

AWS CERTIFIED

CLOUD

PRACTITIONER



Cloud Concepts



**AMBER ISRAELSEN**

Developer | Technical Trainer

# Course Outline

Course  
Introduction

Cloud Concepts

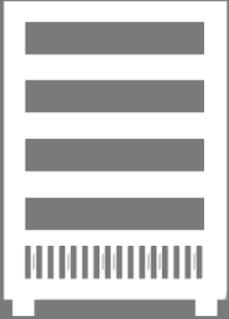
Security and  
Compliance

Cloud  
Technology and  
Services

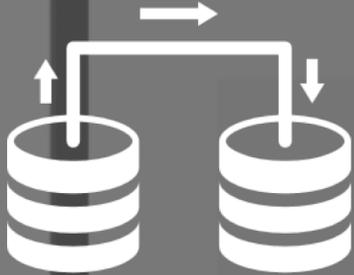
Billing, Pricing  
and Support

Preparing for  
the Exam





COMPUTE



DATABASE



STORAGE



NETWORKING



SECURITY



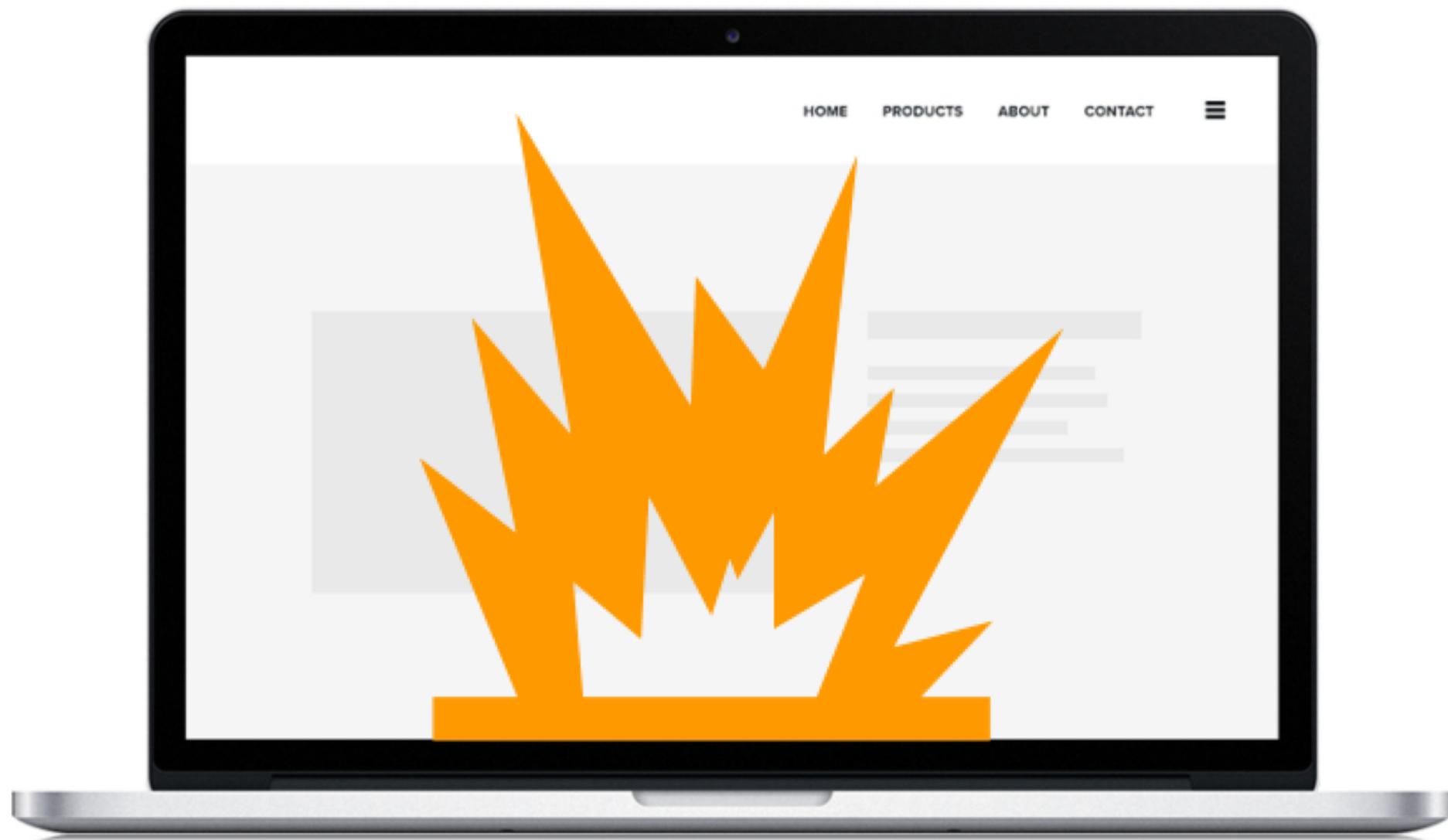




```
border: 1px solid rgba(255, 255, 255, .5);
color: #fff;
}

/*
.btHardRoundedButtons any(select, textarea, input)
.btSoftRoundedButtons any(select, textarea, input)
/* Form elements */
select,
input {
  font-family: 'GreycliffCF-Regular', Arial, Helvetica, sans-serif;
  font-weight: normal;
  font-style: normal;
}
input:not([type='checkbox']):not([type='radio']),
button {
  -webkit-appearance: none;
}
input:not([type='checkbox']):not([type='radio']),
textarea,
select {
  outline: none;
  font: inherit;
  width: 100%;
  background: transparent;
  line-height: 1;
  font-family: 'GreycliffCF-Heavy', Arial, Helvetica, sans-serif;
  font-weight: normal;
  font-style: normal;
  font-size: .8em;
  width: 100%;
  display: block;
  padding: .8em;
  background: transparent;
}
.btTextRight input:not([type='checkbox']),
.btTextRight textarea,
.btTextRight select {
  text-align: right;
}
input:not([type='checkbox']):not([type='radio']),
select {
  height: 3.2em;
}
.btHardRoundedButtons input:not([type='checkbox']),
.btHardRoundedButtons a.select2-choice {
  border-radius: 50px;
}
.btSoftRoundedButtons input:not([type='checkbox']),
.btSoftRoundedButtons a.select2-choice {
  border-radius: 3px;
}
.btHardRoundedButtons textarea,
.btHardRoundedButtons select {
```





