C2 LABS
TAKE BACK CONTROL

Application Modernization Leveraging Containers

C2 Labs Experience

> Led a Large-Scale Containerization Project to Eliminate Technical Debt on Windows 2000 and 2003 Servers

> Implemented Agile methodologies and PowerBI reporting for senior leadership

> Senior SMEs in areas of Application Containerization, DevSecOps, Cyber Security, Automation, & Architecture

> Developed a fully automated DevSecOps Pipeline

> Overcame significant technical debt on an accelerated schedule to massively reduce the number of vulnerabilities in the customer environment

> Stood up and stabilized three separate Docker Enterprise environments

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Providing Expertise to Stand Up Docker Platform and Containerize Legacy Applications

- Our customer needed urgent assistance to containerize their oldest legacy applications that no vendor had been able to successfully move to supported operating systems

- C2 Labs overcame these challenges in an Agile manner to deliver the Docker EE containerization platform, application rationalization methodology, containerized or retired multiple applications, enhanced documentation, built a fully automated DevOps pipeline, and created sophisticated reporting via PowerBI across multiple data sources with Python

- Implemented Ansible playbooks to automate operations support which reduced process time by 83% and achieved annual cost savings of ~$60k

- Turned around an existing customer project, which had failed, providing Agile project management expertise, coordinating efforts across multiple vendors, and ultimately delivering project success

- Successfully built and deployed a Kubernetes (K8s) cluster for hosting C2 Labs developed applications with advanced auto-scaling leveraging the cloud

Benefits of a Modern DevOps Approach

C2 Labs analyzed the full suite of Windows 2000 and 2003 customer legacy applications for their suitability for cloud migration, containerization, upgrade, or decommission. This work was made more difficult due to the age of the applications (many over 20 years old) which were hosted on unsupported Operating Systems with unacceptable security risk. We made recommendations for decommissioning or containerizing (i.e. migrating to the cloud) and built a repeatable Application Rationalization process/factory. Where technically feasible, we containerized applications and handed them to the customers' Applications team for testing. For others, we upgraded the Operating System or developed analytics demonstrating they were no longer needed and could be retired. Key accomplishments included:

- Processed 315 legacy servers and either containerized, upgraded, or decommissioned them

- Processed 491 unique applications consisting of 1651 installed instances

- Removed tens of thousands of critical vulnerabilities from the customers' network; greatly reducing risk in the environment

In addition, we brought increased rigor, transparency, and accelerated results by implementing an Agile Program Management methodology across multiple project teams. Largely from scratch and under intense time pressure, we developed project management and architecture documentation, stood up an application container platform, tracked migration progress, and documented lessons learned using sophisticated Agile methodologies.

Key accomplishments of our containerization projects included:

- Standing up the customers' first Agile project management tool (Microsoft Azure DevOps) within their environment and consolidated multiple separate projects into one unified team
- Implemented an aggressive schedule that included three months to plan/analyze with five months of execution
- Implemented "Scrum of Scrums" approach to Agile Project Management to effectively integrate four separate sprint teams and to coordinate activities across geographically dispersed teams
- Implemented Agile training, workshops, and best practices for customer staff and support contractors
- Completed 2829 user stories in just 8 months, delivering 138% of desired scope while finishing the project one month early and $100k under budget

We applied sophisticated and modern DevSecOps techniques to lower the cost of operating the container/cloud environment while removing many manual steps that increased the quality, resiliency, and security of the environment. Key accomplishments included:

- Integrated the Docker EE container environment for real-time monitoring via Splunk
- Integrated data from five different data sources, built a complex data model using Python scripts, and then provided near-real-time data visualizations via Microsoft PowerBI to show project progress and to provide a defensible understanding of risk for the first time in this customers' environment
- Implemented TwistLock for container scanning, policy enforcement, and security monitoring
- Developed the first security plan documentation and baselines in the customer environment while implementing real-time continuous monitoring security checks leveraging Ansible playbooks; reducing audit times by five hours per server

Extending Containerization

C2 Labs was able to design and build a modern containerization platform, CI/CD pipeline, and DevSecOps set of processes and culture to reduce technical debt and eliminate security vulnerabilities in their environment. C2 Labs leadership team and Subject Matter Experts (SMEs) have extensive experience in supporting cloud, DevSecOps, and security work in both government and highly regulated commercial environments. From that experience, we have found three common problem areas in which we assist our clients in accelerating their journey to the cloud: Application Rationalization, Strategy and Architecture, and Cyber Security. By understanding these problem areas and having broad domain expertise, we blend Art and Science to come up with the optimal approach and proven methodologies to exceed each customer's expectations. Contact us today at sales@c2labs.com for your free, no cost consultation.

About C2 Labs

C2 Labs serves as a security-focused agile digital transformation partner that blends Art and Science to enable our customers to expand their vision, drive cultural change, and avoid being left behind. We see Digital Transformation as:

- Applying acceleration in technology to reimagine business models, eliminate technical debt, lower cost, and free customers from bureaucracy in highly regulated industries to not be left behind

- Applying domain expertise in emerging technology to help new organizations securely architect greenfield solutions to compete and thrive in tomorrow's digital ecosystem

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