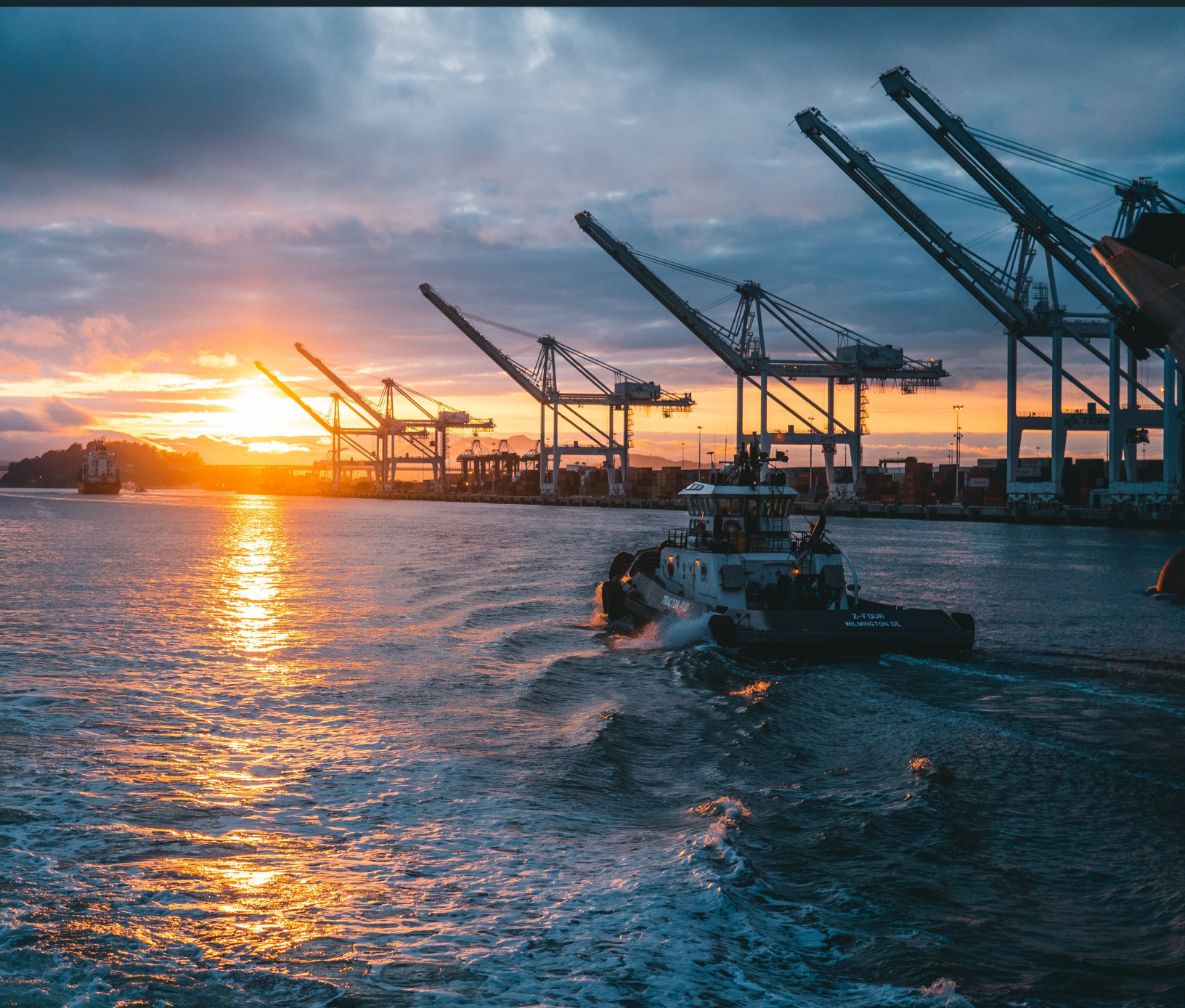
Marine Information for Safety and Law Enforcement (MISLE) INSPECT FOC (Full Operational Capability)

| United States Coast Guard (USCG)



