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

- **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

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

```json
{
    "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

- 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

- **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

- **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)
Workflow Introduction
Many serverless applications are composed of multiple steps of function execution.

Function Workflow = Function Execution Flow

- Event 1
  - Step 1
    - FN1
      - FN1 Result = A
      - FN2
        - Step 2.1
          - FN3
          - FN4
          - FN5
    - FN1 Result = B
      - Step 2.2
        - FN3
        - FN4
        - FN5
WorkFlow Introduction

Work Decoupled:

App Developer: just provides function logic
Serverless Platform: takes over all other work

Control of Workflow

App’s System ——— Cloud Serverless Platform

Workflow Specification

Diagram:

- Event 1
- FN1
- Event State
- FN1 Result
- Switch State
- FN1 Result = A
- Operation State
- FN2
- Event 2
- Event State
- FN4
- FN5
- FN3
WorkFlow Introduction

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
1. We have output the first draft of the specification
Demo - Time Permitting
CloudEvents Demo

https://youtu.be/TZPPjAv12k
Cloud Events Demo

https://twitter.com/CloudEventsDemo/lists/demo
Thank You!

- **Serverless WG**: [https://github.com/cncf/wg-serverless](https://github.com/cncf/wg-serverless)

- **CloudEvents**: [https://cloudevents.io/](https://cloudevents.io/)
  - Org: [https://github.com/cloudevents](https://github.com/cloudevents)
  - Spec repo: [https://github.com/cloudevents/spec](https://github.com/cloudevents/spec)
  - SDKs: [https://github.com/cloudevents/sdk-...](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?**