BeSA

Week 7

18th June, 2022

Agenda

1. Monitoring and Autoscaling

2. The Three Pillars of Observability

   - James

3. STAR Technique

   - Jamila

Monitoring in AWS

Amazon CloudWatch


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Why Monitor?

Why monitoring is important?

Performance

Utilization

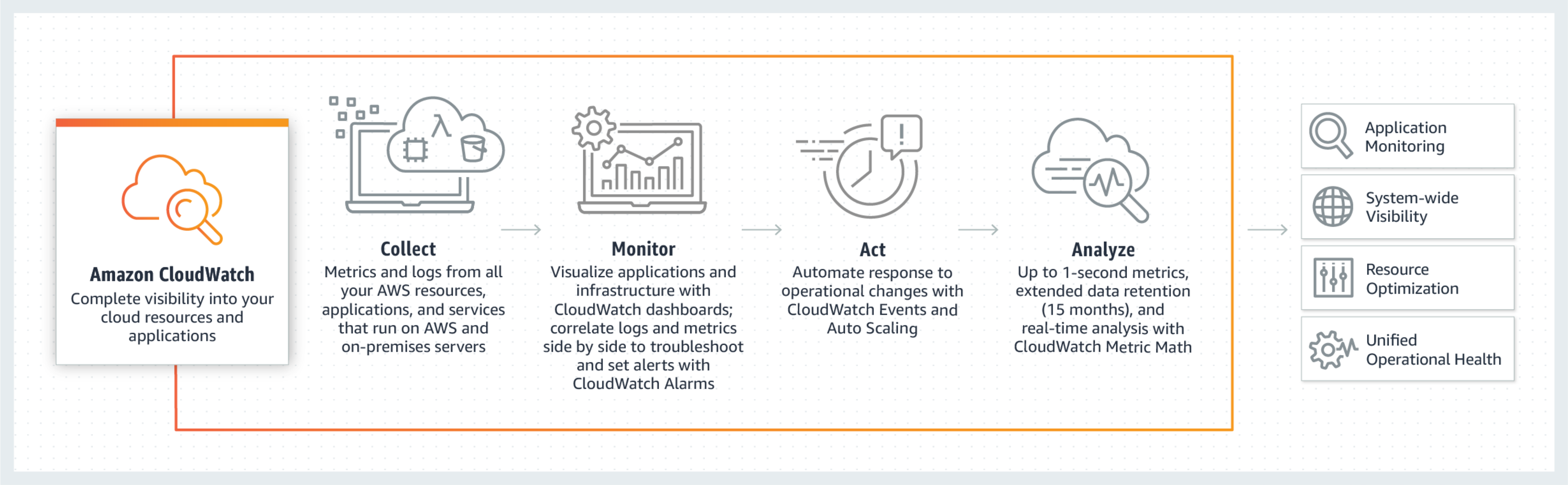
Health

Security

Amazon CloudWatch

Amazon CloudWatch

- Amazon CloudWatch is a monitoring and observability service.



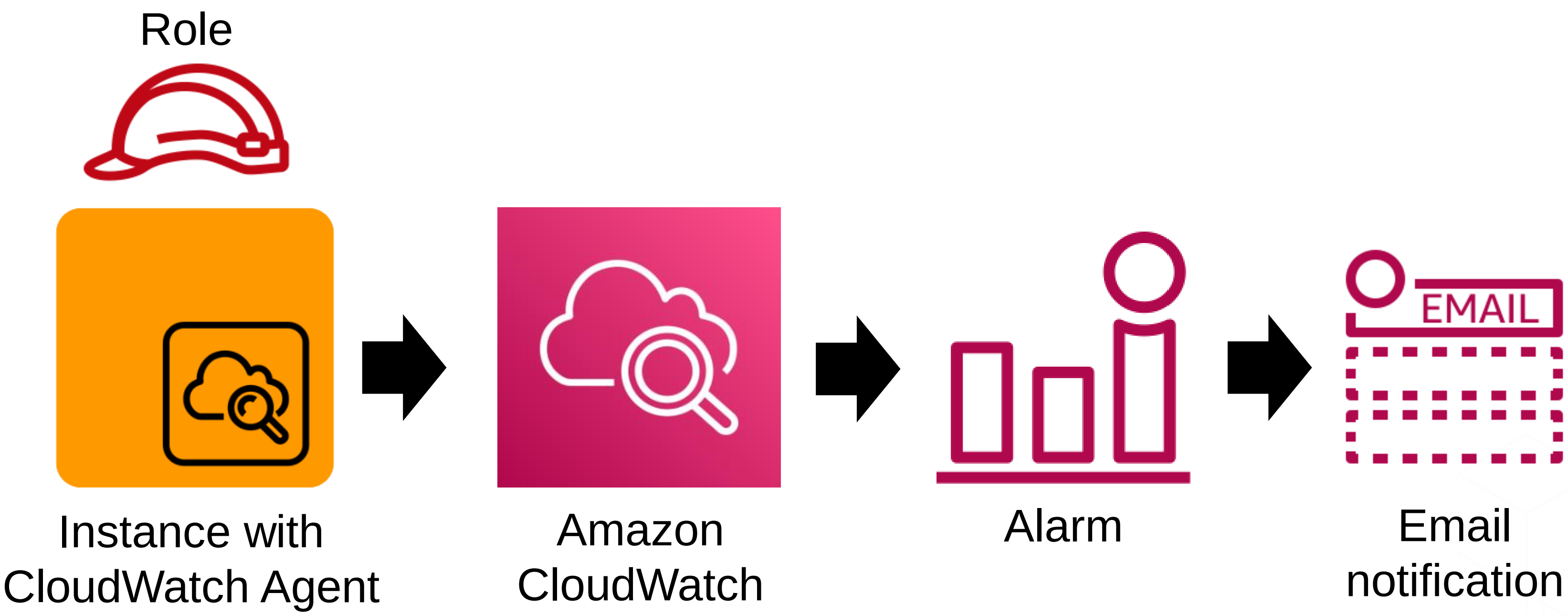
- CloudWatch collects monitoring and operational data in the form of logs, metrics, and events, and visualizes it using automated dashboards so you can get a unified view of your AWS resources, applications, and services that run on AWS and on premises.

