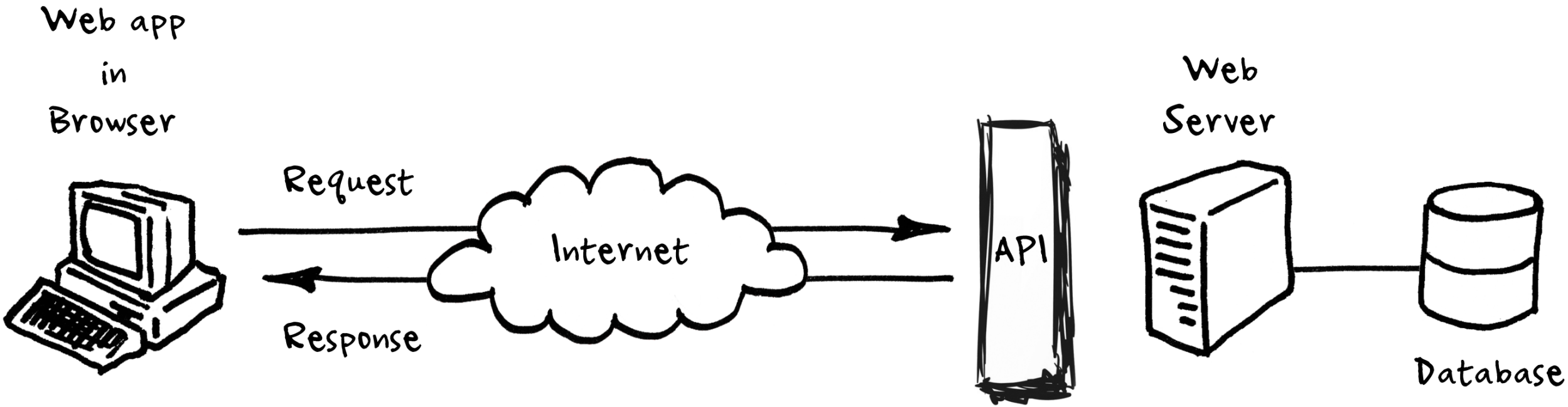
Module 15:
API App &
Implement API Management

What is an API?

- An application programming interface (API) is a computing interface which defines interactions between multiple software intermediaries.

- It defines the kinds of calls or requests that can be made, how to make them, the data formats that should be used, the conventions to follow, etc.

Usage


Web app
in
Browser
Request
Response
Internet
API
Web
Server
Database

What is an Azure API Apps?

Azure API Apps provide a rich platform and ecosystem for **building**, **consuming**, and **distributing** APIs in the cloud and on-premises.

Why Azure API Apps?

Benefits of App Services

- Automatic OS patching
- Enterprise grade security
- High availability
- Support for many platforms & languages
- Auto scaling and load balancing
- WebJobs for background processing
- Easy deployment, including continuous delivery
- Access on-premises data

Additional Benefits

- Bring your API as-is
- Simple access control
- Connectivity to SaaS platforms
- Swagger metadata
- Logic App integration
- Visual Studio tooling and support
- Public and private marketplaces
- Automatic dependency deployment
- Automatic updates

