

IMS Caliper

15 August 2016

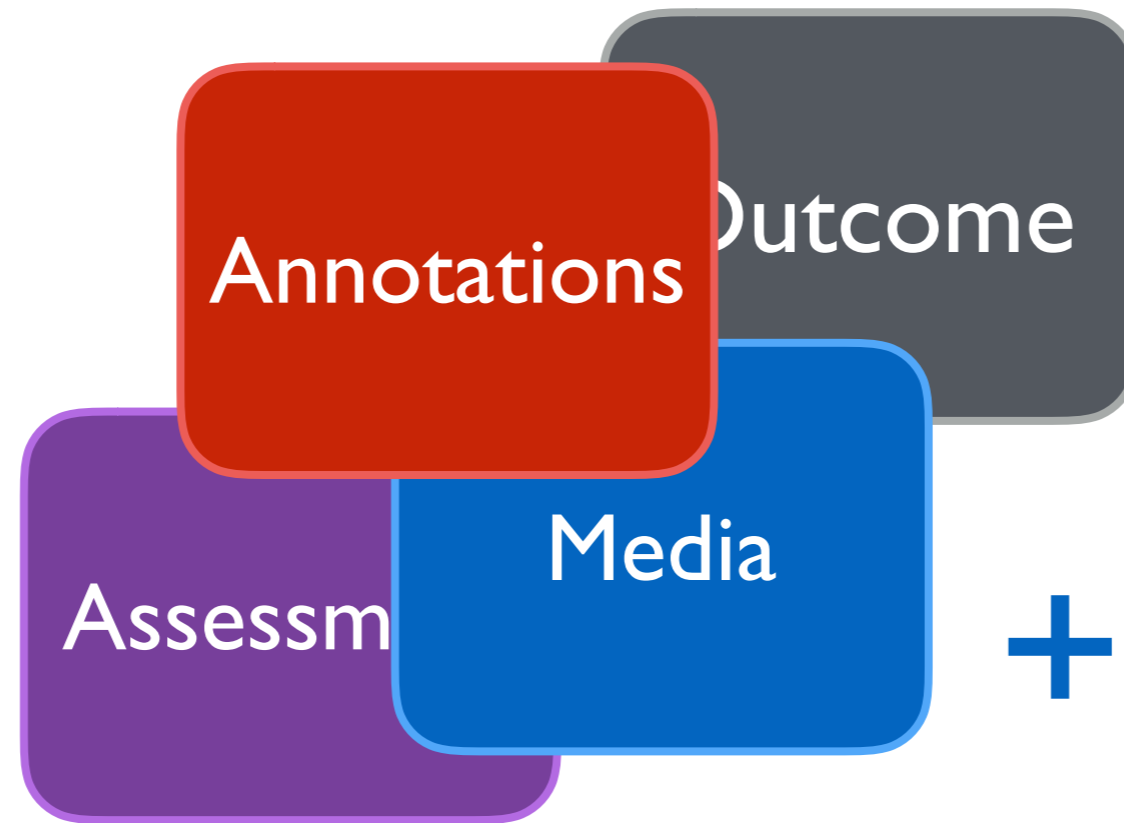
Anthony Whyte
arwhyte@umich.edu
University of Michigan
Team Caliper co-chair



value proposition

Why Caliper?

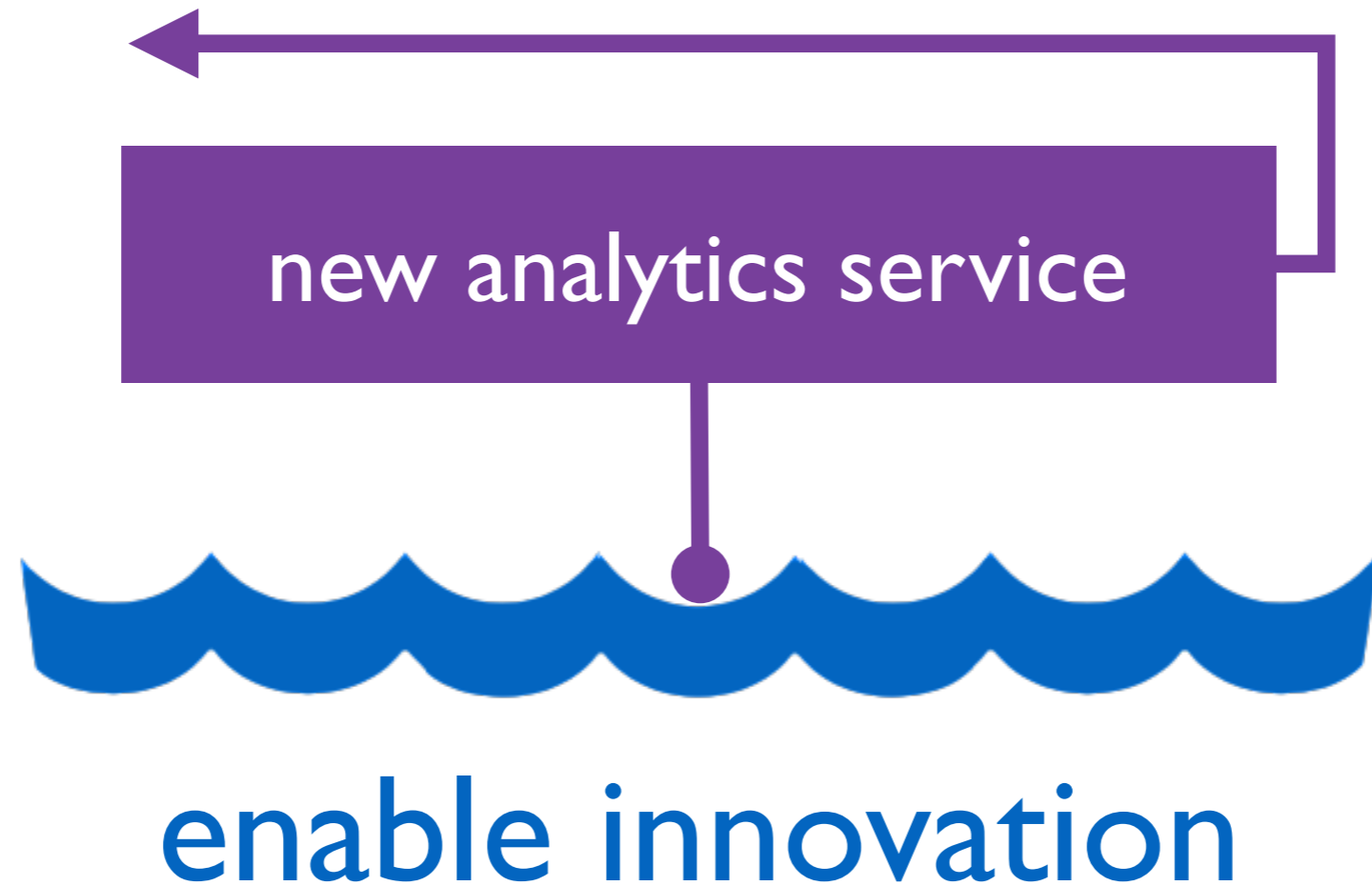
promote



data / semantic interoperability

between systems, platforms, apps

Why Caliper?



Why Caliper?



.edu focus

Why Caliper?

