APIs: Connecting applications
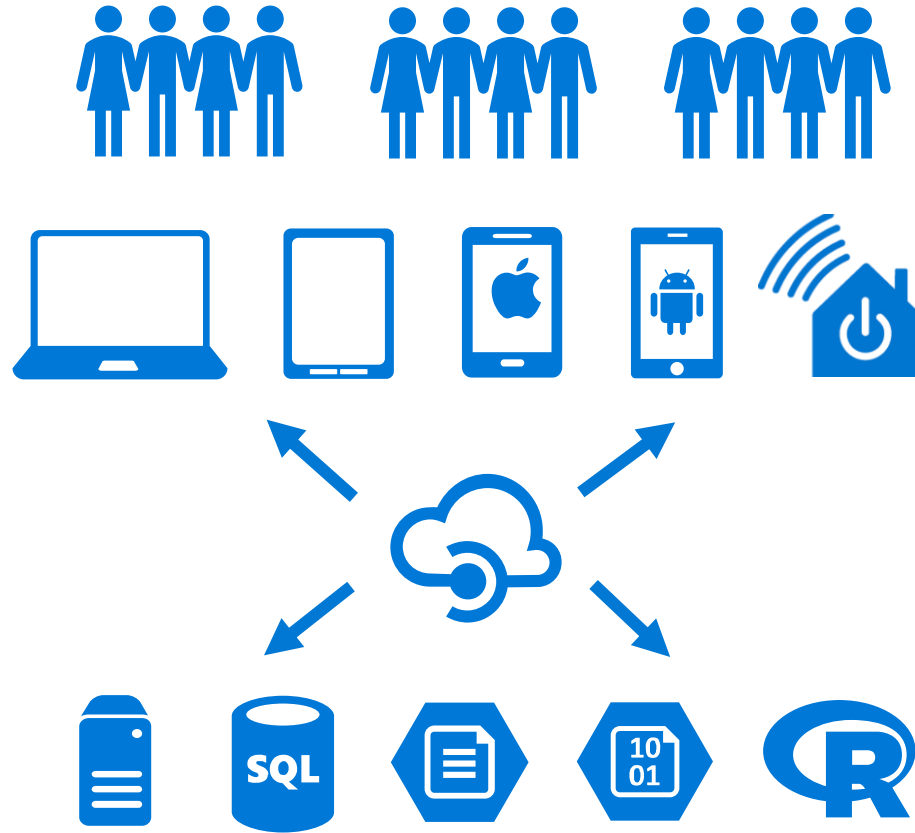
Customers, partners & developers

Web, mobile, devices & 3rd party integrations

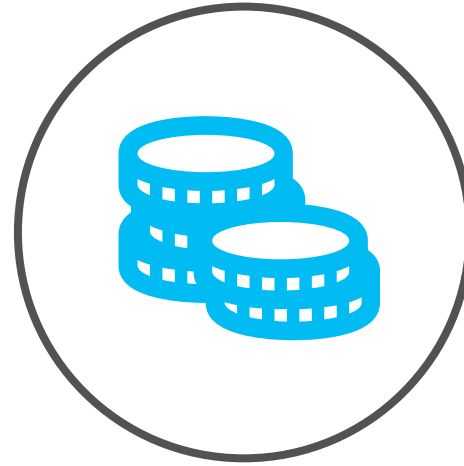Application Programming Interface (API)

