cdevents
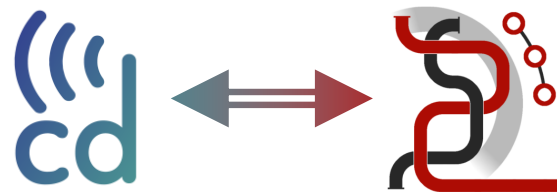
(and how it relates to Eiffel)

SIG Events / CDEvents

- Chaired by Emil Bäckmark (Ericsson/Eiffel) and Andrea Fritolli (IBM/Tekton)
- Meetings
  - SIG
  - Vocabulary Workgroup
- History
  - Operated as a stream inside SIG Interoperability
  - Stream created June 2020
  - Became a SIG February 2021
  - CDEvents project launched early 2022
- Eco-system:
  - SDK (Go, Python, Java)
  - PoC – Keptn, Tekton, Spinnaker & Jenkins (& Eiffel)

- CDEvents Contributors from
  - IBM
  - Ericsson
  - DeployHub
  - doWhile
  - Apple
  - Fidelity
  - Kubeshop
  - and more…

CDEvents protocol

- Expected to be "compatible" with Eiffel

- Based on [CloudEvents](#)

- Event types have a "**subject**" and a "*predicate*"
  - E.g. **Artifact**.*Published,* **TestCaseRun**.*Started*

Interoperability & Observability
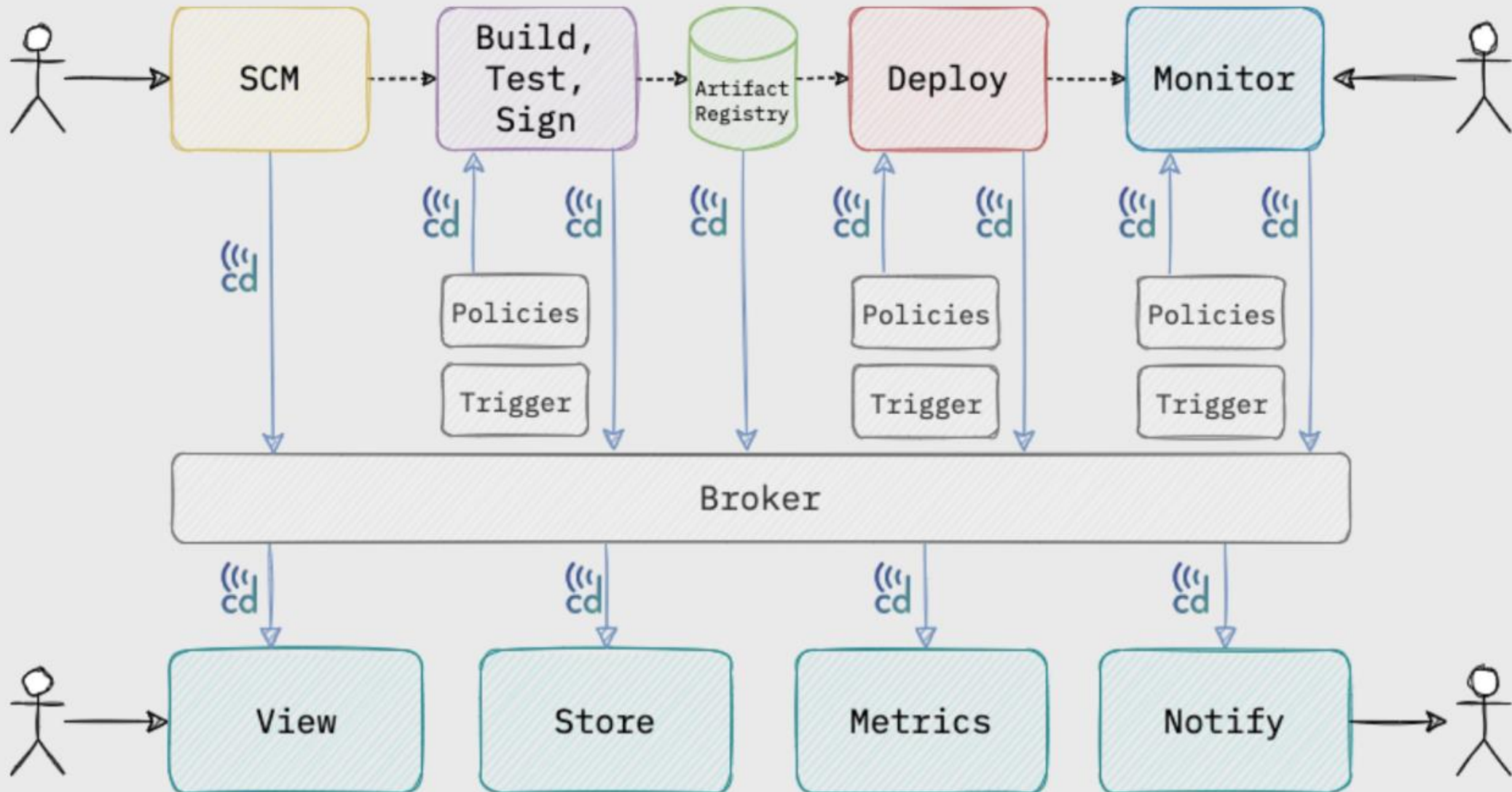
CDEvents releases

