AWS re:Invent

NOV. 29 – DEC. 3, 2021 | LAS VEGAS, NV

DOP206

Improve availability and resilience with fault injection experiments

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Agenda

Motivation

Why are you here? What is chaos engineering?

Observability

If a tree falls in the forest . . .

Accessing the AWS console

Using your hash and logging in

AWS Fault Injection Simulator (FIS)

How to set up an experiment

Building blocks

Control plane, scripts, apps, automation

Now, go build!

Scenarios . . .

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Motivation

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“Everything fails all the time!”

Dr. Werner Vogels
Amazon CTO

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"Chaos engineering is the discipline of **experimenting** on a software system **in production** in order to build confidence in the system's capability to withstand turbulent and unexpected conditions."

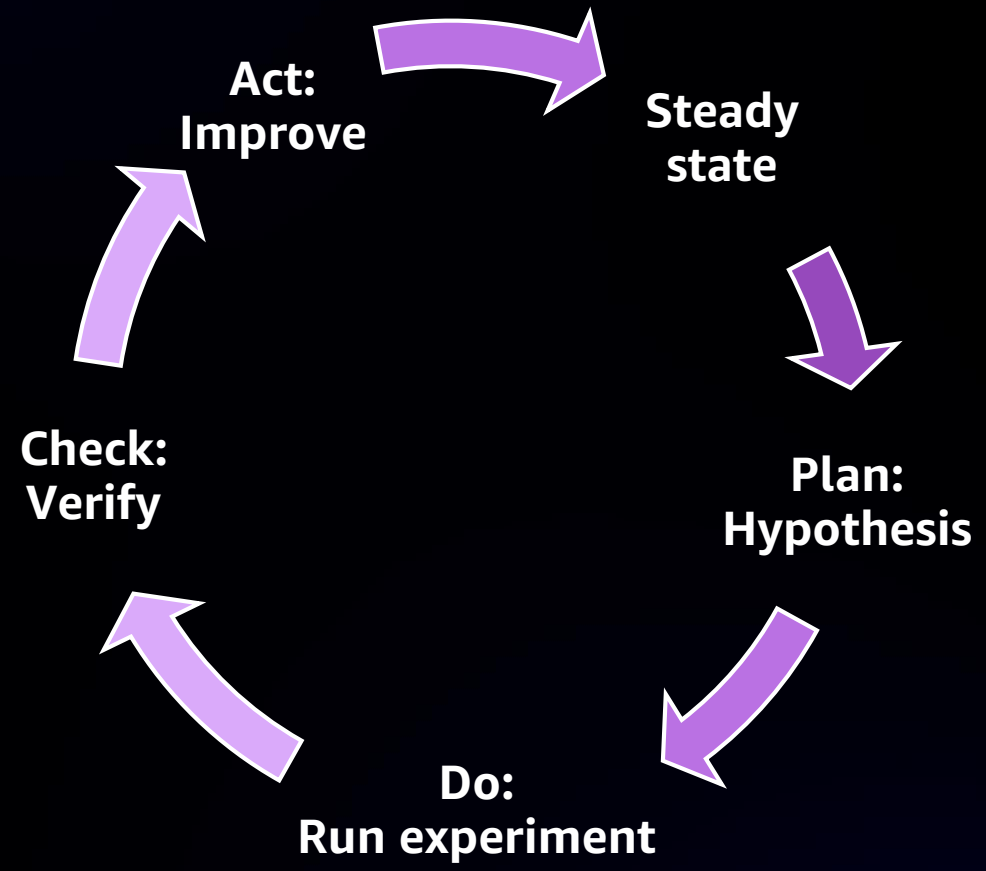
Wikipedia

Accessed 22 September 2021. https://en.wikipedia.org/wiki/Chaos_engineering

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Phases of chaos engineering



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Observability



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“If a tree falls in the forest and no one is around to hear it, does it make a sound?”

