

# Modernizing Legacy .NET Application with AWS Transform

Enabling High-Quality Code and Scalable Deployments for Dental Practice Management & Imaging Software.








## THE NEED

As a pilot project, Planet DDS aimed to modernize a legacy .NET 4.6 project to .NET 8.0 with code quality, code coverage, and modern architecture goals in mind. The initiative also involved replacing outdated components, adding unit tests, and moving to a containerized scalable deployment model.

## THE SOLUTION

Forgeahead modernized the client's system through automating unit tests creation, code transformation, and containerized deployments with AWS Transform and improved compatibility, scalability, and migration efficiency. The approach included:

- **Automated Unit Test Generation**  
We completely automated unit tests with AWS Q Developer, which removed a lot of manual efforts but allowed us to attain 60% code coverage across the application.
- **Code Transformation and Modernization**  
We used AWS Transform feature to automatically upgrade the application from .NET 4.6 to .NET 8.0; which fixed dependency mismatches and platform-specific issues to leverage performance improvements when upgrading to a modern framework.
- **Cross-Platform Compatibility**  
Migrated the app from .NET Framework 4.6 to .NET 8.0 and replaced a Windows-only PDF library with an open-source alternative, enabling full cross-platform, Linux-compatible deployment.
- **Containerized Deployments**  
The application was dockerized in order to improve scalability and decrease infrastructure overhead.
- **Migration Validation**  
Revalidated code coverage, ensuring it closely matched the pre-migration baseline of 60% and maintained functionality across platforms.

## ABOUT THE CLIENT

Our client, PlanetDDS, a leader in cloud-based dental practice management and imaging software in North America. They offer solutions for practice management, digital image handling, patient relationship management. Their solutions enhance dental practice efficiency, supporting growth and cost reduction for solo practices and large DSOs alike.

**INDUSTRY**  
HealthTech




**YEARS IN BUSINESS**  
20+ Years

**NO OF EMPLOYEES**  
300+

**PRESENCE OVER**  
United States

## ROLE OF AWS IN BUILDING SaaS APPLICATION

With the help of tools, like the AWS Transform and Amazon Q Developer, AWS was able to be efficient in their modernization effort by providing a clear pathway for digital and cloud adoption, while also allowing seamless generation of unit tests with little complexity. Key contributions included:

- **Automated Unit Test Generation and Code Transition**  
Automated unit tests generation and code transition from .NET 4.6 to .NET 8.0 resulted in shortening the time and effort of manually creating unit tests while also providing quality code on the backend.
- **Effective Code Quality Management Process**  
Simplified the process of code modernization through lower error rates and providing higher-quality code in the end.
- **Deployment Flexibility and Scalability**  
Allowed developers to integrate and deploy a containerized app through the use of Docker, which lessened infrastructure support during the transition period.

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Forgeahead leveraged AWS Transform for .NET to help upgrade a project running from .NET 4.6 to .NET 8, slated for three months and completed in less than 2 weeks. Their approach to leveraging the tool's advanced capabilities combined with building unit testcases that successfully Completed before time and achieved 60% code coverage before and after port to build confidence in the migrated codebase. This unique offering of an AI-powered transformation tool combined with validation and verification test methodology improved our ability to deliver an 80% reduction in cost and technical debt.

Rahul Khot  
Vice President, Engineering,  
Planet DDS

## THE IMPACT



Achieved 60% code coverage with automated unit tests, improving app reliability and stability.



Reduced technical debt and future-proofed the application.



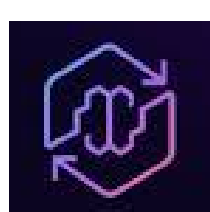
Achieved results in weeks instead of 2-3 months, demonstrating agility and expertise.



Delivered key milestones rapidly - unit tests in 3.5 days, issues resolved in 2.5 days, and automation in 30 minutes.

## TECH STACK

### AWS SERVICES:



AWS Transform



Amazon Q Developer

### TECHNOLOGY STACK:



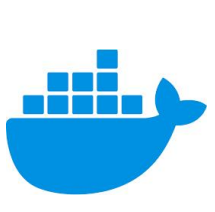
.NET Framework 4.6,  
.NET 8.0



Visual Studio 2022,  
Visual Studio 2015



NUnit



Docker