- History:
  - 0.1 released October 2022
    - First release
    - Core events
    - SCM events
    - Build, Artifact & Test events
    - Deployment events
  - 0.2 released March 2023
    - Incident events
  - 0.3 released May 2023
    - Updated Test events
    - Artifact signed events

- Upcoming:
  - 0.4 in September 2023
    - Connecting events
  - 1.0 – not yet planned

Current Event Types

Core Events
- PipelineRun
  - Queued
  - Started
  - Finished

- TaskRun
  - Started
  - Finished

SCM Events
- Repository
  - Created
  - Modified
  - Deleted

- Branch
  - Created
  - Deleted

- Change
  - Created
  - Reviewed
  - Merged
  - Abandoned
  - Updated

CI Events
- Build
  - Queued
  - Started
  - Finished

- Artifact
  - Packaged
  - Published
  - Signed

Testing Events
- TestCaseRun
  - Queued
  - Started
  - Finished

- TestSuiteRun
  - Queued
  - Started
  - Finished

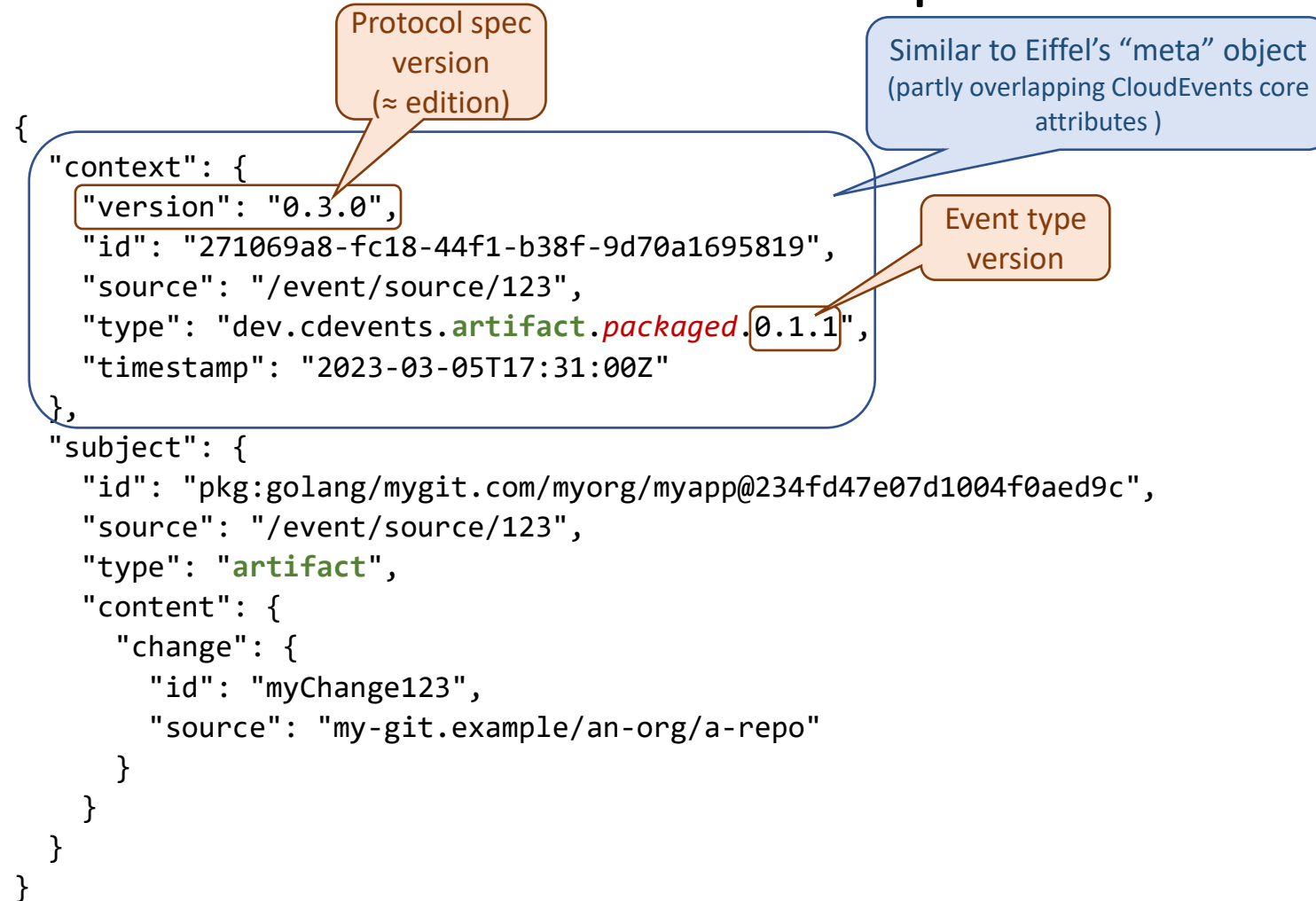- TestOutput
  - Published

CD Events
- Environment
  - Created
  - Modified
  - Deleted

- Service
  - Deployed
  - Upgraded
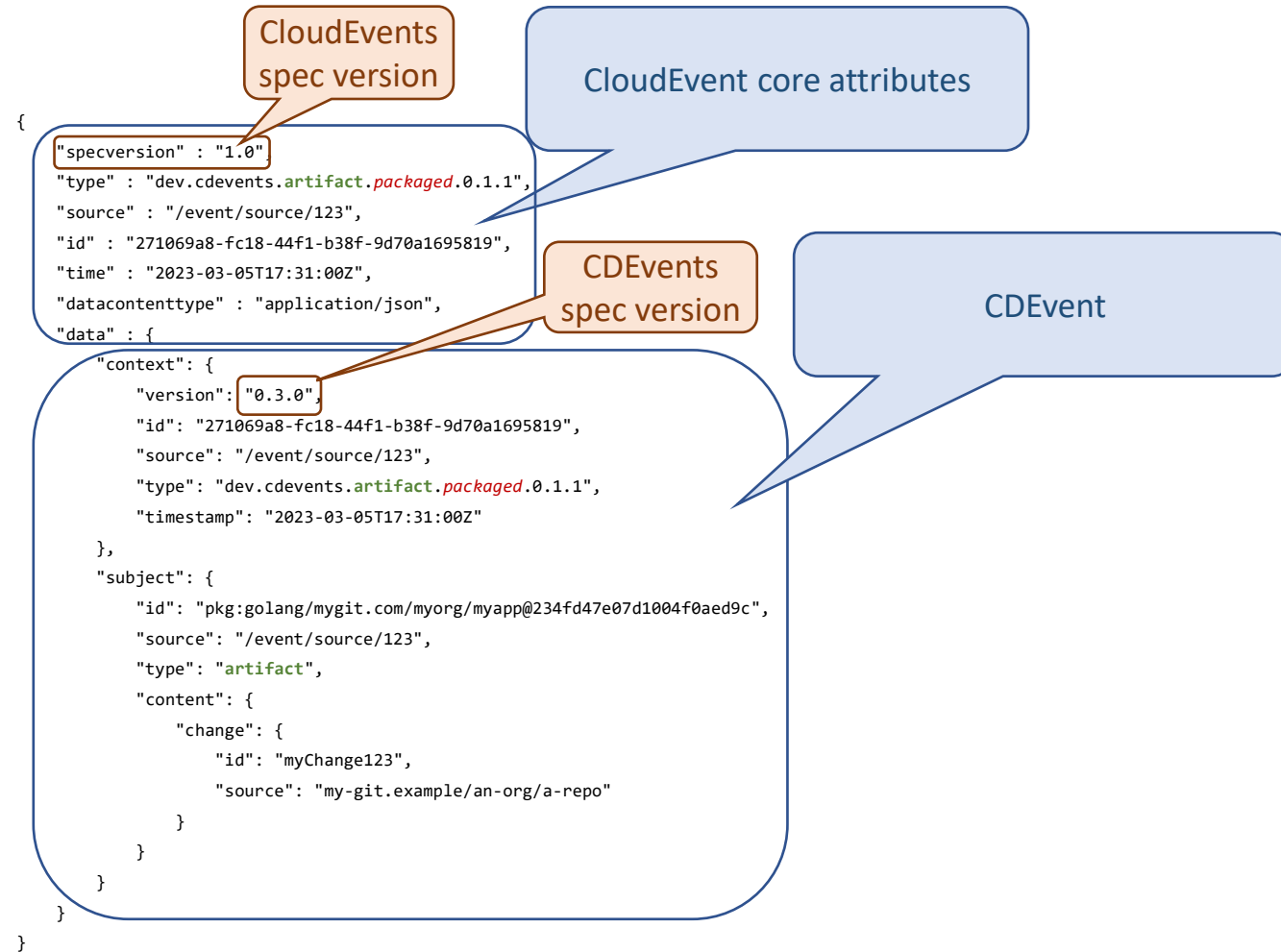 - Rolledback
  - Removed
  - Published