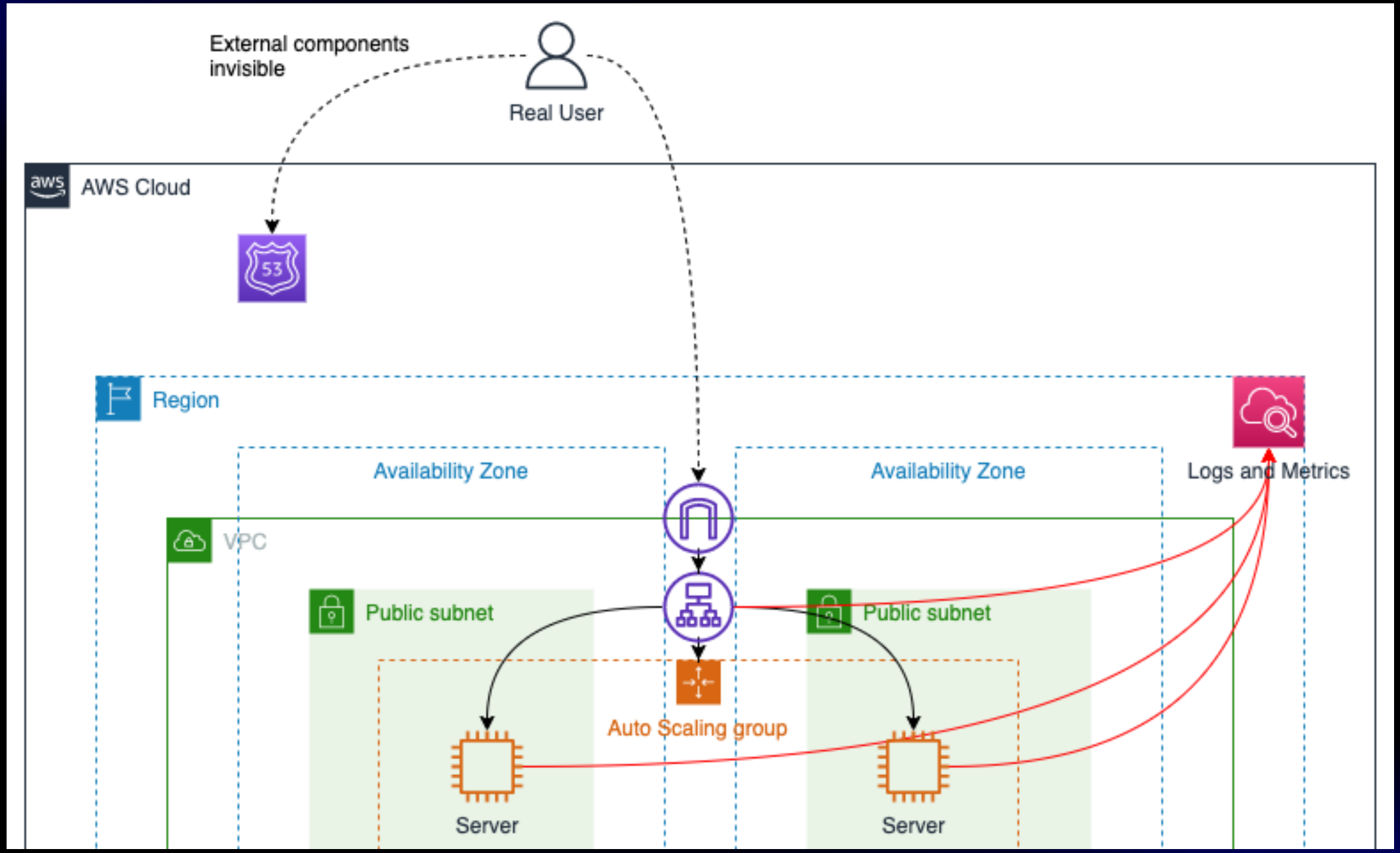
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"If part of our system is disrupted and we do not receive any irate calls from users, did anything break?"

