



# Flight Delay Compensation: how SwissRe is discovering new possibilities between Business and IT

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Codit

**Insurance companies** are our clients

We re-insure them to cope with large losses following catastrophic events



**Technology companies** are our partners



Together we develop innovative insurance products to make the world more **resilient**



# STORK Flight Delay

Simplifying the  
consumer journey



## 13%

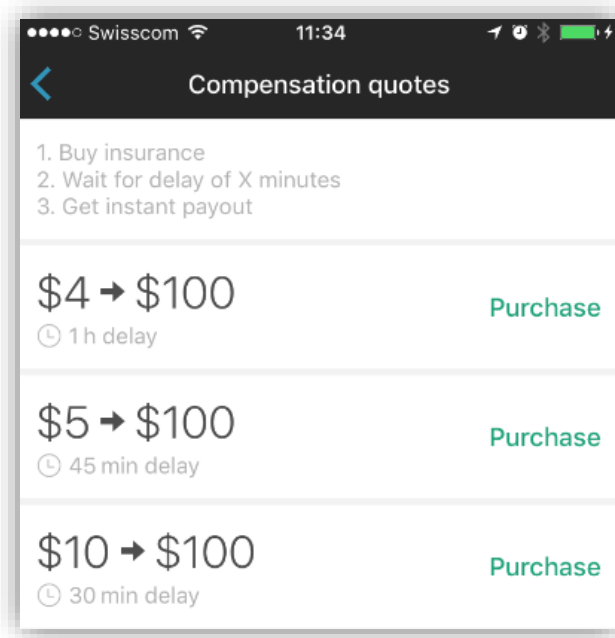
... of flights experience a delay of 30 minutes or more. This leads to numerous consumer complaints and a negative customer experience. Swiss Re's STORK Flight Delay solution lets you turn a negative experience into a positive one.