CO Events
- Incident
  - Detected
  - Reported

CDEvents Event Example

Protocol spec
version
(≈ edition)

Similar to Eiffel's "meta" object
(partly overlapping CloudEvents core
attributes)

Event type
version

```json
{
  "context": {
    "version": "0.3.0",
    "id": "271069a8-fc18-44f1-b38f-9d70a1695819",
    "source": "/event/source/123",
    "type": "dev.cdevents.artifact.packaged.0.1.1",
    "timestamp": "2023-03-05T17:31:00Z"
  },
  "subject": {
    "id": "pkg:golang/mygit.com/myorg/myapp@234fd47e07d1004f0aed9c",
    "source": "/event/source/123",
    "type": "artifact",
    "content": {
      "change": {
        "id": "myChange123",
        "source": "my-git.example/an-org/a-repo"
      }
    }
  }
}
```

*CloudEvent example with **JSON Object-valued data**
and a **content type declaring JSON-formatted data***

CDEvents Event Example, in CloudEvent

Adoption and collaboration

- SDKs
  - Golang
  - Java
  - Python

- Tools adoptions
  - Jenkins (plugin published)
  - Tekton (experimental)

- Tools adoptions in progress
  - Spinnaker (RFC approved)
  - Testkube

- Project Collaborations
  - Argo
  - Flux
  - Harbor

- Cross Community Collaboration
  - CNCF TAG App Delivery
  - Open Telemetry
  - Open Mainframe Project
 - VSM (Value Stream Management) Consortium

CDEvents vs Eiffel Event Types

CDEvents areas ("buckets")

- Core
    - pipelineRun, taskRun
- SCM
    - repository, branch, change
- Testing
    - testCaseRun, testSuiteRun, testOutput
- Continuous Integration
    - build, artifact
- Continuous Deployment
    - environment, service
- Continuous Operations
    - incident

Eiffel areas (categories/families)

