

A photograph of a desk setup. On the left, a potted plant with green, feathery foliage sits in a dark, textured jar. Behind it, a desk lamp with a white, cone-shaped shade is lit, casting a warm glow. In the center, a silver laptop is open, its screen reflecting light. To the right of the laptop, a black pen and a small, dark object are visible on the desk. The background is a plain, light-colored wall.

WPCampus 2017

WORDPRESS HIGH PERFORMANCE HOSTING USING AMAZON WEB SERVICES



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DISCLAIMERS

- ▶ I'm not affiliated with Amazon
- ▶ You should not necessarily use AWS for your project
- ▶ 98 services...can't talk about all of them
- ▶ I'm human :-)

The background of the slide is a close-up photograph of a blue, textured material, possibly a cable or a piece of fabric, with a white, curved object partially visible in the center. A solid red rectangular box is positioned in the upper right corner, containing the text 'CONTEXT' and 'AWS AT HARVARD CHAN'.

CONTEXT

AWS AT HARVARD CHAN

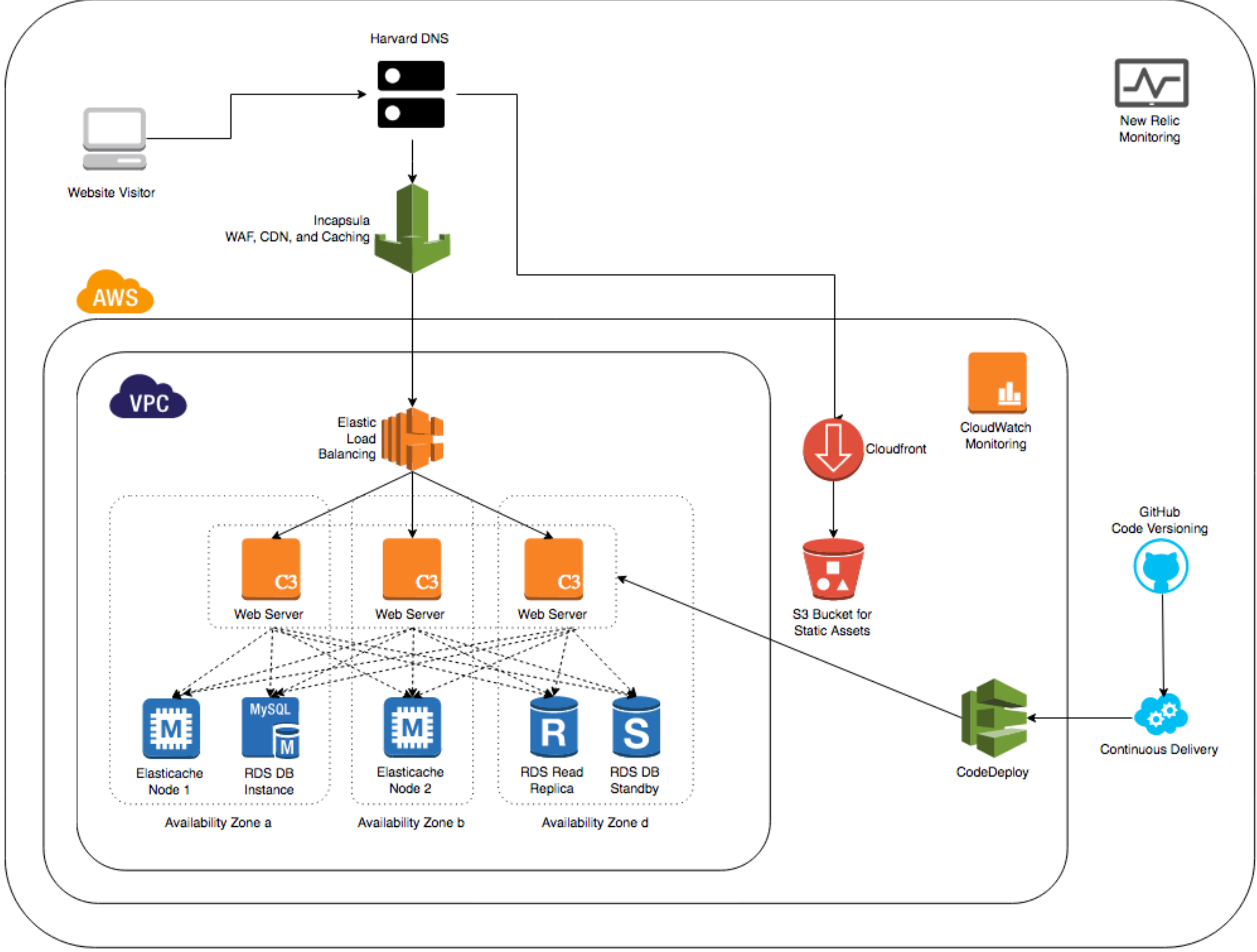


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WWW.HSPH.HARVARD.EDU

- ▶ WordPress Multisite (± 1800 websites)
- ▶ ± 100 plugins and 15 themes
- ▶ 1 M visitors per month
- ▶ 170 M hits per month
- ▶ Traffic spikes (live events, commencement, ...)
- ▶ Prime target for attackers





