DIGITAL TALENT SCHOLARSHIP 2020

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Start and Design the Cloud

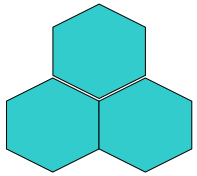
Agenda

- Cloud Adoption Framework
- Well Architected Framework
- Well-Architected Design Principles

Cloud Adoption Framework

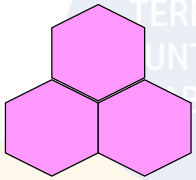
- Perspectives in planning, creating, managing, and supporting a modern IT service.
- Guidelines for establishing, developing and running AWS environments.
- Structure for business and IT teams to work together.

Six Core Perspectives



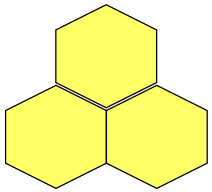
Business Perspective

How will your architectural approaches **align technical delivery to business imperatives**?



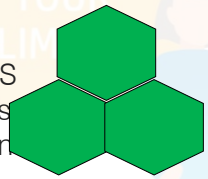
Platform Perspective

What patterns, guidance, and tools are necessary to optimize your use of **technology services** on AWS?



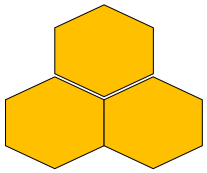
People Perspective

What **skills** are needed in order to adopt the AWS cloud platform? Examples include guiding processes of role descriptions, training, certification, and mentoring.



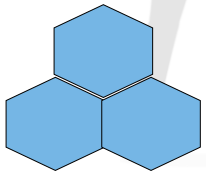
Security Perspective

How will you define and implement the required levels of security, governance, and risk management to **achieve compliance**?



Governance Perspective

How to update the staff skills and **organizational processes** necessary to ensure business governance in the cloud, and manage and measure cloud investments to evaluate business outcomes?



Operations Perspective

How will you provide process, guidance, and tools for optimum **operational service management** of the AWS environment?

https://aws.amazon.com/professional-services/CAF/

The AWS Well-Architected Framework

The goal of this framework is to enable customers to:

- Assess and improve their architectures.
- Better understand the business impact of their design decisions.

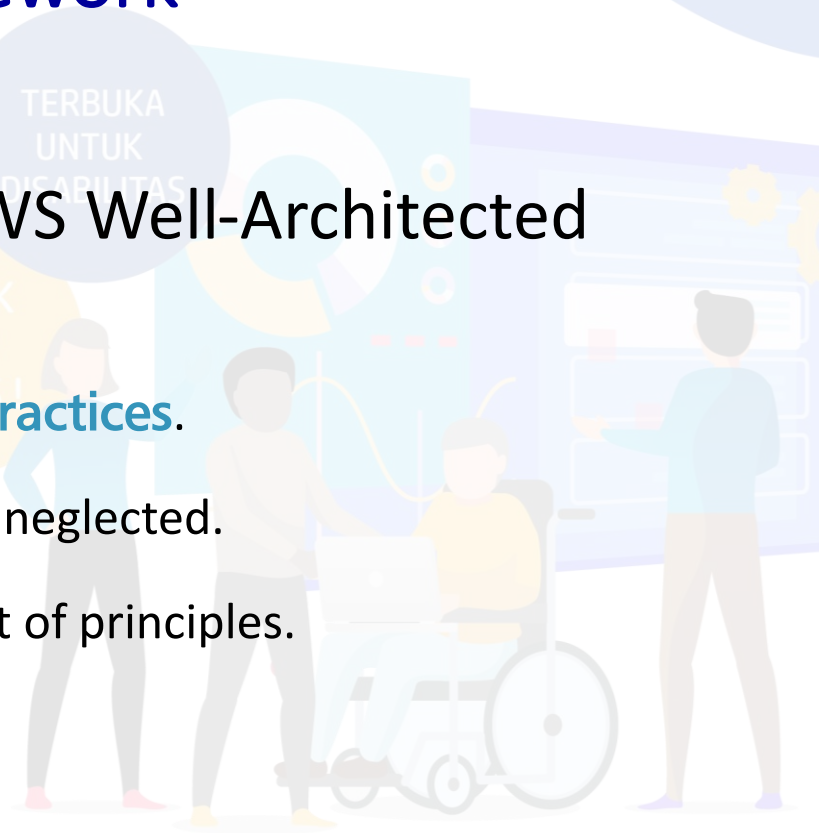
It provides a **set of questions developed by AWS experts** to help customers think critically about their architecture.

