

# Spike Your Application Development Skills with Dapr

Sam & Cassie Coyle

Please follow prerequisites instructions ASAP:  
<https://github.com/sicoyle/ghc-dapr-workshop-2024/blob/main/prereqs.md>



## Sam Coyle

Software Engineer

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Buy my Go textbook:

<https://a.co/d/9BdjQvB>



## Cassie Coyle

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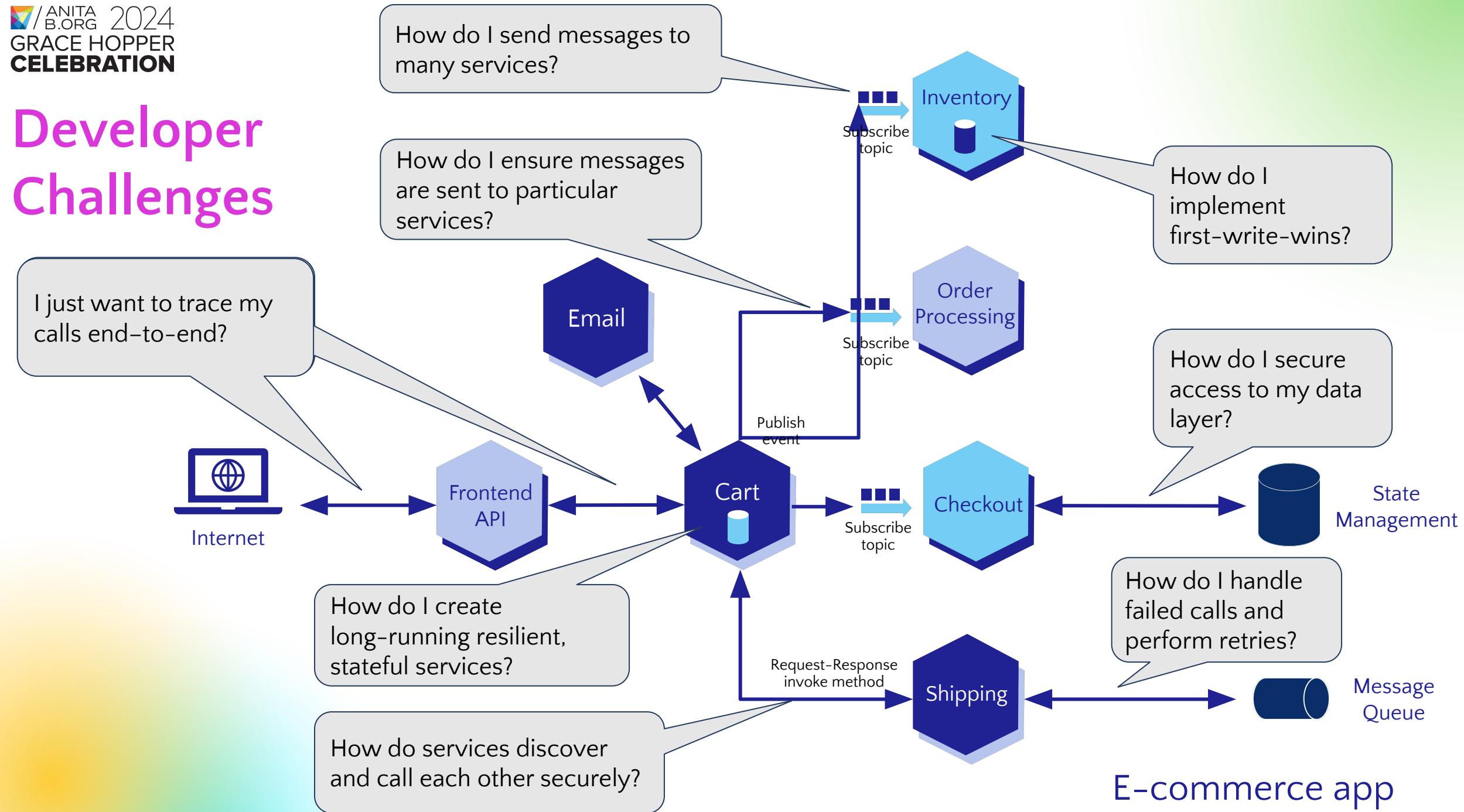
X: @cassielcoyle



