Total Cost of Ownership

This section describes how customers can reduce their overall costs by moving IT services to the cloud. The section outlines four types of costs that are reduced by cloud computing, and provides an example that illustrates these types.

Activity: AWS Pricing Calculator

For this activity, divide the students into teams of 4 or 5. Have each group use the AWS Pricing Calculator to estimate the costs for one of the following scenarios. After the students calculate the costs, they should present their findings to the class. Their presentations should include a summary of the solution, and they should describe why some of the parameters required by the calculator are important. For example, the ideal solution for the first scenario should explain the significance of selecting 1-Year Reserved Instance billing with no upfront costs for the Amazon EC2 service.

Scenario 1: Web application with an Amazon RDS-hosted database in the US East (Ohio) Region

Service	Data Required
Amazon Elastic Compute Cloud (Amazon EC2)	• Two Linux t3.2xlarge instances • 1-Year Standard Reserved billing with no upfront costs
Amazon Simple Storage Service (Amazon S3)	• 100 GB per month S3 Standard storage • 10,000 PUT, COPY, POST, or LIST requests • 5,000 GET, SELECT, and other requests • 1 GB data returned by S3 Select • 10 GB data scanned by S3 Select
Elastic Load Balancing	• Three Application Load Balancers • Average of 50 new connections/second per Application Load Balancer • Average connection time is 60 seconds • Average of 100 requests per second for each Application Load Balancer • Processed bytes per Application Load Balancer for EC2 instances and IP address as targets is 100 GB/month • 10 average number of rule evaluations per request
Amazon Route 53	• 5 hosted zones, not using traffic flow • 10 million standard queries per month • 10,000 basic Domain Name System (DNS) health checks within AWS • 20,000 basic DNS health checks outside of AWS • 10 elastic network interfaces • 2 million recursive average DNS queries per month
Amazon Relational Database Service (Amazon RDS)	• 2 RDS db.r5.8xlage standard instances that run MySQL • 100 GB of General Purpose storage • 30 GB additional backup storage

Scenario 2: Data streaming analysis system with Amazon Kinesis Data Streams and Amazon Redshift in the Asia Pacific (Tokyo) Region

Service	Data Required

Amazon Simple Storage Service (Amazon S3)	• 50 GB Standard storage:
	  ○ 10,000 PUT, COPY, POST, or LIST requests
	  ○ 10,000 GET, SELECT, and other requests
	• 100 GB S3 Intelligent-Tiering Storage (S3 Intelligent-Tiering)
	  ○ 50 percent of storage is not accessed in a 30-day period
	  ○ 10,000 PUT, COPY, POST, or LIST requests
	  ○ 50,000 GET, SELECT, and other requests from the data stored with S3 Intelligent-Tiering
	  ○ 1,000 requests per month for Lifecycle Transitions from S3 Standard into S3 Intelligent-Tiering-

Amazon Redshift	• One ds2.xlarge OnDemand with 10 GB additional backup storage • Two ds2.8xlarge with 1-Year No Upfront billing and 50 GB data scanned by Amazon Redshift Spectrum
Amazon Kinesis Data Streams	• 100 records per second • Estimated record size is 500 KB • Three consumer applications of the data

Scenario 3: Application using Amazon Simple Queue Service (Amazon SQS) and Amazon Athena in the Europe (Ireland) Region

Service	Data Required
Amazon Virtual Private Cloud (Amazon VPC)	• 100 virtual private network (VPN) connections with 50 percent utilization per month • 1 network address translation (NAT) Gateway processing 100 GB per month • 100 GB outbound data transfer per month • 10 GB inbound data transfer per month
Amazon Simple Queue Service (Amazon SQS)	• 100,000 requests per month in a standard queue • 10,000 requests per month in a FIFO queue • 50,000 GB outbound data transfer per month (All other Regions) • 20,000 GB inbound data transfer per month (All other Regions)
Amazon Athena	• 1,000 queries per day • 50 GB data scanned per query
AWS Lambda	• 10,000 requests • Duration of each request is 200 ms • 128 MB allocated memory