

A decorative graphic on the left side of the slide, consisting of a network of light blue lines and small circles, resembling a circuit board or a neural network, set against a dark blue background.

AN OVERVIEW OF AMAZON WEB SERVICES



INTRODUCTION

- ❑ IN 2006, AMAZON WEB SERVICES (AWS) BEGAN OFFERING IT INFRASTRUCTURE SERVICES TO BUSINESSES AS WEB SERVICES—NOW COMMONLY KNOWN AS CLOUD COMPUTING.
- ❑ AMAZON WEB SERVICES OFFERS A BROAD SET OF GLOBAL CLOUD-BASED PRODUCTS INCLUDING COMPUTE, STORAGE, DATABASES, ANALYTICS, NETWORKING, MOBILE, DEVELOPER TOOLS, MANAGEMENT TOOLS, IOT, SECURITY, AND ENTERPRISE APPLICATIONS: ON-DEMAND, AVAILABLE IN SECONDS, WITH PAY-AS-YOU-GO PRICING.
- ❑ FROM DATA WAREHOUSING TO DEPLOYMENT TOOLS, DIRECTORIES TO CONTENT DELIVERY, OVER 140 AWS SERVICES ARE AVAILABLE.



WHAT IS CLOUD COMPUTING?

- ❑ CLOUD COMPUTING IS THE ON-DEMAND DELIVERY OF COMPUTE POWER, DATABASE STORAGE, APPLICATIONS, AND OTHER IT RESOURCES THROUGH A CLOUD SERVICES PLATFORM VIA THE INTERNET WITH PAY-AS-YOU-GO PRICING.
- ❑ WHETHER YOU ARE RUNNING APPLICATIONS THAT SHARE PHOTOS TO MILLIONS OF MOBILE USERS OR YOU'RE SUPPORTING THE CRITICAL OPERATIONS OF YOUR BUSINESS, A CLOUD SERVICES PLATFORM PROVIDES RAPID ACCESS TO FLEXIBLE AND LOW-COST IT RESOURCES.
- ❑ WITH CLOUD COMPUTING, YOU DON'T NEED TO MAKE LARGE UPFRONT INVESTMENTS IN HARDWARE AND SPEND A LOT OF TIME ON THE HEAVY LIFTING OF MANAGING THAT HARDWARE.
- ❑ YOU CAN ACCESS AS MANY RESOURCES AS YOU NEED, ALMOST INSTANTLY, AND ONLY PAY FOR WHAT YOU USE.
- ❑ CLOUD COMPUTING PROVIDES A SIMPLE WAY TO ACCESS SERVERS, STORAGE, DATABASES AND A BROAD SET OF APPLICATION SERVICES OVER THE INTERNET.



ADVANTAGES OF CLOUD COMPUTING

- ☐ **TRADE CAPITAL EXPENSE FOR VARIABLE EXPENSE**
- ☐ **BENEFIT FROM MASSIVE ECONOMIES OF SCALE**
- ☐ **STOP GUESSING CAPACITY**
- ☐ **INCREASE SPEED AND AGILITY**
- ☐ **STOP SPENDING MONEY RUNNING AND MAINTAINING DATA CENTERS**
- ☐ **GO GLOBAL IN MINUTES**

TYPES OF CLOUD COMPUTING

- ❑ CLOUD COMPUTING PROVIDES DEVELOPERS AND IT DEPARTMENTS WITH THE ABILITY TO FOCUS ON WHAT MATTERS MOST AND AVOID UNDIFFERENTIATED WORK SUCH AS PROCUREMENT, MAINTENANCE, AND CAPACITY PLANNING.
- ❑ AS CLOUD COMPUTING HAS GROWN IN POPULARITY, SEVERAL DIFFERENT MODELS AND DEPLOYMENT STRATEGIES HAVE EMERGED TO HELP MEET SPECIFIC NEEDS OF DIFFERENT USERS.

