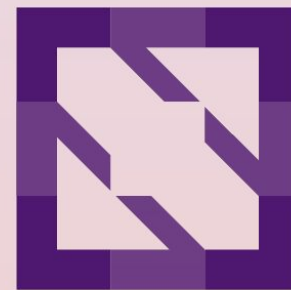




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Introducing CloudEvents Discovery

David Baldwin

Speaker Bio



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- 12+ years in Product Management
- VMware, Splunk, T-Mobile...
- Heavily involved in 3rd party integrations and large scale ingestion
- 9x KubeCon attendee

Agenda



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- Current State for CloudEvents
- Intro to Discovery
- Discovery: Events and Attributes
- Developer Resources
- Going Forward

What Happened so Far...



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What is Discovery?



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What events are used in a specific context?

⇒ ***Event definition registry***

What do they look like?

⇒ ***Schema registry***

Where can I consume or produce them?

⇒ ***Endpoint registry***



Event definitions



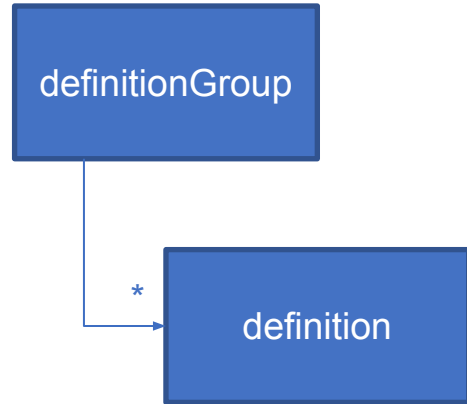
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Groups of event definitions

Other message formats possible:

- AMQP
- MQTT
- Protobuf
- HTTP
- ...

Supported event definitions



```
{
  "id": "Contoso.CRM.Events.CustomerNoteAdded",
  "description": "A note has been added to a customer",
  "format": "CloudEvents/1.0",
  "metadata": {
    "attributes": {...}
  },
  "schemaurl": "#/schemaGroups/Contoso.CRM.Events/schemas/customerNoteAddedEventData"
}
```

Describing CloudEvent attributes



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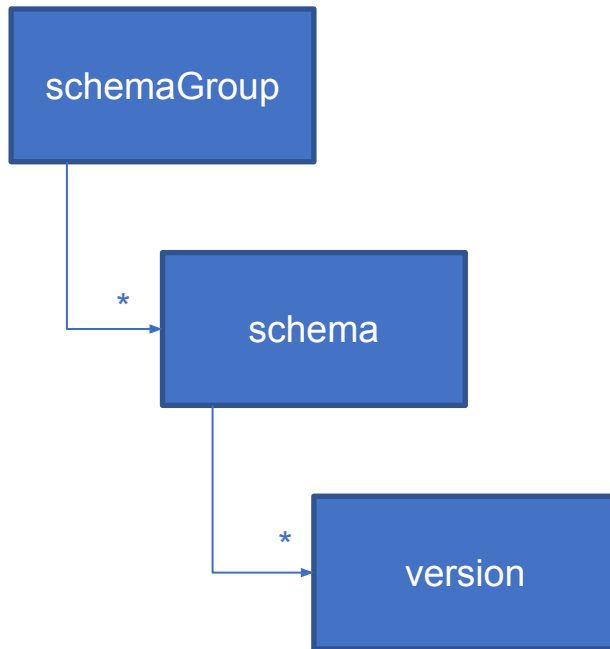
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```
"attributes": {
  "id": {
    "type": "string",
    "required": true
  },
  "type": {
    "type": "string",
    "value": "Contoso.CRM.Events.CustomerNoteAdded",
    "required": true
  },
  "source": {
    "type": "uritemplate",
    "value": "/crm/customers/{region}",
    "required": true
  },
  "subject" : {
    "type": "uritemplate",
    "value": "urn:uuid:{customer}",
    "description": "Customer ID",
    "required": true
  }
}
```

Additional constraints for context attributes

Mark attributes as *required*

Provide a more accurate type like *uri* or *uritemplate*



- Collect schema information for payloads in groups
- Store multiple versions of a schema
- Schema definitions are widely used beyond messages and events
- Independent from a specific schema definition language

Endpoints



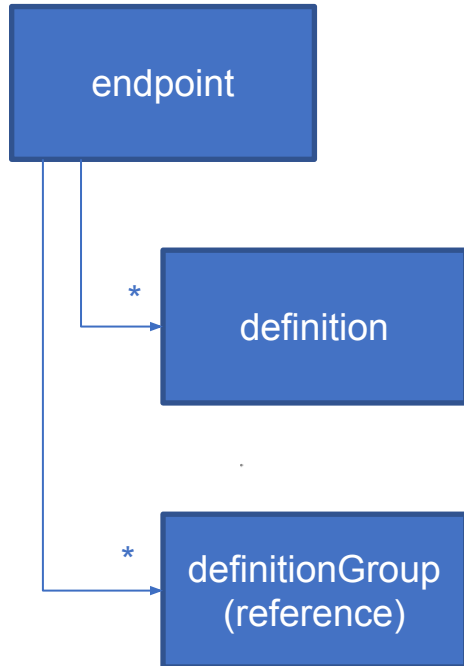
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Superset of **definitionGroup**

Additional attributes

- **usage**: producer | consumer | subscriber
- **channel**: Correlate multiple endpoints of the same channel
- **definitionGroups**: References to existing definition groups
- **config**: Connectivity configuration

