Glossary (for non-AWS terms)

**Advanced Encryption Standard (AES)** - a symmetric key encryption system considered suitable for government and commercial use.  With AES, each end of a network connection needs an identical private key.

**Apache** - an open source web server

**application programming interface (API)** - a specification for how to access a web service. An API usually specifies that data format for sending a message to request the service.

**archiving** - long-term data backup

**attribute** - a property that something has

**auditing**- checking records to verify accuracy

**bash script** - a type of Linux script. Bash is short for the "Bourne Again Shell".

**Big Data** - large complex sets of data. Analytics to get useable information from Big Data is growing information technology field.

**block storage** - storing data in large standard units such as volumes

**boot volume** - a part of a storage block containing the operating system need to book a computer or a virtual machine

**capital expense** - one time expenses for something you own. The opposite of capital expense is variable expense.

**central processing unit (CPU)** - the part of a computer that performs calculations such as adding, subtracting, and transforming data.

**CIDR block** - a group of IPv4 addresses with a common subnet mask. The number of bits in the subnet mask is expressed with a "/" notation, such as /16, /20, or /28.

**Classless Inter-Domain Routing (CIDR**) - in IPv4, CIDR allows for networks with variable length subnet masks. Under the previous approach, classful addresses, subnet masks had to be 8, 16, or 24 bits. CIDR allows different lengths for the subnet mask.

**cluster**- a set of computers that work together as a single system

**column** - a property or attribute of each record in a relational database

**command line interface (CLI)** - a system that allows sending commands directly to an operating system in an interactive manner

**compliance** - following all legal or technical requirements

**container** - application code packages with its dependencies. Containerized applications are highly portable.

**COPY** - an operation available for objects stored in AWS S3. Copies an object already stored in S3.

**cost optimization** - spending only as much as you need to get to the services you have to have.

**data center** - a facility housing large amounts of servers and networking equipment

**database** - a set of records that can be searched and updated by a database engine

**database engine** - software that manages databases

**Docker**- a solution for managing containers and containerized applications

**economies of scale** - cost savings when supplies sell a very high volume. As the volume increases, the price per individual unit decreases.

**encryption** - a system for coding data to keep it private. Other types of encryption do not hide data, but instead verify that data has not been changed.

**Enterprise Data Warehouse (EDW)** - a large database or collection of databases that centralizes data from multiple sources

**file system** - a data storage system in which files are nested within directories. File systems are accessed through an operating system.

**five nines** (similar also to three nines, four nines , or other numbers of nines) - a measure of reliability or uptime. A system with five nines of availability will be up 99.999% of the time, which means it will be down less than 5.5 minutes per year.

**GET**- an operation available for objects stored in AWS S3. Retrieve an object stored in S3.

**Go** - a computer language designed at Google.

**hard disk drive (HDD)** - computer storage using spinning magnetic disks

**hardware** - physical components that support computing. Includes motherboards, CPUs, memory, storage, batteries, networking, interfaces, cables, connectors, cases, and frames.

**Hypertext Transfer Protocol (HTTP**) - rules for transferred web pages and other documents across a network. The protocol that enables the World Wide Web.

**Hypertext Transfer Protocol Secure (HTTPS)** - an encrypted version of HTTP

**Input/output operations per second (IOPS)** - a measure of storage performance

**Internet Information Server (IIS)** - a web server by Microsoft

**Internet Protocol (IP) address** - in IPv4, an IP address is a 32 bit number assigned to each device on the network. Public IP addresses are globally unique. IPv6 provides for an expanded 128 bit address range.

**Java** - a popular business programming language owned by Oracle

**JavaScript Object Notation (JSON)** -  A data format with minimal punctuation, both human- and machine-readable.

**key-value pair** - a way to store and retrieve data. Searching for the key points to the value.

**Kubernetes** - a service for automated management of containerized applications

**lambda function** - an anonymous function. Contrasts with named functions. Often for short-term limited use.

**latency**- the amount of delay in data transmission over a network

**library**- a collection of data, documentation, and components used by software applications

**LIST** - an operation available for objects stored in AWS S3. Lists objects stored in S3.

**load balancer** - a network service that routes application requests between multiple servers

**MariaDB** - an open source database engine, very similar to MySQL

**mean time between failures (MBTF)** - the average amount of time a system stays up before it fails and needs repairs

**mean time to failure (MTTF)** -  the average lifespan of a system that cannot be repaired

**mean time to recovery (MTTR)** - the average amount of time is takes to bring a system back online after a failure

**mechanical sympathy** - understanding how a system is designed to be used, allowing for optimum performance.

**metadata** - data that describes or gives information about other data

**mount target** - an endpoint that connects a file system to an operating system

**multi-factor authentication (MFA)** - a way to authenticate with more than a name and password. Common MFA solutions include sending a text message to a phone number, using a fingerprint scan, or using a hardware key.

