

Case Study #1

Memi Lavi
www.memilavi.com





A Real World Application

Application Introduction



```
graph TD; A[Application Introduction] --> B[Defining Requirements]; B --> C[Components Mapping]; C --> D[Technology Stack Selection]; D --> E[Architecture Design];
```

Defining Requirements

Components Mapping

Technology Stack Selection

Architecture Design

Dunderly

Your Paper Source

Dunderly

- Sells Paper Supplies
 - Printer paper, Envelopes, etc.
- Needs a new HR system
- Managing employees,
salaries, vacations, payments



Requirements

```
graph TD; Requirements[Requirements] --> Functional[Functional]; Requirements --> NonFunctional[Non-Functional];
```

Functional

What the system should do

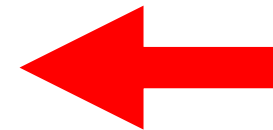
1. Web Based
2. Perform CRUD operations on employees
3. Manage Salaries:
 1. Allow manager to ask for employee's salary change
 2. Allow HR manager to approve / reject request
4. Manage vacation days
5. Use external payment system

Non-Functional

What the system should deal with

NFR - What We Know

1. Classic Information System
2. Not a lot of users
3. Not a lot of data
4. Interface to external system



NFR - What We Ask

1. *"How many expected concurrent users?"* 10
2. *"How many employees?"* 250
3. *"What do we know about the external
Payment system?"*

Payment System

- Legacy system, written in C++
- Hosted in the company's servers farm
- Input – only files ☹️
- File received once a month

Data Volume

- 1 Employee = ~1MB in data
- Each employee has ~10 scanned documents (contract, reviews etc.)
- 1 Scanned Document = ~5MB
- Total storage for 1 employee = ~51MB

Data Volume – Cont.

- Company expects to grow to 500 employees in 5 years
- Total storage: 51MB X 500 employees = 25.5GB
- Not a lot, but:
 - Need to consider document storage

SLA

4. *"How critical is the system?"*

Not Very Critical

Requirements

```
graph TD; Requirements[Requirements] --> Functional[Functional]; Requirements --> NonFunctional[Non-Functional];
```

Functional

What the system should do

1. Web Based
2. Perform CRUD operations on employees
3. Manage Salaries:
 1. Allow manager to ask for employee's salary change
 2. Allow HR manager to approve / reject request
4. Manage vacation days
5. Use external payment system

Non-Functional

What the system should deal with

1. 10 Concurrent users
2. Manages 500 users
3. Data volume forecast: 25.5GB
 1. Relational & Unstructured
4. Not mission critical
5. HTTP-based interface

Components

Based on requirements:

1. Entities: Employees, Vacation, Salary
2. Interface to the Payment System

Payment System

Payment Interface

Sends payment data to payment system

Employees Service

Performs CRUD Operations on Employees

Salary Service

Salary approval workflow

Vacation Service

Employee's Vacation Management

View Service

Returns static files to the browser (HTML, CSS, JS)

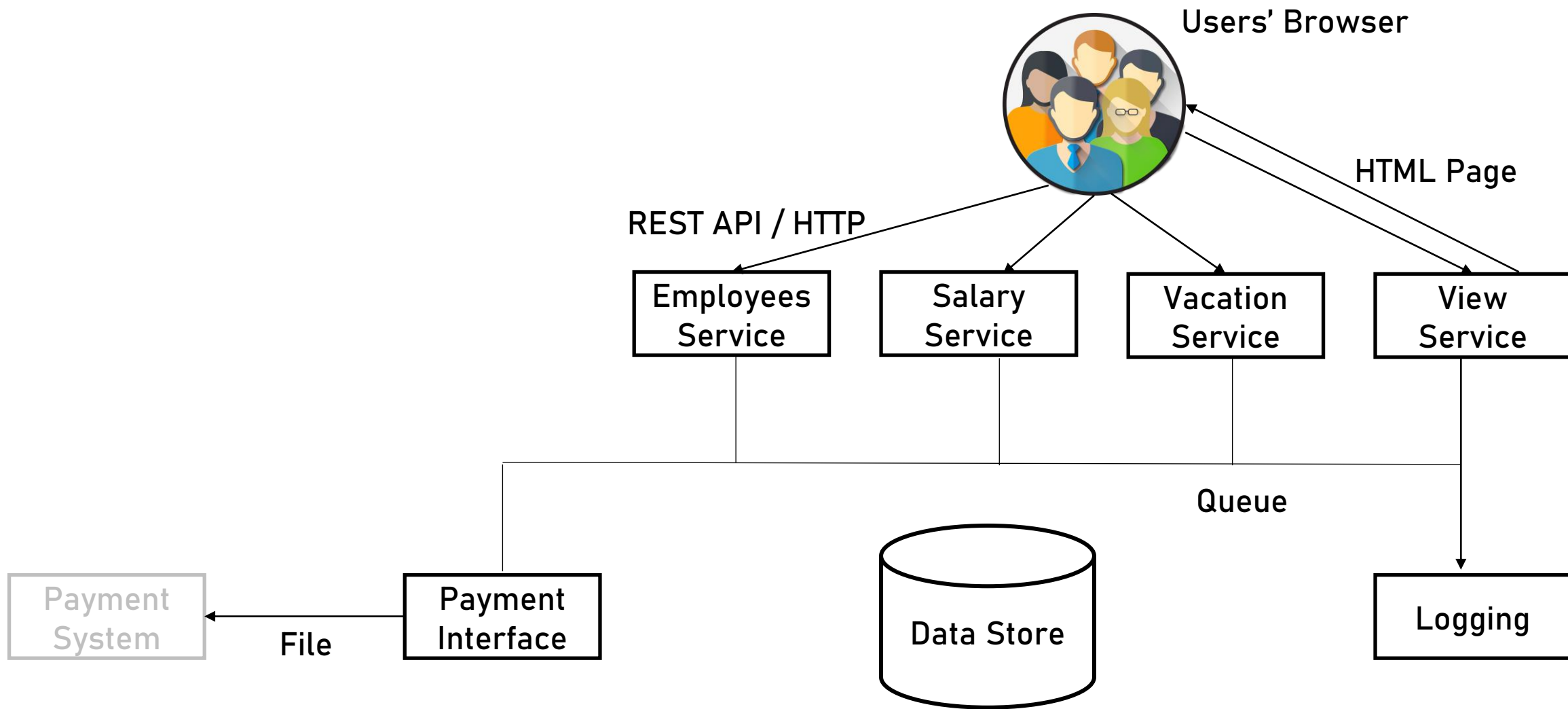
Data Store

Logging

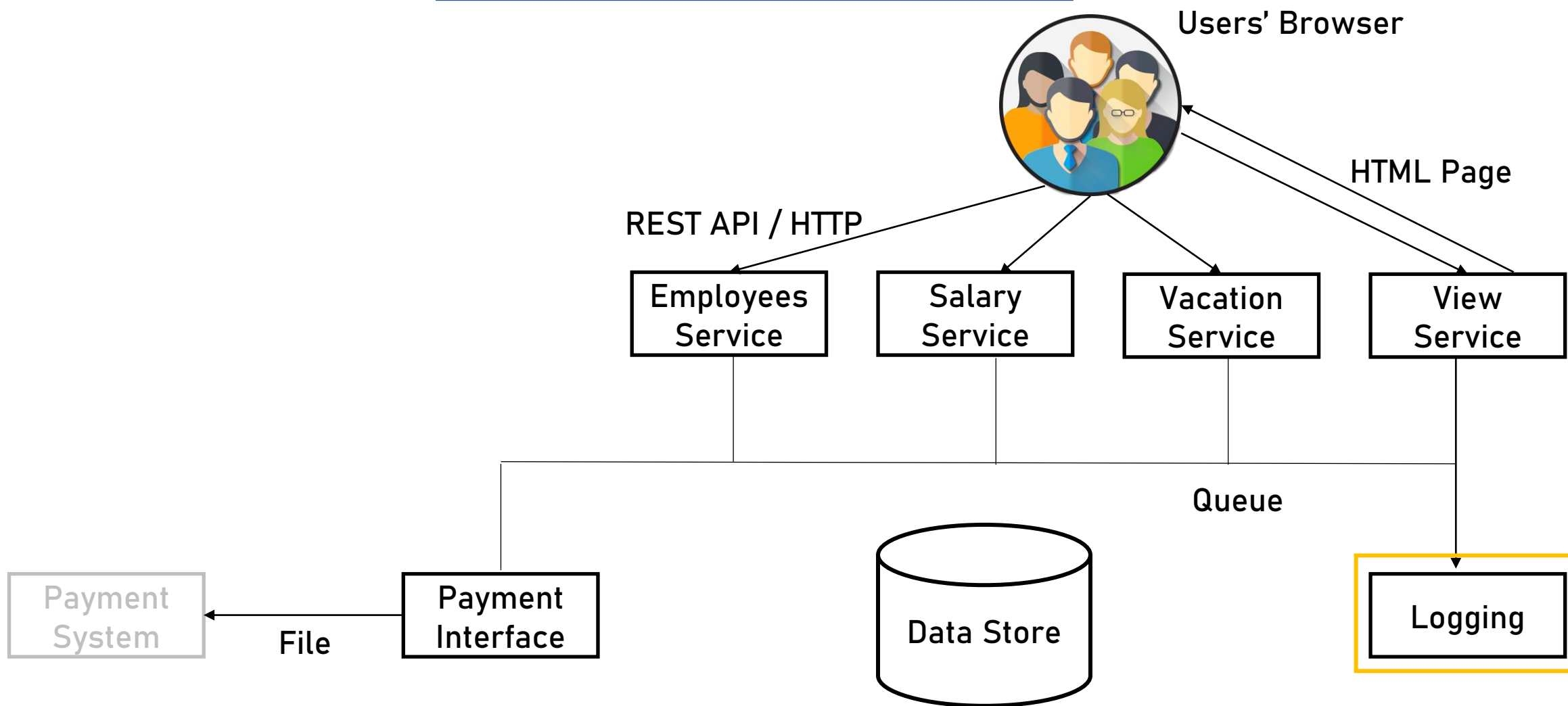
Q: Single or Per Service Data Store?

A: Data is shared between services, so a Single Data Store is better

Messaging



Components



Logging Service


- Very Important
- Other services use it

Logging - Questions

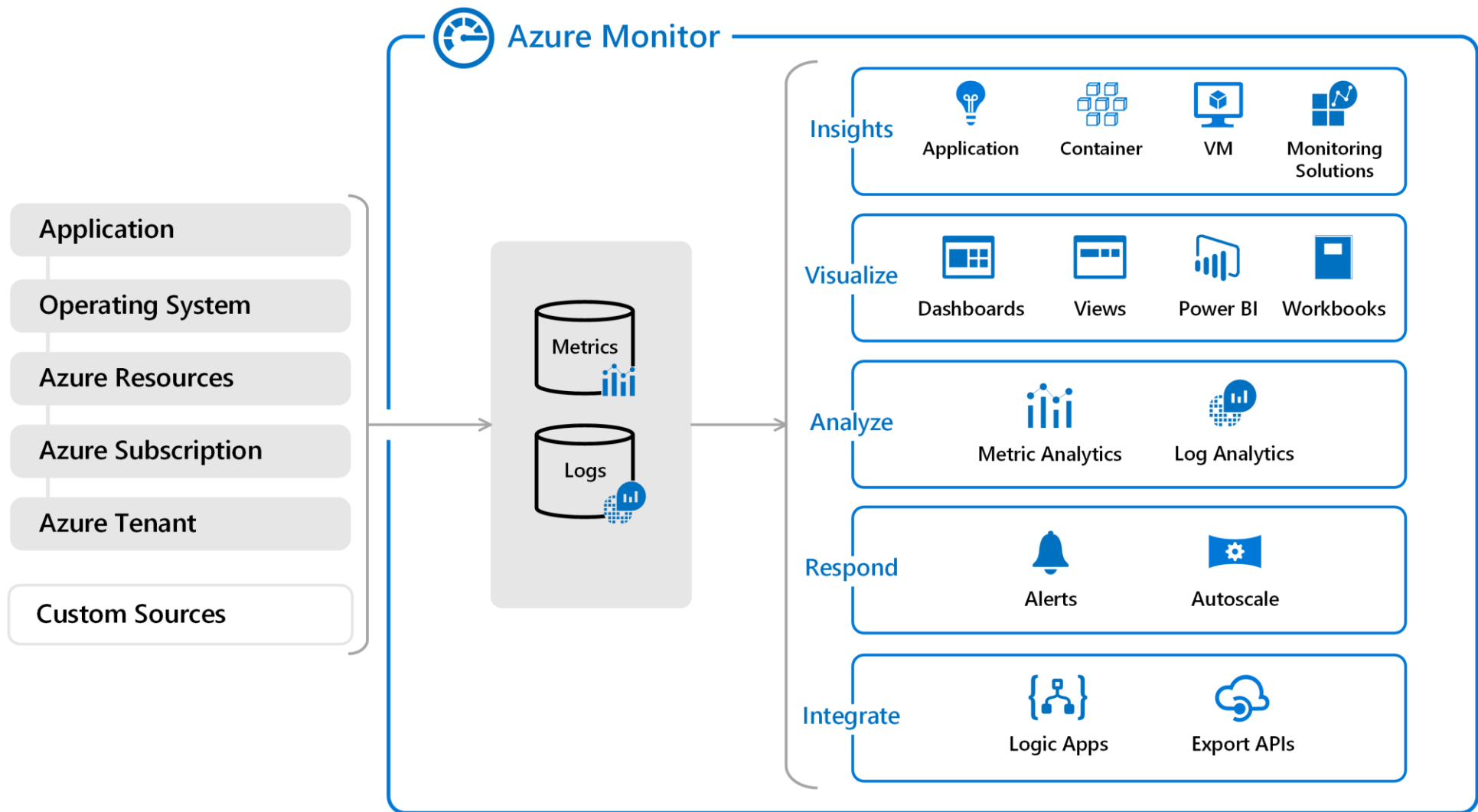
1. Is there an existing logging mechanism used by the company in the cloud?
2. Develop our own or use 3rd party?

No

Logging in Azure

- Azure log analytics 
 - Part of Azure Monitor
 - Great integration with a lot of services
 - Handles huge amounts of data
 - Offers query language for analysis
 - Can be streamed to log analytics tools (Power BI etc.)