# Dapr Overview

Please follow prerequisites instructions ASAP:  
<https://github.com/sicoyle/ghc-dapr-workshop-2024/blob/main/prereqs.md>

# Developer Challenges





# Distributed Application Runtime

Portable, event-driven, runtime for building distributed applications across cloud and edge

dapr.io

The screenshot shows the official Dapr website homepage.

**Header:** The header features the Dapr logo, navigation links for Home, Testimonials, Docs, Blog, GitHub, and Discord, a star icon with "17,575", and a "Get Started" button.

**Section 1:** A large banner with the heading "APIs for building portable and reliable microservices". Below it is the subtext "Leverage industry best practices and focus on your application's logic." and a "Get Started" button.

**Diagram:** A diagram illustrating microservice communication patterns. It shows three hexagonal microservices, each with a Dapr logo and a double-slash path separator (</>). One service sends an "Invoke" request to another. A third service performs a "Store" operation in a central database. A fourth service publishes a message to a queue, which is then consumed by a fifth service via a "Subscribe" operation.

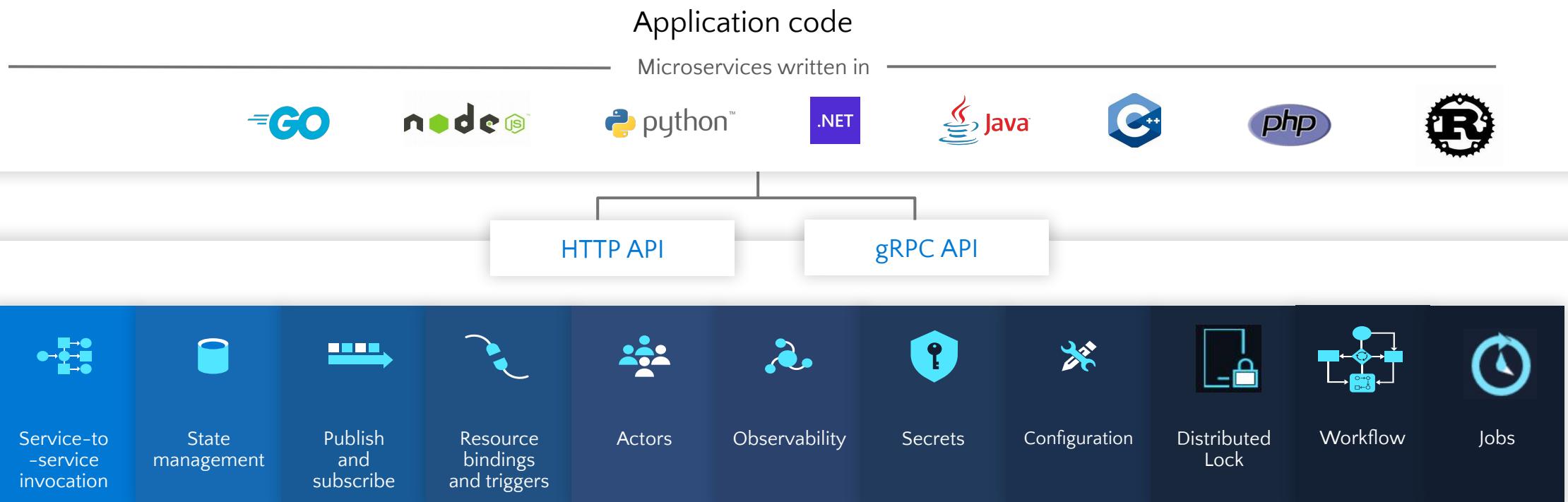
**Section 2:** Logos of various partners and supporters: Bosch, ZEISS, Alibaba Cloud, IGNITION GROUP, Roadwork, 華為技術有限公司 (Huawei), LEGENTIC, and Man Group.