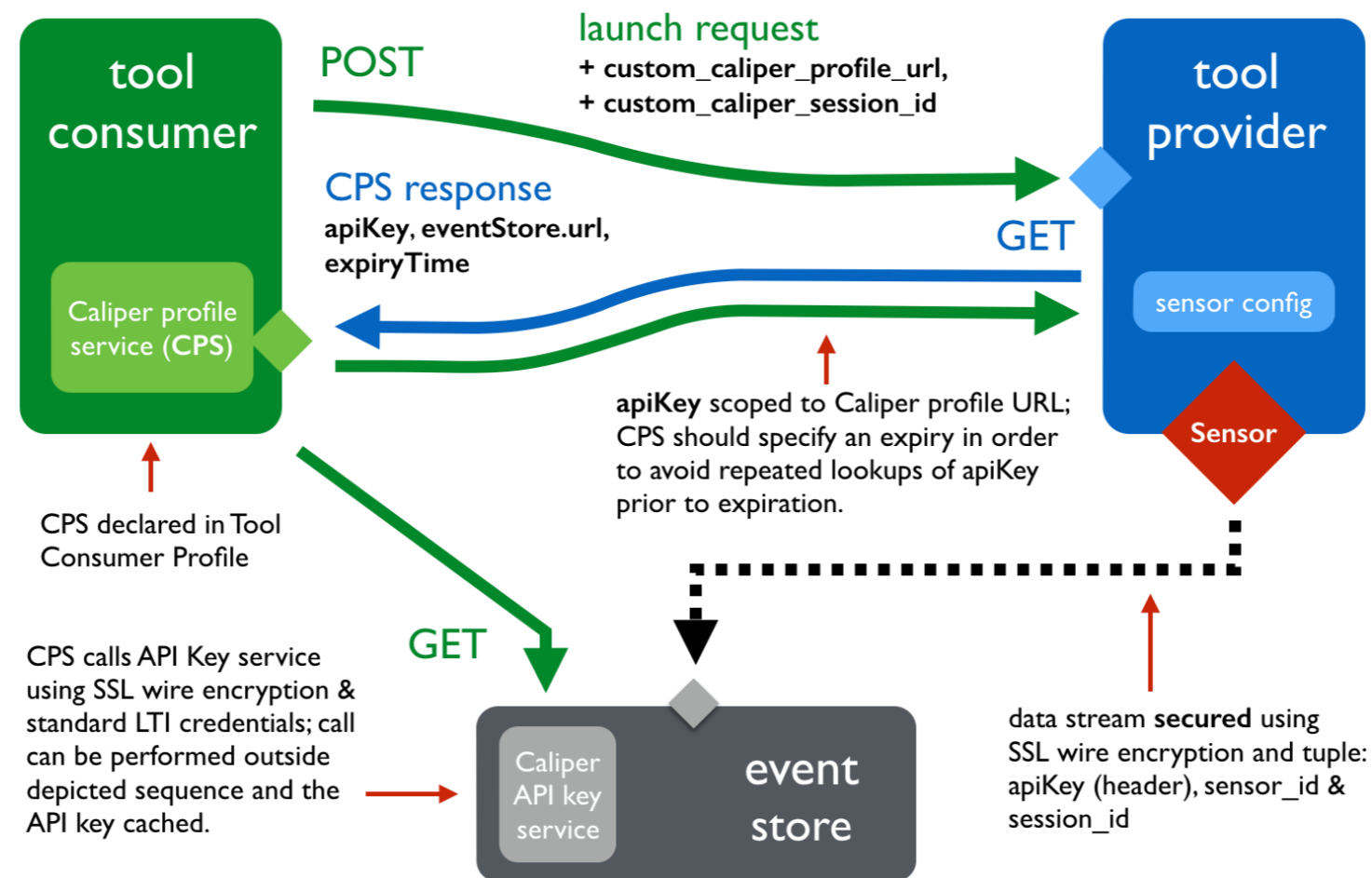
Sensor
API

caliper-java
caliper-js
caliper-python
caliper-php
caliper-ruby
caliper-net



Why Caliper?

LTI integration



Why Caliper?

certification



suite

Why Caliper?

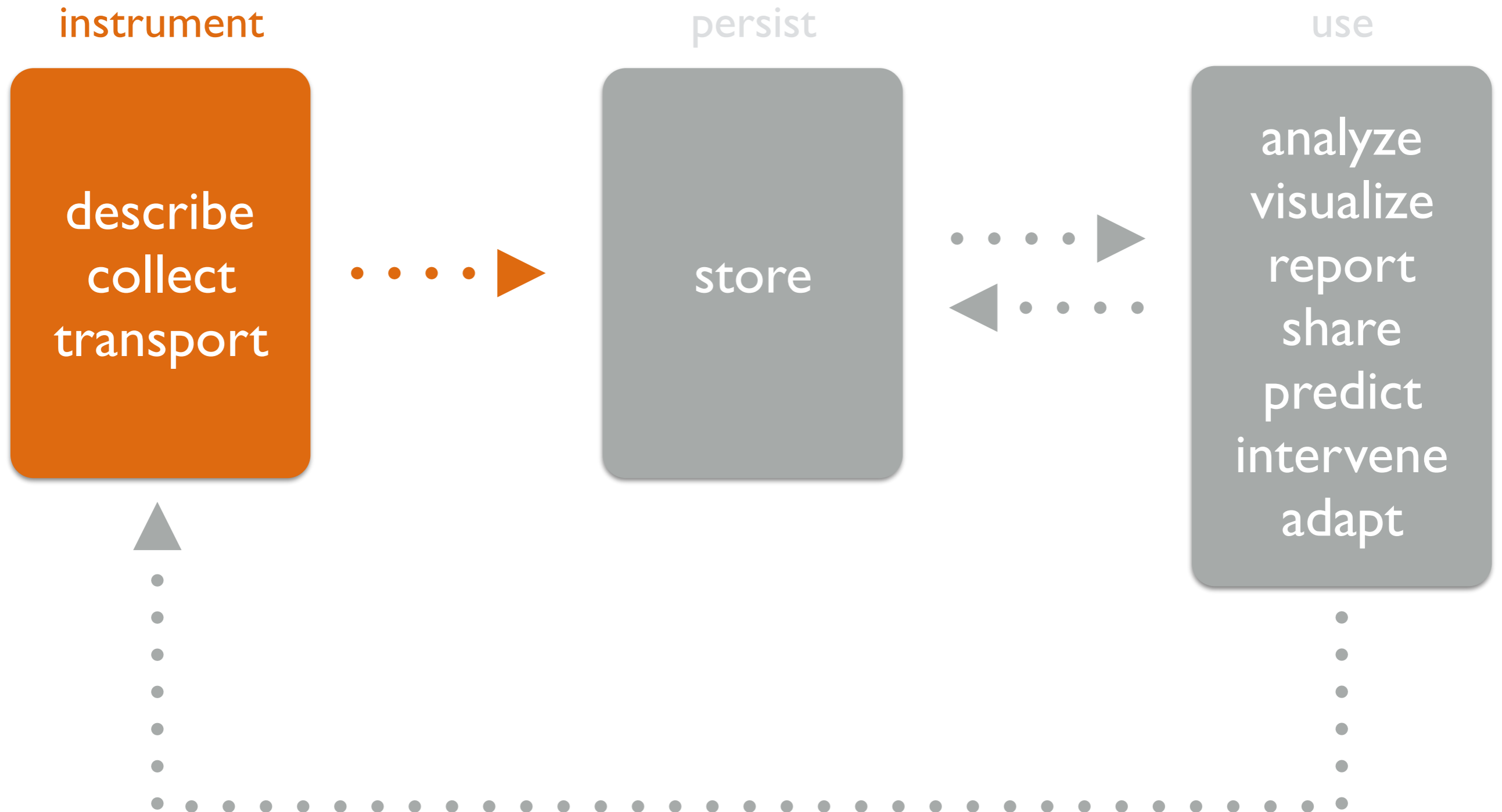


IMS GLOBAL[®]
Learning Consortium

stewardship

project scope (1.x)

Scope: Caliper 1.x



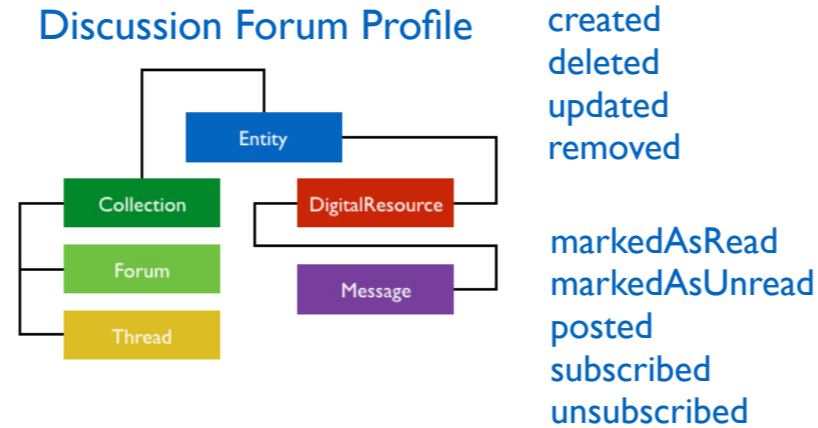
Caliper 1.1 initiatives

doc rewrites



spec
impl guide
ontology

event model revisions



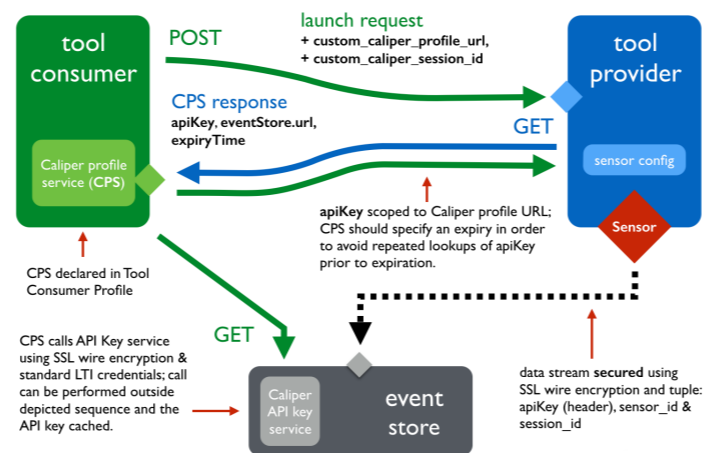
payload thinning

```
{  
  "sensor": "https://example.edu/sensor/001",  
  "sendTime": "2015-09-15T11:05:01.000Z",  
  "data": [  
    {  
      "@context": "http://purl.imsglobal.org/ctx/caliper/v1/Context",  
      "@type": "http://purl.imsglobal.org/caliper/v1/Event",  
      "actor": {  
        "@id": "https://example.edu/user/554433",  
        "@type": "http://purl.imsglobal.org/caliper/v1/Person" },  
      "action": "http://purl.imsglobal.org/vocab/caliper/v1/action#Viewed",  
      "eventTime": "2015-09-15T10:15:00.000Z",  
      "object": {  
        "@id": "https://example.com/viewer/book/34843#epubcfi(/4/3)",  
        "@type": "http://www.idpf.org/epub/vocab/structure/#volume" }  
    }  
  ]  
}
```

