

Prevent overcrowding in exhibitions using FogFlow to distribute people

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Introduction

FogFlow benefits

An high level point of view

- A context driven IoT framework
- Serverless + edge computing
- Location based discovery
- Context producers vs. Context consumers






A context driven IoT framework

“Metadata is the new data”

- FogFlow uses contexts and not data
- A context is a set of entities with something in common
- Different levels of abstraction are available
- Reduced load on edge nodes

```
"entityId": {
  "id": "Device.Temp001",
  "type": "Temperature",
  "isPattern": false
},
"attributes": [
  {
    "name": "temperature",
    "type": "float",
    "value": 73
  },
  {
    "name": "pressure",
    "type": "float",
    "value": 44
  }
],
"domainMetadata": [
  {
    "name": "location",
    "type": "point",
    "value": {
      "latitude": -33.1,
      "longitude": -1.1
    }
  }
]
}
```

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  "id": "Device.Temp001",
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"attributes": [
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  }
]
```

FogFlow  System Status  Operator Registry  Service Topology  Fog Function  Use Cases

to design a fog function

FogFunction

TaskInstance

name

description

Submit

Task#2

name: Dummy

operator: dummy

Streams

Out ☐

Entity Stream#3

SelectedType:

SelectedAttributes:

[Add](#) [Remove](#)

Groupby:

Scoped: ☒

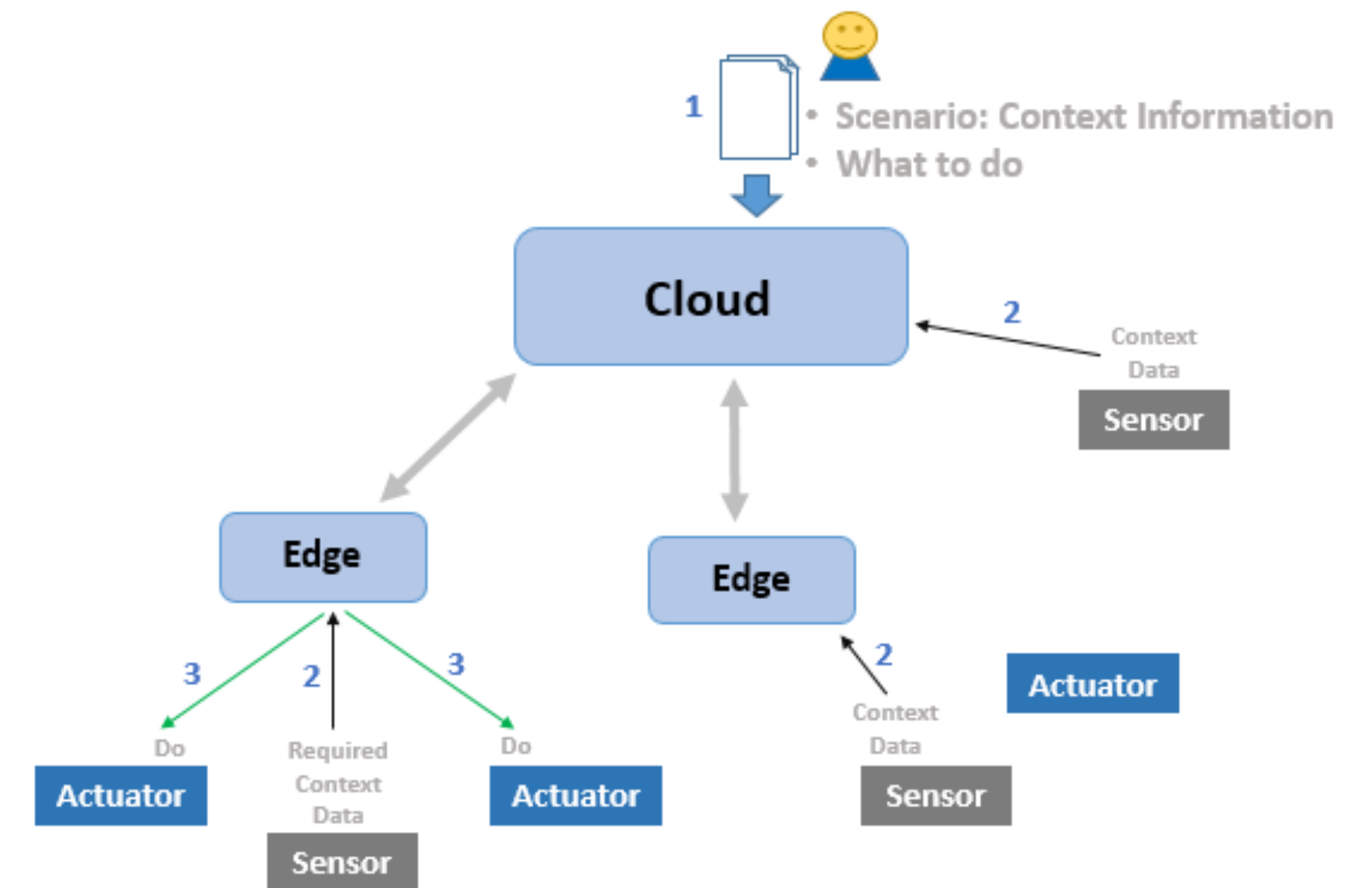
[Close](#) [Save](#)

Click

Serverless + edge computing

“The perfect form”

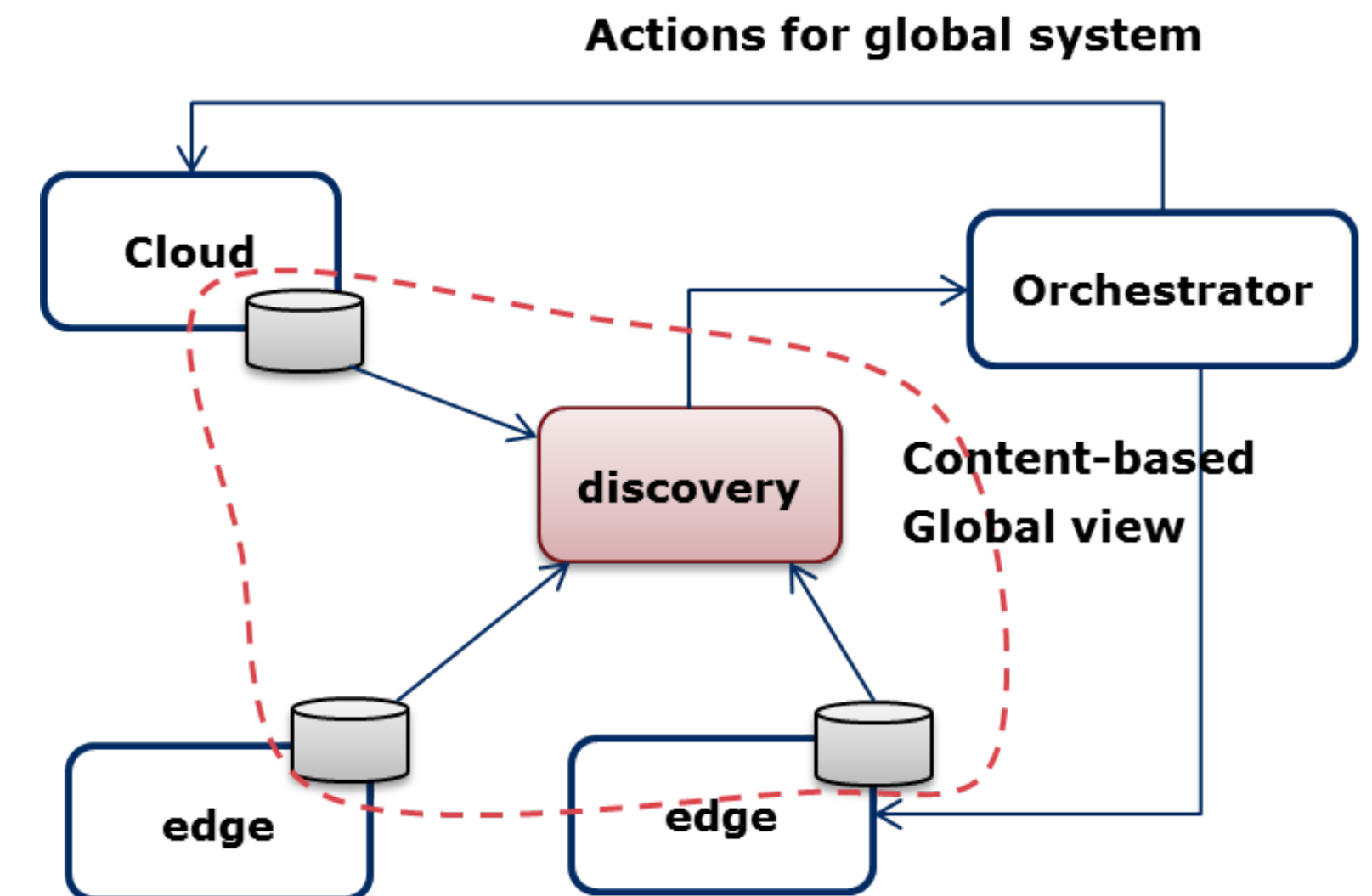
- Code is executed when a new context is available
