# Serverless Architecture

Software Architecture

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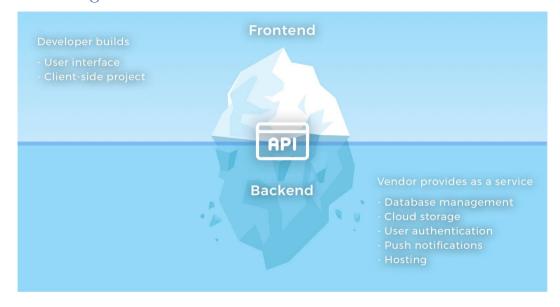
# Oxymoron 1. Serverless

Logic running on someone else's server.

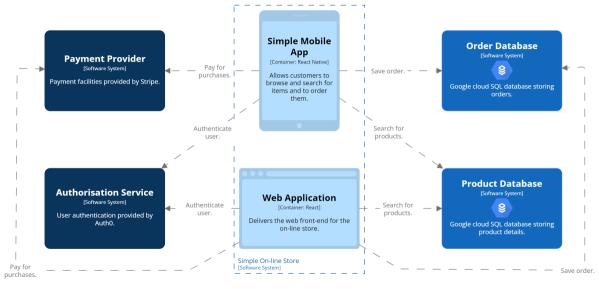
# Definition 0. Backend as a Service (BaaS)

Cloud-hosted applications or services that deliver functionality used by an application front-end.

# BaaS Iceberg [Brunko, 2019]



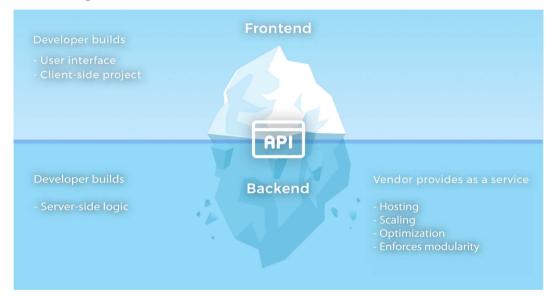
## BaaS Example



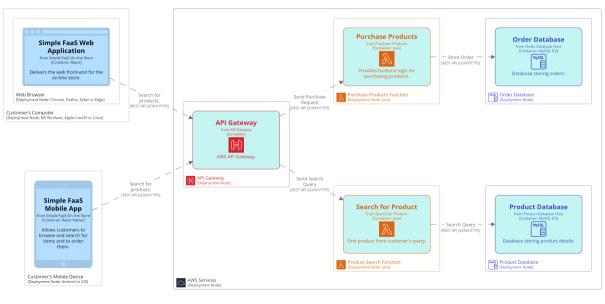
# Definition 0. Functions as a Service (FaaS)

Application logic that is triggered by an event and runs in a *transient*, *stateless* compute node.

# FaaS Iceberg [Brunko, 2019]



## FaaS Example

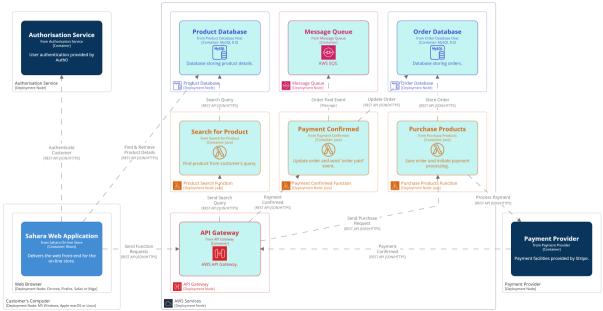


# Definition 0. Serverless Architecture

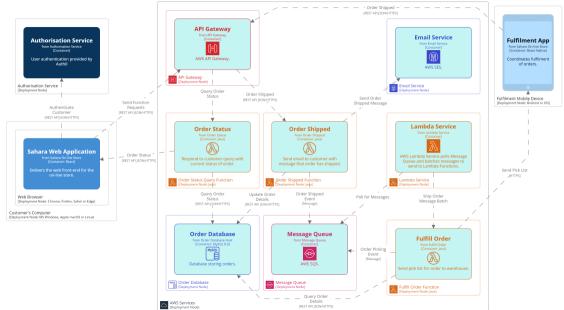
Software system delivering functionality through

BaaS or FaaS.

## Sahara Browse & Order — Serverless



## Sahara Fulfilment — Serverless



- Automatic scaling
  - Multiple instances of function

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- Reduced cost for dynamic loads
  - No server idle time
- Reduced server management
- Easier to run closer to client
  - Launch in same zone as client

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- Front-end accesses database directly
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  - Duplication of logic with multiple front-ends
    - Web, mobile, ...
- No control over server optimisation

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- Some languages worse than others (e.g. Java)
  Proliferation of functions
- Loss of encapsulation

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- High latency processing
  - Within function duration constraints
- Apps with variable load
  - Take advantage of auto-scaling

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  - Can't wait for FaaS to start
- Compute intensive processing
- Apps with steady load
  - Server-based approaches are cheaper

### Self-Study Exercise

- Redesign your scalability assignment to be serverless.
  - What parts of your design would benefit from being serverless?
- Implement your revised design.

Pros & Cons 00 Extensibility 00 Reliability 09 Interoperability Scalability Deployability Modularity Testability Maintainability Security Simplicity

#### References

[Brunko, 2019] Brunko, P. (2019).

Serverless architecture: When to use this approach and what benefits it gives.

https://apiko.com/blog/serverless-architecture-benefits/.