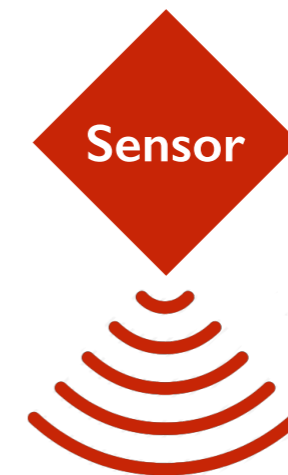
cert suite upgrade



LTI integration



sensor updates



caliper-java
caliper-js
caliper-python
caliper-php
caliper-ruby
caliper-net



information model

How Caliper differs from xAPI

spec

data binding

integrations

integral

profiles

controlled
vocabularies

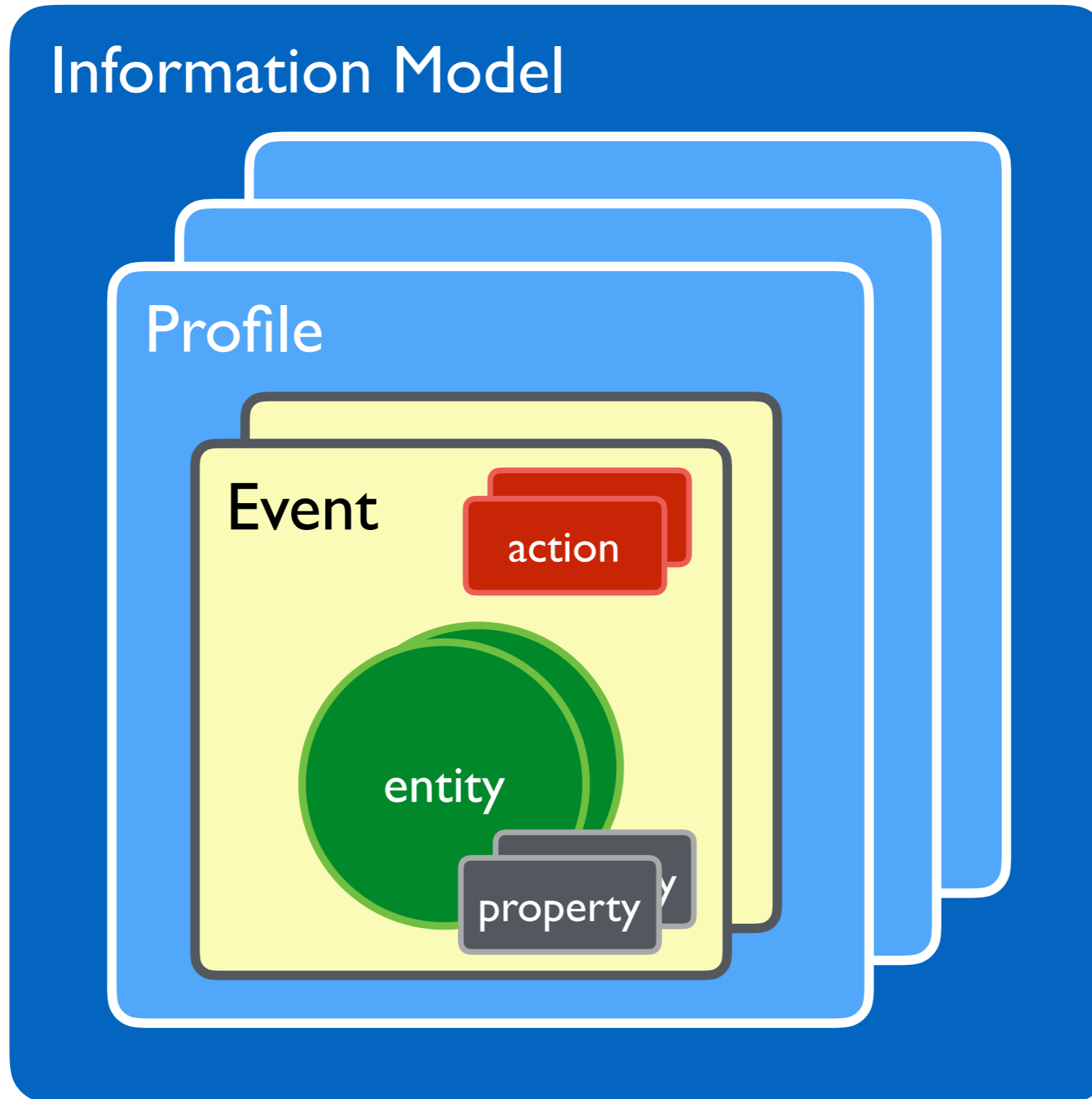
Event

Entity

JSON-LD

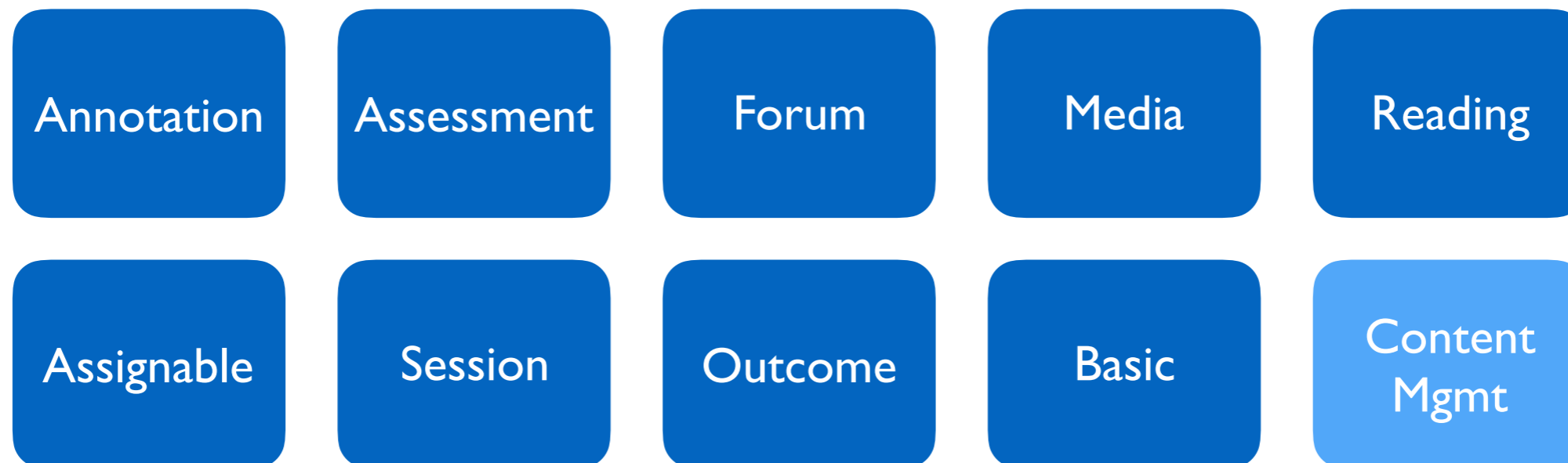
LTI

Caliper Information Model

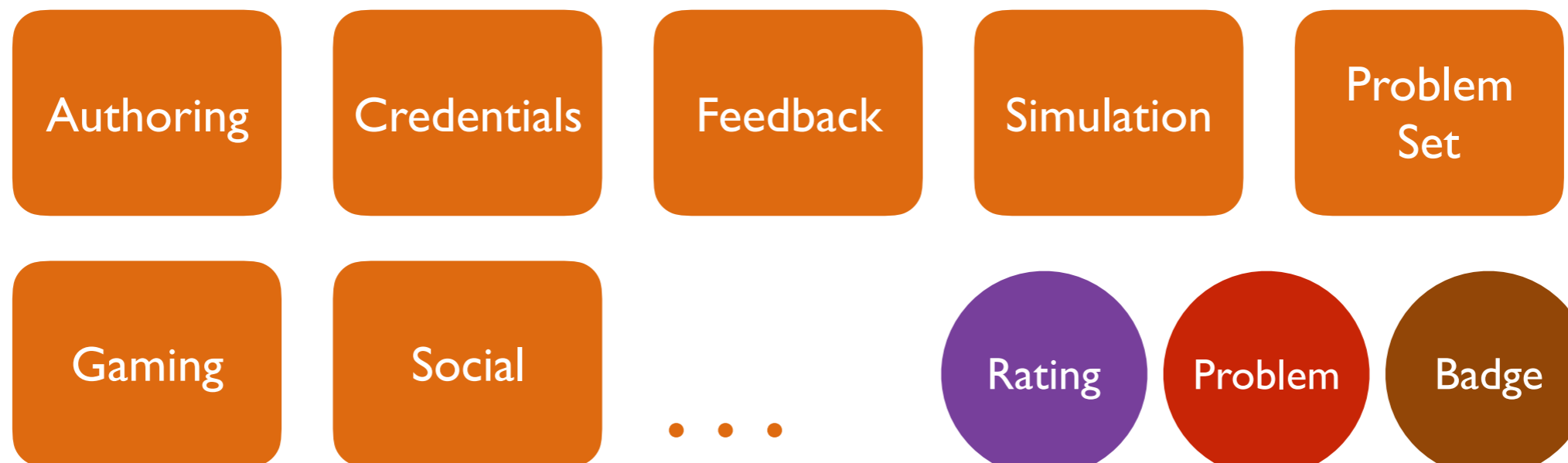


Information model: profiles

current set



future additions?



new entities?