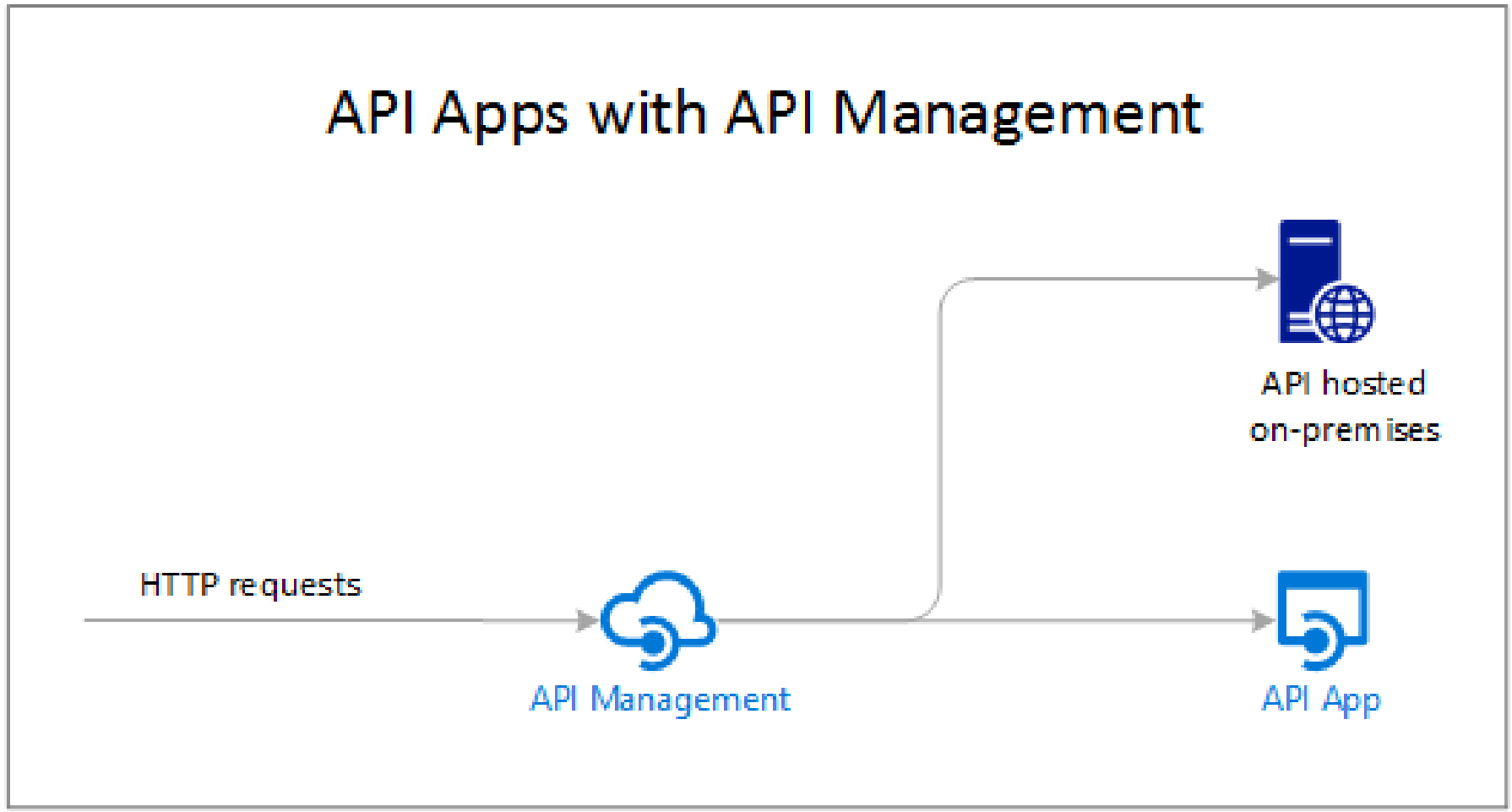
Web App vs. API App

	Web App	API App
End-to-end solution for a user	X	
Web Site	X	
User Interface Visualization	X	
Open it using a browser	X	
IIS features	X	
Service		X
Return Data		X
GET, POST, PUT, DELETE		X
Running small pieces of code		X
Languages : C#, F#, Node.js, Java, or PHP	X	X
Serverless, scaling, capacity planning, maintenance, high availability.	X	X
Supports Continuous Deployment and Integration	X	X
Premium Plan (execution time / memory)	X	X
App Service plan (While this is Running)	X	X
Consumption Plan (Execution Only),		X
Continuously running	X	
Manually triggered (Http Trigger)		X
Schedule (Time Trigger)		
Native Swagger implementation		X

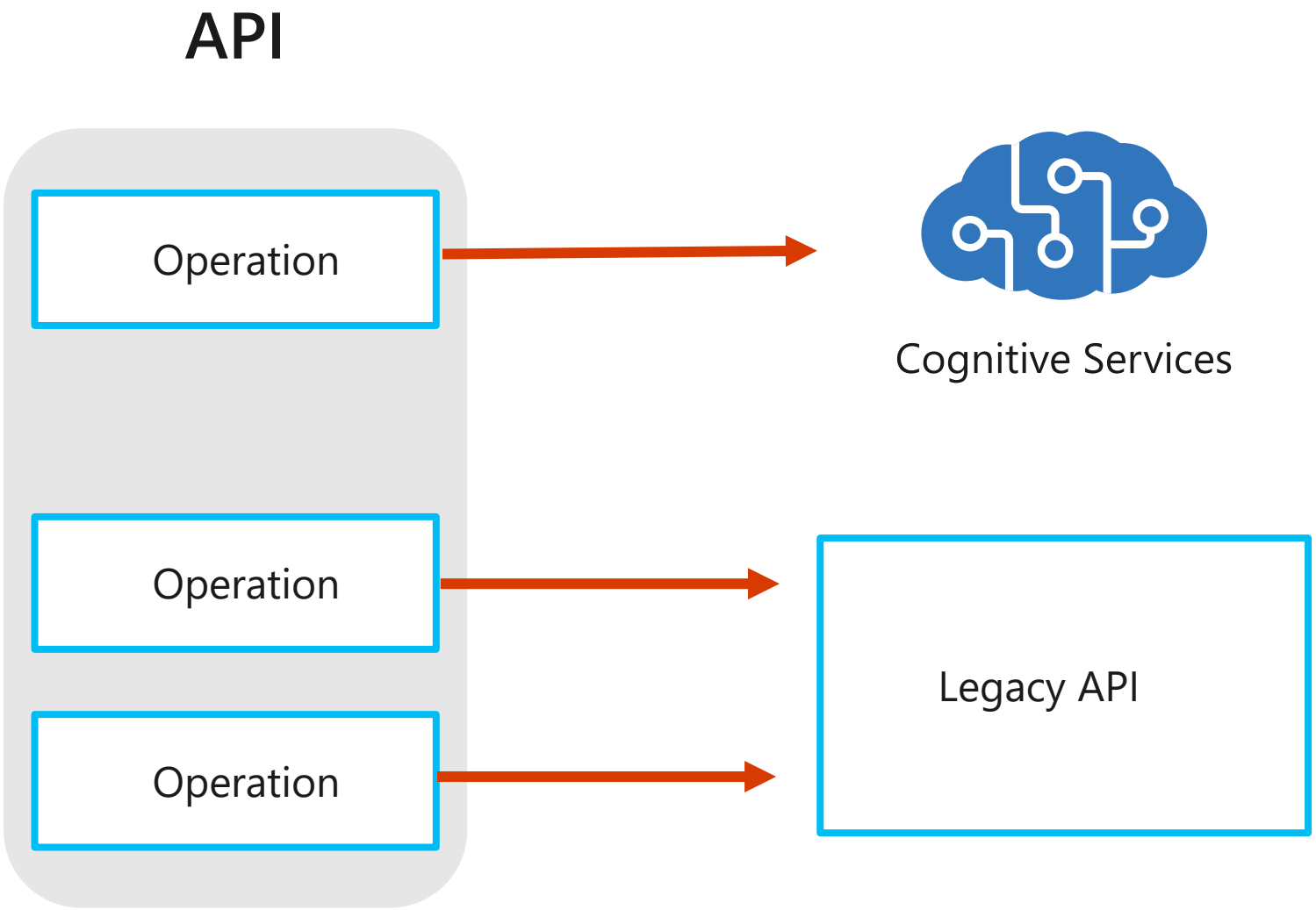
API Management (APIM)