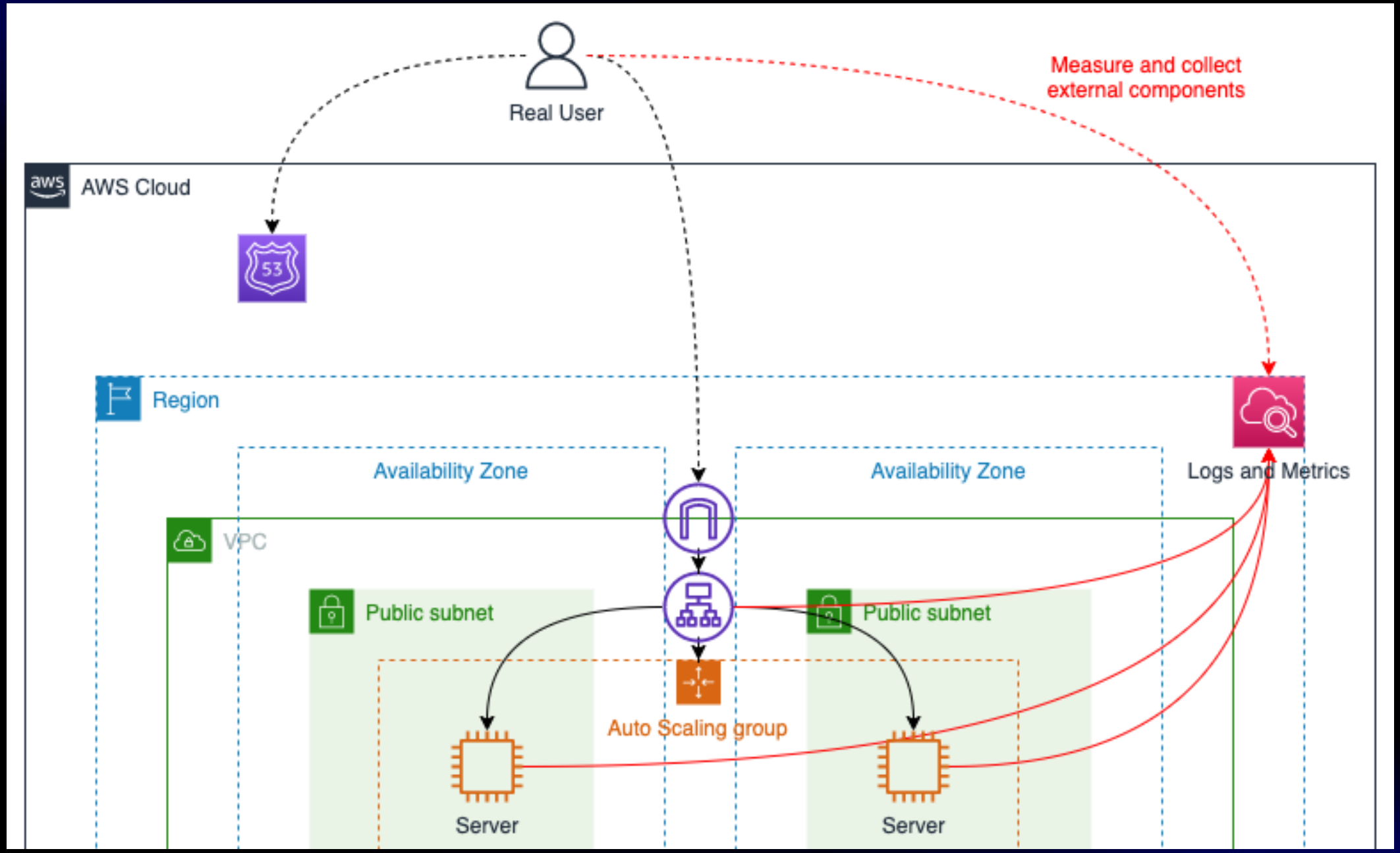
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“If part of our system is disrupted and SysOps isn’t alerted, did anything break?”