Logging in Azure



Logging in Azure

Home > Logic Apps > myLogicApp - Logs

myLogicApp - Logs
Logic app | Directory: Microsoft

New Query 1* +

myLogicApp Select Scope Run Time range: Last 24 hours Save Copy Export New alert rule Pin to dashboard

AzureDiagnostics

Completed. Showing partial results from the last 24 hours. 00:00:03.638 1,107 records

Table Chart Columns

Drag a column header and drop it here to group by that column

| TimeGenerated [UTC] | resource_originRunId_s | resource_actionName_s | correlation_actionTrackingId_g | workflowId_s | Level | _schema_s |
|-------------------------------|-----------------------------------|-----------------------|--------------------------------|---|-------------|------------|
| > 12/13/2019, 12:54:21.577 AM | | | | /SUBSCRIPTIONS/4E56605E-4B16-4BAA-9358-DBB8D6FAEDFE/RESO... | Information | 2016-06-01 |
| > 12/13/2019, 12:54:22.538 AM | | | | /SUBSCRIPTIONS/4E56605E-4B16-4BAA-9358-DBB8D6FAEDFE/RESO... | Information | 2016-06-01 |
| ✓ 12/13/2019, 12:54:22.525 AM | 08586254084239710681729204791CU57 | | | /SUBSCRIPTIONS/4E56605E-4B16-4BAA-9358-DBB8D6FAEDFE/RESO... | Information | 2016-06-01 |

Schema and Filter

| | |
|--------------------------------|---|
| TenantId | 83dc2523-0480-4aae-b9b1-6ac6f5996954 |
| SourceSystem | Azure |
| TimeGenerated [UTC] | 2019-12-13T00:54:22.525Z |
| resource_originRunId_s | 08586254084239710681729204791CU57 |
| workflowId_s | /SUBSCRIPTIONS/4E56605E-4B16-4BAA-9358-DBB8D6FAEDFE/RESOURCEGROUPS/MYRESOURCEGROUP/PROVIDERS/MICROSOFT.LOGIC/WORKFLOWS/MYLOGICAPP |
| Level | Information |
| _schema_s | 2016-06-01 |
| status_s | Running |
| resource_resourceGroupName_s | myResourceGroup |
| resource_workflowName_s | myLogicApp |
| resource_runId_s | 08586254084239710681729204791CU57 |
| resource_location_s | eastus2 |
| correlation_clientTrackingId_s | 08586254084239710681729204791CU57 |

Page 1 of 23 50 items per page 1 - 50 of 1107 items

Cost of Log Analytics

Azure Monitor

REGION:
West Europe

^ Log Analytics \$8.97

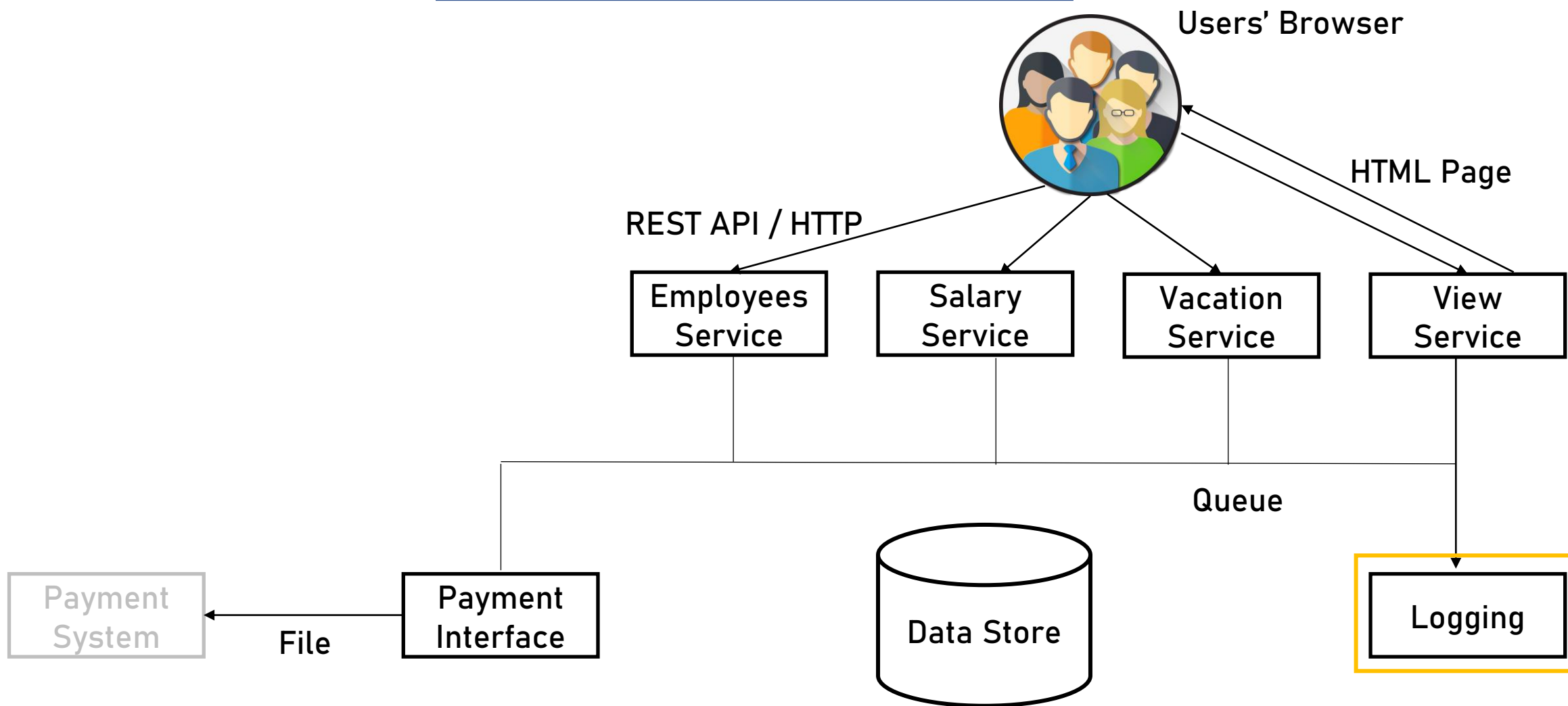
i Daily log data ingested will depend on what you are monitoring with Log Analytics. [Learn more](#) about estimating data volumes.

Data Ingestion

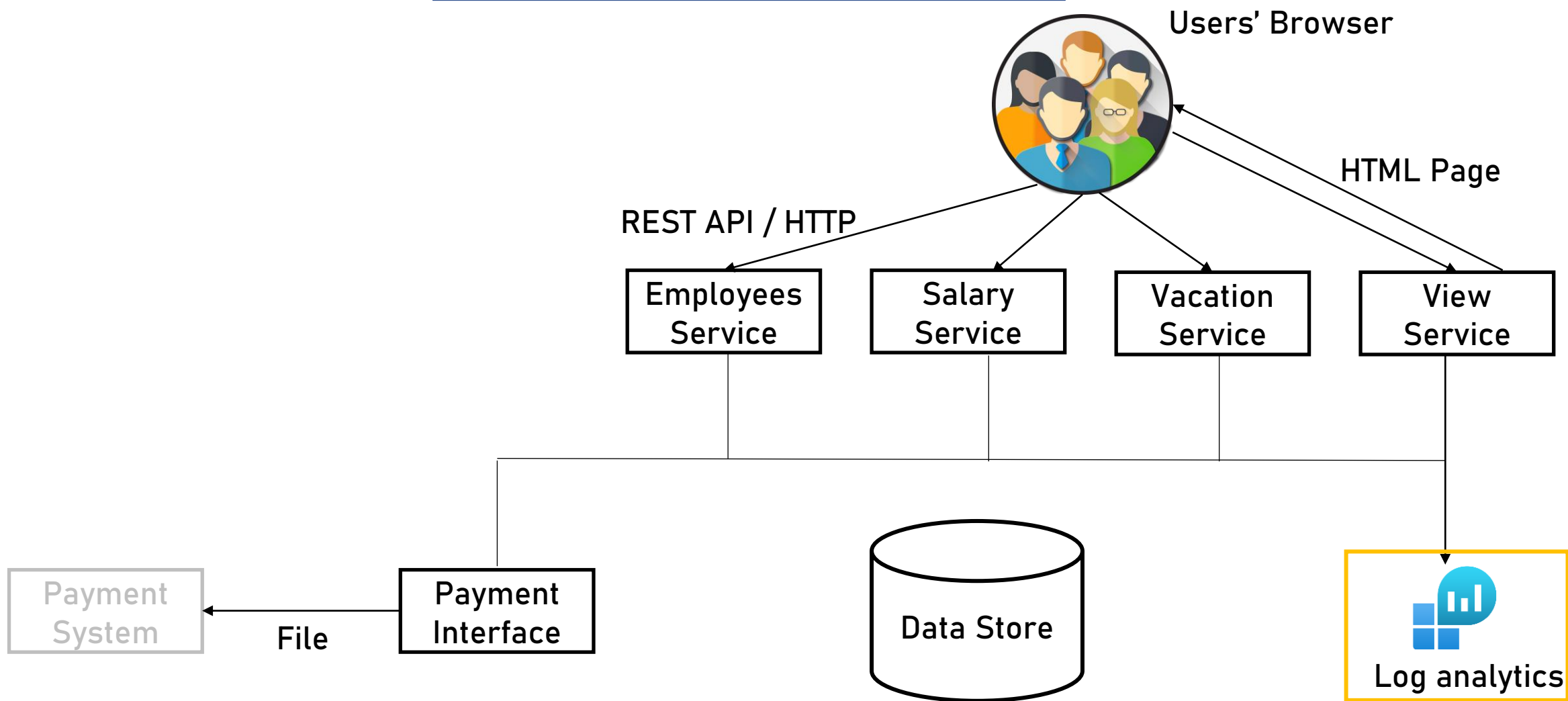
| | | | | | | |
|--|---|------------|---|------------------|---|-------------------|
| <div><input type="text" value="0.1"/> Daily logs ingested (GB/day)</div> | × | 30 Days | × | \$2.99 Per GB | = | <div>\$8.97</div> |
|--|---|------------|---|------------------|---|-------------------|

i This estimate is calculated using the most optimal pricing tier for the data ingestion. This calculation uses **Pay-As-You-Go tier**. [Learn more](#) about the pricing tiers

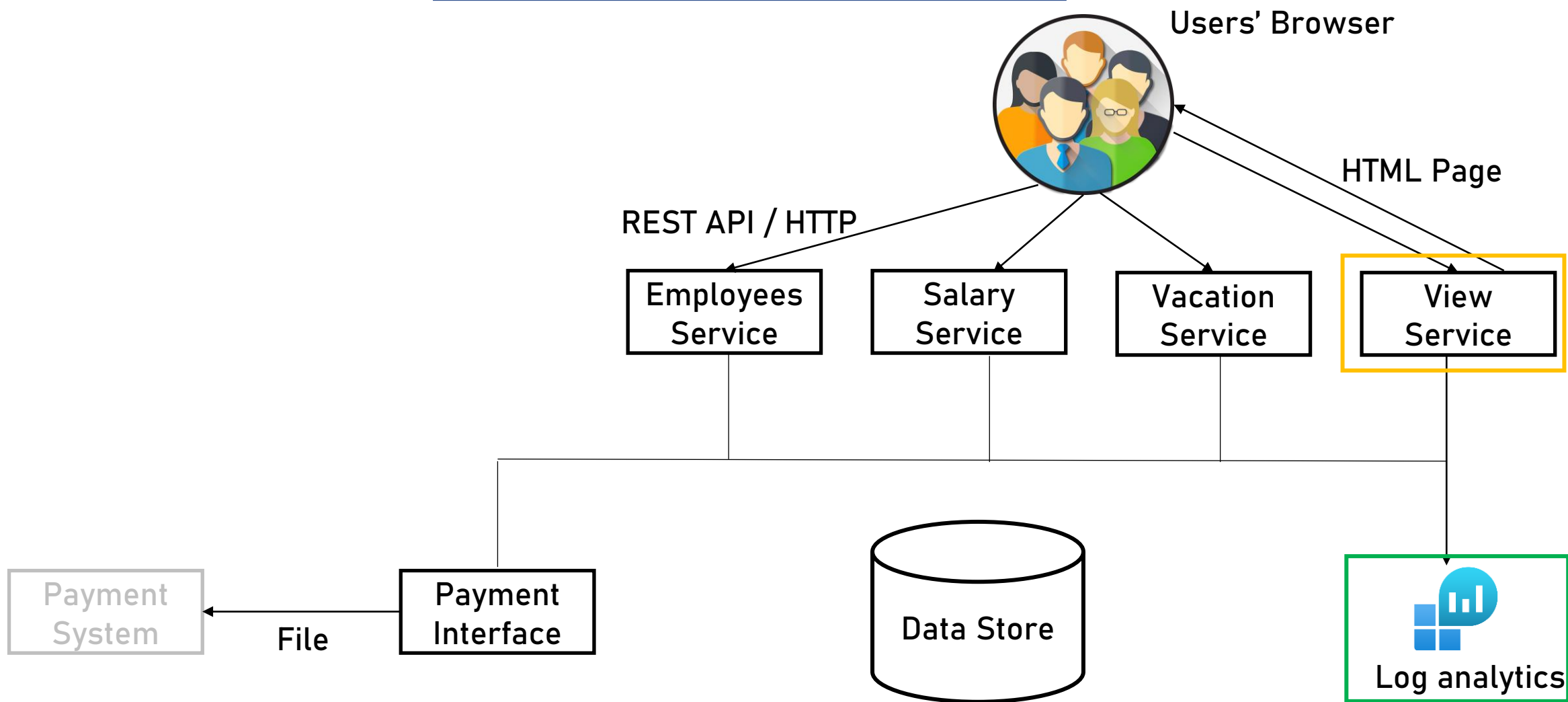
Components



Components



Components






[View Service](#)

What it does:

- Get requests from the end users' browsers
- Returns static files (HTML / CSS / JS)

Application Type

- Web App & Web API 
- Mobile App 
- Console 
- Service 
- Desktop App 

Architecture

User Interface /
Service Interface

Business Logic

Data Access

Data Store



Architecture

User Interface

Business Logic

Data Access

Data Store



Static web sites in Azure



App Service

- Fully managed web app & API
- Supports many platforms
- Autoscale
- Support for WebJobs



Static Web Apps

- Fully managed static web site
- Complete integration with source controls (Git, Azure DevOps etc.)
- Extremely cost effective

Static web sites in Azure

App Service

REGION:
West Europe

OPERATING SYSTEM:
Windows

TIER:
Standard

Standard

INSTANCE:
S1: 1 Cores(s), 1.75 GB RAM, 50 GB Storage, \$0.100

1 Instances × 730 Hours = \$73.00

SSL Connections

Upfront cost

\$0.00

Monthly cost

\$73.00

Static web sites in Azure

Static Web Apps

TIER:

Standard

Standard

i

The standard tier includes 100 GB of bandwidth per subscription and 2 GB of storage per app.

