DevOps, SRE, and other Buzzwords
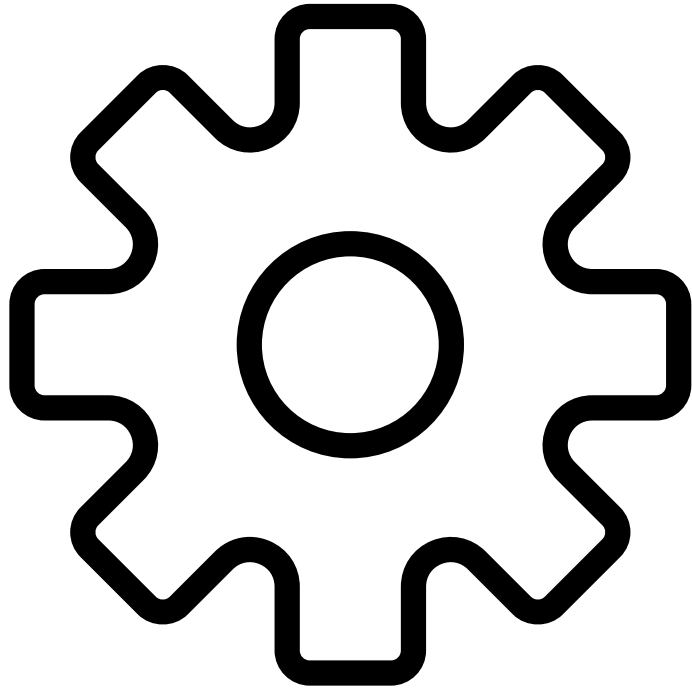
Ryan Tolboom

New Jersey Institute of Technology

What does a sysadmin do?

