

DevOps, SRE, and other Buzzwords

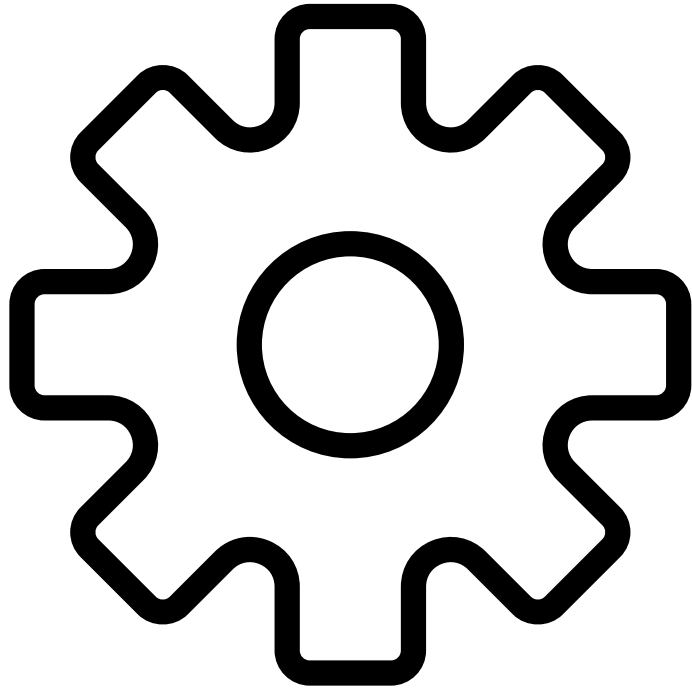
Ryan Tolboom

New Jersey Institute of Technology



What does a sysadmin do?

Configure



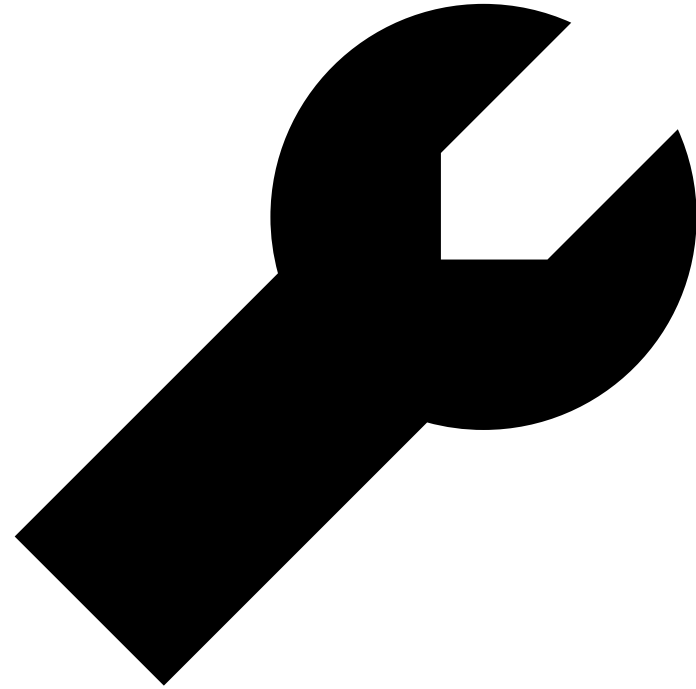
[Settings SVG Vector](#) is in the public domain under [CC0](#)