Internal data, applications & algorithms

Benefits of APIs

Expand
market reach

Foster
innovation

Lower
TCO

Highly scalable
business models

API using Azure Functions

Customers —deployment→ customers.azurewebsites.net

Products → products.azurewebsites.net

Orders → orders.azurewebsites.net

API calls

Azure API Management

- Cloud hosted, turnkey solution
- Works with any host, API, and scale
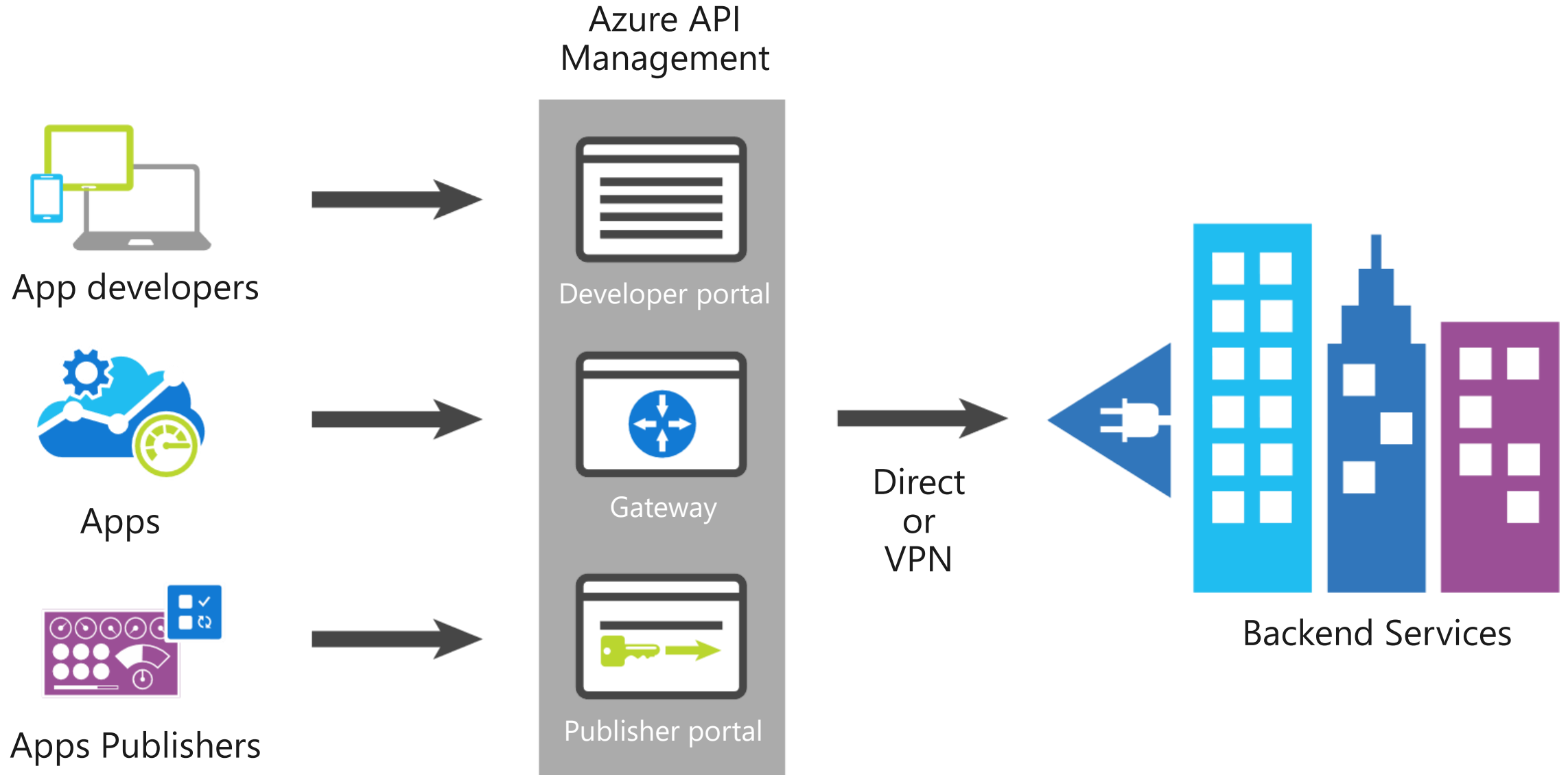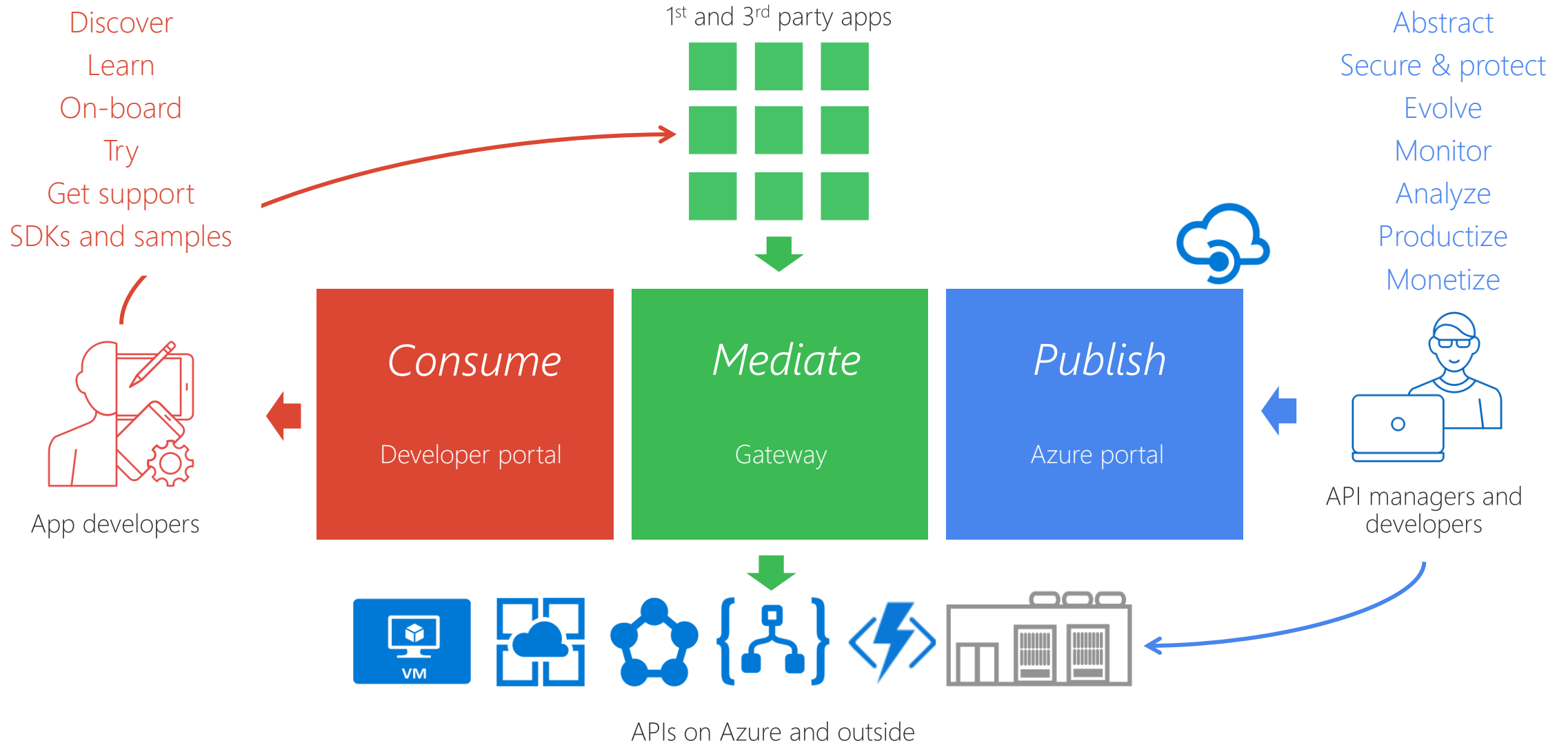- Promotes and supports developer engagement
- Secures and optimizes APIs
- Provides API insights and analytics