Amazon CloudWatch – Terminology

- Metrics
  - Metrics are data about the performance of your system
    - Example – Amazon EC2 Instance: CPU Utilization
- Events
  - Amazon CloudWatch Events (now EventBridge) delivers a near real-time stream of system events that describe changes in Amazon Web Services (AWS) resources.
    - Example – Amazon EC2 instance changes from *running* to *stopping*
- Alarm
  - Allows you to receive notifications or trigger an action when the metrics fall outside of the levels (high or low thresholds) that you configure
    - Example – Email an administrator if CPU utilization of an Amazon EC2 instance is above 80% from last 10 minutes

Amazon CloudWatch Metrics for Amazon EC2

- Standard Metrics
- Custom Metrics



Installing Amazon CloudWatch Agent using UserData Script

- #!/bin/bash
- yum update -y
- sudo yum install -y perl-Switch perl-DateTime perl-Sys-Syslog perl-LWP-Protocol-https perl-Digest-SHA.x86_64
- cd /home/ec2-user/
- curl https://aws-cloudwatch.s3.amazonaws.com/downloads/CloudWatchMonitoringScripts-1.2.2.zip -O
- unzip CloudWatchMonitoringScripts-1.2.2.zip
- rm -rf CloudWatchMonitoringScripts-1.2.2.zip

Sending Custom EC2 Metrics to CloudWatch

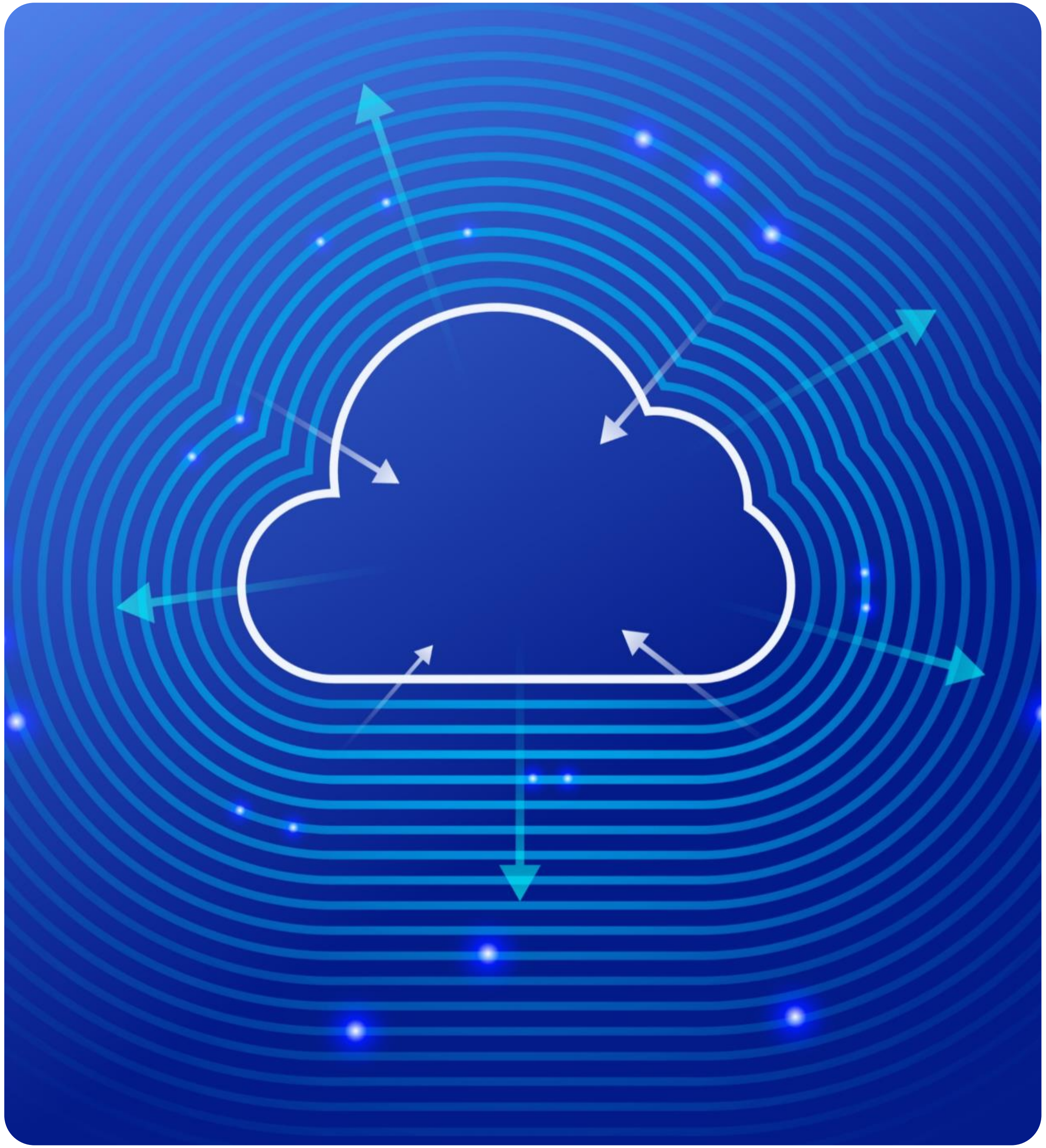
- Verify the access to Amazon Cloudwatch