- Streamlines the process of common tasks necessary for creating an API for external use
- Tasks include:
  - Creating a successful and useful developer portal
  - Securing API endpoints from anonymous or unwanted access
  - Managing existing developer access through cache mechanisms, throttling, and other policies
  - Building a monitoring and analytics platform to diagnose issues and monitor adoption
  - Providing business users and developers with deep insights into how each API is specifically used

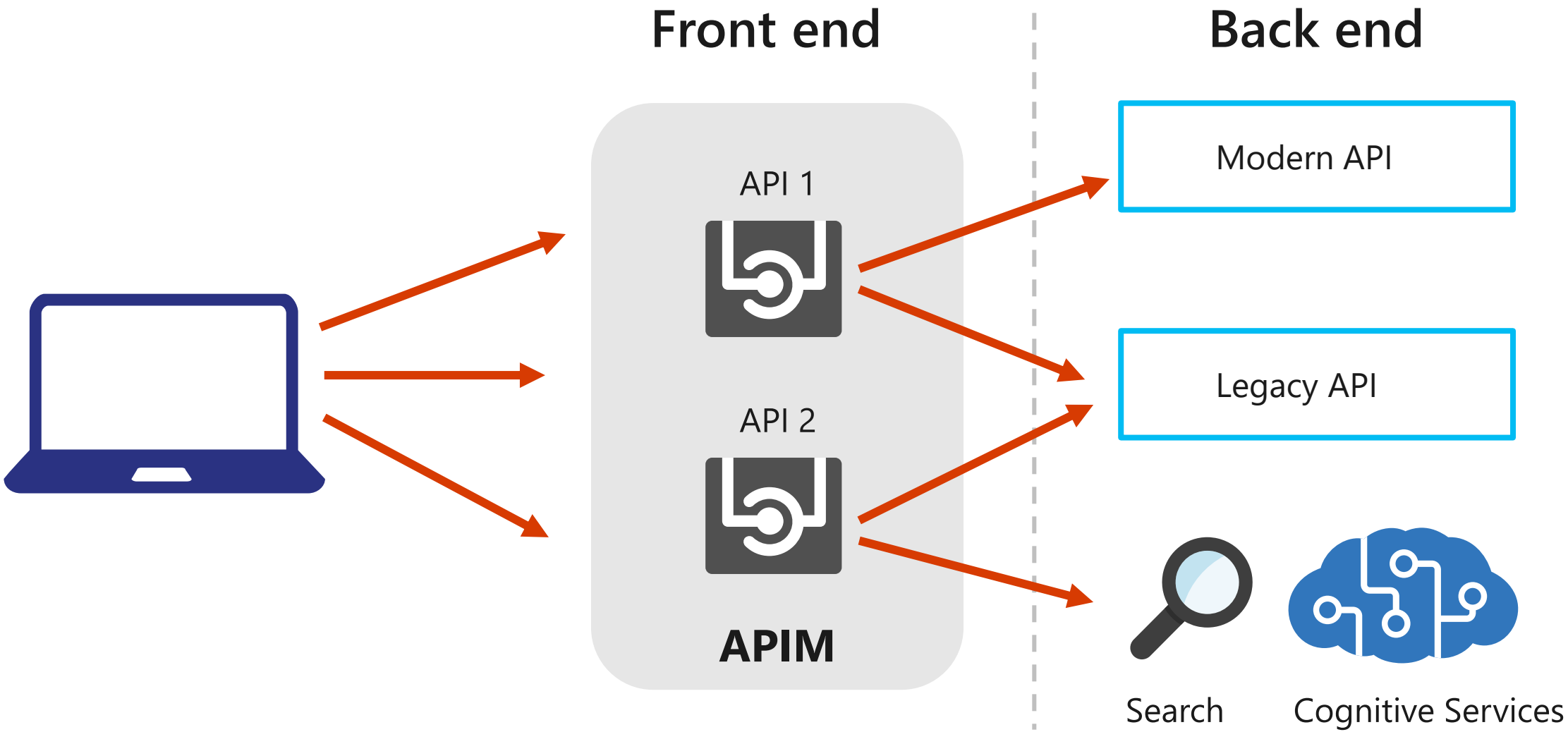
Difference between API Apps vs API Management