1

×

\$9.00

Per app

Bandwidth Overages

0

GB

×

\$0.00

Per additional GB

Our choice!

Upfront cost

\$0.00

Monthly cost

\$9.00

Free tier has no SLA! (99.95% in Standard)

Standard tier includes 100 GB of bandwidth per subscription and 2 GB of storage per app.

1 App

\$9.00 Per app

Bandwidth Overages

0 GB

\$0.00 Per additional GB

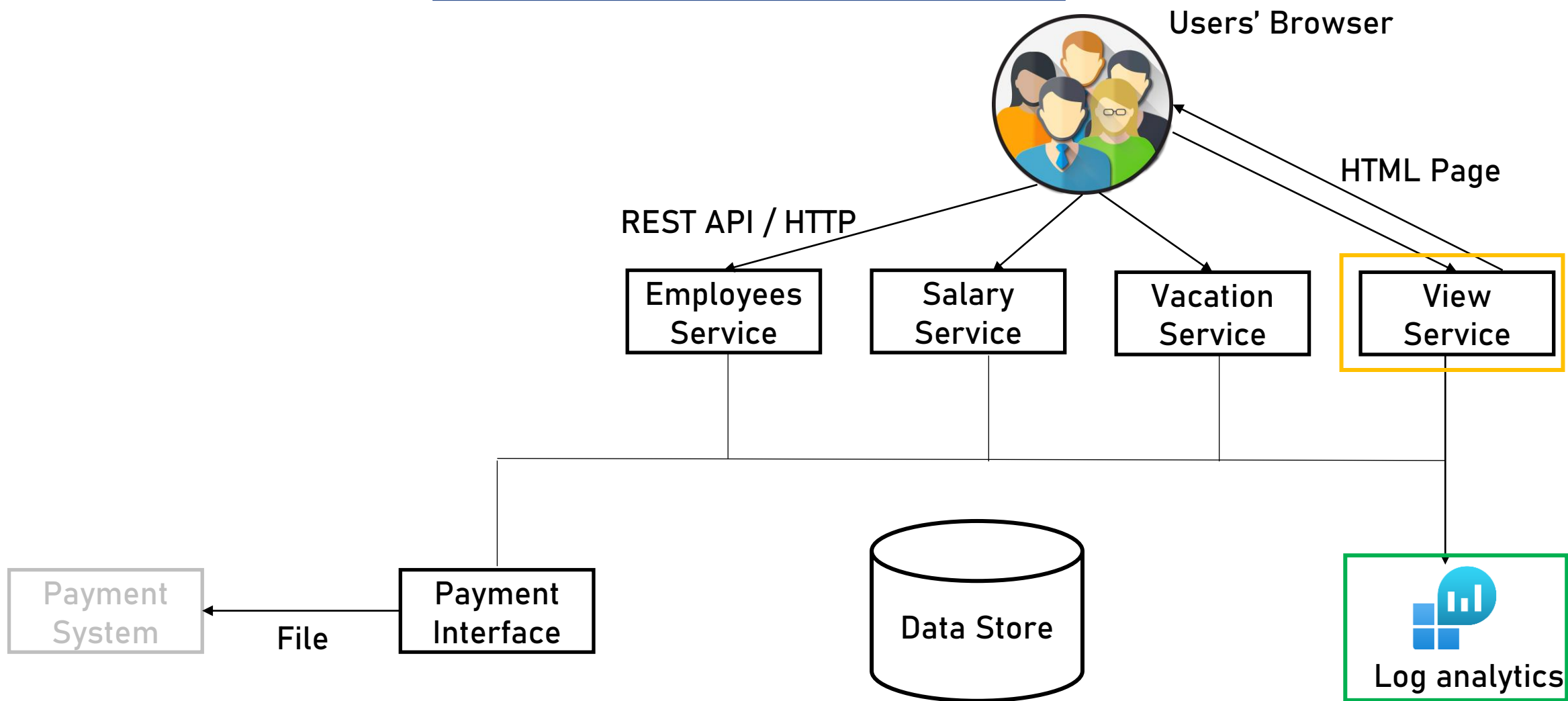
Upfront cost

\$0.00

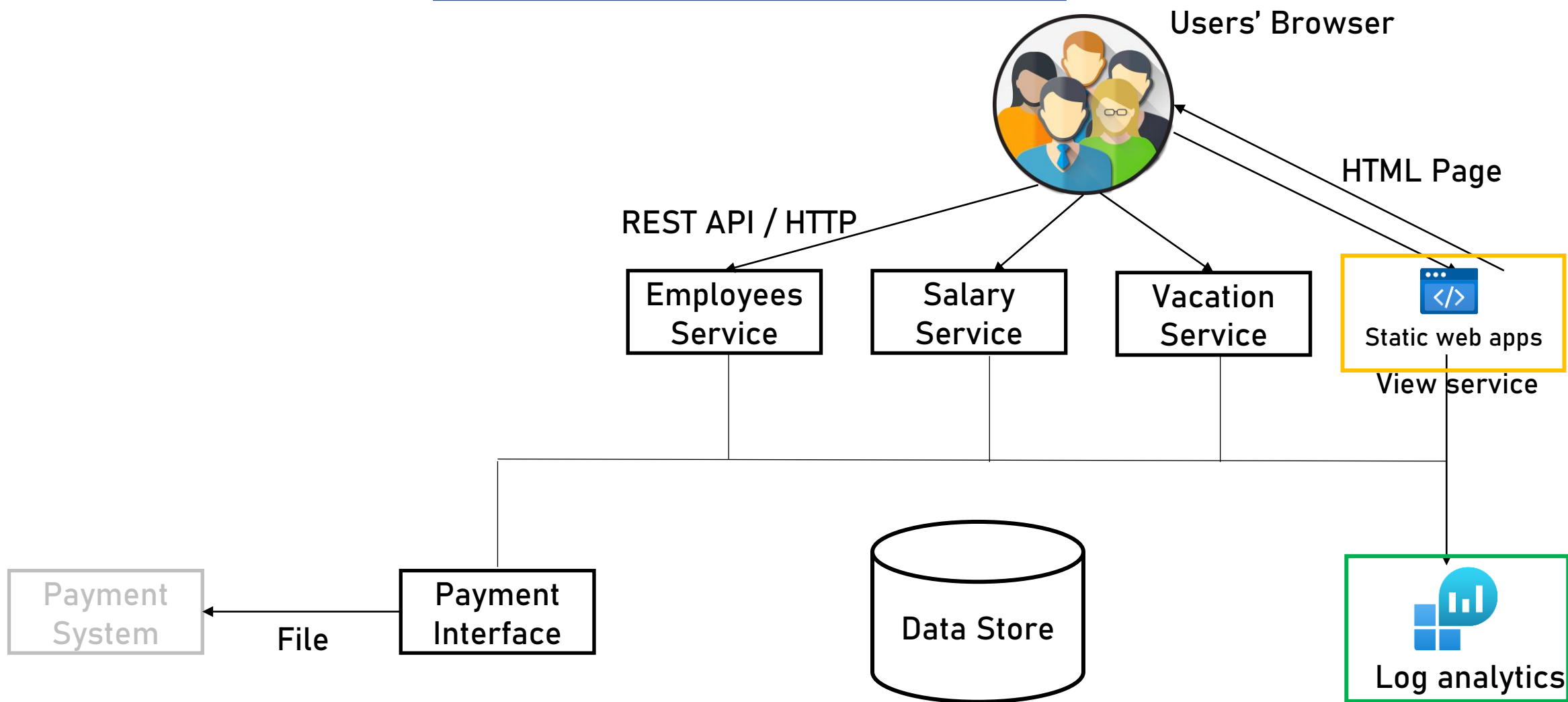
Monthly cost

\$9.00

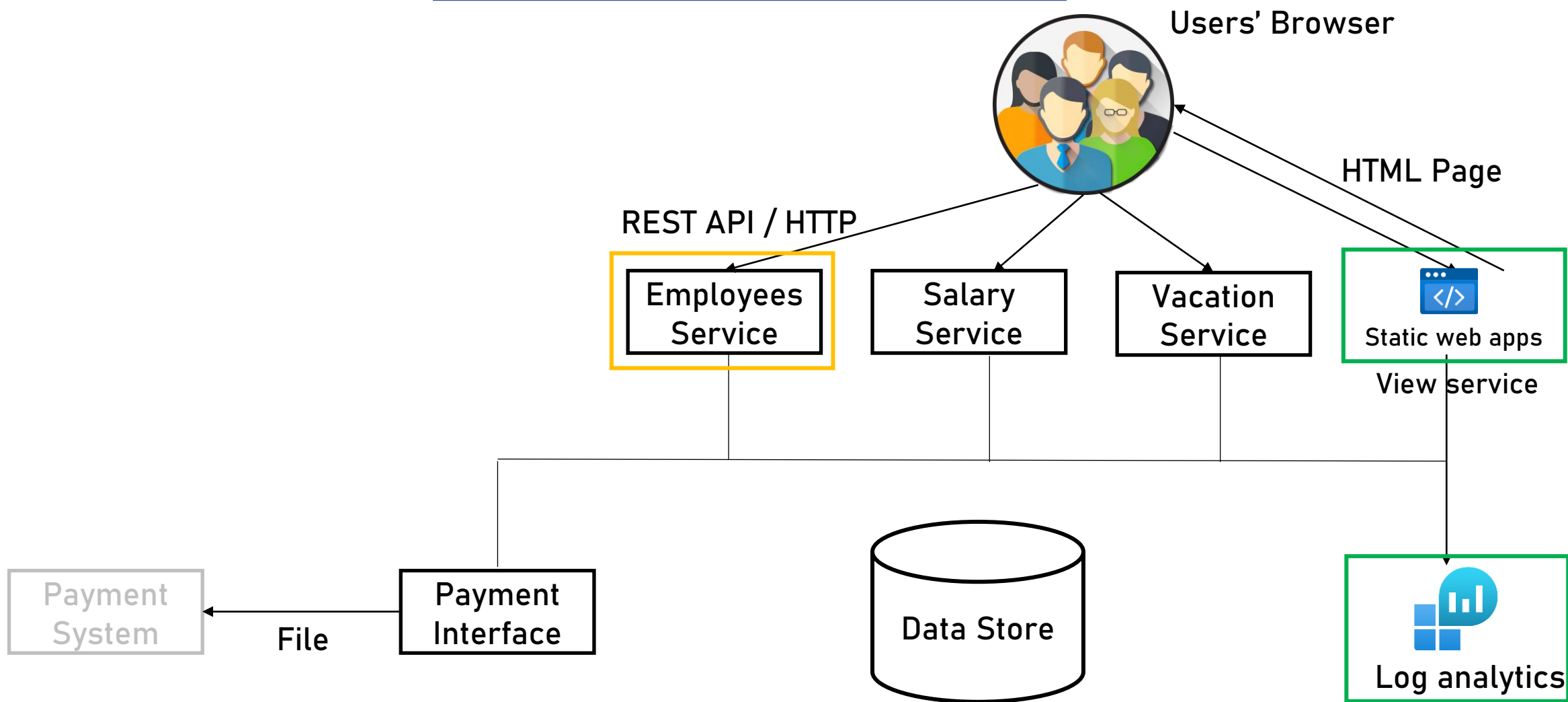
Components



Components



Components



Employees Service

What it does:

- Allows end users to query employees' data
- Allows performing actions on data (CUD)

What it doesn't:

- Displays the data

Application Type

- Web App & Web API ✓
- Mobile App ✗
- Console ✗
- Service ✗
- Desktop App ✗

Technology Stack – Dev Platform



Azure Web API

Let's choose:



App

- Fully managed
 - Supports managed
 - Autoscale
 - Support for WebJobs
- Azure Functions are for lightweight actions
 - The API does some heavy lifting
 - Updates, docs etc.
 - App services support these actions
- Integration with cloud services
 - Extremely cost effective

Azure Web API



App Service

- Fully managed web app & API
- Supports many platforms
- Autoscale
- Support for WebJobs



Function Apps

- Fully managed cloud functions
- Lightweight
- Autoscale
- Integration with cloud services
- Extremely cost effective

Azure Web API

App Service

REGION:
West Europe

OPERATING SYSTEM:
Windows

TIER:
Standard

Standard

INSTANCE:
S1: 1 Cores(s), 1.75 GB RAM, 50 GB Storage, \$0.100

1
Instances

×

730
Hours

= \$73.00

SSL Connections

Upfront cost\$0.00

Monthly cost\$73.00

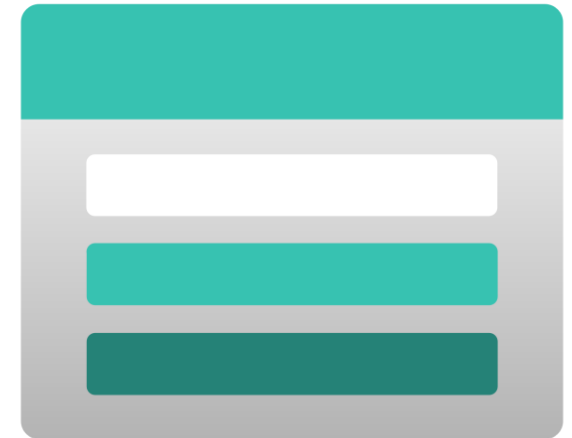
Technology Stack – Database

Employee Data (Relational)



Azure SQL

Documents



Storage Account

Azure SQL Database

REGION:

West Europe

TYPE:

Single Database

BACKUP STORAGE TIER:

LRS

PURCHASE MODEL:

vCore

SERVICE TIER:

General Purpose

COMPUTE TIER:

Provisioned

HARDWARE TYPE:

Gen 5

INSTANCE:

2 vCore

Compute

REDUNDANCY:

Local

1

Instances

Savings Options

Save up to 73% on pay as you go prices with 1 year or 3 year reserved options.