  # /home/ec2-user/aws-scripts-mon/mon-put-instance-data.pl --mem-util --verify --verbose

- Send Metrics

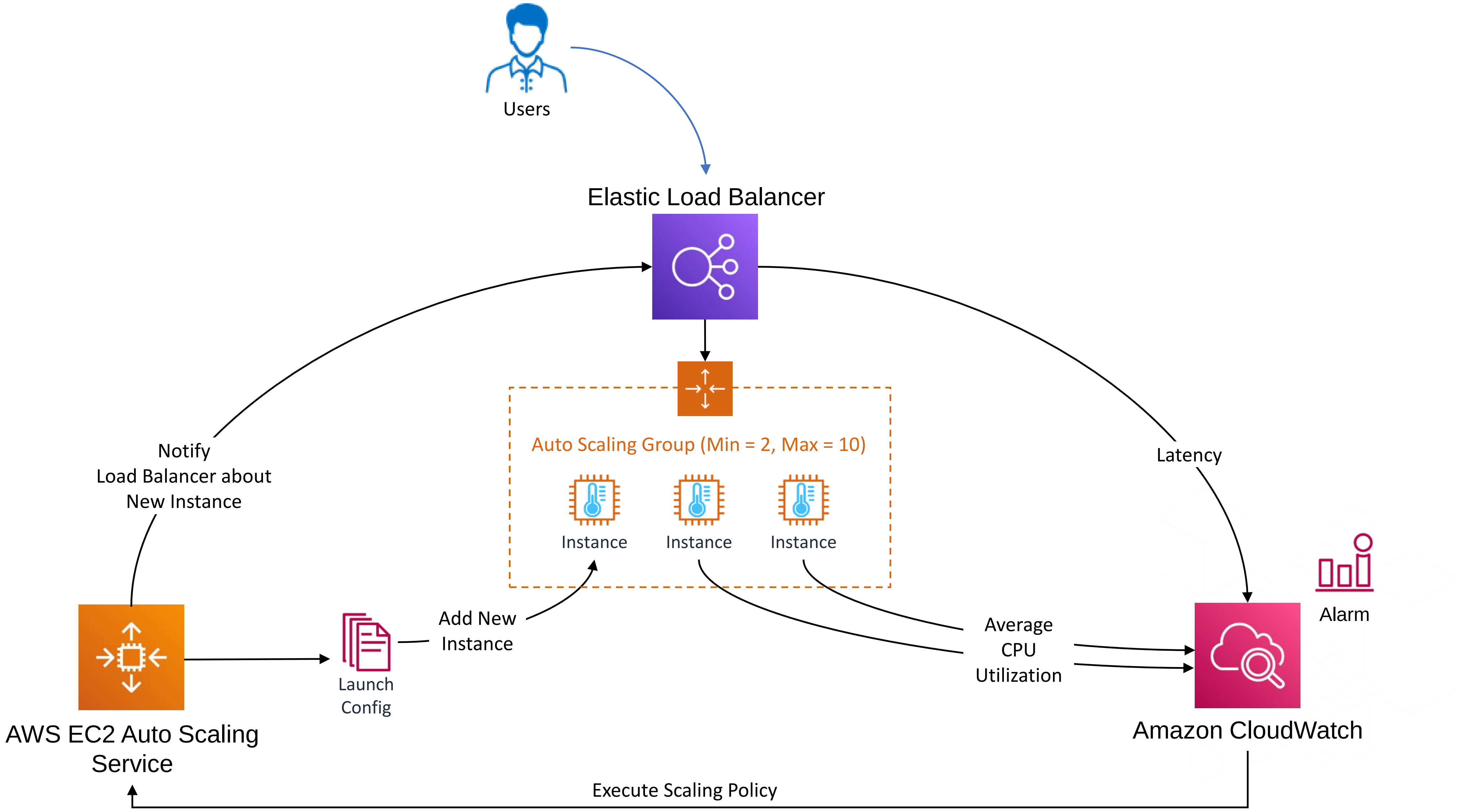
  # /home/ec2-user/aws-scripts-mon/mon-put-instance-data.pl --mem-util --mem-used --mem-avail

- Automating through Cronjob
  - # sudo su
  - # vi /etc/crontab
  - # */1 * * * * root /home/ec2-user/aws-scripts-mon/mon-put-instance-data.pl --mem-util --mem-used --mem-avail



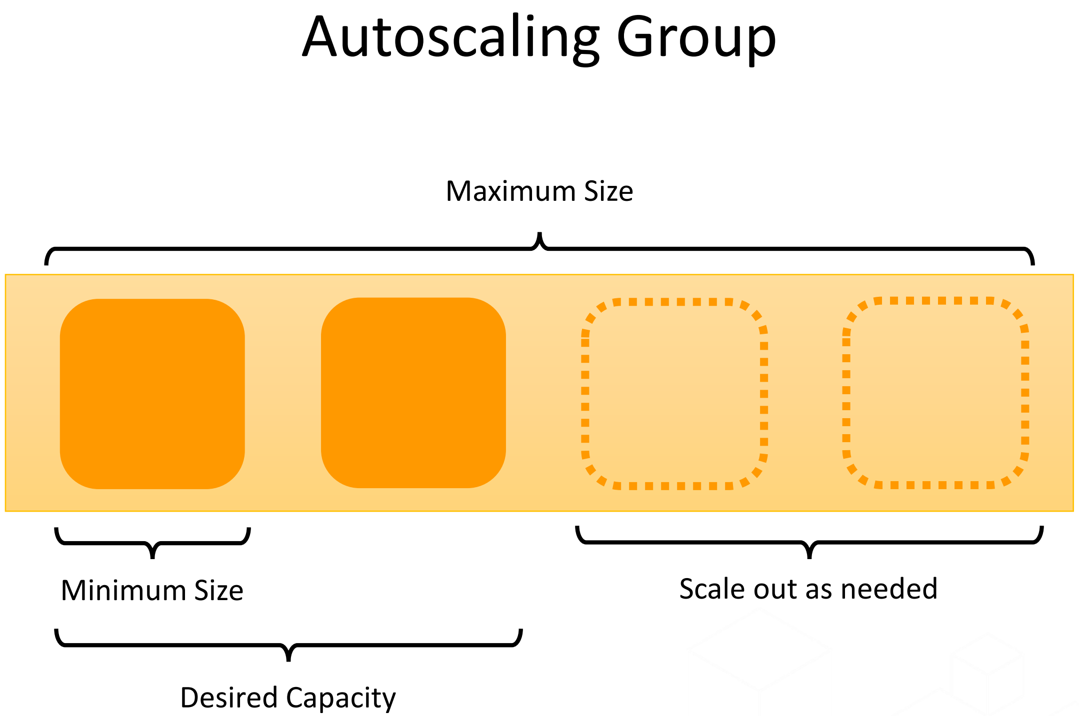
Amazon EC2 Auto Scaling

Amazon EC2 Auto Scaling



Autoscaling Group

- Min, Max and Desired
- Different Instance Types
- Different Billing Family
- Across Availability Zones



