

## **DELIVERING CRUCIAL SOFTWARE AND CLOUD INFRASTRUCTURE**

### **Summary**

The client was preparing to demo their software product to the US Air Force in a crucial make it or break it demonstration. The client was a small start-up that had a new and innovative software product that the Air Force was interested in.

However, in the run up to the scheduled presentation to the US Air Force the client realized they needed assistance designing and setting up the software and network configuration that a hypothetical real-world customer of their software would have.

FP Complete was tasked with acting as the demo customer for their product demonstration – assuming the role the U.S. Air Force would and the providing the network and software to functionally mimic that role with the client.

If the demo was successful, the client could enter the second phase of the project with the US Air Force.

**Corporation Type:** Defense Contractor/Military focused IT provider

**Industry/Section:** DevOps

**Project Type:** Military Contract Project Demo

**Technology Used:** Python, Terraform, Docker, Azure, AWS

### **Project Requirements**

FP Complete needed to stand in for the “customer” and provide what a hypothetical customer for the client’s software project normally would. Specifically, for the client’s upcoming demo this needed to include network set up scripts and demo software applications. For this:

- FP Complete needed to design a network setup for both AWS and Microsoft Azure to deploy and run the demo applications from.
- The client needed to be able to use the network designs FP Complete created in combination with their software project in the demo. The client’s demo would utilize the scripts and software applications FP Complete provided in FP Complete’s role as the “customer” for the client’s software.
- The scripts and cloud infrastructure needed to be able to host the demo applications that FP Complete wrote and provided to the customer.
- For the demo applications:
  - The client provided specific operational requirements for the two applications that they wanted to see for their demo.
  - These applications at a minimum needed to include a simple server-rendered web app and then additionally a REST server with one endpoint.

- The setup scripts for the Azure and AWS networks needed to be divided into small operational units that the client's software project could then use and compose together to create the network at the time of the presentation. Additionally, the scripts needed to be in a language that was reasonably common so the client could later maintain the demo code on their own if needed.
- All work had to be completed quickly and meet the deadline of the scheduled presentation to the US Air Force.

### **The Solution**

- FP Complete used its extensive experience and background with AWS and Microsoft Azure to design suitable network deployments that met the client's needs for their demo.
- Python was used to implement the scripts. This language was chosen because the client was familiar with Python and it was also well supported by official libraries for AWS and Microsoft Azure.
- FP Complete designed and implemented demo applications to run on the network.
  - Docker was used to containerize the apps. This allowed for the rapid deployment of the applications and supplied the necessary runtime environments the applications required. Docker allowed for this to happen in a pre-packaged manner - which added numerous other ancillary benefits and worked to reduce the risk that anything could go wrong (or would be misconfigured) at the time of the demo itself.
  - FP Complete provided instruction and training to the client on how to use Docker, as well as best practices to follow for this use case.
- In order to ensure that the demo would go smoothly, it was vitally important that the network and the demo applications were compatible and well vetted. To do this FP Complete wrote and implemented additional test scripts to demonstrate the network deployment. These tests also validated that the apps were able to run smoothly on the resulting networks that the scripts created.

The tests were able to work with the client's software, or in isolation from it, which proved to be handy for the client in their own tests in the run up to the demo.

### **New Challenges for FP Complete**

The investment and effort the client had put into their product hinged on a successful bid to the Air Force, and the date of the presentation was quickly looming for the client, so they needed timely assistance. This also meant they didn't have room for re-working the software and scripts provided by FP Complete - it was crucial for FP Complete to get it right the first time and on time.

But this task proved to be challenging because in the run up to the demo the client was (understandably) pre-occupied with making the final touches and last-minute changes to their own product. They didn't want FP Complete, who they hired to help them, to distract them at this crucial time with questions and feedback requests.

FP Complete needed to work with a light and non-intrusive touch to make sure the client was satisfied with the product FP Complete was supplying. It was important to communicate with the client to ensure that further alterations or changes would not need to be made after the final product was handed over to the client. Under normal circumstances, where there could be room for a healthy amount of communication, this wouldn't be an issue. But in this case FP Complete needed to find the middle ground and not inundate the client with communication and feedback requests at this crucial time.

### **Conclusion**

This client was a small start-up that had a unique and promising software project under development which they were preparing to pitch to US Air Force. However, in order to do that they needed a third party to design and implement the cloud infrastructure they could use to demonstrate their software product.

FP Complete's background in DevOps and network design was vital to get the project completed quickly. At the same time, FP Complete was able to use its software development experience to provide the applications that the client needed for their demo.

This diverse background in both DevOps and pure software engineering was what allowed FP Complete to deliver the software the client needed. With the help FP Complete provided the client was able to successfully demo their product to the US Air Force and win entrance into the second round.