

InfrOS

Case Study - Cybersecurity Enterprise

A leading cybersecurity enterprise faced critical infrastructure challenges: sprawling network architecture that consumed excessive cloud resources, complex governance compliance requirements, and limited maintainability across their AWS environment. The organization required a solution that could consolidate infrastructure while maintaining rigorous security controls and reducing operational costs.

Working with InfrOS, the enterprise redesigned their entire cloud architecture using AI-driven infrastructure optimization. The result: **42% cost reduction, significantly improved system performance, and architecture that is easier to maintain and scale.** The transformation from reactive infrastructure management to proactive, AI-optimized design demonstrates how enterprises can achieve cost efficiency without sacrificing security or reliability.

The Challenge

Complex Multi-Cloud Architecture

The cybersecurity enterprise operated a complex AWS environment with multiple Virtual Private Clouds (VPCs) and network components spread across various use cases. This architectural sprawl created several problems:

Inefficient Resource Allocation

Network components were over-provisioned, leading to wasted cloud spend

Governance Complexity

Maintaining security controls and compliance requirements across fragmented architecture required constant manual oversight

Low Maintainability

The organization struggled to understand interdependencies, making updates and changes slow and risky

Budget Uncertainty

Without clear cost visibility, the enterprise had difficulty forecasting and controlling cloud expenses

Initial Assessment

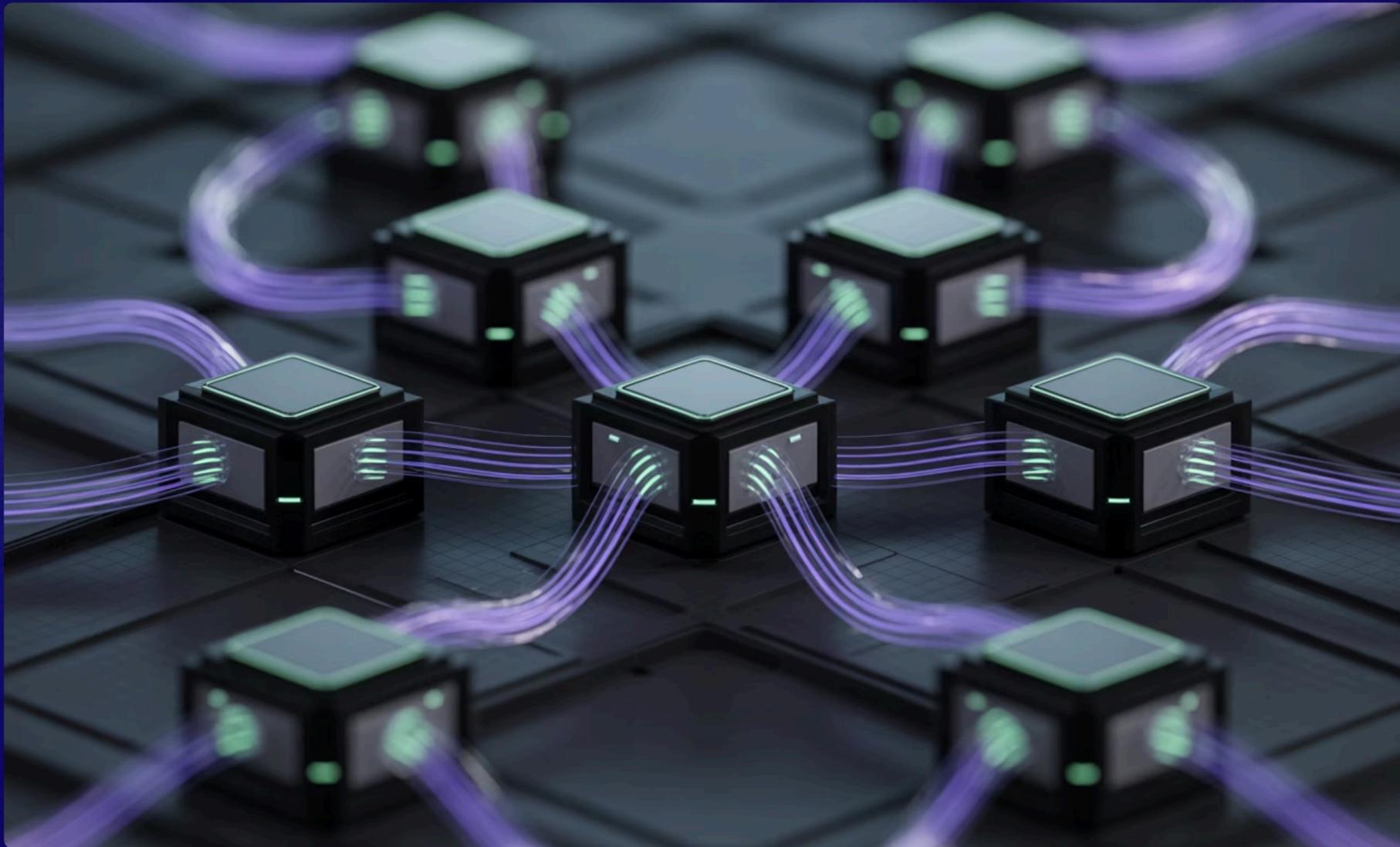
InfrOS analyzed the organization's existing infrastructure, assessing workload requirements and Infrastructure-as-Code (IaC) across their AWS environment. The assessment revealed:

