

Evergreen Software Development

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RECENT TECH TRENDS AND THEIR IMPLICATIONS

Who's This Bloke, Then?

- Nathaniel Eliot, CEO of The Greenfield Guild
- Two decade veteran of the software industry
- A guy who collects and invents metaphors
- Embarrassingly Anglophilic

And What's This All About, Anyway?


- Recent trends in security threat model
- Recent trends in operations tools and attitudes
- Evergreen Development

Evolution in Threat Model

- Attack surface is expanding
- Perimeter-defense model of security is dead
- Principle of least authority
- Bad actors are getting more sophisticated
- Vulnerabilities aren't getting any younger
- Rapid defense in depth is now a necessity

Evolution in Operations

- Deployment tooling
 - Manual (i.e. “runbooks”)
 - Configuration management (e.g. Puppet, Chef)
 - Container orchestration (e.g. Mesos, Kubernetes)
- Organizational attitude
 - BOFH - antagonistic relationship with developers
 - DevOps - dev and ops should work together
 - SRE - best practices for working together at scale

A man with curly brown hair, wearing a blue t-shirt, is sitting at a desk in a cluttered office. He is holding a white corded telephone receiver to his ear with his right hand. The office background is filled with various items: a green alien head, a blue robot figurine, a framed picture of a person, a poster with the text "PARADISE BY", and a shelf with books and other objects. A small green and blue lizard is perched on the edge of a black computer monitor in the foreground. The overall scene is brightly lit.

**Hello, IT, have you tried
turning it off and on again?**

“Have you tried turning it off and on again?”

- Repeatability infrastructure
- Immutable infrastructure
- Crash-only software
- Chaos engineering



“If it hurts, do it more often”

- Upgrading dependencies hurts
- Rebuilding infrastructure hurts
- Security patching hurts
- Until they don't, attackers don't need 0-days



Not Seeing the Forest-Fire for the Trees

- Traditional operations, like traditional forest management, focuses on fighting fires
- Growth-only focus in development produces a lot of dead wood that doesn't get cleared out
- When the breakout wildfire happens, even heroic efforts are unlikely to save things

NATURAL FIRE CYCLE



HEALTHY FIRE

BURNS UNDERSTORY
VEGETATION

NEW GROWTH

DIFFERENT SOIL NUTRIENTS,
FLUCTUATING TEMPERATURE,
MORE SUNLIGHT REACHES THE
GROUND, FIRE-DEPENDENT
SEEDS SPROUT

EVOLVING HABITAT

FOREST ECOSYSTEM
CONTINUES TO EVOLVE WITH
CHANGING PLANT AND
ANIMAL DIVERSITY

OLD GROWTH

AS FOREST MATURES, FOOD
SOURCES CHANGE, LESS
SUNLIGHT REACHES THE
GROUND, LESS DIVERSITY

FIRE IN UNDERSTORY
RESETS, MATURE
TREES REMAIN

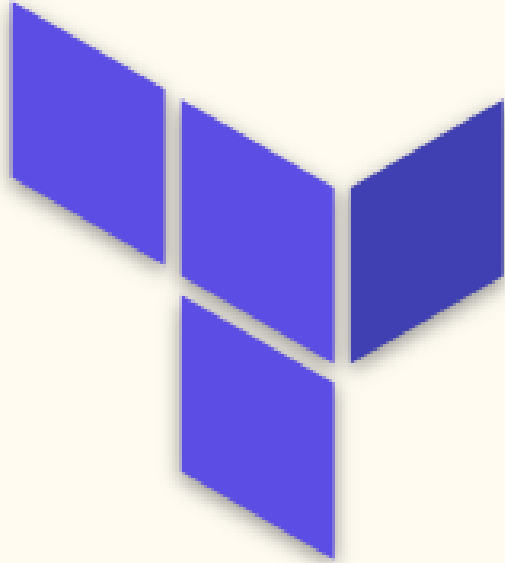
What is Evergreen Software?

- Automated push-on-green to patch without intervention
- Regular recapitulation of all systems, including your infrastructure systems
- By patching and redeploying regularly, you segment the problem space for release errors

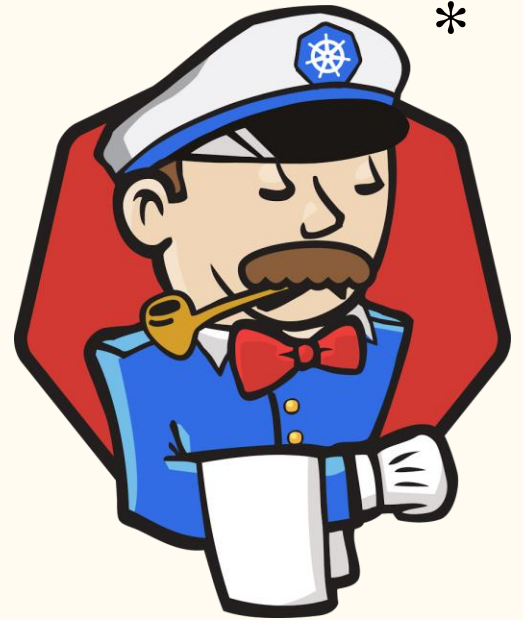
How-To?



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* Your Mileage May Vary

How-to?

- Make recapitulation more automatic, via container and infrastructure orchestration tools
- Regular push-on-green rebuilds of your core code, via your favorite build / CI system
- Automatically open tickets on upgrade and rebuild failures, and fix them quickly

Questions?

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