WS Well-Architected Framework terms:

Component:	The code, configuration, orAWS Resources that together deliver against a requirement
Workload:	A set of components that together deliver business value
Level of effort:	The amount of time, effort, and complexity a task requires for implementation.

Security: Detection, Infra, Data & IAM

To detect and invest-igate security events:	Capture and analyze events from logs and metrics to gain visibility.
	Take action on security events and potential threats to help secure a workload.
To protect network + compute resources:	Any workload that with some form of network connectivity, whether the internet or a private network, requires multiple layers of defense
To classify data:	Criticality and sensitivity for protection and retention controls.
Protecting data:	Multiple controls to:
	At rest: Prevent unauthorized access or loss.
	In transit: Reduce the risk of unauthorized access or loss
To prepare and and recover from incidents:	Log file access and changes

Security: Detection, Infra, Data & IAM (cont)

	Process and launch tools to automate responses through APIs
	Prepare, pre-provision tooling and create a “clean environment” via AWS CloudFormation
To incorporate and validate security properties of apps thru CI/CD lifecy-cles:	Validate the security properties of tools and applications help to reduce the likelihood of security issues in production
Identity and access:	Human Identities ~ Interact with AWS resources via a web browser, client applic-ation, or interactive command line tools
	Machine Identities ~ Service applications, operational tools and workloads

The utilization of cloud technologies to protect data, systems, and assets

Performance efficiency

The ability to use computing resources efficiently to meet system requirements

Selecting best performing archit-ecture:	Multiple approaches are required for more effective performance across a workload

3 Compute options:

1 Instances -	Virtualized servers

Performance efficiency (cont)

	Different families and sizes
	Solid-state drives (SSDs) and graphics processing units (GPUs)
2 Containers -	A method of operating system virtualization:
	AWS Fargate - serverless compute for containers or Amazon EC2
	Amazon Elastic Container Service (ECS) or Amazon Elastic Kubernetes Service (EKS)- container orches-tration platforms
3 Functions -	Abstract run environment from the code you want to apply.

Storage

The more efficient storage solution for a system varies based on:

1) The kind of access operation (block, file, or object):

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Performance efficiency (cont)	
1a - Object	From any internet location for user-generated content, active archive, serverless computing
	Divides data into separate, self-contained units that are re-stored in a flat environment, with all objects at the same level
	Contain metadata: information about the file that helps with processing and usability
1b - Block Storage	Often configured to decouple the data from the user's environment and spread it across multiple environments that can better serve the data
	Data is split into fixed blocks of data and then stored separately with unique identifiers
1c - File	Data is stored as a single piece of information inside a folder, just like you'd organize pieces of paper inside a manila folder.
	Problem is, just like with your filing cabinet, that virtual drawer can only open so far. File-based storage systems must scale out by adding more systems, rather than scale up by adding more capacity.
2) Frequency of update (WORM, dynamic)	
WORM -	Write once, read many (WORM) model
Dynamic	
3) Availability and durability constraints	
Database	
Forms:	Relational, key-value, document, in-memory, graph, time series, and ledger
Select according to:	Availability, consistency, partition tolerance, latency, durability, scalability, and query capability
Network	As the network is between all workload components, it can have great impacts, both positive and negative, on workload performance and behavior
	Determine workload requirements for bandwidth, latency, jitter, and throughput

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Performance efficiency (cont)

Physical constraints, such as user or on-premises resources, determine location options

Operational excellence

Organization	
Teams must have a shared understanding of your entire workload, their role in it, and shared business goals	
To determine priorities:	Have shared goals to set priorities for resources
How an organizat-ional culture supports business outcomes:	Provide support for team members
Preparation	
Understand workloads and their expected behaviors	
To understand its state:	Design your workload so that it provides the inform-ation necessary across all components (for example, metrics, logs, and traces)
To reduce defects, ease remediation, and improve flow into production:	Adopt approaches that improve flow of changes into production that achieve refactoring fast feedback on quality, and bug fixing

Operational excellence (cont)

Before supporting a workload:	Evaluate the operational readiness of your workload, processes and procedures, and personnel to understand the operational risks
Operate	
Measured by the achievement of business and customer outcomes:	
	After we identify metrics that will be used in calculations
To understand the health of your workload:	Define, capture, and analyze workload metrics to gain visibility to workload events
To manage workload and operations events:	Prepare and validate procedures for responding
Evolve	
Learn, share, and continuously improve	
To evolve operations:	Dedicate time and resources for nearly continuous increm-ental improvement to evolve the effectiveness and efficiency of your operations

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