```
"Contoso.CRM.Eventing.Http": {
  "id": "Contoso.CRM.Eventing.Http",
  "usage": "producer",
  "config": {
    "protocol": "HTTP",
    "strict": false,
    "endpoints": [
      "https://erpsystem.com/events"
    ]
  },
  "channel": "my/topic",
  "definitionGroups": [
    "#/definitionGroups/Contoso.CRM.Events"
  ],
  "format": "CloudEvents/1.0"
}
```

Producer and consumer endpoints



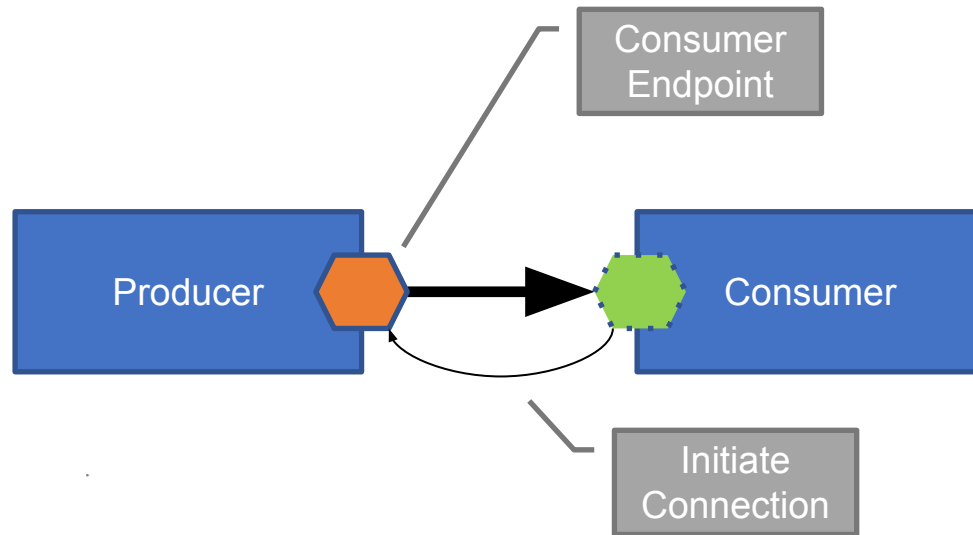
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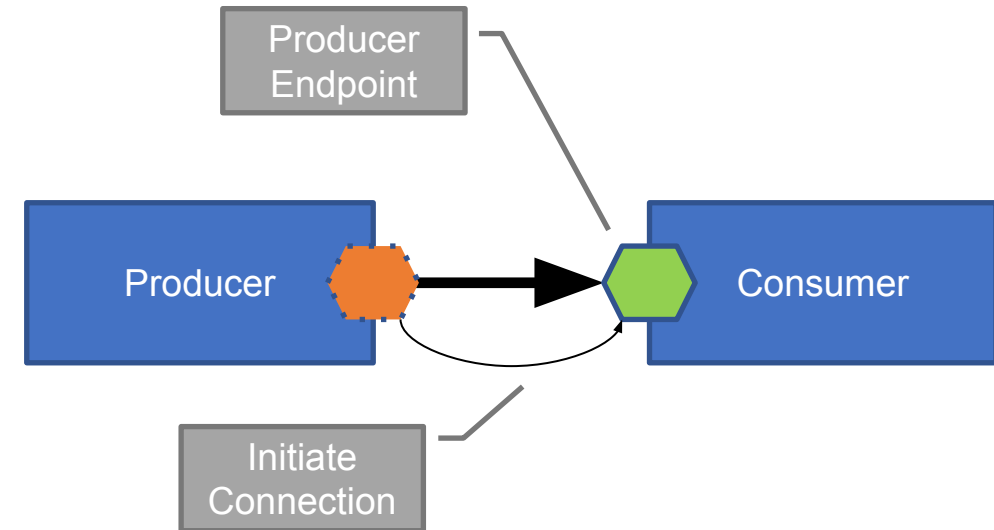
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- Event consumers **consume events from these endpoints**
- Sometimes referred to as *Pull Model*
- Examples
 - Message consumption using MQTT or AMQP
 - Polling using HTTP (GET)



- Event **producers send events to these endpoints**
- Sometimes referred to as *Push Model*
- Examples
 - Message publishing to an MQTT or AMQP topic