AWS BASICS

UNDERSTANDING THE CLOUD



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KEY CONCEPTS

- ▶ Scalability and Elasticity
- ▶ Regions and Availability zones
- ▶ Resiliency and Redundancy



BUILDING OUR INFRASTRUCTURE WORDPRESS HOSTING WITH AWS



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WEB SERVER



EC2 Instances

Type	M	T	C	X		
Size	nano	micro	small	medium	large	xlarge

i.e.: m3.medium, c4.large, t1.nano



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WHAT ABOUT MY LAMP STACK?

PROVISIONING YOUR EC2 INSTANCE

- ▶ Using an AMI
- ▶ “User data” script / Cloud Init



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NOW WE NEED WORDPRESS?



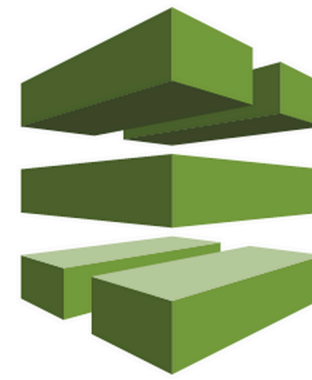
DEVELOPMENT & DEPLOYMENT



CodeCommit
Code Versioning



CodeBuild
Test and Build



CodePipeline
Continuous Delivery



CodeDeploy
Deployment

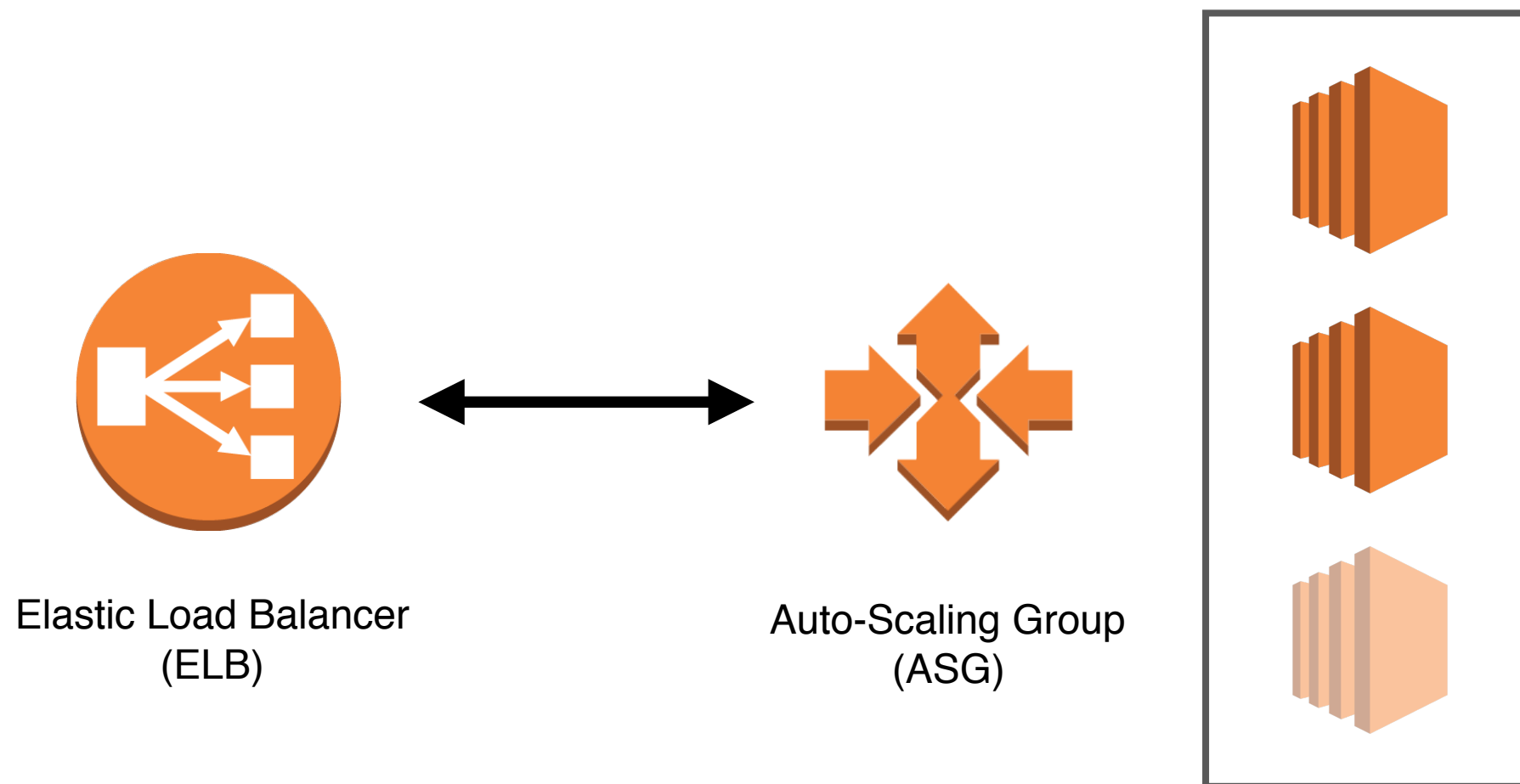


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REDUNDANCY...REDUNDANCY...REDUNDANCY

ELASTIC WEB SERVER





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WHAT ABOUT THE DATABASE?