Profile example: Discussion Forum

ForumEvent

subscribed
unsubscribed

ThreadEvent

markedAsRead
markedAsUnread

MessageEvent

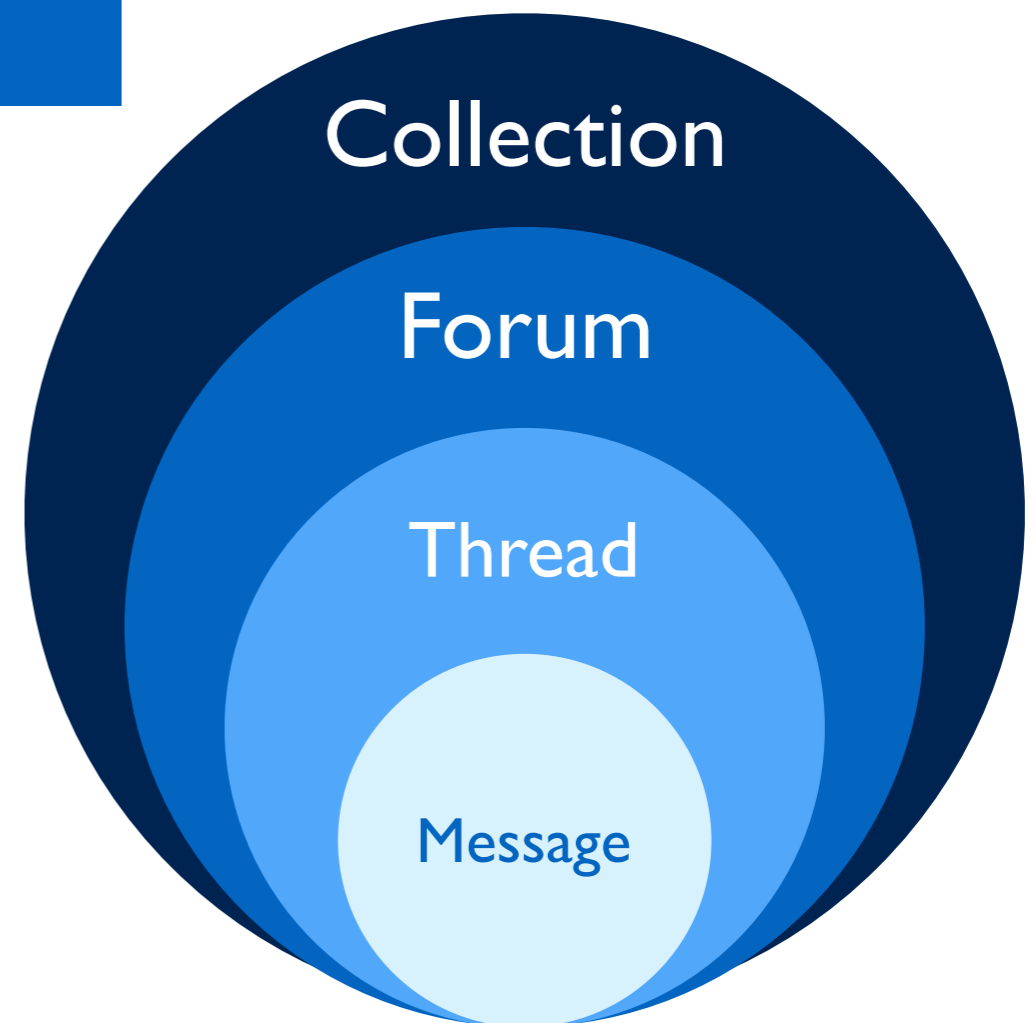
posted
markedAsRead
markedAsUnread

NavigationEvent

navigatedTo

ViewEvent

viewed



event model

Caliper Event JSON-LD (1.1)

```
{
  "@context": "http://purl.imsglobal.org/ctx/caliper/v1/caliper.json",
  "@type": "http://purl.imsglobal.org/caliper/v1/Event",
  "id": "local string identifier",
  "actor": {<Agent>},
  "action": "http://purl.imsglobal.org/vocab/caliper/v1/action#[Action]",
  "object": {<Entity>},
  "eventTime": "ISO 8601 formatted dateTime w/ millisecond precision",
  "target": {<Entity>},
  "generated": {<Entity>},
  "referrer": {<Entity>},
  "edApp": {<SoftwareApplication>},
  "group": {<Organization>},
  "membership": {<Membership>},
  "session": {<Session>},
  "federatedSession": {<LtiSession>},
  "extensions": {}
}
```



caliper.json

```
{
  "@context": {}
}
```

mapping of
terms

Caliper event / xAPI statement

Caliper event

actor action object eventTime

id

optional

target generated referrer
edApp group membership
session federatedSession
extensions

xAPI statement

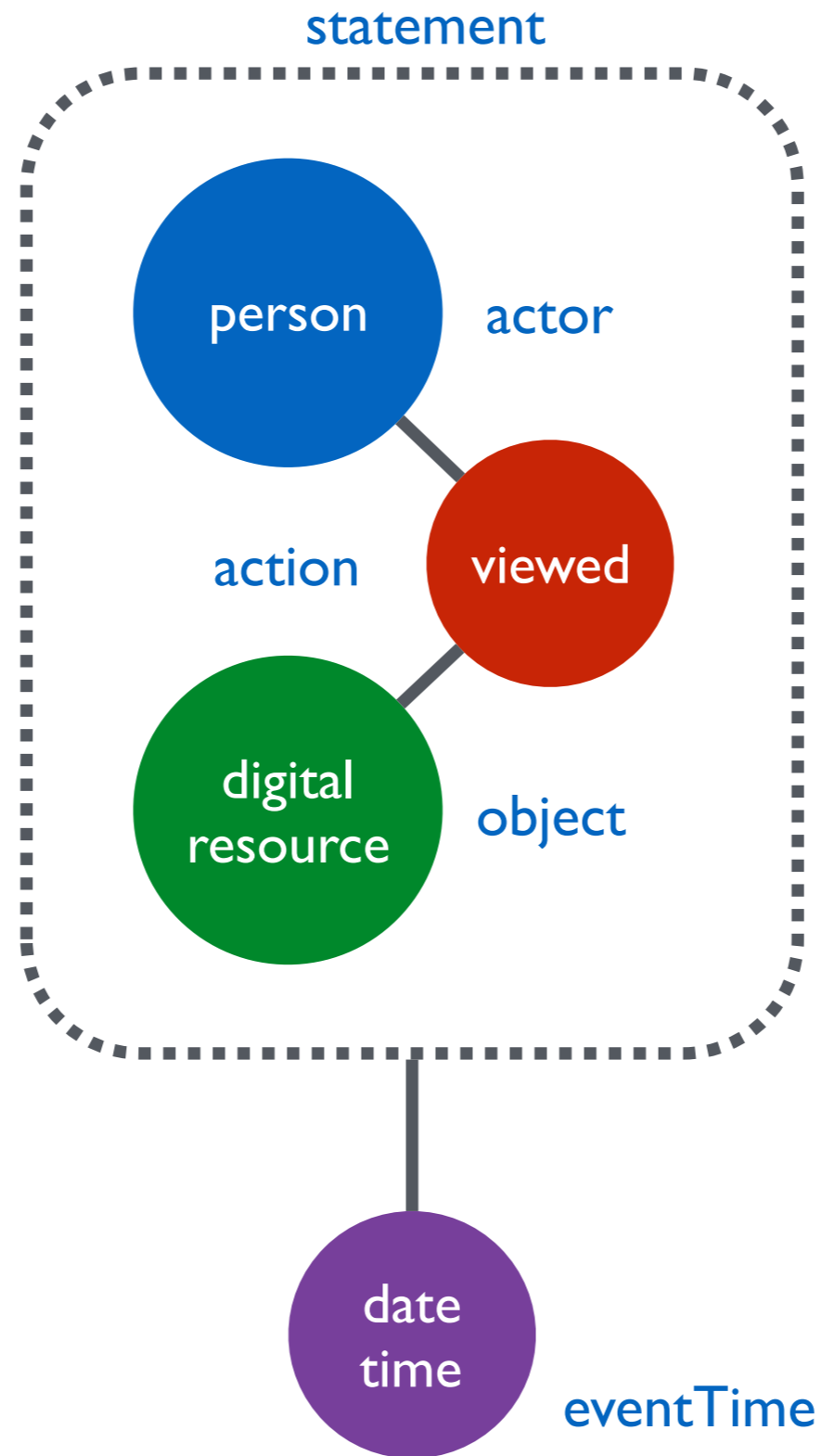
actor verb object

id stored

timestamp context result
authority attachments
version

■ Caliper *sourcedId* and xAPI *id* and *stored* property must be set by the LRS if not set by the event/statement emitter.