**Section 3:** A call-to-action: "Build connected distributed applications faster".

**Text 1:** "The Distributed Application Runtime (Dapr) provides APIs that simplify microservice connectivity. Whether your communication pattern is service to service invocation or pub/sub messaging, Dapr helps you write resilient and secured microservices."

**Text 2:** "By letting Dapr's sidecar take care of the complex challenges such as service discovery, message broker integration, encryption, observability, and secret management, you can focus on business logic and keep your code simple."

# Dapr APIs

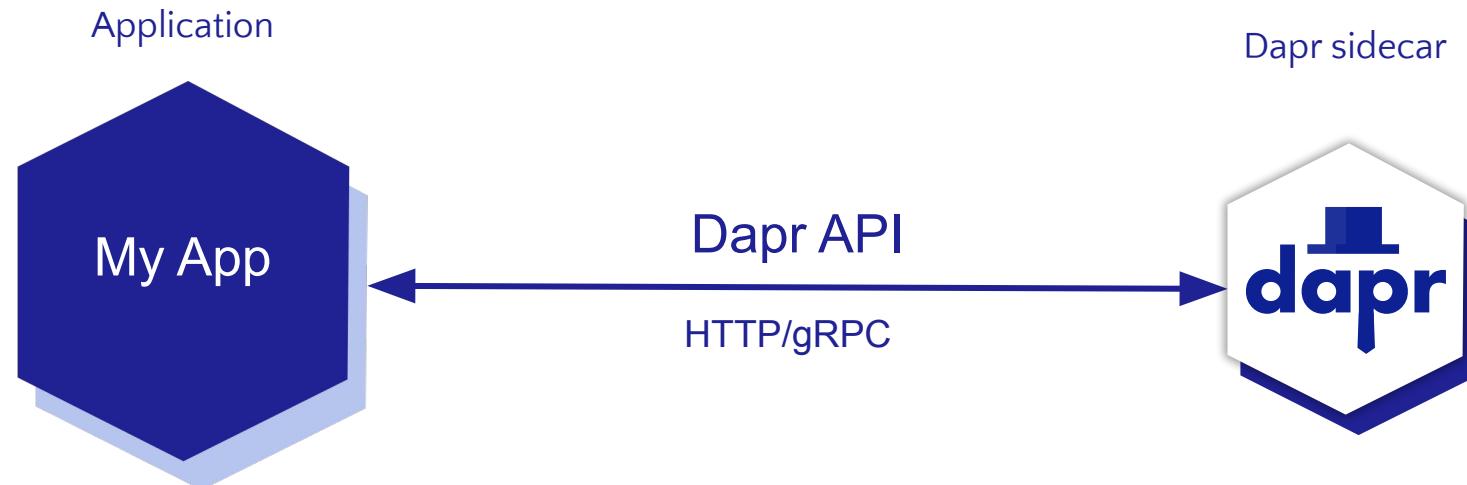


Any cloud or edge infrastructure



virtual or  
physical machines