Generate Load for testing

```
#   sudo amazon-linux-extras install epel
#   sudo yum -y install stress
#   uptime
#   sudo stress --cpu 8 -v --timeout 3000s
```

Configuring Autoscaling

Create a Base/Golden Template → Create a Launch Configuration → Configure AutoScaling Group

Autoscaling Policies

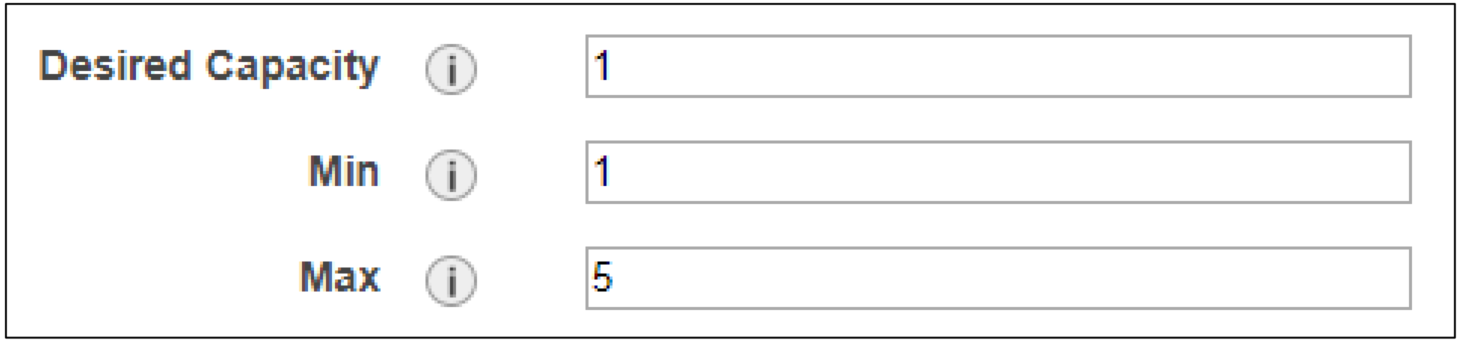
