

Zone Defense

Building resilient infrastructure across availability zones
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AirAware



Slides



Air Pollution ▾



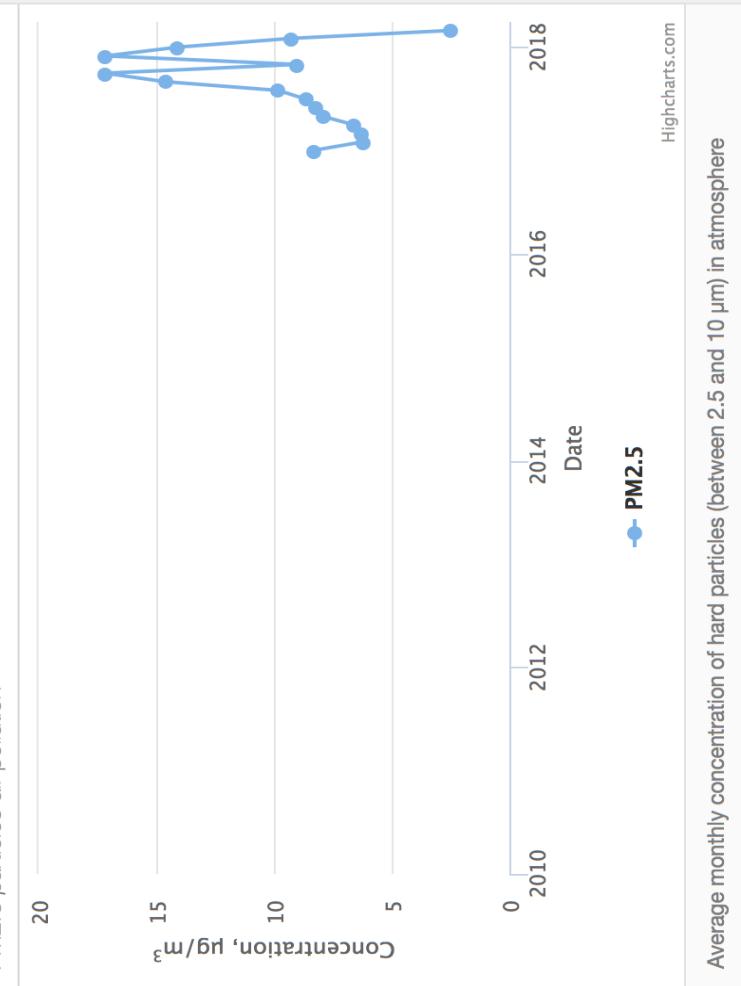