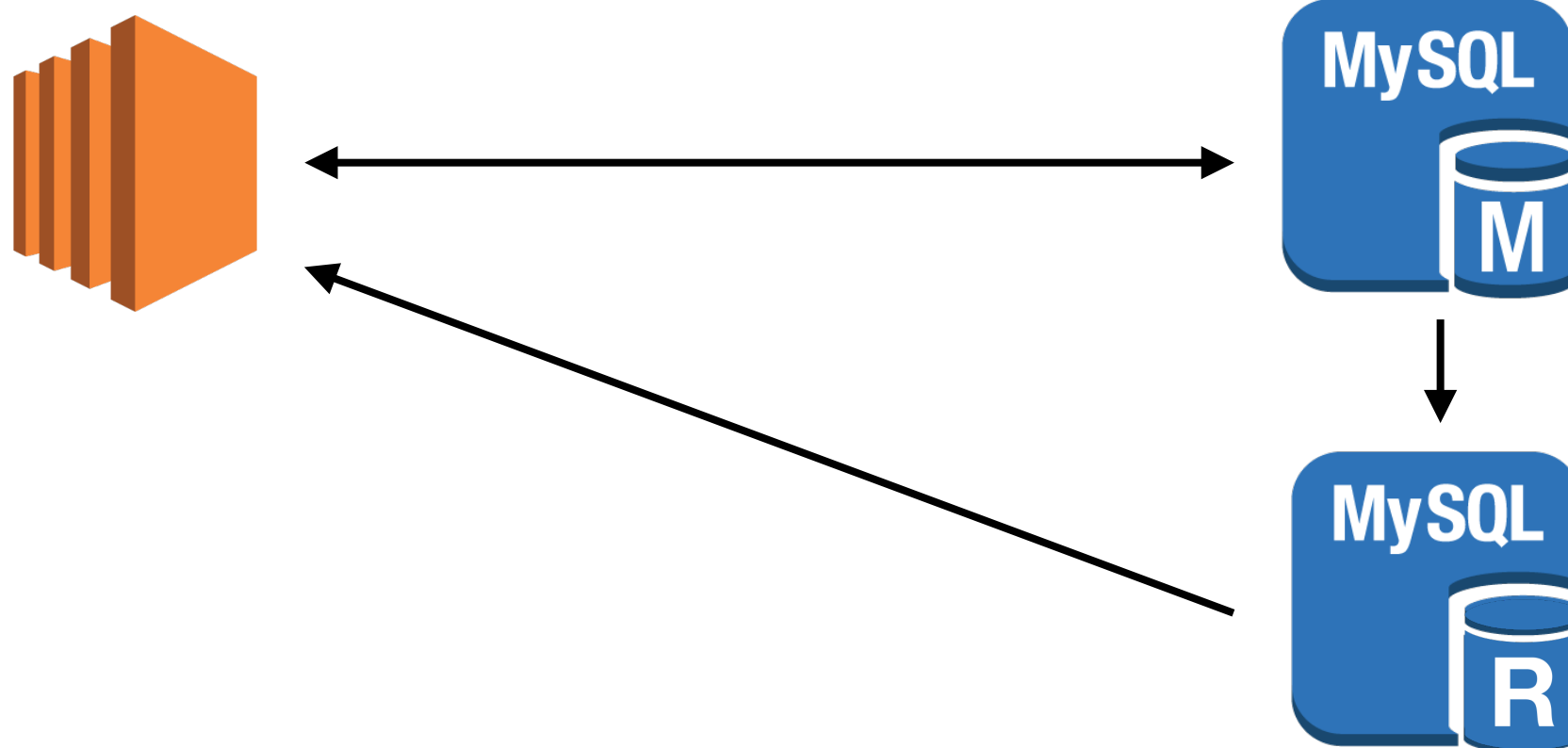
DATABASE



RDS

Type	M	R	T		
Size	large	xlarge	2xlarge	4xlarge	8xlarge

DATABASE