# Flight Delay Insurance

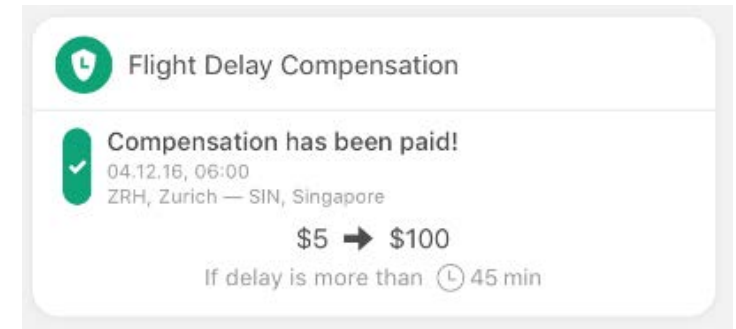
## 1 Book flight



## 2 Choose coverage and buy



## 3 Delay = immediate payout



High volumes  
Airlines carried

3.9 billion passengers  
in 2016

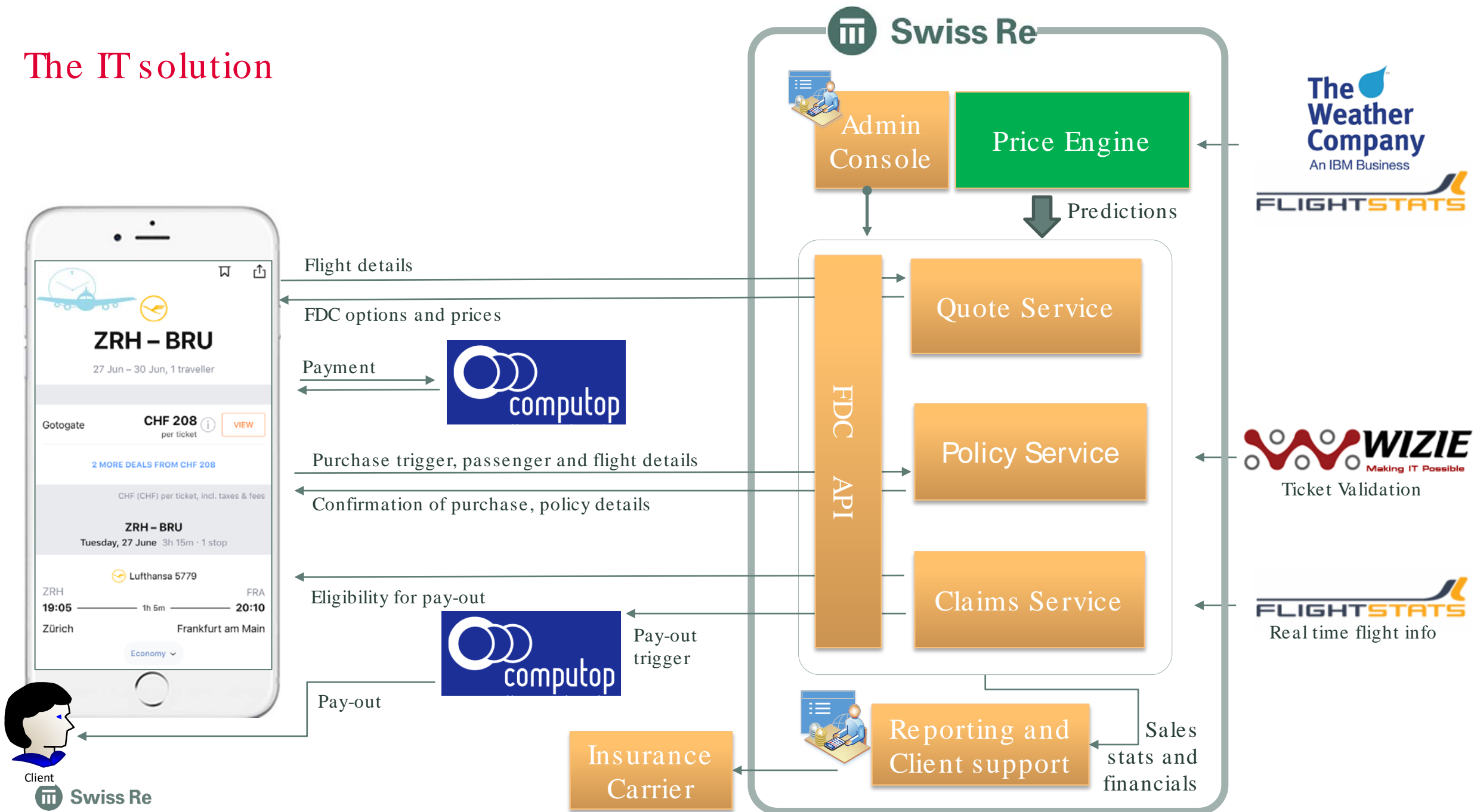
Fair prices  
based on the

likelihood of delay per  
route/day

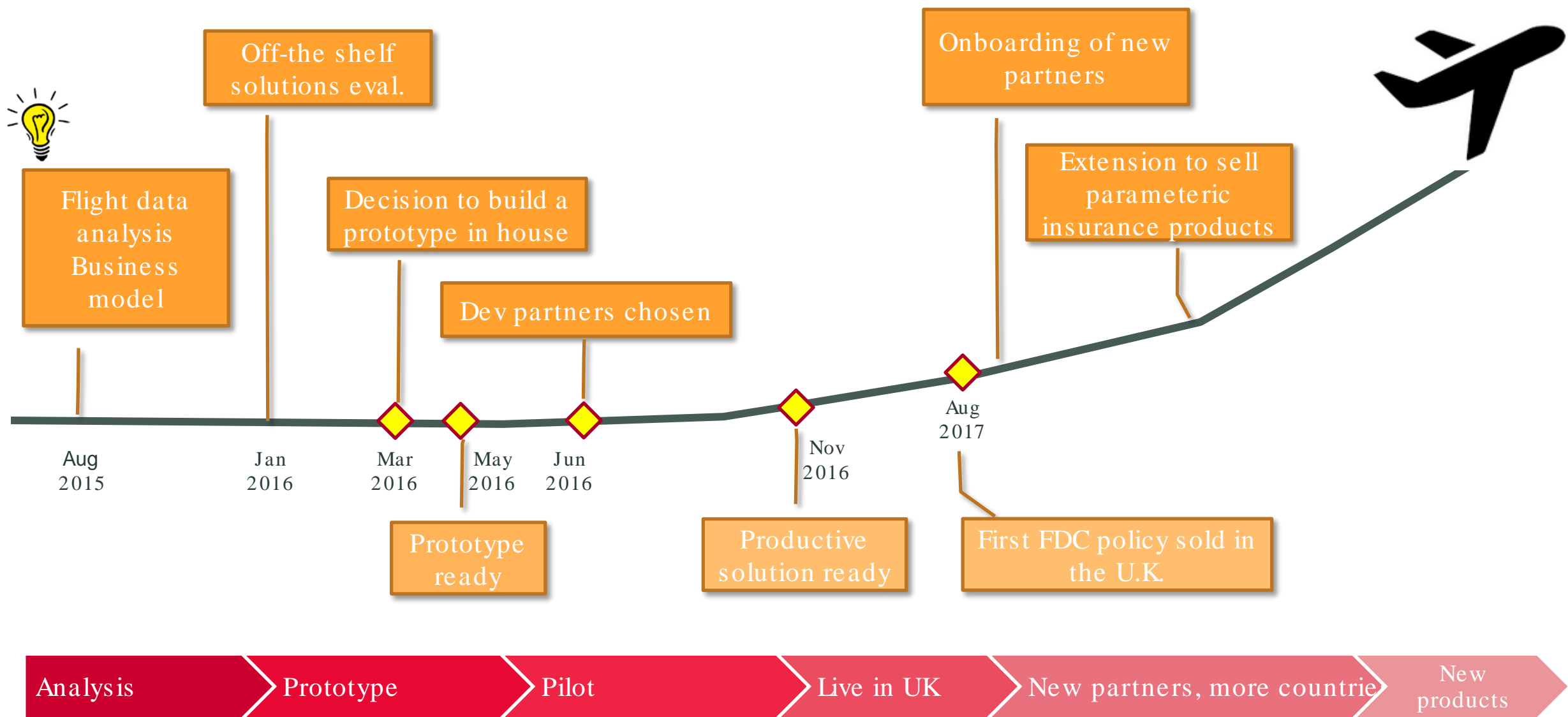
Automated payouts  
claims paid

1 hour after landing

# The IT solution



# The journey





# Tech Briefing



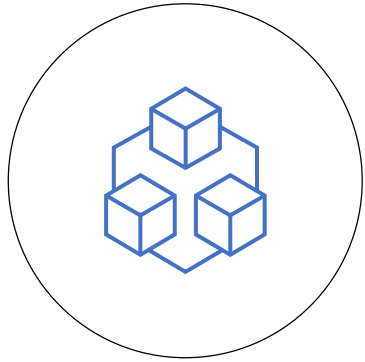
API Governance

Data integration workflows

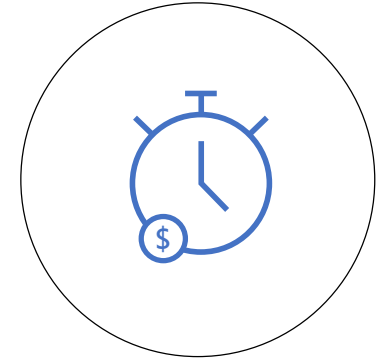
Monitoring

DevOps flow

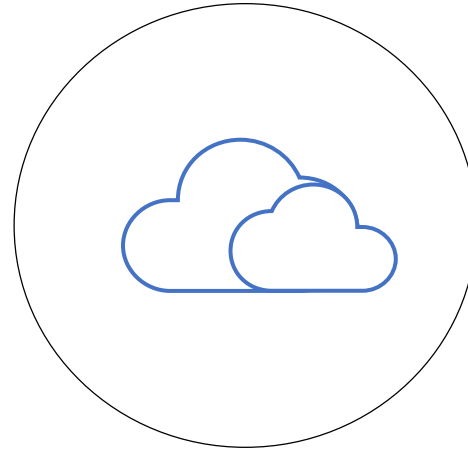
Lessons learned



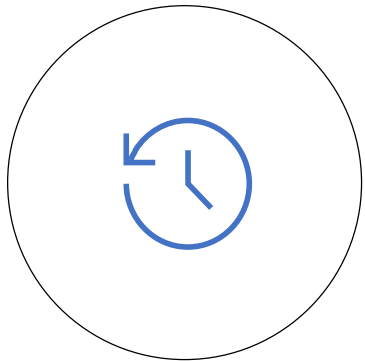
Built on 20+ Azure services



Designed for  
cost-efficiency



Born in the cloud  
(PaaS only)