Compute

- ☐ Pay as you go
- ☐ 1 year reserved
- ☒ 3 year reserved

COMPUTE PAYMENT OPTIONS:

Monthly

\$110.00

Average per month
(\$0.00 charged upfront)

SQL License

- ☒ Pay as you go
- ☐ Azure Hybrid Benefit

\$145.95

Average per month
(\$0.00 charged upfront)

= \$255.95

Average per month
(\$0.00 charged upfront)

Storage ⓘ

5

GB

= \$0.68

Storage Accounts

REGION:

West Europe ▼

TYPE:

Block Blob Storage ▼

PERFORMANCE TIER:

Standard ▼

STORAGE ACCOUNT TYPE:

General Purpose V2 ▼

ACCESS TIER:

Hot ▼

REDUNDANCY:

LRS ▼

Capacity

25

GB



Upfront cost

\$0.00

Monthly cost

\$0.71

Architecture

Service Interface

Business Logic


Data Access

Data Store



```
graph TD; A[Architecture] --- B[Service Interface]; B --- C[Business Logic]; C --- D[Data Access]; D --- E[(Data Store)]
```

API

- Get full employee details by ID
- List of employees by parameters
- Add employee
- Update employee details
- Remove employee  Not physical delete!

API – Cont.

- Add document
- Remove document
- Get document
- Retrieve documents by parameters

Q: Do we need a separate Document Handler service?

A: Since only the Employee entity requires docs, then no.



API

| Functionality | Path | Return Codes |
|------------------------------|--|--|
| Get employee details by ID | GET /api/v1/employee/{id} | 200 OK 404 Not Found |
| List employees by parameters | GET /api/v1/employees?name=...&birthdate=... | 200 OK 400 Bad Request |
| Add employee | POST /api/v1/employee | 201 Created 400 Bad Request |
| Update employee details | PUT /api/v1/employee/{id} | 200 OK 400 Bad Request 404 Not Found |
| Remove employee | DELETE /api/v1/employee/{id} | 200 OK 404 Not Found |

API

| Functionality | Path | Return Codes |
|---------------------------------|---|------------------------------|
| Add document | POST /api/v1/employee/{id}/document | 201 Created 404 Not Found |
| Remove document | DELETE /api/v1/employees/{id}/document/{docid} | 200 OK 404 Not Found |
| Get document | GET /api/v1/employees/{id}/document/{docid} | 200 OK 404 Not Found |
| Retrieve documents for employee | GET /api/v1/employees/{id}/documents | 200 OK 404 Not Found |

Employee Service Redundancy

App service auto scale

Default*

Auto created scale condition

Delete warning

The very last or default recurrence rule cannot be deleted. Instead, you can disable autoscale to turn off autoscale.

Scale mode

☒ Scale based on a metric

☐ Scale to a specific instance count

Rules

It is recommended to have at least one scale in rule. To create new rules, click [Add a rule](#).

Scale out

| | | | |
|------|----------|---------------------------------|---------------------|
| When | Default1 | (Average) CpuPercentage > 70 | Increase count by 1 |
| Or | Default1 | (Average) HttpQueueLength > ... | Increase count by 1 |

[+ Add a rule](#)

Instance limits

Minimum ⓘ

Maximum ⓘ

Default ⓘ

1 ✓

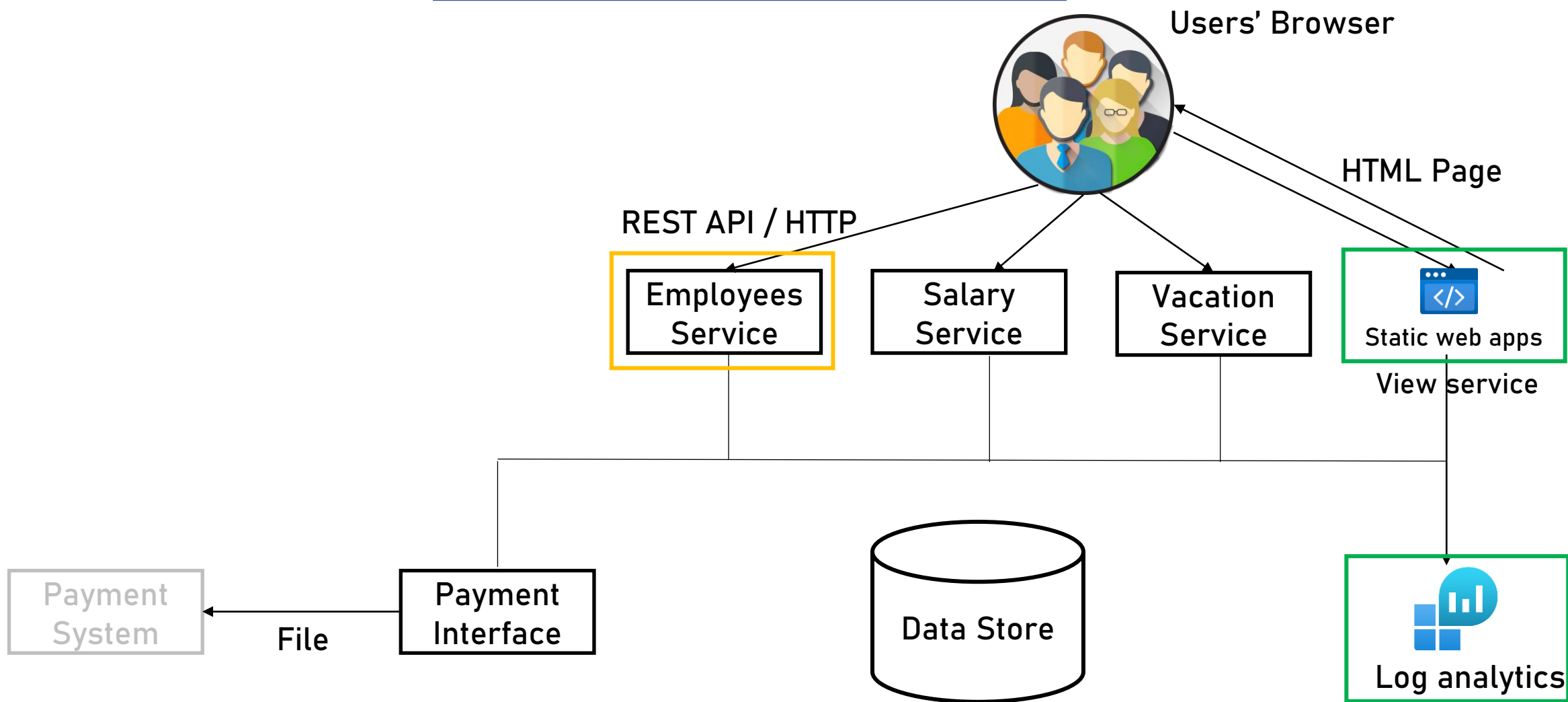
3 ✓

1 ✓

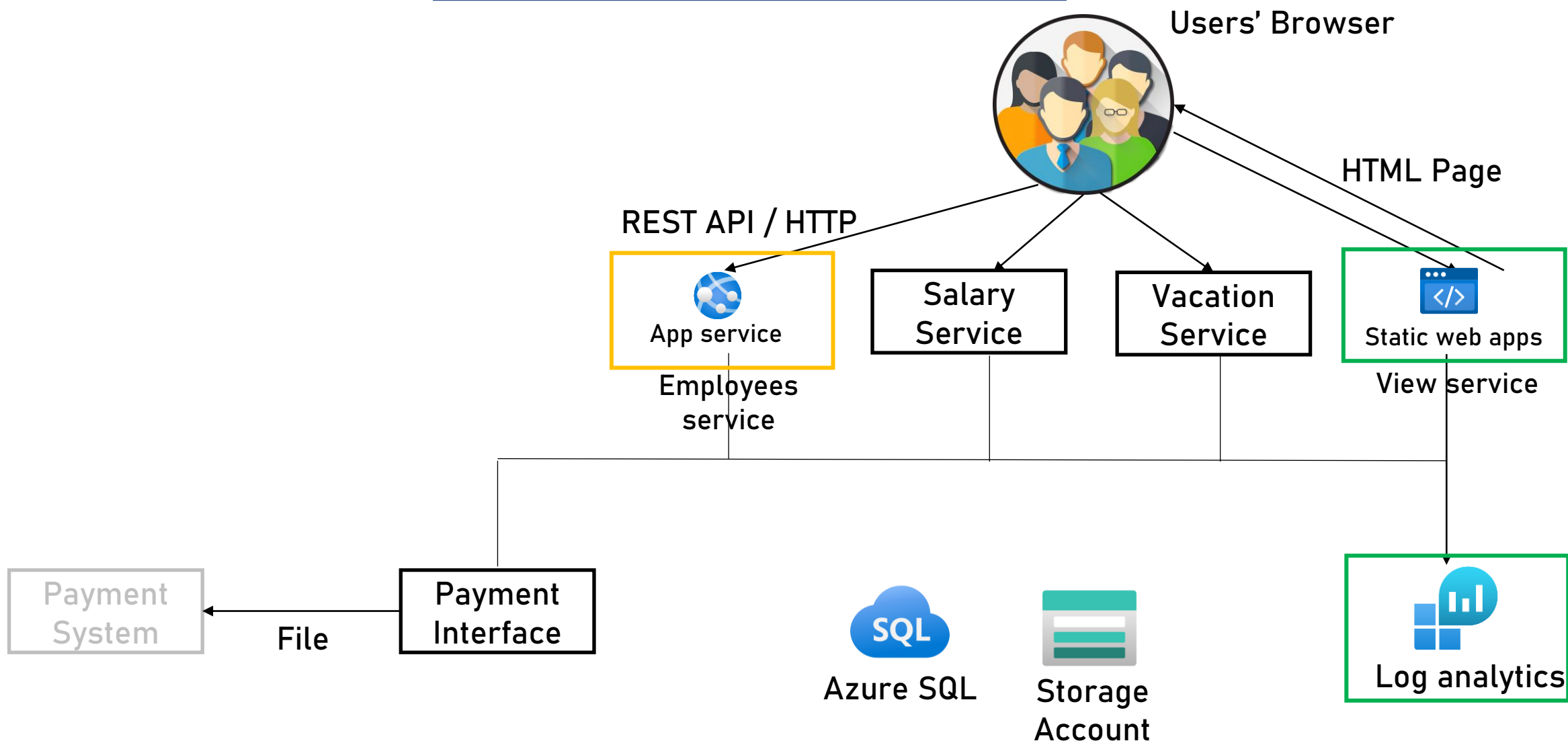
Schedule

This scale condition is executed when none of the other scale condition(s) match

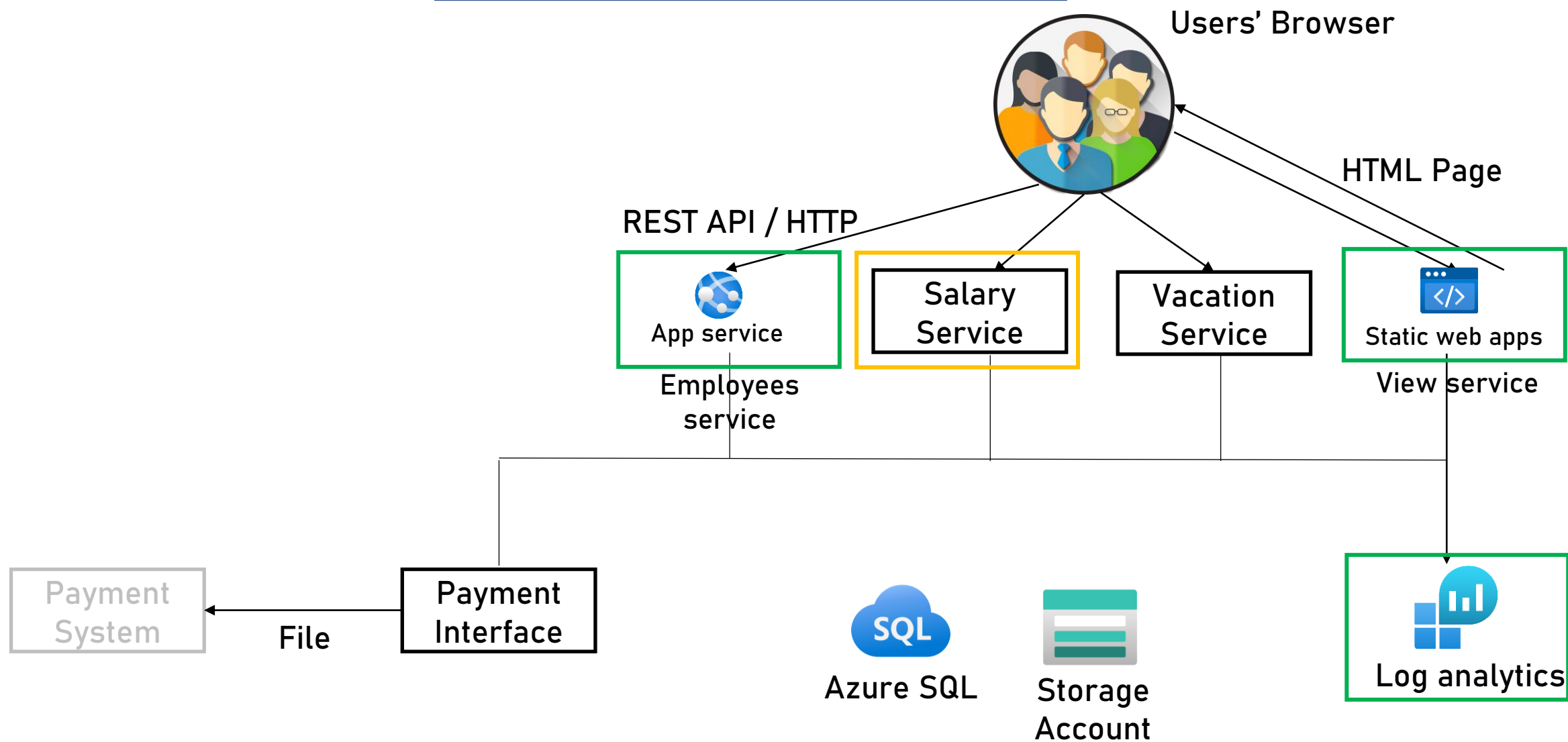
Components



Components



Components



Salary Service

What it does:

- Allows managers to ask for an employee's salary change
- Allows HR representative to approve / reject the request

Application Type

- Web App & Web API ✓
- Mobile App ✗
- Console ✗
- Service ✗
- Desktop App ✗

Technology Stack



Azure Web API

Let's choose:

- Azure Functions are for lightweight actions
- The API does some heavy lifting
 - Updates, docs etc.
- App services support these actions



App Se

- Fully managed w
- Supports many p
- Autoscale
- Support for WebJobs
- Integration with cloud services
- Extremely cost effective

Azure Web API



App Service

- Fully managed web app & API
- Supports many platforms
- Autoscale
- Support for WebJobs



Function Apps

- Fully managed cloud functions
- Lightweight
- Autoscale
- Integration with cloud services
- Extremely cost effective

Azure Web API

App Service

REGION:
West Europe

OPERATING SYSTEM:
Windows

TIER:
Standard

Standard

INSTANCE:
S1: 1 Cores(s), 1.75 GB RAM, 50 GB Storage, \$0.100

1

×

730

Hours

= \$73.00

SSL Connections

Upfront cost

\$0.00

Monthly cost

\$73.00

Architecture

Service Interface

Business Logic

Data Access

Data Store



API


- Add salary request
- Remove salary request
- Get salary requests
- Approve salary request
- Reject salary request

API


| Functionality | Path | Return Codes |
|------------------------|---|---------------------------|
| Add salary request | POST /api/v1/salaryRequest/ | 200 OK 400 Bad Request |
| Remove salary request | DELETE /api/v1/salaryRequest/{id} | 200 OK 404 Not Found |
| Get salary requests | GET /api/v1/salaryRequests | 200 OK |
| Approve salary request | POST /api/v1/salaryRequest/{id}/approval | 200 OK 404 Not Found |
| Reject salary request | POST /api/v1/salaryRequest/{id}/rejection | 200 OK 404 Not Found |

Salary Service Redundancy

App service auto scale

Default* Auto created scale condition 


Delete warning

 The very last or default recurrence rule cannot be deleted. Instead, you can disable autoscale to turn off autoscale.

