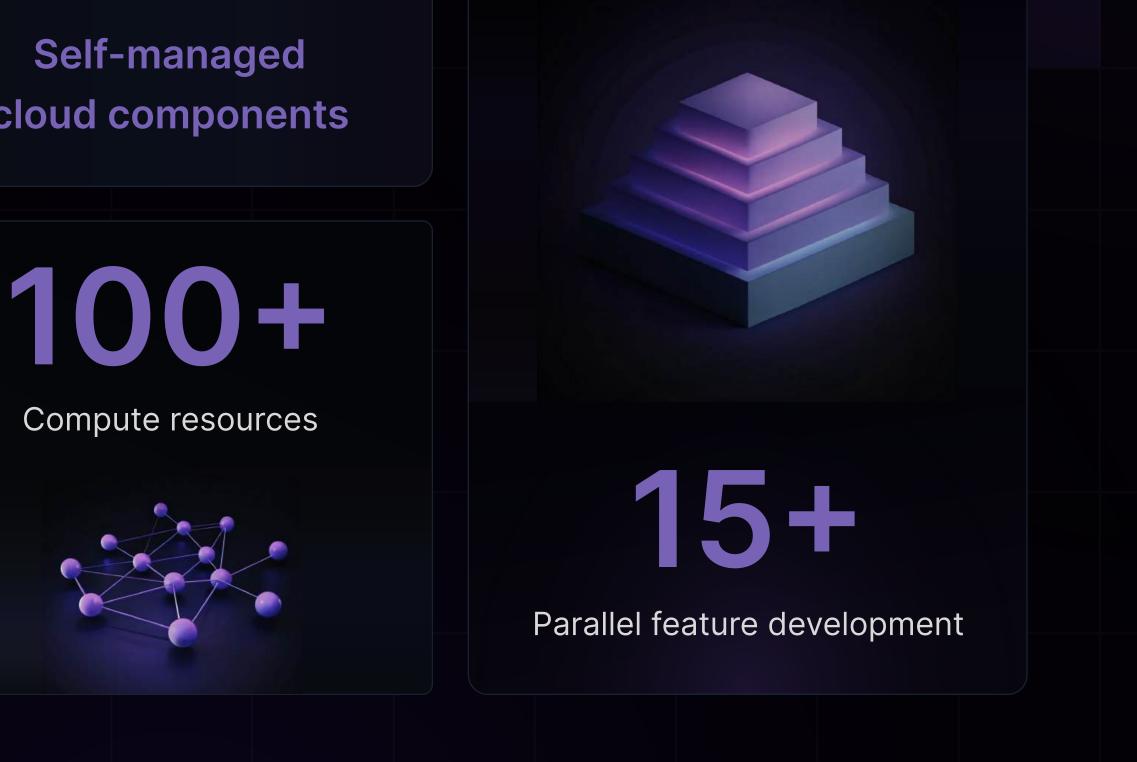
Problem statement

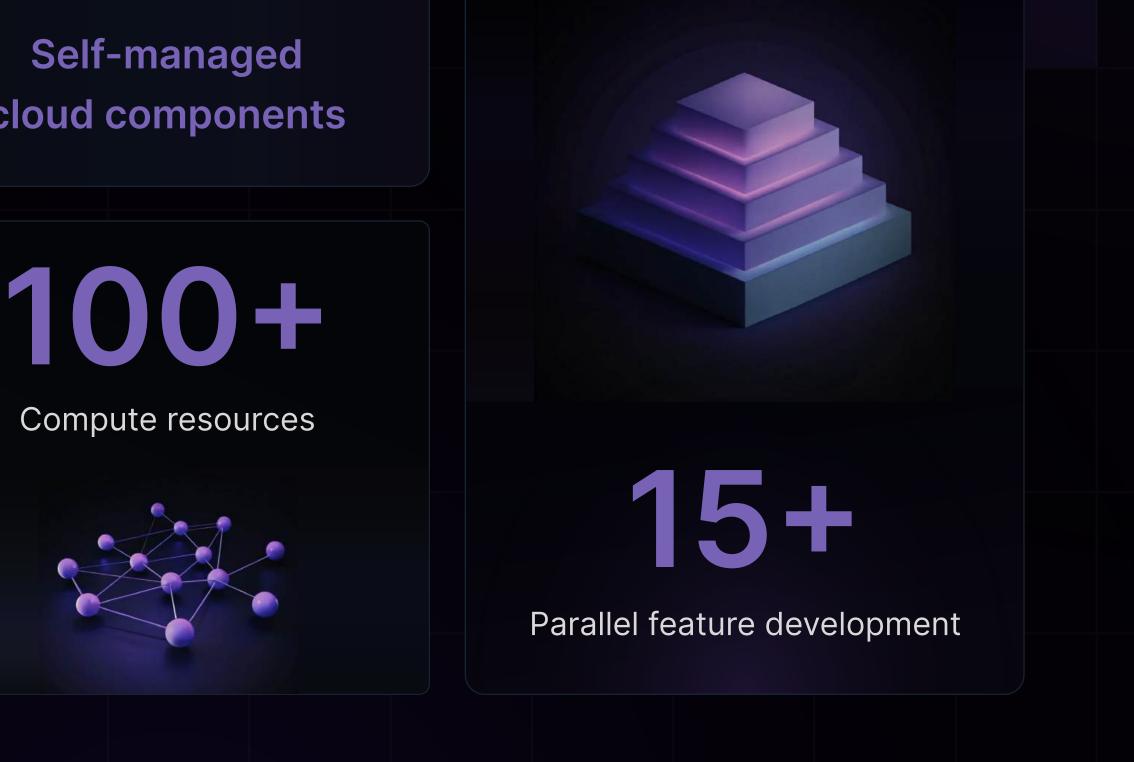


## Challenges

### Building an **ephemeral environment** for Pencil which consists of:









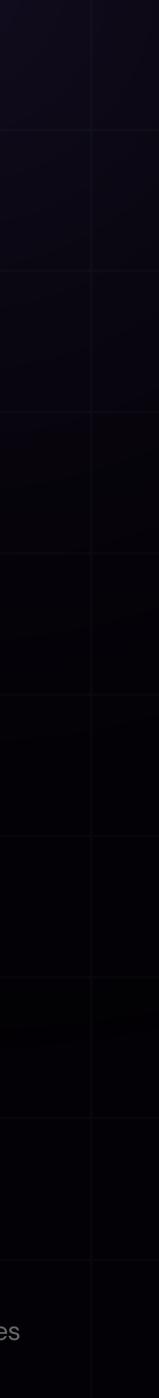
25+

Micro-services

Integrations



Challenges

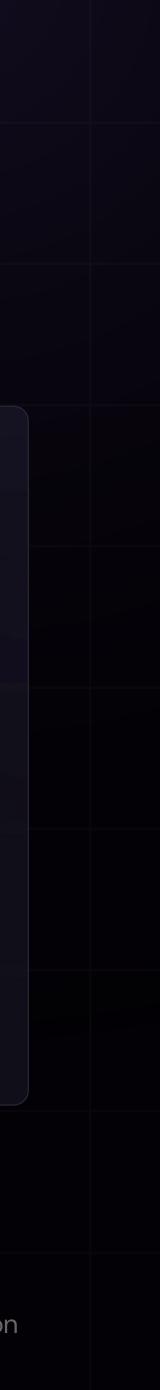




We implemented an automated workflow for ephemeral environments. When developers raise pull requests (PRs) with a feature tag (e.g., FeatureA), automation gathers all tagged PRs and spins up on isolated environment with all required components, such as micro-services, databases, and integrations. Once testing is complete, the environment is automatically deleted, ensuring efficient resource usage and a clean process.



