
ORACLE®

OpenWorld 2017
Oracle Elastic State Machine

Build Distributed and Scalable Serverless State Machine Applications

ORACLE OPEN WORLD

October 1–5, 2017
SAN FRANCISCO, CA

Aninda Sengupta
Vice President Engineering
Eduardo Chiocconi
Director Product Management and Strategy

October 01, 2017

ORACLE

Safe Harbor Statement

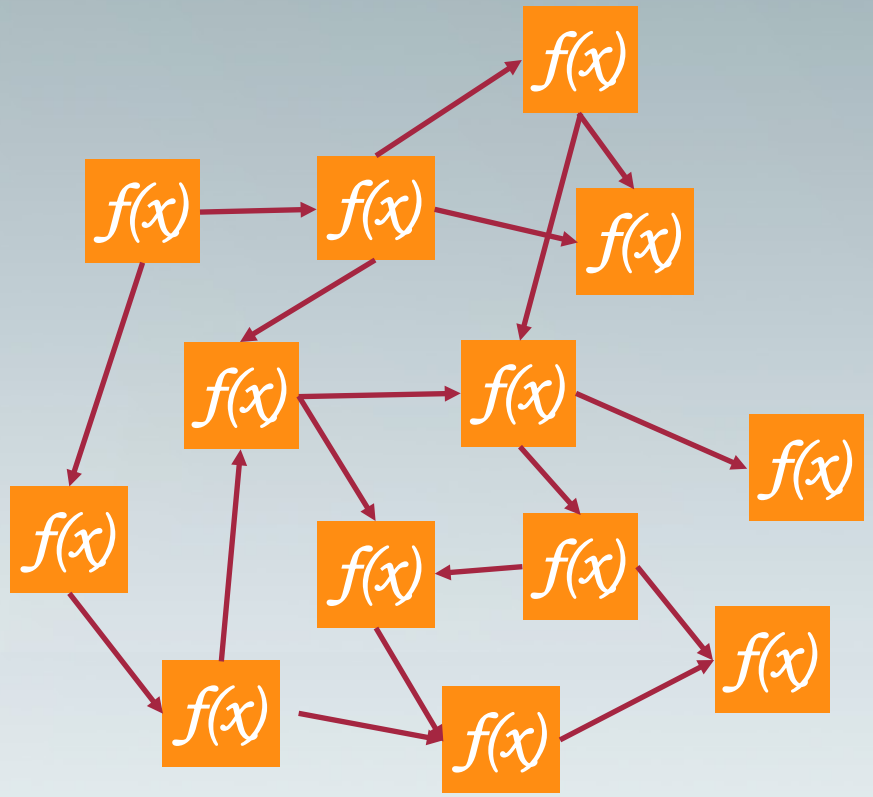
The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

What are the problems?

Serverless development Challenges

Key Challenges

- Serverless is becoming mainstream as a development paradigm and it is hard to create orchestrations that reuse these granular serverless functions or micro services
- Stateful orchestration is a non-trivial effort that serverless function platforms are not offering out of the box
- It is very hard to track and trace transactions while in flight or once they are completed for auditing purposes



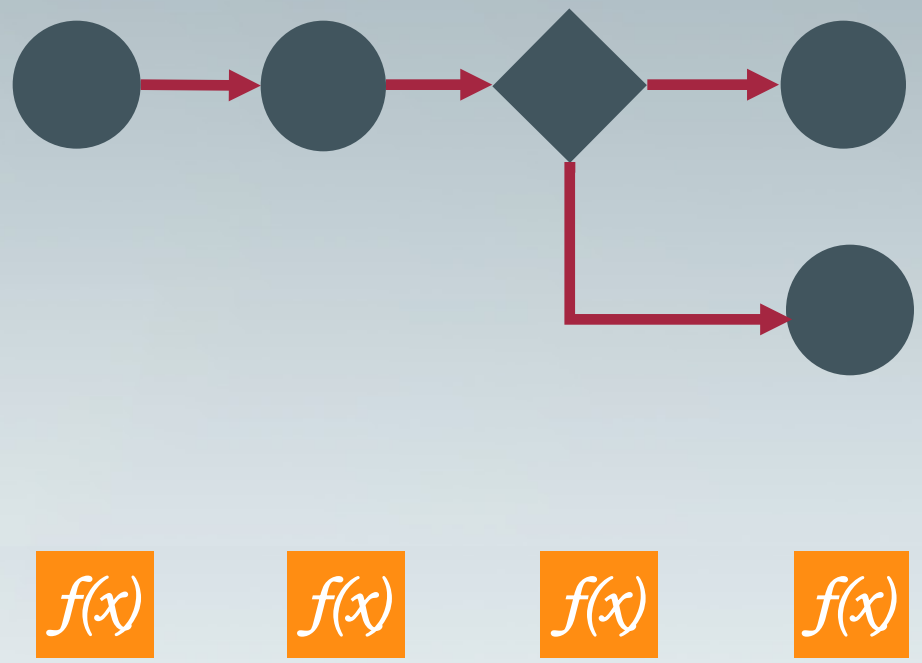
ORACLE

Why is serverless orchestration relevant?