Manual
Scaling

Scheduled
Scaling

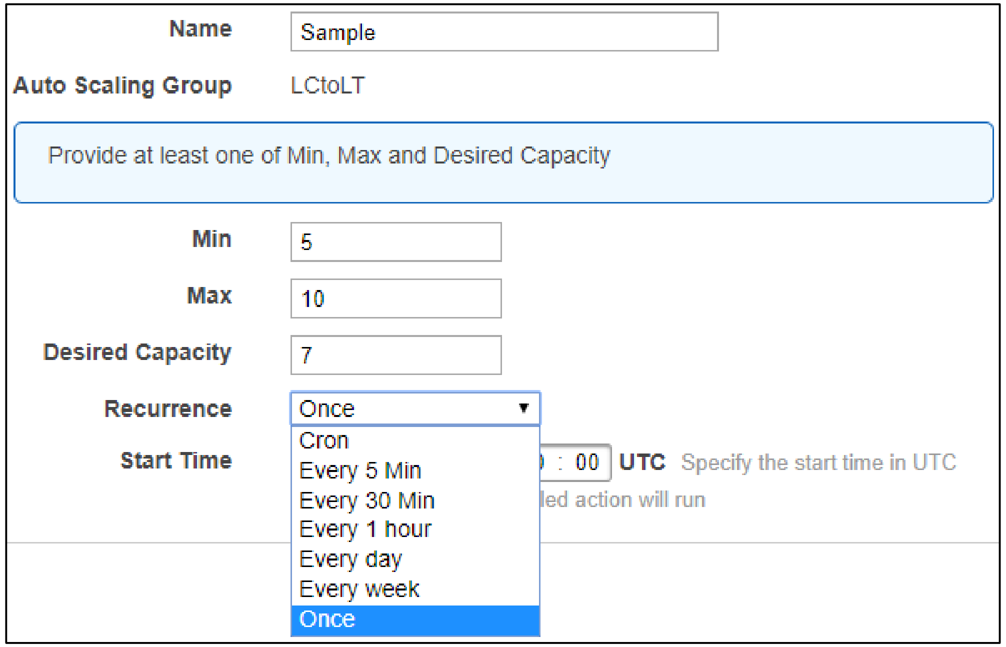
Dynamic
Scaling

Predictive
Scaling

Manual Scaling

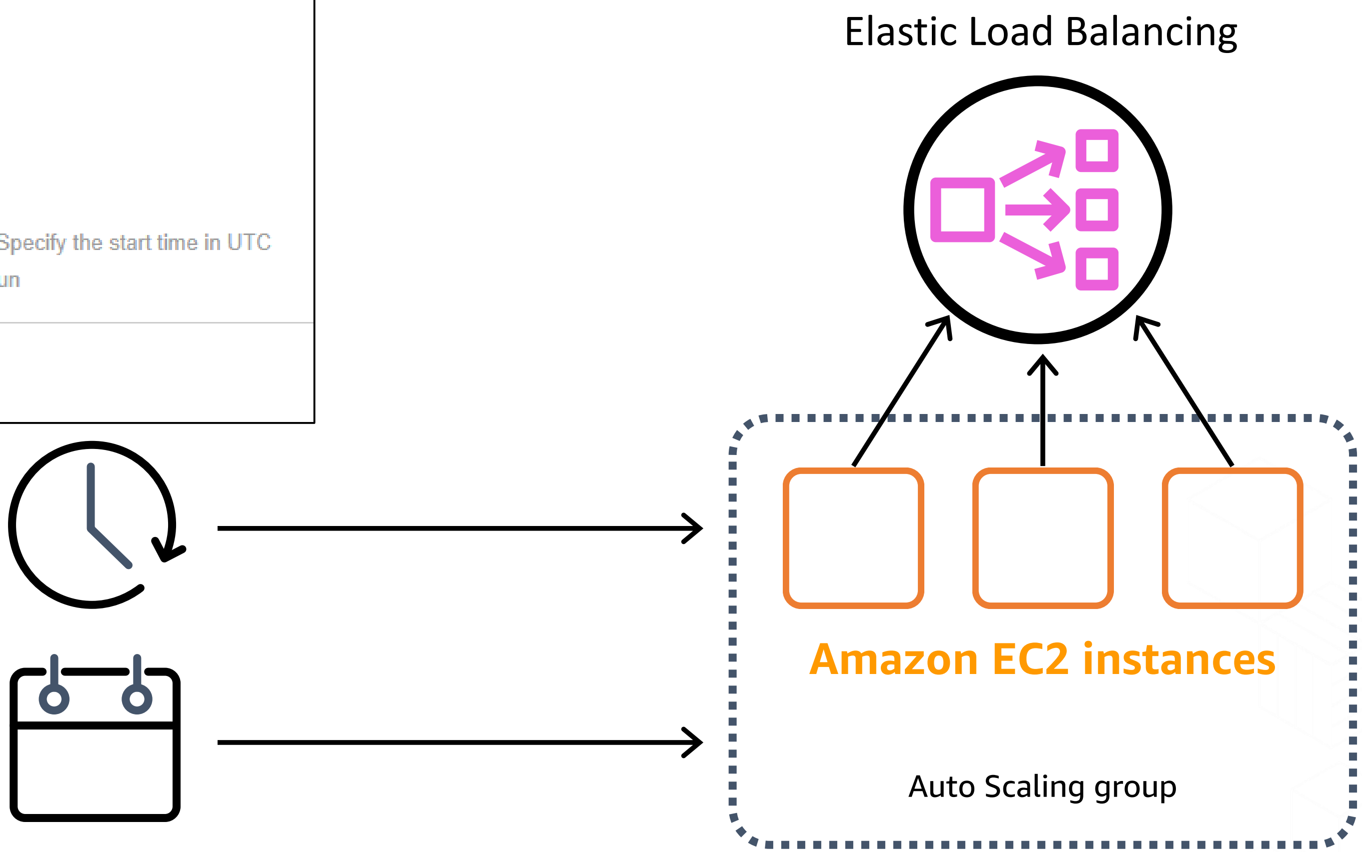


Scheduled scaling

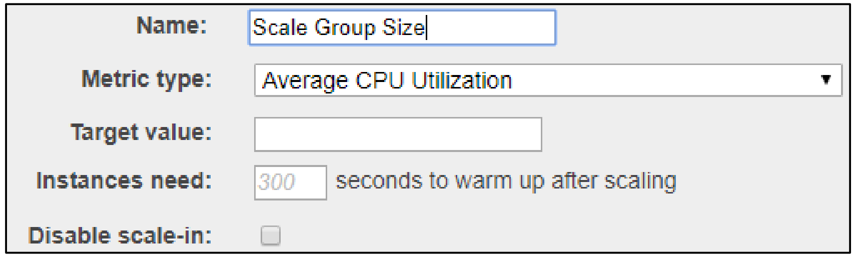


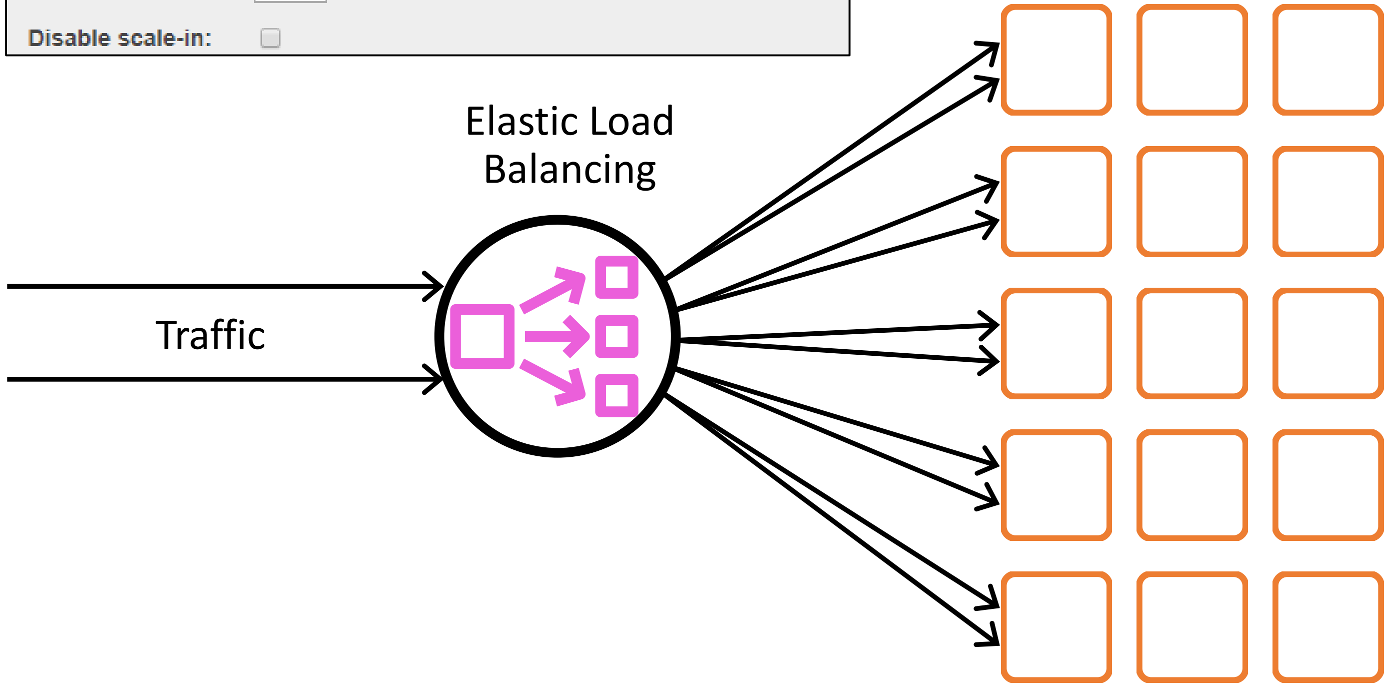
Recurring scaling events

Schedule individual events

