APIGEE

Welcome to APIGEE Course

About me:

- Name: Jagadeesh
- City: Bangalore, India
- Profession: Trainer and freelance developer
- Training Experience: 12 years
- Expertise: APIGEE, Mulesoft ESB, RAML, OAS and frameworks
- Trainings: 400+
- Projects: 20+
- Companies: 45+

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About The Course:

- Course Approach: Mostly practical
- PPTs usage: Less
- Showing Practicals: Almost all sections
- Student Practicals: Almost all sections
- Initial Sections: Theory oriented
- Initial theory oriented sections are very important, to understand the practical oriented sections

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Who can learn this Course:

- This course is designed for
  - Freshers
  - Experience developers
- This course starts APIGEE from scratch and slowly progresses to advanced level in step by step manner
- Regardless of who you are, you should feel no difficult learning the course
- But you should meet the pre-requisites
  - Basic idea about APIs
  - Knowledge on SOAP and RESTful web services
  - Knowledge on any programming language

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INTRODUCTION TO APIs and Microservices Architecture

AGENDA

- What is an API
- Different types of APIS
- What are microservices
- API development lifecycle

What is an API?

- Application programming interface
- Different types of APIS w.r.t
  - Programming languages like
    - Java API
    - Servlet API
    - JNDI API

  - Web services
    - Soap API
    - Rest API

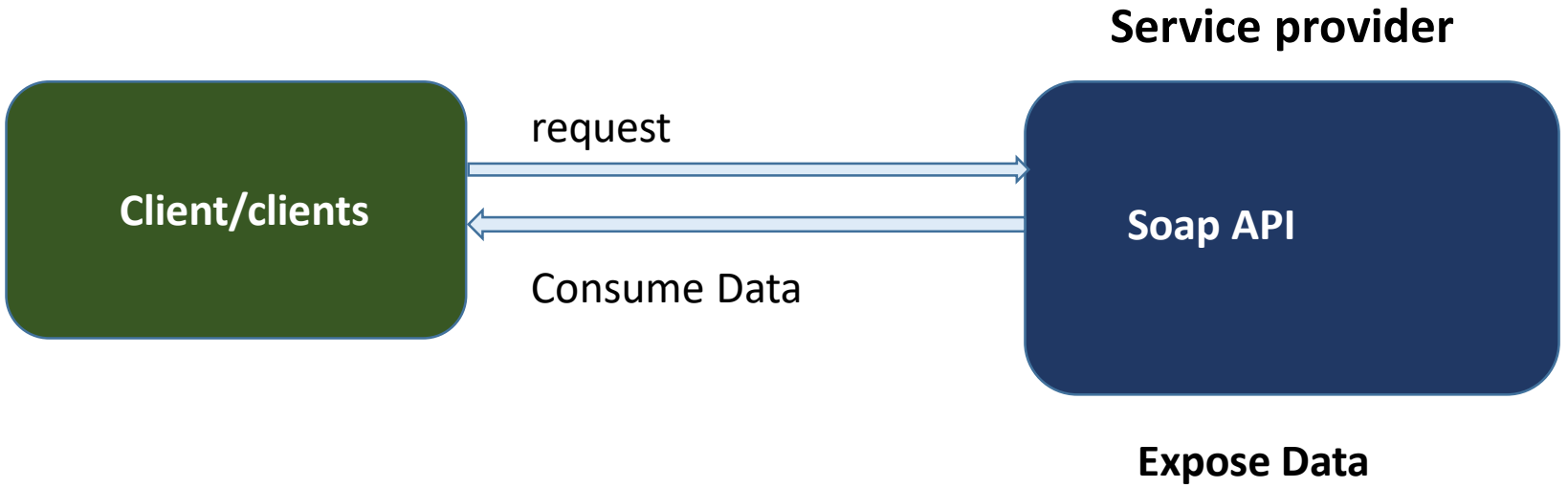
- Here we focus on the second type of APIs

SOAP API


Service Provider
request
Client/Clients
SOAP API
Response (data)
Exposing Data

SOAP API

- Service provider must describe
  - Endpoint URL
  - Operations
  - Schemas
- WSDL file
- API Specification