Key Features

App developers

Apps

Apps Publishers

Azure API Management

Developer portal

Gateway

Publisher portal

Direct or VPN

Backend Services

API Management - a hub for enterprise APIs

Discover
Learn
On-board
Try
Get support
SDKs and samples

1st and 3rd party apps

Abstract
Secure & protect
Evolve
Monitor
Analyze
Productize
Monetize

App developers

Consume	*Mediate*	*Publish*
Developer portal	Gateway	Azure portal

API managers and developers

APIs on Azure and outside

Security and protection

App developers

- Username/Password
- Microsoft account
- Google account
- Facebook account
- Twitter account
- Azure AD (Premium)
- Azure AD B2C (Premium)
- Delegated

1st and 3rd party apps

- Key
- OAuth 2
- OpenID Connect
- Client certificate
- IP filter
- Rate limits and quotas

API managers and developers

- Azure account
- RBAC

Developer portal

Consume

Gateway

Mediate

Azure portal

Publish

- HTTP Basic
- Mutual certificate
- Shared secret
- IP filter
- VNET/NSG

APIs on Azure and outside

Azure API Management Portal Concepts
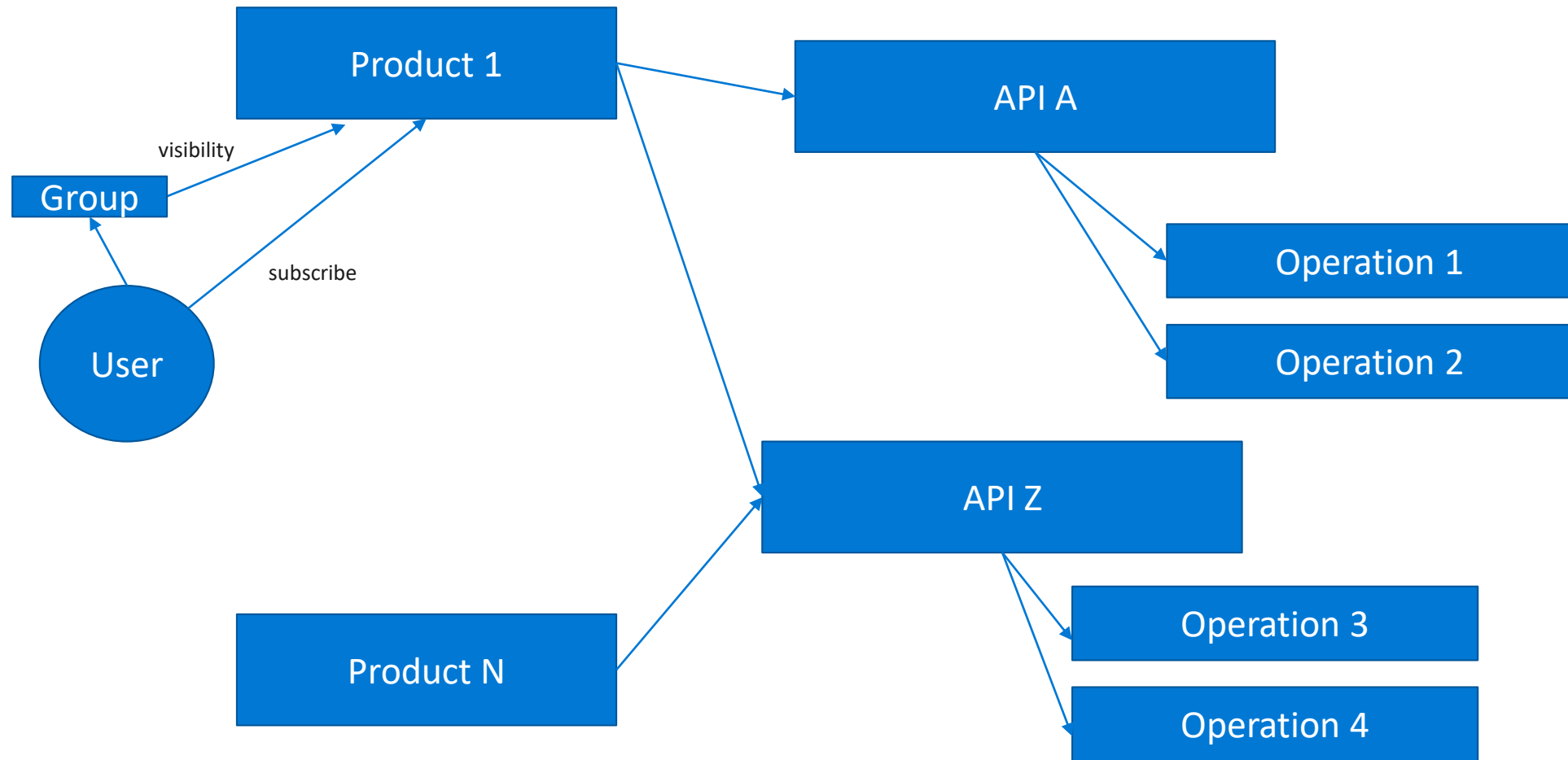
Policies