Marine Information for Safety & Law Enforcement (MISLE) INSPECT FOC

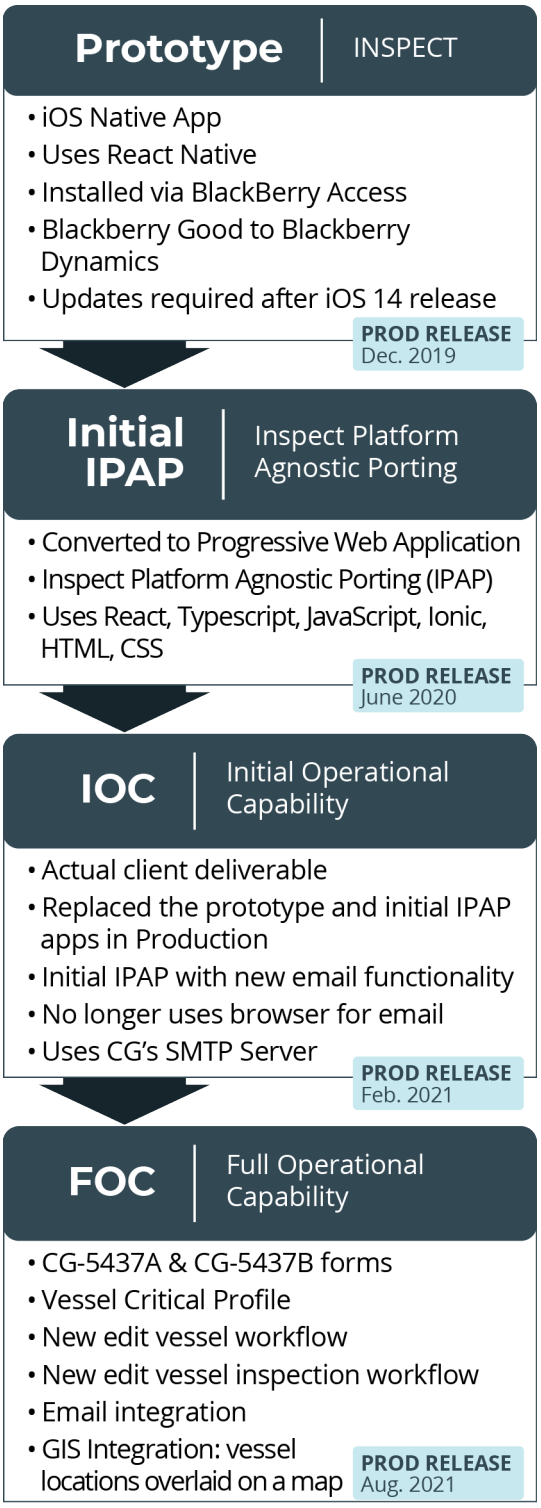
Background

In 2019, USCG identified an operational need to develop and deploy an iOS-based limited capability, proof of concept mobile application with functionality based on a sub-set of the existing MISLE marine inspection capabilities. The resulting INSPECT proof of concept (POC) was successfully field tested in July 2019.

As a follow-on, CG-6 and CG-7 requested an expanded prototype to address bug fixes and refine functionalities in the POC in order to deploy the capability to the Production environment. CG-6 and CG-7 further directed expansion of the prototype to additional platforms and devices (Mobile/Tablets/Desktop). To this end, a progressive web application (PWA) approach would allow for a desktop-like experience and enable support of several future platforms. As such, the USCG recognizes the PWA approach as an emerging technology.

Eventually, MISLE Mobile INSPECT Application Deployment team (Synergy) was awarded a Task Order to implement a full operational capability (FOC) under the Application Product Lines Enterprise Services (APLES) II contract. The application was originally developed as an iOS native application, then a platform-agnostic Progressive Web Application (PWA) and finally transitioned to the current MISLE INSPECT FOC application.

Team Synergy worked collaboratively with the MISLE Inspectors, Product Line managers, ESD APP technical staff to successfully deploy the Coast Guard's **first-ever** mobile application to Production on August 5, 2021. The Production launch of the MISLE INSPECT FOC mobile application provides 700 Marine Inspectors the ability to conduct and document their inspections while on the vessel, therefore saving time, increasing productivity, and improving operational efficiency. One of the most impactful features of the application includes the GIS Integration of the CGOne View map which allows vessel locations to be overlaid on a map.



