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# CNCF Serverless WG

## Where do we go from here?



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# Agenda



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- Serverless WG Overview
- CloudEvents
- Workflow
- What's new?
- Birds-of-a-feather!

# Serverless WG - Overview



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- CNCF Technical Oversight Committee initiated (mid-2017)
  - [Whitepaper](#)
    - Overview of technology
    - State of ecosystem
    - Recommendations for possible CNCF next steps
  - [Landscape](#)
- Exploratory -> Actions
- First step toward interop: CloudEvents

# CloudEvents - Why?



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## Problem

- We live in a multi-cloud and multi-service world
- Events within a cloud are well known but going across clouds need more standardization on the messages

## Use cases

- How do you transit events between clouds and services?
- Be able to route events efficiently without knowing the actual payload
- Well known format for transmitting metadata about events

# CloudEvents - Example



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## HTTP - Binary

```
POST /event HTTP/1.0
Host: example.com
Content-Type: application/json
ce-specversion: 0.3
ce-type: com.bigco.newItem
ce-source: http://bigco.com/repo
ce-id: 610b6dd4-c85d-417b-b58f-3771e532

{
  "action": "newItem",
  "itemID": "93"
}
```

## HTTP - Structured

```
POST /event HTTP/1.0
Host: example.com
Content-Type: application/cloudevents+json

{
  "specversion": "0.3",
  "type": "com.bigco.newItem",
  "source": "http://bigco.com/repo",
  "id": "610b6dd4-c85d-417b-b58f-3771e532",
  "datacontenttype": "application/json",
  "data": {
    "action": "newItem",
    "itemID": "93"
  }
}
```

# CloudEvents - Deliverables



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- [CloudEvents Specification](#) – define the metadata - v0.3 released June 13
- Serialization Rules Specifications
  - [JSON](#) event format
  - [AMQP](#) event format
  - [Protobuf](#) event format
- Transport Bindings Specifications
  - [HTTP](#) – binary and structured
  - [MQTT](#), [AMQP](#), [NATS](#), [Web-hooks](#)
  - Pointers to [proprietary transport bindings](#)
- [Primer](#)
- SDKs
  - [Go-lang](#), [Javascript](#), [Python](#), [Java](#), [C-Sharp](#), [Ruby](#)
- [Extensions](#)

# Serverless WG - After CloudEvents...



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# Serverless WG - Workflow



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## Pain Points

- A serverless app can be composed of a function graph with events and functions interleaved together
- The interaction between events and functions as well as how information is passed can be easily specified but no consistent way to do it



# Workflow - Goals

- Often serverless functions are composed together in a chain of execution
- Define format/primitives to describe serverless application flow:
  - Includes: steps/states, event triggers(reference to events), reference to functions, how information is passed and filtered
  - Excludes: function signature, event format and metadata definition
- Facilitate portability (definition of workflow) across platforms
- Second step towards portability and interop of functions - after CloudEvents