What is the value?

Main Value

- Developers will create orchestration logic separate from serverless functions development and:
  - Reuse serverless functions in a non-invasive manner
  - Use advanced orchestration capabilities that are hard to build (guaranteed to maintain state, manages errors/exceptions, parallel executions, long running)
  - Use a scalable and affordable pay-per use model
  - Deliver applications faster

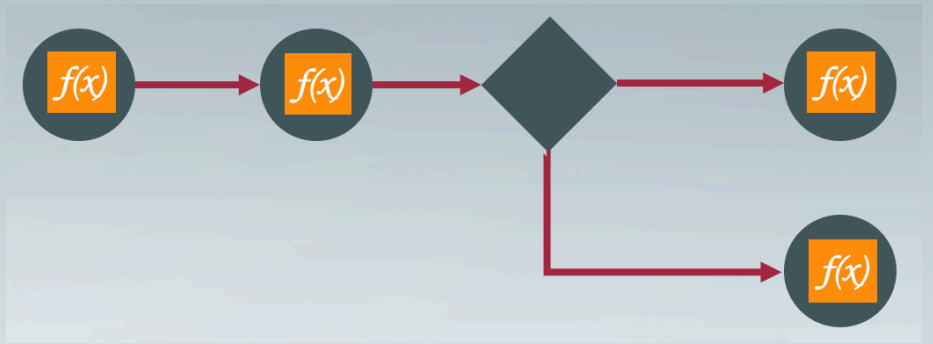


What is Elastic State Machine?

Easily orchestrate serverless functions

Overview

Oracle Elastic State Machine (ESM) Cloud Service is designed for **cloud developers** to create highly scalable, **distributed state machines** coordinating executions of serverless functions, REST services or approvals



Oracle Elastic State Machine

Capabilities

Overview

- Supports orchestration of serverless functions, REST services and human approvals
- Focuses on Developers building Cloud Services
  - Modern source language, modern API and cloud native
  - Modern continuous integration with cloud based tools
- Priced for Developers preferring a per-use model

Oracle Elastic State Machine

Features

Key Features

- Metadata driven language
  - Supports full API headless use for end to end lifecycle and monitoring
  - Dual composition via visual and source editor
- Rich out of the box support for triggers, actions and approvals
- Highly Scalable and Available
  - Elastic service with low latency with scale-out & scale-in base on demand load
- Low Administration Cost

ORACLE

Oracle Elastic State Machine

Rich Orchestration Language

Key Constructs

- Triggered via ESM REST API or Oracle API Gateway
- Call Activity used to invoke:
  - serverless functions
  - Application services via Cloud Connectivity Service (CCS)
- Parallel and/or sequential execution blocks
- Basic flow control constructs
  - Conditionals and loops
- Stateful variable support
- Fault Handling
  - Throw, Catch, Retry

```
{
    "variables": {
        "storageObject": "input.storageObject"
    },
    "flow": [
        {
            "type": "call",
            "uri": "orcl:rest:http://slc08wjm.us.oracle.com:8080/r/images/image-rotate",
            "input": "input",
            "output": "output"
        },
        {
            "type": "call",
            "uri": "orcl:rest:http://slc08wjm.us.oracle.com:8080/r/images/image-grayscale",
            "input": "input",
            "output": "output"
        },
        {
            "type": "if",
            "condition": "input.blur==true",
            "then": {
                "type": "call",
                "uri": "orcl:rest:http://slc08wjm.us.oracle.com:8080/r/images/image-blur",
                "input": "input",
                "output": "output"
            },
            "else": {
                "type": "empty"
            }
        }
    ]
}
```