Caliper event: basic / simple



NavigationEvent / ViewEvent

NavigationEvent

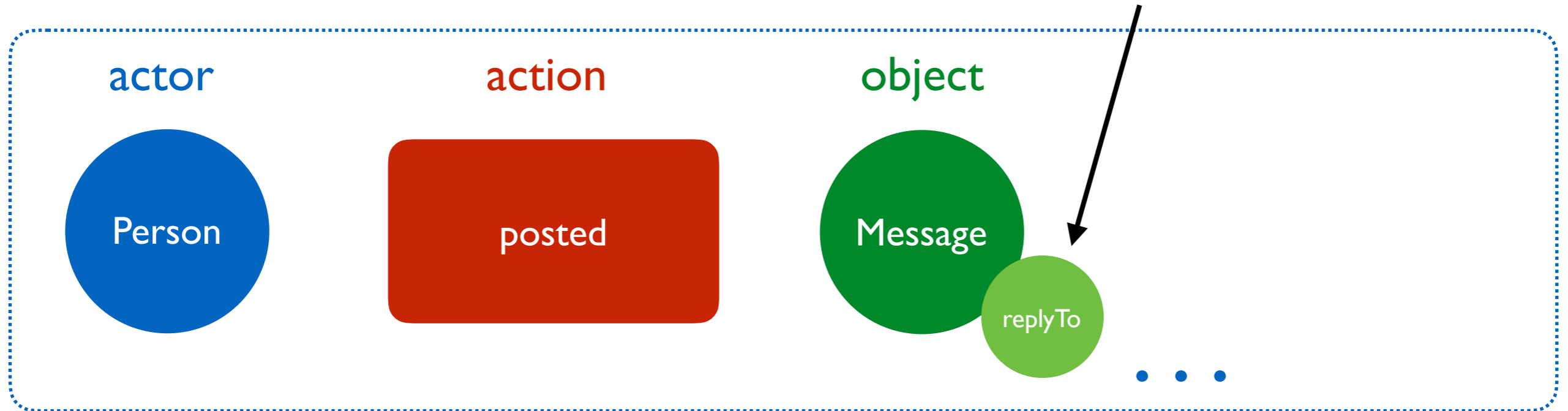


ViewEvent

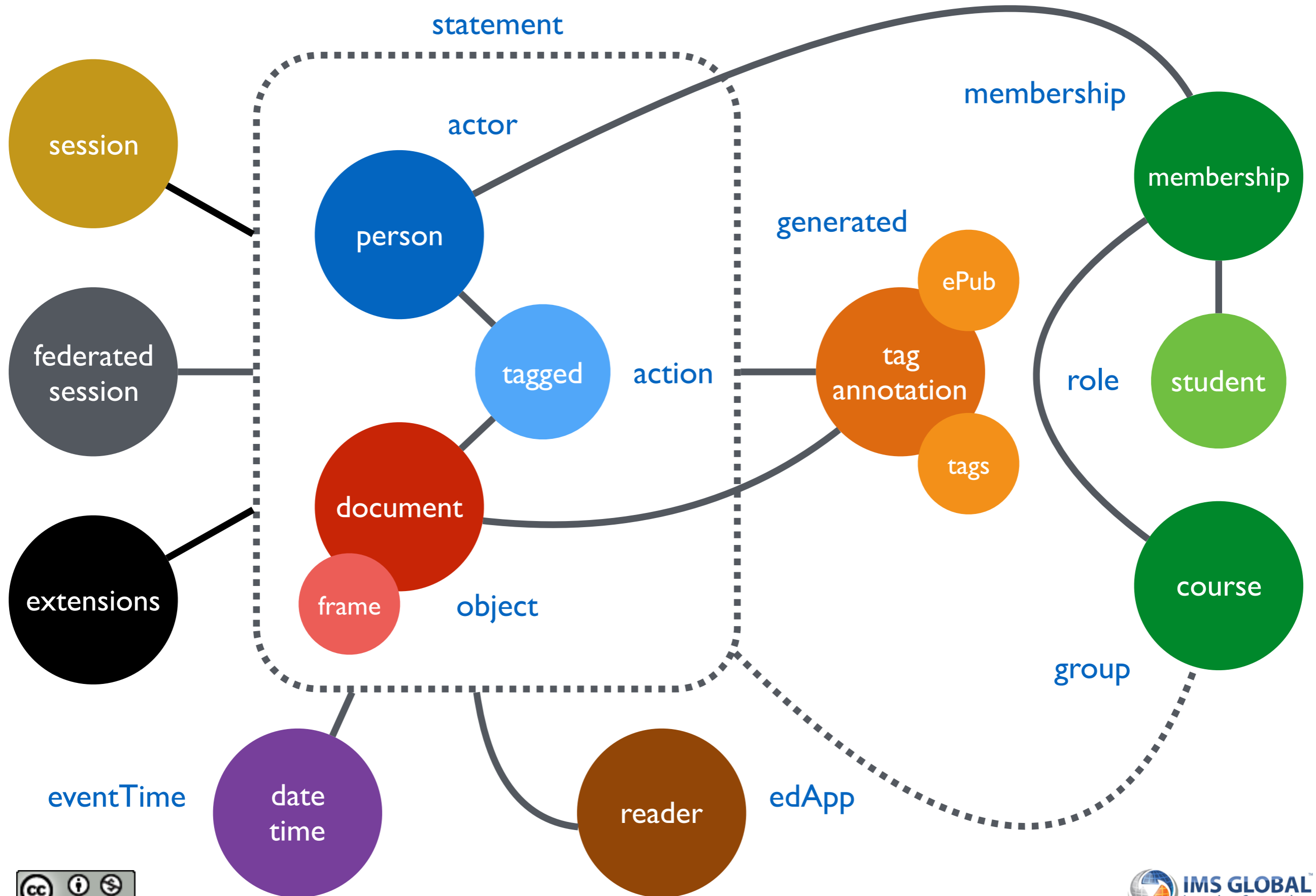


MessageEvent

note: reference to the prior message that prompted the actor to post the Message in response.

