COS70008-Technology Innovation Project

Group User Manual

Team 7

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1 Introduction

Welcome to the XC3 user guide, focusing on the newly enhanced feature of XC3 which is project breakdown cost. This enhancement empowers users to gain comprehensive insights into the allocation of costs across different services of the projects within the cloud infrastructure. With XC3, you can efficiently track expenditure patterns, optimize resource allocation, and make informed decisions for improved cost management. Let us dive into the details of how this enhancement works and how you can leverage its capabilities.

2 System Requirements

To use the "Project Cost Breakdown" feature effectively, ensure that your system meets the following requirements:

- Terraform 1.0+
- Python 3.9
- AWScli
- Cloud Custodian
- Prometheus/Grafana/Pushgateway
- checkov 2.0.574 or later
- shellcheck 0.7.1 or later

3 Installation Instructions

The "Project Cost Breakdown" feature is integrated into XC3 by default. There's no separate installation required for this specific feature. To use it, follow these steps:

- Log in to your AWS account.
- Install XC3 in your account configuring the project names and other required fields.
- Run project_spend_cost to invoke project_cost_breakdown lambda and remaining lambda functions sequentially.

4 Architecture Diagram

The architecture diagram for our implemented feature is given below.

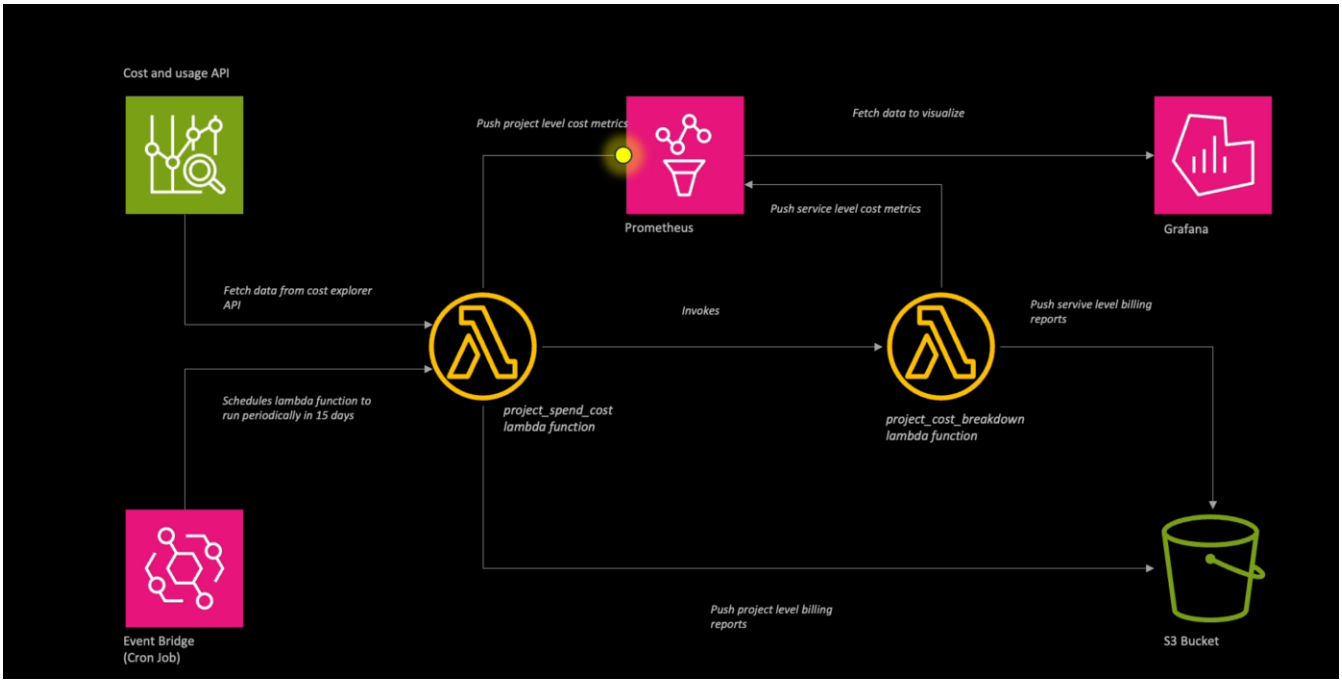


Figure: Architecture Diagram

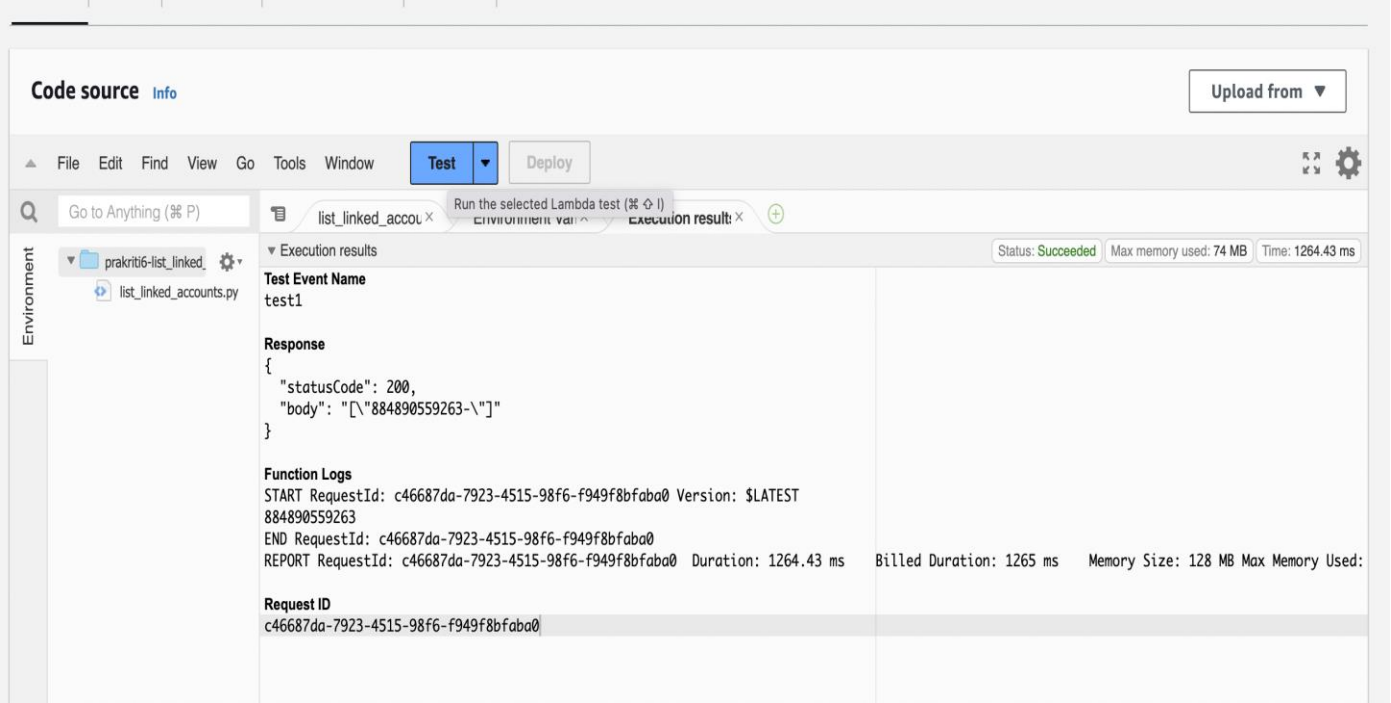
5 Testing Lambda Functions

To see the immediate data in Grafana dashboard, fo llow the following steps:

- **List_linked_accounts**

  Function Name: {namespace}-list_linked_accounts

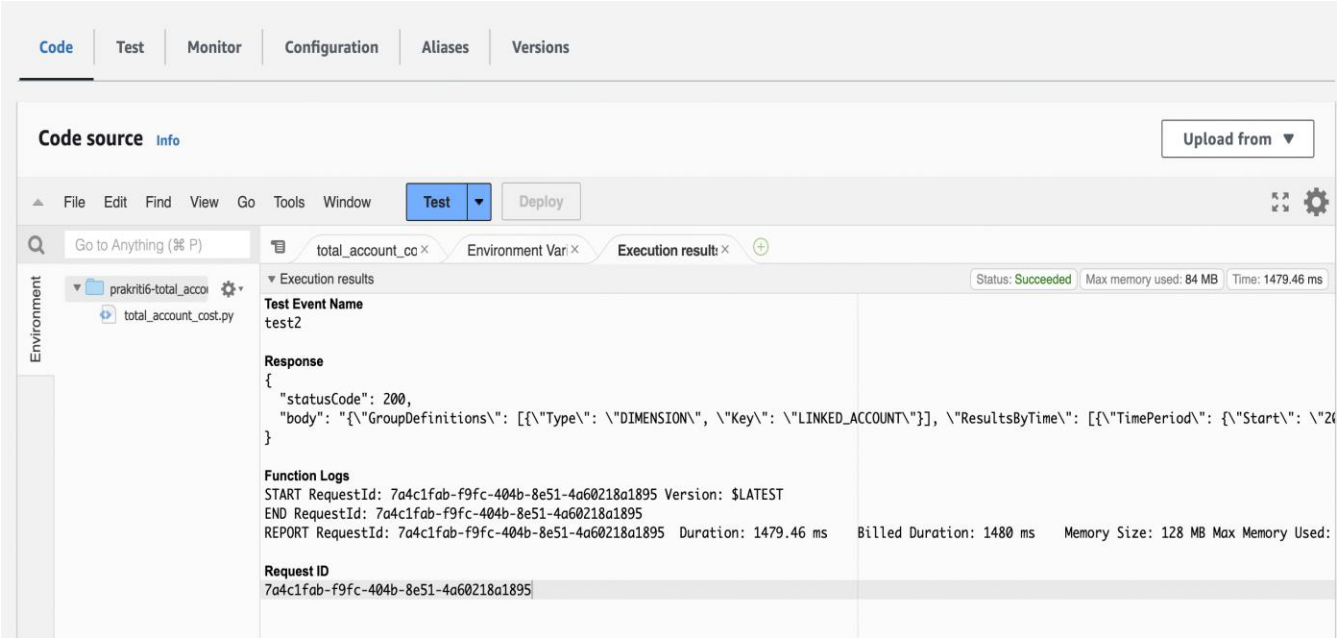
  Select this lambda function from the list of functions in the lambda dashboard. Test the function by creating an event.



- **Total_account_cost**

  Function Name: {namespace}-total_account_cost

  Select this lambda function from the list of functions in the lambda dashboard. Test the function by creating an event.