Oracle Elastic State Machine

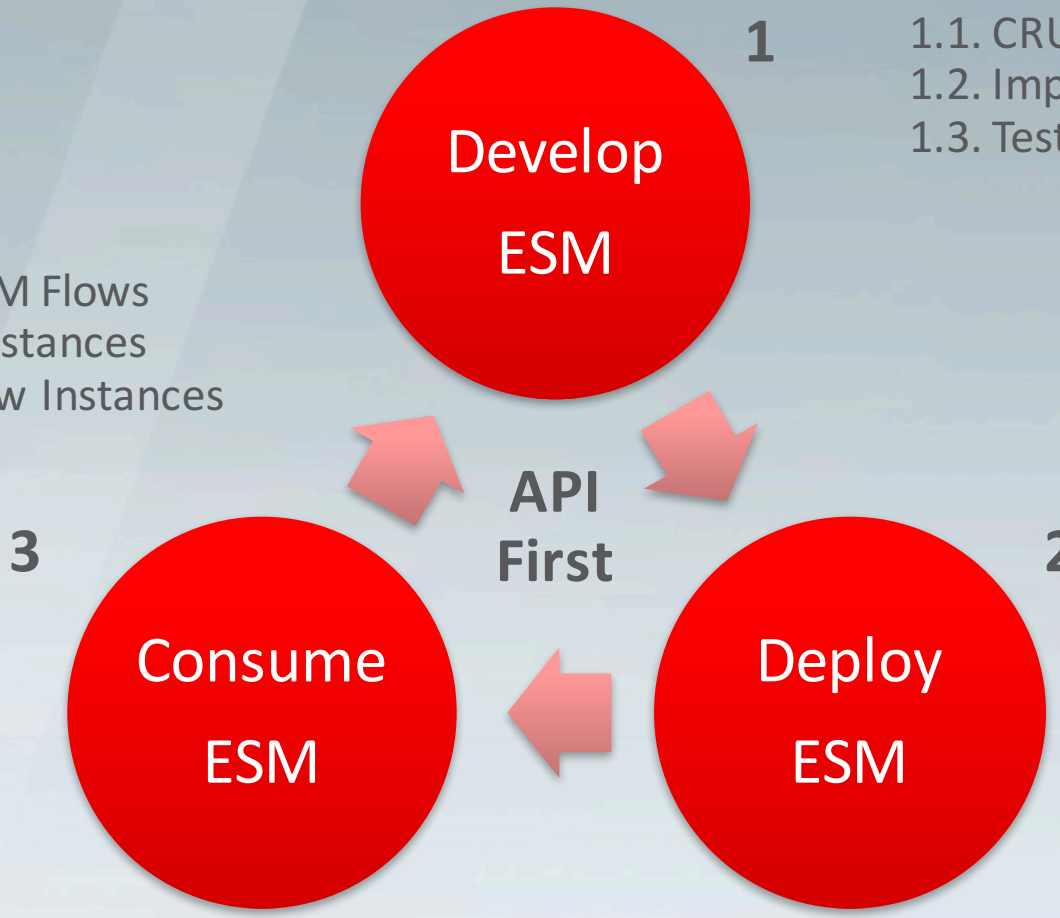
Simple to use Approval Service

Key Constructs

- API declarative approval definition
  - Each approval request has its own logic
- Support for multiple approval patterns
  - Single approval, Multi sequential or parallel
- Approval configuration
  - Due Dates, Approval Expiration, Expiration Action, Reminders, conditional approver assignments, etc.
- Email notifications to approvers
- Support for actionable emails

ORACLE

Oracle Elastic State Machine
High Level Life Cycle Management (LCM)