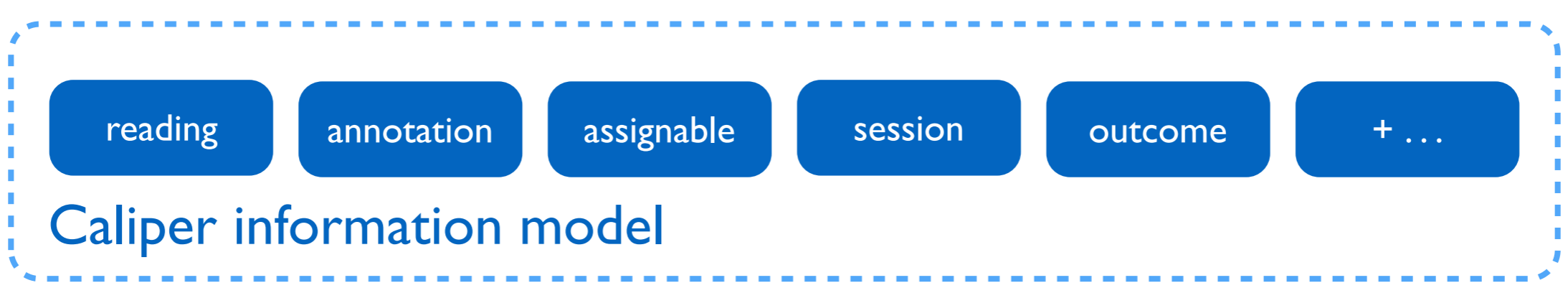
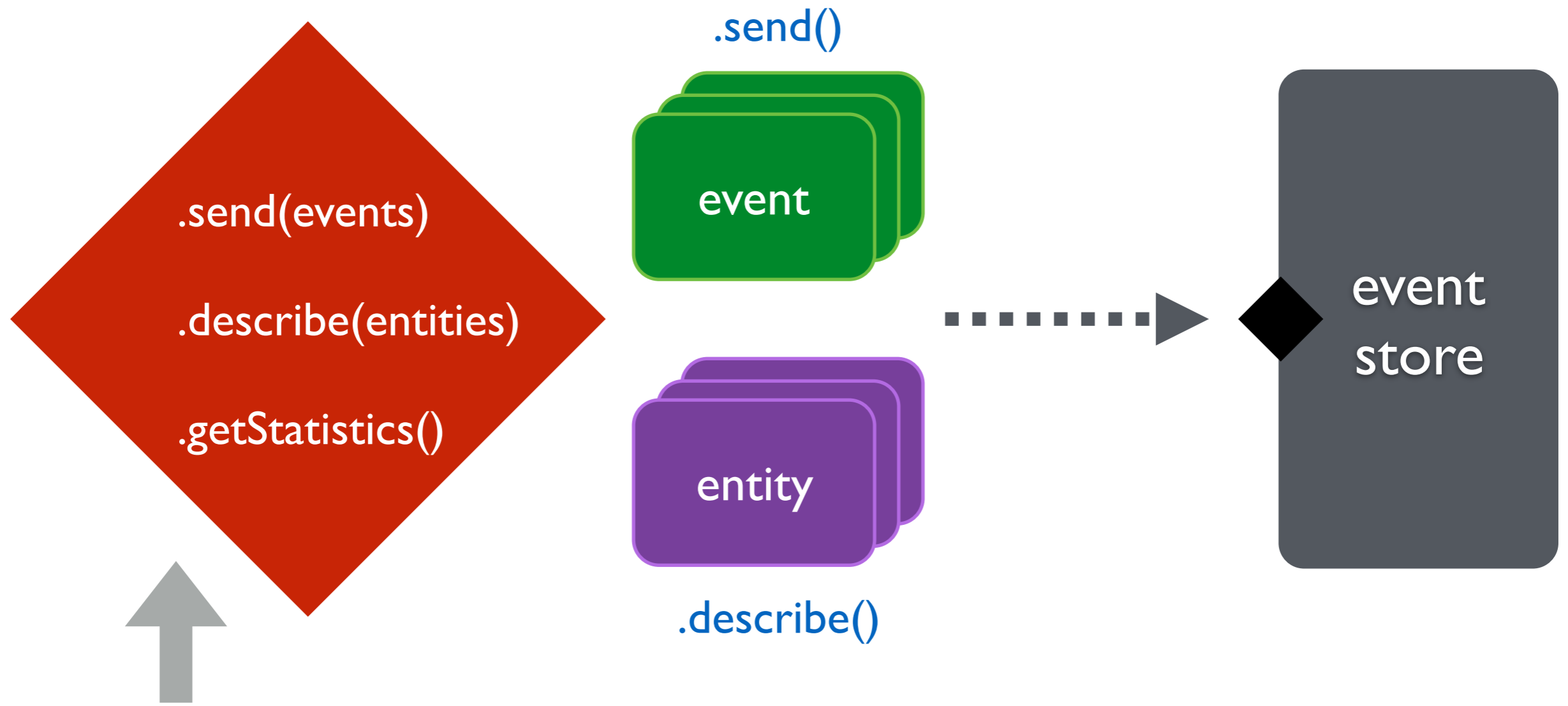


Caliper event: with context (tag doc)