Operate



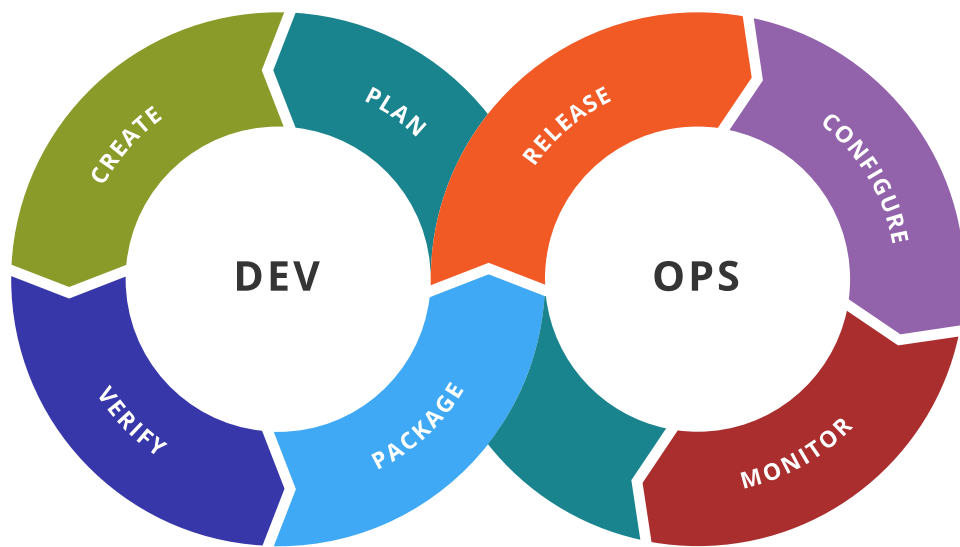
[Press Button SVG Vector](#) is in the public domain under [CC0](#)

Maintain



[Wrench SVG Vector](#) is in the public domain under [CC0](#)

DevOps Patterns

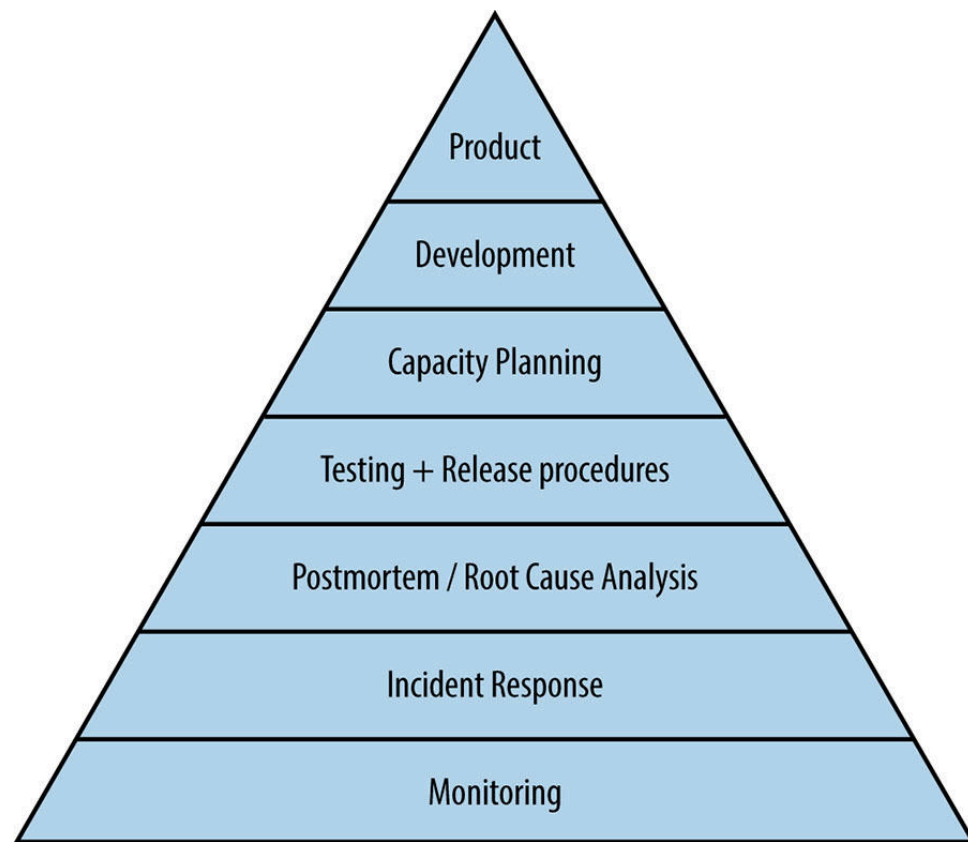


[“Devops-toolchain.svg”](#) by [Kharnagy](#) is licensed under [CC BY-SA 4.0](#)

- Hardware in the cloud
- Everything is code
- “YAML engineers”
- Devs doing sysadmin or sysadmins doing dev?