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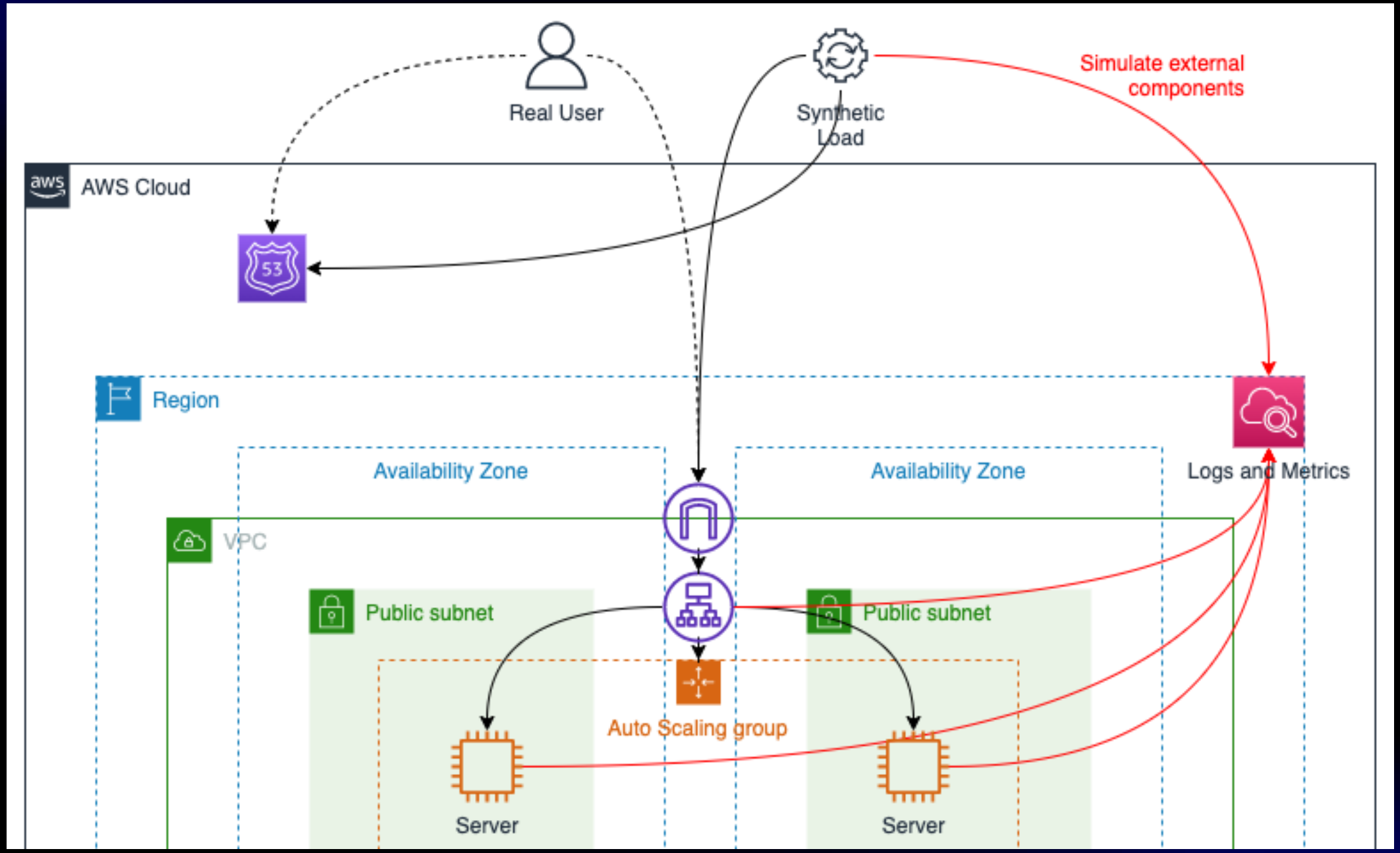
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AWS FIS

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https://dashboard.eventengine.run

Event Hash: 92ab-1bab597f44-95

https://chaos-engineering.workshop.aws/

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Building blocks

Control Plane – Amazon EC2
Scripts – AWS Systems Manager (SSM)
Apps – Amazon Relational Database Service (Amazon RDS)
Automation – Continuous integration (CI)/continuous delivery (CD)

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Suggested sections

- Baselining and monitoring
- Synthetic user experience
- First experiment
  - Configuring permissions
  - Experiment (console)
- AWS Systems Manager integration
  - FIS SSM send command setup
  - Linux CPU stress experiment
  - Working with SSM documents
  - FIS SSM start automation setup
  - SSM additional resources
- Databases
  - Amazon RDS DB instance reboot
- Recurrent experiments – CI/CD
  - Setup
  - Review the pipeline
  - Start the pipeline
  - Force a pipeline error

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Thank you!

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