SOAP API

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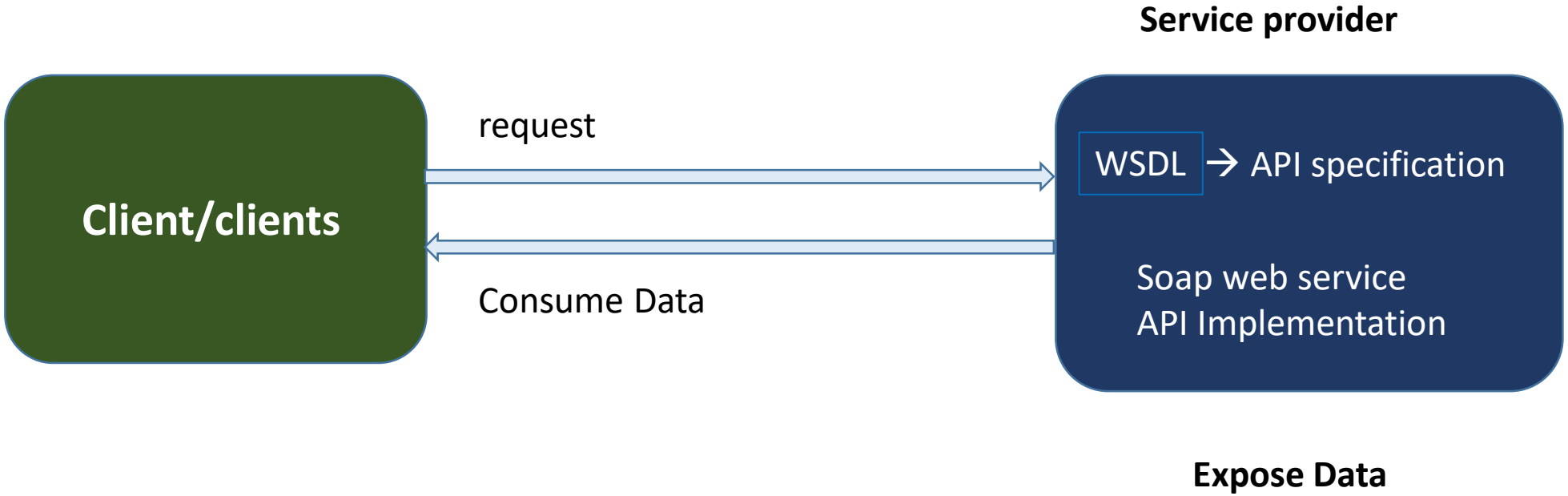

SOAP API

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REST API

- API Specification
  - No Official API Specification
  - Many Unofficial API Specification
    - RAML (Most popular)
    - SWAGGER (Equally popular as RAML)
    - WADL
    - API Blueprint
- API Implementation
  - RESTful web service app

REST API

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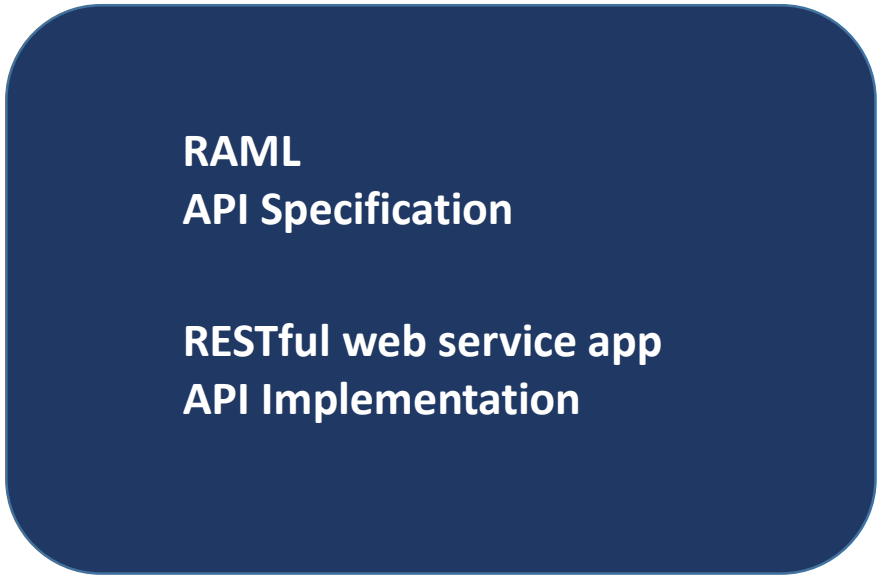
REST API