Built in 8 months



Deployed in 4 regions\*

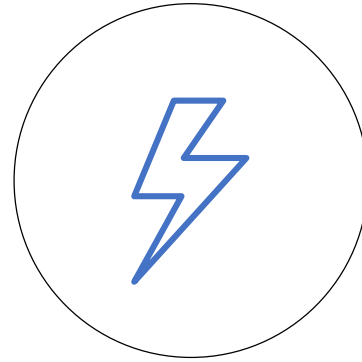
# API Governance



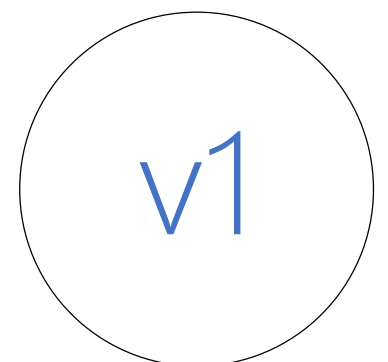
Secure



Easy Integration

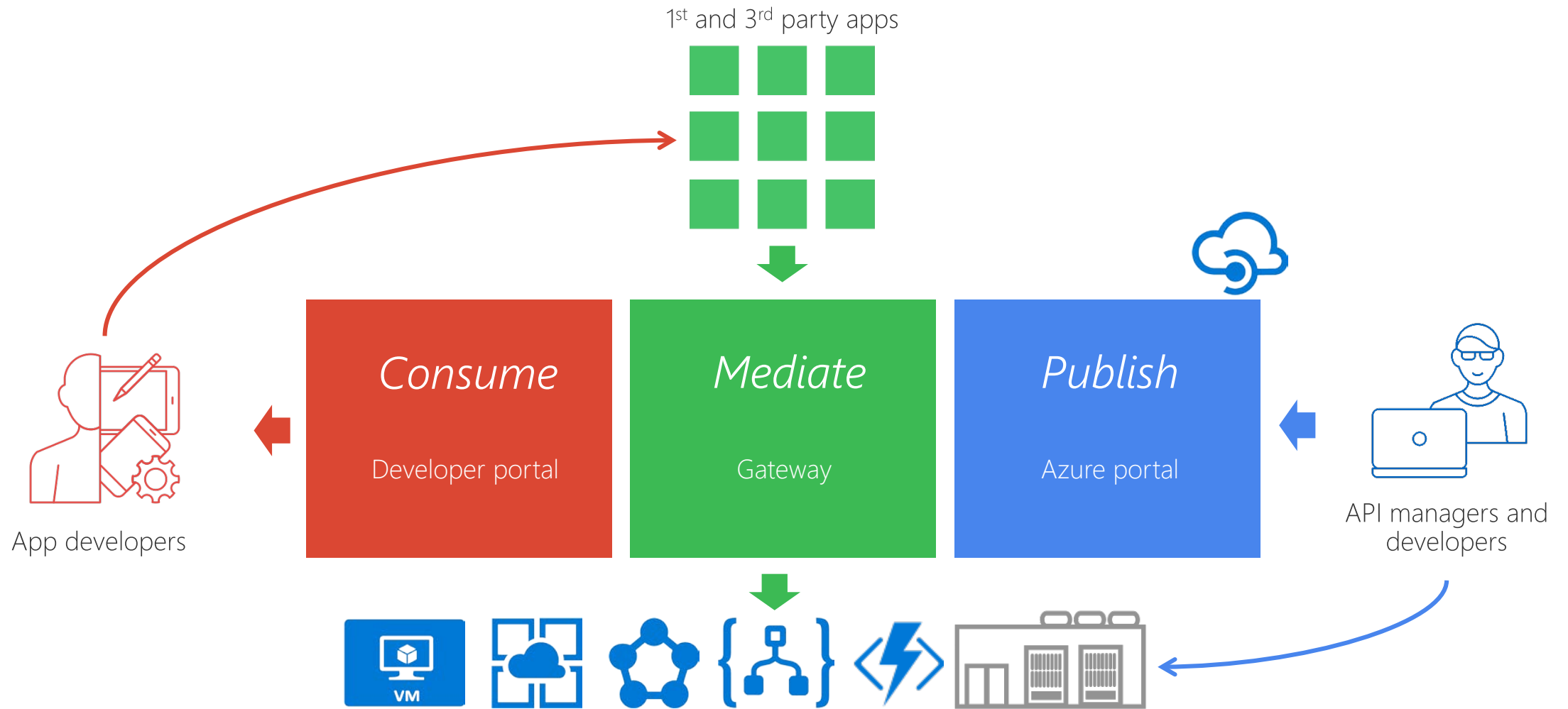


Fast

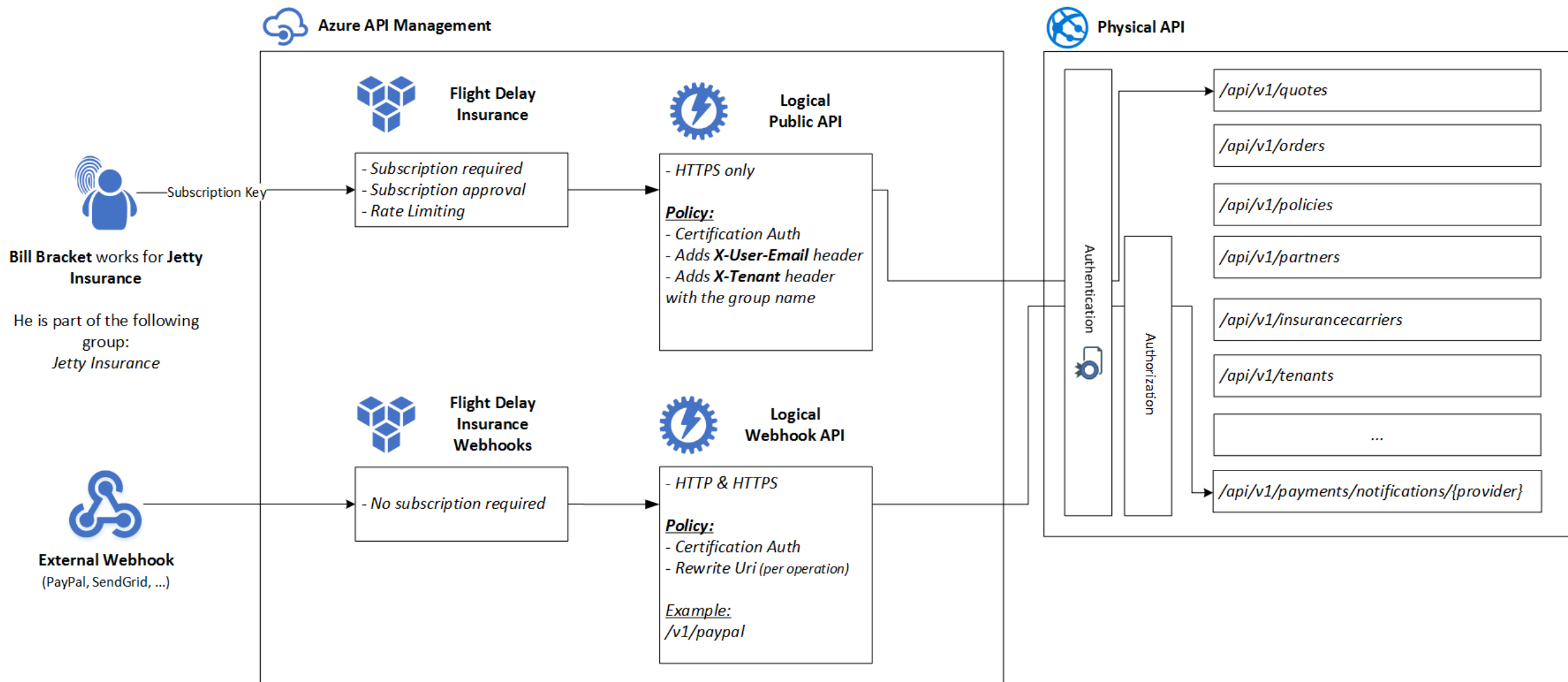


Versioned

# API Governance

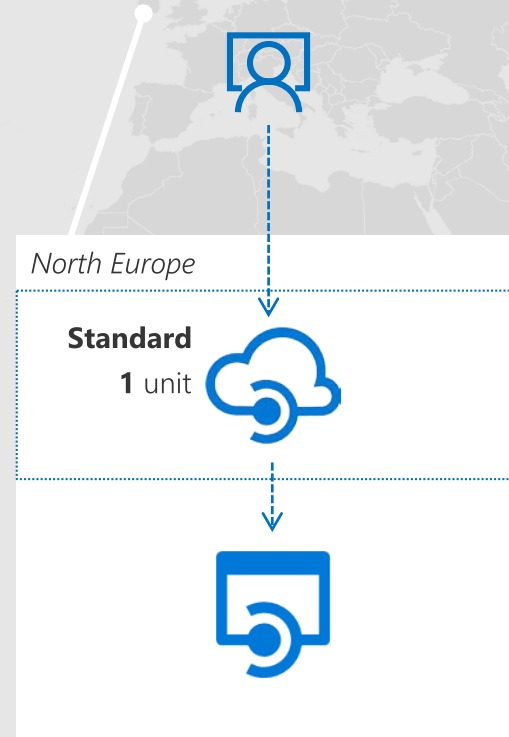


# API Governance

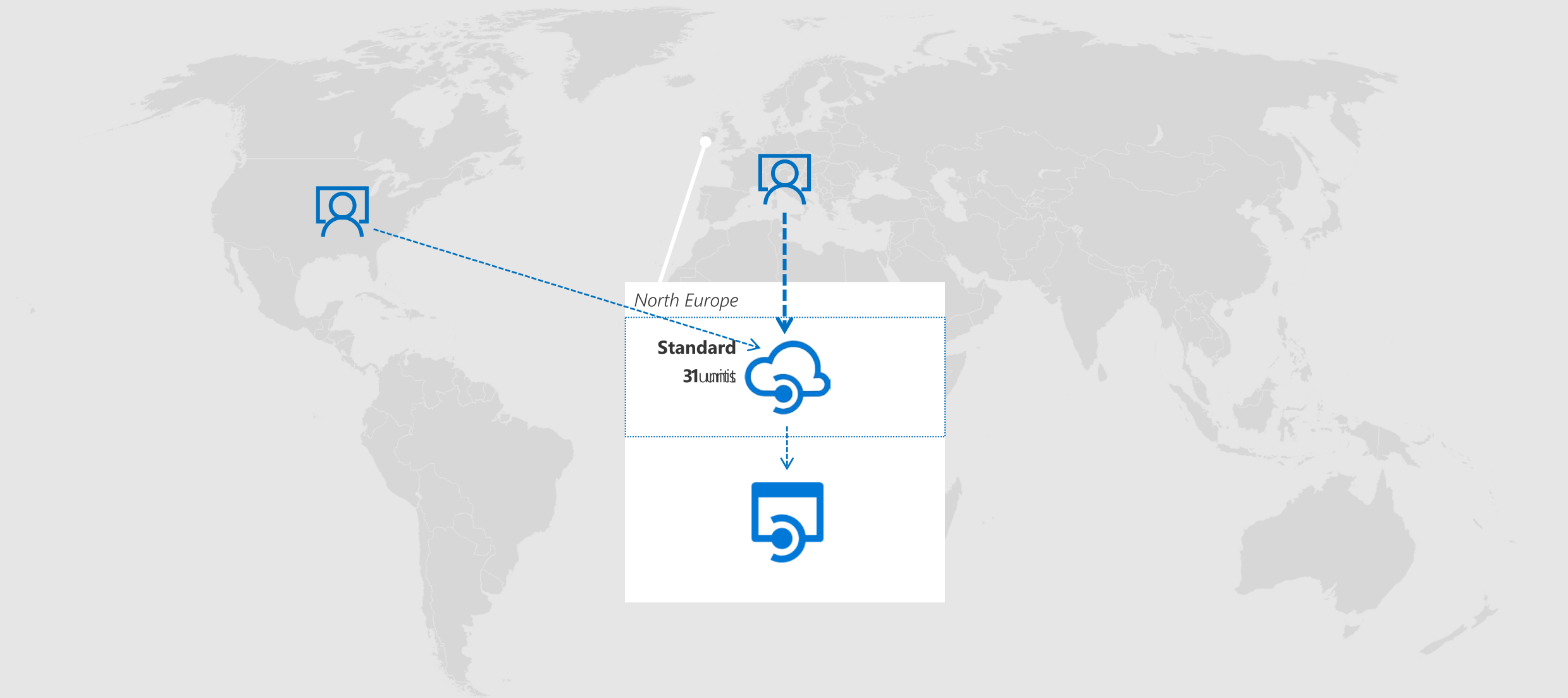




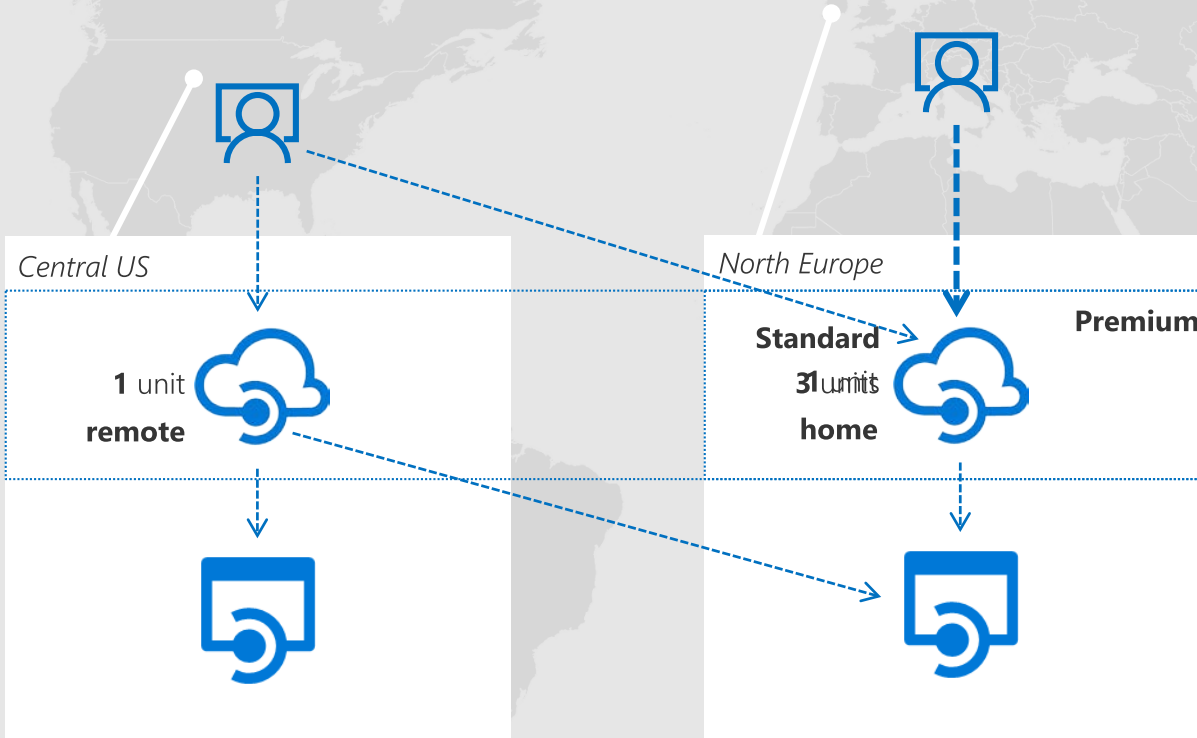