1.1. CRUD ESM Flow Authoring Operations
1.2. Import/Export of ESM Flows
1.3. Test Activate for sandbox testing

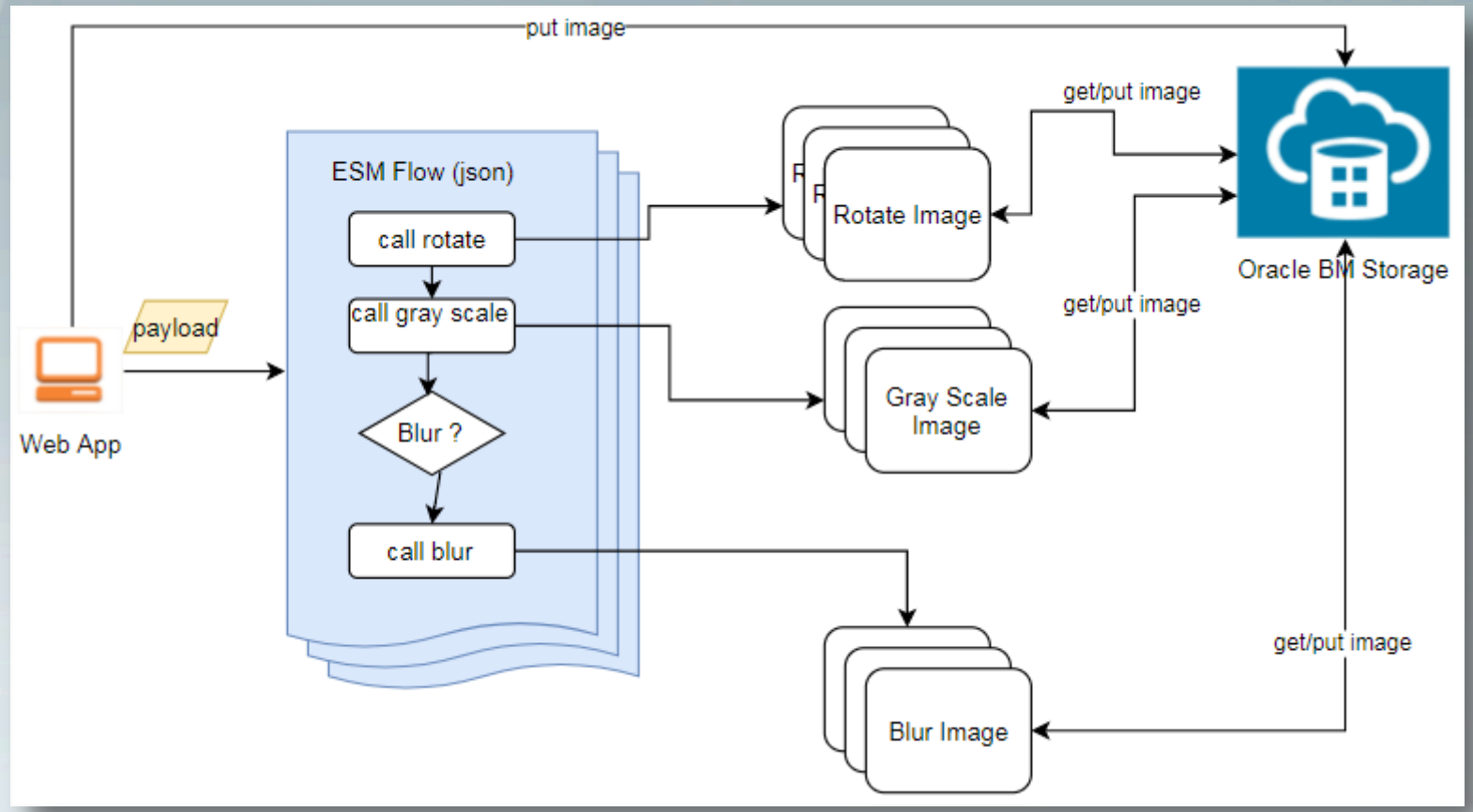
2.1. Activate ESM Flow
2.2. Deactivate ESM Flow
2.3. List In-Flight and Completed ESM Flow Instances

3.1. Launch/Invoke/Cancel ESM Flows
3.2. Get Status of ESM Flow Instances
3.3. Get Audit Trail of ESM Flow Instances

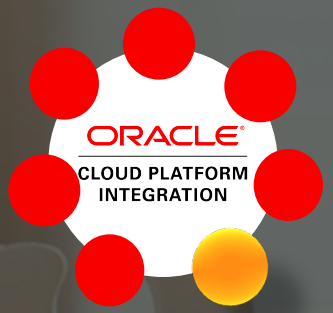
Demo

ESM Demo - Image Processing

- Images Apps
  - Contain several JavaScript functions that apply image transformations
  - Uses http://sharp.dimens.io/
- ESM Flow
  - State machine orchestration for image transformation
  - Variables



The Oracle Difference
Simplifying Serverless Development



Complete

Open

Integrated

Oracle offers a complete serverless platform covering function development and coordination

Standards-based with no lock in your choice of language and tooling

All capabilities on a common platform using common and reusable services

ORACLE

Feedback Wanted

Now Available on Oracle Cloud!

Survey Link:

https://tinyurl.com/ESMUserFeedback

Thank you!

Other Serverless Sessions
General Sessions and Hands On Labs to consider

Session ID: CON6494

Session Title: Serverless at Oracle

Room: Moscone West - Room 3024

Date: 10/04/17

Start Time: 12:00:00 PM - End Time: 12:45:00 PM

Session ID: CON7647

Session Title: Serverless at Oracle

Room: Moscone West - Room 2002

Date: 10/03/17

Start Time: 09:30:00 AM - End Time: 10:15:00 AM

Session ID: HOL7744

Session Title: Serverless @ Oracle

Room: Hilton San Francisco Union Square (Ballroom Level) - Continental Ballroom 5

Date: 10/04/17

Start Time: 08:00:00 AM - End Time: 09:00:00 AM

Session ID: HOL7932

Session Title: Serverless @ Oracle

Room: Hilton San Francisco Union Square (Lobby Level) - Golden Gate 2/3

Date: 10/04/17

Start Time: 01:30:00 AM - End Time: 03:30:00 AM


ORACLE®