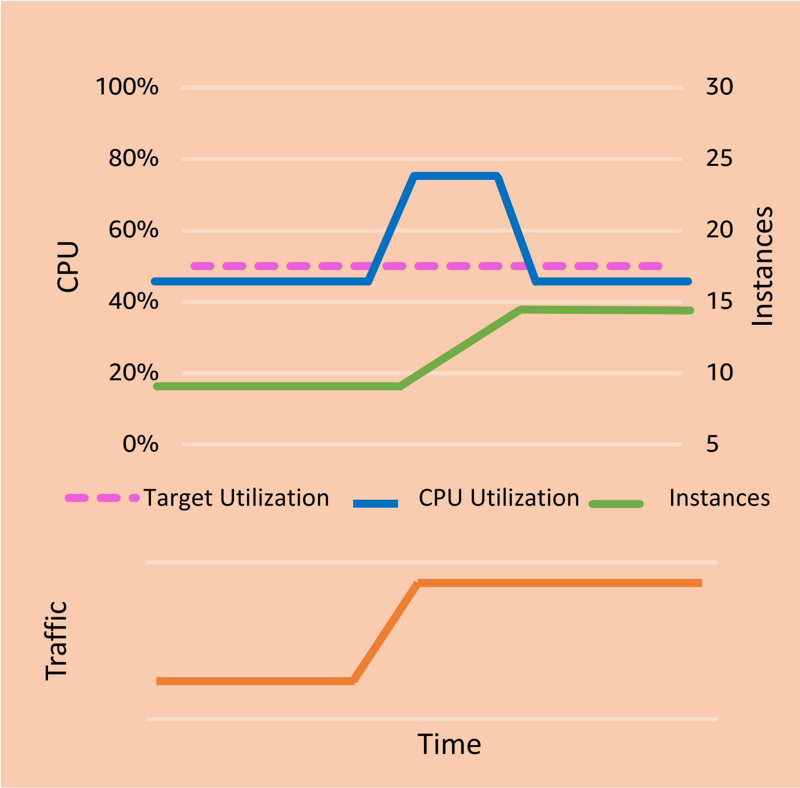


Dynamic scaling with target tracking

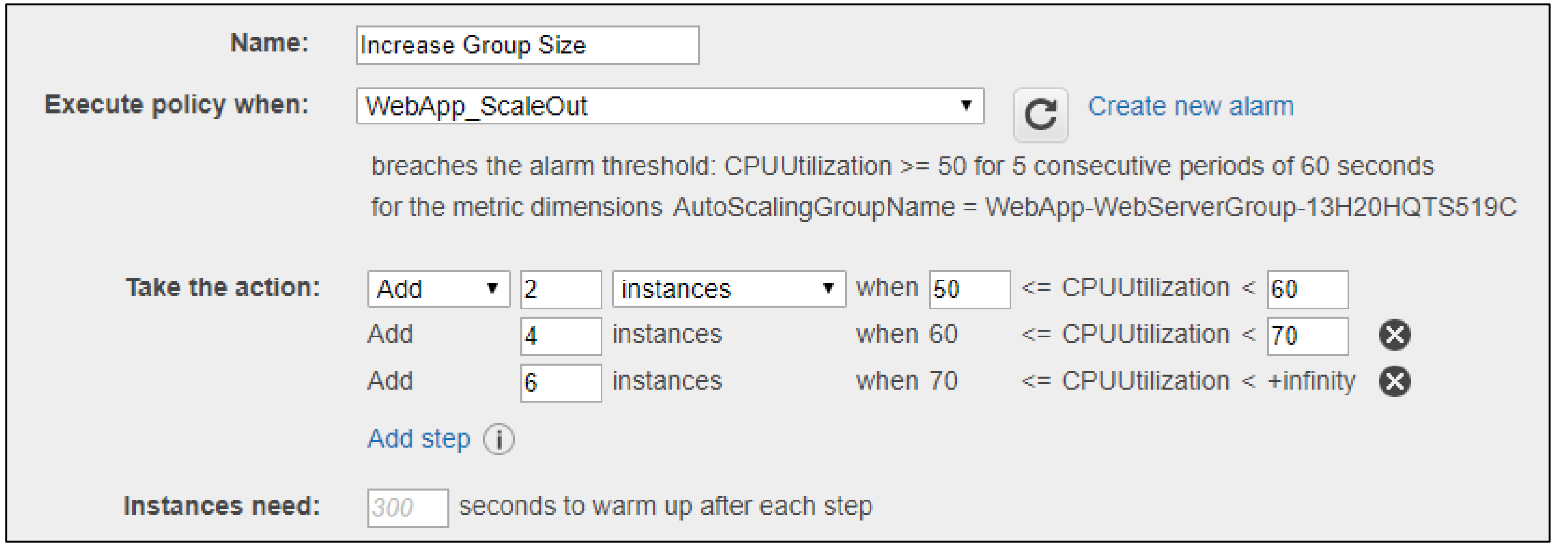


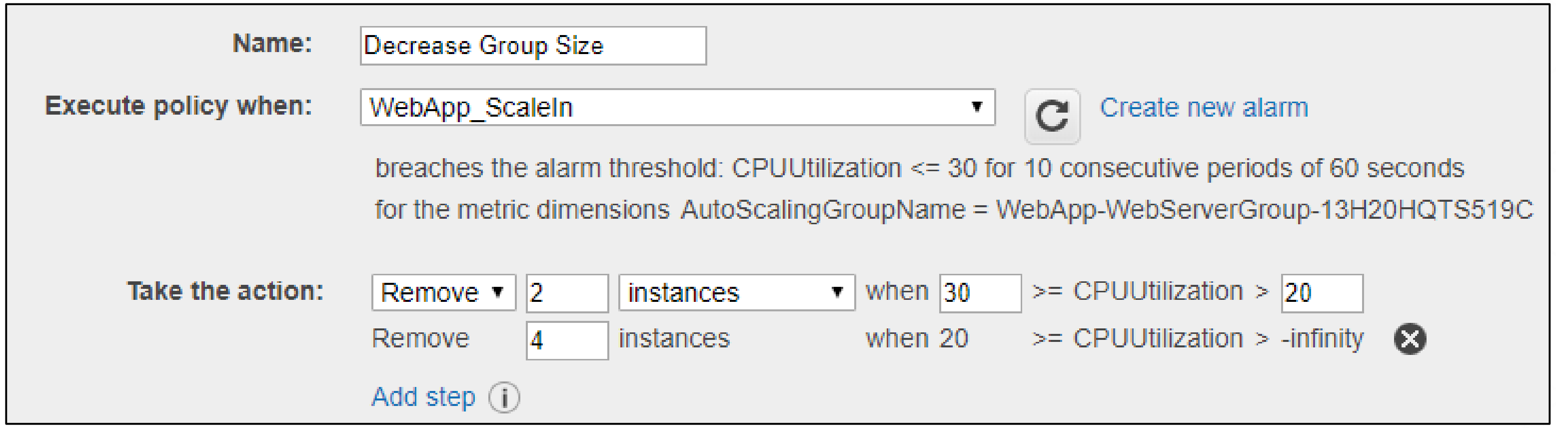


Amazon EC2 instances



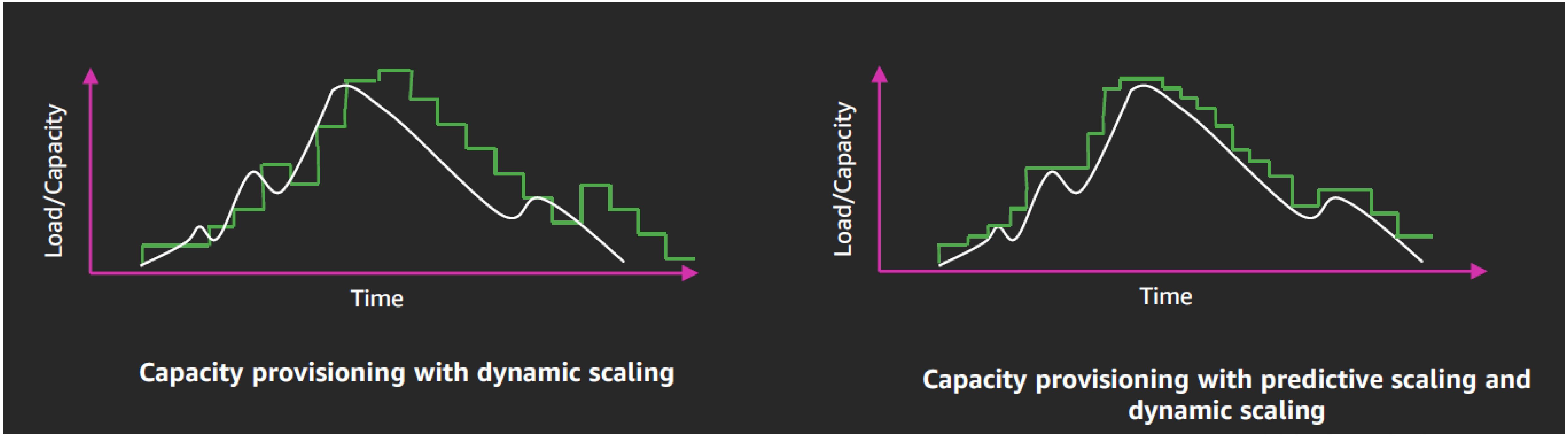
Dynamic scaling with step scaling





Predictive Scaling

- With predictive scaling, AWS Auto Scaling analyzes the history of the specified load metric from the past 14 days (minimum of 24 hours of data is required) to generate a forecast for two days ahead.
- It then schedules scaling actions to adjust the resource capacity to match the forecast for each hour in the forecast period.



How Netflix uses Autoscaling?