# Dapr APIs



**POST** `http://localhost:3500/v1.0/invoke/cart/method/order`

**GET** `http://localhost:3500/v1.0/state/inventory/item67`

**POST** `http://localhost:3500/v1.0/publish/order/topicA`

**GET** `http://localhost:3500/v1.0/secrets/vault/password42`

**GET** `http://localhost:3500/v1.0-alpha1/workflows/dapr/businessprocess/1234/start`

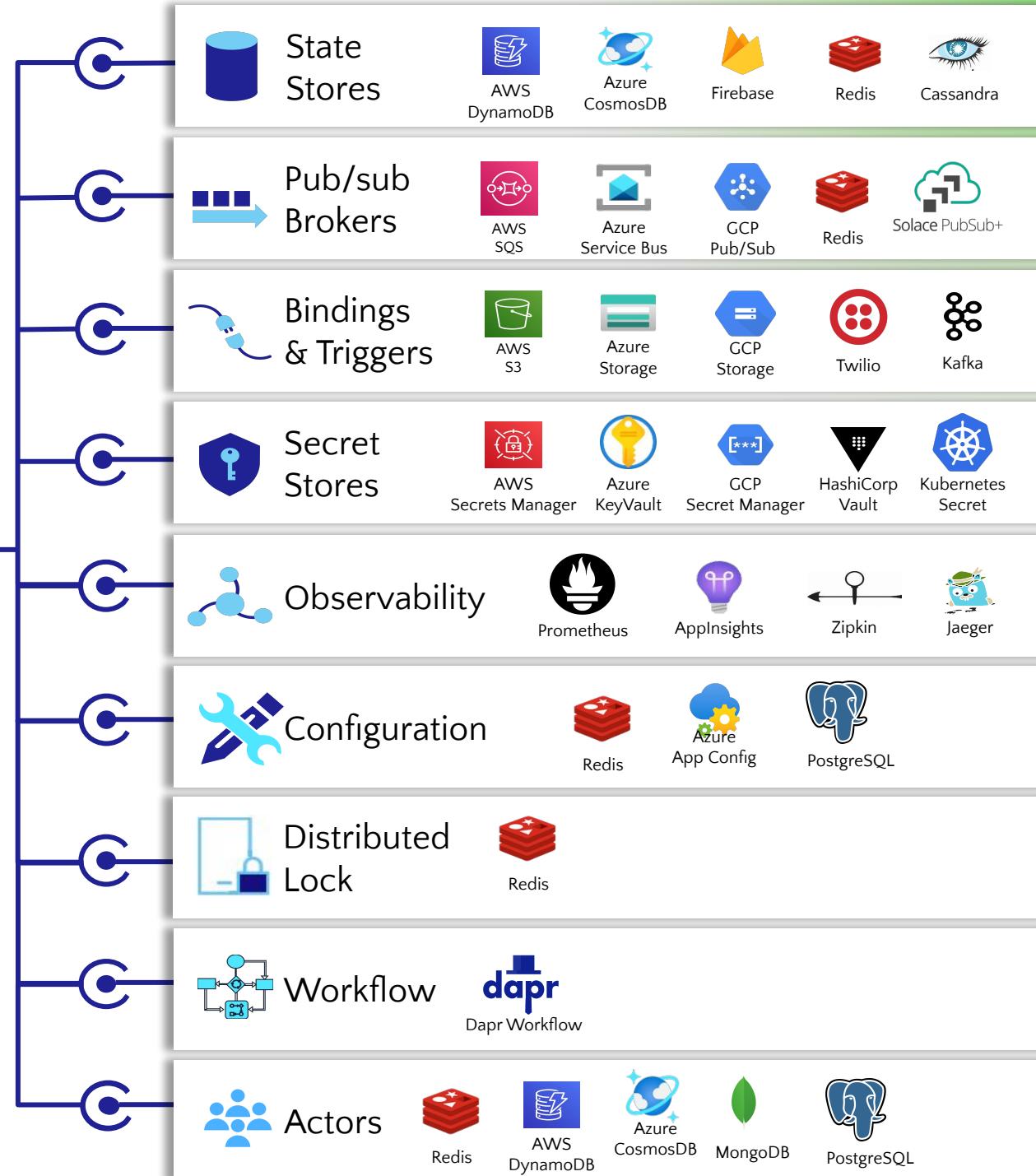
# Dapr components



Swappable declarative files with infrastructure connection metadata

Over 100 components available

Create your own components



# Dapr Momentum

**24k**

GitHub stars

**2.9k**

Contributors

**115**

Community components

**1.0M+**

Docker Hub  
monthly pulls

**6.5k**

Discord  
members

**304k**

Unique docs  
views/mo

**10/157**

Largest  
CNCF project



Contributing organizations include:



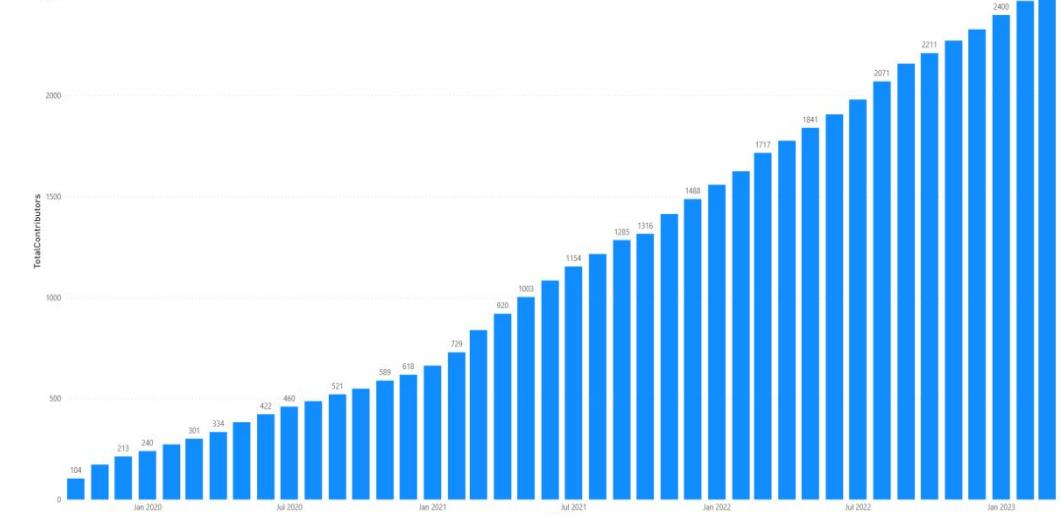
Alibaba Cloud



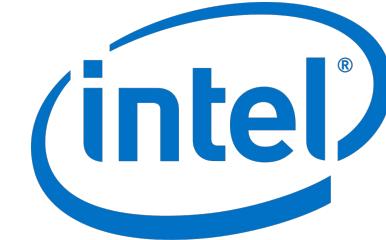
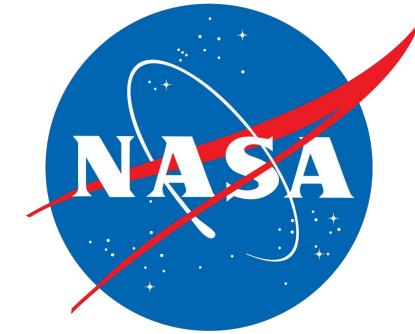
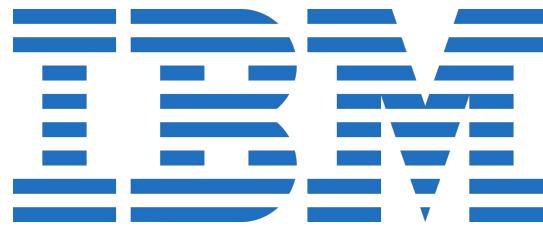
HashiCorp