It asks, **"Does your infrastructure follow best practices?"**

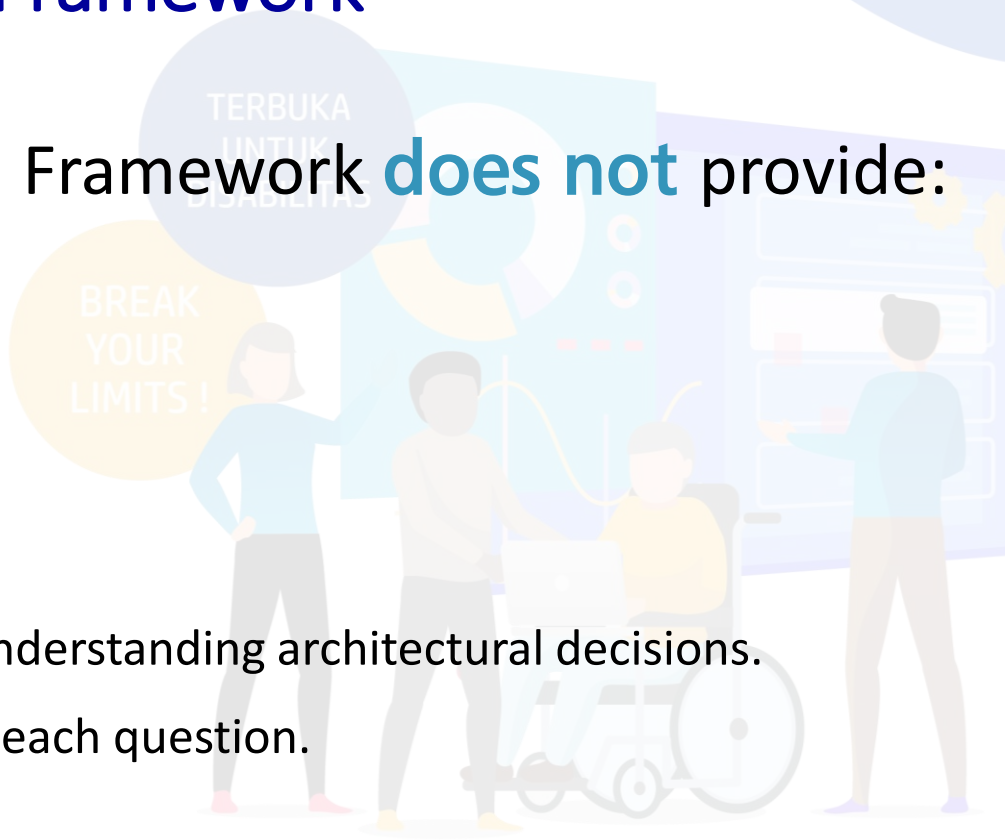
The AWS Well-Architected Framework

Architects should leverage the AWS Well-Architected Framework in order to:

- Increase awareness of **architectural best practices**.
- Address **foundational areas** that are often neglected.
- **Evaluate** architectures using a consistent set of principles.



The AWS Well-Architected Framework



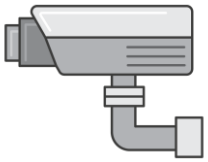
The AWS Well-Architected Framework **does not** provide:

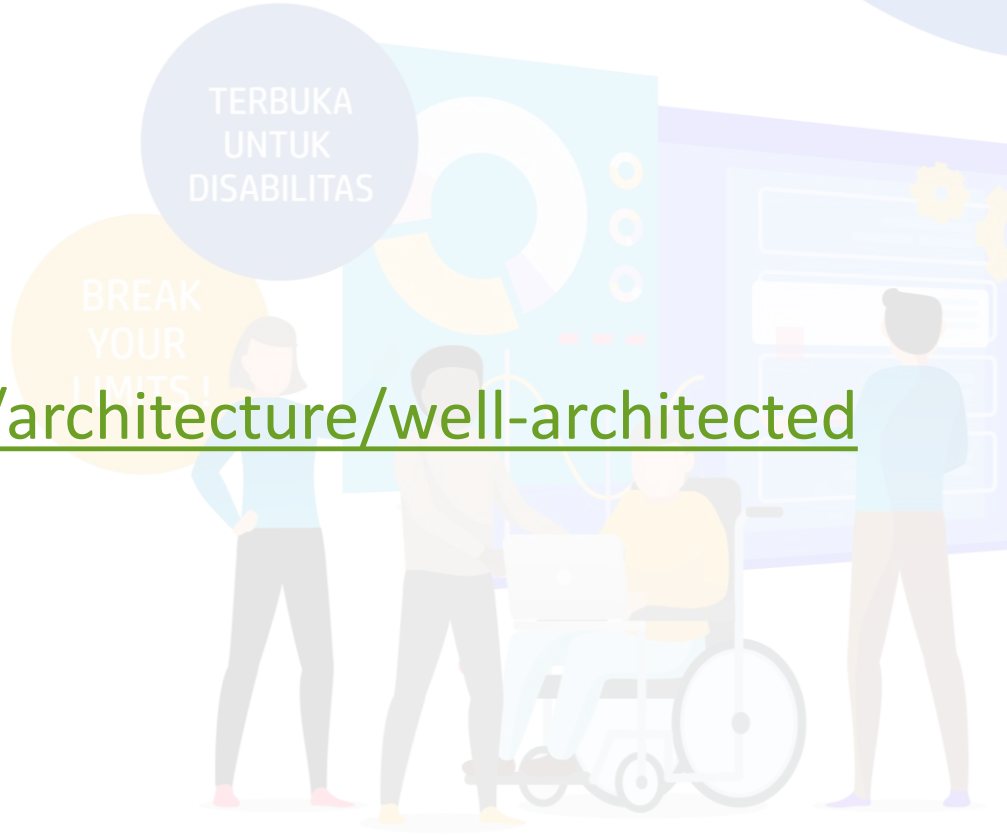
- Implementation details
- Architectural patterns
- Relevant case studies