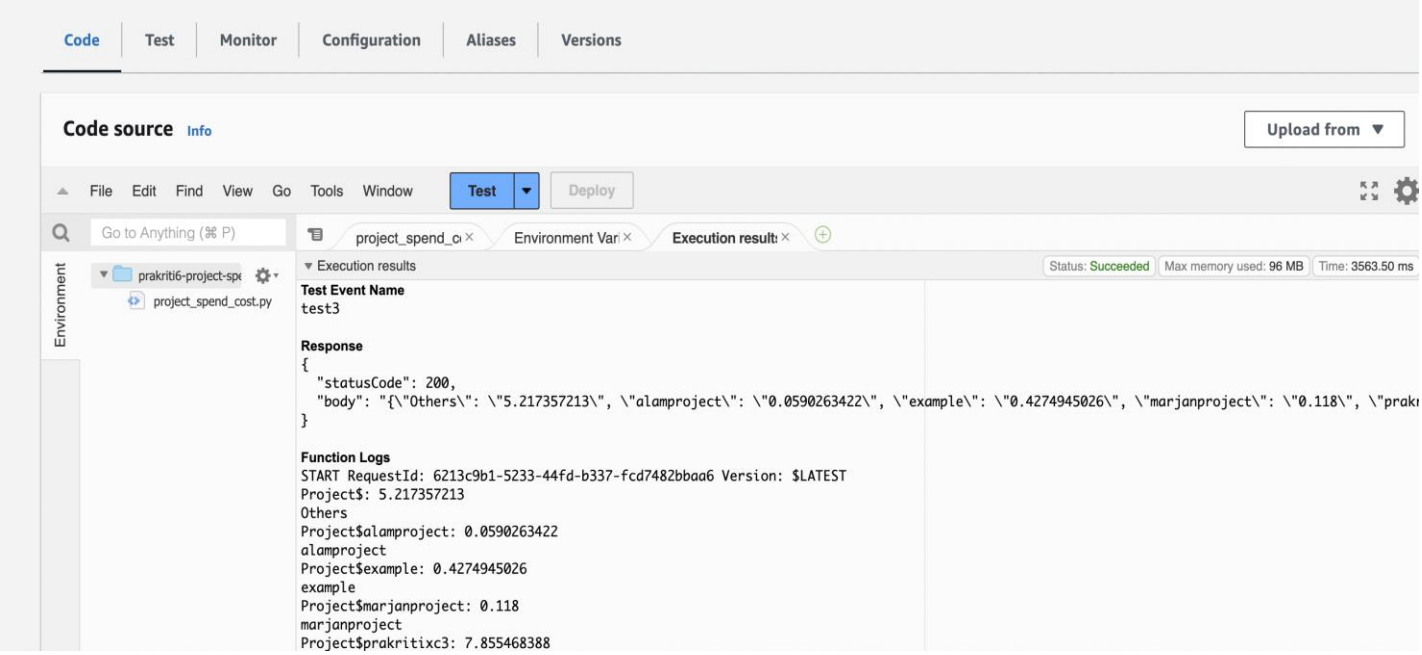


- **Project_Spend_Cost**

Function Name: {namespane}-project_spend_cost

Select this lambda function from the list of functions in the lambda dashboard. Test the function by creating an event.

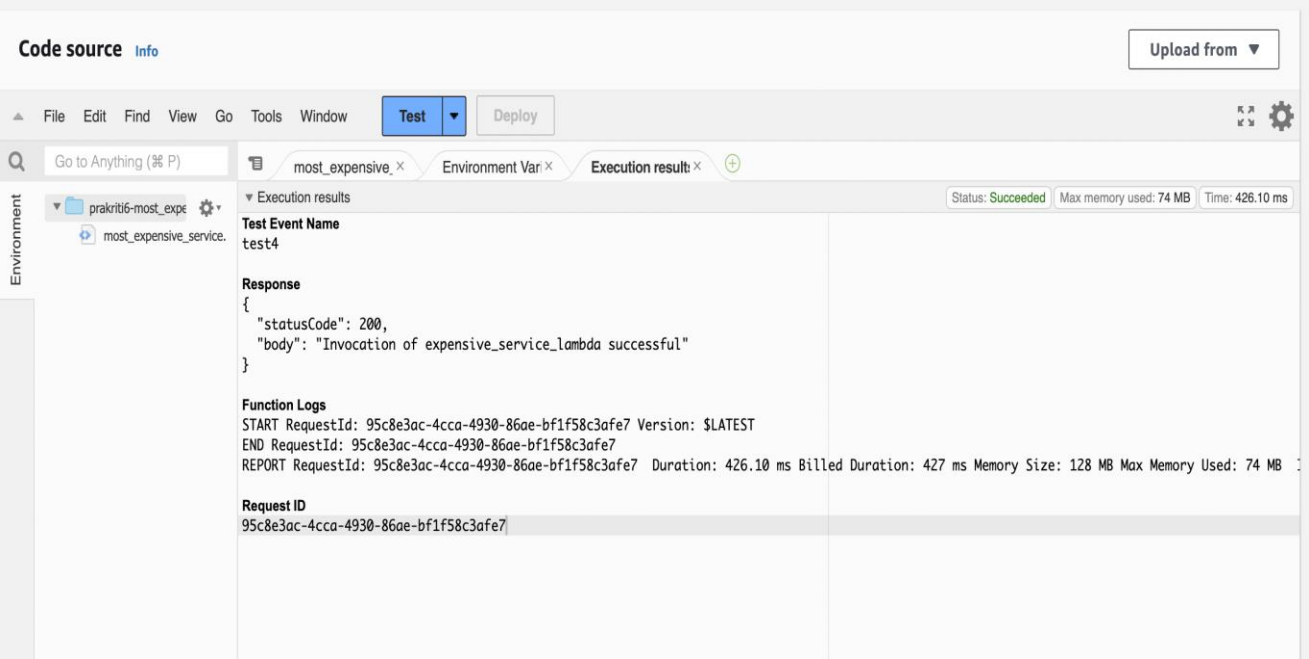
*Note: We have our new lambda **project_cost_breakdown** lambda which is invoked while running **project_spend_cost** lambda.*