# The Solution

## IN THE PAST

Do a better job estimating demand

Invest in more infrastructure

Hire more people

## NOW

Move to the cloud!



All the  
**STUFF AND THINGS**  
required to run my  
website



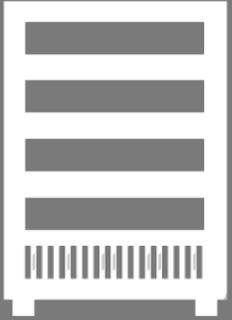


A close-up, low-angle shot of a single, glowing Edison-style light bulb hanging from above. The bulb is the primary focus, with its intricate filament structure clearly visible. It is surrounded by a soft, warm glow. In the background, numerous other similar light bulbs are visible, but they are out of focus, creating a bokeh effect of warm, golden-yellow circles against a dark, almost black background. A semi-transparent, dark brown horizontal band runs across the upper portion of the image, serving as a backdrop for the text.

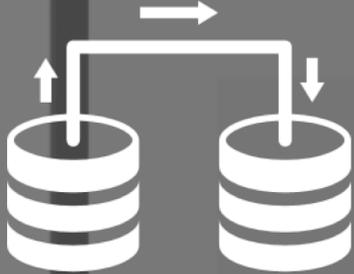
Pay for what you use



Use it when you need it  
Pay for what you use



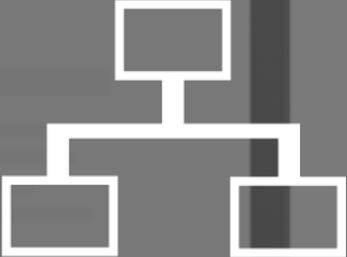
COMPUTE



DATABASE



STORAGE

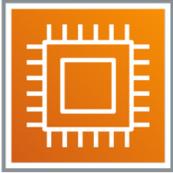


NETWORKING



SECURITY

# Foundational Services



**COMPUTE:** Elastic Compute Cloud (EC2)



**DATABASE:** Relational Database Service (RDS) and DynamoDB



**STORAGE:** Simple Storage Service (S3)



**NETWORKING:** Virtual Private Cloud (VPC)



**SECURITY:** Identity and Access Management (IAM)

# Benefits (Part 1)

TERM	DESCRIPTION	EXAMPLE
<b>Elasticity</b>	The ability to adapt to workload changes (usually dynamic, short-term)	Amazon.com handling a huge spike in traffic on Prime Day
<b>Scalability</b>	The ability to handle increased workloads by adding resources (usually more static, long-term)	Scale up a database because the size has grown over time
<b>High availability</b>	The ability to continue functioning, even if some components fail	When a power outage causes one data center to go down, traffic is routed to another
<b>Reliability</b>	The ability to function consistently and correctly when expected	99.99% uptime for EC2 instances during a given month
<b>Agility</b>	The ability to rapidly develop, test and launch applications to deliver business value	Launch a new business application in days rather than months