➤ CLOUD COMPUTING MODELS

- ✓ INFRASTRUCTURE AS A SERVICE (IAAS)
- ✓ PLATFORM AS A SERVICE (PAAS)
- ✓ SOFTWARE AS A SERVICE (SAAS)



INFRASTRUCTURE AS A SERVICE (IAAS)

- ❑ INFRASTRUCTURE AS A SERVICE (IAAS) CONTAINS THE BASIC BUILDING BLOCKS FOR CLOUD IT AND TYPICALLY PROVIDE ACCESS TO NETWORKING FEATURES, COMPUTERS (VIRTUAL OR ON DEDICATED HARDWARE), AND DATA STORAGE SPACE.
- ❑ IAAS PROVIDES YOU WITH THE HIGHEST LEVEL OF FLEXIBILITY AND MANAGEMENT CONTROL OVER YOUR IT RESOURCES AND IS MOST SIMILAR TO EXISTING IT RESOURCES THAT MANY IT DEPARTMENTS AND DEVELOPERS ARE FAMILIAR WITH TODAY.

PLATFORM AS A SERVICE (PAAS)

- ❑ PLATFORM AS A SERVICE (PAAS) REMOVES THE NEED FOR YOUR ORGANIZATION TO MANAGE THE UNDERLYING INFRASTRUCTURE (USUALLY HARDWARE AND OPERATING SYSTEMS) AND ALLOWS YOU TO FOCUS ON THE DEPLOYMENT AND MANAGEMENT OF YOUR APPLICATIONS.
- ❑ THIS HELPS YOU BE MORE EFFICIENT AS YOU DON'T NEED TO WORRY ABOUT RESOURCE PROCUREMENT, CAPACITY PLANNING, SOFTWARE MAINTENANCE,

SOFTWARE AS A SERVICE (SAAS)

- ❑ SOFTWARE AS A SERVICE (SAAS) PROVIDES YOU WITH A COMPLETED PRODUCT THAT IS RUN AND MANAGED BY THE SERVICE PROVIDER. IN MOST CASES, PEOPLE REFERRING TO SOFTWARE AS A SERVICE ARE REFERRING TO END-USER APPLICATIONS.
- ❑ WITH A SAAS OFFERING YOU DO NOT HAVE TO THINK ABOUT HOW THE SERVICE IS MAINTAINED OR HOW THE UNDERLYING INFRASTRUCTURE IS MANAGED; YOU ONLY NEED TO THINK ABOUT HOW YOU WILL USE THAT PARTICULAR PIECE OF SOFTWARE.