- **Most_Expensive_Service**

Function Name: {namespace}-most_expensive_service

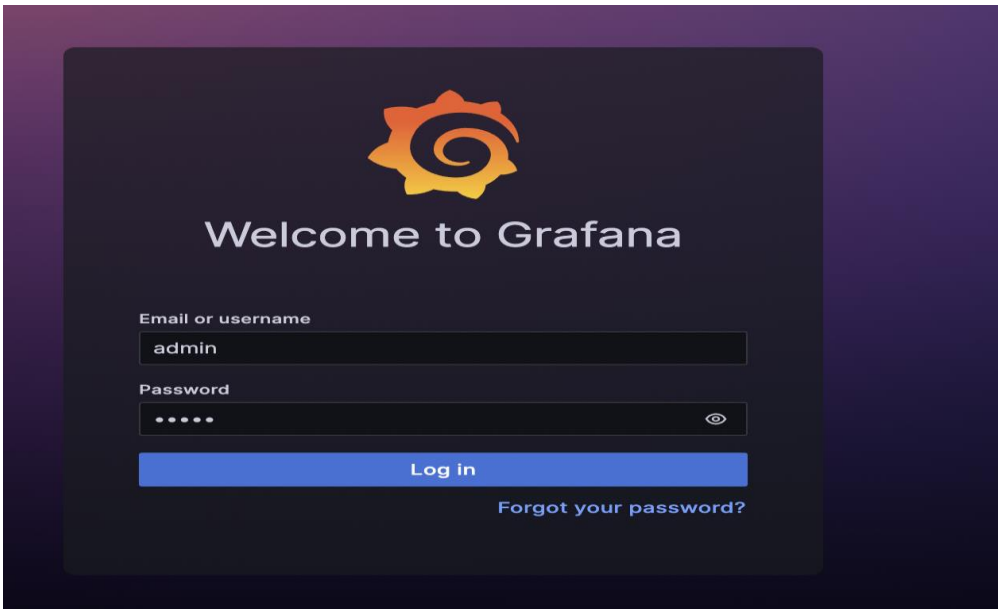
Select this lambda function from the list of functions in the lambda dashboard. Test the function by creating an event.