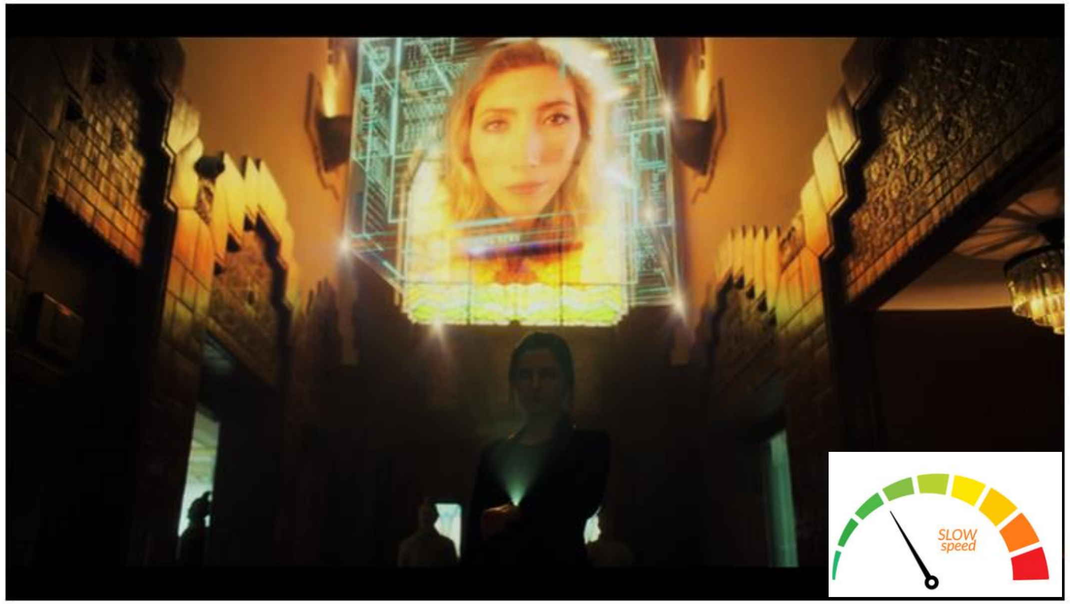
NETFLIX

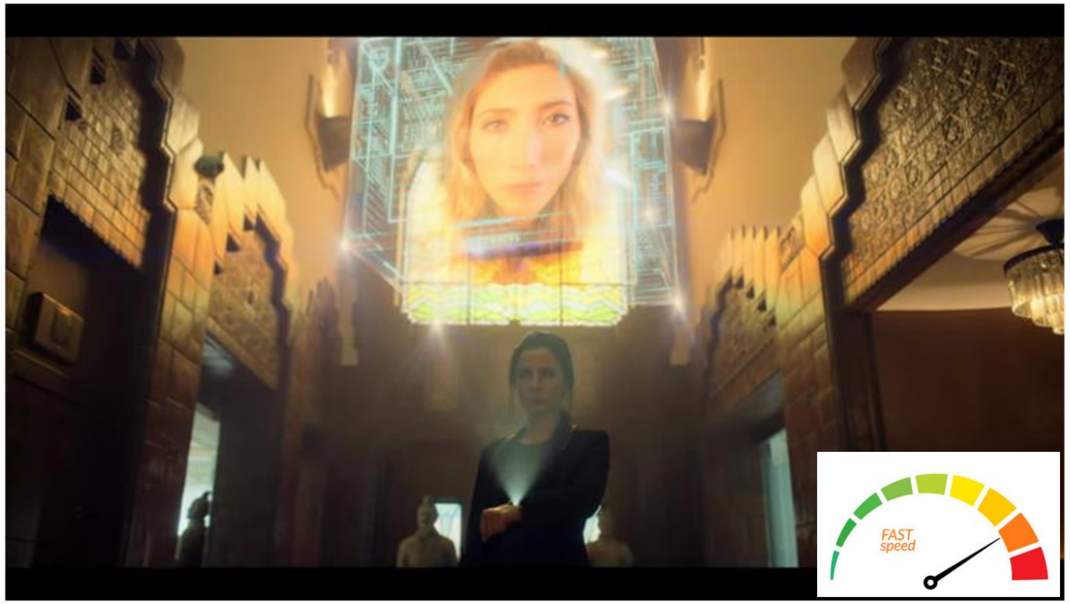
Data from 2018

- 137+ million subscribers
- 190+ countries
- 1700+ supported device types

AWS

- Three regions
- 250,000+ reserved instances
- 20,000 Auto Scaling groups





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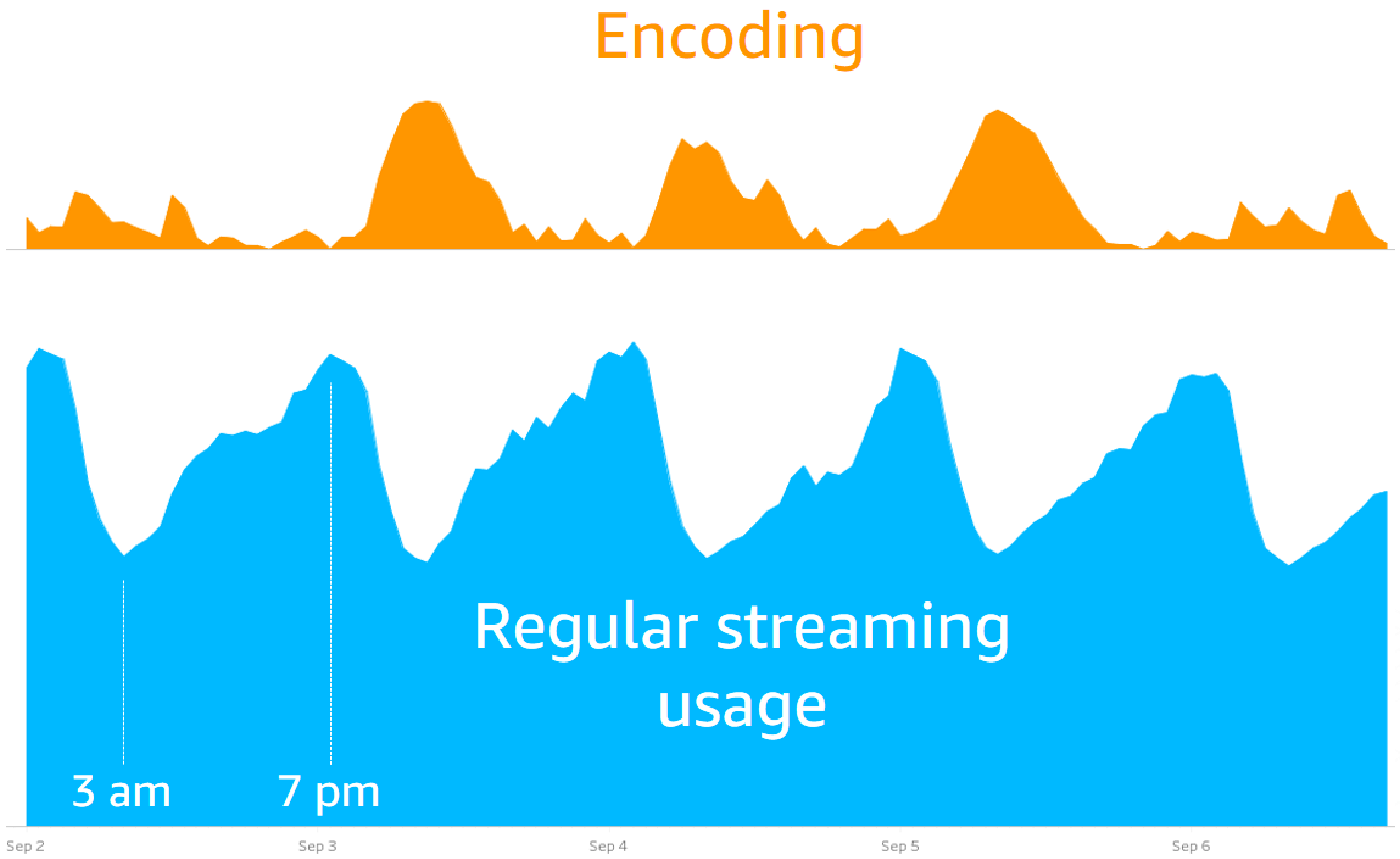

The Three Pillars of Observability

- James

‘STAR’ Technique

- Jamila

‘STAR’ Technique to Answer Behavioural Interview Questions

S T A R

SITUATION

- Detail the background.
- Provide a context.
- Where? When?

TASK

- Describe the challenge and expectations.
- What needed to be done?
- Why?

ACTION

- Elaborate specific action.
- What did you do? How?
- What tools did you use?

RESULT

- Explain the results:
  - Accomplishments
  - Recognition
  - Savings, etc.
- Quantify.

Thank you for attending. See you next Saturday (25-Jun-2022)

BeSA

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