Alex Gaiduk ▾

San Francisco, CA | Q

Ozone air pollution

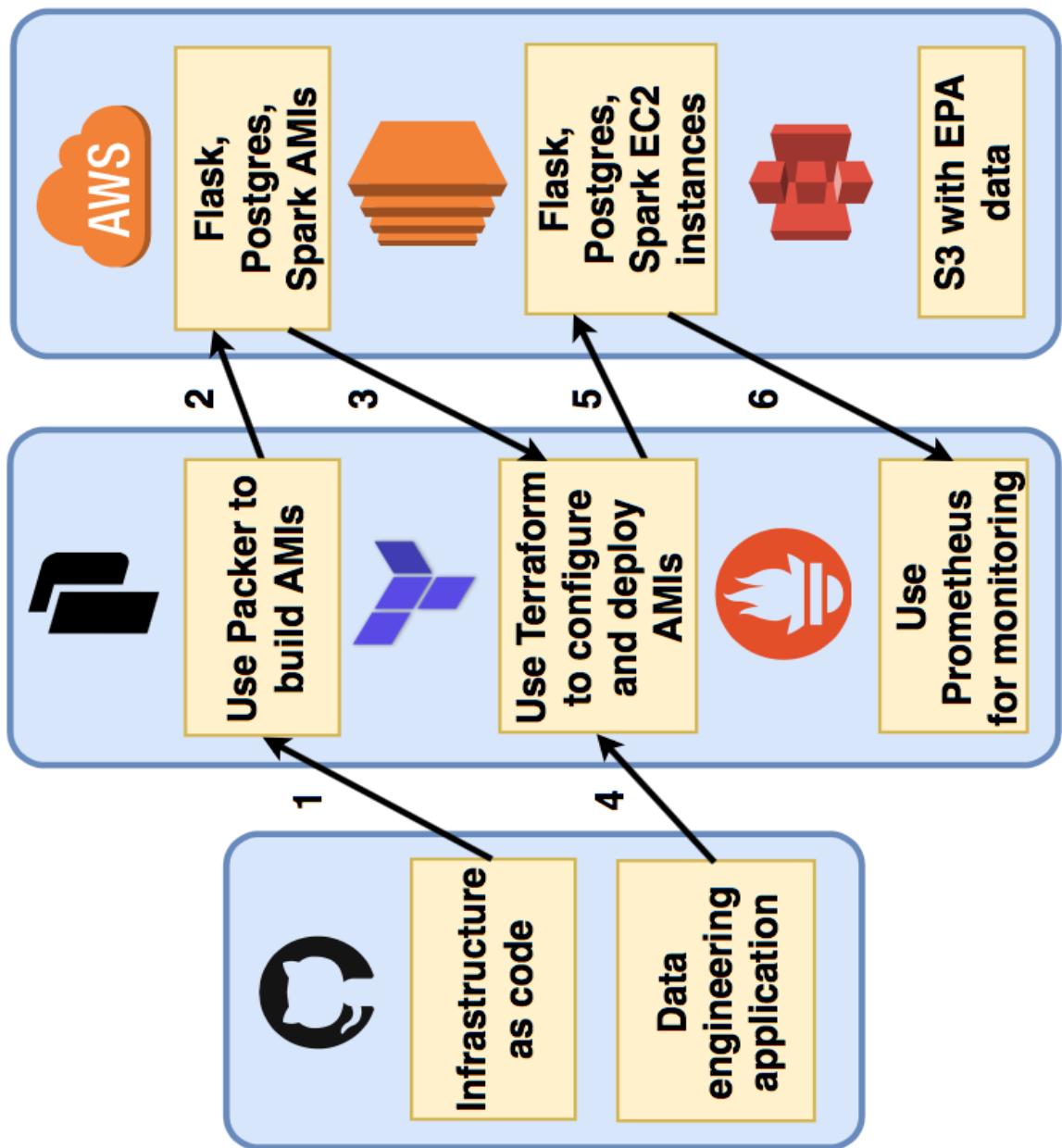


PM2.5 particles air pollution



Highcharts.com

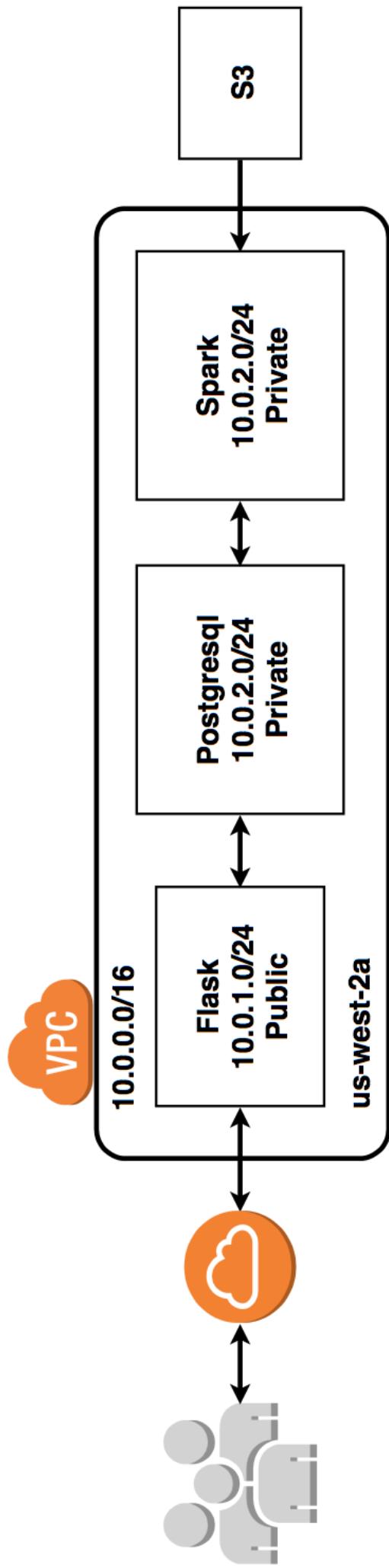