### Solution



### **Business impact**

#### **Delivery time**

Achieved a 30% difference in delivery time

#### **Optimised QA testing**

Isolated environment for QA provides easiness and efficiency in testing





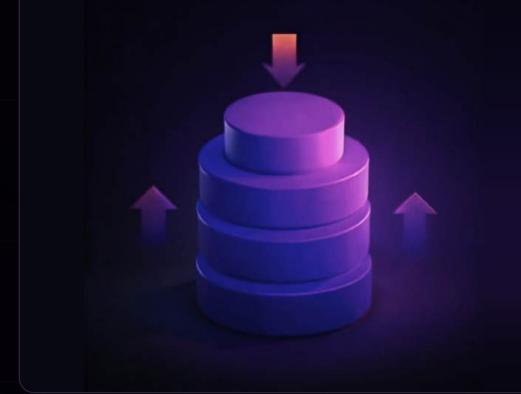


#### **Client satisfaction**

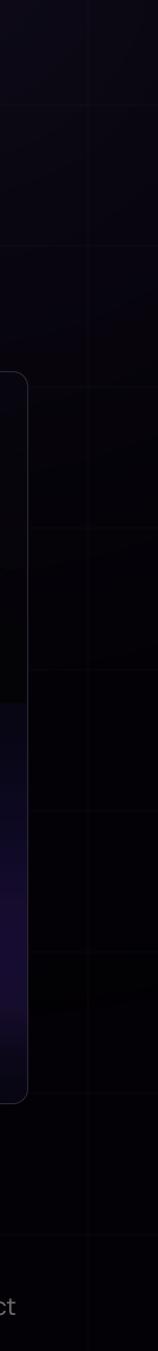
Timely delivers provides fulfilment to customer commitment

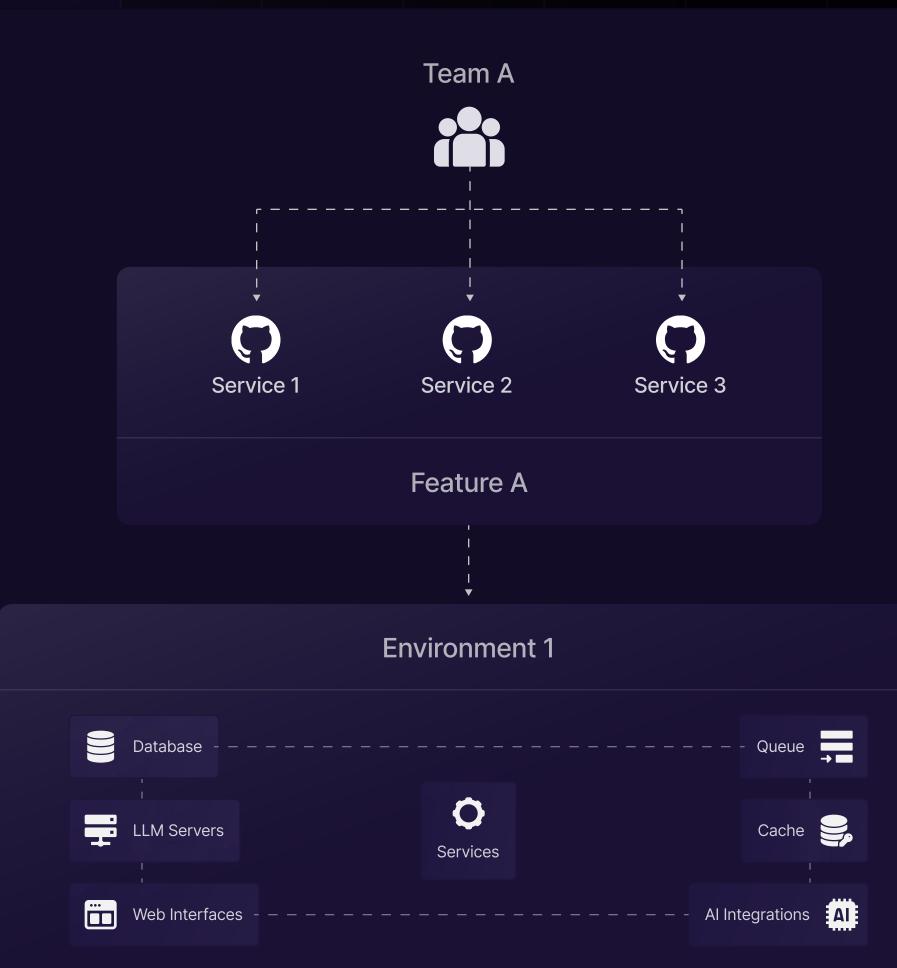
#### Faster development

Isolated environements accelerate development, enabling faster, reliable, feature launches