**BOSCH**



## Dapr Users



FUJITSU CLOUD TECHNOLOGIES LIMITED



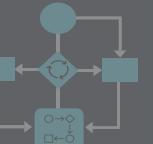
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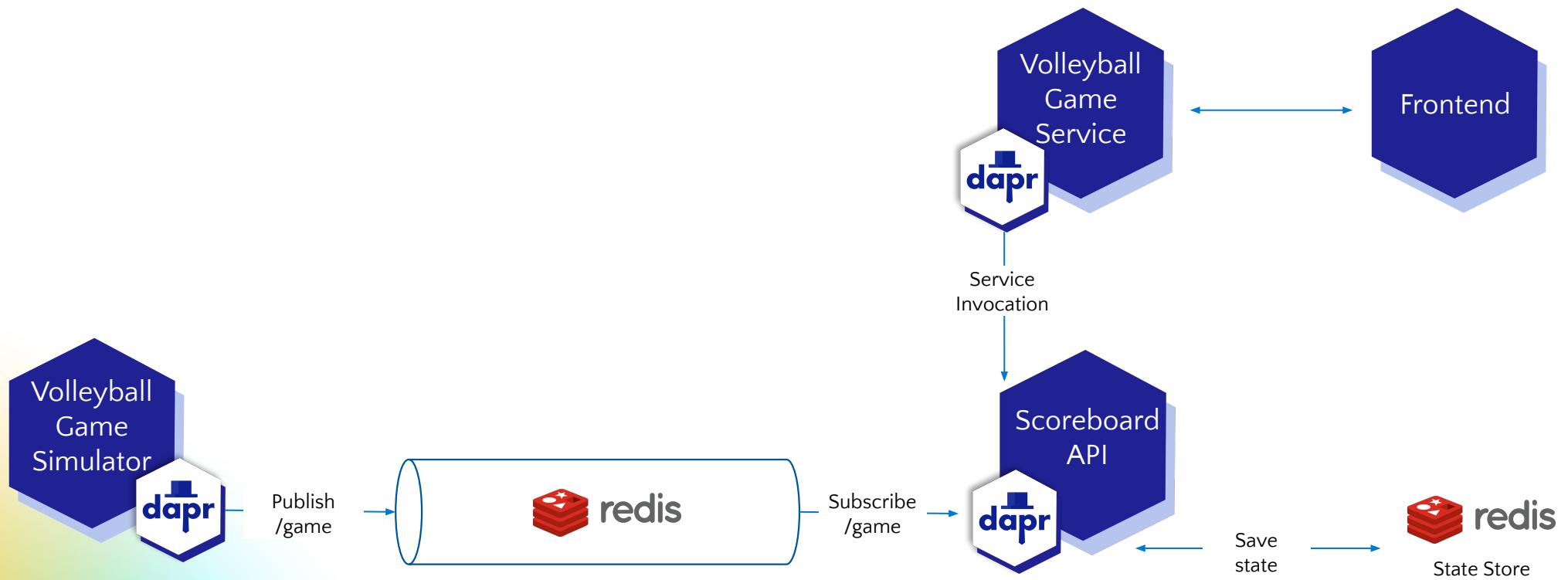
IGNITION  
GROUP

# Dapr Building Blocks

										
Service-to-service invocation	State management	Publish and subscribe	Bindings (input/output)	Actors	Observability	Secrets	Configuration	Distributed Lock	Workflows	Jobs
Perform direct, secure, service-to-service method calls	Create long running, stateless and stateful services	Secure, scalable messaging between services	Input and output bindings to external resources including databases and queues	Encapsulate code and data in reusable actor objects as a common microservices design pattern	See and measure the message calls across components and networked services	Securely access secrets from your application	Access application configuration and be notified of updates	Mutually exclusive access to shared resources	Automate and orchestrate tasks within your application	Manage the scaling and orchestration of jobs