- But near it, so extremely low latency
- Delivered using Docker
- Distributed among workers



Location based discovery

“Meet me halfway”

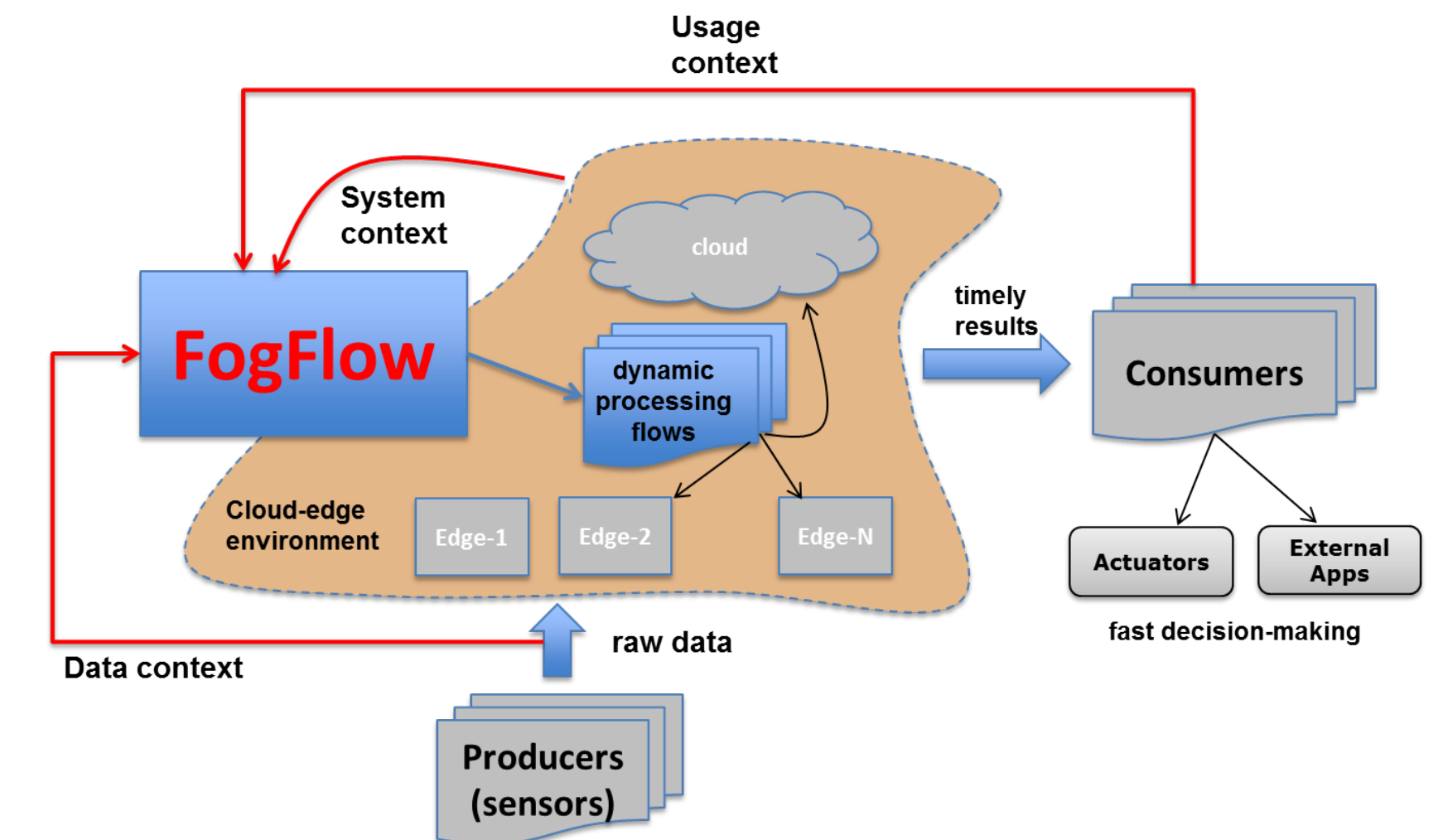
- Resources are geographically distributed
- Central discovery service
- Entry point for new context producers and consumers



Context producers vs. Context consumers

“The foundations”

- Producers -> Sensors
- Consumers -> Actuators, external services, etc.
- Both rely on context
- Different cardinalities



FogFlow's problems

- Lack of documentation
- Far from production readiness (TRL \approx 4 or 5)
- Counterintuitive programming model
- Difficult integration w/o modifications

The research problem

Brief introduction

- Avoid overcrowding in exhibitions
- Distributing better people at each booth
- Store affluence data
- And perform queries on it

Demo