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# Introduction: CNCF Serverless WG & CloudEvents



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# Agenda

- **Serverless WG Overview**
- **CloudEvents Overview**
- **Status of CloudEvents**
- **SDKs**
- **Serverless Workflow Introduction**
- **Demo - time permitting**
- **Q&A**

# Serverless WG Overview



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- **Technical Oversight Committee** initiated
  - Whitepaper
    - Overview of technology
    - State of ecosystem
    - Recommendations for possible CNCF next steps
  - Landscape
- CloudEvents - Minimal common attributes / shape of events
  - Sandbox project
- Function workflow - orchestration of Functions

# CloudEvents Overview



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- Consistent metadata & format
- Core specification - minimal properties
- Transport bindings - how to serialize in JSON, HTTP, MQTT, ...

```
{  
  "cloudeventsversion" : "0.1",  
  "eventtype" : "myevent",  
  "source" : "uri:example-com:mydevice",  
  "eventid" : "A234-1234-1234",  
  "eventtime" : "2018-04-05T17:31:00Z",  
  "contenttype" : "text/plain",  
  "data" : "Hello"  
}
```

*It's not about data.*

*It's about metadata!*

# CloudEvents Use Cases



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- Normalize events, web-hooks, across environments - interop!!
- Facilitate integrations across platforms
- Leave the event business logic processing to the application
- First step towards portability of functions

# CloudEvents Deliverables



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- **CloudEvents Specification** – define the metadata
- **Serialization Rules Specifications**
  - **JSON** event format
  - **AMQP** event format
- **Transport Bindings Specifications**
  - **HTTP** – binary and structured
  - **MQTT**
  - **AMQP**
  - **NATS**
  - **Web-hooks**
- **Primer**

# Cloud Events SDK



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- SDK CloudEvent Sub-group
  - (De)Serializer for CloudEvents on various transports - at least http
  - Provide consistency across SDK / languages
- Development underway (WIP)
  - Go
  - Javascript
  - Python
  - Java
  - CSharp

# Status of CloudEvents

- Current version: v0.1 - April 2018
  - v0.2 very soon!
- What's left for CloudEvents v1.0?
  - Finalize the core Event Attributes
  - Finalize the set of protocol and serialization mappings
  - Documentation, developer and/or user guide.
  - Interop demos & verification through implementations and testing
- What will come after CloudEvents 1.0?
  - Develop SDK and supporting tools for CloudEvents
  - Stabilization and adoption (organize more CloudEvents Interop Demos)





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Workflow Introduction

# WorkFlow Introduction



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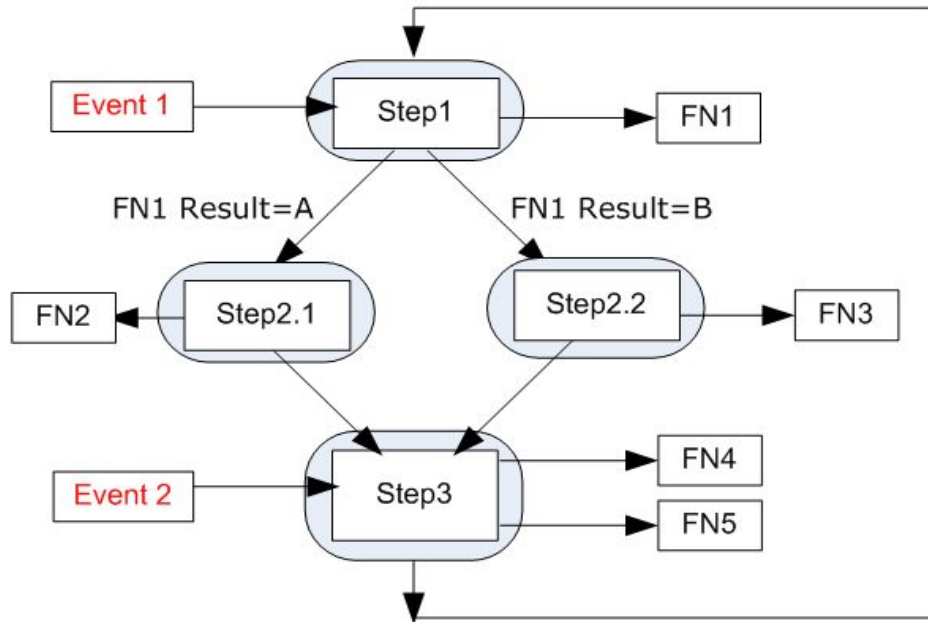


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Many serverless applications are composed of multiple steps of function execution.