6 User Interface Overview (Grafana Panel)

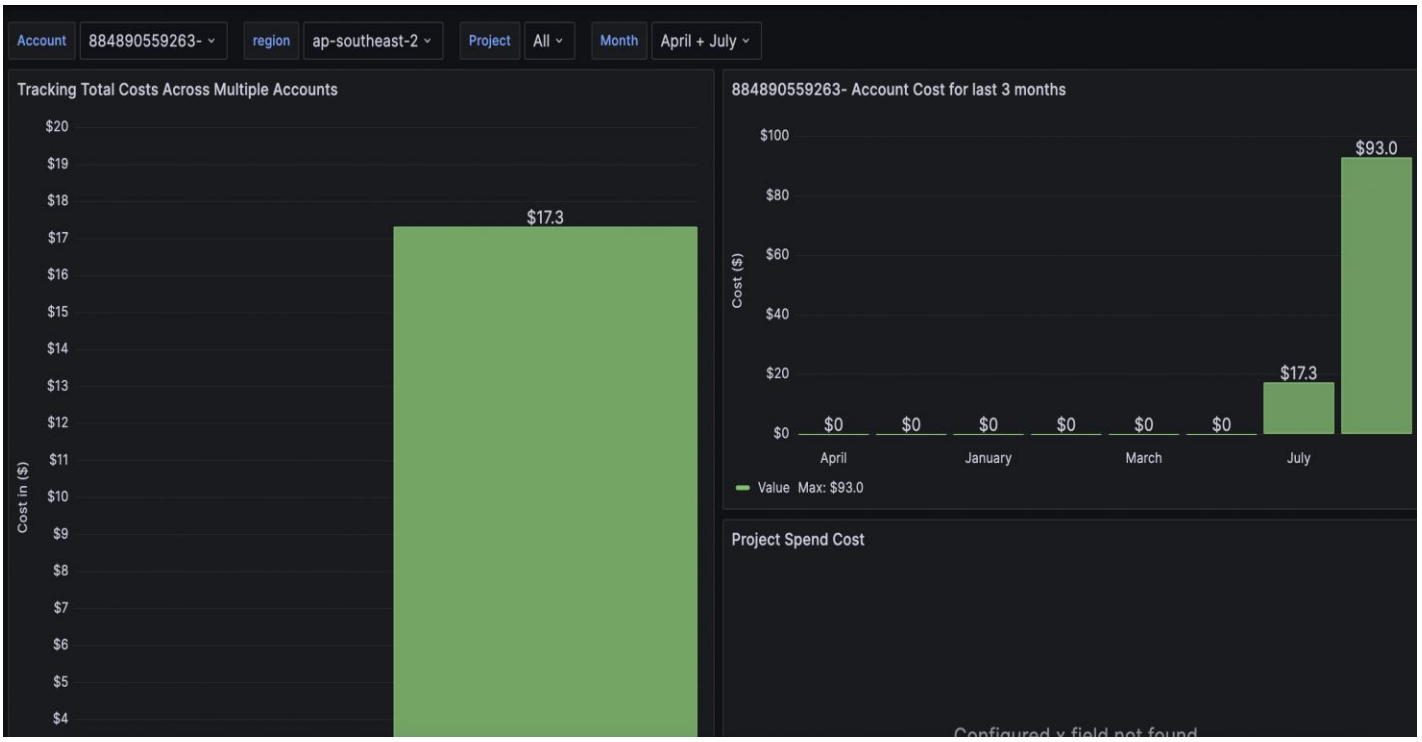
Login panel

- Go to the ec2 Public-ip:3000
- Use the HTTP Protocol
- Login to the dashboard with Grafana Default Credentials
- Enter Username: admin
- Enter Password: admin

