AWS Reference Architectures

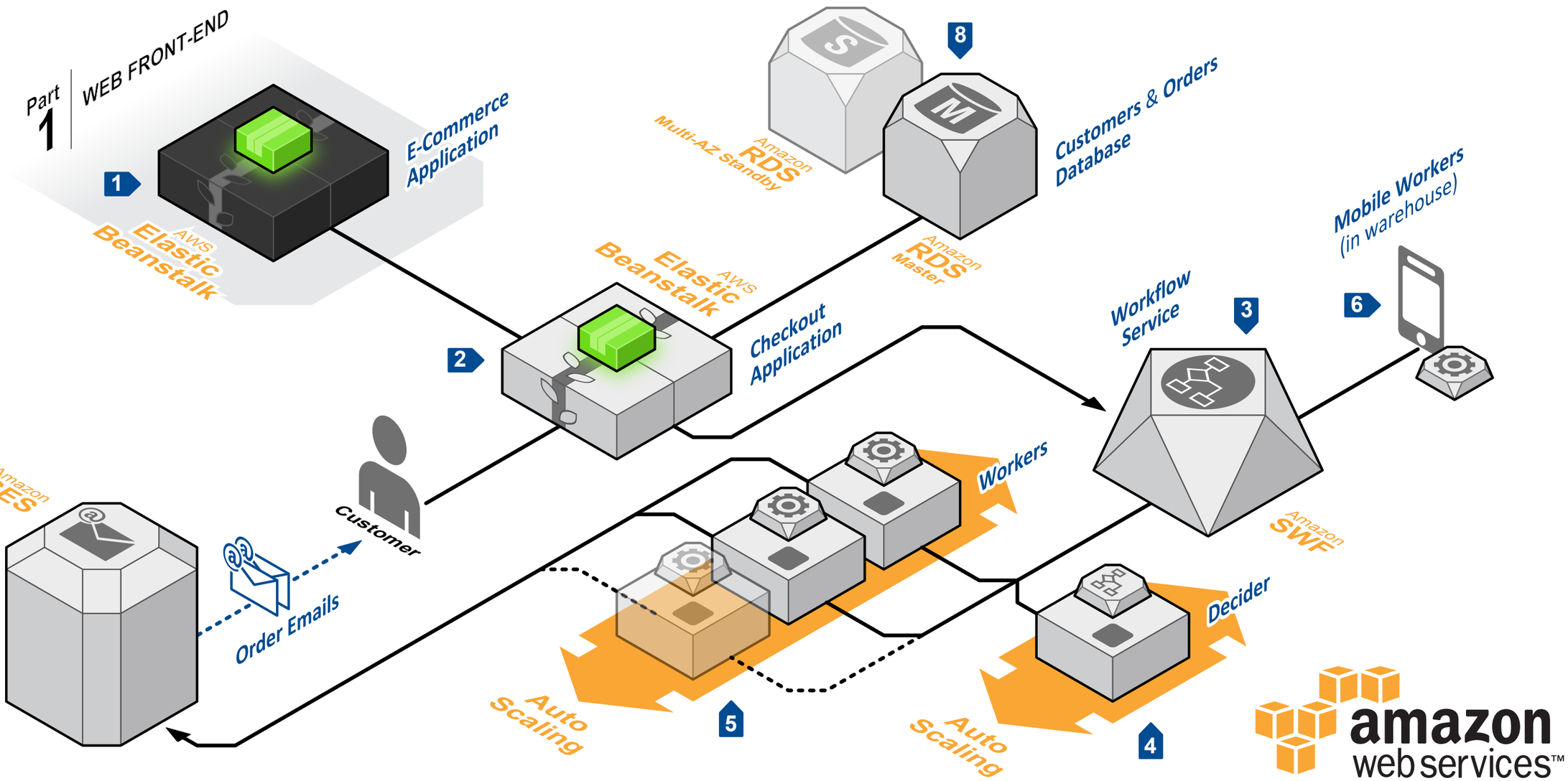
- Amazon VPC
- Amazon SWF
- Elastic Beanstalk
- Amazon RDS
- Amazon EC2
- Amazon SES

E-COMMERCE WEB SITE

PART 2: CHECKOUT SERVICE

With Amazon Web Services, you can build a secure and highly available checkout service for your e-commerce website that scales with your business. Managing the checkout process involves many steps, which have to be coordinated. Some steps, such as credit card transactions, are subject to specific regulatory requirements. Other parts of the process involve manual labor, such as picking, packing, and shipping items from a warehouse.

Customers expect their private data, such as their purchase history and their credit card information, to be managed on a secure infrastructure and application stack. AWS has achieved multiple security certifications relevant to e-commerce business, including the Payment Cards Industry (PCI) Data Security Standard (DSS).
With the tools that AWS provides, you can build a secure checkout service that manages the purchasing workflow from order to fulfillment.



System Overview

1 The e-commerce web front end redirects the customer to an SSL-encrypted checkout application to authenticate the customer and execute a purchase.

2 The checkout application, which is deployed by **AWS Elastic Beanstalk**, uses **Amazon Simple Workflow Service** (Amazon SWF) to authenticate the customer and trigger a new order workflow.

3 **Amazon SWF** coordinates all running order workflows by using **SWF Deciders** and **SWF Workers**.

4 The **SWF Decider** implements the workflow logic. It runs on an **Amazon Elastic Compute Cloud** (Amazon EC2) instance within a private subnet that is isolated from the public Internet.

5 **SWF Workers** are deployed on **Amazon EC2** instances within a private subnet. The EC2 instances are part of an **Auto Scaling** group, which can scale in and out according to demand. The Workers manage the different steps of the checkout pipeline, such as validating the order, reserving and charging the credit card, and triggering the sending of order and shipping confirmation emails.

6 **SWF Workers** can also be implemented on **mobile devices**, such as tablets or smartphones, in order to integrate pick, pack, and ship steps into the overall order workflow.

7 **Amazon Simple Email Service** (Amazon SES) is used to send transactional email, such as order and shipping confirmations, to the customer.

8 To provide high availability, the customer and orders databases are hosted redundantly on a multi-AZ (multi Availability Zone) deployment of **Amazon Relational Database Service** (Amazon RDS)within private subnets that are isolated from the public Internet.