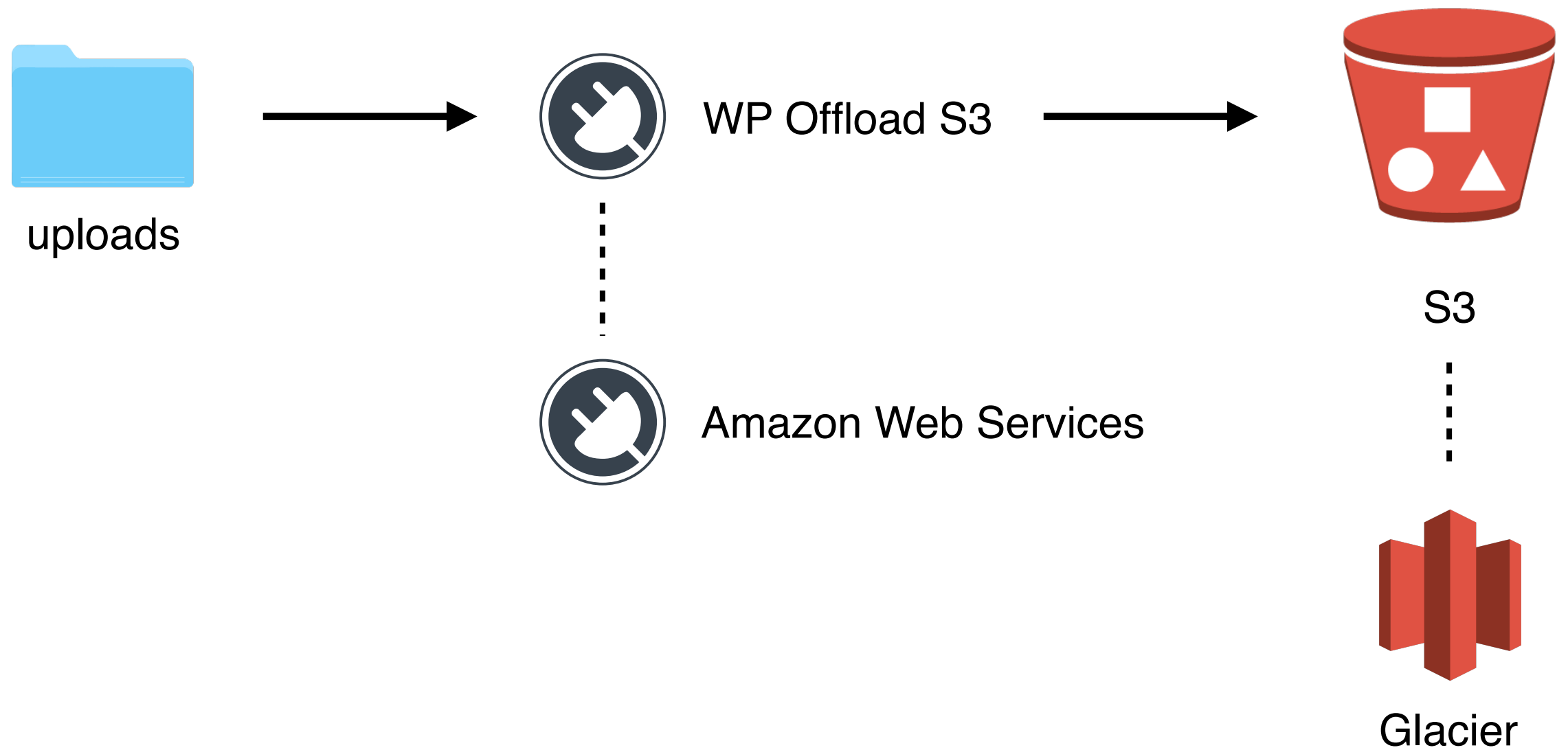
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WHAT ABOUT UPLOADED FILES?