Highcharts.com



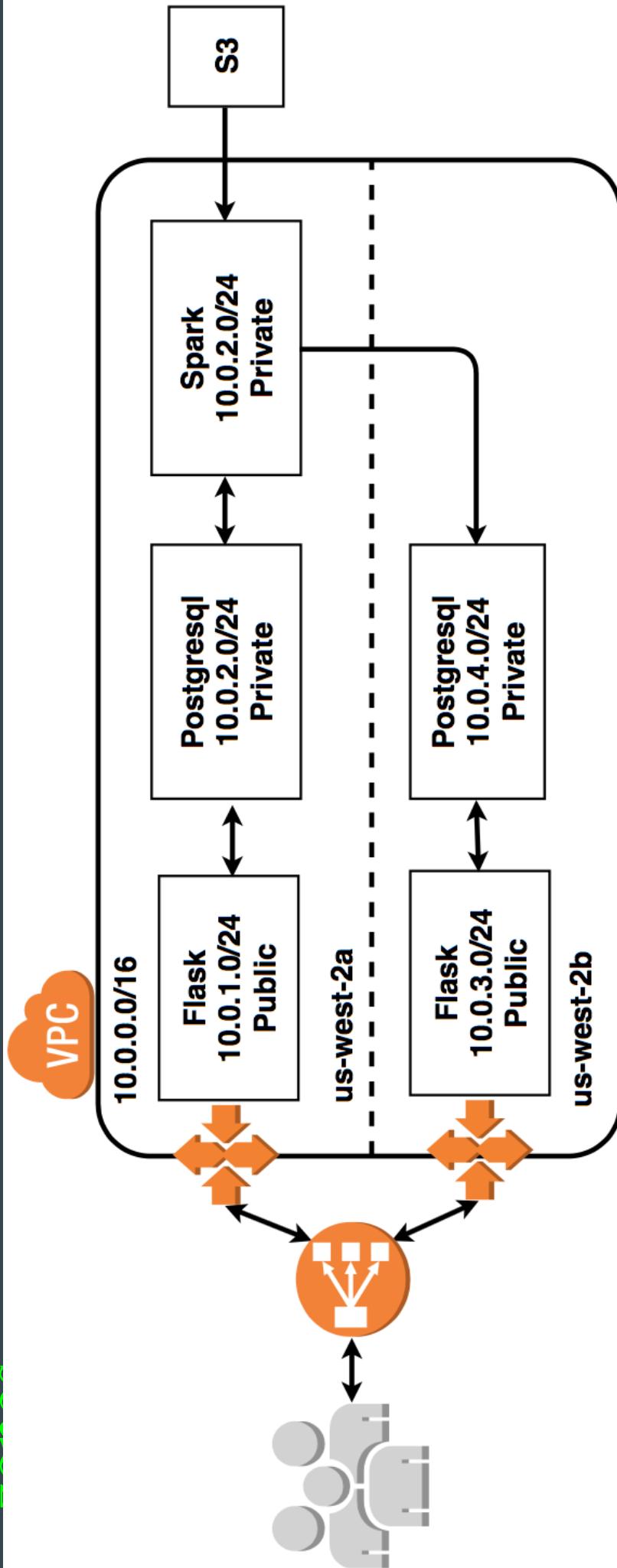
Infrastructure as code

Deploy and monitor
with the **click of a
button**

Baseline infrastructure has poor reliability...