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# Benefits (Part 2)

<b>TERM</b>	<b>DESCRIPTION</b>	<b>EXAMPLE</b>
<b>Global reach</b>	The ability to get closer to your customers through a global infrastructure	26 geographic regions around the world
<b>Pay-as-you-go pricing</b>	Only pay for what you use, and only when you need it	An EC2 instance only used for 2 hours; only pay for 2 hours
<b>Economies of scale</b>	Because of their size, AWS can purchase things more cheaply than an individual organization can	Amazon purchases servers at a fraction of the cost that you could, and pass the savings on to you

## Benefits (Part 2)

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# Economics of AWS

Total cost of ownership

Capital expenses

Operational expenses

Software licensing costs



- Insurance
- Taxes and registration
- Repairs/maintenance
- Gas/petrol
- Parking
- Wear and tear
- Depreciation



# TOTAL COST OF OWNERSHIP (TCO)

Up-front cost + cost to operate

CAPITAL EXPENSE  
("CapEx")

OPERATING EXPENSE  
("OpEx")

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# Ways to Reduce Costs in AWS

Right-sized infrastructure

Automation

Compliance scope

Managed services

Cloud  
Architecture  
Design  
Principles

Design for failure

“Everything  
fails all the  
time.”

**WERNER VOGELS**  
AWS Chief Technology Officer

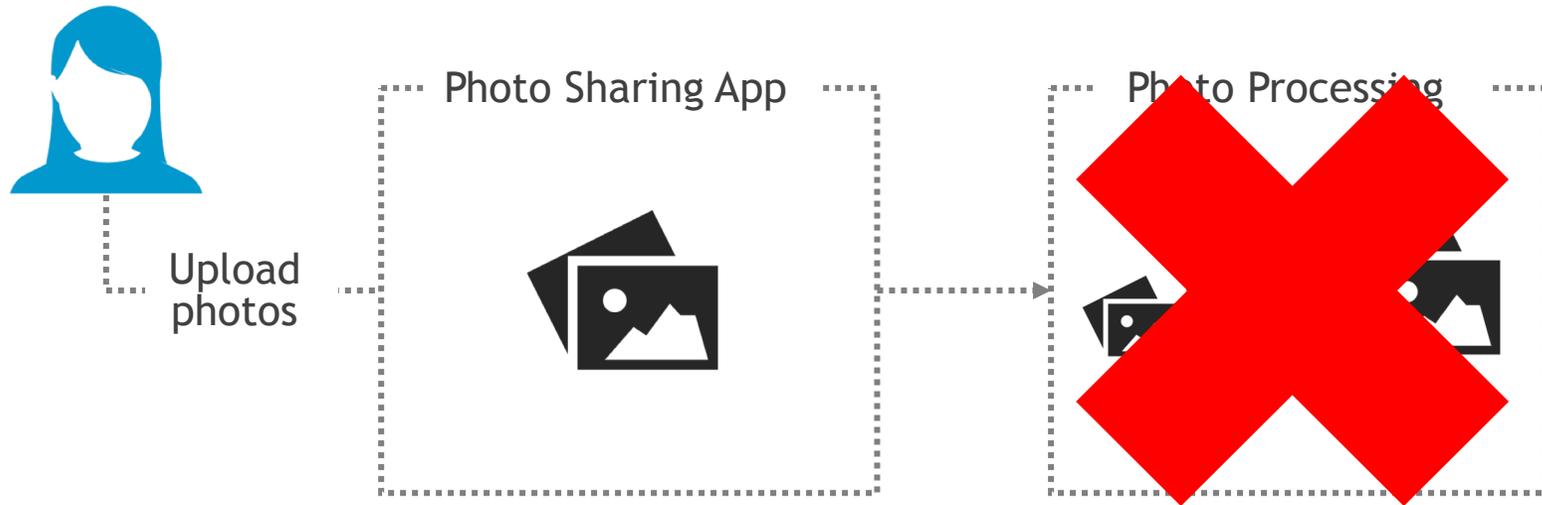


# Cloud Architecture Design Principles

Design for failure

Decouple components

# Photo Sharing Example



# Photo Sharing Example



Upload photos

Photo Sharing App



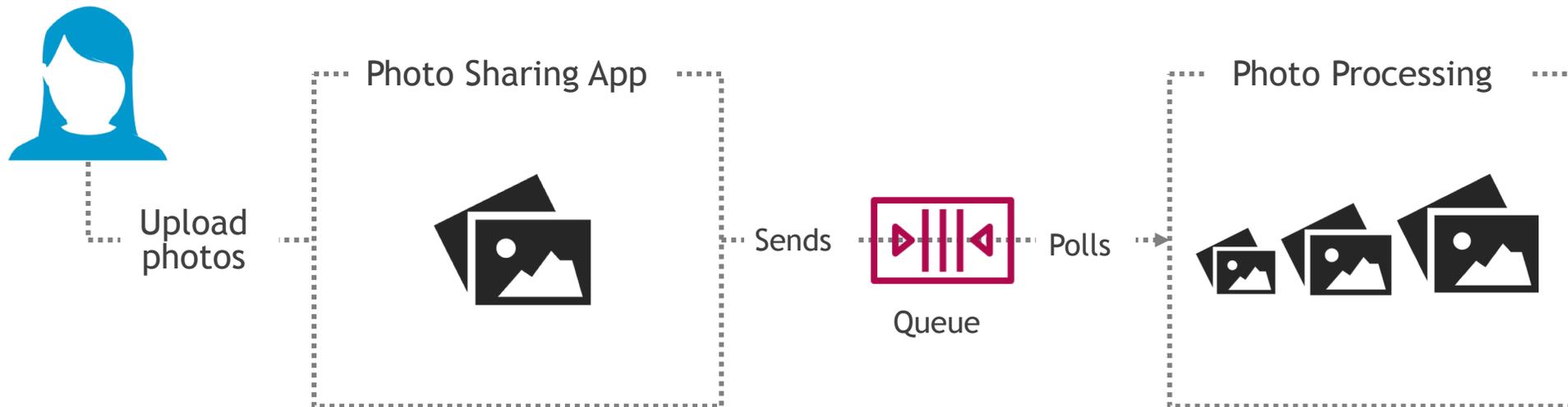
Photo Processing



# Tightly coupled

# Loose Coupling

## Microservices (vs. Monolithic)



# Cloud Architecture Design Principles

Design for failure

Decouple components

Implement elasticity

# Cloud Architecture Design Principles

Design for failure

Decouple components

Implement elasticity

Think parallel

# Think Parallel



**1 SERVER**  
**24 HOURS**



**24 SERVERS**  
**1 HOUR**

# Cloud Adoption Framework (CAF)

Leverages AWS experience and best practices to transform and accelerate business outcomes by using AWS

