**Module 10**

**The Cloud Journey**

**The AWS Well-Architected Framework**

* Are the tools that you can use to evaluate the architectures you build for excellence in a few different categories.
* Helps you understand how to design and operate reliable, secure, efficient, and cost-effective systems in the AWS Cloud.
* It provides a way for you to consistently measure your architecture against best practises and design principles and identify areas for improvement

**The well-architected framework is based on five pillars**

* **Operational Excellence**
* Is the ability to run and monitor system to deliver business value and to continually improve supporting processes and procedures
* Design principles for operational excellence in the cloud performing operations as a code, annotating documentation, anticipating failures, and frequently making small, reversible changes.
* **Security**
* Is the ability to protect information, systems, and assets while delivering business value through risk assessments and mitigation strategies

When considering securing of your architecture apply these best practises:

* Automated security best practises when possible
* Apply security at all layers
* Protect data in transit and at rest
* **Reliability**
* Is the ability of the a system to do the following:
* Recover from infrastructure or service disruption
* Dynamically acquire computing resources to meet demand
* Mitigate disruptions such as misconfiguration or transient network issues
* Reliability includes testing recovery procedures, scaling horizontally to increase aggregate system availability, and automatically recovering from failure.
* Focus on the ability of the workload to consistently and correctly perform its intended functions.
* **Performance efficiency**
* Is the ability to use computing resources efficiently to meet system requirements and to maintain that efficiency as demand changes and technologies evolve.
* Evaluating the performance efficiency of your architecture includes experimenting more often, using serverless architectures, and designing systems to be able to go global in minutes
* **Cost optimization**
* Is the ability to run systems to deliver business value at the lowest price point.
* Cost optimization includes adopting a consumption model, analysing and attributing expenditure, and using managed services to reduce the cost of ownership

**6 Advantages or benefits of cloud computing**

* **Trade upfront expense for variable expense**
* Upfront expense includes data centers, physical servers, and other resources that would need to invest in before using computing resources
* You can only pay when you consume computing resources
* **Benefits from massive economies of scale**
* You can achieve a lower variable cost than you can get on your own.
* Because usage from hundreds of thousands of customers aggregates in the cloud, providers such as AWS can achieve high economies of scale.
* Economies of scale translate into lower pay-as-you-go prices.
* **Stop guessing capacity**
* You don’t have to predict how much infrastructure capacity you will need before deploying an application.
* Instead of paying for resources that are unused or dealing with limited capacity, you can access only the capacity that you need, and scale in or out in response to demand.
* **Increase speed and agility**
* The flexibility of cloud computing makes it easier for you to develop and deploy applications.
* The flexibility also provides your development teams with more time to experiment and innovate.
* **Stop spending money running and maintaining data centres**
* Ability to focus less on managing infrastructure and servers task and more on your applications and customers
* **Go global in a minutes**
* Enables you to quickly deploy applications to customers around the world, while providing them low latency