 - Posting events to an HTTP web hook

Subscriber endpoints



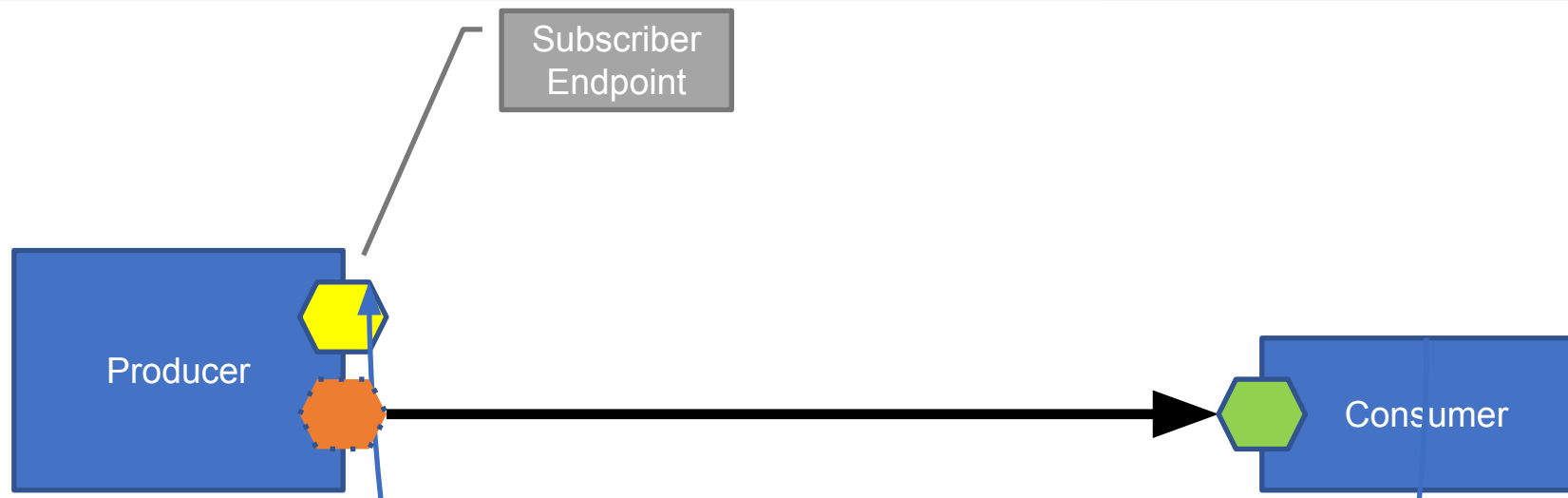
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- A subscription endpoint **exposes a subscription API**
(<https://github.com/cloudevents/spec/blob/main/subscriptions/spec.md>)
- A subscription defines **a set of events** that shall be sent **to a specified producer endpoint**

Channels



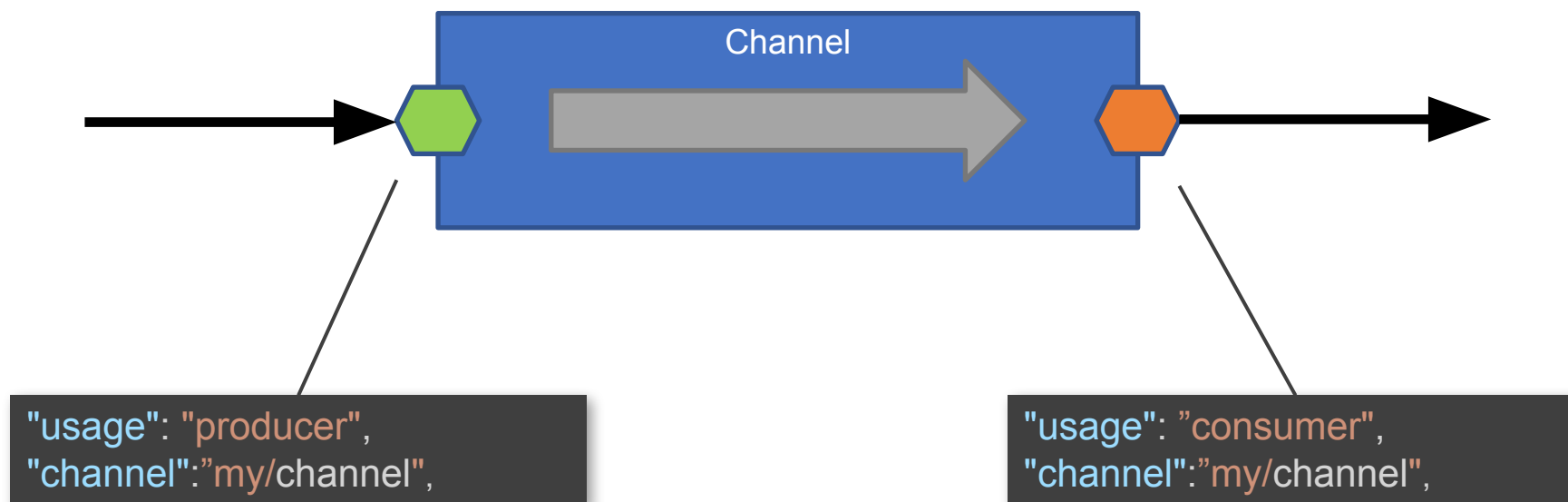
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What do these have in common?



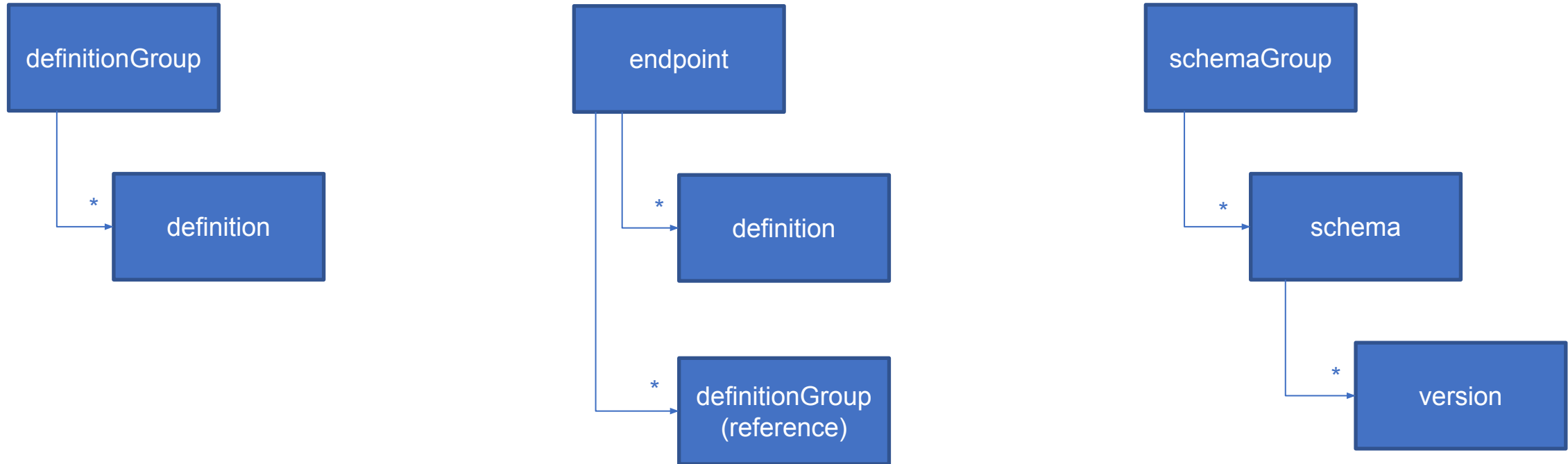
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A Registry for Groups of Resources



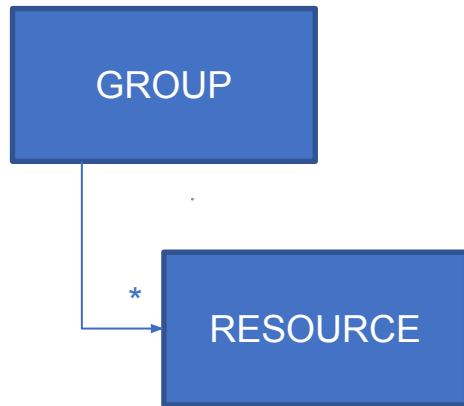
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API Access

<code>/model</code>	# Manage the registry model
<code>/</code>	# Show all Groups
<code>/GROUPs</code>	# Manage a Group Type