- Activity
    - Activity
- Source
    - SourceChange
- Test
    - TestCase, TestSuite, TERC
- Artifact
    - Artifact
- Definition
    - FlowContext, Composition, Environment, Issue
- Notification
    - Announcement
- Verdict
    - ConfidenceLevel, IssueVerified
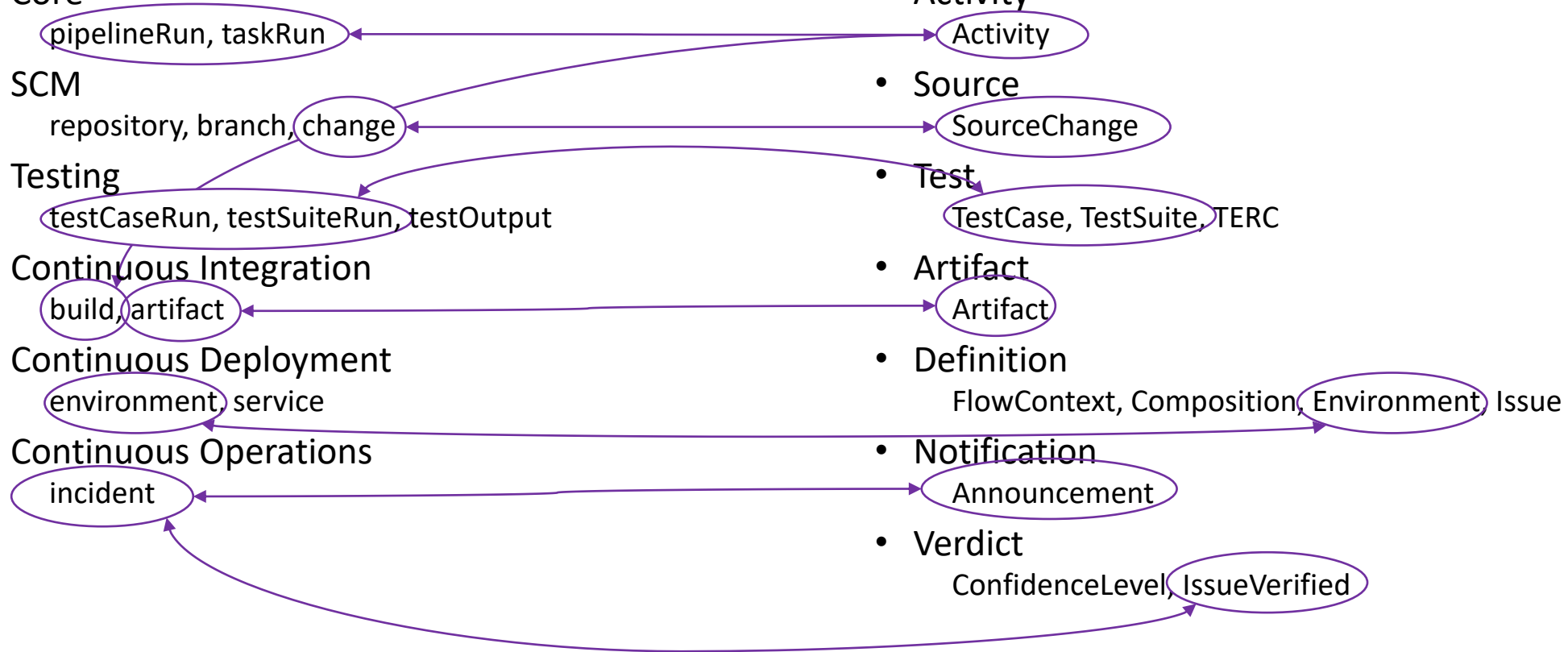
CDEvents vs Eiffel
Event Definitions

CDEvents Example

```
{
  "context": {
    "version": "0.3.0",
    "id": "271069a8-fc18-44f1-b38f-9d70a1695819",
    "source": "/event/source/123",
    "type": "dev.cdevents.artifact.packaged.0.1.1",
    "timestamp": "2023-03-05T17:31:00Z"
  },
  "subject": {
    "id": "pkg:golang/mygit.com/myorg/myapp@234fd47e07d1004f0aed9c",
    "source": "/event/source/123",
    "type": "artifact",
    "content": {
      "change": {
        "id": "myChange123",
        "source": "my-git.example/an-org/a-repo"
      }
    }
  }
}
```

Eiffel Example

```
{
  "meta": {
    "id": "271069a8-fc18-44f1-b38f-9d70a1695819",
    "source": {
      "uri": "/event/source/123"
    },
    "type": "EiffelArtifactCreatedEvent",
    "version": "3.0.0",
    "time": 1234567890,
  },
  "data": {
    "identity": "pkg:golang/mygit.com/myorg/myapp@234fd47e07d1004f0aed9c",
  },
  "links": [
    {
      "type": "COMPOSITION",
      "target": "aaaaaaaa-bbbb-5ccc-8ddd-eeeeeeeeeee1"
    }
  ]
}
```

Relation to Eiffel

Influence

- Eiffel protocol maintainers active in CDF & CDEvents

Integrations

- Eiffel Translator CDEvents
- Eiffel Demo CDEvents

Questions?