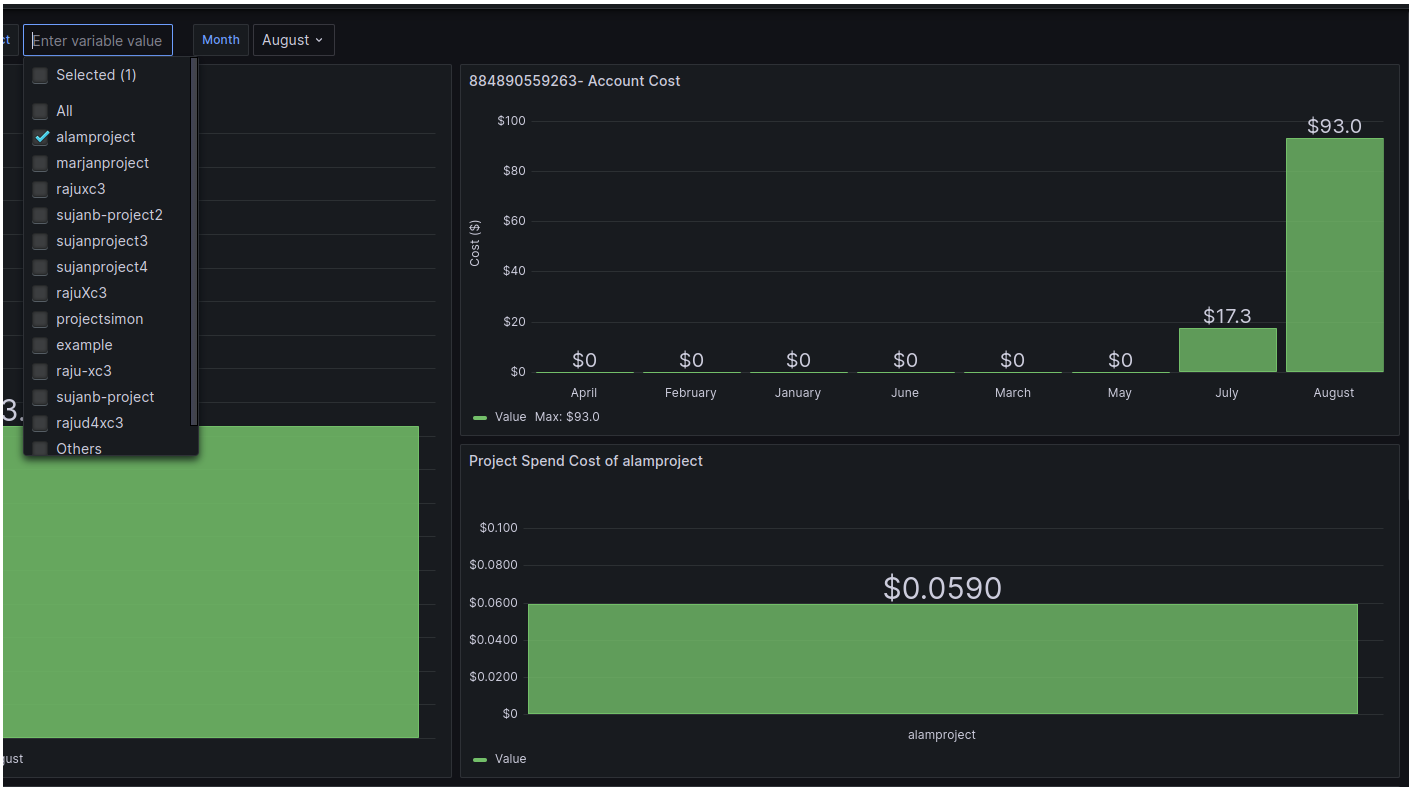


Home dashboard

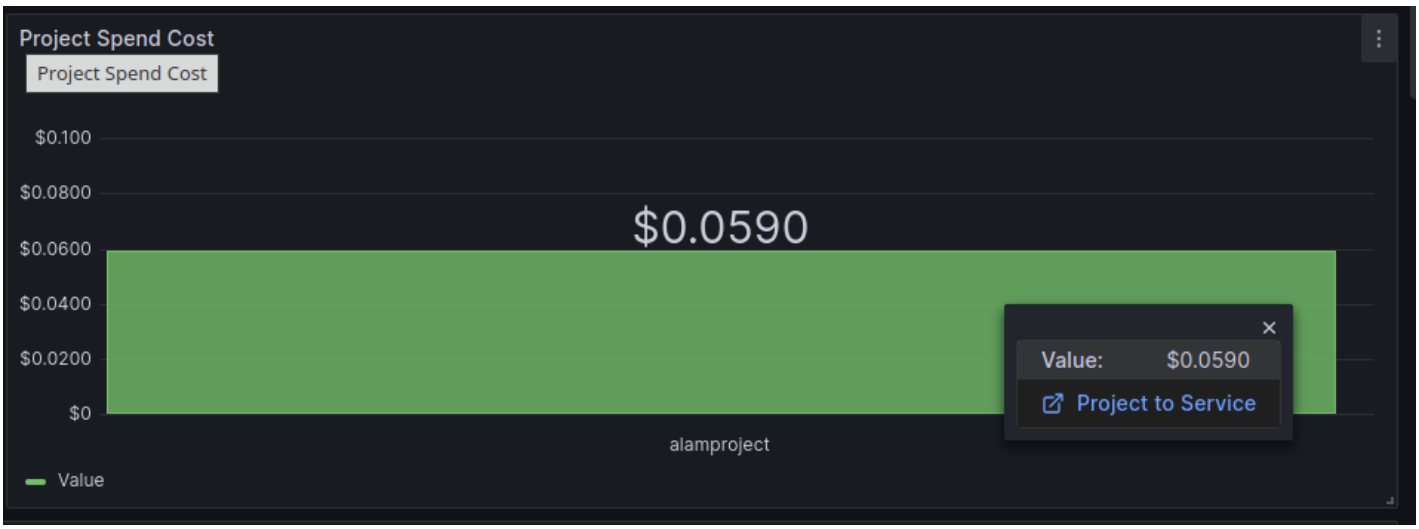
- After logging in you can see different dashboards for different data. The cost of projects is populated in Project Spend Cost visualization.