# Get Report

[Report](#) | [Heat Map](#) | **Score** | [Radar](#)

## Assessment Scores

### Business Section



Strategy management - 2

Portfolio management - 2

Innovation management - 2

Product management - 2

Strategic partnership - 3

Data monetization - 4

Business insights - 2

Data science - 3

### People Section



Culture evolution - 2

Transformational leadership - 4

Cloud fluency - 3

Workforce transformation - 1

Change acceleration - 2

Organization design - 2

Organizational alignment - 3

### Governance Section



Program and project management - 2

### Platform Section



Platform architecture - 2

## Get Your Full Report Now

\* First Name

\* Last Name

\* Phone Number

\* Email

\* Job Title

\* Company

\* Company Size

\* Industry

# Cloud Adoption Framework (CAF)

## Six pillars

- Business
- People
- Governance
- Platform
- Security
- Operations

# Important Points to Remember

## BENEFITS

- Global reach: data centers around the world
- High availability: continue functioning even when one component (server, data center, etc.) goes down
- Cost savings: reduces up-front costs (“CapEx”) and ongoing costs (“OpEx”)
  - Only pay for what you use
  - Right-sizing infrastructure means you don’t have to “guess” capacity
  - Managed services reduce your IT overhead/spend

## DESIGN PRINCIPLES

- Design for failure: assume things will fail, and architect for that
- Loose coupling: reduces the dependencies between components
- Elasticity: ability to scale resources up and down based on needs
- Reliability: perform an intended function correctly and consistently when expected to
- Review the Well-Architected Framework:  
<https://docs.aws.amazon.com/wellarchitected/latest/framework/welcome.html>

# Important Points to Remember

## CLOUD ADOPTION FRAMEWORK (CAF)

- Leverage AWS experience and best practices to transform and accelerate business outcomes by using AWS
- Understand what makes up the six pillars
  - Business
  - People
  - Governance
  - Platform
  - Security
  - Operations
  - <https://docs.aws.amazon.com/whitepapers/latest/overview-aws-cloud-adoption-framework/foundational-capabilities.html>