Differences between SOAP and REST

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SOAP	REST
Uses SOAP as application level protocol	Uses Http as application level protocol
Uses any public transport such as Http, JMS etc. as transport level protocol	Uses Http as transport level protocol
Supports only XML type for data exchange	Supports any data type for data exchange
Complex compared with REST	Simple compared with SOAP
Uses WSDL as API Specification	Uses RAML or SWAGGER as API Specification
SOAP protocol should be followed to define operations	Http path and verbs can be used to define operations. Ex: /employees GET /employees POST
Should be secured using WS-Security models	Can be secured using any Http authentication techniques. Ex: Basic Auth, OAuth etc

What is a microservice?

- **Microservice**
  - Is an API
  - Can be either SOAP or REST
  - Should be small enough to be called as a microservice
  - Should have operations w.r.t a single usecase or module
  - Has no industry wide standards
- **Organisations have their own guidelines**

How to create a microservice?

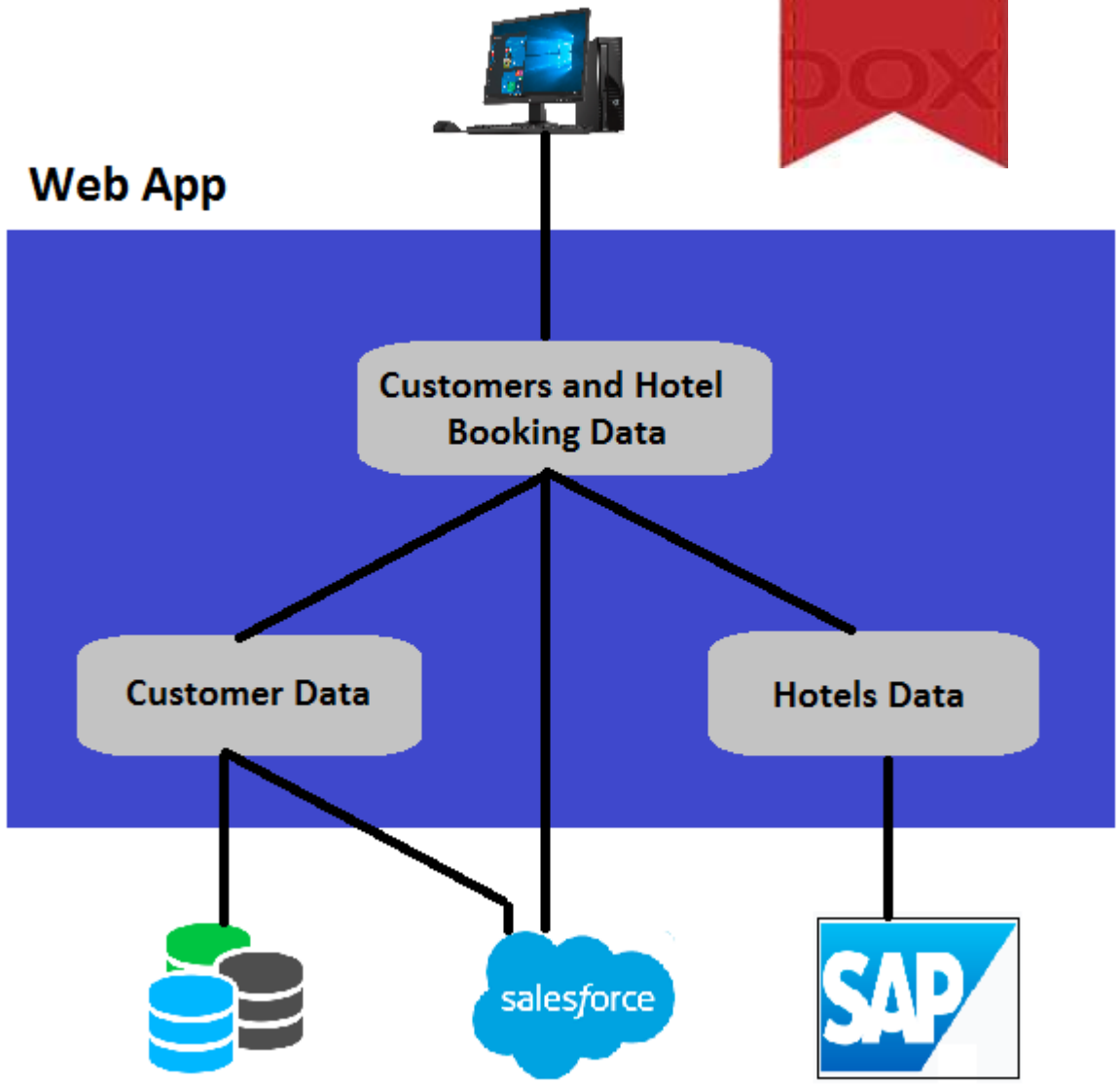
- (Big) Project requirement
  - Contains multiple usecases/modules
  - Usecase would have multiple operations
- Create an microservice (API) for each usecase