Function Workflow = Function Execution Flow



# WorkFlow Introduction



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Work Decoupled:

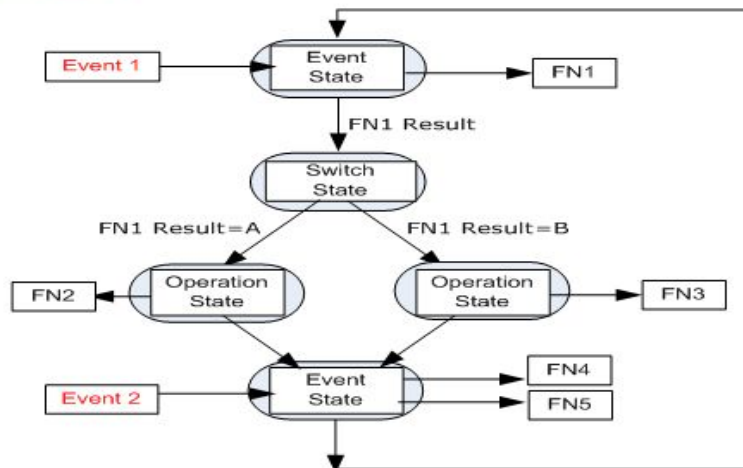
App Developer: just provides function logic

Serverless Platform: takes over all other work

*Control of Workflow*

App's System  $\longleftrightarrow$  Cloud Serverless Platform

*Workflow Specification*



# WorkFlow Introduction



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1. Goal: Provide a standard way for the users to specify the function workflow for their serverless application so as to facilitate portability of the application across different vendors' platforms.
2. Non-Goal: Not a specification for function signature. Not a specification for event format or metadata definition
3. Specification Scope includes:
  - Steps/states involved in a serverless application workflow.
  - Event triggers for each function in the workflow (reference to events, event detail is defined in CloudEvents Specification)
  - Functions involved in each step (reference to functions)
  - How information is passed and filtered



# WorkFlow Introduction



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1. We have output the first draft of the specification
2. <https://github.com/cncf/wg-serverless/tree/master/workflow/spec>
3. <https://github.com/cncf/wg-serverless>



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Demo - Time Permitting

# CloudEvents Demo



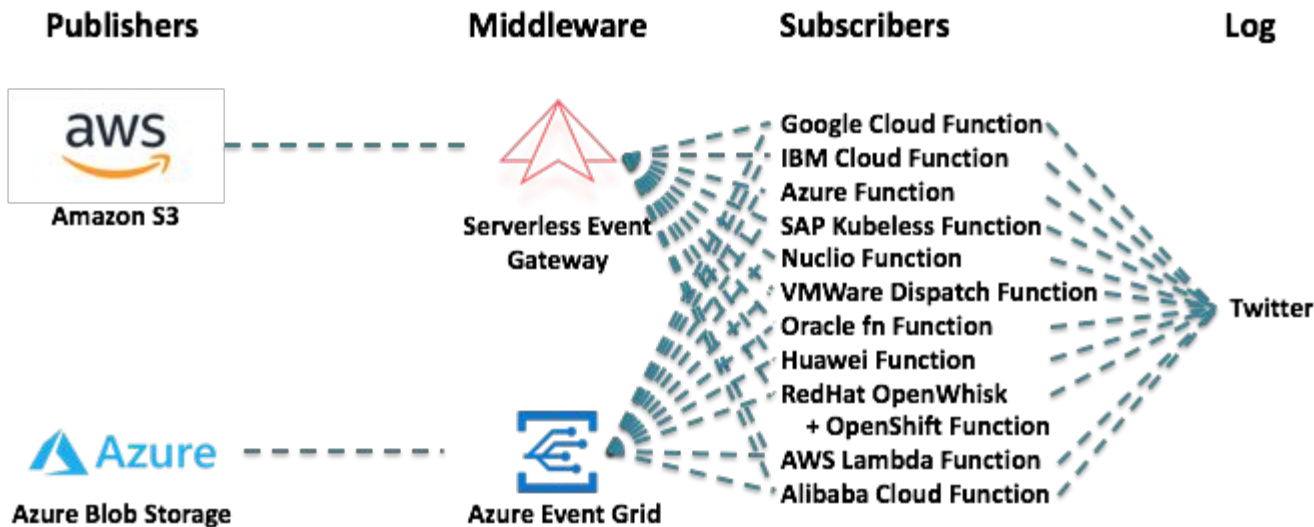
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<https://youtu.be/TZPPjAv12k>



# Cloud Events Demo



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**IBM Cloud Events** @IBMCloudEvents · May 13

Watson thinks this is a picture of 'cargo door'



**Fn Project Demo Account** @fn\_demo · May 4

Event ID: C234-1234-1234

Source: aws.s3.object.created

Ran On: Fn Project on Oracle Cloud

Classifier: PERSON

Score: 0.9



<https://twitter.com/CloudEventsDemo/lists/demo>



# 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-...>
- **Deep-Dive Session: Thursday November 15 - 15:05-15:40 - 3M 3**
  - **Cathy: Serverless Workflow: Key to Wide Serverless Adoption**
    - **Thursday November 15, 2018 12:15 - 12:50**
- Questions?



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