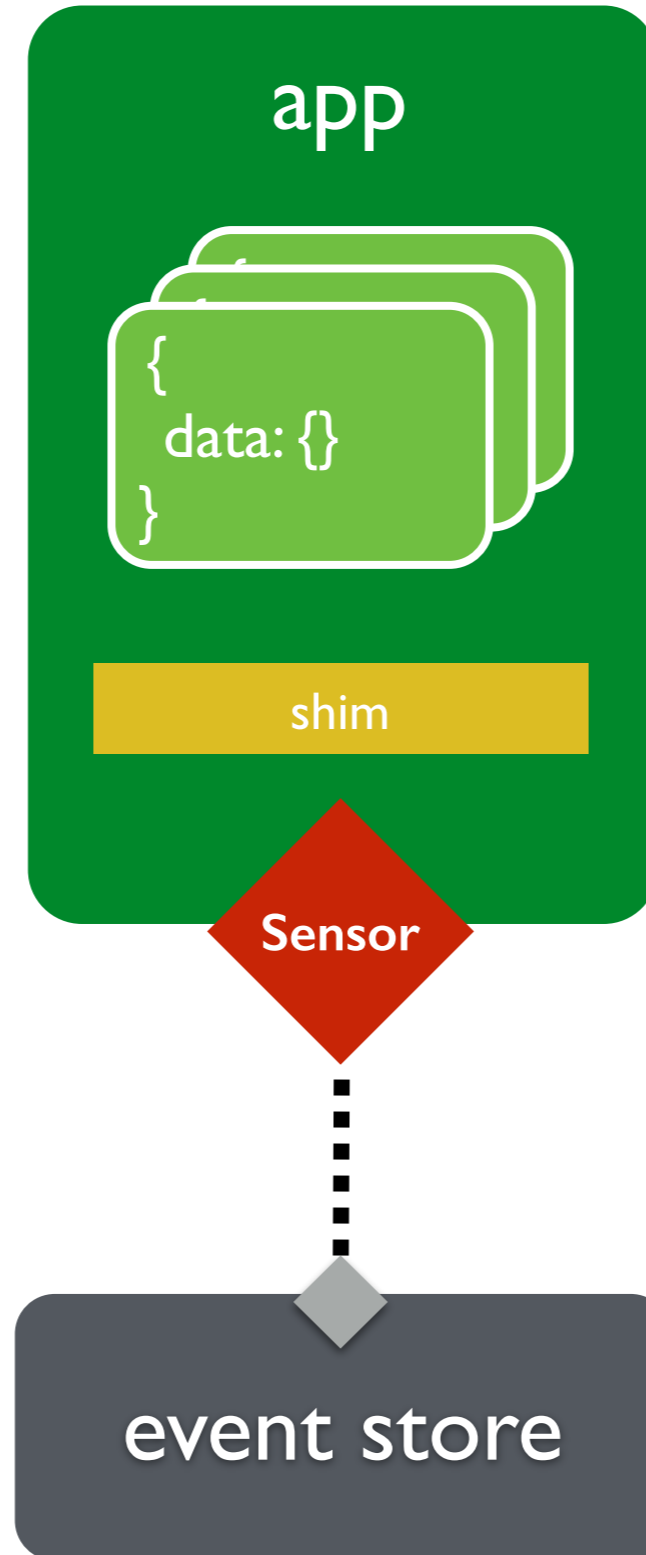


sensor

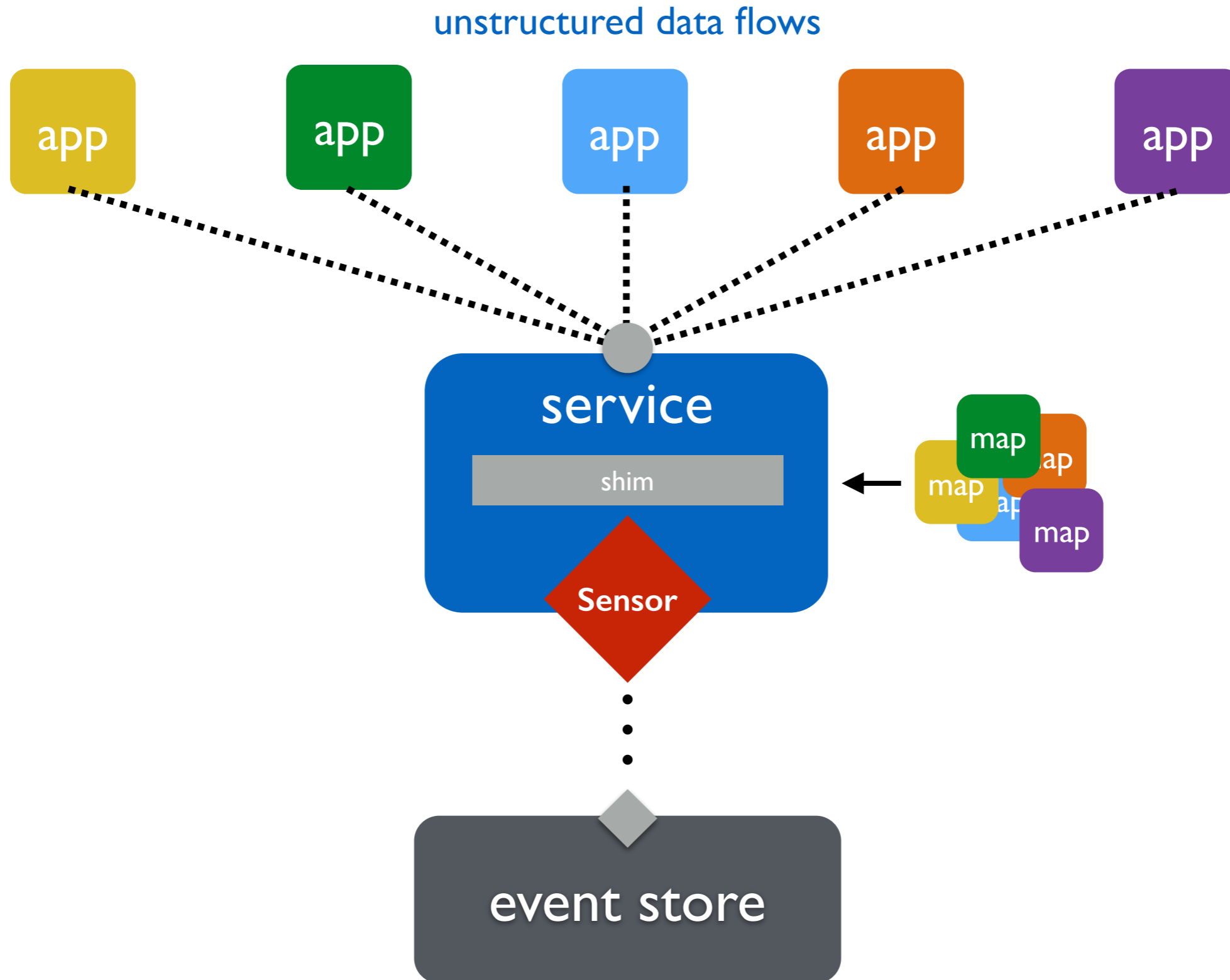
Sensor API



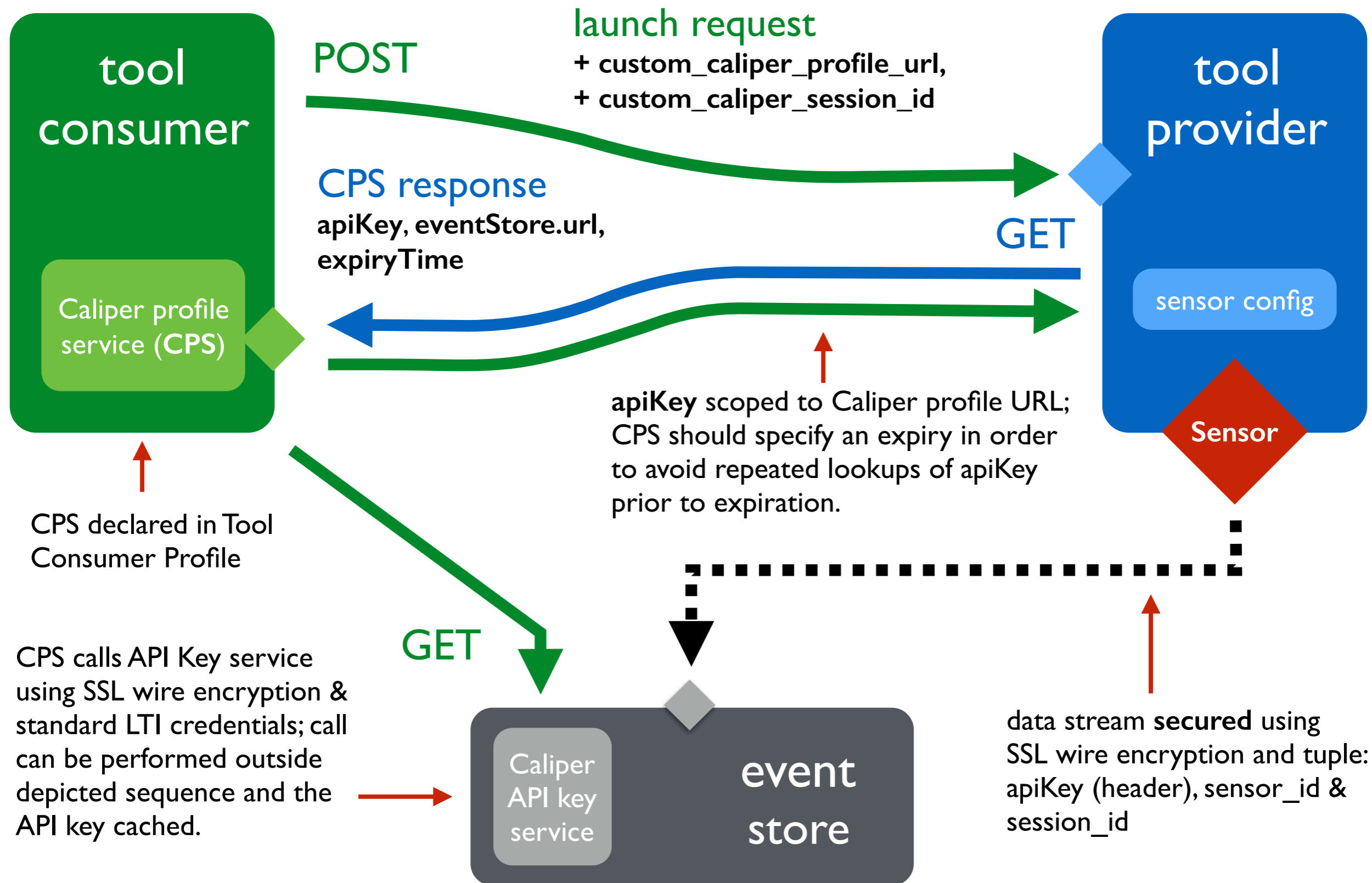
Instrumentation: app to store



Instrumentation: apps to service to store

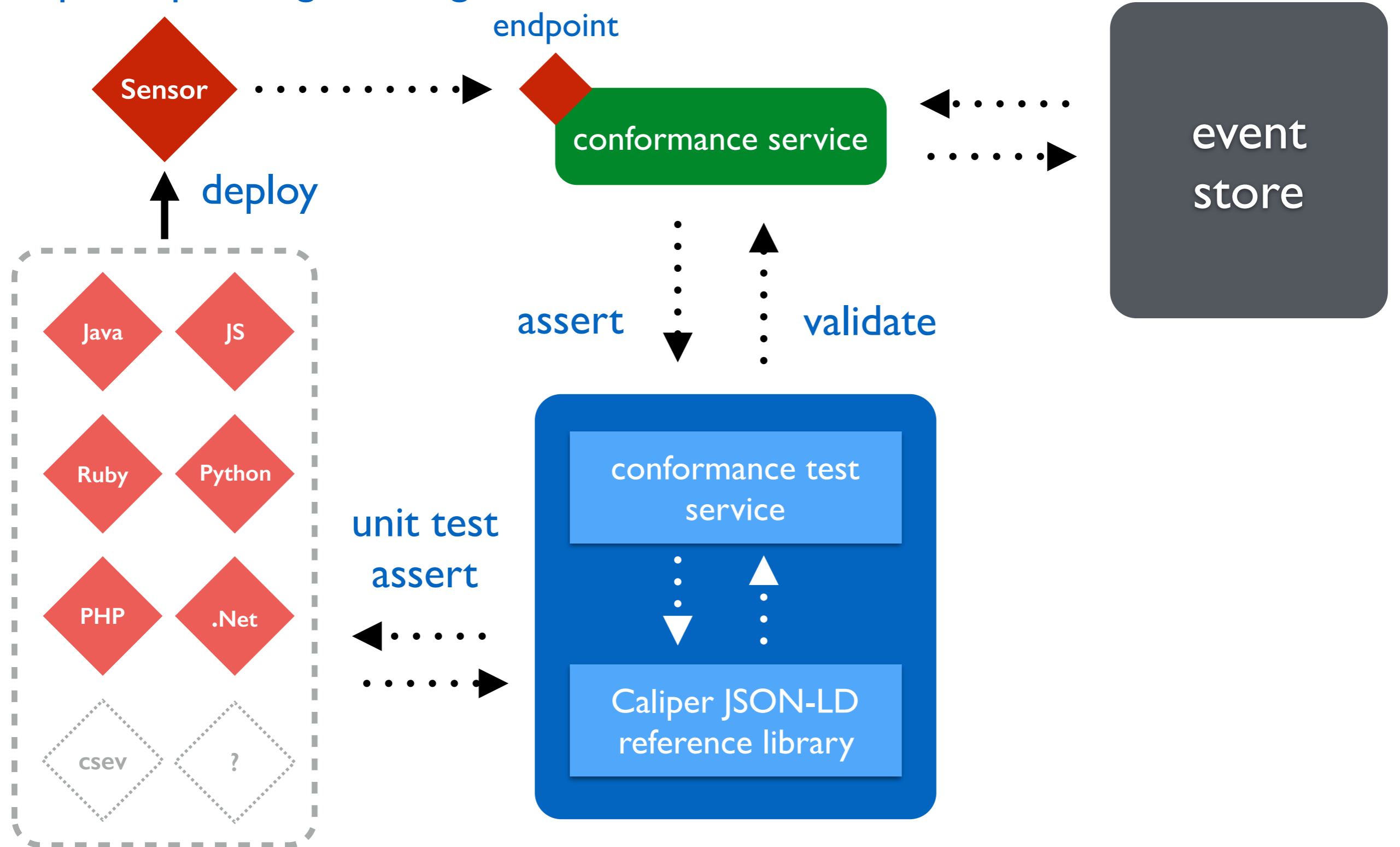


Caliper/ LTI 1.x workflow



Conformance test framework

<http://caliper.imsglobal.org/>



Caliper code repos (Github)

