



End-to-End AWS Modernization: Infrastructure, Compliance, and Cost Optimization

Establishing a unified, secure, and cost-efficient AWS framework for 70+ accounts using a modular, template-driven Infrastructure-as-Code approach.

Overview

We implemented a comprehensive AWS multi-account strategy using AWS Control Tower to manage and govern over 70 accounts with centralized policy enforcement.

- Achieved a 40% reduction in AWS costs through automated resource cleanup, budget alerts, and scheduled shutdowns of non-essential resources.
- Delivered a modular Infrastructure-as-Code (IaC) framework and automated CI/CD pipelines, significantly accelerating environment setup and reducing deployment errors.



Client Profile

The premier medical center is a global leader in clinical innovation. With a sprawling network of hospitals and research facilities, the organization requires a highly secure, compliant, and scalable cloud environment to support its mission of advancing medical science and patient care.

Challenges: Scale, Drift, and Security Risks

As the organization's cloud footprint expanded, legacy manual processes became unsustainable:

- **Multi-Account Complexity:** Managing 70+ accounts led to configuration drift and increased operational risk due to inconsistent security controls.
- **Compliance Bottlenecks:** Manual checks were insufficient to meet strict healthcare regulatory standards and organization-wide security baselines.
- **Deployment Latency:** Application and infrastructure changes were subject to lengthy manual approval cycles, hindering research and clinical innovation.

- **Resource Sprawl:** Lack of visibility into cloud spending resulted in underutilized resources and escalating monthly AWS bills.

QBurst Solution: Automated Governance and Modular IaC

We engineered a unified AWS platform that prioritizes isolation, security, and scalability. By leveraging AWS Control Tower, we established a landing zone with automated account provisioning and centralized governance across Organizational Units (OUs).

The Transformation:

- **Centralized Governance:** Implemented Service Control Policies (SCPs) and automated guardrails to restrict risky actions and enforce organization-wide compliance with minimal manual intervention.
- **Template-Driven IaC:** Used CloudFormation StackSets to provision consistent, secure, and compliant configurations across all accounts simultaneously, eliminating configuration drift.
- **Integrated CI/CD:** Developed automated pipelines that handle cross-account deployments for both infrastructure and applications, incorporating built-in testing and validation.
- **Automated Cost Management:** Deployed custom Python and Lambda scripts to identify and terminate unused resources, paired with CloudWatch alarms for proactive budget monitoring.

Key Features and Technical Highlights

- **AWS Control Tower & Organizations:** Automated account lifecycle management with centralized billing and policy enforcement.
- **Secure Access Management:** Implemented AWS IAM Identity Center (SSO) for centralized, secure user access across the 70+ account ecosystem.
- **Cross-Account Automation:** Utilized CloudFormation StackSets orchestrated by AWS CodePipeline for scalable resource provisioning.

- **Proactive Cost Controls:** Automated shutdown of non-essential resources during off-hours and real-time alerts for unexpected usage spikes.
- **Automated Compliance:** Continuous monitoring via AWS Config to ensure every account adheres to clinical data protection standards.

Impact

- **40% Cost Savings:** Drastic reduction in cloud spend achieved through automated cleanup and rigorous resource management.
- **Faster Time-to-Market:** Automated environment setup and CI/CD integration accelerated the deployment of critical research and clinical applications.
- **Strengthened Security Posture:** Built-in guardrails and SCPs reduced the risk of misconfigurations and ensured 24/7 compliance across all 70+ accounts.
- **Operational Consistency:** Standardized modular templates ensure every account, regardless of its purpose, meets the same high bar for reliability and performance.
- **Reduced Manual Effort:** Shifted the DevOps team from repetitive manual maintenance to high-value strategic work by automating over 90% of account management tasks.