<code>/GROUPs/gID</code>	# Manage a Group
<code>/GROUPs/gID/RESOURCES</code>	# Manage a Resource Type
<code>/GROUPs/gID/RESOURCES/rID</code>	# Manage the latest Resource version
<code>/GROUPs/gID/RESOURCES/rID?meta</code>	# Metadata about the latest Resource version
<code>/GROUPs/gID/RESOURCES/rID/versions</code>	# Show version strings for a Resource
<code>/GROUPs/gID/RESOURCES/rID/versions/vID</code>	# Manage a Resource version
<code>/GROUPs/gID/RESOURCES/rID/versions/vID?meta</code>	# Metadata about a version

The New Repo on the Block



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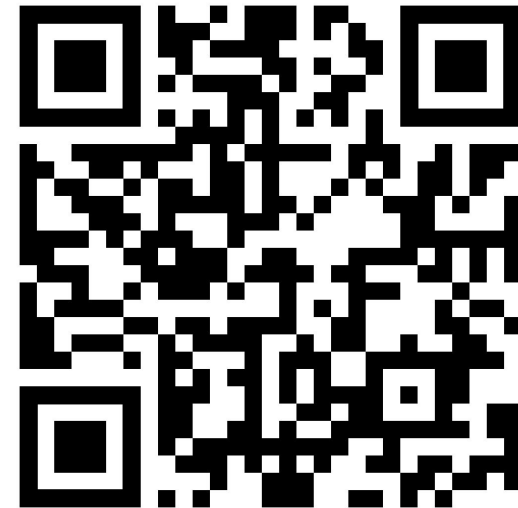
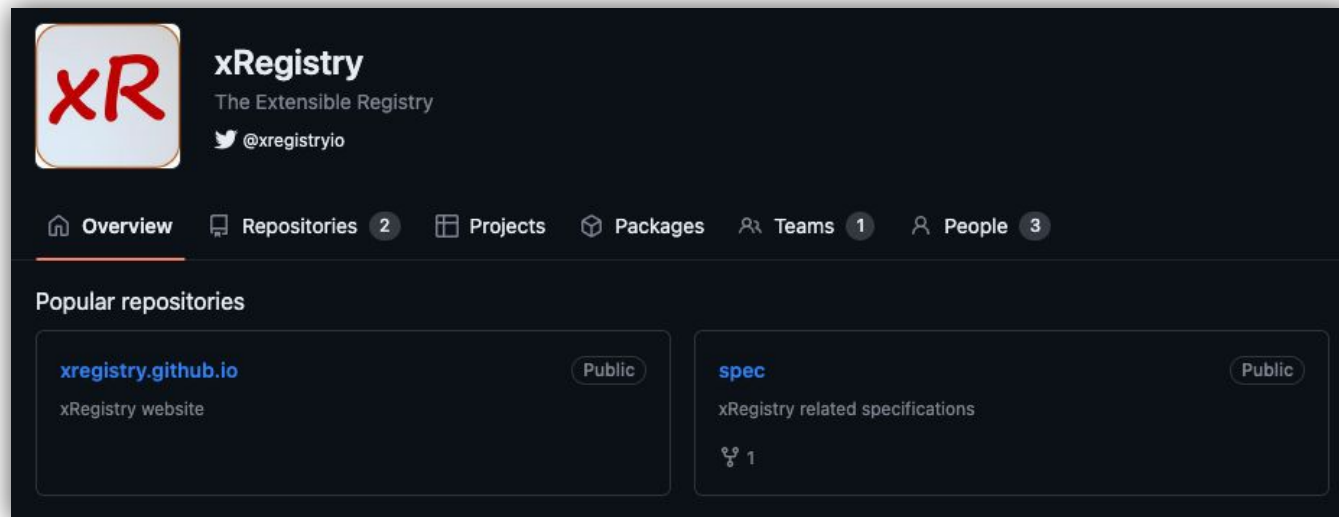


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xRegistry specification in process



Start Small...



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All in one `.cereg` file

