



nClouds | AWS Case Studies

Roche

nClouds Helps Roche Achieve Scalable and Efficient Infrastructure on AWS

Benefits Summary



Enhanced Security and Compliance



Increased Scalability



Automation and Efficiency



Optimized Resource Management

About Roche

Roche is a global pioneer in pharmaceuticals and diagnostics focused on advancing science to improve people's lives. The company is developing software applications to enhance the management and treatment of diseases through innovative solutions.



Industry

Healthcare, Biotechnology

Location

Global

Challenge

Need to grant microservices only the necessary permissions to maintain system security and integrity

Featured Services

AWS IAM, AWS KMS, AWS EKS, AWS S3, AWS DynamoDB, Terraform, Atlantis, Bitbucket & Bitbucket Pipelines, Kustomize



CHALLENGE

As Roche developed and deployed multiple mobile applications using microservices in AWS EKS (Elastic Kubernetes Service), the company faced challenges managing AWS access with the principle of least privilege. It needed to ensure that microservices had only the necessary permissions to perform its functions without compromising the security and integrity of the system.

SOLUTION

nClouds proposed a model to create a microservice security strategy using per-service IAM roles and service accounts to bind to for each microservice. Terraform was used to automate the process. nClouds recommended the following AWS services as well as integrated with existing version control and CI/CD pipelines.

THE COMPANY LEVERAGES AMAZON SERVICES

- **AWS IAM:** To define and manage access and permissions
- **AWS KMS:** For key management services to enhance encryption and decryption processes
- **AWS EKS:** To orchestrate the deployment, scaling, and management of containerized applications
- **AWS S3 and AWS DynamoDB:** To handle data storage solutions securely and efficiently

THE COMPANY'S SOLUTION STACK INCLUDES ADDITIONAL, ESSENTIAL THIRD-PARTY TOOLS

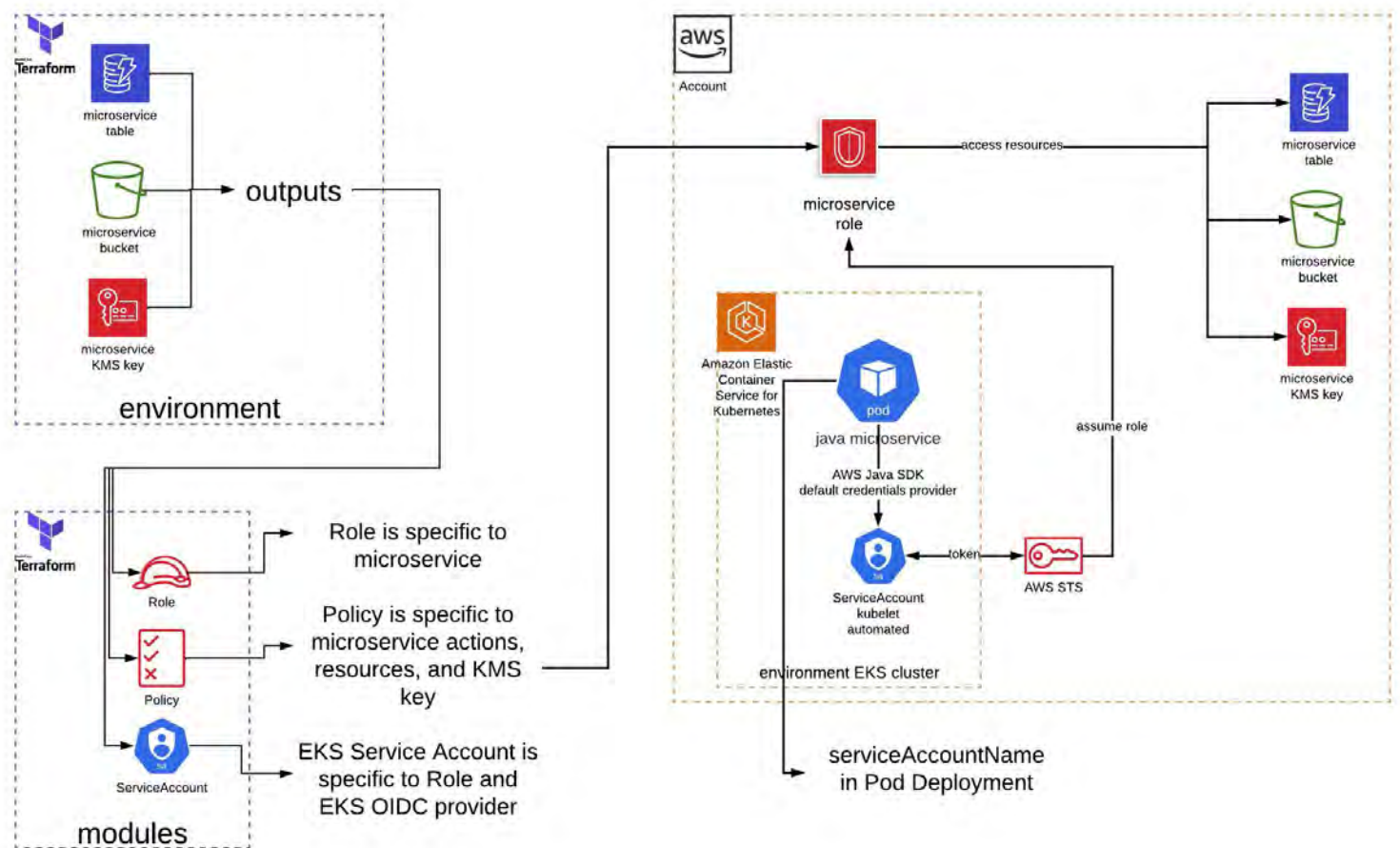
- **Terraform:** To automate the provisioning of infrastructure
- **Atlantis:** A tool that integrates with Terraform for safe collaboration in team environments
- **Bitbucket & Bitbucket Pipelines:** For source control management and continuous integration and delivery
- **Kustomize:** To customize Kubernetes configurations uniquely per microservice



RESULTS

nClouds delivered a least-privilege EKS microservice framework that could be extended and applied to all of the various microservices in the cluster, each with varying degrees of AWS resource access requirements, while keeping that access strictly scoped not only to the actions needed but also to the resources they are needed on.

While it may be easier to simply use the EKS worker IAM Instance Profile and create an aggregate set of IAM permissions and resources for all pods to leverage, this approach is not least privilege nor best practice.



About nClouds

nClouds is a certified, award-winning provider of AWS and DevOps consulting and implementation services. We partner with our customers as extensions of their teams to build and manage modern infrastructure solutions that deliver innovation faster. We leap beyond the status quo.

