

# AWS Architecture Review and Vulnerability Assessment

## Loudoun County Public Schools

### Founded

1870

### Headquarters

Ashburn, VA

### Industry

Education

## About Loudoun County Public Schools

Loudoun County Public Schools (LCPS) is a branch of the Loudoun County, Virginia, United States government, and administers public schools in the county. LCPS is the third largest school division in the Commonwealth of Virginia. Established in 1870, LCPS is located in the rapidly growing Washington metro-area. Each year, approximately 2,500 new students enroll in their schools, and one to three new school facilities are opened to accommodate them.

## Challenge

LCPS is an early adopter of new and innovative technology services to support the K-12 education mission of the county. LCPS is delivering critical business services using Amazon Web Services (AWS) cloud services where security, reliability and availability are paramount. To support these requirements, LCPS was looking for a certified AWS professional services firm to help configure their AWS Cloud environment as per AWS security best practices. In addition to this, they also wanted to implement a Disaster Recovery (DR) plan to enable fast recovery of their IT infrastructure and data.

## Solution

As a security and compliance focused AWS Consulting Services Provider, stackArmor conducted an AWS architecture review that covered five pillars: Operational Excellence, Security, Reliability, Performance Efficiency, and Cost Optimization. Specific elements of the implemented solution included:

- Recommended a DR strategy including a fail-over capability using AWS Lambda to copy AMIs from the production environment to another region.

- Adding perimeter security by deploying a next generation firewall appliance
- Conducted a stackArmor ThreatAlert™ vulnerability assessment of the LCPS AWS configuration

stackArmor deployed stackArmor ThreatAlert™, a security incident and vulnerability monitoring solution for AWS cloud services. The vulnerability assessment provided data on cloud services misconfigurations and potential security vulnerabilities covering all major services including Virtual Private Cloud (VPC), AWS Identity and Access Management (IAM), Amazon Elastic Block Store (EBS), Amazon Simple Storage Service (S3), Security Groups, and Amazon Relational Database Service (RDS) amongst others. stackArmor implemented a Disaster Recovery (DR) strategy using AWS to prepare for and recover from a disaster. The DR plan was configured using AWS Lambda that allowed snapshots to be replicated to other regions for additional redundancy. We were able to reduce the recovery times by provisioning pre-configured resources using Amazon Machine Images (AMIs). The DR strategy was executed per security best practices into an AWS CloudFormation template. Using AWS CloudFormation helped to standardize the infrastructure components used across LCPS, enabling configuration compliance and faster troubleshooting.

stackArmor was able to provide perimeter security by adding a next generation firewall appliance in High Availability (HA) configuration. HA is a deployment in which two firewalls are placed in a group and their configuration is synchronized to prevent a single point of failure on the network.

## **About stackArmor**

stackArmor is an Advanced AWS partner specializing in FedRAMP, FISMA, MARS-E 2.0 and DFARS compliance for DOD, Federal Agencies, Government Contractors, ISVs and SaaS providers as well as Educational Institutions. stackArmor provides cloud architecture strategy & assessments, cloud migration, managed services and managed security services for compliance focused customers. stackArmor provides NIST and cybersecurity services using the stackArmor ThreatAlert™ security system to accelerate compliance with NIST, FedRAMP, FISMA and DFARS requirements for AWS based applications. Our solutions are delivered by certified and battle tested solution architects and information assurance professionals. Please visit our website and learn more about our education focused cloud security and compliance services <https://www.stackArmor.com/Education>