APIs and operations



Back-end and front-end APIs



Creating an API Management instance

- Create and manage APIs
- Each API contains one or more sets of operations
- Operations are configurable, granting control over:
  - URL mapping
  - Query and path parameters
  - Request and response content
  - Operation response caching

Service hierarchy

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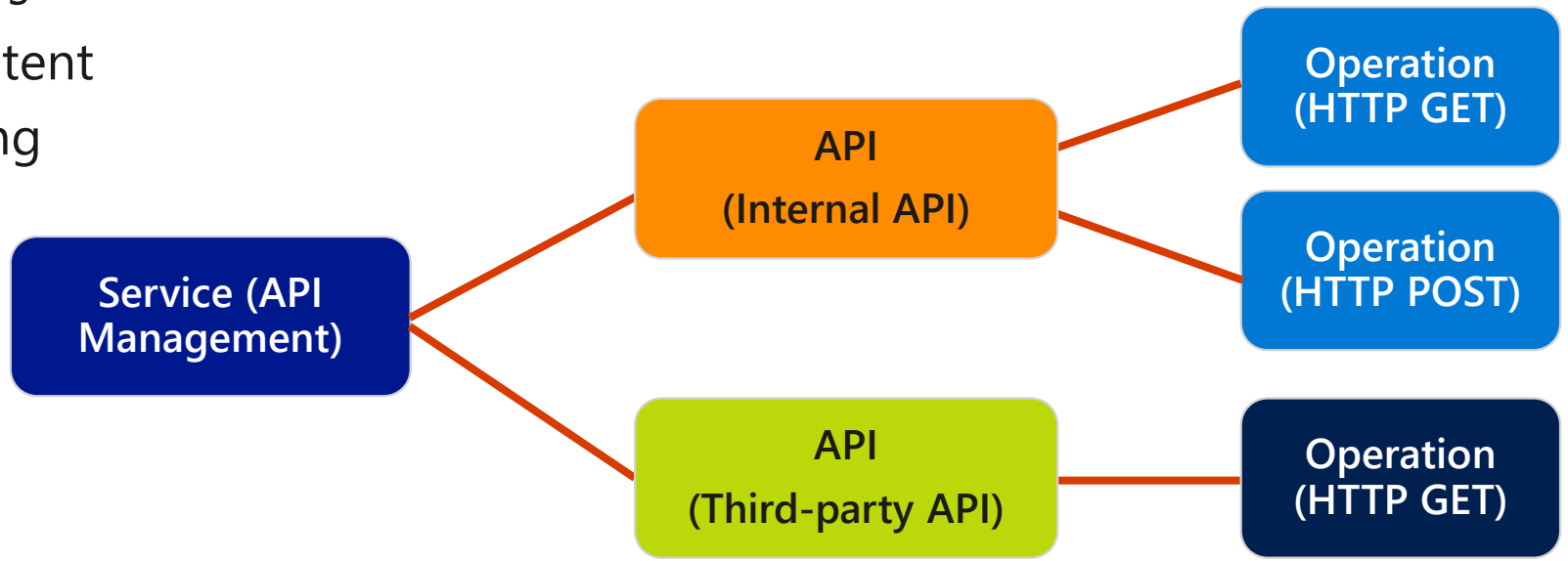
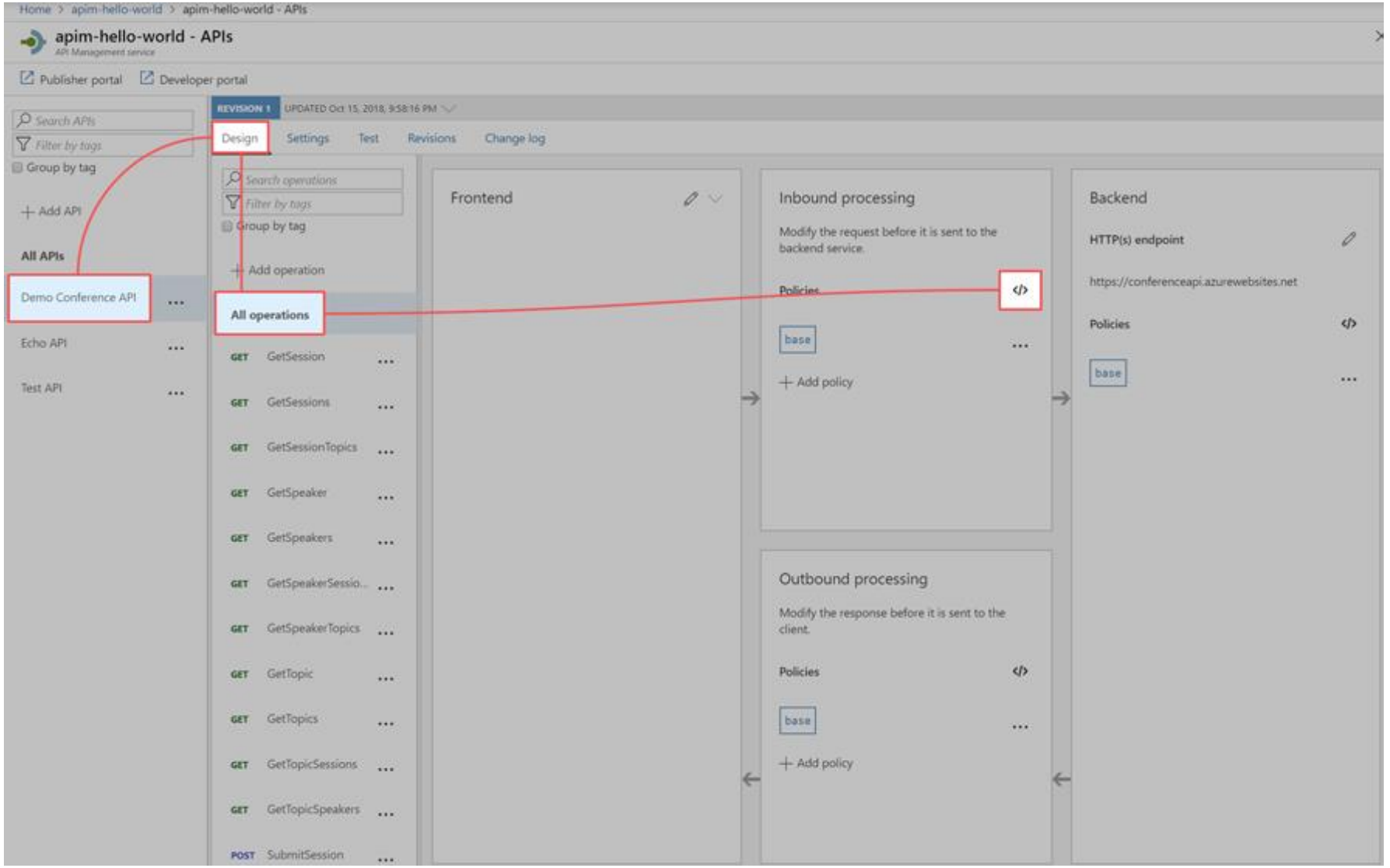