AMAZON WEB SERVICES CLOUD PLATFORM



Database

DynamoDB

Predictable and Scalable NoSQL Data Store

ElastiCache

In-Memory Cache

RDS

Managed Relational Database

Redshift

Managed Petabyte-Scale Data Warehouse

Storage & CDN

S3

Scalable Storage in the Cloud

EBS

Networked Attached Block Device

CloudFront

Global Content Delivery Network

Glacier

Archive Storage in the Cloud

Storage Gateway

Integrates On-Premises IT with Cloud Storage

Import Export

Ship Large Datasets

Cross-Service

Support

Phone & email fast-response 24X7 Support

Marketplace

Buy and sell Software and Apps

Management Console

UI to manage AWS services

SDKs, IDE kits and CLIs

Develop, integrate and manage services

Analytics

Elastic MapReduce

Managed Hadoop Framework

Kinesis

Real-Time Data Stream Processing

Data Pipeline

Orchestration for Data-Driven Workflows

Compute & Networking

EC2

Virtual Servers in the Cloud

VPC

Virtual Secure Network

ELB

Load balancing Service

WorkSpaces

Virtual Desktops in the cloud

Auto Scaling

Automatically scale up and down

DirectConnect

Dedicated Network Connection to AWS

Route 53

Scalable Domain Name System

Deployment & Management

CloudFormation

Templated AWS Resource Creation

CloudWatch

Resource and Application Monitoring

Elastic Beanstalk

AWS Application Container

IAM

Secure AWS Access Control

CloudTrail

User Activity Logging

OpsWorks

DevOps Application Management Service

CloudHSM

Hardware-based key storage for compliance

App Services

CloudSearch

Managed Search Service

Elastic Transcoder

Easy-to-use Scalable Media Transcoding

SES

Email Sending Service

SNS

Push Notification Service

SQS

Message Queue Service

SWF

Workflow Service for Coordinating App Components

AppStream

Low-latency Application Streaming

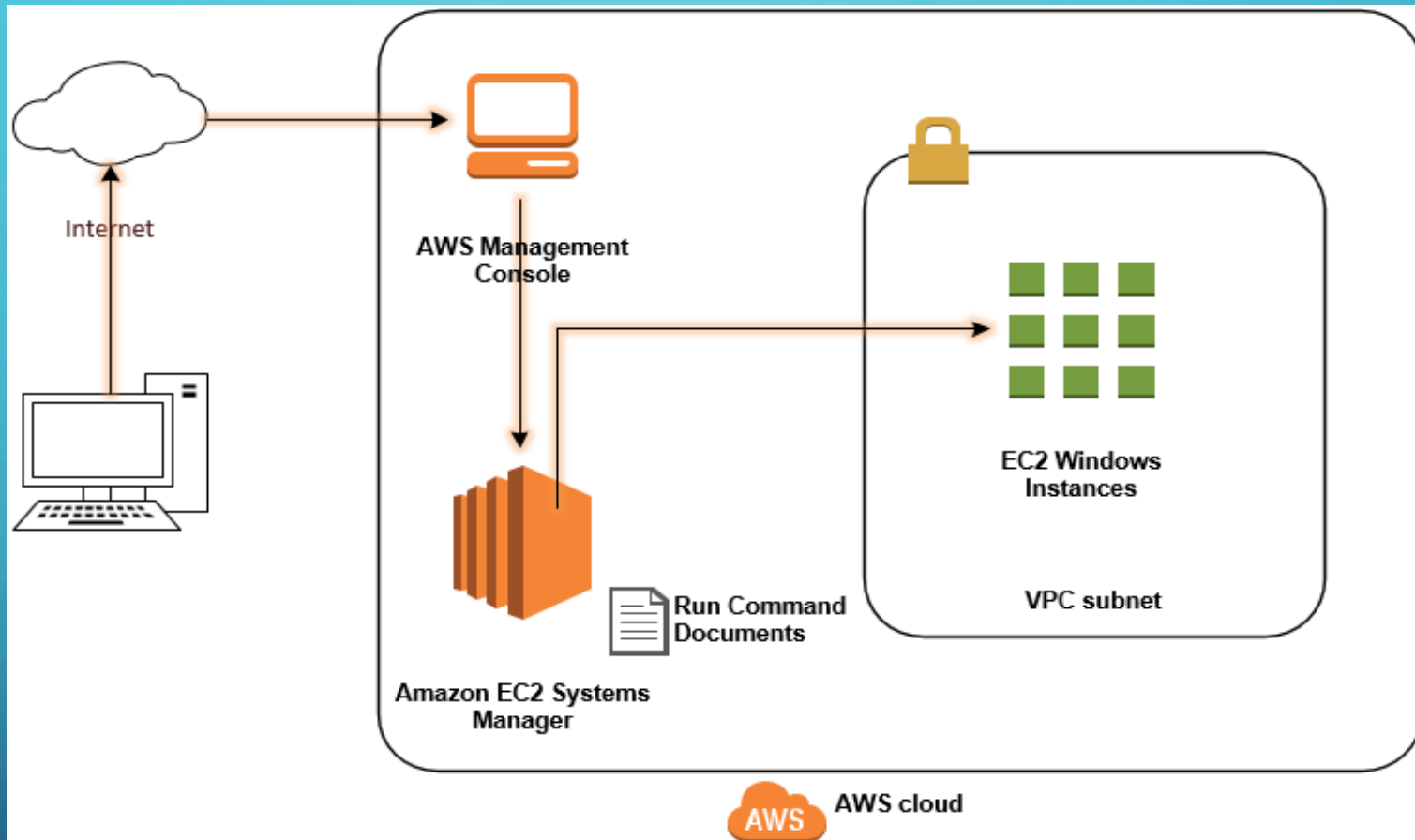
AWS Global Physical Infrastructure
(Geographical Regions, Availability Zones, Edge Locations)