- You need to select the project name from the project dropdown as shown in the figure.



- Click on the project bar. You can see the link to go to the next dashboard. This link is to open the associated services panel which shows cost data of services used by the selected project.



Associated service dashboard

- The associated service dashboard contains two panels:

Bar Graph: This part of the dashboard shows the top 5 most expensive services used by the project. You can select the project name from the dropdown ProjectName.

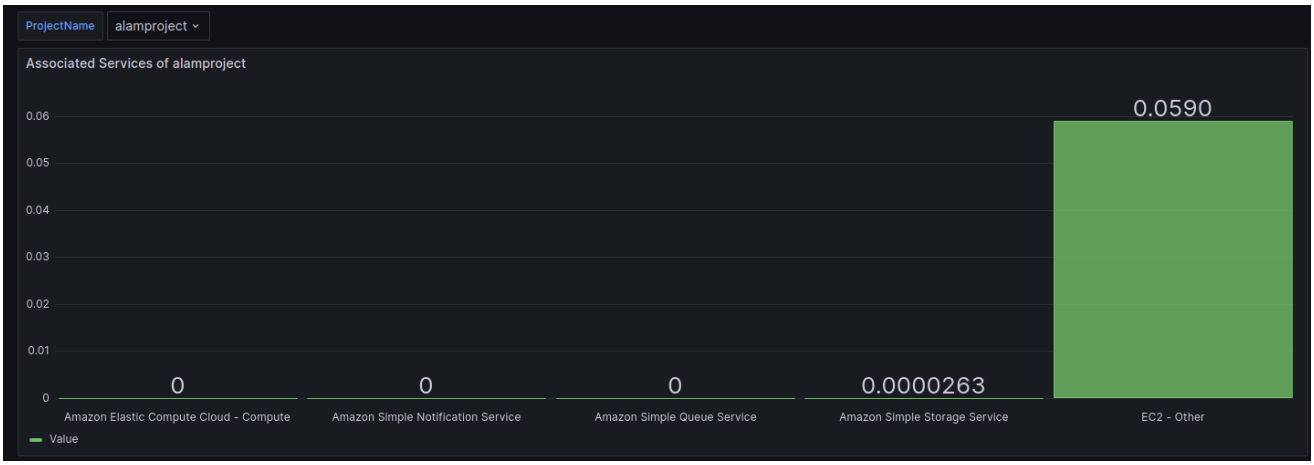


Table: The table shows the lists of all the services used by the project in descending order as shown in the figure.

All services cost of alamproject

project_spend_service	Value
EC2 - Other	0.0590
Amazon Simple Storage Service	0.0000263
Amazon Elastic Compute Cloud - Compute	0
Amazon Simple Notification Service	0
Amazon Simple Queue Service	0
Amazon Virtual Private Cloud	0

7 Using the feature

The "Project Cost Breakdown" feature allows you to:

- Select an AWS project to analyze.
- View a breakdown of costs for each individual service used in the project.
- Customize the visualization for specific time periods or cost categories.

8 Troubleshooting

If you encounter any issues while using the "Project Cost Breakdown" feature, consider the following steps:

- If the AWS account was created freshly within last 24 hours, then, you need to enable Cost Explorer by following below link: https://docs.aws.amazon.com/awsaccountbilling/latest/aboutv2/ce-enable.html
- Make sure your XC3 installation is up to date.
- Make sure there were no errors while installing XC3.
- Ensure that your AWS credentials have sufficient permissions to access the necessary resources.
- Verify that the environment variables (Prometheus Ip, bucket name, project_cost_breakdown_prefix) are correctly configured.
- Ensure that your Prometheus push gateway is reachable from the Lambda function's execution environment.

9 Contacting Support

If you need further assistance or encounter persistent issues, please contact our support team at 104055570@student.swin.edu.au. Our dedicated team is here to help you with any questions or concerns you may have.