Policies

- Collection of statements that are executed sequentially at the request or response of an API
- Are a quick way to change the behavior of an API without code changes to the actual back-end API application
- A comprehensive list of policy options can be found at API Management policies (https://aka.ms/AA4gbik)

Editing policies

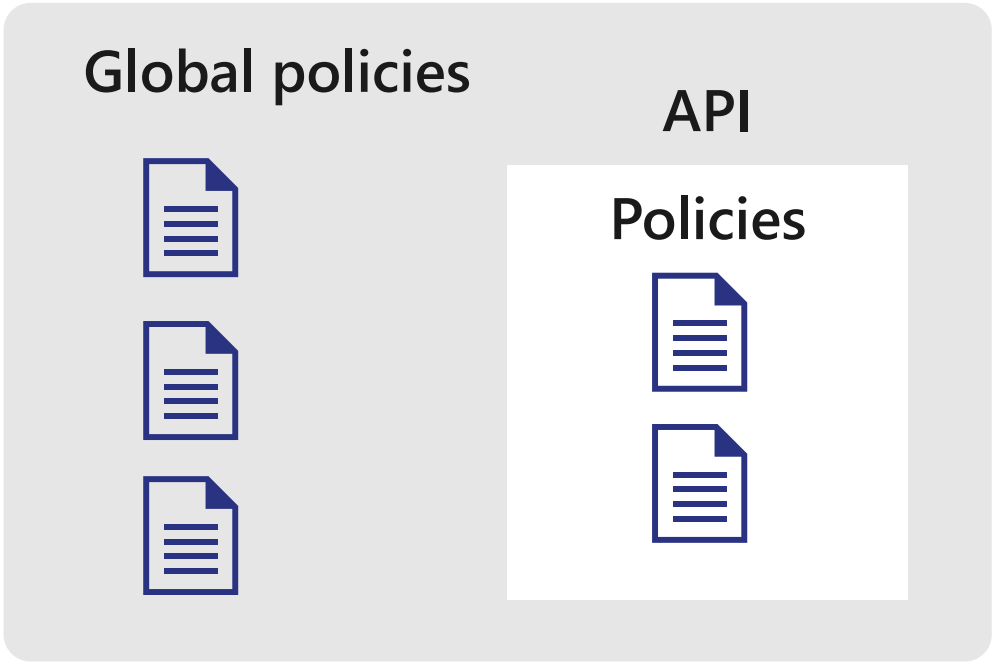
```
<policies>
    <inbound>
        <base />
    </inbound>
    <backend>
        <base />
    </backend>
    <outbound>
        <base />
    </outbound>
    <on-error>
        <base />
    </on-error>
</policies>
```