COMPUTE & NETWORKING

- Amazon Elastic Compute Cloud (Amazon EC2)

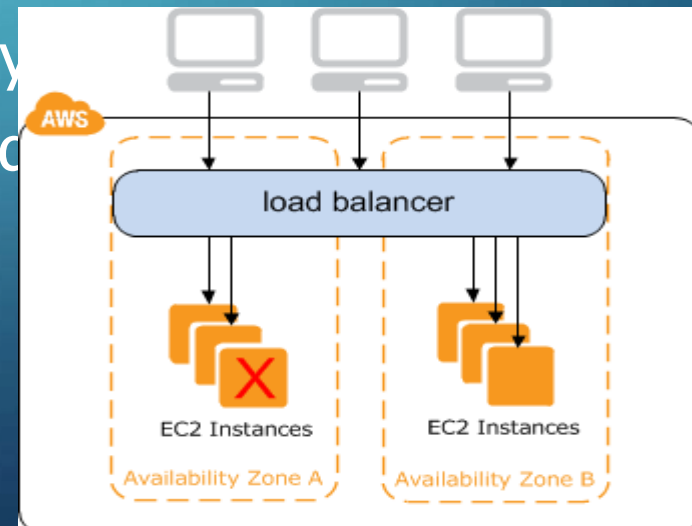
- ☐ Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable compute capacity in the cloud. It is designed to make web-scale computing easier for developers and system administrators.
- ☐ Amazon EC2's simple web service interface allows you to obtain and configure capacity with minimal friction.
- ☐ It provides you with complete control of your computing resources and lets you run on Amazon's proven computing environment.
- ☐ Amazon EC2 reduces the time required to obtain and boot new server instances to minutes, allowing you to quickly scale capacity, both up and down, as your computing requirements