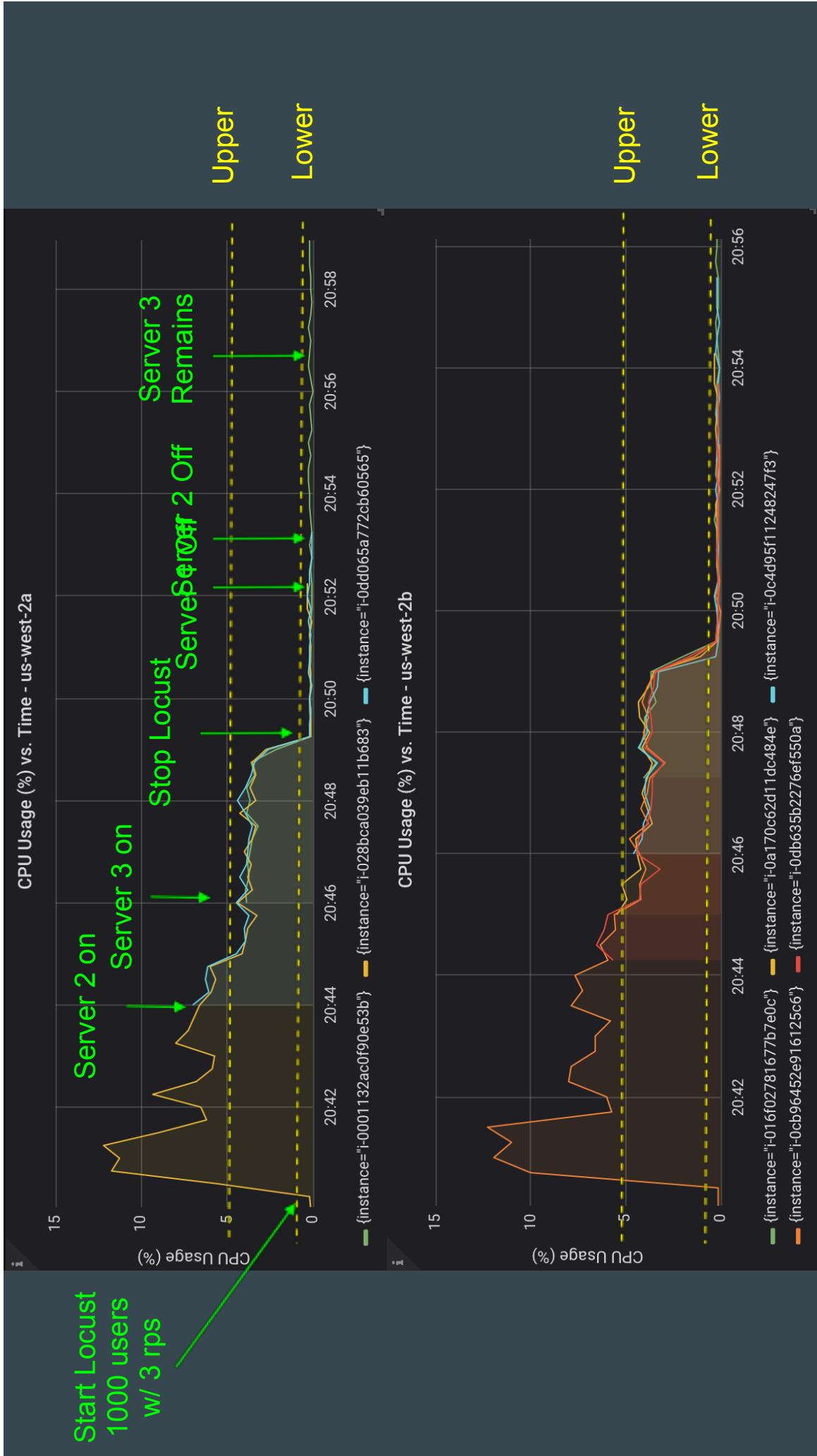


...So I added auto-scaling across multiple availability zones



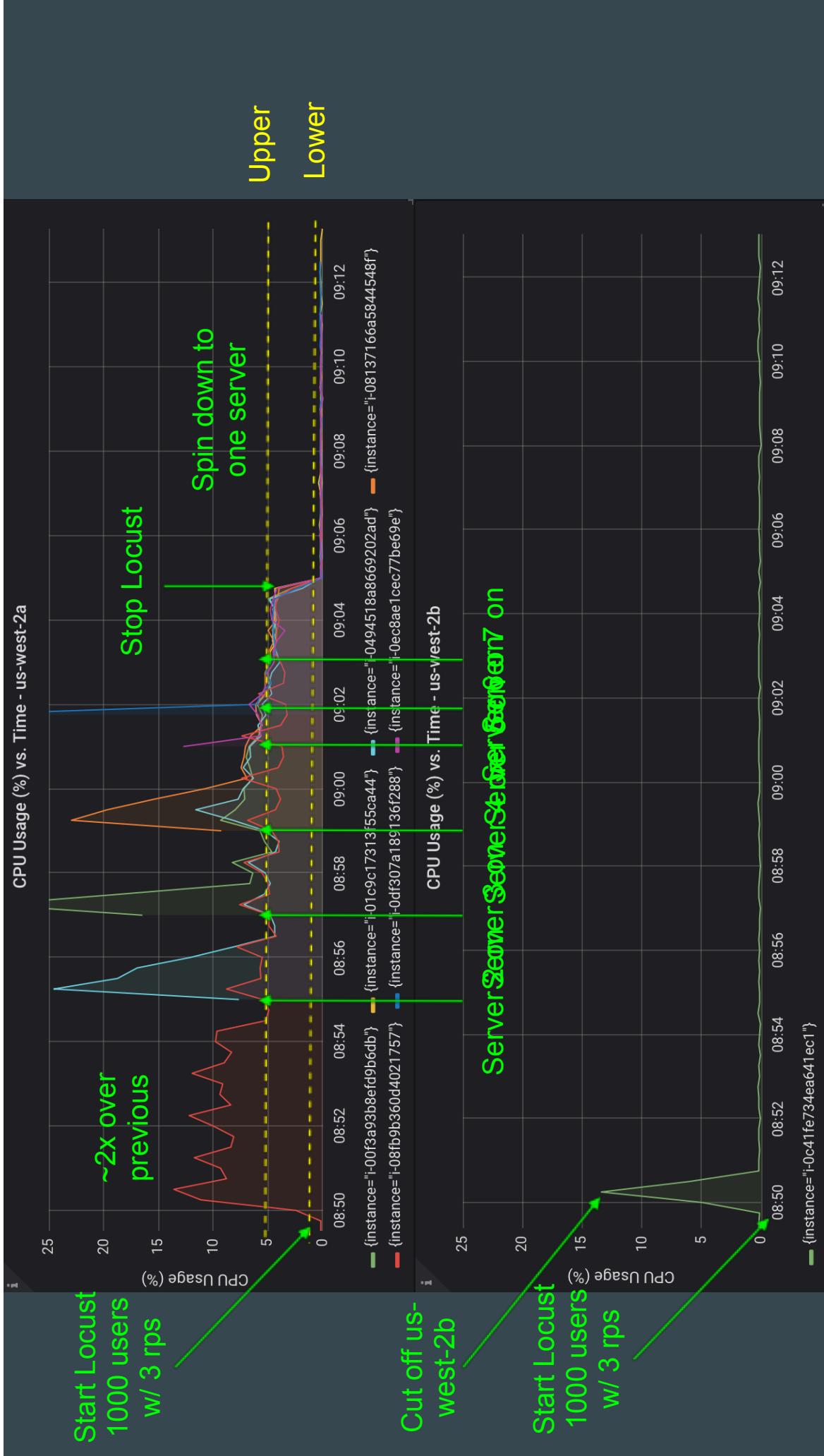
Demo: Traffic Spike

[Link to screencast](#)



Demo: Availability Zone Outage

[Link to screencast](#)



AirAware can now be automatically deployed to a highly reliable infrastructure



About Me

- Ph.D nuclear engineering from Texas A&M University.
- Last role at Lawrence Livermore Lab as a computational physicist.
- Hobbies include traveling with my wife and training my pug.
- Recently made it on America's Funniest Home Video!



Questions?

Backup Slides

VMs VS. Containers

- We have only used VMs not containers.
- Alternatively, we can spin up a VM to host Docker engine and run multiple containers.
- Each container can have one or more apps.
- This might be more feasible for Flask as we need to quickly spin them up/down to meet user demand.
- Containers may not be beneficial for Spark or Postgres.

CI/CD

- Developer to customer pipeline:
 - Build → Test → Release → Provision/Deploy
 - Terraform and Packer takes care of Release → Provision/Deploy.
- We can use CI tools (e.g., Jenkins) for Build → Test.
- Entire developer to customer pipeline can be executed whenever a developer pushes new features.

Multi-Region and Multi-Cloud

- Adds an additional layer of reliability, but at additional cost and complexity.