Policy scopes

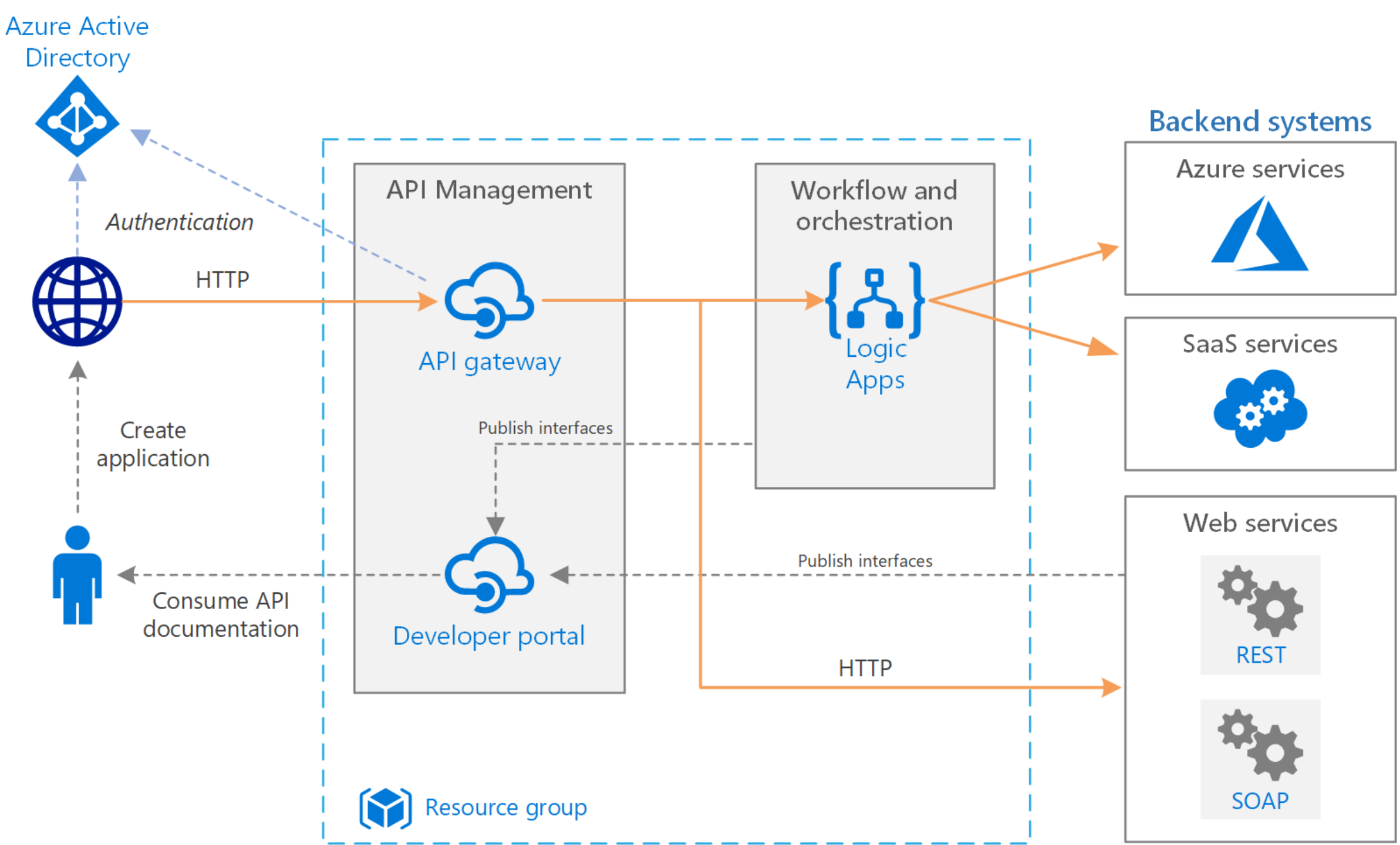
```
<policies>
    <inbound>
        <cross-domain />
        <base />
        <find-and-replace from="xyz" to="abc" />
    </inbound>
</policies>
```

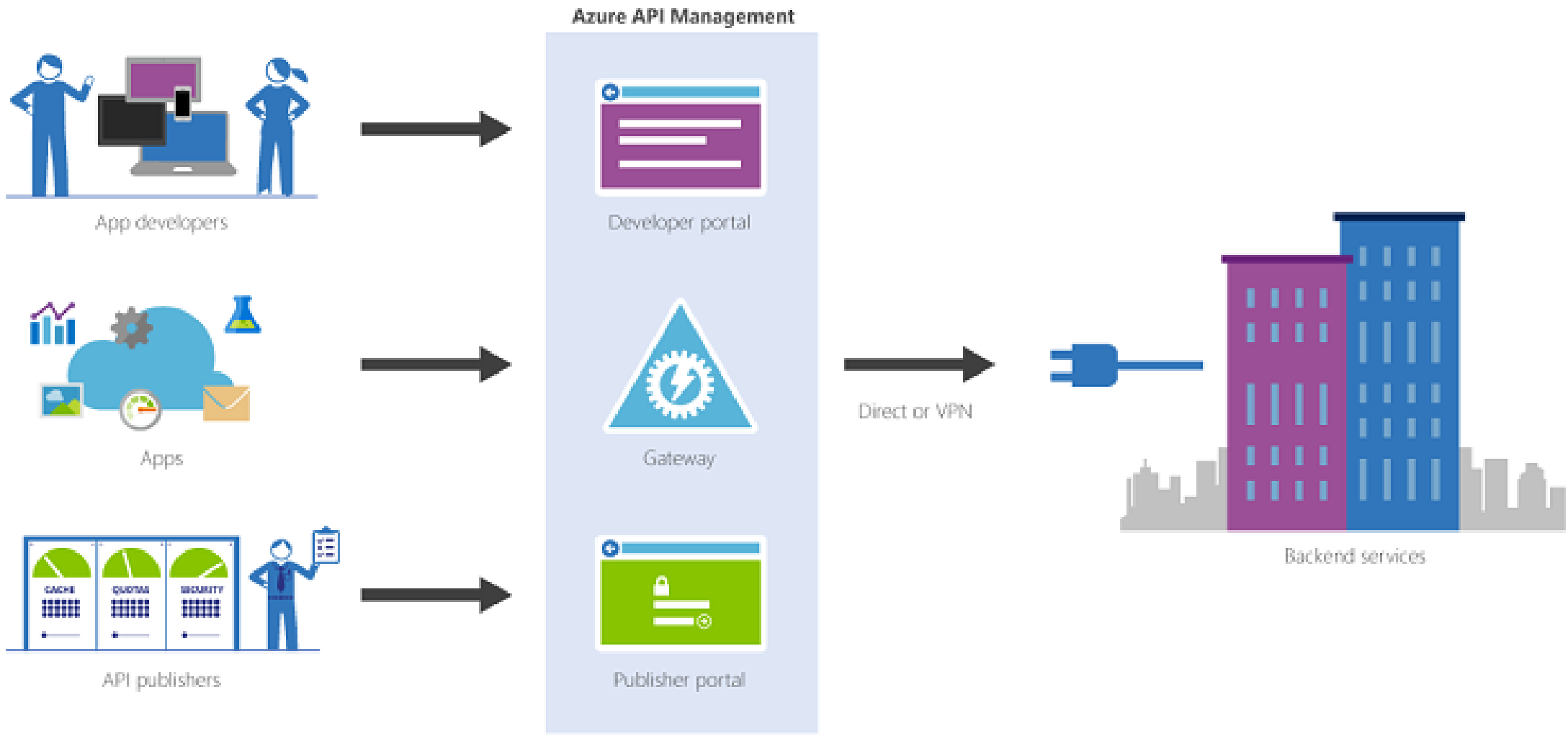
Global policies are invoked here.

