

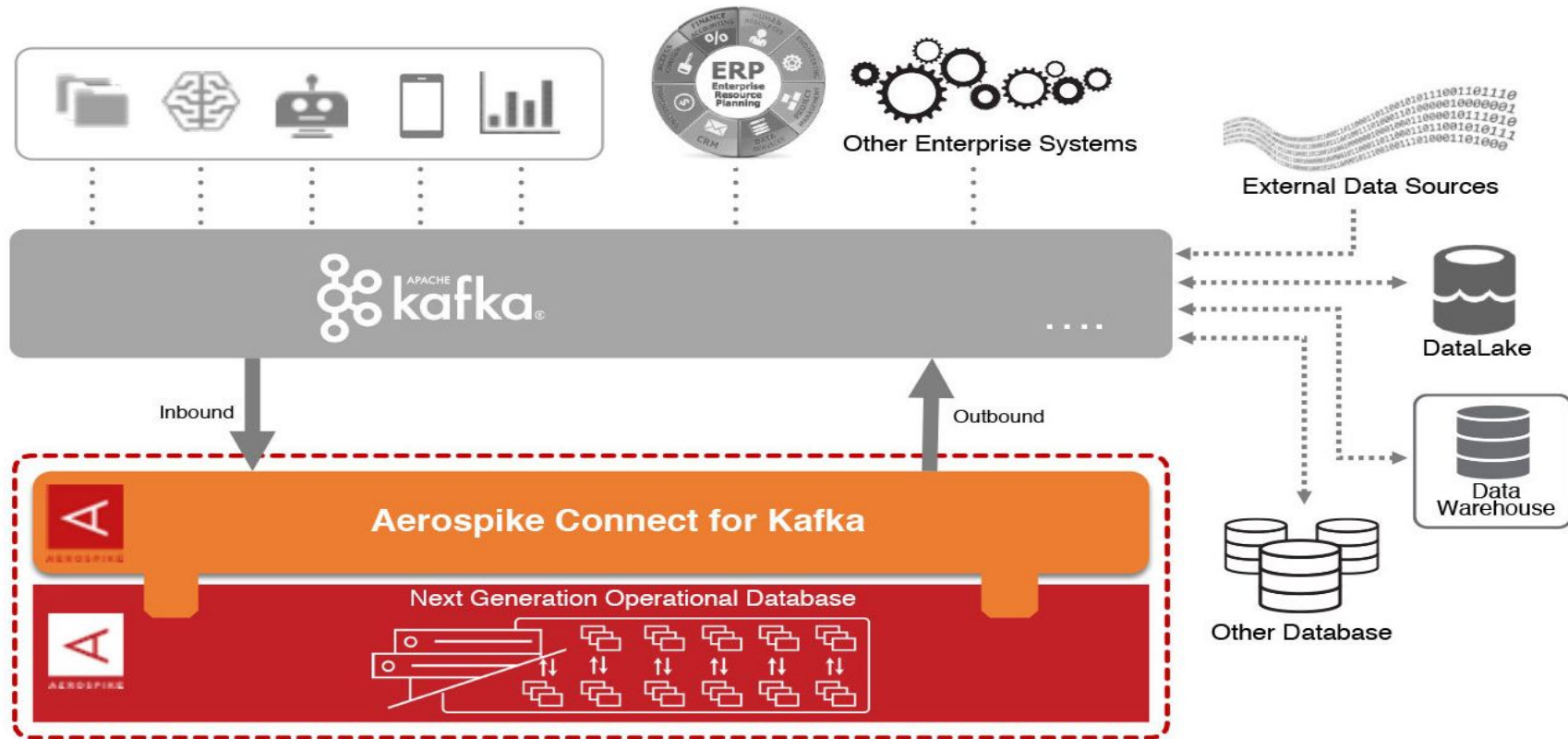
Aerospike Connect for Kafka, REST client gateway