Scale mode

☒ Scale based on a metric ☐ Scale to a specific instance count

Rules

 It is recommended to have at least one scale in rule. To create new rules, click [Add a rule](#).

Scale out

| | | | |
|------|----------|---------------------------------|---------------------|
| When | Default1 | (Average) CpuPercentage > 70 | Increase count by 1 |
| Or | Default1 | (Average) HttpQueueLength > ... | Increase count by 1 |


[+ Add a rule](#)


Instance limits


Minimum ⓘ

Maximum ⓘ

Default ⓘ

1 

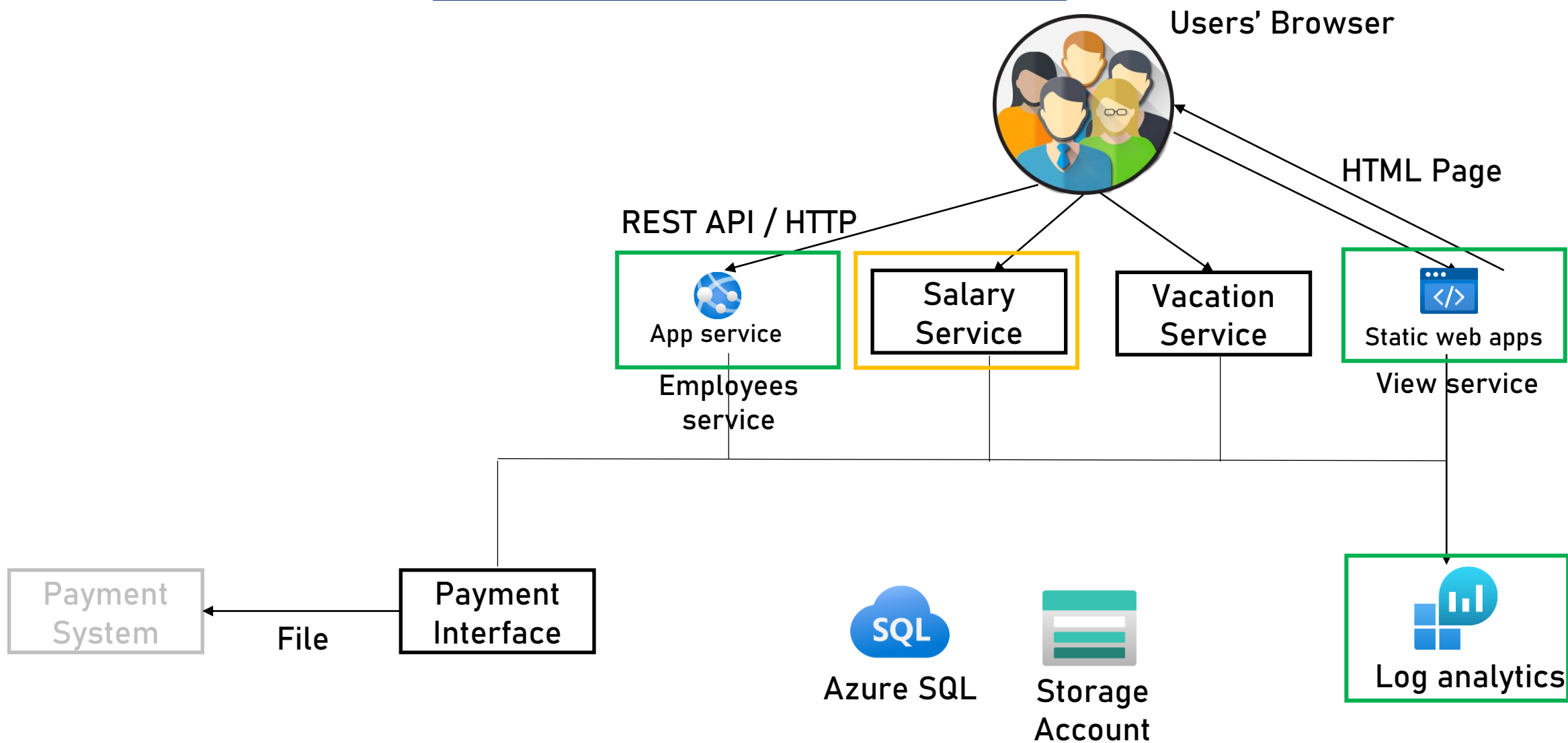
3 

1 

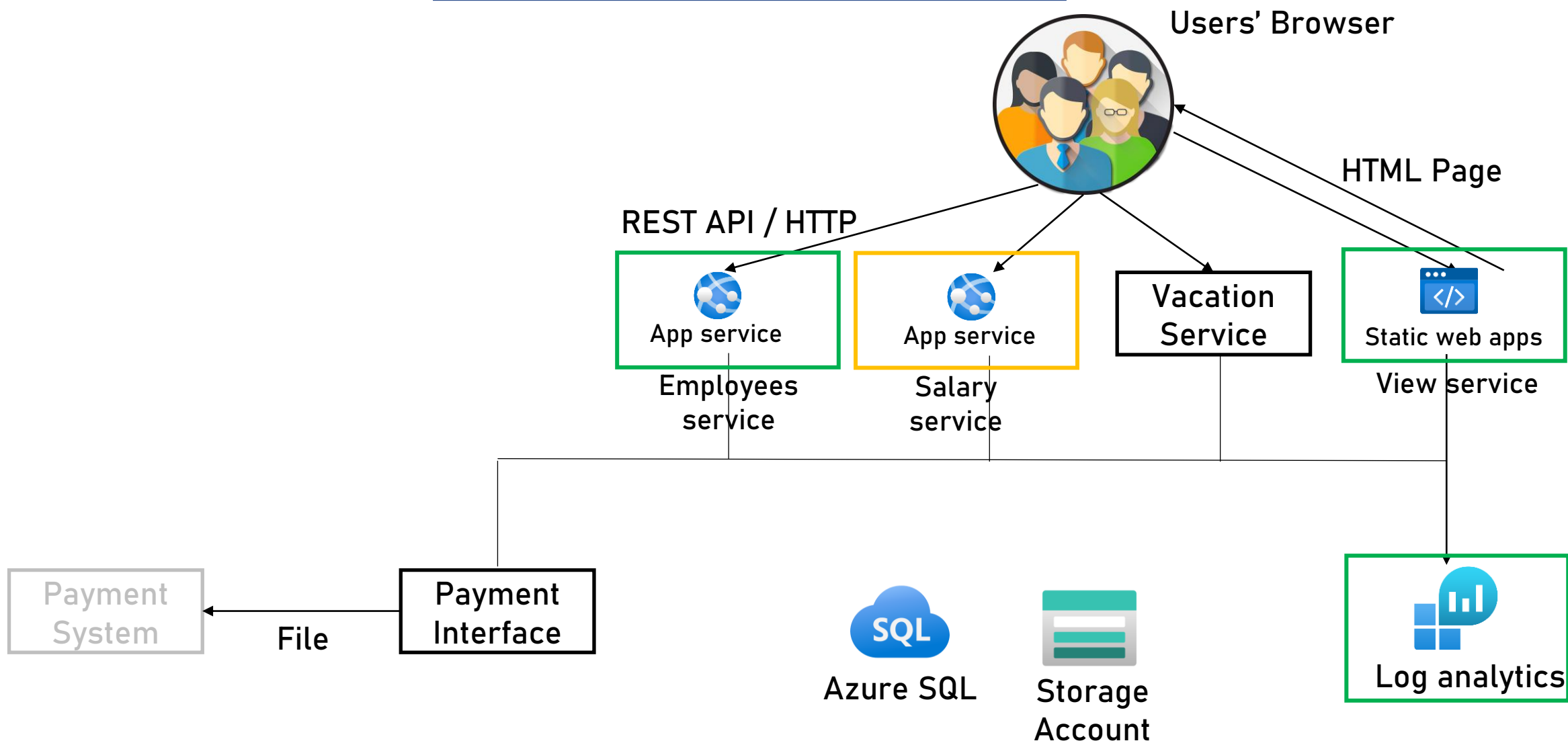
Schedule

This scale condition is executed when none of the other scale condition(s) match

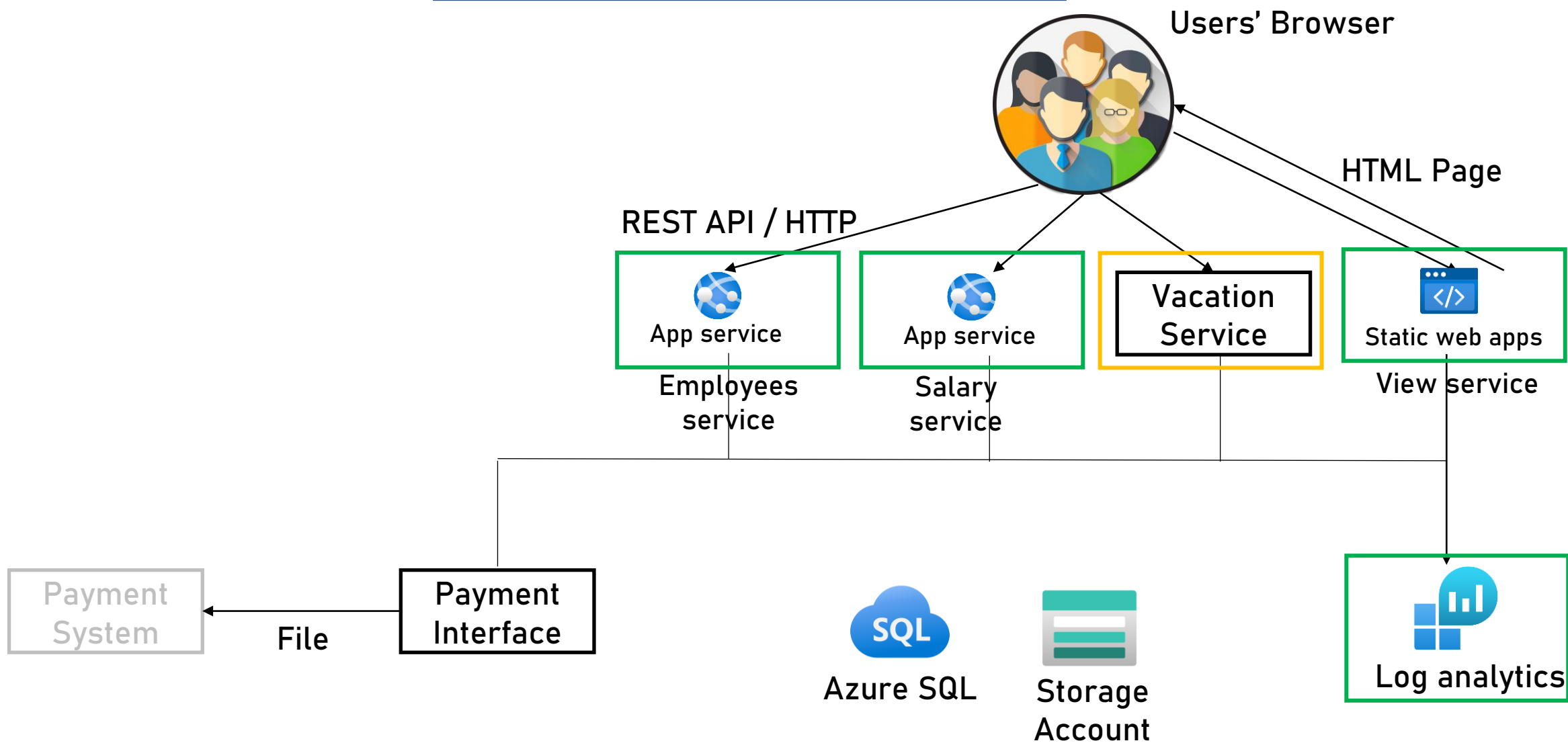
Components



Components



Components



Vacation Service

What it does:

- Allows employees to manage their vacation days
- Allows HR to set available vacation days for employees

Application Type

- Web App & Web API ✓
- Mobile App ✗
- Console ✗
- Service ✗
- Desktop App ✗

Technology Stack



Azure Web API



App Service

- Fully managed web app & API
- Supports many platforms
- Autoscale
- Support for WebJobs

Azure Web API

App Service

REGION:
West Europe

OPERATING SYSTEM:
Windows

TIER:
Standard

Standard

INSTANCE:
S1: 1 Cores(s), 1.75 GB RAM, 50 GB Storage, \$0.100

1

×

730

Hours

= \$73.00

SSL Connections

Upfront cost

\$0.00

Monthly cost

\$73.00

Architecture

Service Interface

Business Logic

Data Access

Data Store



API

- Set available vacation days (by HR)
- Get available vacation days
- Reduce vacation days (by employees)




API


| Functionality | Path | Return Codes |
|-----------------------------|---|-------------------------|
| Set available vacation days | PUT /api/v1/vacation/{empid} | 200 OK 404 Not Found |
| Get available vacation days | GET /api/v1/vacation/{empid} | 200 OK 404 Not Found |
| Reduce vacation days | POST /api/v1/vacation/{empid}/reduction | 200 OK |

Vacation Service Redundancy

App service auto scale

Default* Auto created scale condition 


Delete warning

 The very last or default recurrence rule cannot be deleted. Instead, you can disable autoscale to turn off autoscale.