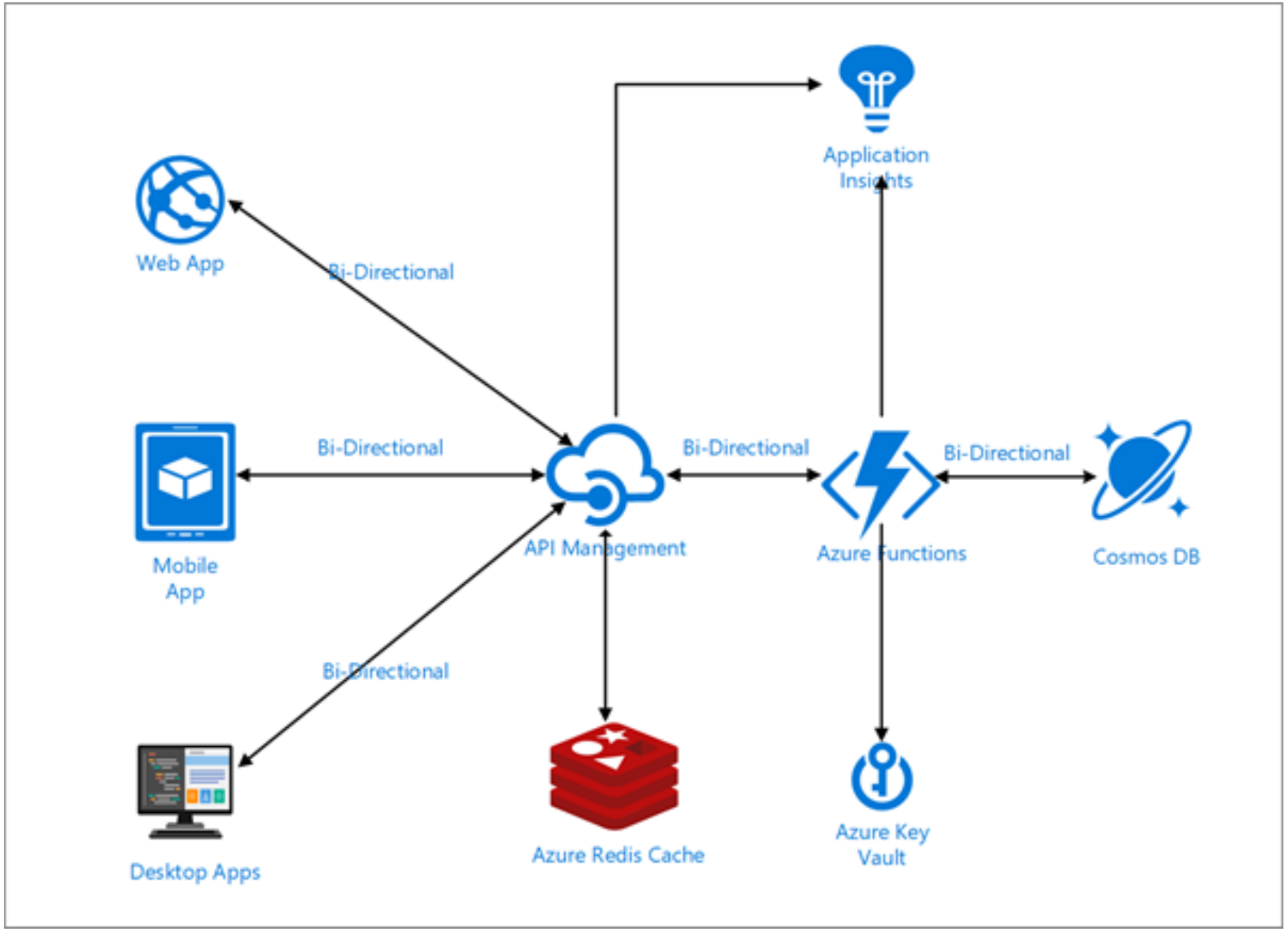


Subscriptions

- Subscriptions tie **Developers** together with **Products**
- A Developer will sign up for a subscription to get access to various products
  - The subscription will grant the Developer access to subscription keys
  - The subscription keys can be used to access specific products

