

Case study

U.S. Department of the Army Total Ammunitions Management Information System (TAMIS)



Problem statement

The U.S. Army Total Ammunitions Management Information Systems (TAMIS) calculates ammunition requirements for training, combat and sustainment load. It prepares training and operational load ammunition forecasts, enables the preparation, validation and routing of electronic requests for ammunition, collects ammunition expenditures and prepares reports.

The TAMIS program was selected to participate in a pilot project to move its applications to the cloud. The Army used this pilot to demonstrate that Army applications can successfully migrate to the cloud and institute an agile development and maintenance methodology enabling faster responsiveness to rapidly changing and varied mission requirements.

Our experts developed a repeatable process for the Army to assess cloud suitability of applications looking to migrate to the cloud. Through a cloud suitability assessment, our experts were able to identify several issues with the existing TAMIS system including third-party software that was no longer supported, security vulnerabilities and non-standard code libraries.

Perspecta's solution

After thorough analysis, Perspecta recommended a transition to the AWS GovCloud environment through an application to cloud rehost approach. The multi-phased approach would assess, plan, migrate and manage the migration of the TAMIS environment to AWS.

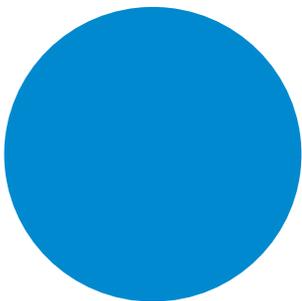
Given the mission criticality of TAMIS, we recommended a parallel path solution sustaining the legacy environment while developing a cloud-optimized system using an agile/DevOps methodology with an

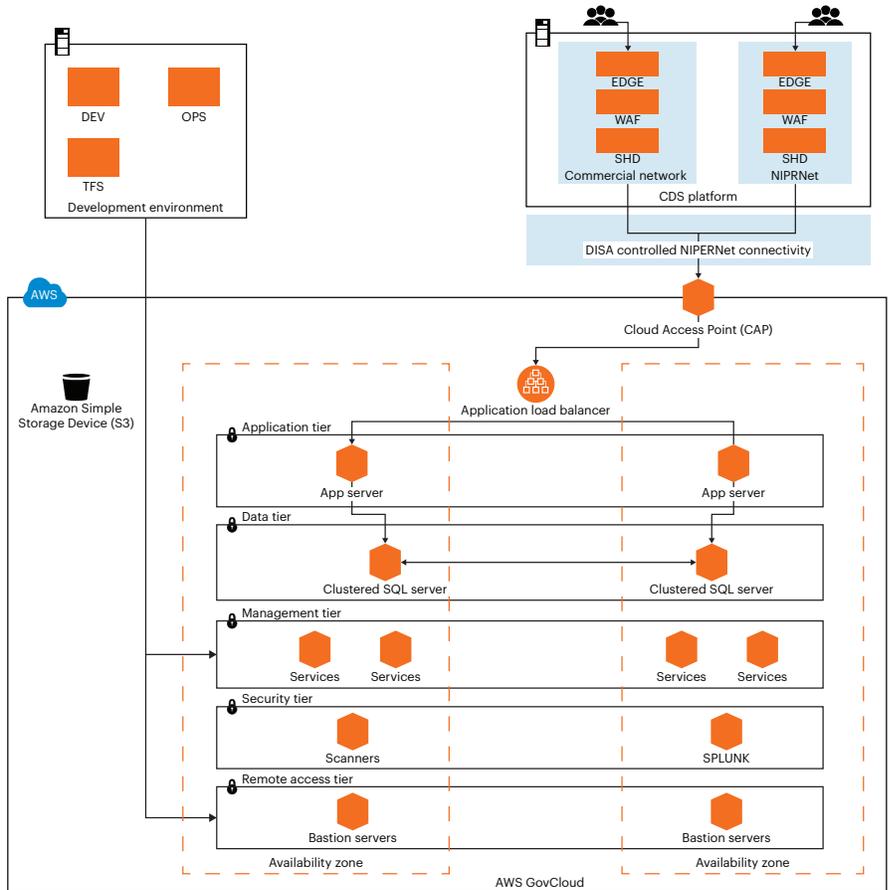
automated testing approach which was used for product development and improvements to iterate through development/test cycles and release time to production.

The Perspecta TAMIS team implemented an agile transformation Scaled Agile Framework (SAFe) approach for the project and mission system transformation. Planning activities occurred on monthly release cycles and included immediate customer feedback surveys. Agile processes were implemented to manage change to the project scope. Product owners and program managers worked with business analysts to document all issues and work items in Microsoft Team Foundation Server (TFS), which is available for all stakeholders to use. The technical transformation approach employed was to rehost the application into the AWS GovCloud environment and then refactor/re-architecture .NET code to take advantage of specific services for the cloud.

AWS services usage

The project implemented a DevOps continuous integration and continuous delivery pipeline leveraging TFS, AWS CloudFormation and CloudWatch providing integrated automated build and release packaging, integrated development environment integration, daily reports, environment build and code deployment of testing environment (e.g. nightly builds, detailed code analysis and AWS environments created and destroyed nightly). TFS was used for version control, Kanban/Scrum dashboards (track backlogs), continuous integration (build, package release), testing (Microsoft Test, Micro Focus ALM/Fortify) and continuous deployment (leveraging CloudFormation and CloudWatch).





AWS architecture — the TAMIS architecture is shown above.

Third-party apps and services

Perspecta augmented the native AWS services used with third-party products such as:

- SQL Server
- Luna Control
- Module
- Site Shield

Results

The approach outlined above allowed the Army to gain the immediate benefits of an improved security posture, increased performance and reduced operating costs for the program in parallel with the cloud development activities.

Upon successful completion of the proof of concept (PoC), Perspecta rapidly finalized the development activities for the TAMIS production implementation. We successfully completed the risk management framework self-assessment and received its authority

to operate for the production environment, within a few months of PoC completion. This effort deployed TAMIS at Impact Level 4 in AWS GovCloud and provided the Army with a repeatable pattern for future cloud migrations.

Establishing an agile/DevOps framework and approach for the AWS environment provided increased velocity and balanced cost and risk by leveraging AWS services. It also provided significant defect reduction and improvement in quality, while seeing over 80% quicker production times. It also had a significant impact in reducing testing from weeks to hours, and the release time from months to days.

Perspecta’s approach for this modernization allowed the Army to maintain their munitions battle rhythm throughout the development and migration process, achieving a 63% improvement in operational efficiency and 50% in IT spend while accelerating their system accreditation.