UPLOADS





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LET'S SPEED THINGS UP!

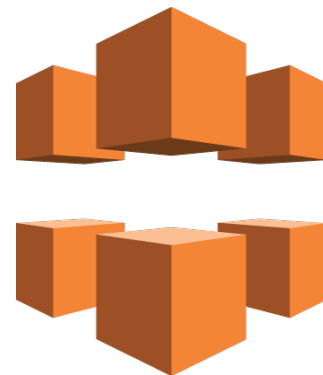


CDN

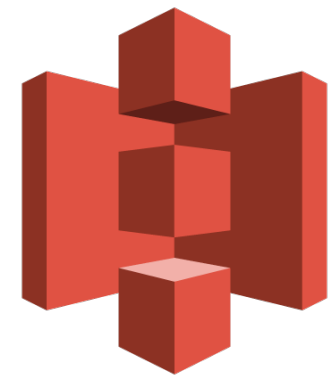
User



CloudFront



S3





CACHING

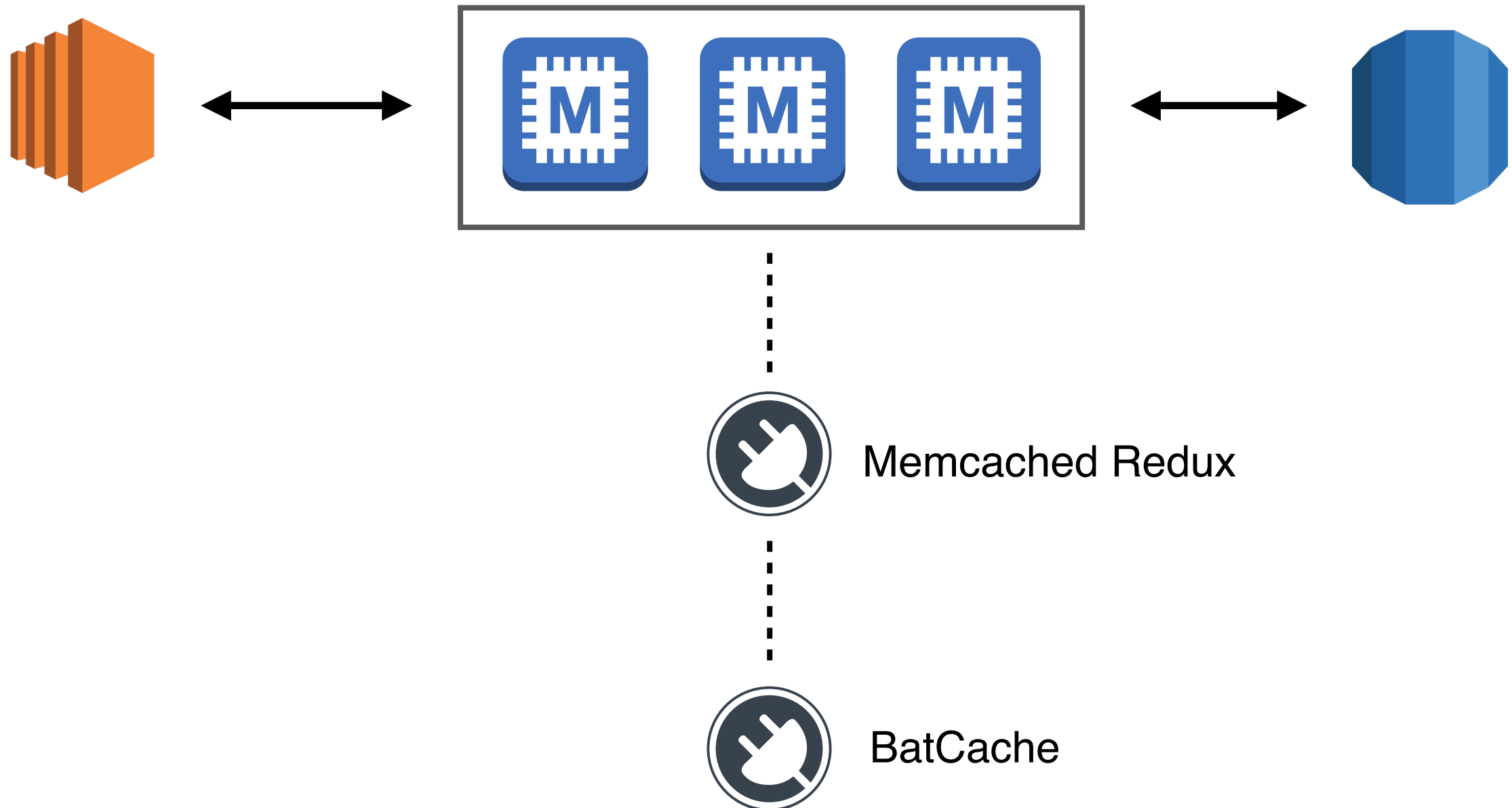
ElastiCache



Type	M	R	T		
Size	large	xlarge	2xlarge	4xlarge	8xlarge



CACHING