Scale mode

☒ Scale based on a metric ☐ Scale to a specific instance count

Rules

 It is recommended to have at least one scale in rule. To create new rules, click [Add a rule](#).

Scale out

| | | | |
|------|----------|---------------------------------|---------------------|
| When | Default1 | (Average) CpuPercentage > 70 | Increase count by 1 |
| Or | Default1 | (Average) HttpQueueLength > ... | Increase count by 1 |

[+ Add a rule](#)

Instance limits

Minimum ⓘ

Maximum ⓘ

Default ⓘ

1 ✓

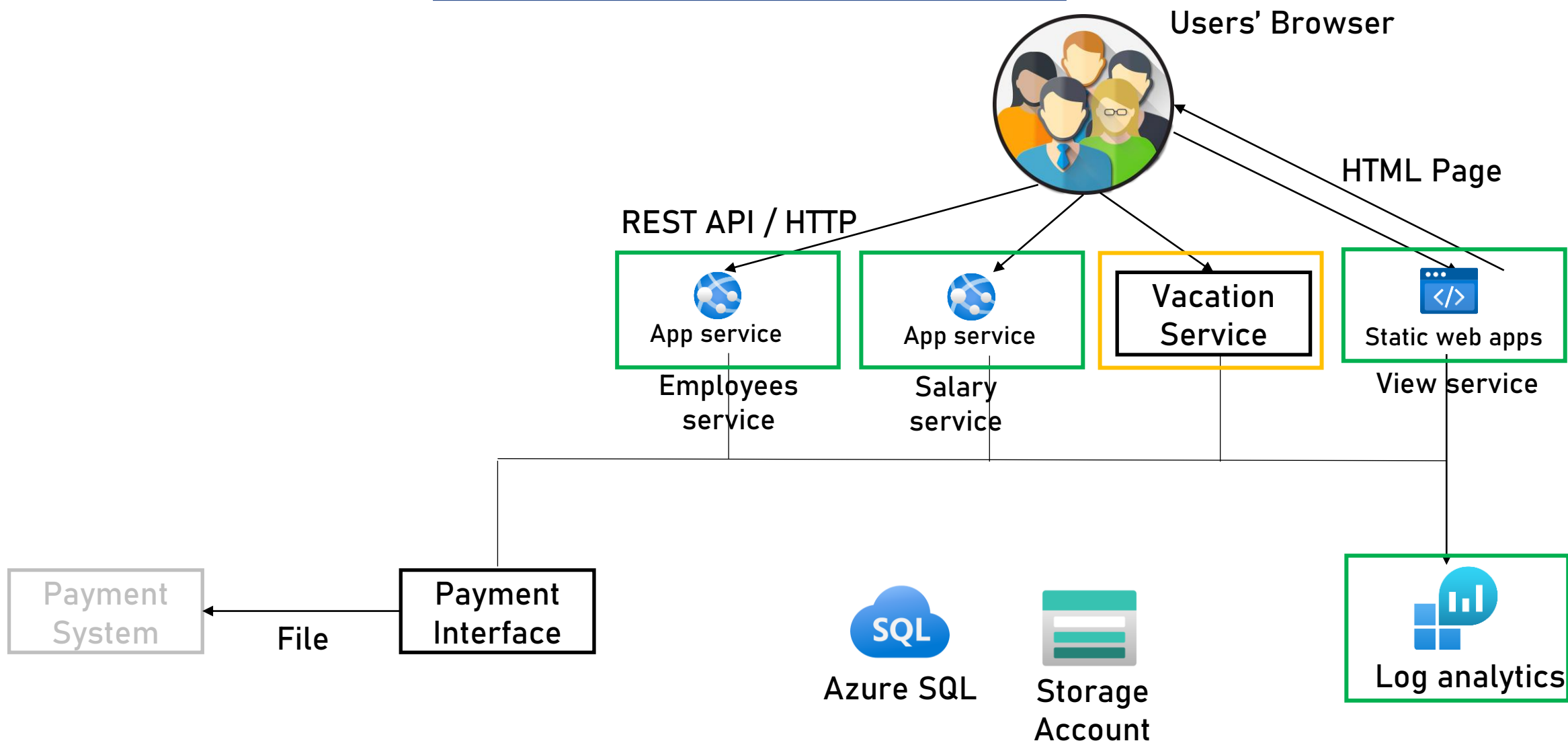
3 ✓

1 ✓

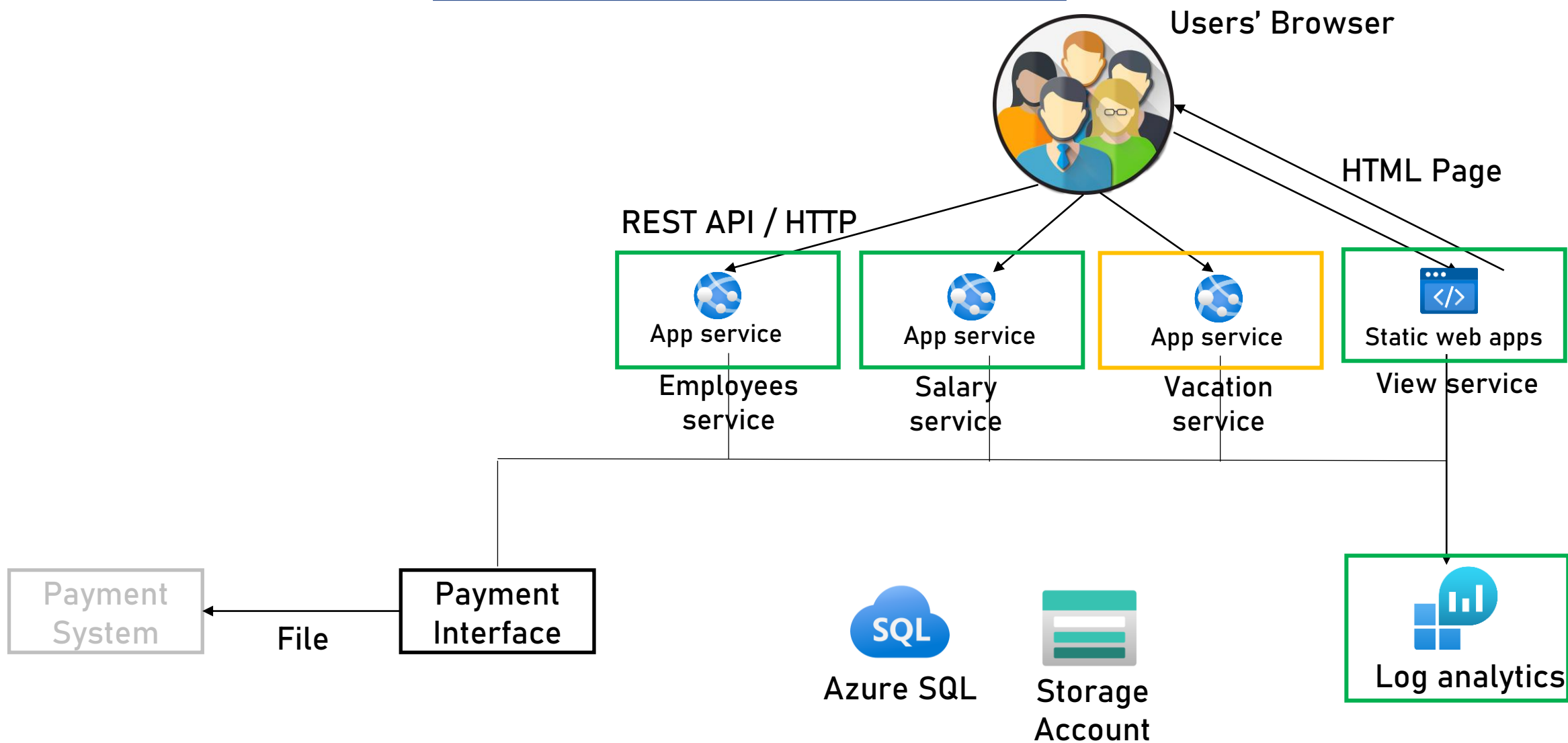
Schedule

This scale condition is executed when none of the other scale condition(s) match

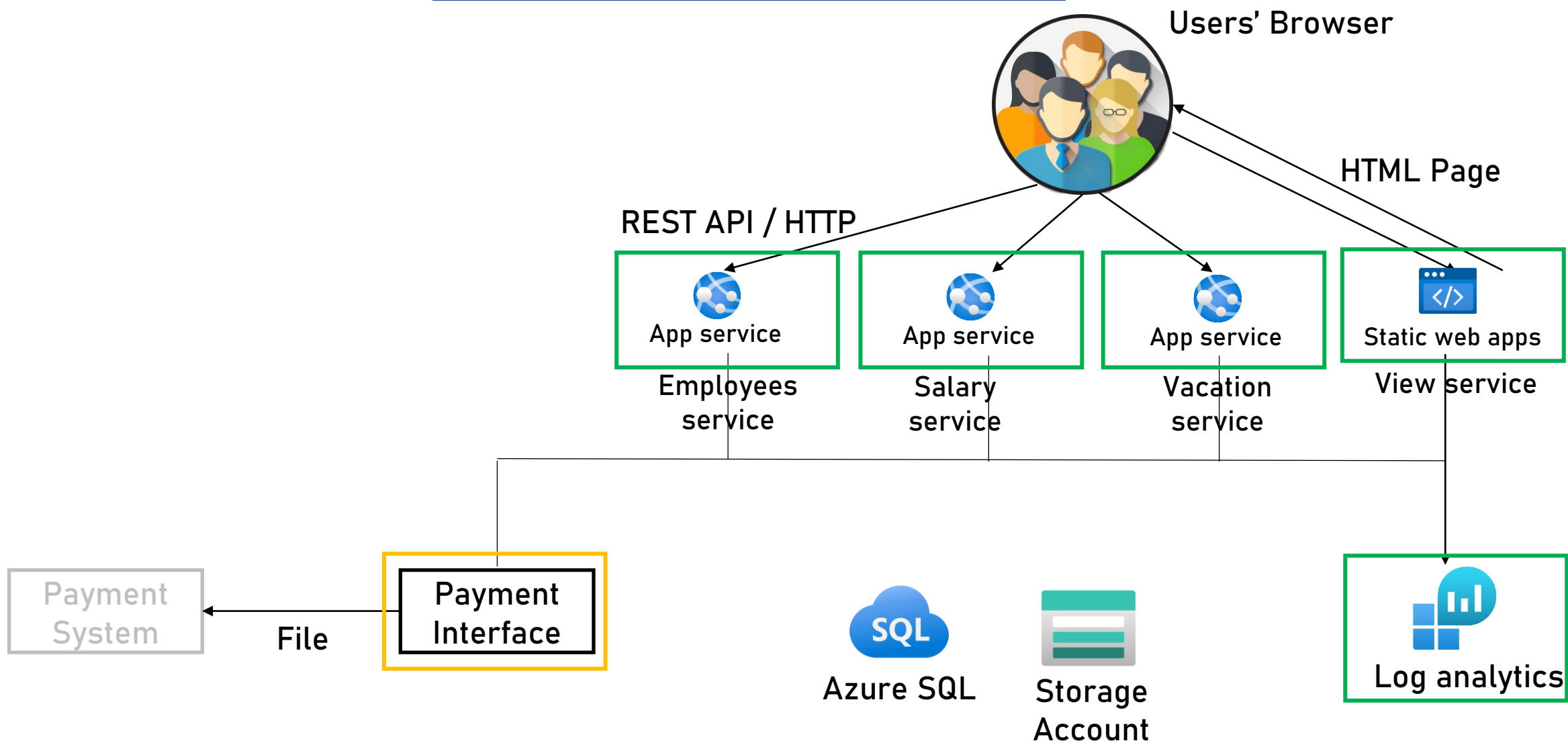
Components



Components



Components








Payment Interface

What it does:

- Queries the database once a month for salary data
- Passes payment data to the external payment system

Application Type

- Web App & Web API 
- Mobile App 
- Console 
- Service 
- Desktop App 

Technology Stack



Azure batch process



App Se

- Runs on schedule
- Part of the App s
- No additional cos

Let's choose:

- Azure Functions are for lightweight actions
- Have great monitoring
- The export can take a lot of time

- Integration with cloud services
- Extremely cost effective

Azure batch process



App Service WebJob

- Runs on schedule
- Part of the App service
- No additional cost



Function Apps

- Fully managed cloud functions
- Lightweight
- Autoscale
- Integration with cloud services
- Extremely cost effective