Site Reliability Engineering (SRE)

- Change management
- Automation
- CI/CD Pipelines
- Testing
- “Treat operations as if it’s a software problem.” – Google



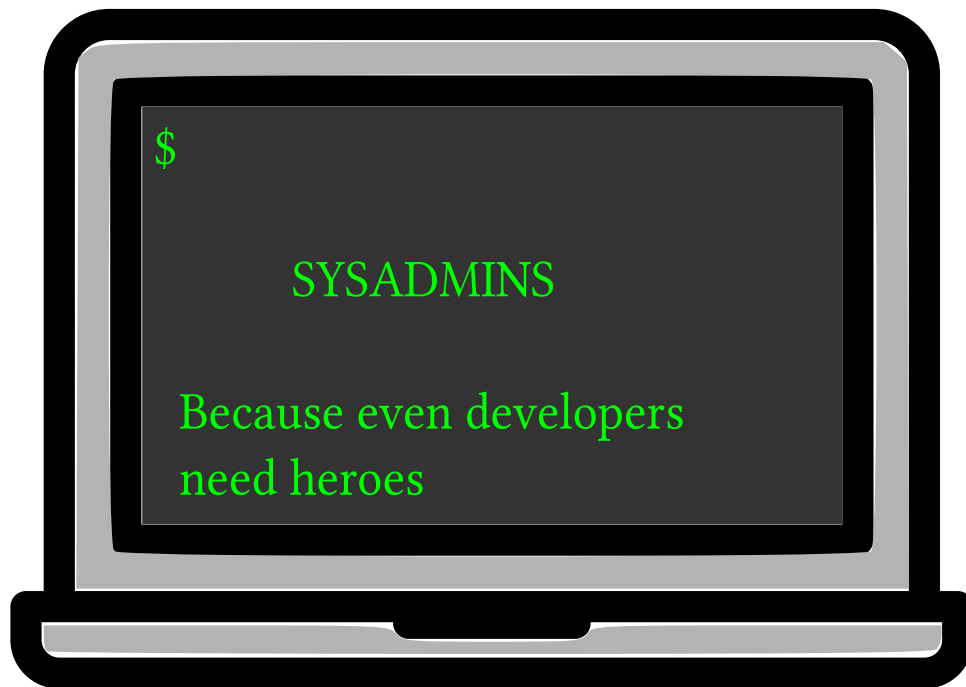
[“Service Reliability Hierarchy”](#) by [Betsy Beyer](#), [Chris Jones](#), [Niall Richard Murphy](#), [Jennifer Petoff](#) is licensed under [CC BY-NC-ND 4.0](#)

Is the Sysadmin Dead?



- Nope, they're just coding more
- Expertise in uptime and hardware optimization helps solve software problems
- An empowered sysadmin can do more, much more
- Experience matters

What does it all mean?



- Failure is an option!
- A whole lot of virtualization
- Continuous deployment is expected
- Rapid (automated) response
- Downtime for maintenance is passe
- Make it run on anything
- Automate, automate, automate!
- Save configurations, not images

What solutions are we using *now*?

Automation Tools

Ansible

Terraform

Chef/Puppet

VMs

Amazon EC2

Digital Ocean

Linode

Containers

LXC

K8s

Podman

Reproducible Systems

NixOS

GUIX

Function as a Service

AWS Lambda

Google Cloud Functions

Azure Functions

Platform as a Service

Heroku

Fly.io

Railway.app

Immutable Linux

ChromeOS

Vanilla OS

Endless OS

Hybrid Cloud

OpenStack, K8s, etc.

Any big IaaS

Self-Hosted AI

How do we keep up?

- We've talked about and used lots of tools, but they aren't the only ones
- Concepts > Use Instances
- Read, share, contribute
- Learn from past mistakes
- Don't believe the hype. Think for yourself!
- Argue and learn
- Insular sysadmin culture *is* dead
- My personal thoughts on the future: distributed, decentralized, federated, mesh