- Redundant VPCs and network components that could be consolidated
- Role-Based Access Control (RBAC) policies that were overly complex but still inadequate
- Compute resources sized for peak demand rather than average load, creating unnecessary costs
- Limited auto-scaling capabilities, forcing manual resource management

The InfrOS Solution

Vendor-Agnostic Optimization Engine

InfrOS deployed its AI-driven intelligence layer to analyze the enterprise's infrastructure holistically. Using mathematical modeling, deep-learning prediction models, and comprehensive benchmarking, InfrOS identified optimization opportunities across seven critical dimensions: performance, reliability, security, cost, scalability, maintainability, and deployment complexity.



Key Recommendations

01

VPC Consolidation with Enhanced Security

Rather than maintaining separate VPCs for different functions, InfrOS recommended consolidating network infrastructure while maintaining strict logical separation and enhanced role-based controls:

- **Consolidated VPC Architecture:** Merged multiple VPCs into a unified, logically segmented architecture
- **Tighter RBAC Implementation:** Implemented more sophisticated role-based access controls that reduced complexity while improving security posture
- **Maintained Security Posture:** All security requirements continued to be met with better auditability

02

Intelligent Compute Optimization

Rather than relying on fixed resource allocation, InfrOS recommended:

- **Automatic Resize Operations:** Analyze actual workload patterns and right-size compute instances to match real demand
- **Auto-Scaling Implementation:** Deploy dynamic scaling policies that adjust capacity based on real-time metrics
- **Elimination of Waste:** Remove over-provisioned resources that provided no operational benefit

