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Empowering Dev Teams Through Kubernetes Operators

SUMMARY

The client had an IT ticketing process for managing DNS records. To create or adjust the vanity domains for an application, development teams would submit a request then wait 2-3 weeks for a different team to process the request, which was a major impedance. Furthermore, since the team handling the ticket was different than the team that submitted the ticket, DNS changes required coordination from both teams. Performing an application cutover required multiple parties to join a call to ensure the cutover was handled correctly.

SOLUTION

The client was using Kubernetes as the foundation for their application platform, which manages infrastructure resources through manifests that are committed to the application repository alongside other app-specific configuration. This leads to a natural pattern of updating resources through Pull Requests (PRs), allowing changes to be reviewed and tracked.

By default, Kubernetes knows how to manage infrastructure resources such as containers, volumes, and various network routing rules. However, the Kubernetes API is extendable. A custom Kubernetes operator, an application that extends the Kubernetes API to support custom resources, was created that allowed teams to create, edit, and delete DNS records. The operator ensured any DNS record changes were compliant with networking and security requirements, but otherwise allowed teams to directly control the DNS records for their applications.

Our team demonstrated our expertise in Kubernetes by helping the client build the DNS operator. While collaborating on this operator, we also held training sessions on the Go programming language and software engineering practices such as TDD, pair programming, and code reviews. Upskilling the client teams ensures they will be able to self-manage going forward.

RESULTS

99%
Decrease in time
To make DNS changes

Eliminated
Entire ticketing process

50%
fewer teams needed for cutovers

www.sourceallies.com 4501 NW Urbandale Dr., Urbandale, IA 50322 515.279.2640