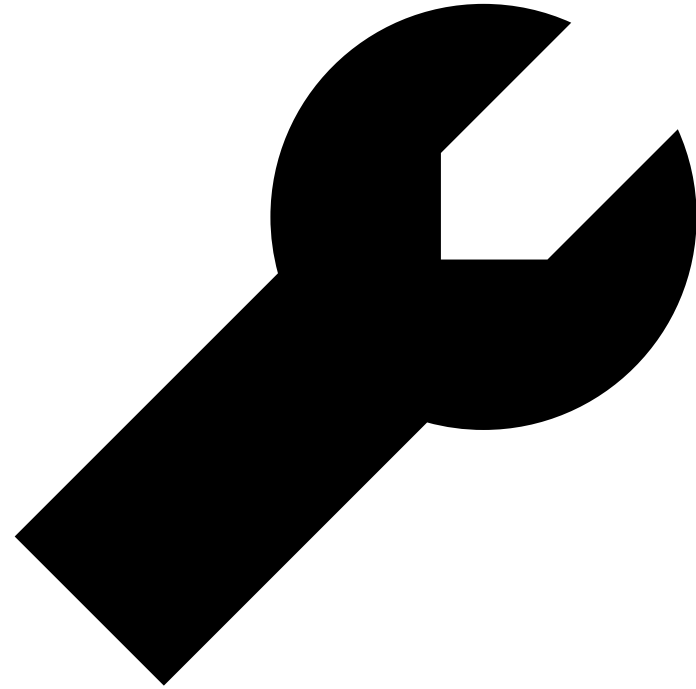# Configure

Operate

Maintain

DevOps Patterns
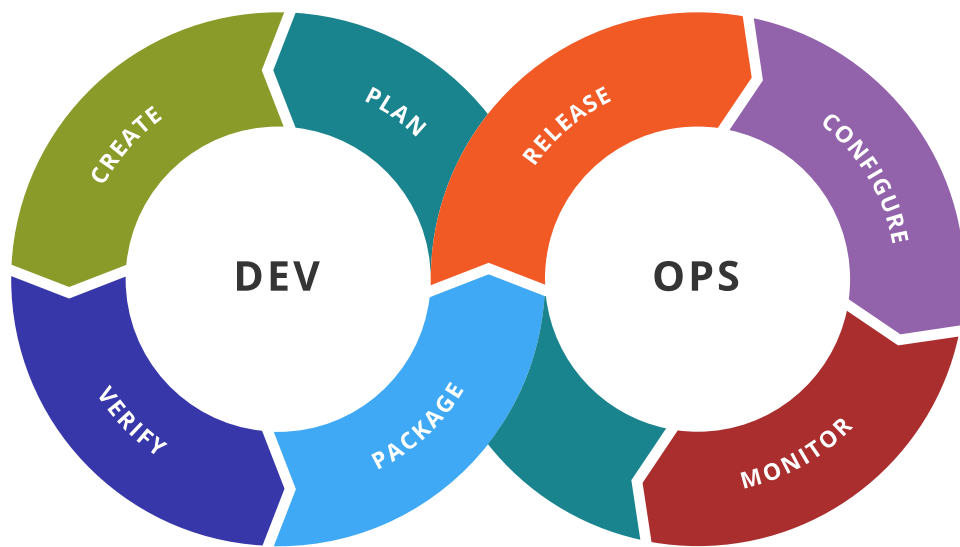
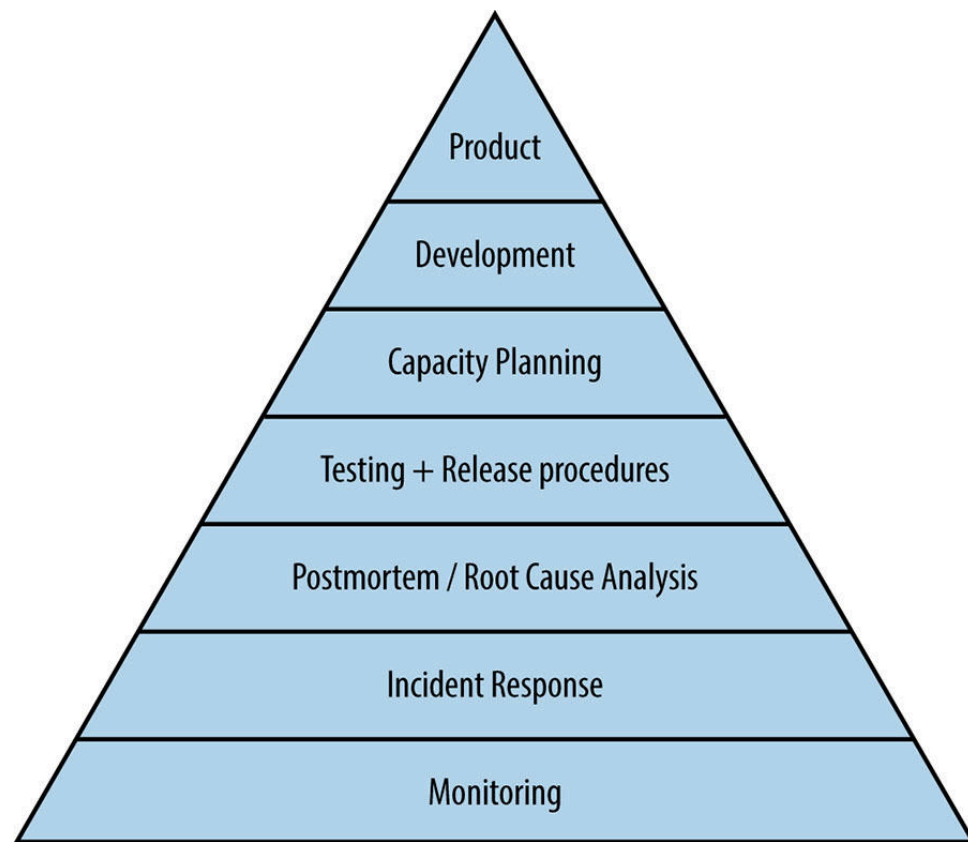"Devops-toolchain.svg" by Kharnagy is licensed under CC BY-SA 4.0

- 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?

RIP
sysadmin

- 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?

$

SYSADMINS

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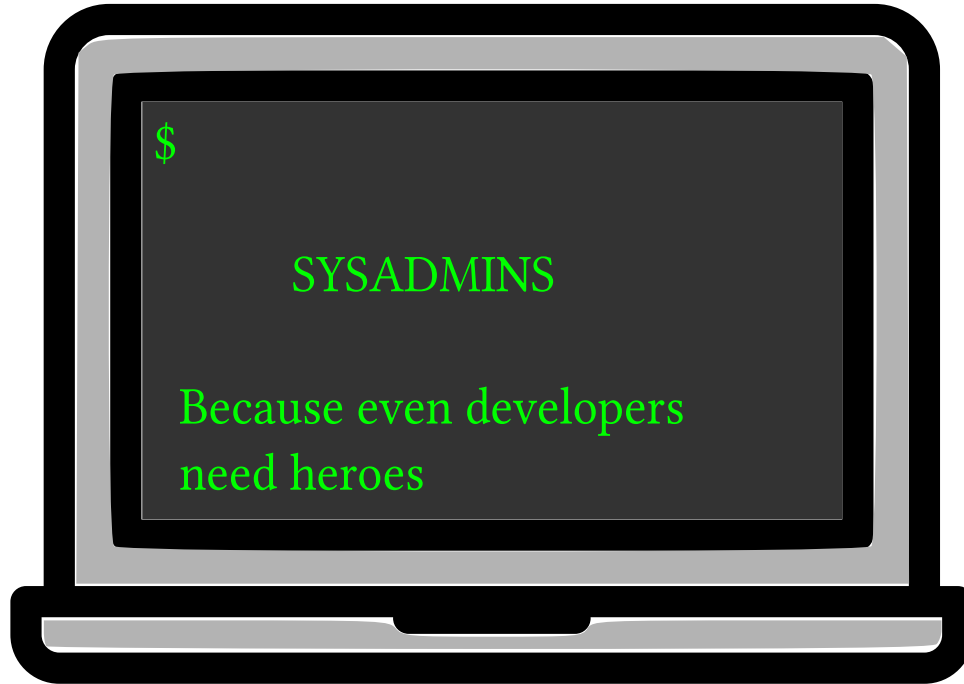
- Failure is an option!
- A whole lot of virtualization
- Continuous deployment is expected
- Rapid (automated) response
- Downtime for maintenance is passe
- Make it run on anything
- Automate, automate, automate!
- Save configurations, not images

What solutions are we using *now*?

Automation Tools	**VMs**	**Containers**
Ansible	Amazon EC2	LXC
Terraform	Digital Ocean	K8s
Chef/Puppet	Linode	Podman
Reproducible Systems	**Function as a Service**	**Platform as a Service**
NixOS	AWS Lambda	Heroku
GUIX	Google Cloud Functions	Fly.io
	Azure Functions	Railway.app
Immutable Linux	**Hybrid Cloud**	**Self-Hosted AI**
ChromeOS	OpenStack, K8s, etc.	
Vanilla OS	Any big IaaS	
Endless OS		

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