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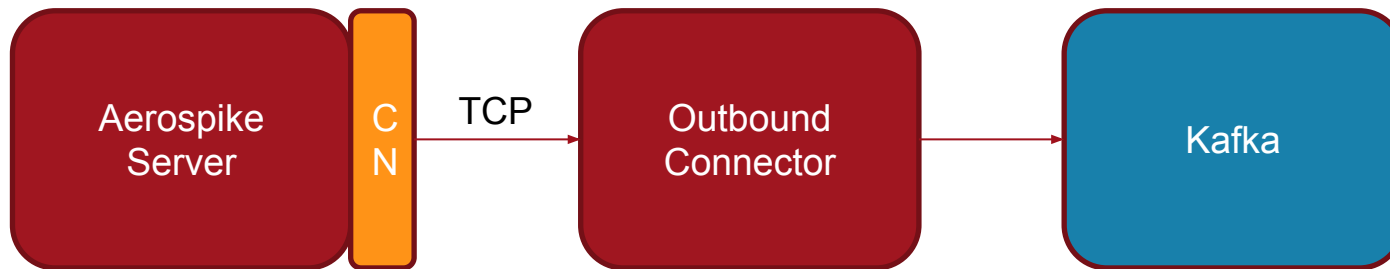
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Aerospike Connect For Kafka



Outbound Kafka Connector

Flow:



CN = Change Notification

The outbound connector takes advantage of the Aerospike database “Change Notification” feature. This feature builds on top of XDR to deliver data changes to external sources.

- **XDR (Cross Datacenter Replication) is for Aerospike -> Aerospike replication across datacenters.**
- **Change Notification is Aerospike -> http endpoint replication using similar mechanisms.**
- **HTTP “datacenter” must be configured in the Aerospike DB configuration xdr section as well as the namespace section to use it**

Outbound Kafka Connector - Change Notification

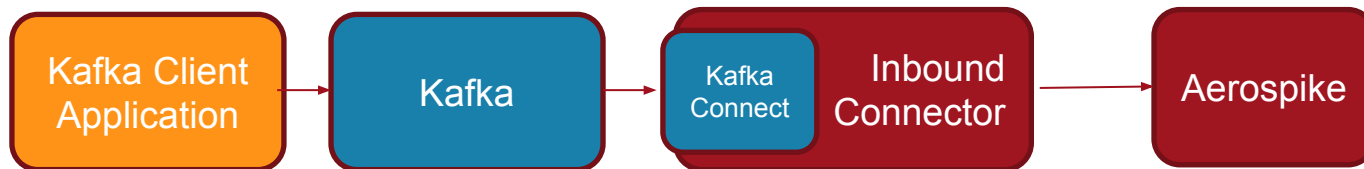
Aerospike db xdr/change notification setup for Kafka

```
xdr {  
    enable-xdr true  
    enable-change-notification true  
    ...  
    datacenter my-kafka {  
        dc-type http  
        http-version v2  
        http-url http://my.kafka.connector.host:8080/aerospike/kafka/publish  
    }  
}  
namespace test {  
    enable-xdr true  
    xdr-remote-datacenter my-kafka  
    ...  
}
```

The outbound connector supports both **JSON** and **MessagePack** data formats.

- **JSON is a text based data format that is easy to serialize and deserialize and is human readable.**
 - <https://www.aerospike.com/docs/connectors/enterprise/kafka/outbound/json-serialization-format.html>
- **MessagePack is a binary format optimized for serialization speed and compact size. Clients are available in most languages.**
 - <https://www.aerospike.com/docs/connectors/enterprise/kafka/outbound/messagepack-serialization-format.html>

Inbound Kafka Connector



The inbound connector uses the Kafka Connect framework to ingest streamed data from external systems through Kafka.

Some key properties to configure

- `topic.keyfield`
 - Field to be used as the key for the record
- `topic.bins`
 - Comma separated fields to be used as bins
 - Mapping can be performed with '`<fieldname>:<bin name>`'





Access Aerospike through a standard REST API Allows:

- **Using Aerospike from applications without an embedded client library (eg mobile apps, SPAs, etc)**
- **Using languages and platforms currently unsupported (eg R, Cobol, Raspberry Pi)**
- **Use Aerospike in other places that aren't a good fit for client libraries.**

Currently supported features:

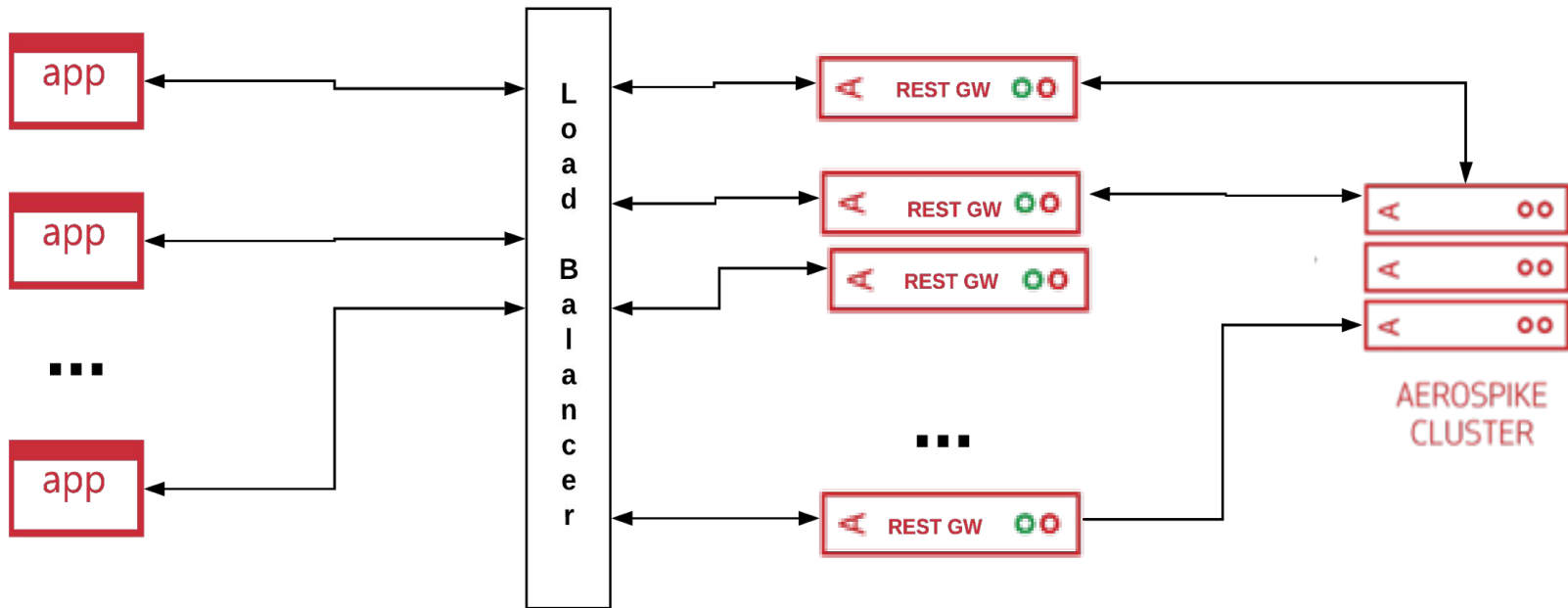
Data

- **CRUD operations on Aerospike Records** - /v1/kvs
- **Application of multiple Operations to a single Record** - /v1/operate
- **Retrieval of multiple records with a single request** - /v1/batch