However, it **does** provide:

- Questions centered on critically understanding architectural decisions.
- Services and solutions relevant to each question.
- References to relevant resources.

Pillars of the Well-Architected Framework

Operational Excellence	Security	Reliability	Performance Efficiency	Cost Optimization
				
Deliver business value	Protect and monitor systems	Recover from failure and mitigate disruption.	Use resources sparingly.	Eliminate unneeded expense.

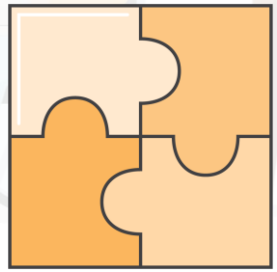


https://aws.amazon.com/architecture/well-architected

Well-Architected Design Principles

The Well-Architected Framework also identifies a set of general design principles to facilitate good design in the cloud:

- Stop guessing your capacity needs.
- Test systems at production scale.
- Automate to make architectural experimentation easier.
- Allow for evolutionary architectures.
- Drive architectures using data.
- Improve through game days.



Design Principle: Stop Guessing Your Capacity Needs

Traditional Environment

- When you make a capacity decision before you deploy a system, you might end up wasting expensive **idle resources** or dealing with the performance implications of **limited capacity**.

Cloud Environment

- **Eliminate guessing** your infrastructure capacity needs.
- You can use as much or as little capacity as you need and **scale up and down** automatically.

Design Principle: Test Systems at Production Scale

Traditional Environment

- It is usually cost-prohibitive to create a duplicate environment solely for testing.
- Most test environments are not tested at live levels of production demand.

Cloud Environment

- Create a **duplicate environment on demand**, complete your testing, and then decommission the resources.
- **Only pay for the test environment when it is running**, so you can simulate your live environment for a fraction of the cost of testing on premises.

Design Principle: Automate to Make Architectural Experimentation Easier

Traditional Environment

- On-premises environments have separate structures and components that require more work to automate (no common API for all parts of your infrastructure).

Cloud Environment

- **Create and replicate** your systems at low cost (no manual effort).
- **Track changes** to your automation, **audit** the impact, and **revert** to previous parameters when necessary.

Design Principle: Allow for Evolutionary Architectures

Traditional Environment

- Architectural decisions are often implemented as static, one-time events.
- There may be only a few major versions of a system during its lifetime.
- As a business changes, initial decisions may hinder the ability to meet changing business requirements.

Cloud Environment

- The capability to **automate and test on demand** lowers the risk of impact from design changes.
- Systems can **evolve** over time so that businesses can take advantage of **new innovations** as a standard practice.

Design Principle: Drive Architectures Using Data

Traditional Environment

- Architectural decisions are often an area that is chosen according to organizational defaults.
- Data sets generally can not be generated.
- Models and assumptions to size your architecture are probably used.

Cloud Environment

- **Collect data** on how your architectural choices affect the behavior of your workload.
- **Make fact-based decisions** on how to improve your workload.
- Use that data to inform your architecture choices and improvements over time.

Design Principle: Improve Through Game Days

Traditional Environment

- You would only exercise your runbook when something bad happened in production.

Cloud Environment

- **Test** how your architecture and processes perform by **scheduling game days** to simulate events in production.

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