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SECURITY

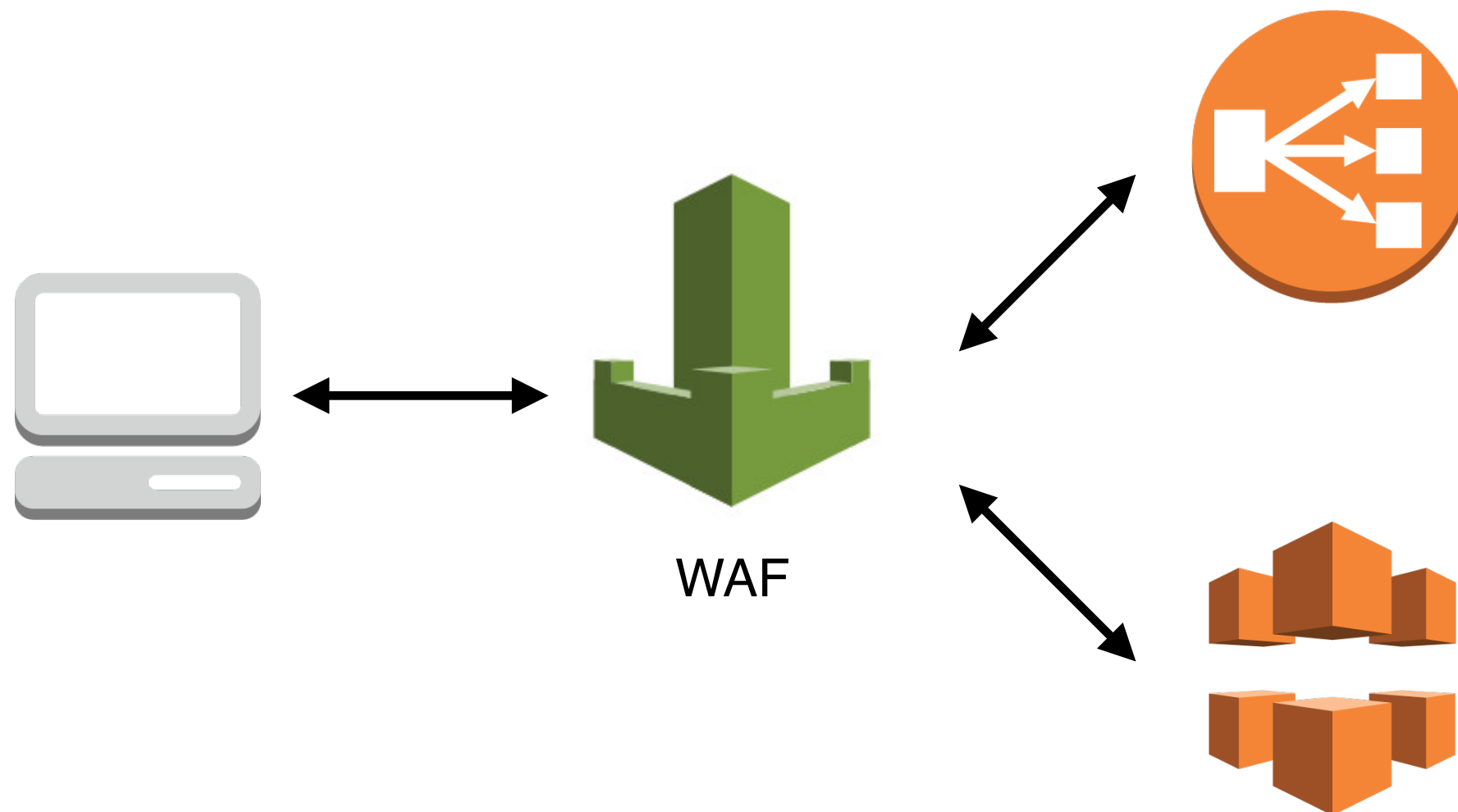


BASICS

- ▶ VPC
- ▶ Security groups
- ▶ Encryption & Certificates
- ▶ IAM (users, resources, groups, policies)



WEB APPLICATION FIREWALL





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HOW DO I MONITOR ALL OF THIS?