# API Governance – Multi-Region



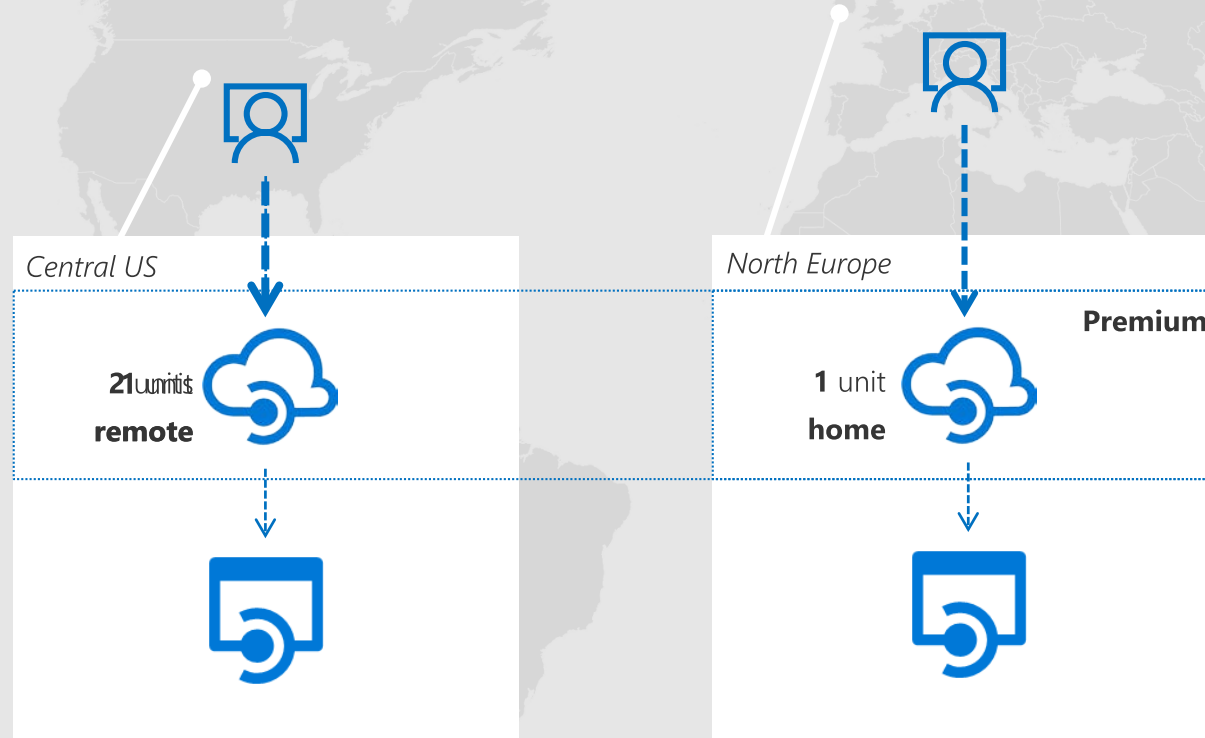
# API Governance – Multi-Region



# API Governance – Multi-Region



# API Governance – Multi-Region



# Building data integration workflows

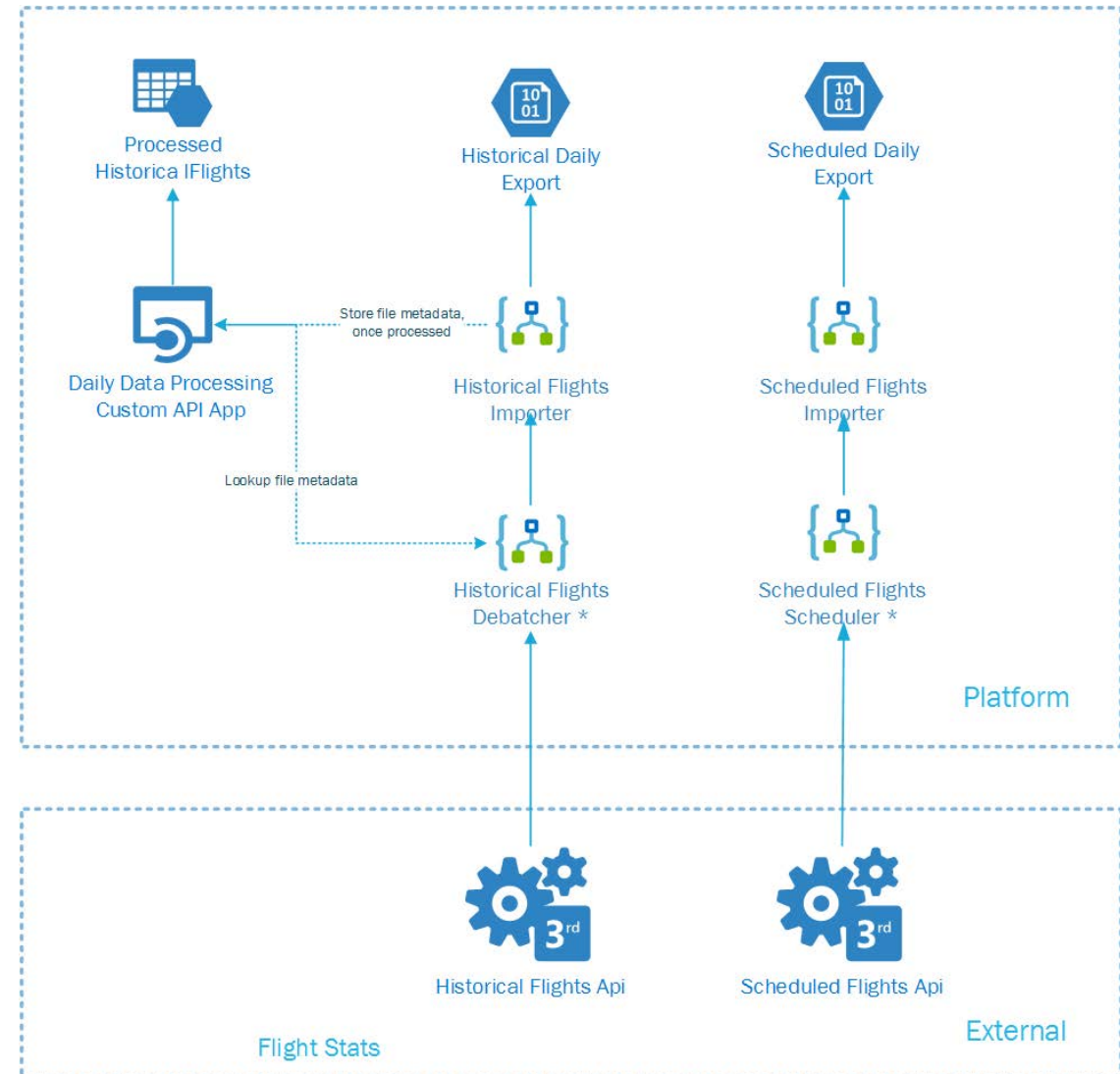
- Provide integration with 3rd party data provider
- Build & monitor a daily import workflow
- Transform external dataset into internal format
- Make data available to data analytics team





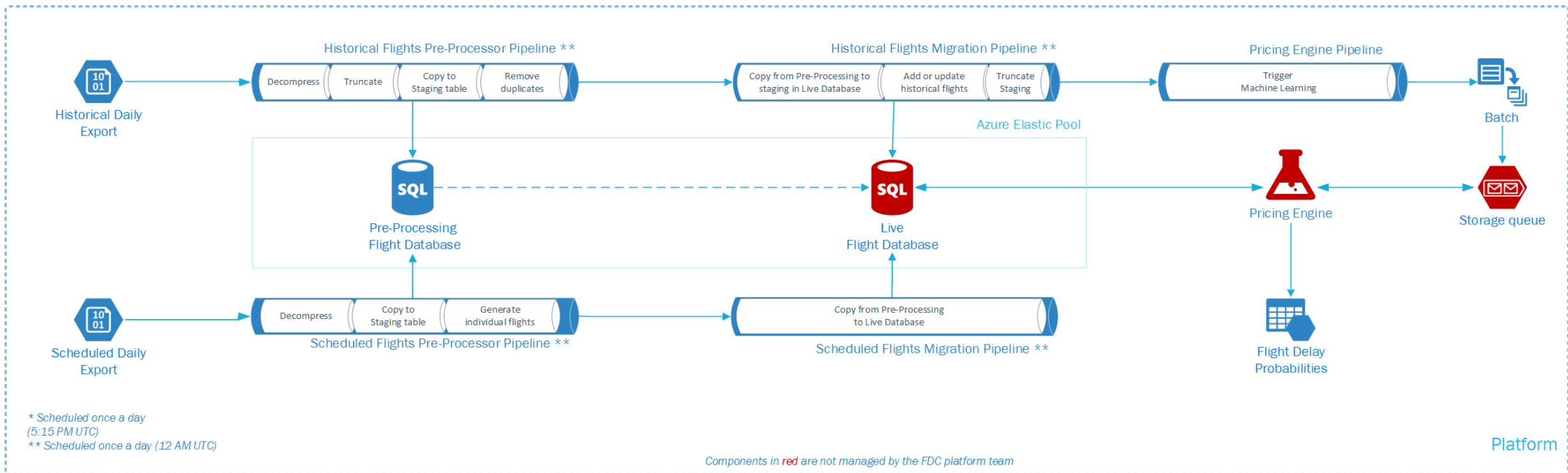
# Building data integration workflows

- Data Preparation with Azure Logic Apps
  - Built-in Scheduling
  - Built-in operational experience
  - Built-in connectors for variety of services



# Building data integration workflows

- Azure Data Factory as a data processing orchestrator
  - Superb monitoring portal
  - Support for data slicing per day



RESOURCE EXPLORER

Data Factories

fdc-prd-ne-analytics

Pipelines

Import-HistoricalFlig...