EC2



ELASTIC LOAD BALANCING

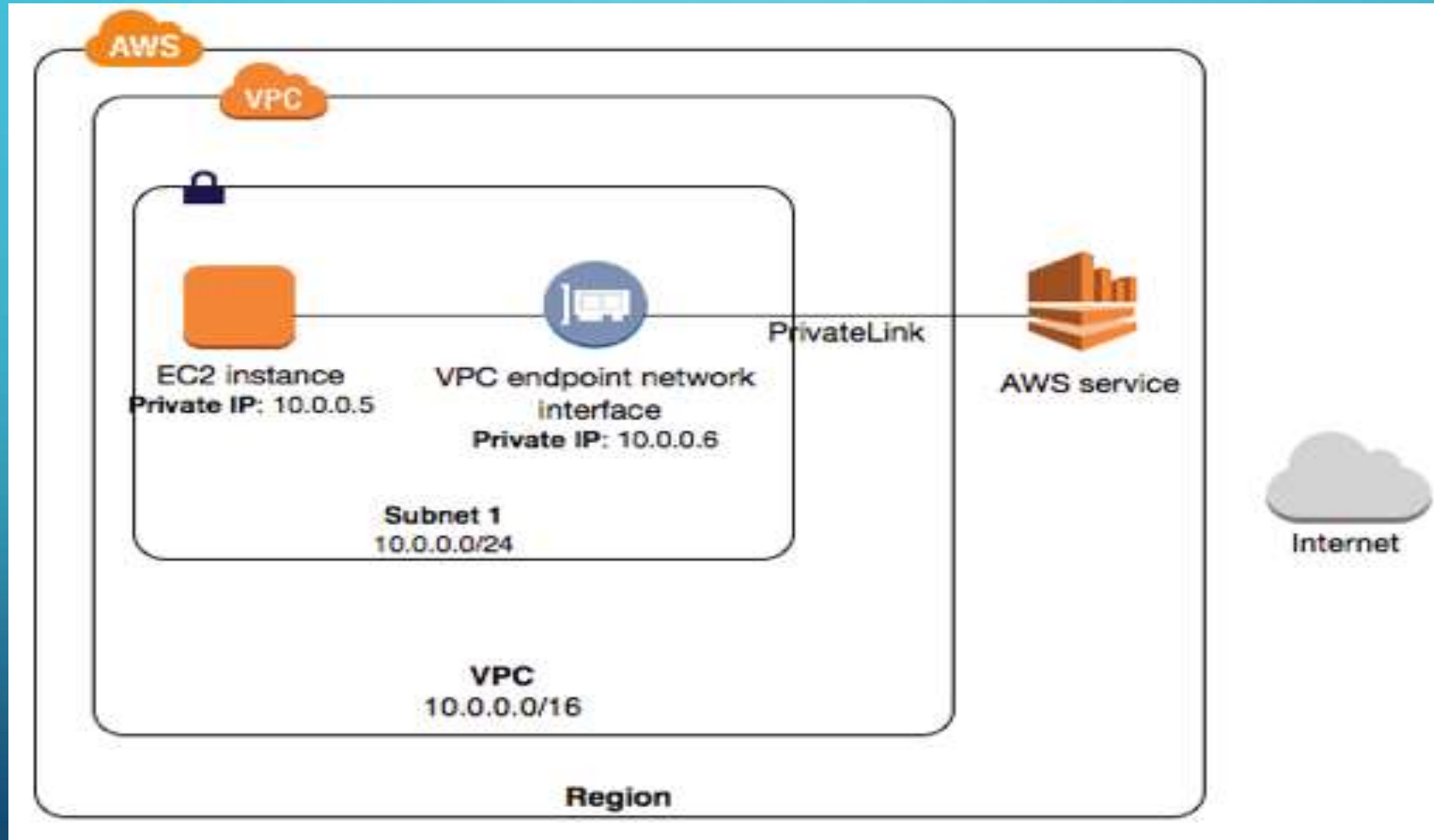
- ❑ Elastic Load Balancing automatically distributes incoming application traffic across multiple Amazon EC2 instances.
- ❑ It enables you to achieve even greater fault tolerance in your applications, seamlessly providing the amount of load balancing capacity needed in response to incoming application traffic.
- ❑ Elastic Load Balancing detects unhealthy instances and automatically reroutes traffic to healthy instances. Unhealthy instances have been restored.



AMAZON VIRTUAL PRIVATE CLOUD (AMAZON VPC)

- ❑ Amazon Virtual Private Cloud lets you provision a logically isolated section of the Amazon Web Services (AWS) Cloud where you can launch AWS resources in a virtual network that you define.
- ❑ You have complete control over your virtual networking environment, including selection of your own IP address range, creation of subnets, and configuration of route tables and network gateways.
- ❑ You can easily customize the network configuration for your Amazon VPC.
- ❑ For example, you can create a public-facing subnet for your webserver that has access to the Internet, and place your backend systems such as databases or application servers in a

AMAZON VPC



AMAZON ROUTE 53

- ❑ Amazon Route 53 is a highly available and scalable Domain Name System (DNS) web service.
- ❑ It is designed to give developers and businesses an extremely reliable and cost-effective way to route end users to Internet applications by translating human readable names, such as `www.example.com`, into the numeric IP addresses, such as `192.0.2.1`, that computers use to connect to each other.
- ❑ Route 53 effectively connects user requests to infrastructure running in AWS, such as an EC2 instance, an elastic load balancer, or an Amazon S3 bucket. Route 53 can also be used to route users to infrastructure outside of AWS.

STORAGE & CONTENT DELIVERY NETWORK

- Amazon Simple Storage Service (Amazon S3)

- ❑ Amazon S3 is storage for the Internet. It is designed to make web-scale computing easier for developers.
- ❑ Amazon S3 provides a simple web services interface that can be used to store and retrieve any amount of data, at any time, from anywhere on the web.
- ❑ The container for objects stored in Amazon S3 is called an Amazon S3 bucket. Amazon S3 gives any developer access to the same highly scalable, reliable, secure, fast, inexpensive infrastructure that Amazon uses to run its own global network of websites.
- ❑ The service aims to maximize benefits of scale and to pass those benefits on to developers.