Project Requirement

Project requirement: A web app/api would be used by customers to view and manage their hotel bookings and their customer profile through web browser.

The data is in the following systems:

Customer data: **Database** and **Salesforce**
Hotel data: **SAP**
Hotel Booking data: **Salesforce**



Future requirement:

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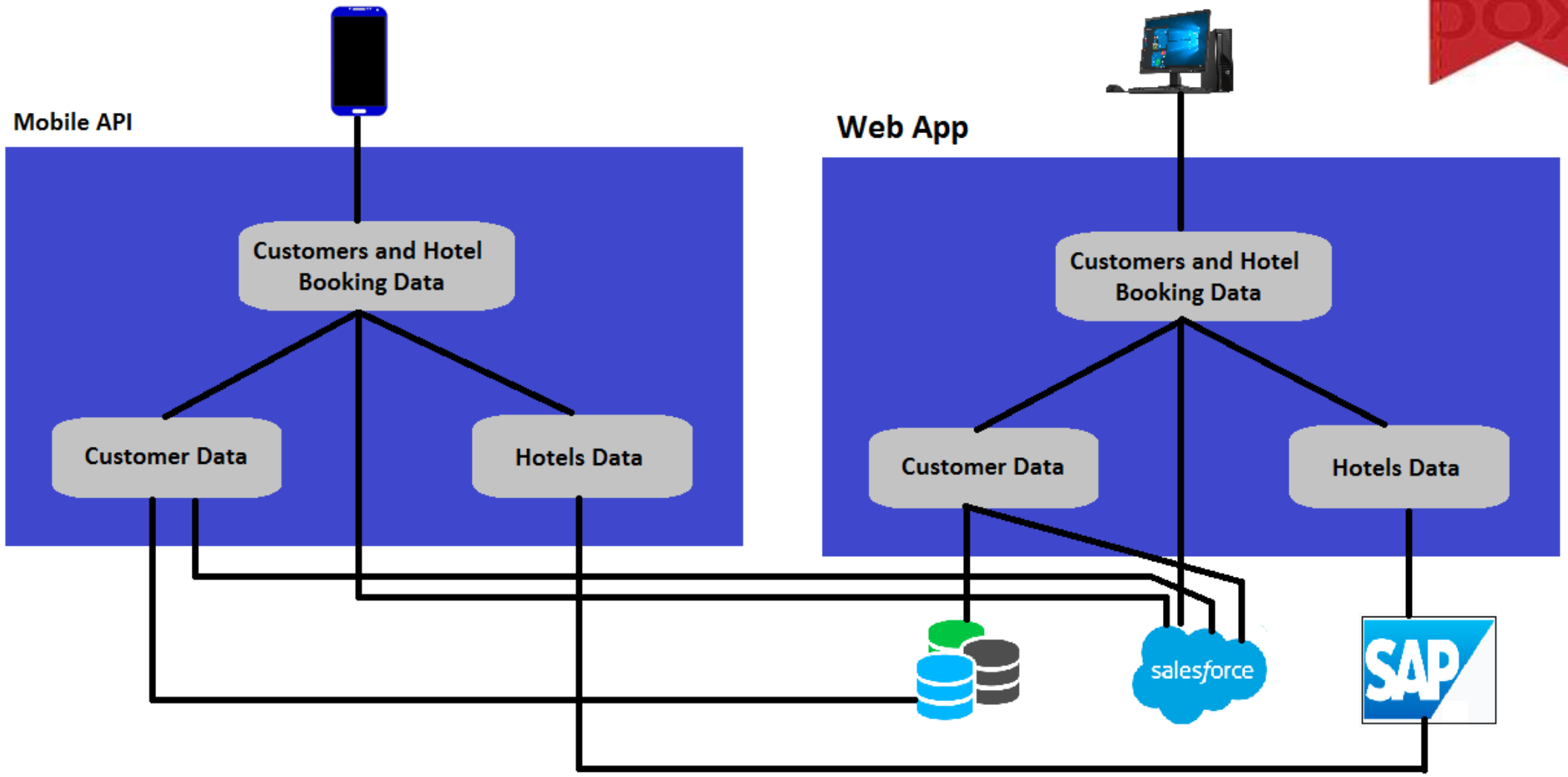

