

AWS Frontier

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PROBLEM

AWS Frontier was developed to address a significant challenge in the AWS ecosystem: the absence of a centralized view of all account resources. Aimed at simplifying the user experience, our project offers a comprehensive solution for monitoring and managing AWS assets. At the heart of our initiative lies a strong commitment to security, ensuring that users can confidently interact with their AWS data without compromising safety. Constructed from the ground up, AWS Frontier uniquely combines extensive resource visibility with stringent security measures, providing a reliable and efficient tool for AWS account management.

CURRENT SYSTEM

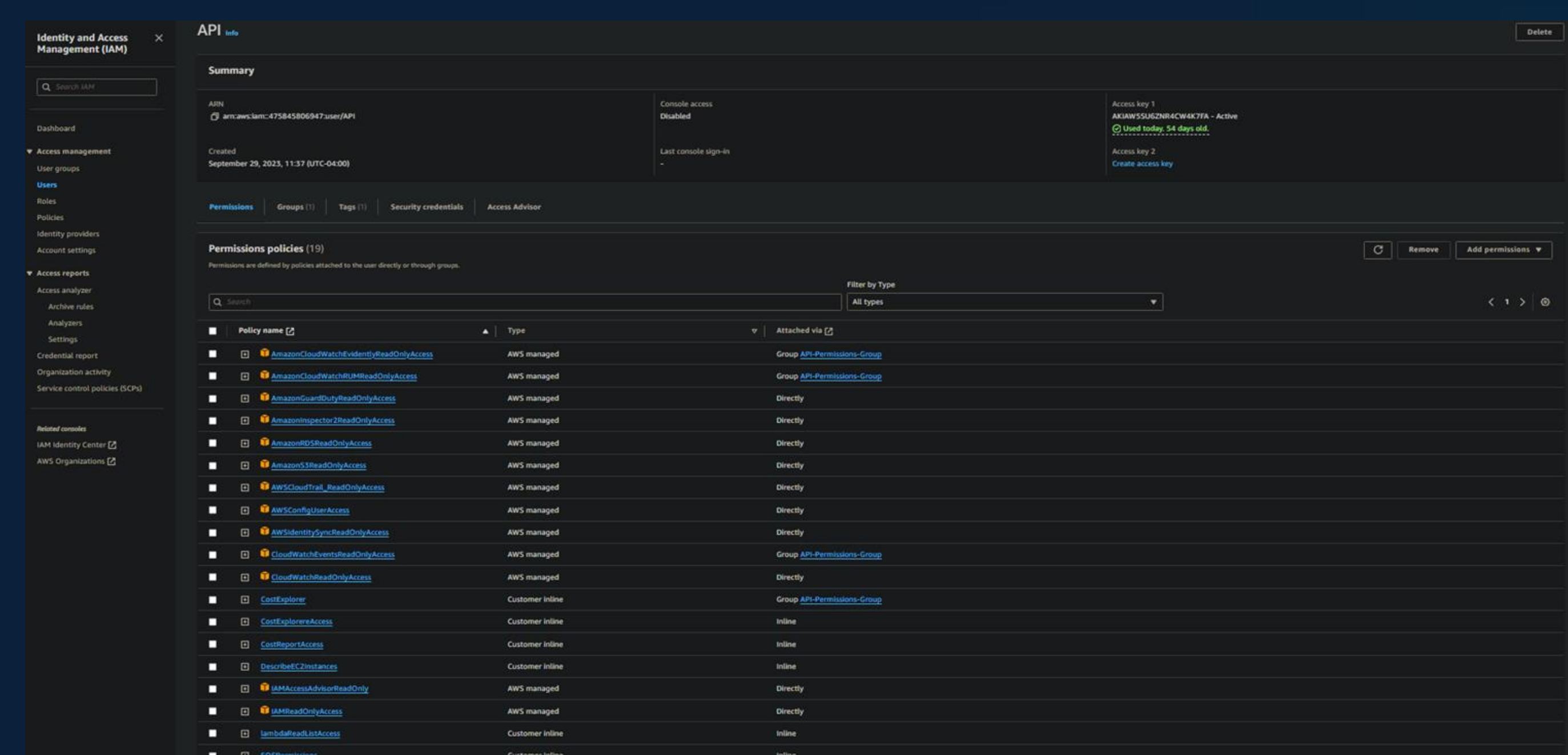
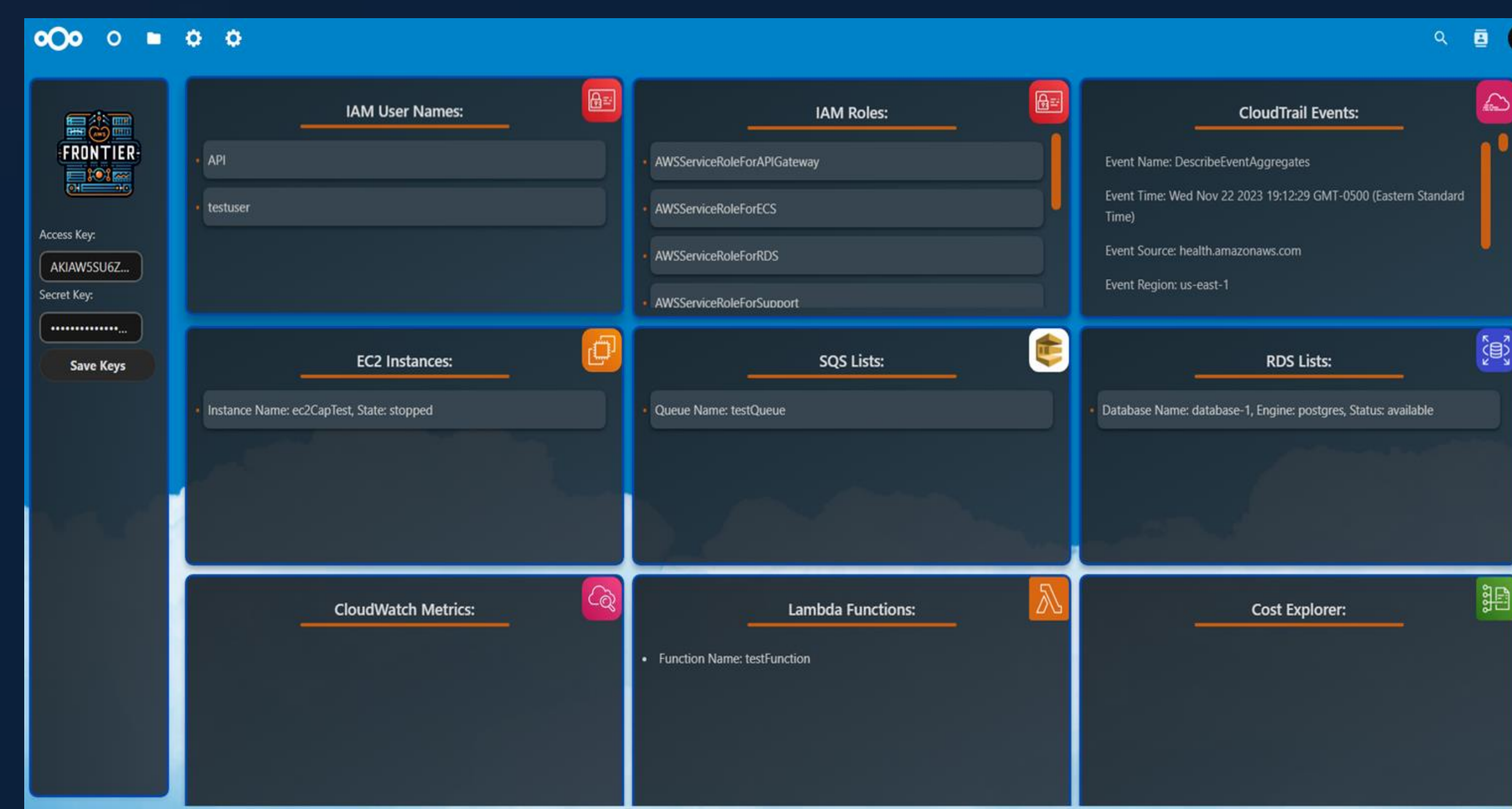
Our current version of AWS Frontier has the following features:

- Encryption/Decryption of AWS user Access and Secret keys
- Display a list of IAM Users on an account
- Display a list of IAM Roles on an account
- Display a list of parsed CloudTrail API Logs
- Display a list of EC2 Instances
- Display a list of SQS Queues on an account
- Display a list of RDS Databases on an account
- Display a list of Lamba functions on an account

IMPLIMENTATION



RESULTS



Contributions

One of my main focuses for this project personally was working on both front end and backend. Some of my contributions include:

- Set up all the resources in AWS and included the permissions needed to retrieve AWS account resources from the user.
- Troubleshooting and implementing the EC2 instances feature using AWS API
- Implementing the SQS Feature using AWS API
- Implementing the RDS Feature using AWS API
- Designing some of the containerized features using CSS and PHP

SOLUTION

My team and I ultimately created an AWS monitoring panel hosted on Nextcloud that allows users to input their AWS access and secret keys that are used to connect to a users AWS account and are encrypted/decrypted when necessary to maintain the security of a users account information. The resources that are currently displayed on the application are amongst the most frequently used resources. Along with this, we implemented a User-friendly interface that is easy to use and read with each resource separated by customized containers.

Verification

- Verified that the application was pulling the correct information for an account by testing multiple accounts
- Verified the information that was retrieved for every resource by check manually through the AWS Console
- Verified the Access and Secret key inputs were being encrypted and decrypted to ensure security

Summary

Overall, this project required extensive research to understand how to use Nextcloud and all its capabilities. In the same way, while developing the application we had to make sure that all the code was compatible with Nextcloud. Overall, developing AWS Frontier from the ground up with my team was extremely rewarding. I was able to focus on the AWS aspect of the project while also doing some full stack development. What I have learned will carry on with me into my professional career and the possibilities with AWS Frontier for future capstone students are endless with the blueprint that we have laid out.

ACKNOWLEDGEMENT

The material presented in this poster is based upon the work supported by XXXXX (name of the project sponsor: federal, state or local government, or corporate partners, where applicable). We/I thank XXXX for his/her/their assistance and mentorship that I/we received throughout the senior design project.