Encapsulate common API management functions

  Access control, Protection, Transformation, Caching, …

Chained together into a pipeline

Mutate request context or change API behavior

Set in the inbound and outbound directions

Can be triggered on error

Applied at a variety of scopes

Access restriction policies

+ Check HTTP header

+ Limit call rate per key

+ Limit call rate per subscription

+ Restrict caller IPs

+ Set usage quota per key

+ Set usage quota per subscription

+ Validate JWT

Advanced policies

+ Control flow

+ Forward request to backend service

+ Log to EventHub

+ Output trace information

+ Retry

+ Return response

+ Send one way request

Calculate effective policy

Access Restriction Policies

· Check HTTP header

· Limit call rate
> by subscription and/or custom key

· Restrict caller IPs

· Call volume or bandwidth quota
> by subscription and/or custom key

· Validate JWT
> Pre-authenticate for Oauth2 or OIDC back-ends

Transformation Policies

Convert between JSON and XML

Find and replace string in body

Rewrite URLs in content

Set backend service

Set body

Set HTTP header

Set query string parameter

Rewrite URL

Transform request or response XML using an XSLT

Some other policies

Set / Get variable

Conditional control flow

Log To Event Hub
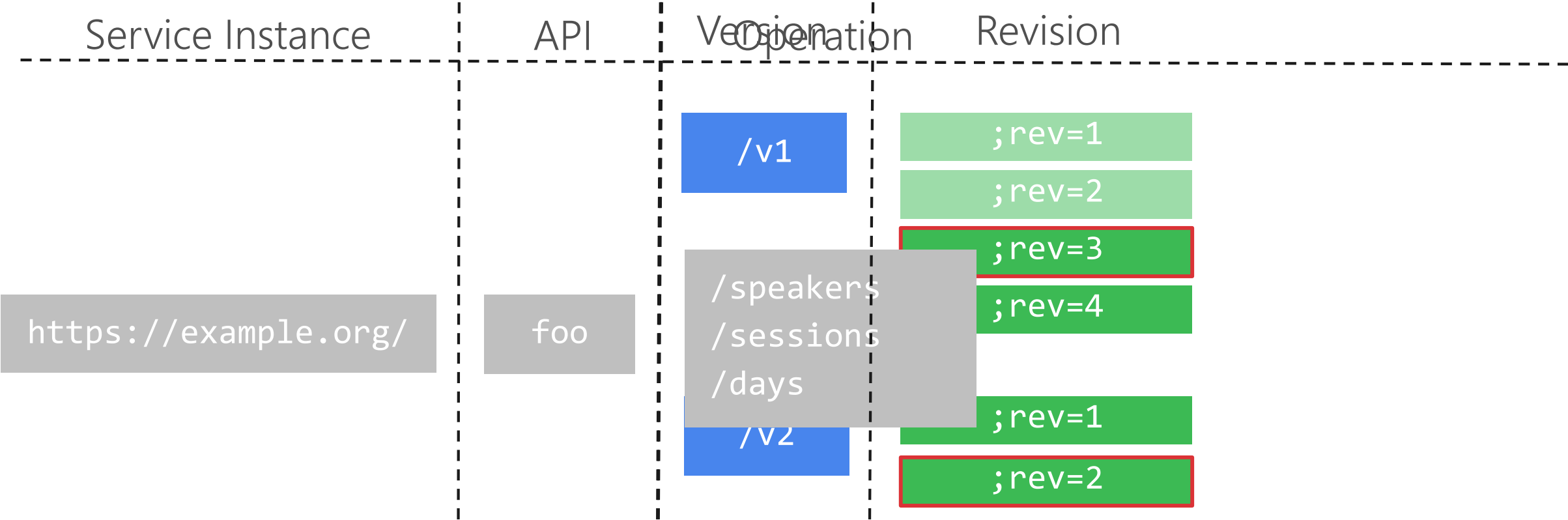
Set Request Method

Authenticate to back-end with basic or client certificate

Store in Cache / Retrieve from cache

Send one-way request

(More)

Versions and revisions in API Management

Monitorability, tracing, analytics

- Azure Monitor and Azure Activity log like any Azure service
- Integrate with AppInsights (preview)
  - Requests
  - Dependency (back-end) calls
- Integrate with OMS
  - Gateway Logs
  - Metrics
- Log requests/responses/errors to Event Hub – via policy
- Analytics in Publisher Portal
- [Power BI Solution template for APIM](#)

Azure API Management Analytics

Power BI
Solution Templates
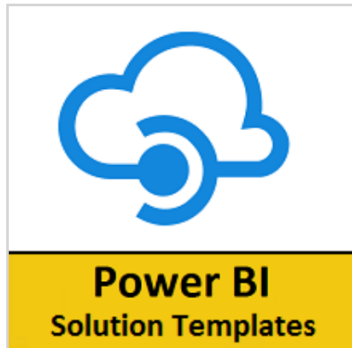
GET IT NOW

TEST DRIVE

What's Test Drive?

♡ SAVE FOR LATER

★★★½★ (7)

Pricing
Free

Products
Web Apps
Power BI Solution Templates

Publisher
Microsoft

Azure API Management Analytics
Microsoft

Overview   **Reviews**

Stream and analyze your Azure API Management traffic data with our intuitive Power BI reports.

