Merapar Challenge

08.14.2025

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Overview

On a cloud platform of your choice provision a service, using Infrastructure as Code, that serves a html page.

The content of the page must be ..

<h1>The saved string is {dynamic string}</h1>

.. Where {dynamic string} can be set to whatever is requested without having to re-deploy. Any user accessing the url must get the same result.

Proposed solution

Using AWS, Terraform and Python, this solution deploys an AWS API Gateway that invokes a Lambda function (coded in Python) that renders the HTML page. The ***{dynamic string}*** value is stored in AWS Systems Manager Parameter Store, so it can be updated with no redeployment.

1. Reasons behind that choice (pros) :

a. Very simple design: Using only an API Gateway and a Lambda function.

b. Cost-efficient: pay-per-request (API calls and Lambda execution time and invocations).

c. Secured: Using the Least privilege principle, granting only the permissions required by the Lambda function (ssm:GetParameter and CloudWatch logs).

d. Easy-to-use: The dynamic part can be updated by a single command using the AWS CLI.

2. Others alternatives :

a. Another Serverless solution would have been to use AWS Fargate to run a Docker container with a lightweight image such as nginx:alpine but it would have increased the cost and complexity.

b. Using DynamoDB instead of SSM, but it seems a “bit much” (both in cost and complexity) to store just 1 string.

c. Any solution that involves provisioning an EC2 instance was automatically discarded for cost reasons. There is no point in paying idle computing time when we can use a serverless solution.

3. What could be improved? :

a. The way the dynamic part is updated using the AWS CLI. Instead we could implement an API “POST /update” endpoint to update the value of the ***{dynamic string}***. Doing so, we would then need to implement an authentication mechanism so that the POST method can only be used by an admin or such. The identity could be verified using IAM or Cognito.

b. Using Terraform workspaces to support deployments on other cloud providers (Azure & GCP).