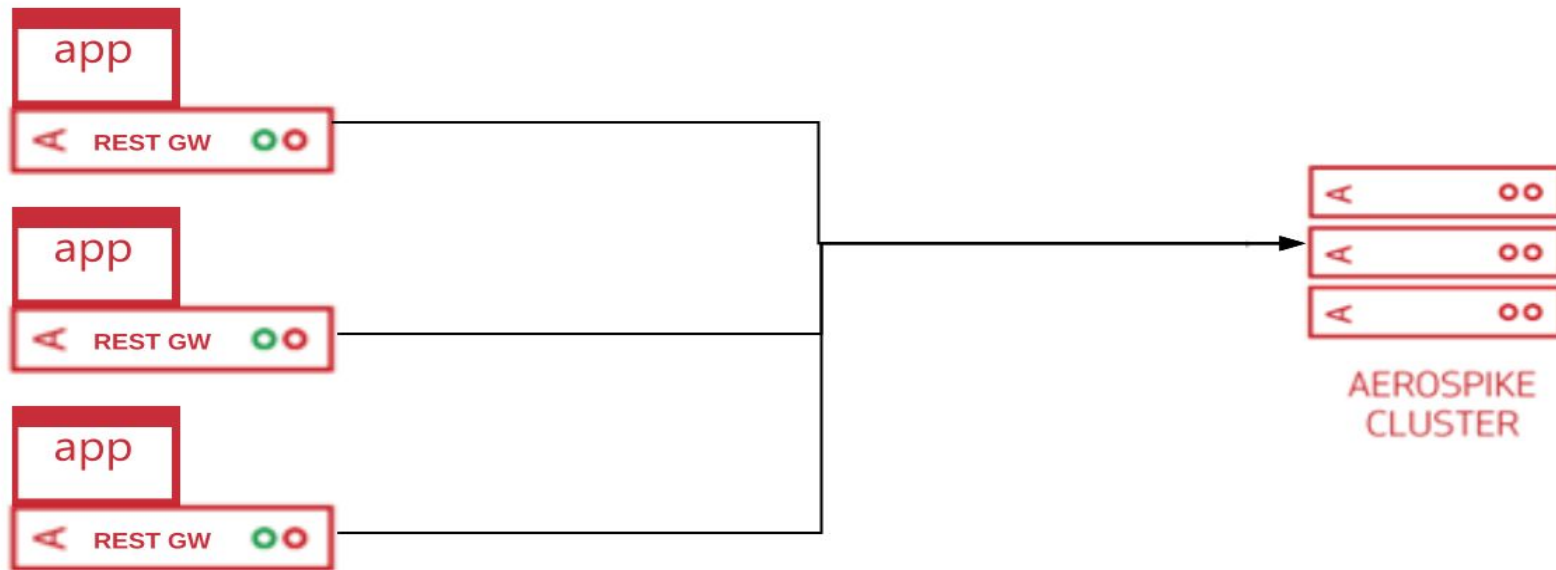
Operations

- **Basic cluster information** - /v1/cluster
- **Execution of information commands** - /v1/info
- **Management of secondary indices** - /v1/index
- **User and role management.** /v1/users, /v1/roles

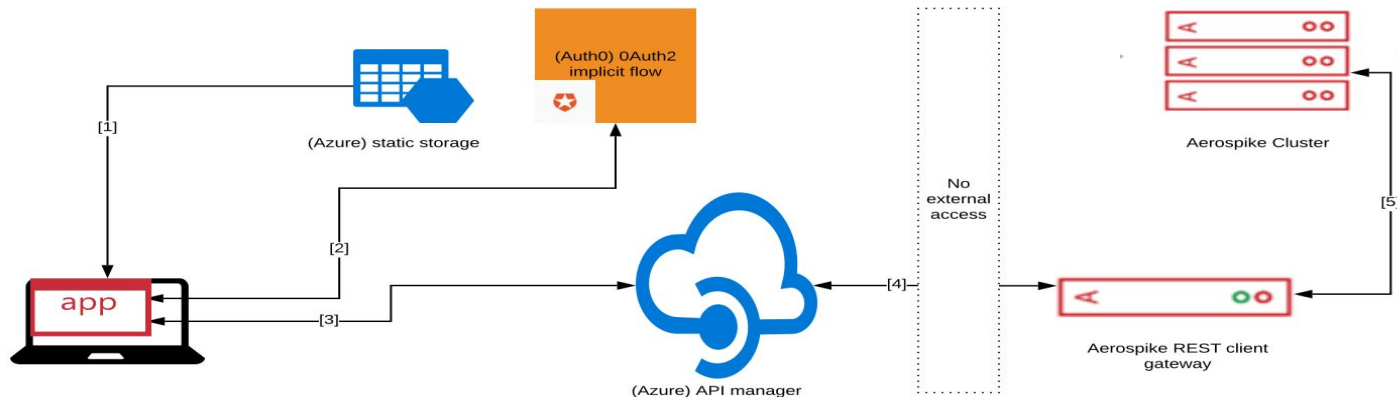
m apps, n gateways Behind Load Balancer



Gateway together with application



Access through API Manager (potentially internet facing)



- 1: Browser loads static html/js/image files and app runs
- 2: User logs on and goes through OAuth2 implicit flow and gets JWT token with sub
- 3: App makes API requests to API Manager with JWT token
- 4: APIM validates JWT, transforms request embedding sub into record keys, and limits exposed APIs. Then sends transformed request to Aerospike REST Client Gateway
- 5: REST Client Gateway makes necessary requests to Aerospike cluster nodes and returns response



<https://cookbook.azureedge.net/image/arch.svg>

Aerospike REST Client Gateway - Example app flow through API Manager

Browser to API Manager => GET `https://asrest.azure-api.net/bumbai/v1/kvs/cookbook/recipes`

- **Authenticated with JWT with embedded 'sub'**

API Manager to REST backend => GET

`http://as-rest.westus.cloudapp.azure.com:8080/v1/kvs/cookbook/google-oauth2%7C111426719713028910794_recipes`

- **Validates JWT and takes 'sub' and uses it to prepend keys rewrites request to namespace user in key.**

REST backend access log => `40.118.164.220 - - [30/Apr/2019:21:54:46 +0000] "GET /v1/kvs/cookbook/google-oauth2%7C111426719713028910794_recipes HTTP/1.1" 200 1434`

- **Accepts request as standard and returns user's recipes**

[Demo]

<https://cookbook.azureedge.net>

Questions

