

Modernizing Healthcare Research with AWS Landing Zone Accelerator & Research Gateway

Building a Secure, Scalable Cloud Foundation for Next-Generation Research

Customer Overview

A leading U.S. academic medical centre sought to establish a secure, enterprise-grade cloud platform capable of accelerating medical research while maintaining the governance, security, and operational controls expected in a highly regulated healthcare environment.

The organization required a standardized AWS foundation that could support multiple research programs, integrate seamlessly with existing on-premises infrastructure, and enable researchers to provision cloud resources through a governed self-service platform.

To achieve these objectives, Relevance Lab implemented an enterprise AWS Landing Zone using **AWS Landing Zone Accelerator (LZA)** and deployed the **Research Gateway** platform, creating a scalable, secure, and automated research environment.

Business Challenges

As cloud adoption expanded across research departments, the institution encountered several challenges that limited agility and increased operational complexity.

Research teams required rapid access to cloud infrastructure, yet every new project demanded manual provisioning, network configuration, and security reviews. AWS accounts were being created independently, resulting in inconsistent governance, fragmented security controls, and operational overhead.

The institution also needed to integrate its AWS environment with existing on-premises identity services and network infrastructure without disrupting ongoing research activities. Managing IP address allocation across hybrid environments had become increasingly complex, making scalability difficult while increasing the risk of address conflicts.



Solution

Relevance Lab designed and implemented a secure multi-account AWS platform built on **AWS Landing Zone Accelerator (LZA)**, providing the enterprise foundation required to support large-scale research computing.

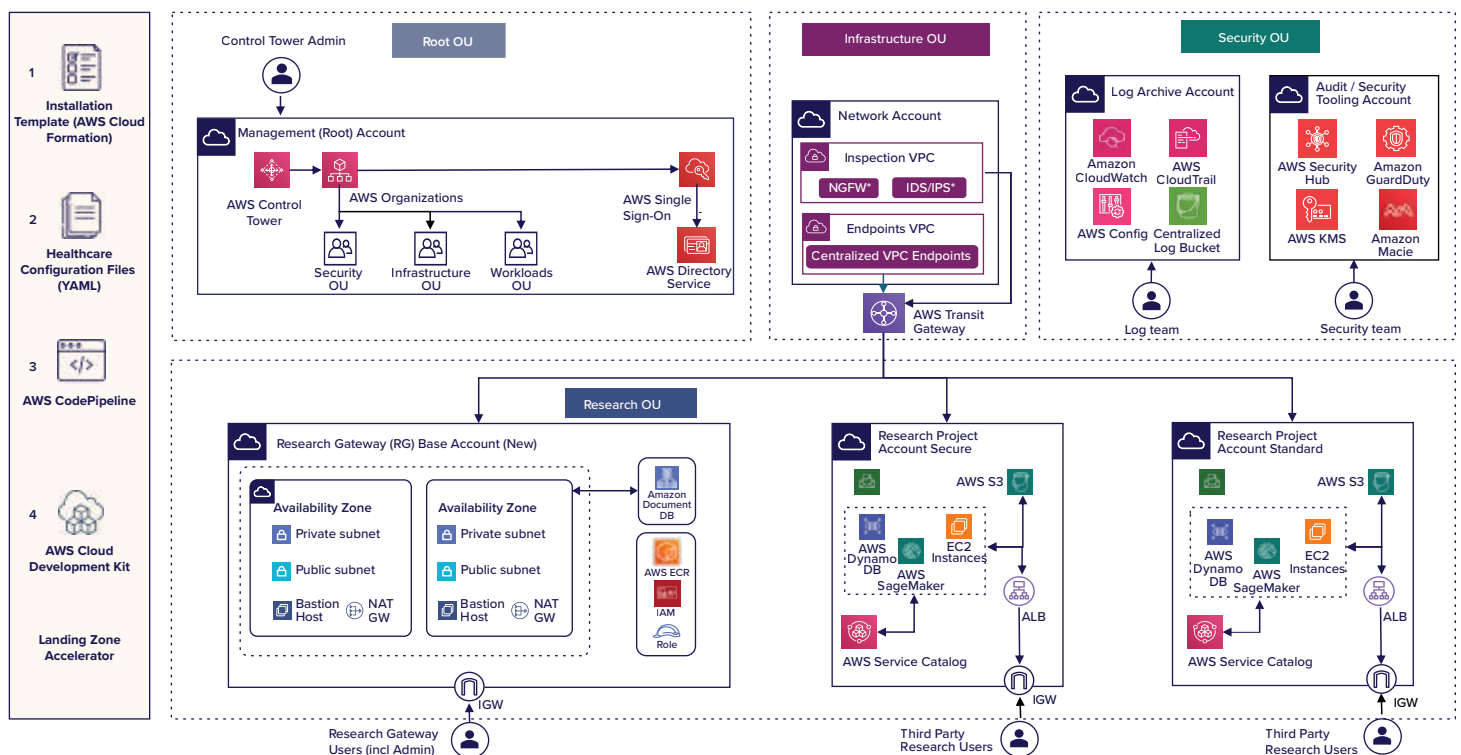
The deployment established dedicated Organizational Units for Security, Infrastructure, and Research workloads, enabling centralized governance while allowing research teams to operate independently within isolated AWS accounts.

