Project Overview: AWS Migration App

This document provides a high-level overview of the AWS Migration App, explaining its purpose, the challenges it addresses, its key features, and how it transforms the AWS account migration process. It is intended for team members to understand the project's goals, functionality, and benefits.

What is the AWS Migration App?

The AWS Migration App is a comprehensive tool designed to assist organizations in migrating AWS accounts from one environment (e.g., an old AWS Organization or payer account) to another. It provides a guided, automated, and auditable process for cloud administrators and engineers, ensuring a smooth, secure, and compliant migration.

Why is AWS Account Migration Challenging?

Migrating AWS accounts is a complex and error-prone process due to:

- **Multiple AWS Services**: Involves services like IAM, S3, KMS, CloudFormation, and more, each with its own configurations and dependencies.
- **Security and Compliance**: Requires thorough checks to ensure policies and resources meet security and regulatory standards.
- **Dependencies**: Resources, data, and policies often have interdependencies that must be identified and managed.
- **Downtime Risks**: Misconfigurations or missed steps can lead to service disruptions.
- **Manual Effort**: Without automation, migration involves tedious, manual tasks that are time-consuming and prone to human error.

The AWS Migration App addresses these challenges by automating critical steps, providing clear guidance, and maintaining an audit trail.

How Does the App Help?

The app streamlines the migration process with the following key features:

1. **Step-by-Step Guidance**:
    - Breaks the migration into clear, logical phases (e.g., Assess Existing, Prepare New, Migrate, Verify, Post-Migration).
    - Guides users through each phase with automated or manual steps.
2. **Automated Checks**:
    - Runs automated checks for critical tasks, such as:
        - Scanning for AWS RAM shared resources.
        - Checking delegated admin services (e.g., GuardDuty, AWS Backup, Inspector).
        - Verifying Cost Explorer data and CUR reports.
        - Checking for active Reserved Instances and Savings Plans.
        - Scanning policies (IAM, S3, KMS, etc.) for AWS Organization references.
        - Checking CloudFormation StackSets for organization integration.
        - Creating fallback IAM admin users for SSO failure scenarios.
3. **Centralized Dashboard**:
    - Displays the status of all AWS accounts, migration progress, recent activity, and logs in a single interface.
4. **Audit Trail**:
    - Logs every step execution with results and timestamps, enabling full auditability for compliance.
5. **Error Handling and Recovery**:
    - Identifies issues (e.g., missing configurations) and provides actionable recommendations.
    - Supports recovery actions, such as creating fallback admin users.

Example User Workflow

Imagine you're a cloud administrator tasked with migrating AWS accounts from an old AWS Organization (Payer1) to a new one (Payer2). Here's how you'd use the app:

1. **Login and Account Setup**:
    - Log into the app and securely configure AWS accounts by entering credentials.
2. **Assessment Phase**:
    - Navigate to the "Assess Existing" phase.
    - Run automated checks to:
        - Identify AWS RAM shared resources.
        - Verify delegated admin services (e.g., GuardDuty, Backup, Inspector).
        - Check Cost Explorer data to ensure historical billing data is preserved.
        - Identify active Reserved Instances and Savings Plans for transfer.
        - Scan policies for references to the old organization.
        - Check CloudFormation StackSets for organization integration.
        - Create a fallback IAM admin user if SSO might fail.
3. **Review Results**:
    - View detailed results, logs, and recommendations for each step.
    - Address issues (e.g., update policies referencing the old organization) based on the app's guidance.
4. **Migration and Verification**:
    - Proceed to the "Prepare New," "Migrate," and "Verify" phases, following the app's automated or guided steps.
    - Validate that resources, permissions, and services function correctly in the new environment.
5. **Post-Migration**:
    - Clean up old resources, update documentation, and confirm compliance.
    - Run final checks to ensure no configurations were missed.
6. **Audit and Compliance**:
    - Access logs and export reports to demonstrate compliance to auditors.

Who is This For?

The AWS Migration App is designed for:

- **Cloud Administrators and Engineers**: Responsible for executing AWS account migrations.

- **Organizations**: Undergoing restructuring, mergers, or compliance-driven AWS reorganizations.
- **Teams**: Seeking to automate, standardize, and document the migration process.

Key Benefits

- **Reduced Effort and Errors**: Automates 80% of migration tasks, minimizing manual work and human error.
- **Clear Process**: Provides a repeatable, structured migration workflow.
- **Issue Detection**: Surfaces hidden issues (e.g., policy dependencies) before they cause outages.
- **Centralized Management**: Offers a single dashboard for tracking migration status and history.
- **Improved Compliance**: Maintains a full audit trail for regulatory requirements.

The Six Phases of AWS Account Migration

The app organizes the migration process into six logical phases to ensure a thorough and systematic approach:

1. **Assess Existing**:
    - Inventory and analyze current AWS resources, policies, and configurations.
    - Identify dependencies, shared resources, and potential blockers.
    - Run automated checks (e.g., RAM shares, delegated admins, cost data, policies).
2. **Prepare New**:
    - Set up the target AWS Organization or payer account.
    - Configure new accounts, permissions, and baseline settings for migration.
3. **Verify**:
    - Validate that resources, permissions, and services work as expected in the new environment.
    - Run post-migration checks and tests.
4. **Migrate**:
    - Move resources, data, and configurations to the new environment.
    - Use automated scripts, manual steps, or AWS migration tools as guided

5. **AWS Attach/Dettach**

    - Manual phase provided by aws (e.g., additional compliance checks or validations).

6**. Post-Migration**:

    - Clean up old resources, update documentation, and finalize the migration.
    - Ensure compliance and security standards are met.

AWS Attach/Detach Policy: The Challenge

What is the AWS Attach/Detach Policy?

The attach/detach policy governs how resources (e.g., accounts, organizational units, or services) are attached to or detached from an AWS Organization or payer account.

Why is it a Challenge?

- AWS imposes strict rules, including manual approvals or waiting periods for certain attach/detach operations.
- Approximately 20% of migration steps cannot be fully automated due to these restrictions, requiring manual intervention or AWS support involvement.

The Manual Burden (Before the App)

- Traditionally, migrating an AWS account involves a manual checklist of 37 steps, taking about two weeks.
- Engineers must log into the AWS console, run scripts, check configurations, and document results manually.
- This process is tedious, error-prone, and resource-intensive.

The Transformation with the App

- The AWS Migration App reduces the migration process to approximately **30 minutes**.
- **Automation**: Automates 80% of steps (e.g., resource checks, policy scans), executing them with a single click.
- **Guided Manual Steps**: For the 20% of steps requiring manual intervention (due to AWS restrictions), the app provides clear instructions and tracks completion.
- **Outcomes**:
    - Significant time and effort savings.
    - Fewer errors and missed steps.
    - Comprehensive audit trail for compliance.
    - Engineers are freed for higher-value tasks.