Import-ScheduledFlig...

Trigger-PricingEngin...

Datasets

HistoricalFlights-Azur...

HistoricalFlights-Azur...

HistoricalFlightsStagi...

HistoricalFlightsStagi...

PricingEngine-AzureS...

PricingEngine-Custo...

ScheduledFlights-Az...

ScheduledFlights-Az...

ScheduledFlightsStag...

ScheduledFlightsStag...

Linked services

CustomActivity-Azur...

CustomActivity-Azur...

FlightStats-AzureSql...

FlightStatsFeed-Azur...

PricingEngine-Custo...

Gateways

fdc-prd-ne-analytics

Start time (UTC): 09/28/2017 08:51 am

End time (UTC): 10/06/2017 08:51 am

Apply

ACTIVITY WINDOWS

No filter applied.

Last refreshed a minute ago.

Pipeline	Activity	Window Start	Window End	Status	Type	Last Attempt Start	Last Attempt End	Duration	Retry Attempts
Import-HistoricalFli...	Copy-to-Staging	10/04/2017 12:00 A...	10/05/2017 12:00 A...	Ready	Copy	10/05/2017 12:02 A...	10/05/2017 12:05 A...	00:02:34	1
Import-HistoricalFli...	Process-Staging-Data	10/04/2017 12:00 A...	10/05/2017 12:00 A...	Ready	SqlServerStoredProc...	10/05/2017 12:05 A...	10/05/2017 12:10 AM...	00:04:48	1
Import-HistoricalFli...	Prepare-Historical-F...	10/04/2017 12:00 A...	10/05/2017 12:00 A...	Ready	SqlServerStoredProc...	10/05/2017 12:00 A...	10/05/2017 12:01 AM...	00:01:26	1
Import-ScheduledFli...	Prepare-Scheduled-...	10/04/2017 12:00 A...	10/05/2017 12:00 A...	Ready	SqlServerStoredProc...	10/05/2017 12:01 AM...	10/05/2017 12:01 AM...	00:00:36	1
Import-ScheduledFli...	Copy-Scheduled-Fli...	10/04/2017 12:00 A...	10/05/2017 12:00 A...	Ready	Copy	10/05/2017 12:02 A...	10/05/2017 12:06 A...	00:04:05	1
Import-ScheduledFli...	Generate-Scheduled...	10/04/2017 12:00 A...	10/05/2017 12:00 A...	Ready	SqlServerStoredProc...	10/05/2017 12:07 A...	10/05/2017 1:13 AM ...	01:06:19	1
Trigger-PricingEngi...	Trigger-Pricing-Engi...	10/04/2017 12:00 A...	10/05/2017 12:00 A...	Ready	DotNetActivity	10/05/2017 1:13 AM ...	10/05/2017 1:14 AM ...	00:00:32	1
Trigger-PricingEngi...	Trigger-Pricing-Engi...	10/03/2017 12:00 A...	10/04/2017 12:00 A...	Ready	DotNetActivity	10/04/2017 1:14 AM ...	10/04/2017 1:15 AM ...	00:00:32	1
Import-ScheduledFli...	Copy-Scheduled-Fli...	10/03/2017 12:00 A...	10/04/2017 12:00 A...	Ready	Copy	10/04/2017 12:03 A...	10/04/2017 12:07 A...	00:04:34	1
Import-HistoricalFli...	Prepare-Historical-F...	10/03/2017 12:00 A...	10/04/2017 12:00 A...	Ready	SqlServerStoredProc...	10/04/2017 12:01 AM...	10/04/2017 12:02 A...	00:00:30	1

Activity Window Explorer

OCT 2017

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

10/04/2017 12:00 AM UTC - 10/05/2017 12:00 A...

Activity Window

Start & End Time

10/04/2017 12:00 AM UTC - 10/05/2017 ...

Status

Ready

Activity

Copy-to-Staging

Pipeline

Import-HistoricalFlights-Pipeline

Input Datasets

HistoricalFlights-AzureBlob-DataSet

Output Datasets

HistoricalFlightsStaging-AzureSqlTable-...