Azure batch process



App Service WebJob

- Runs on schedule
- Part of the App service
- No additional cost

Other alternatives



VM

- Requires a lot of manual maintenance
- Expensive



Logic app

- Too complex for this specific job



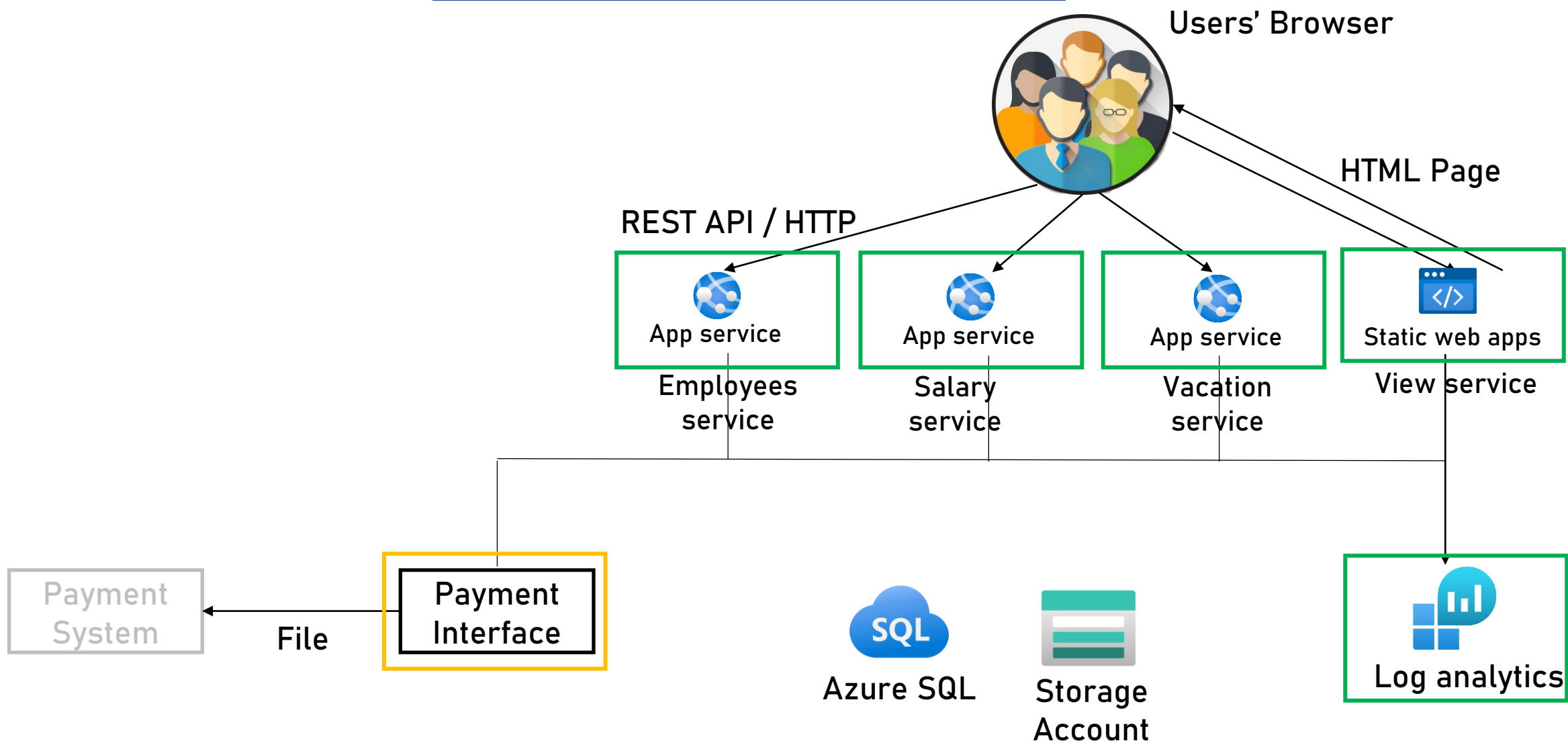
Azure batch

- Used for huge processes, this is not the case

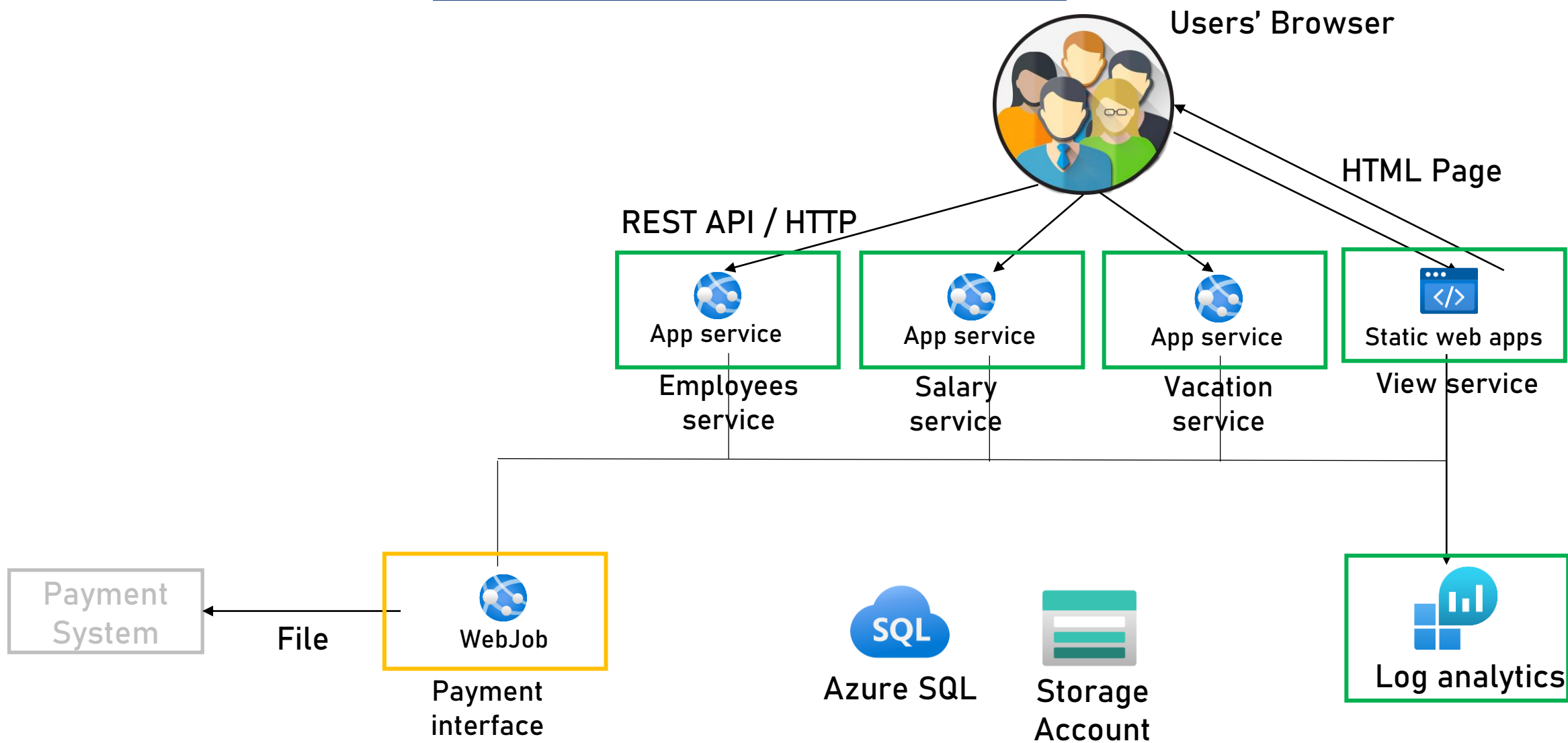
Payment Interface Redundancy

- No built-in redundancy for WebJobs
- Not critical – runs once a month
- Add monitoring for catching failures

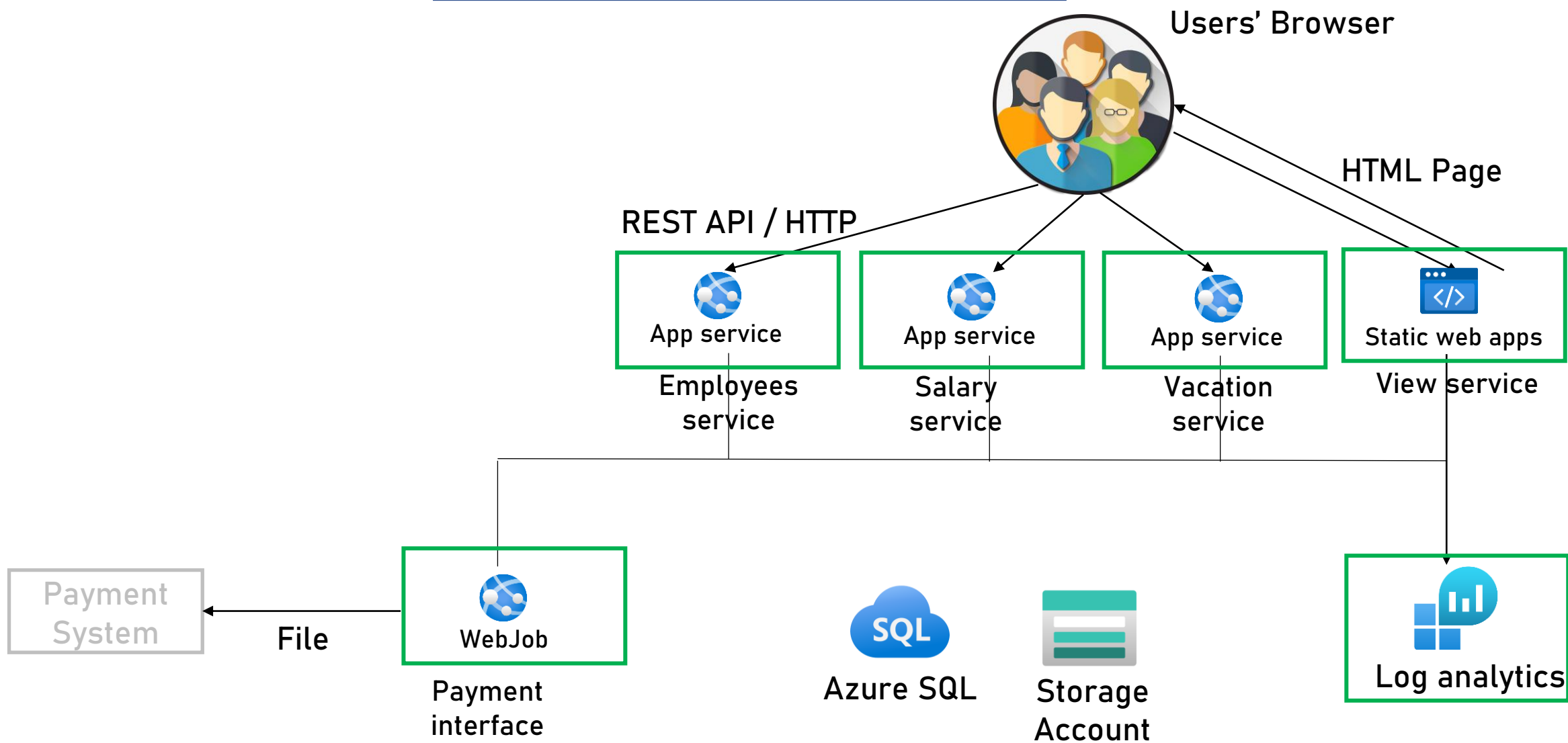
Components



Components



Components



Security

- Data encryption
- Network security
- Access restrictions

Data Encryption

- Data in Azure Storage account is encrypted by default
 - Using 256-bit AES encryption
- Traffic to Storage Account is encrypted using TLS

Data Encryption

- Data in Azure SQL is encrypted by default
 - Using 256-bit AES encryption
- Traffic to Azure SQL is encrypted using TLS

Network Security

- Currently all app services are exposed to the internet
- No protection whatsoever
- Need to add Web Application Firewall (WAF)



Application Gateway + WAF

- Load balancer
- Web Application Firewall
- Autoscale
- Sophisticated routing

Application Gateway

REGION:

West Europe

TIER:

Web Application Firewall V2

Fixed Gateway Hours

730

Hours

= \$341.64

Capacity unit

1

Compute unit(s)

1000

Persistent Connection(s)

1

Throughput (mb/s)

i

Each capacity unit is composed of at most: 1 compute unit, or 2,500 persistent connections, or 2.22-Mbps throughput. If any one of these metrics are exceeded, then another n capacity unit(s) are necessary, even if the other two metrics don't exceed this single capacity unit's limits.

