



DevOps Solutions:

Containerized DevOps for
Content Management
Systems

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Problem:

A large, independent U.S. government agency faced the challenge of transitioning several public and private applications, including flagship sites, from legacy on-premise servers to a modern cloud-based content management platform. The primary hurdle was the inconsistency and incompatibility of underlying tools, services, and technologies in the legacy applications. The agency needed a standardized and automated approach to allow dispersed development teams to work on these applications within the new AWS-based platform.

Solution:

CTAC collaborated closely with the agency's stakeholders, addressing technical, business, and security concerns. The solution centered around building a FedRAMP/NIST 800-53 compliant AWS platform. Key components of the solution included:

- **Containerization with Docker:** CTAC adopted Docker containerization technology to provide a standardized development lifecycle. Docker containers encapsulated everything needed to run an application, ensuring consistency and compatibility across applications.
- **Automated DevOps Pipeline:** CTAC designed an automated and unified DevOps pipeline using Jenkins. This pipeline, leveraging Docker in local environments and Packer for Amazon Machine Images (AMIs) in production runtimes, facilitated automated, repeatable, and predictable deploys for the agency's various applications.
- **Base Image Hardening:** CTAC established an official base image based on Ubuntu, which was hardened according to CIS Docker Benchmarks. All deployable services were required to derive from this base image, ensuring security compliance.
- **Continuous Integration with Jenkins:** Jenkins was used to pull code for each customer application, build components and system versions, and deploy them into appropriately secured Virtual Private Clouds (VPCs). SSH private keys granted access to the relevant repositories, enabling seamless integration.

- **AMIs with Packer:** Packer, an open-source tool, was employed to create non-Docker EC2 Amazon Machine Images. These AMIs were configured using Puppet and other provisioners, ensuring consistency and reliability across multiple platforms.

Outcome:

CTAC proactively enhances our clients' cloud environments, seeking ongoing optimization and modernization. We believe continuous optimization is vital in today's rapidly evolving tech landscape. Our cloud engineering teams regularly review new tools to identify optimization and modernization opportunities across our managed portfolio, ensuring secure, performant environments.

Static cloud setups limit innovation, flexibility, and cost efficiency. Our continuous optimization approach delivers benefits like improved security, performance, and significant cost savings. We're dedicated to staying ahead and finding innovative ways to optimize client cloud environments, delivering high-quality services.

CTAC's value-added approach provides robust Cost Management and Engineering services for the Government. This fosters financial transparency, proactive fund management, and ongoing cost optimization. Tailored reporting, compliance, and collaborative document management streamline our client's cloud-related financial processes efficiently.