Attempts

10/05/2017 12:02 AM UTC

## Monitoring a platform



Real-Time  
Telemetry



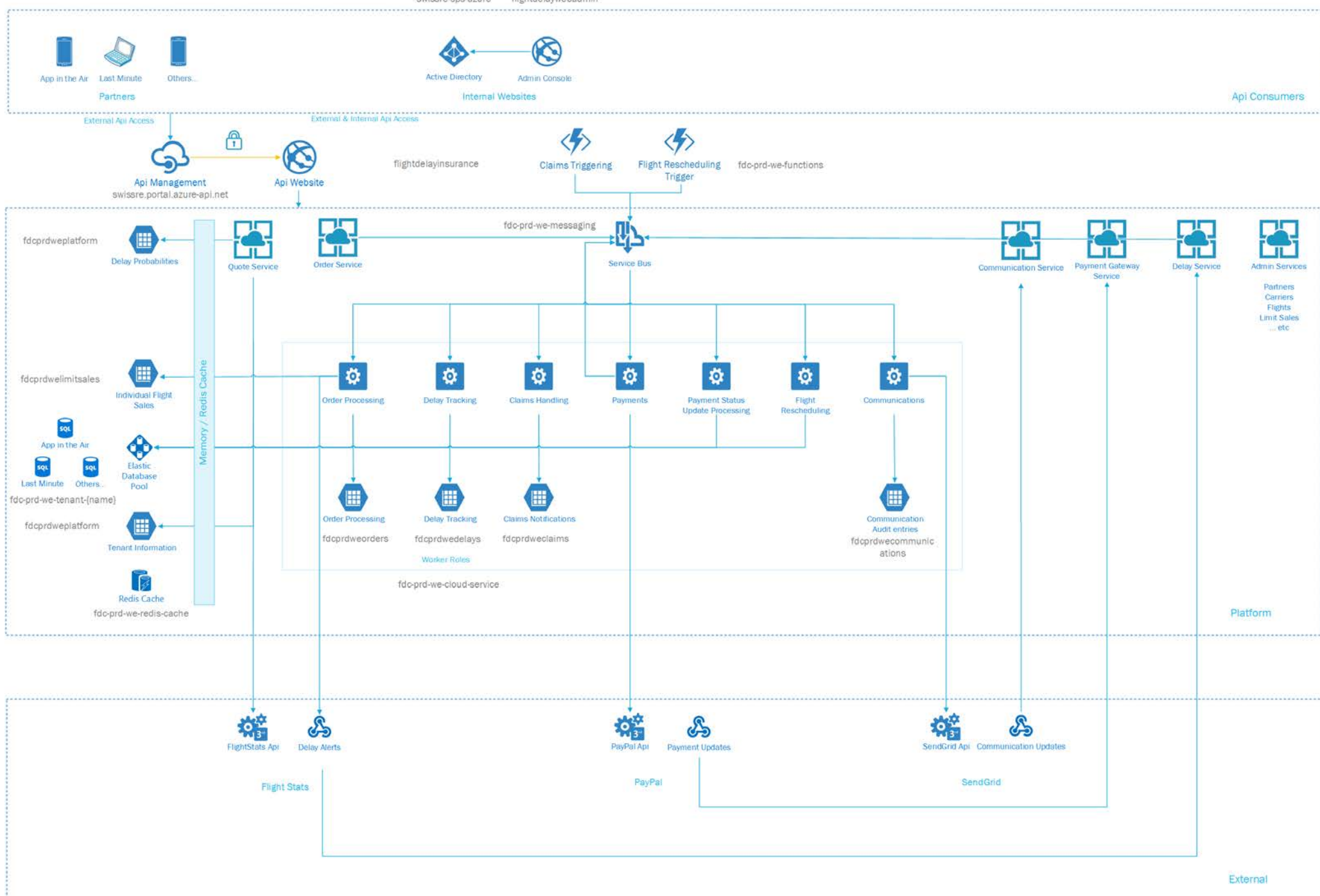
Automated Alerts



Auditing



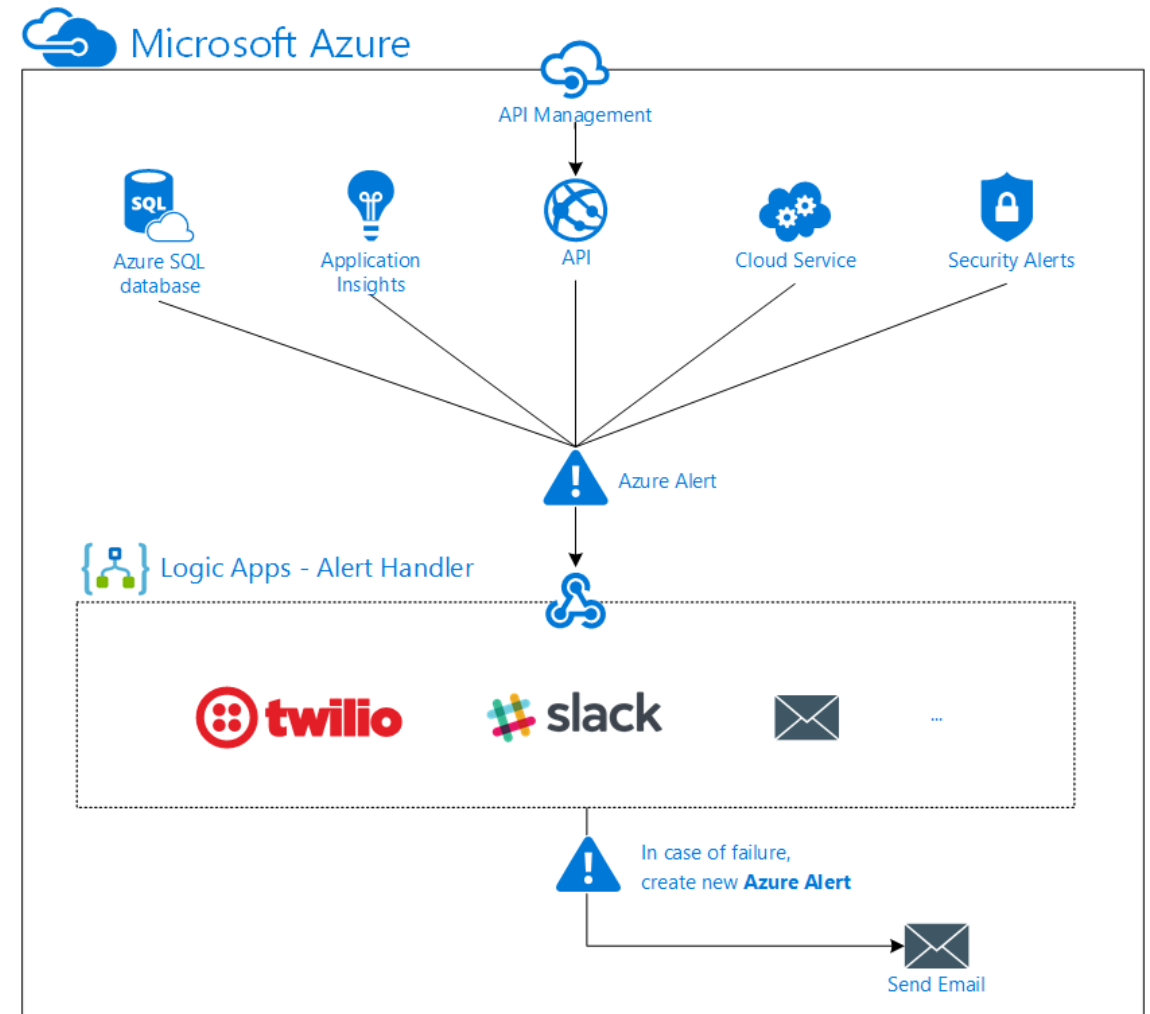
Operated by  
Codit Managed Services



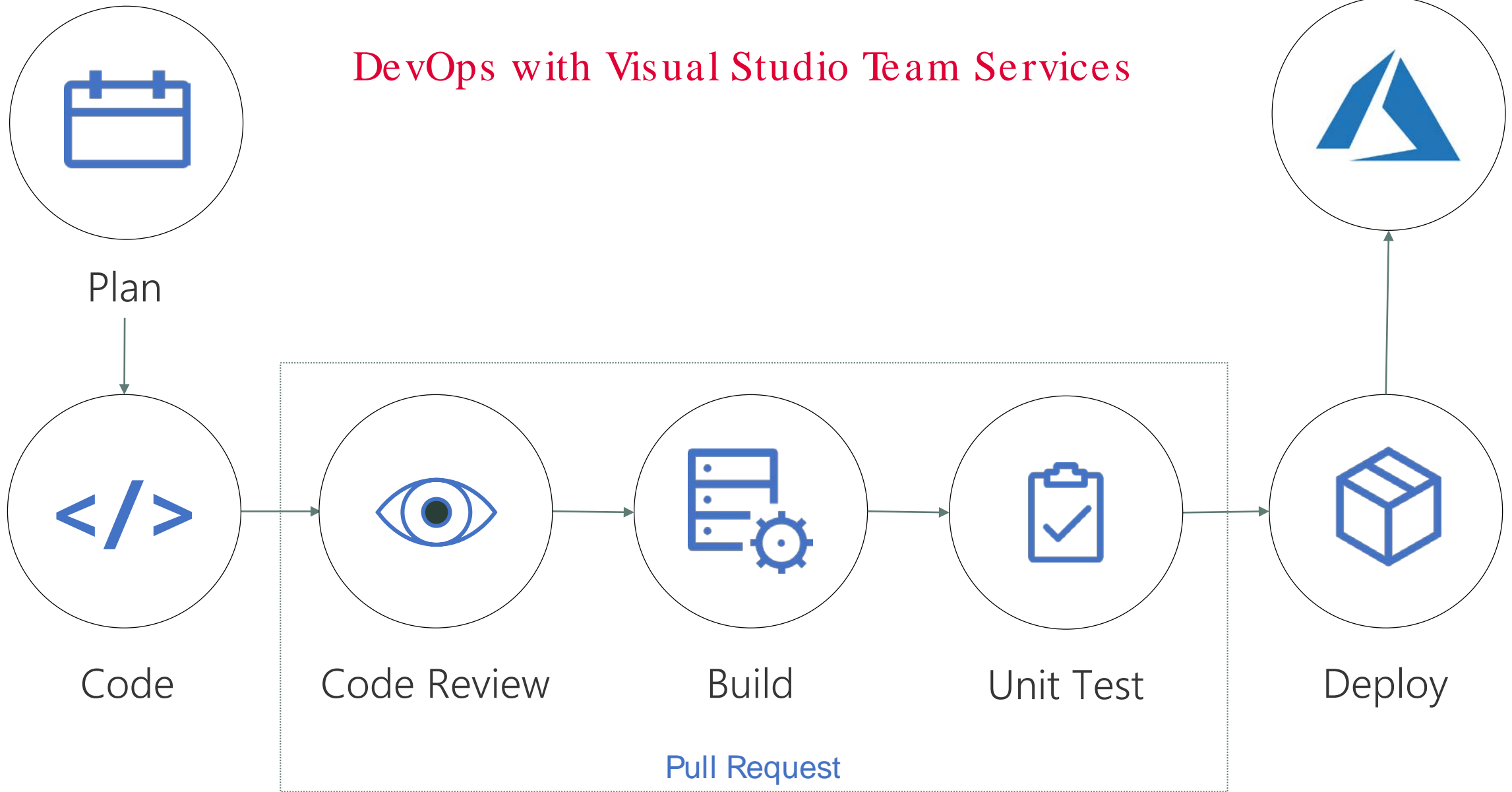


# Monitoring a platform

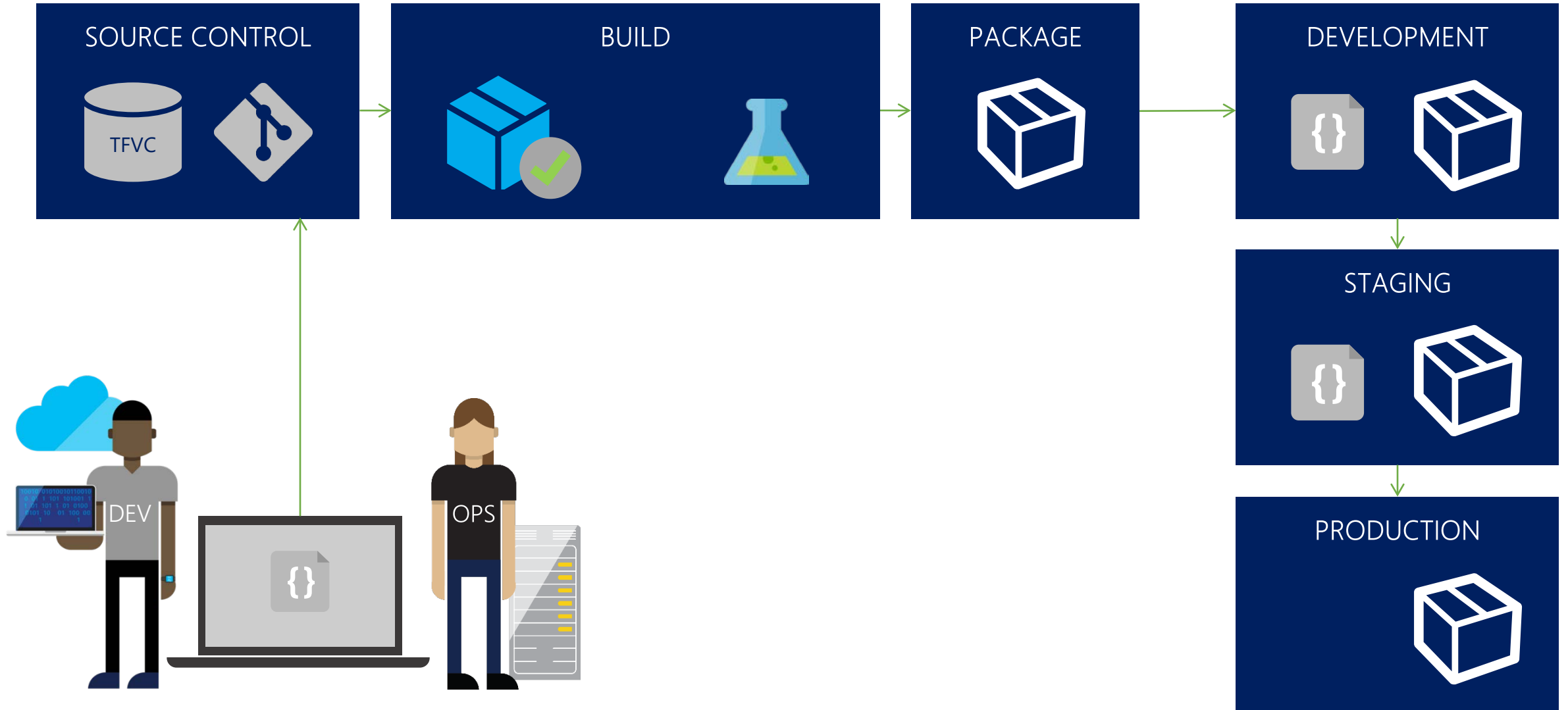
- Handling alerts with Azure Logic Apps
  - Centralized alert handling
  - Provides flexibility for workflow changes
  - More flexible than email alerts
- Future we might switch to Azure Event Grid with dedicated handlers per topic ie. Slack



# DevOps with Visual Studio Team Services

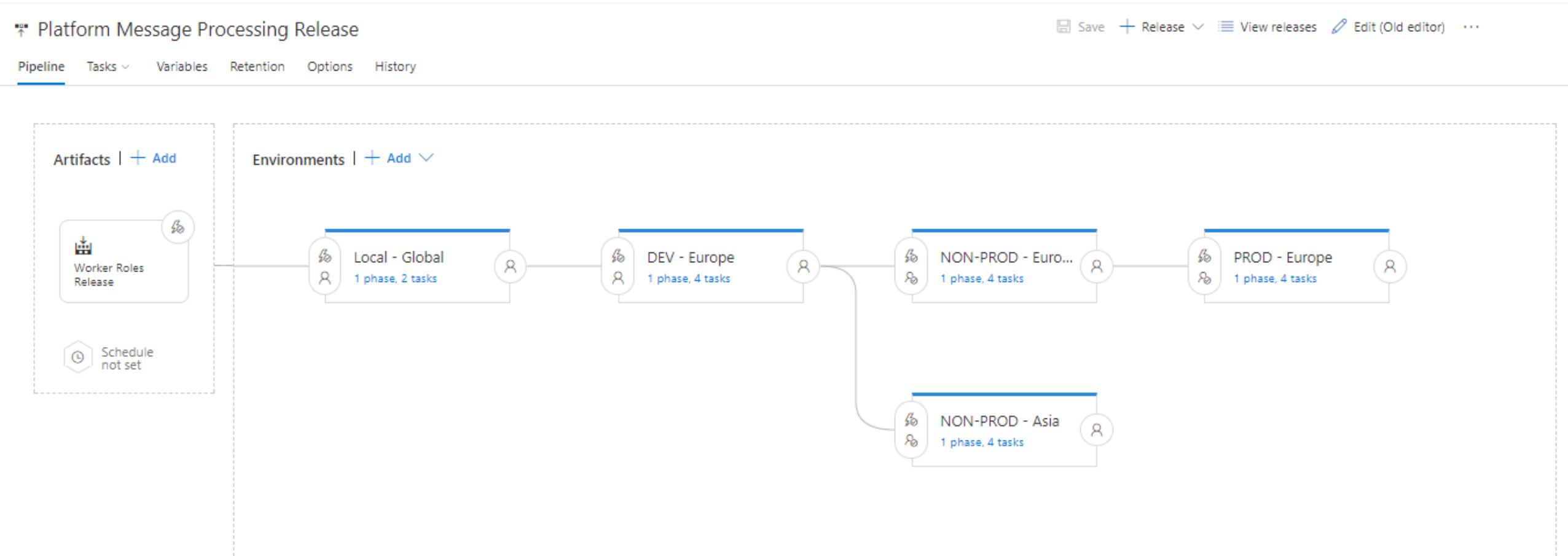


# DevOps with Visual Studio Team Services



# DevOps with Visual Studio Team Services

- Automated releases across multiple stages, to multiple regions
  - Each with their own dedicated Azure Key Vault for deployment secrets



# Lessons Learned

- Microsoft Azure is a rapidly evolving platform
  - Existing services are being migrated or deprecated
  - New services are being introduced
  - Better integration with services
- Find a balance between cutting-edge technology & battle-tested services
- Design for change, because you will need it
- Use the right service for the job





# Contacts

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