**MySQL** - an open source relational database engine

**namespace** - a way to describe a related set of resources All the resources in a namespace share some part of the name in common or are arranged into a common set of names and directories.

**.NET**- Microsoft's system for supporting active web pages and a multi-tier application architecture

**Network Address Translation (NAT)** - a protocol for changing a private source IP address for a public source IP address when traffic leaves a local network

**Network File System (NFS)** -  a distributed file system

**network interface** - computer hardware or software that allows input and output of network traffic to or from an operating system

**nginx** - an open source web server

**Node.js** - a server-side implementation of JavaScript

**NoSQL** - a database featuring a data storage system unlike the SQL table structure. Some of these NoSQL data structures include key-value pairs, documents, and graphs. NoSQL records are often stored in data formats such as JSON.

**object storage** - a data storage system that allows for more metadata per object than a file system. Also, object storage is flat (not nested) and scales better for large numbers of objects.

**Open Systems Interconnect (OSI) model** - a theoretical model for networking that divides network protocols into seven layers. Each layer represents one set of functional concerns for establishing a network connection or transmitting data.

**operating system (OS)**- a set of computer instructions that manage basic hardware and storage systems

**Oracle**- the provider of an important commercial relational database engine

**Passenger** - web server and application server for Ruby, Node.js, and Python.

**PHP** - a popular server-side scripting language

**PostgreSQL** - a popular open source database engine

**POST** - an operation available for objects stored in AWS S3. Adds an object to a S3 bucket using an HTML form.

**principle of least privilege** - in IT security, this means giving each user or device the minimum access required to complete an assigned task

**private IP address range** - in IPv4, three IP address ranges are reserved for internal network use only. These are:

* 10.0.0.0/8
* 172.16.0.0/12
* 192.168.0.0/16

These addresses cannot be used to route traffic over the public Internet. But they are often used for internal network addresses, using Dynamic Host Configuration Protocol (DCHP) and Network Address Translation (NAT).

**private key** - in symmetric cryptography, there is a matching set of private keys. The same key is used to encrypt and decrypt the message.

**public key** - in asymmetric cryptography, there is a private key and a public key. The public key can be shared with others. Only the holder of the private key can view the encrypted messages.

**Puma** - a web server or application server specializing in supporting Ruby.

**PUT**- an operation available for objects stored in AWS S3. Adds an object to a S3 bucket.

**Python** - a popular programming language

**query**- a database search or update

**Random Access Memory (RAM)** - the fastest computer memory, attached very near the CPU. RAM is more expensive per byte than other forms of memory, but much faster. Adding more RAM usually increases computer performance.

**relational database** - a database using tables with rows and columns

**Representational state transfer (REST)** - the architectural style of the World Wide Web

**RESTful** - systems that work in a manner similar to the World Wide Web. In particular, there is a request/response pattern between client and server that allow for servers to respond to the request without forming a complicated relationship with the client.

**route** - the network pathway needed to send data from a source address to a destination address

**route tables** - a database on a router that stores available routes

**router** - a device or software system that connects different networks or subnets to each other

**row** - a single record in a relational database

**Ruby** - a popular programming language

**secret key**- same as a private key. In symmetric encryption, each side uses the same secret or private key. In asymmetric encryption, the secret or private key is needed to decrypt any message encrypted with the public key.

**Secure Sockets Layer (SSL)** - a protocol for encrypted web traffic (HTTS). Updated by the more recent TLS protocol.

**server** - a computer or virtual machine that responds to requests from other devices over a network.

**software** - storage computer instructions. Software can be updated without changing anything physical on the computer, unlike hardware.

**software development kit (SDK)** - a set of systems, tools, and protocols that allow the development of applications for a particular platform

**solid state drive (SSD)** - computer storage using flash memory.

**SQL Server** - a relational database engine by Microsoft

**Structured Query Language (SQL)** - a language for database search and updates. SQL databases are arranged in tables with rows and columns. Each row is a record. Each column contains an attribute found in each of the records.

**subnet**- a portion of a larger network. The address space of one portion of a larger network.

**total cost of ownership (TCO)** - the amount you have to pay when all factors are included. This includes purchase price, maintenance, taxes, repairs, training, licensing, depreciation, replacement cost, and anything else.

**Transport Layer Security (TLS)** - a protocol for encrypted web traffic (HTTS). Updates the earlier SSL protocol.

**variable expens**e - expenses that change depending on how much you use.  The opposite of fixed expense or capital expense.

**virtual private network (VPN)** - a network that behaves as if it is private, even though the data traffic goes over a shared, public network. VPNs are encrypted to maintain data privacy or use other ways to isolate users' network traffic from each other's.

**virtualization** - running an operating system on top of a layer software instead of directly on hardware. Virtual machines run on a software layer called a hypervisor.

**volume**- a unit of storage. It can be an entire hard drive or part of a hard drive.

**web service**- a service you can reach over the Internet by using web protocols like HTTP, XML, or JSON. AWS is a web service.