Standard Approach to microservices

- Resources
  - Customers
  - Hotels
  - Hotel Bookings
- DataSources
  - Database
  - SAP
  - Salesforce
- Resource and Datasource pairs
  - Customers, Database
  - Customers, Salesforce
  - Hotels, SAP
  - Hotel Bookings, Salesforce

System APIs

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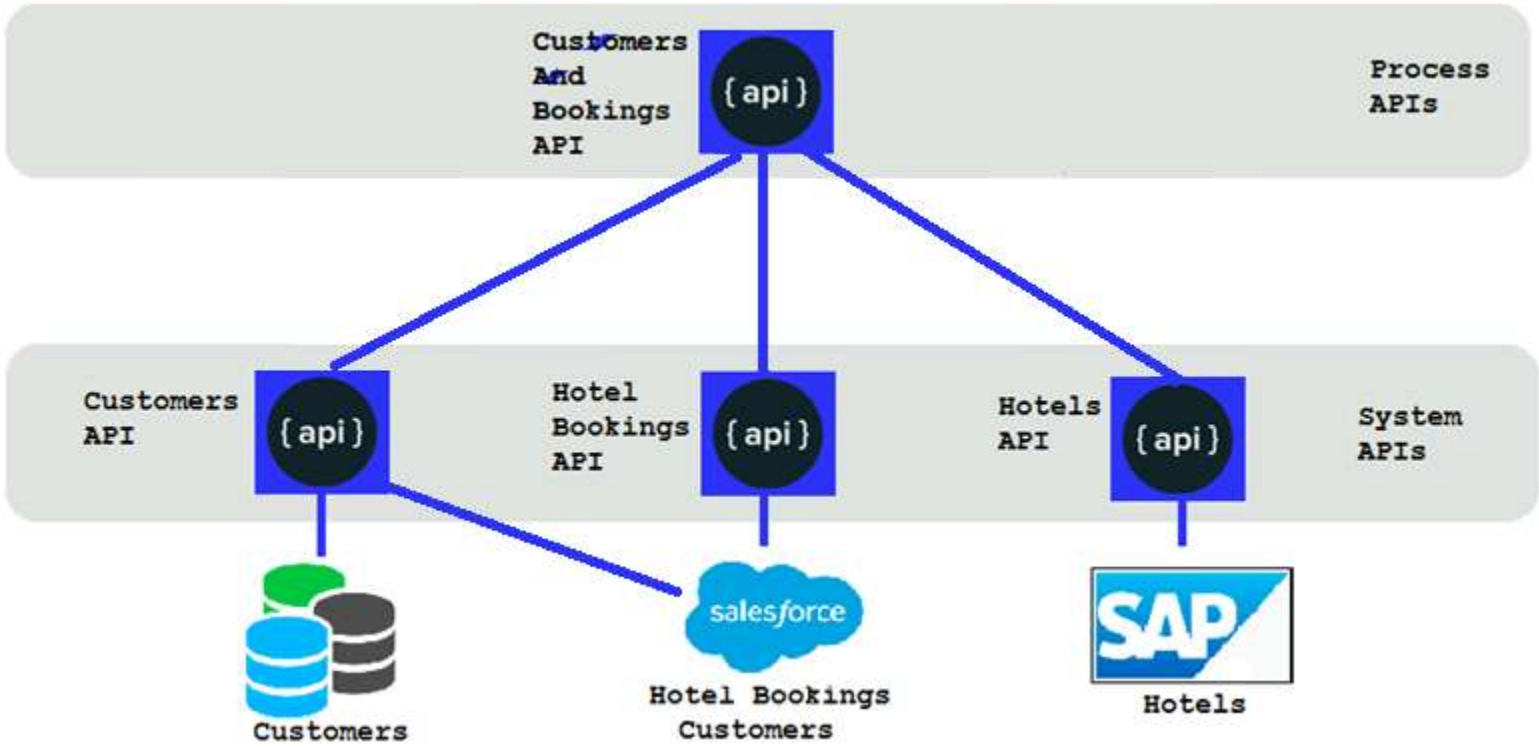
- Expose CRUD operations on top of data systems
- Performs basic data transformations and validations
- No business functionality, processing of data