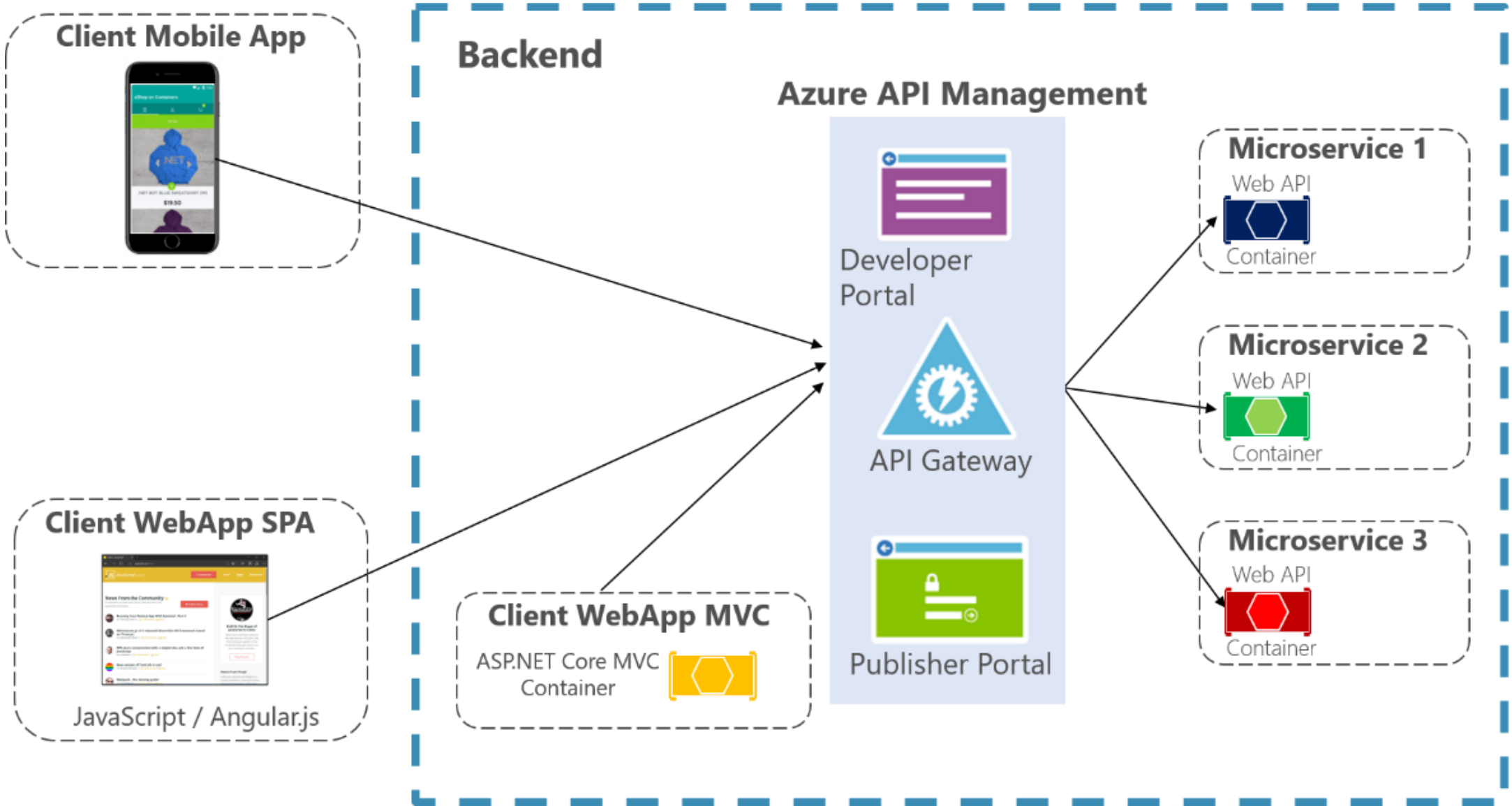

Azure Active Directory
Authentication
HTTP
Create application
Consume API documentation
API Management
API gateway
Publish interfaces
Developer portal
Workflow and orchestration
Logic Apps
Backend systems
Azure services
SaaS services
Web services
REST
SOAP
Publish interfaces
HTTP
Resource group


Azure API Management
App developers
Apps
API publishers
CACHE
QUOTAS
SECURITY
Developer portal
Gateway
Publisher portal
Direct or VPN
Backend services


Application Insights
Web App
Bi-Directional
Bi-Directional
Bi-Directional
Bi-Directional
Mobile App
API Management
Azure Functions
Cosmos DB
Bi-Directional
Desktop Apps
Azure Redis Cache
Azure Key Vault

API Gateway with Azure API Management

Architecture



Demo & Lab:
API Management