# Workflow



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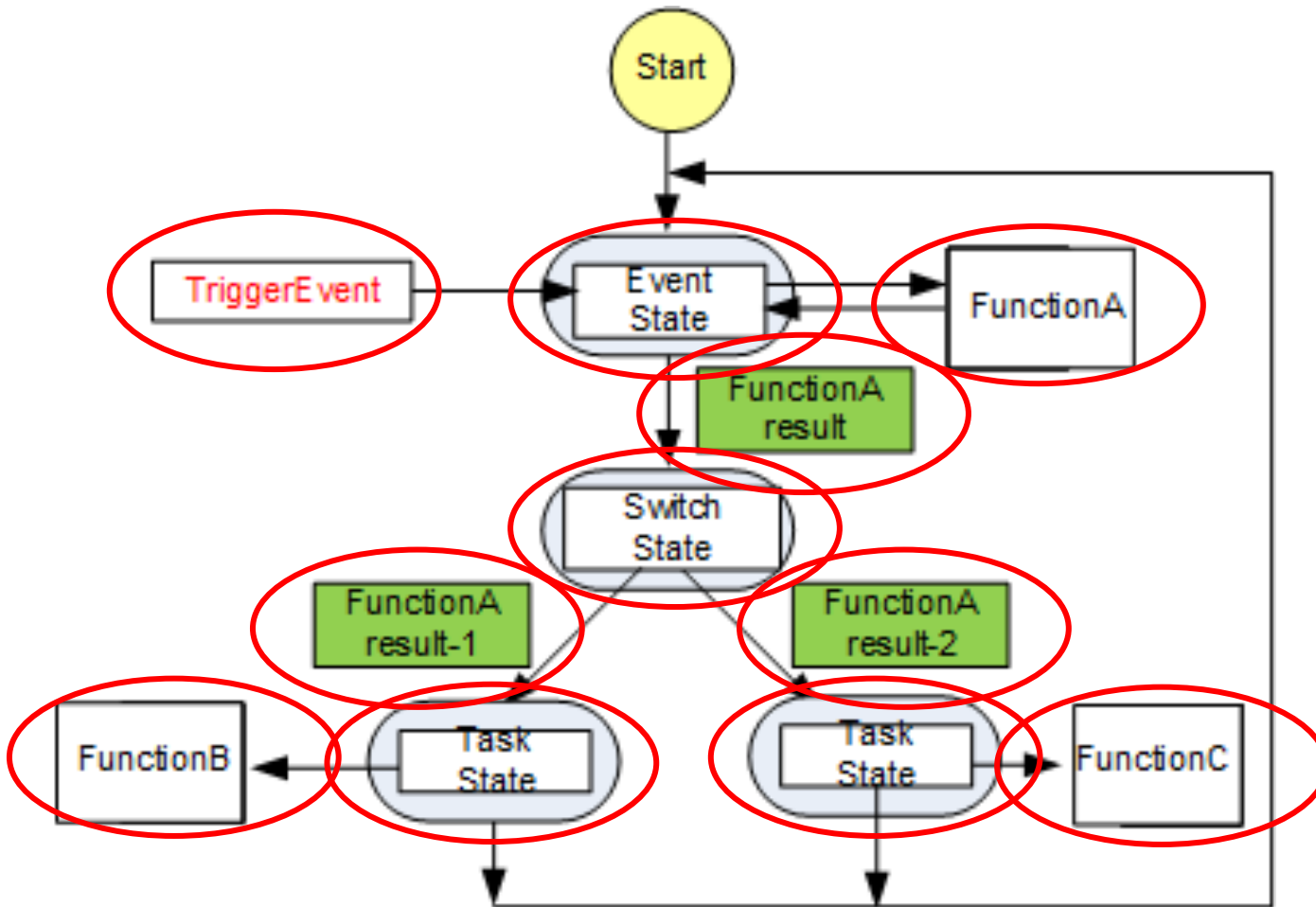
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Workflow = Execution Flow

State machine with 3 key parts:

- **Events:** Storage event, Web Request Event, etc
- **States:** event-state, operation-state, switch-state, delay-state, end-state, parallel-state
- **Actions:** functions associated with a state. Directives for parallel/sequential function execution, retry, information filtering/passing



# Workflow - Status

- Working Draft [spec](#) - v0.1
- Workflow described as JSON document
- On-hold right now due to focus on CloudEvents
  - When CloudEvents gets to v1.0 then we'll un-pause

# Serverless WG - Work Stream Proposals



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## Proposed work streams

- APIs for accessing CloudEvents
- **Workflow (Event Orchestration / Chaining)**
- Common Function Model
- Common Serverless Benchmark framework
- Common function logging, observing and monitoring
- Function Signatures

# Questions for the community... you!



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Who is using Serverless in production today?

- Main usecases / workloads?
- What's holding people back from using it?

What are the pain points you are experiencing w.r.t. Serverless?

- Interop? Portability? Tooling? Debugging?

Are there workloads that aren't well supported today but you'd like to see?

Is the split between PaaS, CaaS and FaaS/Serverless confusing? Meaningful?

# Thank You



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Serverless WG : <https://github.com/cncf/wg-serverless>

- Workflow: <https://github.com/cncf/wg-serverless/tree/master/workflow/spec>

CloudEvents : <https://cloudevents.io/>

- Org : <https://github.com/cloudevents>
- Spec repo : <https://github.com/cloudevents/spec>
- SDKs : <https://github.com/cloudevents/sdk-...>

Questions?



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