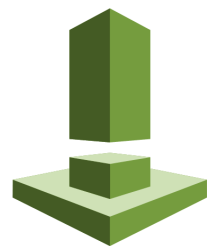


MONITORING

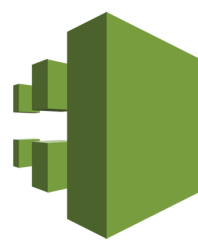


CloudWatch

INFRASTRUCTURE



Inspector



CloudTrail



Config

APP



X-Ray



Pinpoint



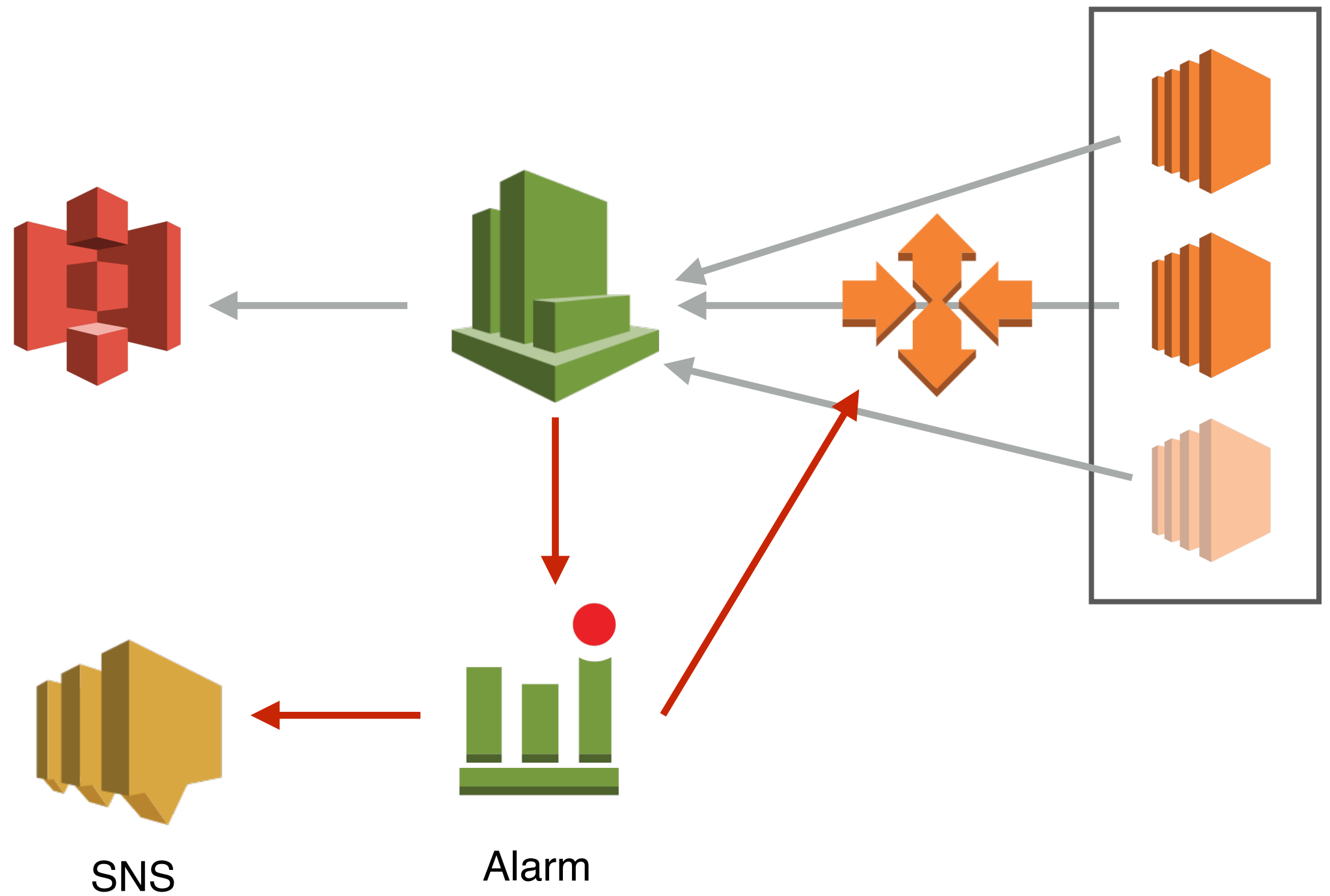
MONITORING

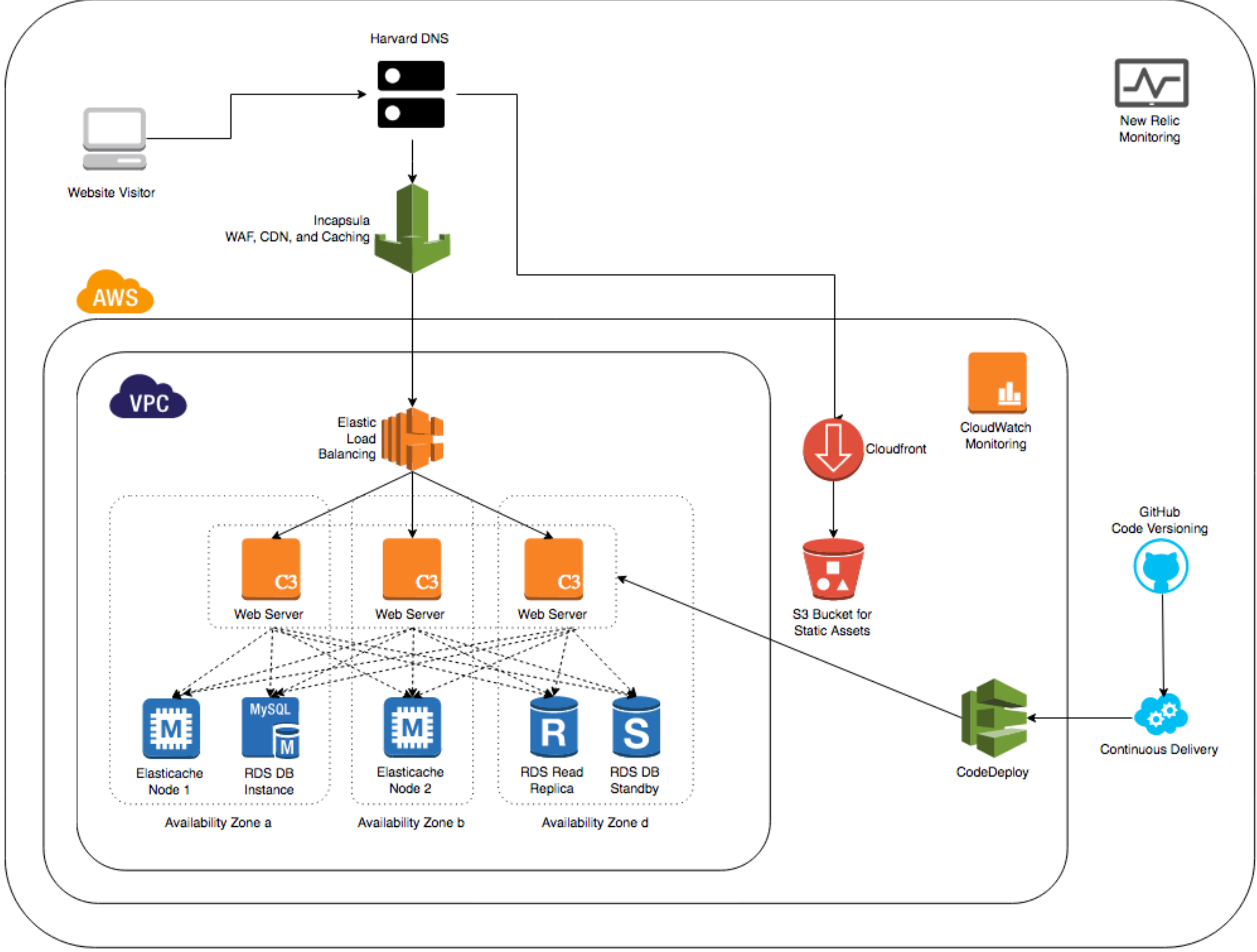


- ▶ EC2, ASG, ELB, RDS, Route 53, Elasticache, ...
- ▶ Define metrics and alarms
- ▶ Store logs



MONITORING







INFRASTRUCTURE AS SOFTWARE



CloudFormation

JSON templates
AWS Infrastructure

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QUESTIONS?

Slides: <https://hsph.me/wpcampus17-aws>

Feedback: <https://2017.wpcampus.org/session-survey/549>



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