Managed with your source code

Inline everything

- Schema inside event definition
- Event definition inside endpoint

With infrastructure support

- Just schemas and event definitions
- Let infrastructure create endpoint definition



...Or Do Something More Advanced



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Host a central registry in your organization

Define events and schemas for re-use

- Governance
- Versioning

Interoperability with other organizations

- Departments inside one company
- Vendors
- Customers

Federated discovery



Disclaimer

- Everything is **work in progress**
- Changes may and will happen

Opportunity: More people bring more ...

- ... use cases
- ... perspectives
- ... inclusive to new ideas
- ... project submitted for Graduation (pending)

Challenges

- Define CloudEvents for xRegistry
- Standardization in other CNCF projects
- Enrichment or overloading for event definitions?
- Endpoints that generically enrich events (example: partitionkey)
- Publish additional **proof-of-concept implementations**

Get Started with a CloudEvents Primer



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Concepts

Architecture

Value Prop

Versioning

Attributes

Protocols

Jump into the CloudEvents primer to get an overview of all the key concepts...



Supported CloudEvents SDK



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SDK Feature Support Table
Strong community
support...always changing



Connect with us



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CloudEvents GitHub Page...with
links to all the jumping off points



xRegistry Slack channel...



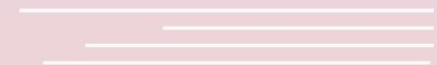


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Thank You!

Feedback



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