> **“ The primary objective of this effort is to provide the ability for Marine Inspectors to be able to use the MISLE INSPECT application in the field...**

Business Problem & Objective

BUSINESS PROBLEM

Currently, inspectors cannot access the MISLE application remotely or offline while inspecting a vessel. As part of their daily operations and responsibilities, USCG Marine Inspectors (MI) are required to print out any vessel documentation to bring to the vessel site for use. During the inspection, MIs document the inspection information by hand. When they are finished the inspection, they return on-site to manually enter the information into the MISLE application. There is no mechanism to record this information digitally in the field which can be later ingested by the MISLE application. There is also the concern of network security and authentication for any remote device usage.

To tackle these shortcomings, the USCG has identified an operational need to develop and deploy a mobile application with functionality similar to the existing MISLE desktop application. This new mobile application will leverage existing infrastructure for device management through the USCG Blackberry UEM Mobile Device Management (MDM) service as well as make use of the Purebred authentication system (managed by DISA) for user authentication.

OBJECTIVE

The primary objective of this effort is to provide the ability for Marine Inspectors to be able to use the MISLE INSPECT application from their mobile device to actively conduct vessel inspections and port state control exams. The scope of work includes developing a Progressive Web Application (PWA) port of the MISLE INSPECT application which would allow for a desktop-like experience, accessible from a web browser through a URL. Specific issues identified to address in FOC, in addition to maintaining existing Mobile INSPECT functionality, are as follows:

- Port the existing MISLE Mobile INSPECT application to a platform agnostic implementation which will enable porting to various platforms, with the USCG Windows 10 Secure Host Baseline (WIN10 SHB) 2-in-1 portable platform envisioned - WIN10 SHB compatible.
- Platform agnostic offline storage and encryption, initial focus on Win10 devices.
- CAC authentication mechanism (standard CAC authentication).

OBJECTIVE (CONTINUED)

- Secure Email/Print integration.
- Deployment/Onboarding process (Preferably hosted and managed on a central web server with automatic update push to ensure that users access the latest version of the application).
- Continue to address any minor functionality issues with the existing Mobile INSPECT prototype.
- Test the PWA application at a minimum on a CG 2-in-1 portable workstation running the WIN10 SHB image.
- Provide an Alternatives Analysis business case report and recommendations as to the advantages, disadvantages, and cost comparison between a mobile CG Win10 SHB standard image 2-in-1 versus an iOS tablet.

The technical stack used by the technical team for the front-end of the application includes React TypeScript, HTML, and CSS. The libraries include React 16.9+, Ionic 4, PouchDB, Mobx, RxJS, and Celerforms. The back-end of the application uses ASP.Net Core. The database is SQLServer.

Challenges

- Dependencies on mobile device setup, configuration, and provisioning by Coast Guard Unified Capabilities Product Line (UCPL) team.
- Lack of Blackberry-managed devices within the development and testing team.
- Shared Stage environment withing CG network caused challenges with deployments overriding between Task Orders.
- Blackberry Access browser settings caused data persistence issues that impacted the application's performance on Blackberry-managed devices.
- Dedicating time for iOS mobile application troubleshooting and support in addition to development of MISLE INSPECT FOC.

Results & Benefits

- The first of its kind for the Coast Guard to provide a working mobile application to users.
- Approximately 700 Marine Inspectors will have onsite access to the application while conducting vessel inspections.
- Users can access the application in offline mode if a cellular connection is not available.
- Ability for Marine Inspectors to send inspection forms via email to the vessel owners.
- Provides onsite access to editing vessel and inspection workflows through mobile capabilities.
- MISLE Mobile INSPECT Platform Agnostic Porting.
- The GIS Integration of the CGOne View map which allows vessel locations to be overlaid on the map.

"We are arming marine inspectors with enhanced tools to increase mobility and effectiveness. We are testing 'INSPECT,' a tablet application that provides access to key Coast Guard databases in the field,"

- Admiral Karl Schultz, *2020 State of the United States Coast Guard*