The Azure API Management Analytics solution template for Power BI stands up an event streaming pipeline to provide near real-time analytics on top of API Management. The pipeline combines Event Hub, Stream Analytics, and SQL to provide a flexible streaming-with-storage experience. Azure Machine Learning and Azure Functions are used to process your data and provide additional insight into patterns and trends. Get started with compelling reports that can be customized to highlight the information most important to your business.
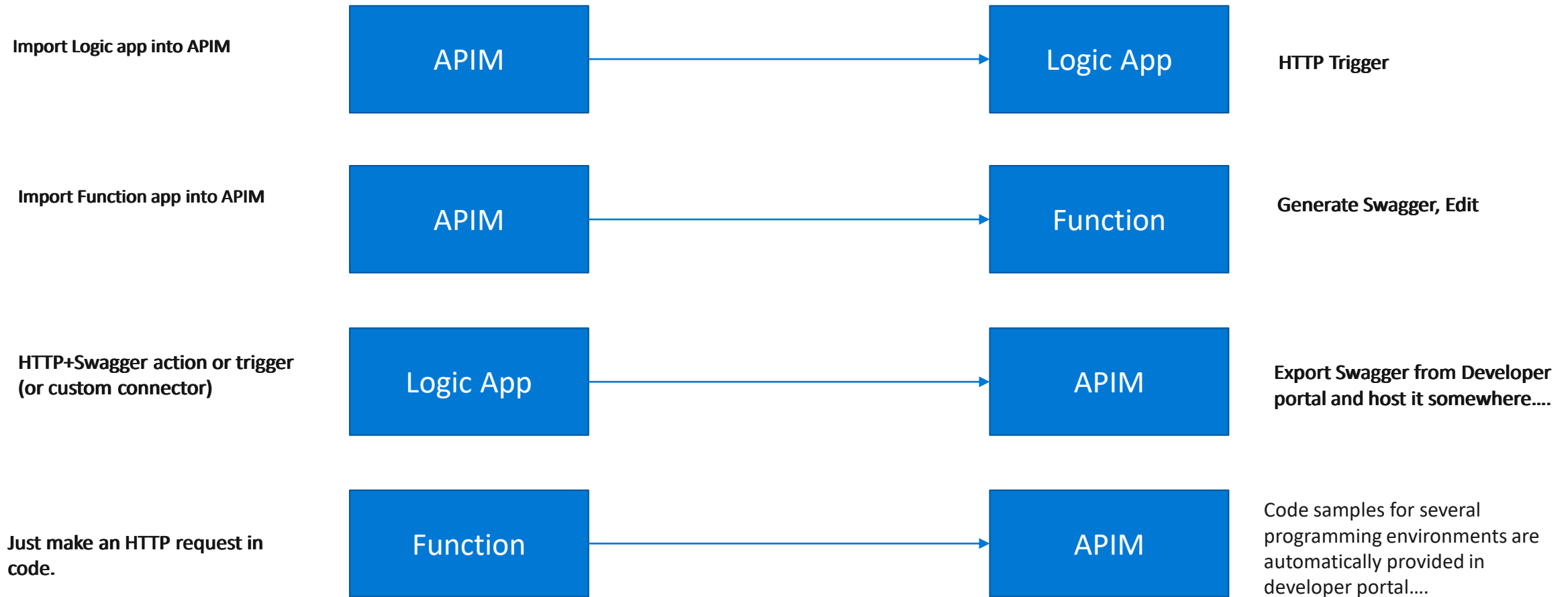
Azure API Management Analytics:

- Eyecatching, insightful Power BI reports on up to 90 days of API traffic (data will begin streaming once the temlate is deployed)
- Use an intuitive wizard-based UI to spin up a SQL database to accumulate live API log data.
- Leverage the real-time event stream processing capabilities of Event Hub and Stream Analytics
- Monitor your API Management traffic activities at a high level or drill down into certain failures and the actions of active sunscriptions
- Delve in to problems, look for patterns.
- Embrace the API economy by sharing API data with business users & product managers.

This product includes GeoLite2 data created by MaxMind, available from http://www.maxmind.com.

Learn more

Using API Management with Serverless

Import Logic app into APIM

APIM → **Logic App**   HTTP Trigger

Import Function app into APIM

APIM → **Function**   **Generate Swagger, Edit**

HTTP+Swagger action or trigger (or custom connector)

Logic App → **APIM**   **Export Swagger from Developer portal and host it somewhere....**

Just make an HTTP request in code.

Function → **APIM**   Code samples for several programming environments are automatically provided in developer portal....

API Management Demo