AMAZON GLACIER

- ❑ Amazon Glacier is an extremely low-cost storage service that provides secure and durable storage for data archiving and backup.
- ❑ In order to keep costs low, Amazon Glacier is optimized for data that is infrequently accessed and for which retrieval times of several hours are suitable.
- ❑ With Amazon Glacier, customers can reliably store large or small amounts of data for as little as \$0.01 per gigabyte per month, a significant savings compared to on-premises solutions.

AMAZON ELASTIC BLOCK STORAGE (EBS)

- ❑ Amazon Elastic Block Store (EBS) provides block level storage volumes for use with Amazon EC2 instances. Amazon EBS volumes are network-attached, and persist independently from the life of an instance.
- ❑ Amazon EBS provides highly available, highly reliable, predictable storage volumes that can be attached to a running Amazon EC2 instance and exposed as a device within the instance.
- ❑ Amazon EBS is particularly suited for applications that require a database, file system, or access to raw block level storage.

DATABASE

- **Amazon Relational Database Service (Amazon RDS)**

- ❑ Amazon Relational Database Service (Amazon RDS) is a web service that makes it easy to set up, operate, and scale a relational database in the cloud. It provides cost-efficient and resizable capacity while managing time-consuming database administration tasks, freeing you up to focus on your applications and business.
- ❑ Amazon RDS gives you access to the capabilities of a familiar MySQL, Oracle, SQL Server or PostgreSQL database. This means that the code, applications, and tools you already use today with your existing databases can be used with Amazon RDS.
- ❑ Amazon RDS automatically patches the database software and backs up your database, storing the backups for a retention period that you define and enabling point-in-time recovery

AMAZON DYNAMO DB

- ❑ Amazon DynamoDB is a fast, fully managed NoSQL database service that makes it simple and cost-effective to store and retrieve any amount of data, and serve any level of request traffic.
- ❑ All data items are stored on Solid State Drives (SSDs), and are replicated across 3 Availability Zones for high availability and durability.
- ❑ With DynamoDB, you can offload the administrative burden of operating and scaling a highly available distributed database cluster, while paying a low price for only what you use .
- ❑ Amazon DynamoDB enables customers to offload the administrative burden of operating and scaling a highly available, distributed database cluster while only paying a low variable price for the resources they consume.

AMAZON ELASTICACHE

- ❑ Amazon ElastiCache is a web service that makes it easy to deploy, operate, and scale an in-memory cache in the cloud. The service improves the performance of web applications by allowing you to retrieve information from a fast, managed, in-memory caching system, instead of relying entirely on slower disk-based databases. ElastiCache supports two open-source caching engines.
- ❑ Memcached – a widely adopted memory object caching system. ElastiCache is protocol compliant with Memcached, so popular tools that you use today with existing Memcached environments will work seamlessly with the service.
- ❑ Redis – a popular open-source in-memory key-value store that supports data structures such as sorted sets and lists. ElastiCache supports Redis master / slave replication which can

AMAZON REDSHIFT

- ❑ Amazon Redshift is a fast, fully managed, petabyte-scale data warehouse service that makes it simple and cost-effective to efficiently analyze all your data using your existing business intelligence tools.
- ❑ It is optimized for datasets ranging from a few hundred gigabytes to a petabyte or more and costs less than \$1,000 per terabyte per year, a tenth the cost of most traditional data warehousing solutions.
- ❑ Amazon Redshift delivers fast query and I/O performance for virtually any size dataset by using columnar storage technology and parallelizing and distributing queries across multiple nodes.
- ❑ We've made Amazon Redshift easy to use by automating most of the common administrative tasks associated with

The background is a blue gradient. In the corners, there are white line-art illustrations of circuit boards or neural networks, with lines and small circles representing nodes.

THANK YOU