Results: Transformational Impact

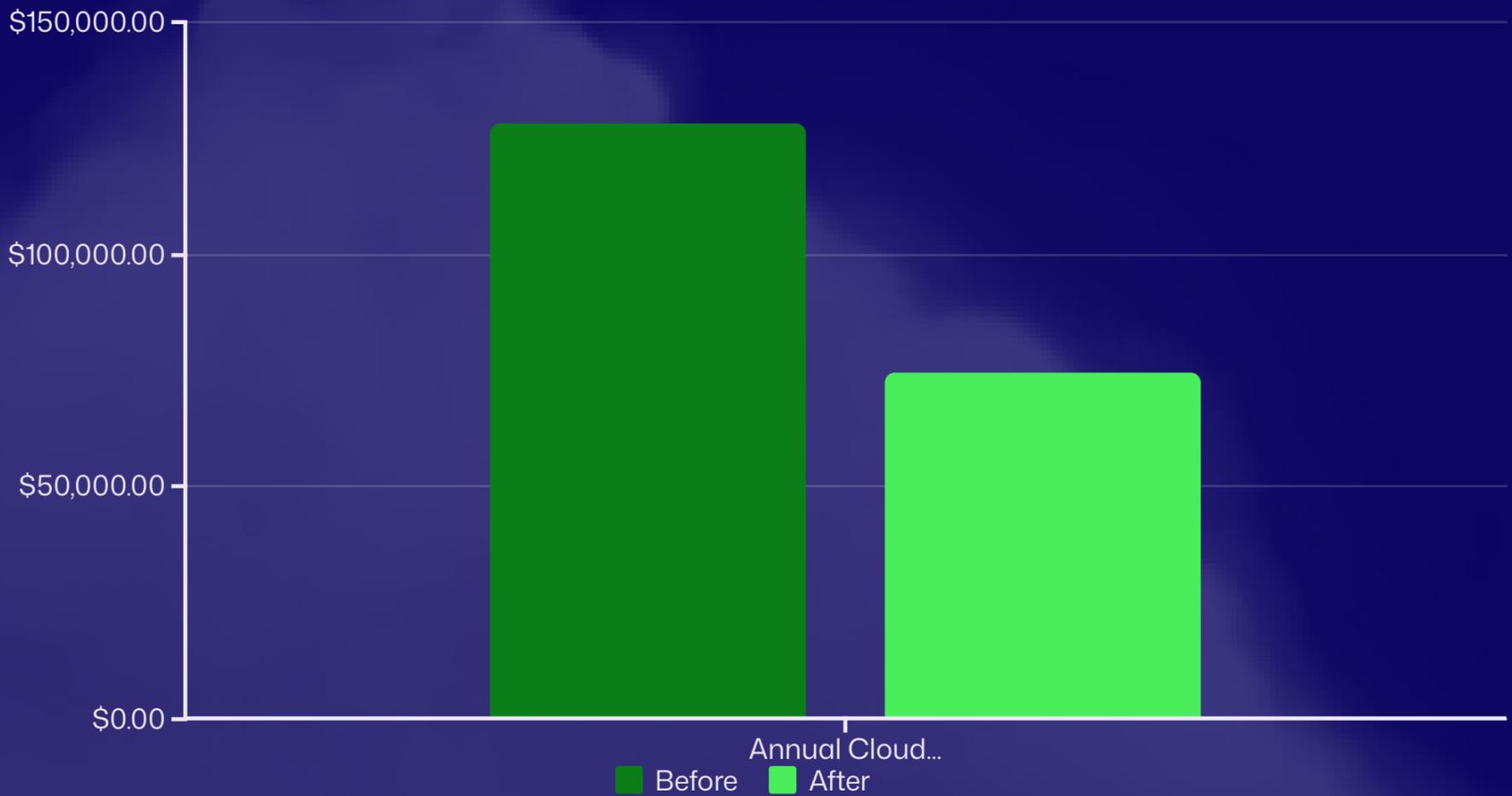
42%

Cost Reduction

\$53,844

Annual Savings

Annual Infrastructure Cost



The transformation delivered a **\$53,844 annual savings**, reducing total infrastructure costs from \$128,309 to \$74,465. Deployment complexity shifted from manual and undocumented processes to medium (managed) operations.

Multi-Dimensional Performance Improvement

Dimension	Before	After
Performance	Medium	High
Security	High	High
Maintenance	High	Low
Scalability	High	High
Reliability	Very High	Very High

Key Achievement: The improvement in maintainability was achieved through documented architecture, Infrastructure-as-Code, clearer governance, and reduced operational friction—enabling engineers to modify infrastructure with confidence.

Why InfrOS Delivers Superior Results

Manual infrastructure design faces inherent limitations: engineers cannot simultaneously optimize across 1,000+ parameters, analysis paralysis delays projects, inconsistency emerges from different standards, and optimization becomes obsolete as workloads evolve.



InfrOS combines four technological approaches:

1

Multi-Agent RAG Architecture Advisory

Seven specialized AI agents analyze requirements across seven critical dimensions simultaneously

2

Mathematical Modeling

Hundreds of mathematical functions precisely model workload patterns and resource interdependencies

3

Deep-Learning Architecture Prediction

Machine learning identifies proven solutions from similar use cases

4

Comprehensive Benchmarking & Simulation

Performance is validated under load before deployment

Key Takeaways



Complexity ≠ Necessity

The original architecture was far more complex than required. Intelligent optimization revealed that better outcomes required less infrastructure, not more.



Security and Cost Are Not Mutually Exclusive

The enterprise reduced costs by 42% while maintaining or improving security posture.



Infrastructure Should Serve Business Strategy

Optimized infrastructure enables strategic flexibility rather than constraining it.



Continuous Optimization Is Essential

In cloud environments, static optimization becomes obsolete quickly. Continuous, AI-driven optimization ensures infrastructure stays aligned with evolving needs.

About InfrOS

InfrOS has developed an intelligent infrastructure optimization engine. Using AI-driven analysis of 1,000+ infrastructure parameters, InfrOS delivers vendor-agnostic optimization across AWS, Azure, GCP, and hybrid environments, with **63% reduction in deployment timelines** and **95% reduction in cloud invoice surprises**. Government & Enterprise Validated with SOC 2 Type II compliance.

Want to know more? visit www.infros.io or email us at info@infros.io