730

Hours

= \$10.51

Outbound Data Transfer

5

GB

= \$0.00

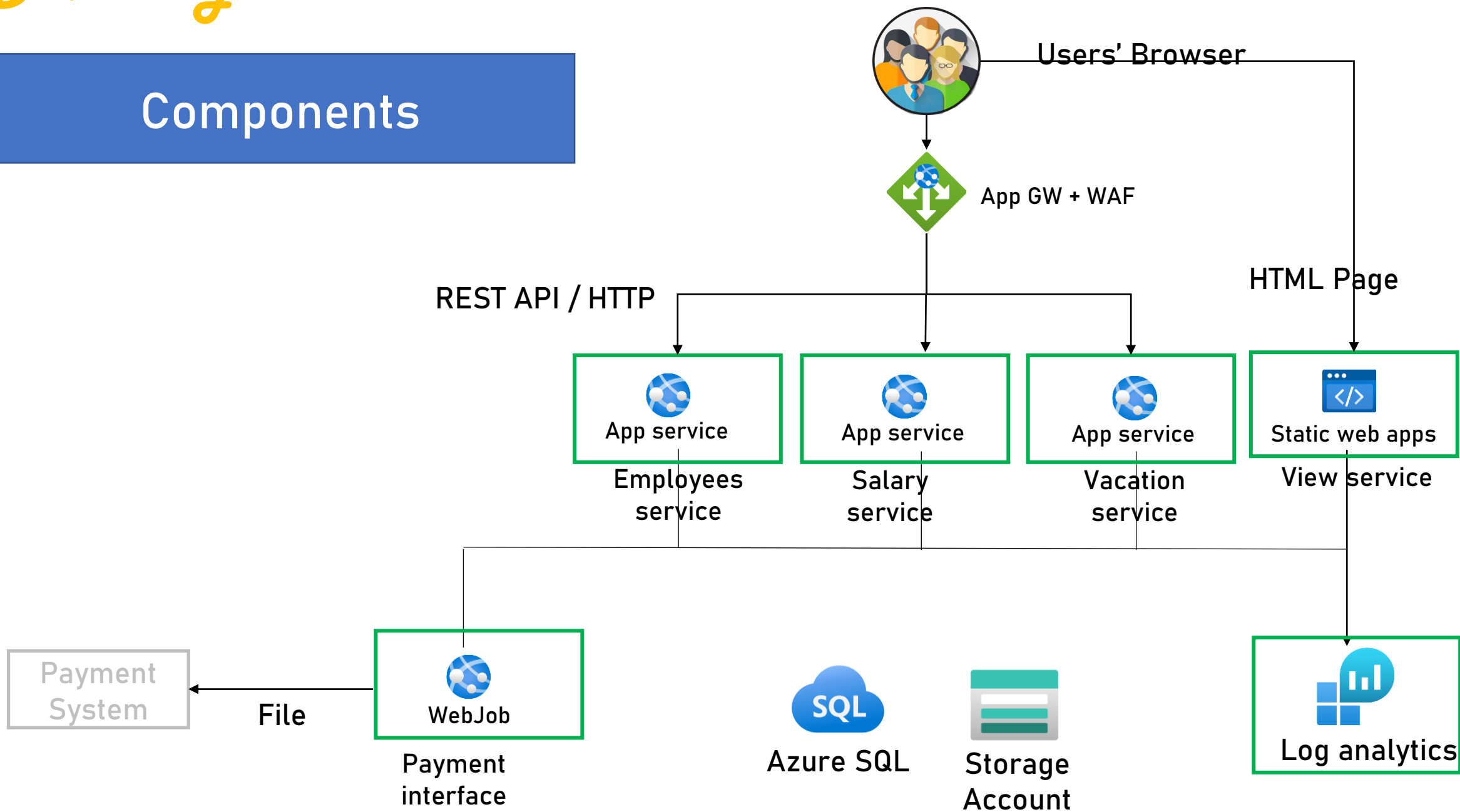
Upfront cost

\$0.00

Monthly cost

\$352.15

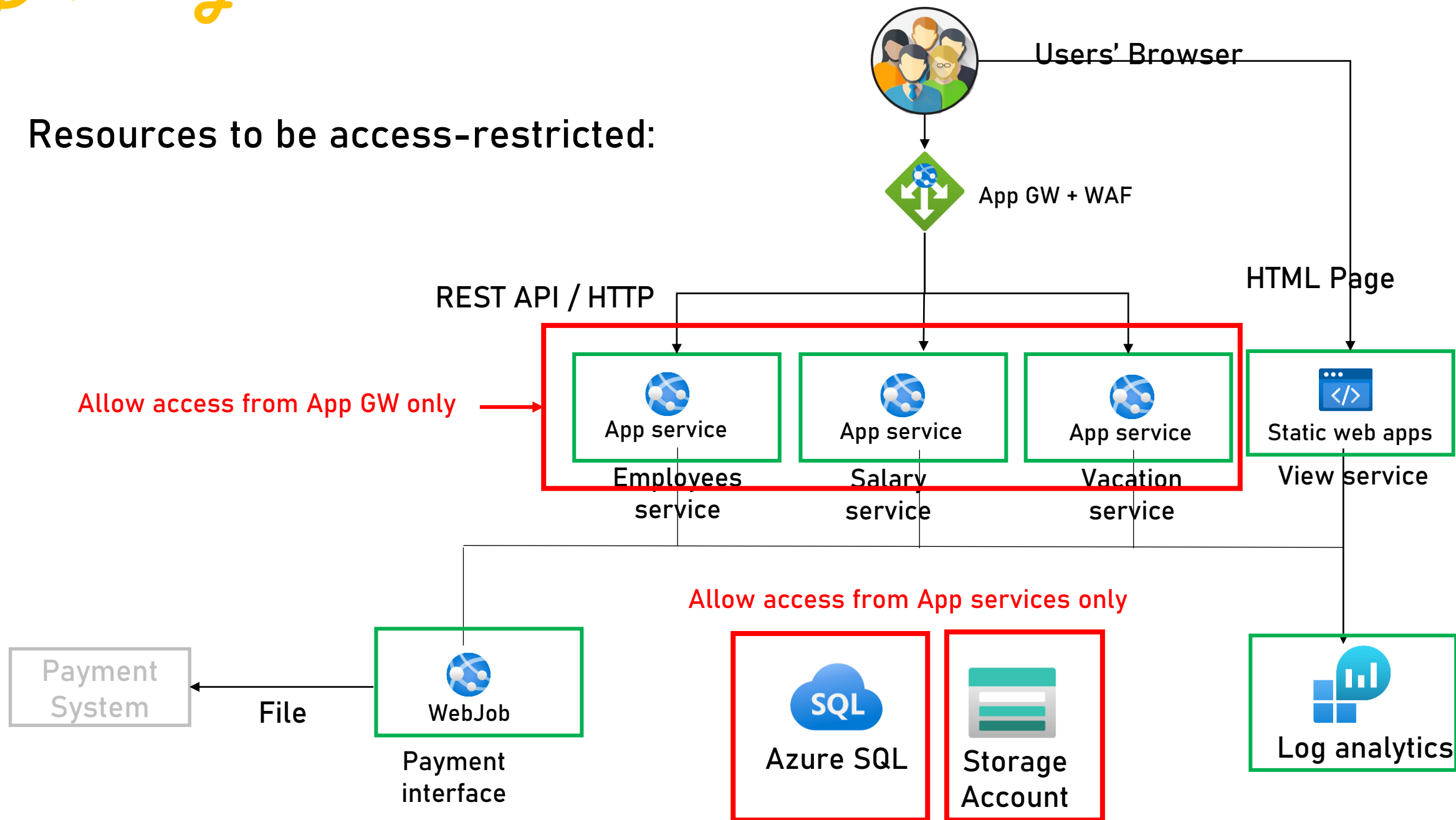
Components



Access Restrictions

- Access to resources should be limited to allowed resources only


Resources to be access-restricted:





Restrict access to App service

Add NSG rule to allow traffic from the App GW's VNET

 App Service

[Refresh](#) [Go to classic experience](#) [Send us your feedback](#)

Deployment

- Quickstart
- Deployment slots
- Deployment Center

Settings

- Configuration
- Authentication
- Application Insights
- Identity
- Backups
- Custom domains
- TLS/SSL settings
- Networking**
- Scale up (App Service plan)
- Scale out (App Service plan)
- WebJobs
- Push

Networking

Check your web app's networking configuration. Select any of the listed features to change your network set up. [Learn more](#)

Inbound Traffic

Manage access and incoming services.

Features

- Access restriction** ☒ On
- App assigned address ☐ Off
- Private endpoints ☐ N/A ⓘ

Inbound address

Web App

These custom domains direct traffic to your web app.

Domains

azurewebsite...

More networking features

- Azure CDN
- Azure Front Door

Outbound Traffic

Set up calls to app dependencies like databases.

Features

- VNet integration ☐ Off
- Hybrid connections ☐ Off

Outbound addresses

...Show more



Access Restrictions

Remove Refresh

Access Restrictions

Access restrictions allow you to define lists of allow/deny rules to control traffic to your app. Rules are evaluated in priority order. If there are no rules defined then your app will accept traffic from any address. [Learn more](#)

+ Add rule

| <input type="checkbox"/> Priority | Name | Source | Endpoint status | HTTP headers | Action |
|-------------------------------------|----------|--------|-----------------|----------------|--------|
| <input type="checkbox"/> 100 | API Mgmt | | | Not configured | Allow |
| <input type="checkbox"/> 2147483647 | Deny all | Any | | Not configured | Deny |

General settings

Name ⓘ
Enter name for the IpAddress rule ✓

Action

Priority *
Ex. 300

Description
✓

Source settings

Type
Virtual Network ✓

Subscription *
Subscription

Virtual Network *
t

Subnet *
default

HTTP headers filter settings

X-Forwarded-Host ⓘ
Ex. exampleOne.com, exampleTwo.com

X-Forwarded-For ⓘ
Enter IPv4 or IPv6 CIDR addresses.


X-Azure-FDID ⓘ
Enter Front Door or reverse proxies ids.

X-FD-HealthProbe ⓘ
Ex. 1

Add rule

Restrict access to Azure SQL

1. Get outbound IP of the App service
2. Add firewall rule to the Azure SQL

 App Service

[Refresh](#) [Go to classic experience](#) [Send us your feedback](#)

Deployment

- Quickstart
- Deployment slots
- Deployment Center

Settings

- Configuration
- Authentication
- Application Insights
- Identity
- Backups
- Custom domains
- TLS/SSL settings
- Networking**
- Scale up (App Service plan)
- Scale out (App Service plan)
- WebJobs
- Push




Networking

Check your web app's networking configuration. Select any of the listed features to change your network set up. [Learn more](#)

Inbound Traffic

Manage access and incoming services.

Features

| | |
|--|--|
|  Access restriction | <input checked="" type="checkbox"/> On |
|  App assigned address | <input type="checkbox"/> Off |
|  Private endpoints | <input type="checkbox"/> N/A ⓘ |

Inbound address


Web App


These custom domains direct traffic to your web app.

Domains

azurewebsite...

More networking features



 Azure CDN

 Azure Front Door

Outbound Traffic

Set up calls to app dependencies like databases.

Features

| | |
|--|------------------------------|
|  VNet integration | <input type="checkbox"/> Off |
|  Hybrid connections | <input type="checkbox"/> Off |

Outbound addresses

[...Show more](#)

Search (Ctrl+*/*)

 Save  Discard  Add client IP

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Quick start

Settings

- Azure Active Directory
- SQL databases
- SQL elastic pools
- DTU quota
- Properties
- Locks

Data management


- Backups
- Deleted databases
- Failover groups
- Import/Export history

Security

- Private endpoint connections

Deny public network access ⓘ

Yes ☐ No ☒

 [Click here to create a new private endpoint.](#)
[Create Private Endpoint](#)

Minimum TLS Version ⓘ

| | | |
|-----|-----|-----|
| 1.0 | 1.1 | 1.2 |
|-----|-----|-----|

Connection Policy ⓘ

Default Proxy Redirect

Allow Azure services and resources to access this server

Yes No

Client IP address

Rule name

Start IP

End IP

...

Restrict access to Storage Account

1. Get outbound IP of the App service
2. Add firewall rule to the Storage Account

Storage account

Search (Ctrl+/)

Overview

Activity log

Tags

Diagnose and solve problems

Access Control (IAM)

Data migration

Events

Storage Explorer (preview)

Data storage

Containers

File shares

Queues

Tables

Security + networking

Networking

Azure CDN

Networking

Firewalls and virtual networks

Private endpoint connections

Custom domain

Save Discard Refresh

Firewall settings allowing access to storage services will remain in effect for up to a minute after you save changes.

Allow access from

All networks

Selected networks

Configure network security for your storage accounts. [Learn more](#)

Virtual networks

+ Add existing virtual network

+ Add new virtual network

| Virtual Network | Subnet |
|----------------------|--------|
| No network selected. | |

Firewall

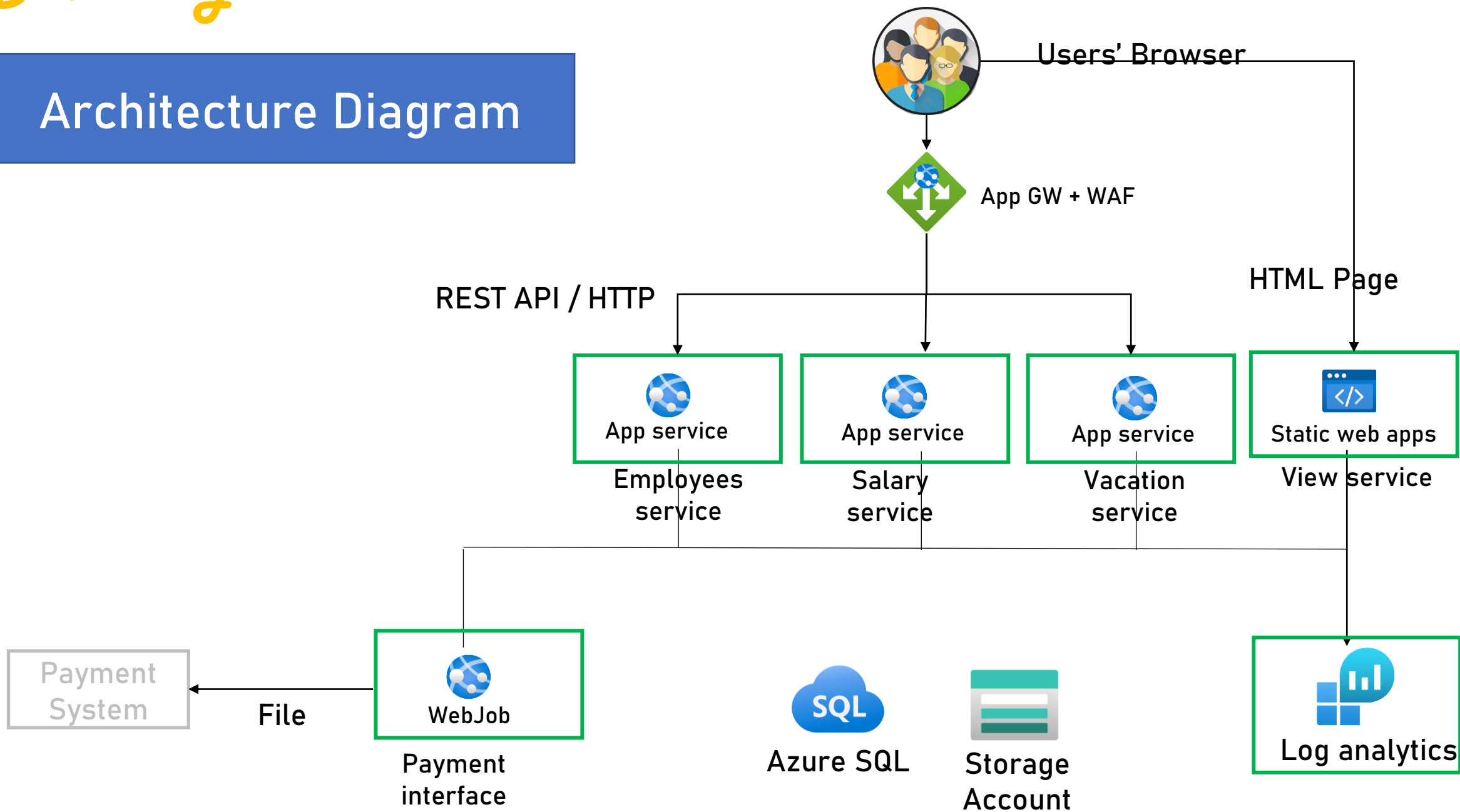
Add IP ranges to allow access from the internet or your on-premises networks. [Learn more.](#)

Add your client IP address ("176.228.97.172")

Address range

IP address or CIDR

Architecture Diagram



Cost

| | |
|------------------------|----------|
| Estimated upfront cost | \$0.00 |
| Estimated monthly cost | \$848.07 |

Download detailed cost estimation
from the lecture's resources