AWS Well-Architected Framework Serverless Applications

1. Advantages in a Cloud Environment

- Consistent approach to architecture evaluation;
- Improved awareness (consciêntização) of architectural best practices;
- Data driven;
- Eliminate negances;
- Estimating capacity;
- Tests are carried out on a production scale;
- Allows the creation and evolution of architecture;
- Game Days.

2. Common uses of Well-Architected

- Native Cloud Architectures;
- Build a knowledge (conhecimento) base to mitigate technical failures and risks;
- Use as a standardization and governance mechanism before production;
- Compare maturity between teams, systems and products;
- Present to the market characteristics of due-dilligence.

3. Layers - Serverless Applications

- Compute Layer;
- Data Layer;
- Messaging and Streaming Layer;
- User management and Identity Layer;
- Edge Layer;
- Systems Monitoring and Deployment;

4. Deployment Approaches

- All-at-once Deployments;
- Blue/Green Deployments;
- Canary Deployments;
- Lambda Version Control.

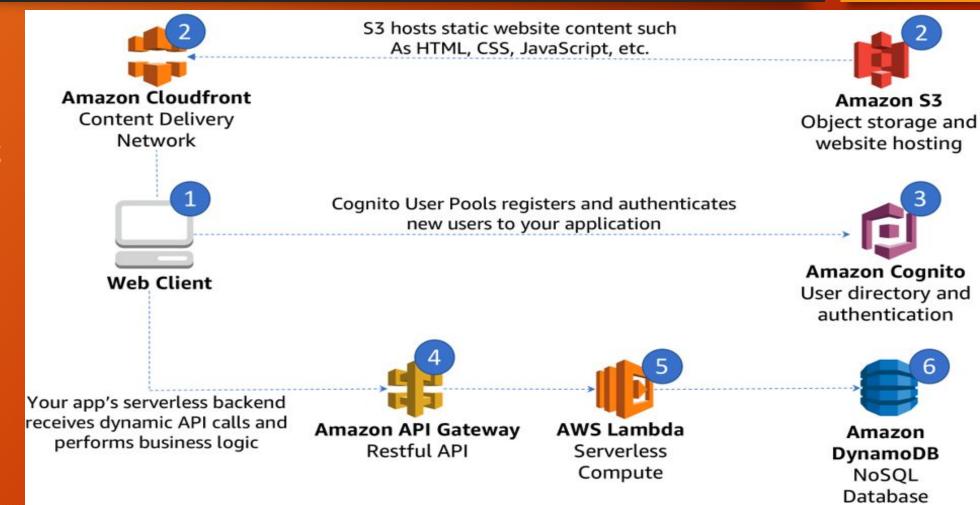
5. General Design Principles based on serverless applications

- Speedy, simple, singular;
- Think concurrent requests, not total requests;
- Share nothing;
- Assume no hardware affinity;

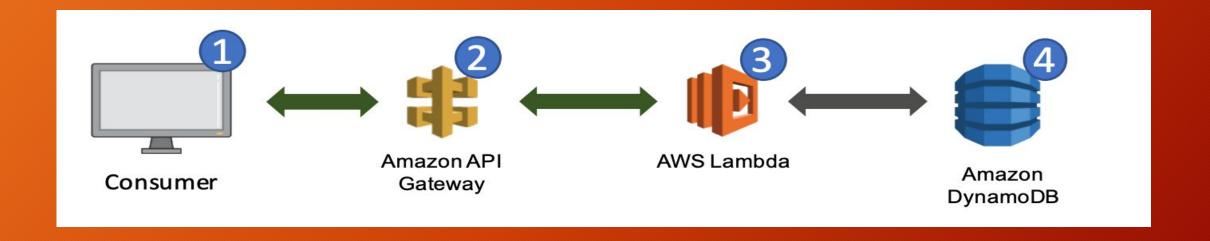
- Orchestrate your application with state machines, not functions;
- Use events to trigger transactions;
- Design for failures and duplicates

6. Scenario - Web Application

- Consumers;
- Amazon S3;
- Amazon Cognito;
- AWS Lambda;
- Amazon API Gateway;
- Amazon DynamoDB



7. Scenario - RESTful Microservices



Consumers

Amazon API Gateway • AWS Lambda

Amazon DynamoDB

8. The Pillars of the Well-Architected Framework

- Operational Excellence Pillar;
- Security Pillar;
- Performance Efficiency Pillar;
- Reliability Pillar;
- Cost Optimization Pillar.











Operational Excellence

Run, manage and monitor production workload to deliver business value and continuous improve on supporting process and events

Security

Protecting information, systems, and assets along from outside world with risk assessment, unplanned failures, and mitigation strategies

Reliability

Auto recover
workload from
infrastructure,
power or system
failures with
dynamic resource
management to
meet operational
threshold.

Performance Efficiency

Use computing
resources
efficiently to
support on demand
changes for
delivering workload
with maximum
performance to
meet the SLA

Cost Optimization

Avoiding & eliminate unneeded cost or replace resources with cost-effective resources without impacting the best practices and business need

9. Operational Excellence Pillar

- Prepare;
- Operate;

 - Metrics and Alerts;
 Centralized and structured logging;
 Distributed Tracing;
 Prototyping;
 Testing;
 Deploying.
- Evolute.

10. Security Pillar

- Identity and access management;
- Detective controls;
- Infrastructure protection;
- Data protection;
- Incident response.

11. Reliability Pillar

- Foundations;
- Change management;
- Failure management;

12. Performance Efficiency Pillar

- Selection;
- Review;
- Monitoring;
- Tradeoffs.

13. Cost Optimization Pillar

- Cost-effective resources;
- Matching supply and demand;
- Expenditure awareness;
- Optimizing over time;