Process APIs

- Consumes data from System APIs
- Performs business functionality and data processing
- Data aggregation
- Business validations

Process APIs



Experience APIs

- Consumes data from Process and System APIs
- Performs client specific functionalities
  - Data transformation
  - Gather additional data
  - Remove unnecessary data
- Optional if all clients accept same data

Microservices Architecture

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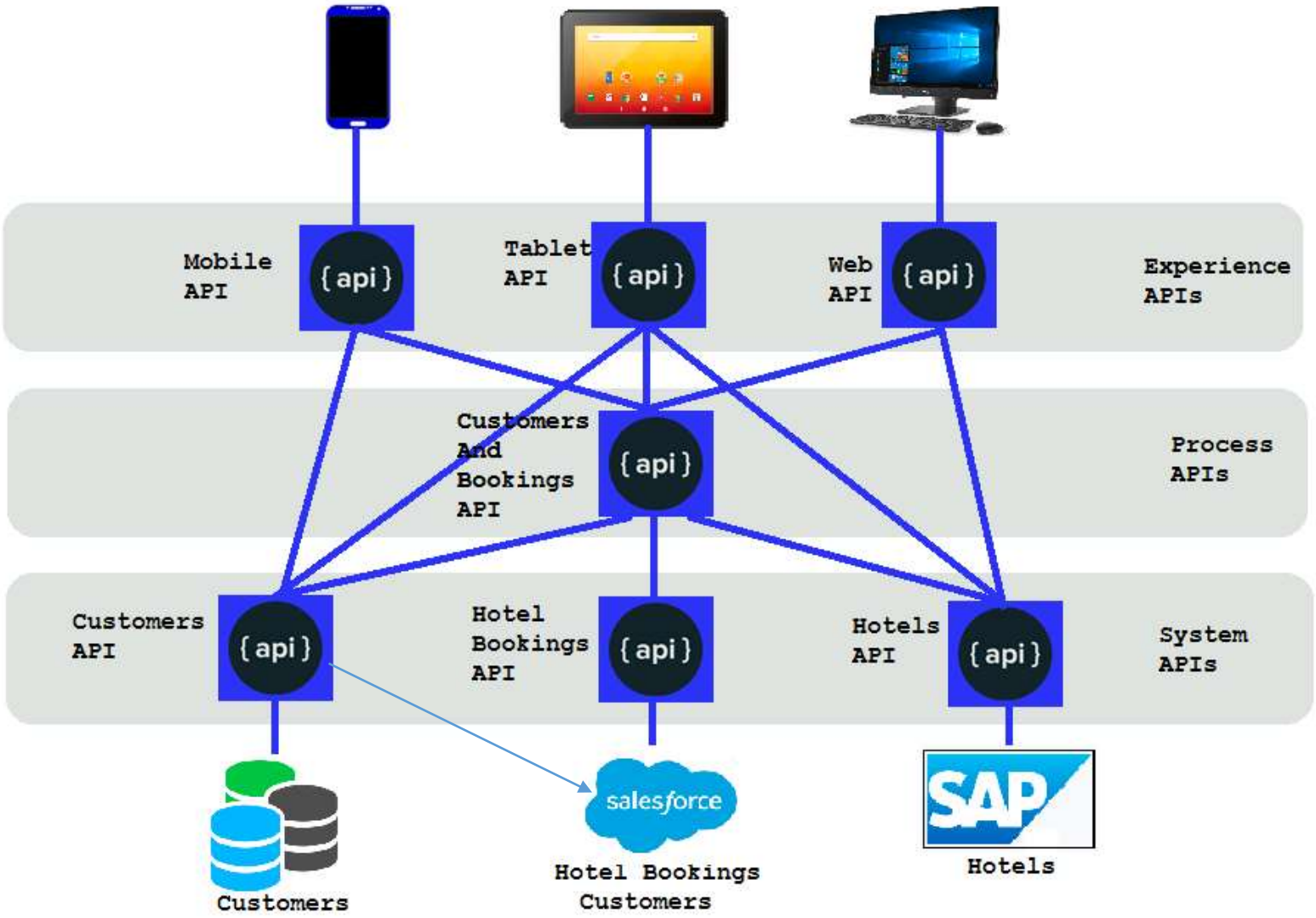
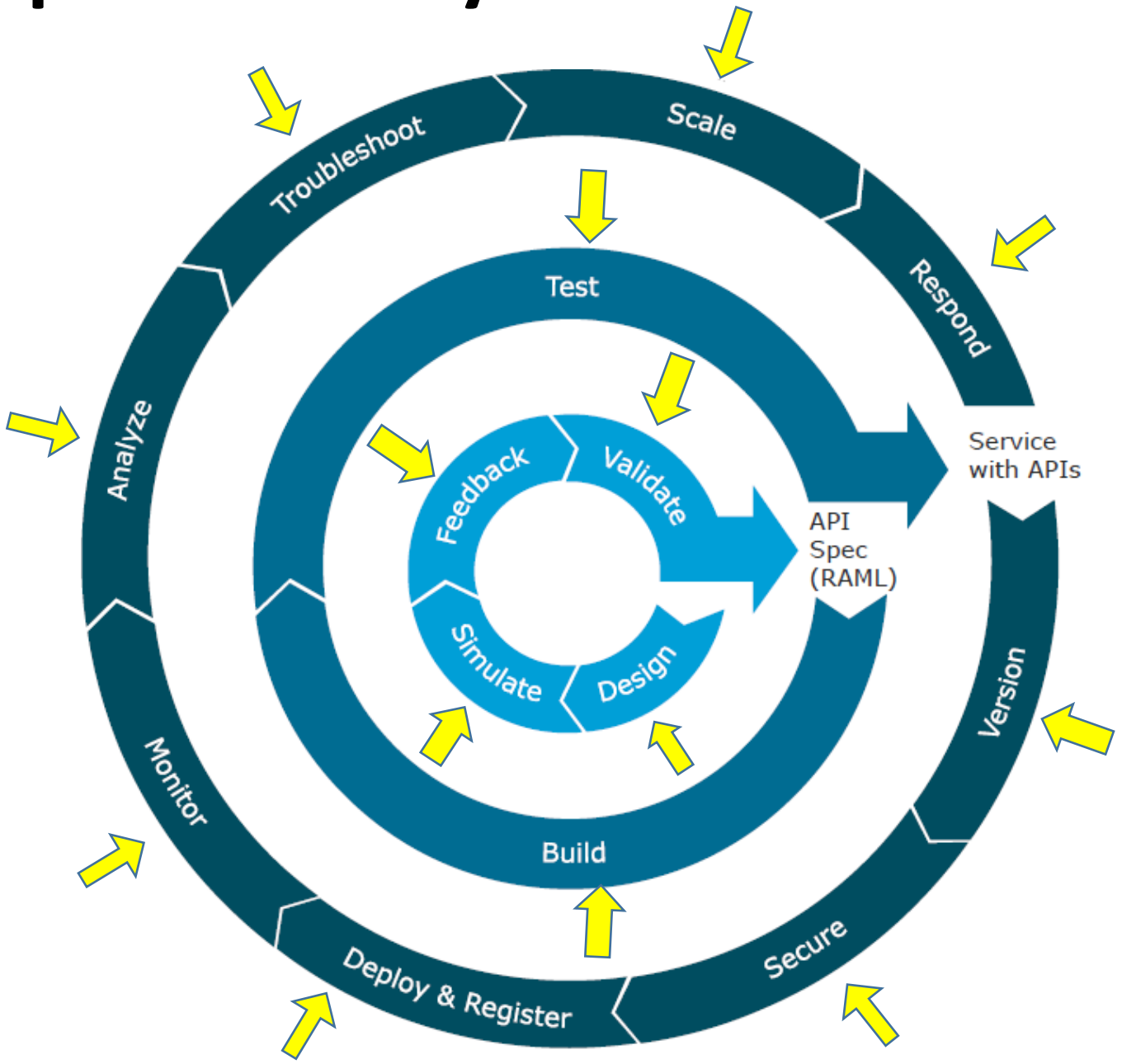


API Development Lifecycle:



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Negative Feedback

Positive Feedback

Testing Fails

Testing Success