To simplify hybrid networking, Relevance Lab integrated the AWS environment with the institution's on-premises infrastructure using **AWS Transit Gateway** and implemented **AWS Network IP Address Manager (IPAM)** to provide centralized IP planning and address allocation across cloud and on-premises networks. This eliminated manual IP management, simplified routing, and ensured future network scalability.

The solution also included deployment of **Research Gateway**, enabling researchers to securely provision compute resources, storage, AI/ML environments, and project workspaces through a centralized self-service portal while leveraging enterprise security and governance controls.

Enterprise Architecture

RG Enterprise Deployment enabled with Landing Zone Accelerator



Key Architecture Components

- ✓ AWS Landing Zone Accelerator (LZA)
- ✓ AWS Control Tower & AWS Organizations
- ✓ Multi-Account Governance Model
- ✓ Research Gateway Platform
- ✓ AWS Transit Gateway
- ✓ AWS Network IPAM
- ✓ Enterprise Identity Integration
- ✓ Centralized Security Services
- ✓ Shared Infrastructure Services
- ✓ Automated Research Project Provisioning

Implementation Highlights

Enterprise Cloud Foundation

Established a standardized AWS Landing Zone with centralized governance, account vending, security guardrails, and operational consistency across all research environments.



Research Gateway Deployment

Implemented the Research Gateway platform to provide researchers with self-service access to cloud infrastructure while maintaining project isolation, standardized configurations, and enterprise governance.



Security & Compliance

Designed a security-first architecture incorporating AWS Security Hub, Amazon GuardDuty, AWS Config, AWS CloudTrail, AWS KMS, Amazon Macie, and centralized logging to provide continuous monitoring and compliance-ready operations.



Hybrid Network Integration

Integrated AWS with the organization's existing on-premises infrastructure using AWS Transit Gateway and AWS Network IPAM, enabling secure connectivity, centralized routing, and consistent IP address management across the hybrid environment.



Business Outcomes

Accelerated Research Provisioning

The implementation delivered a secure and scalable cloud platform that significantly improved the organization's ability to support research workloads. Researchers can now provision cloud resources in minutes instead of waiting days.

Standardized Enterprise Governance

The enterprise Landing Zone provides standardized governance across all AWS accounts, ensuring consistent security policies, centralized monitoring, and operational control without compromising research flexibility.

Centralized Hybrid Network Management

By implementing AWS Network IPAM, the organization gained centralized visibility and control over IP address allocation across AWS and on-premises environments, simplifying network operations and reducing administrative overhead.

Governed Self-Service for Researchers

Research Gateway established a governed self-service model that enables research teams to rapidly provision cloud environments while maintaining security, cost visibility, and operational consistency.

Scalable Foundation for Future Research

Most importantly, the institution now has a scalable cloud foundation capable of supporting future research initiatives, AI/ML workloads, and high-performance computing (HPC) requirements without requiring significant infrastructure redesign.



Research Gateway: Built for Modern Research Computing

Healthcare, life sciences, and research organizations trust **Relevance Lab** to build secure, cloud-native platforms that accelerate innovation without compromising governance. Our expertise spans **AWS Landing Zone Accelerator (LZA)**, **Research Gateway**, **Research & Engineering Studio (RES)**, **high-performance computing (HPC)**, **hybrid networking**, and **regulated cloud environments**.

By combining deep AWS expertise with extensive experience in research computing, we help organizations modernize infrastructure, simplify operations, and empower researchers with secure, scalable cloud platforms.

[Learn More About Research Gateway](#)

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trusted AWS partner