sensors

caliper-java
caliper-js
caliper-ruby
caliper-python
caliper-php
caliper-net

docs

caliper-spec
caliper-ontology
caliper-impl-guide

cert suite

caliper-conformance-tests

sample code

caliper-java-example
caliper-js-example
caliper-net-example

support

caliper-central
caliper-contexts
caliper-common-fixtures



public

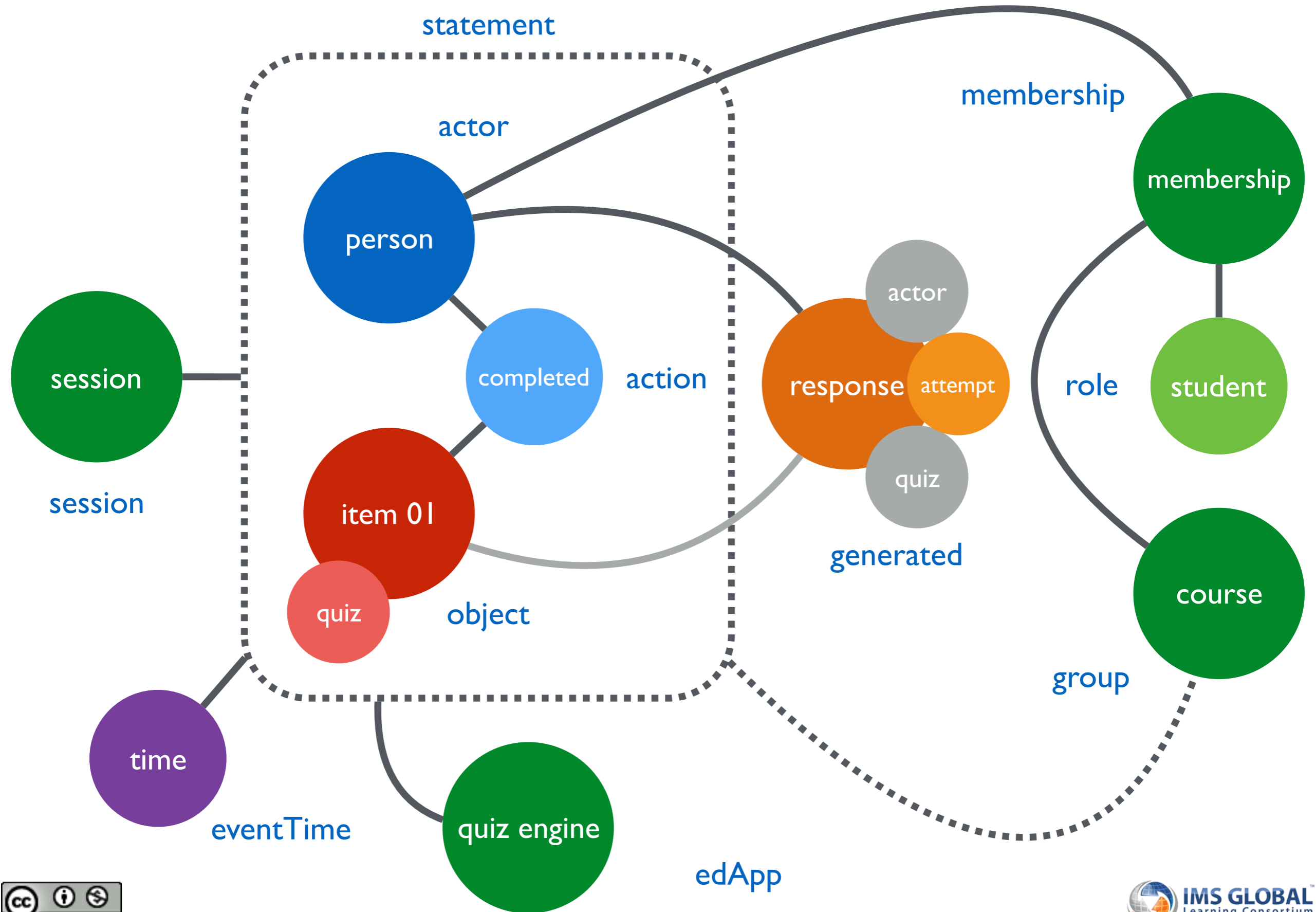
caliper-java-public
caliper-js-public
caliper-ruby-public
caliper-python-public
caliper-php-public
caliper-net

finis
(thanks)

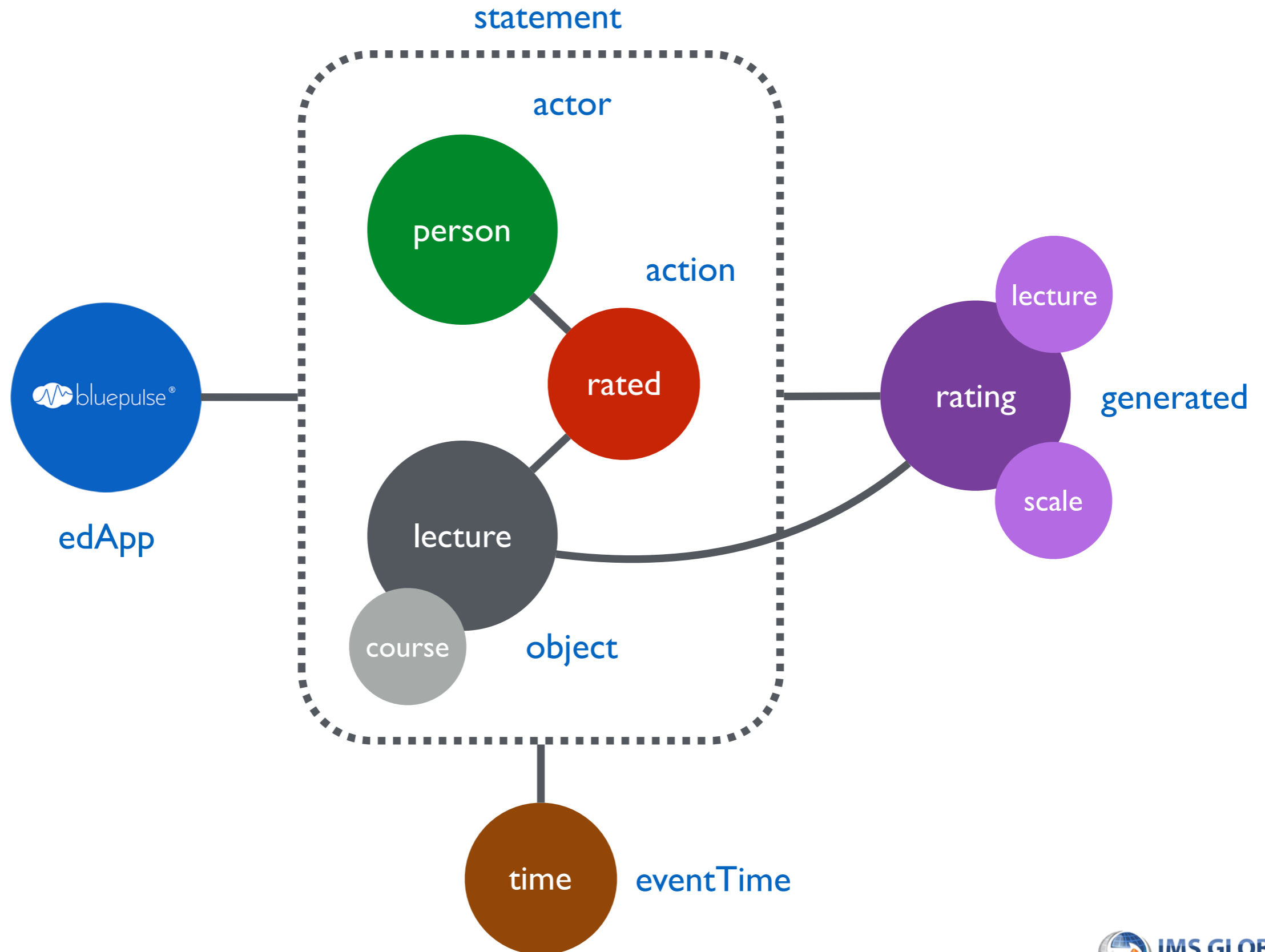
extras

(stuff for the director's cut)

Completed quiz item (AssessmentItem profile)



Bluepulse: real-time rating



Caliper event.action (future?)

```
"action": {  
  "@context": "http://purl.imsglobal.org/ctx/caliper/v1/Context",  
  "@id": "http://purl.imsglobal.org/vocab/caliper/v1/action#Liked",  
  "@type": "http://purl.imsglobal.org/caliper/v1/Action",  
  "expression": {  
    "@value": "いいね"  
    "@language": "ja"  
  }  
}
```

default language

Context.json

```
{  
  "@context": {  
    ...  
    "@language": "en",  
  }  
}
```

override default language using a JSON-LD expanded value object