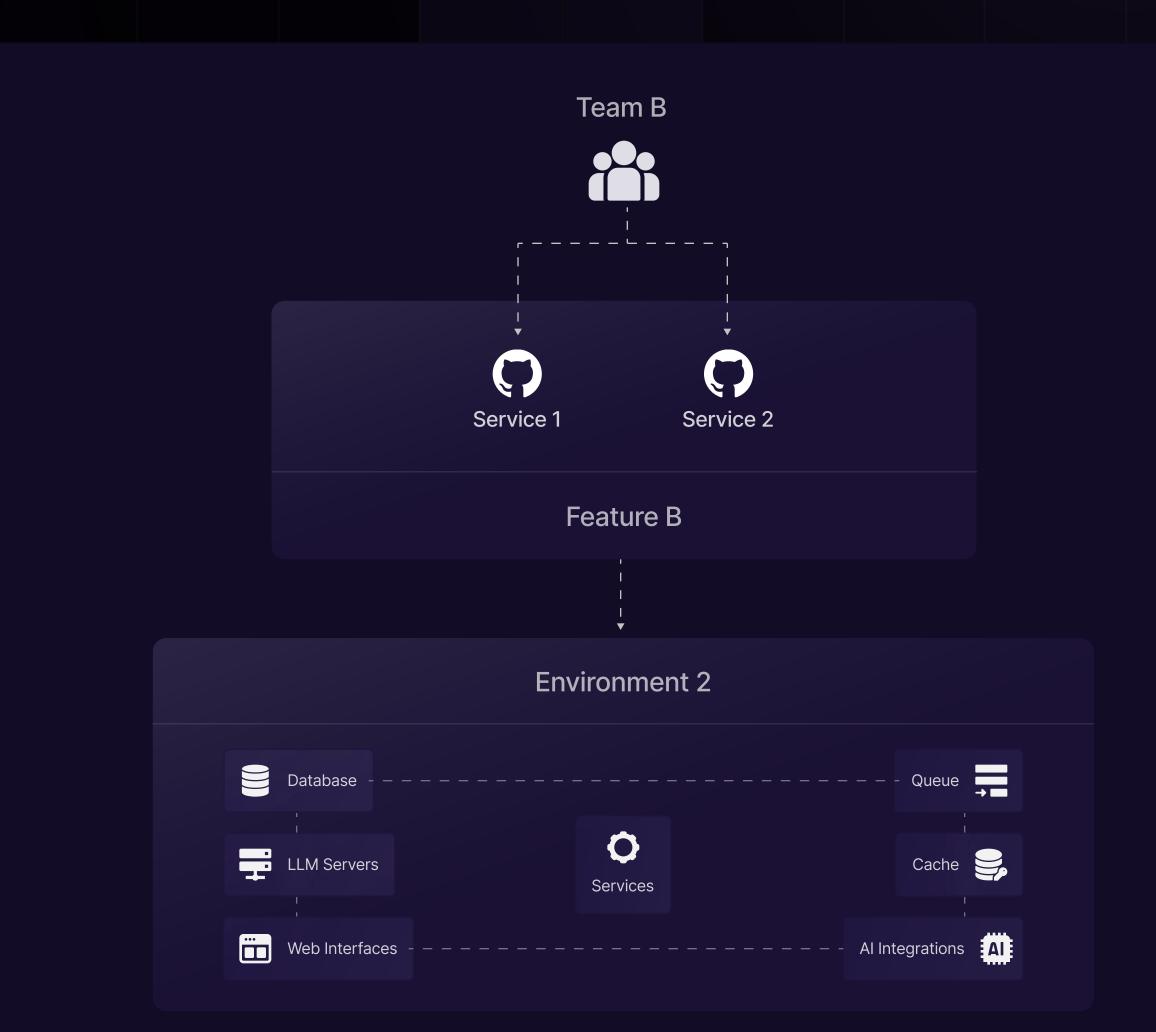
**Business impact** 





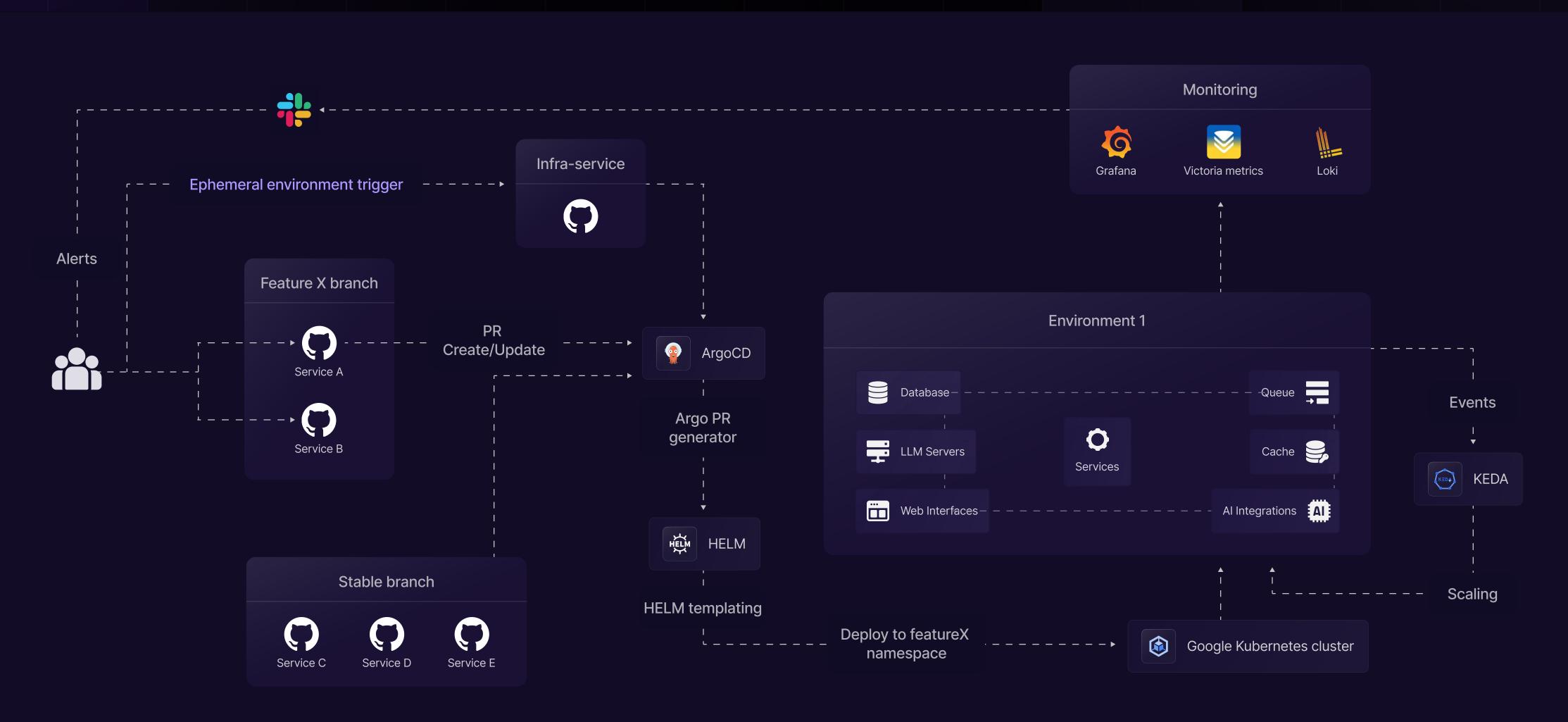


### User flow





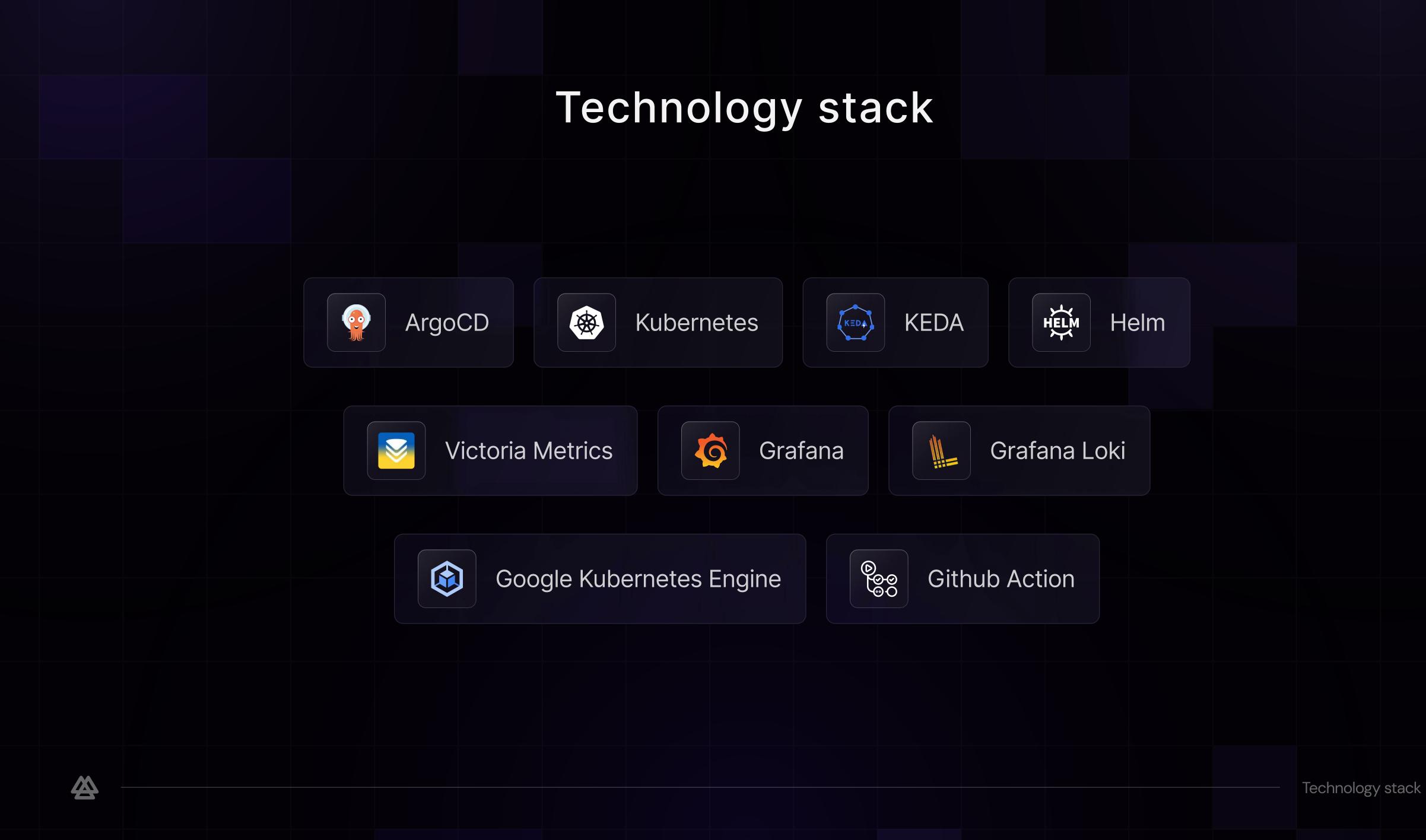
### Technical solution diagram





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### Engineering challenges

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#### Database cloning

Automate isolated database setup for each environment

#### Automated setup

Streamline environment creation and teardown for efficient deployment

#### Customisable micro-service selection

Enable dynamic selection and deployment of only required microservices





Handling each ephemeral environment-specific secrets

#### On-demand scaling

Configure resources to scale based on load or API requests, reducing idle costs

#### Unified monitoring

Centralize monitoring and logging for all environments and targeted alerts for specific users

Engineering challenges