# Volleyball Overview

# Volleyball Scoreboard System

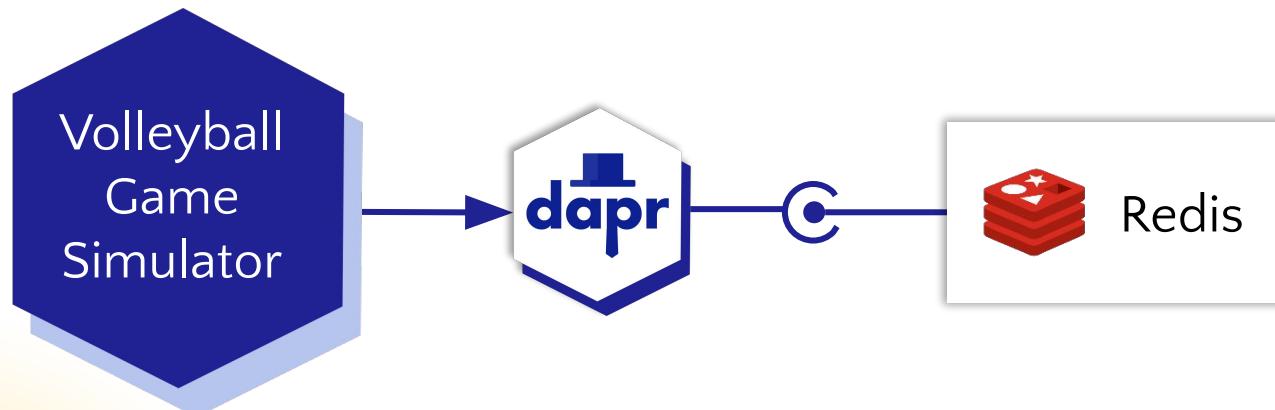


# Set up time

<https://github.com/sicoyle/ghc-dapr-workshop-2024/blob/main/README.md>

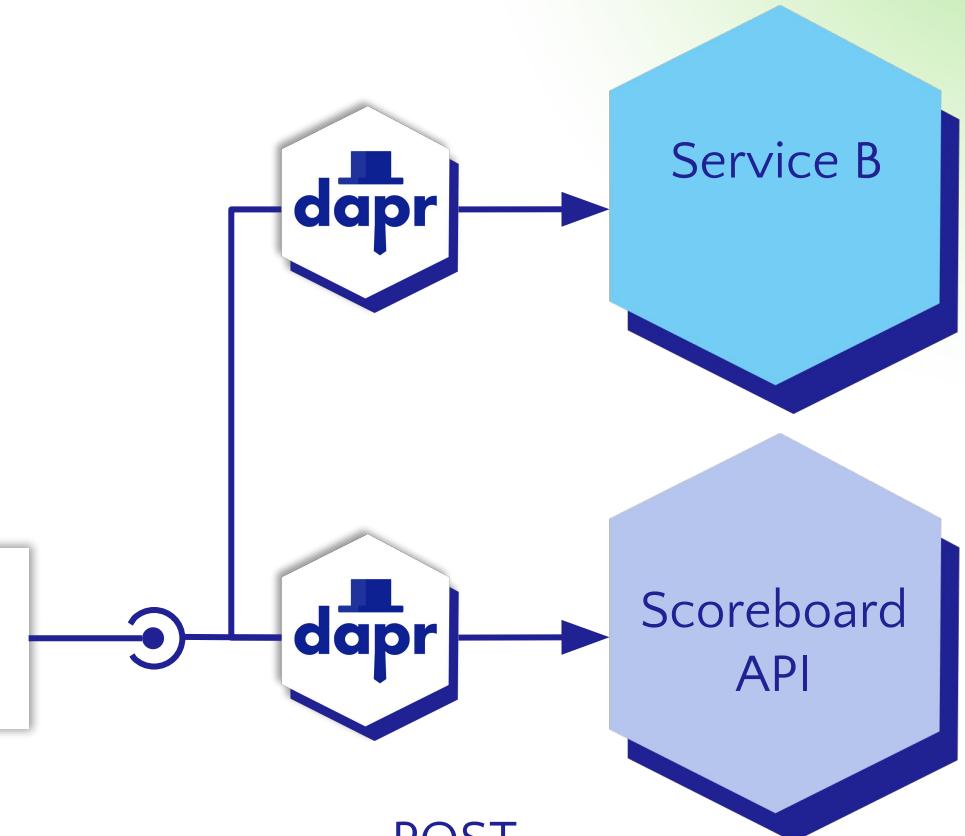
# Publish & Subscribe

## → Publish and Subscribe



POST  
<http://localhost:3500/v1.0/publish/gamepubsub/game>

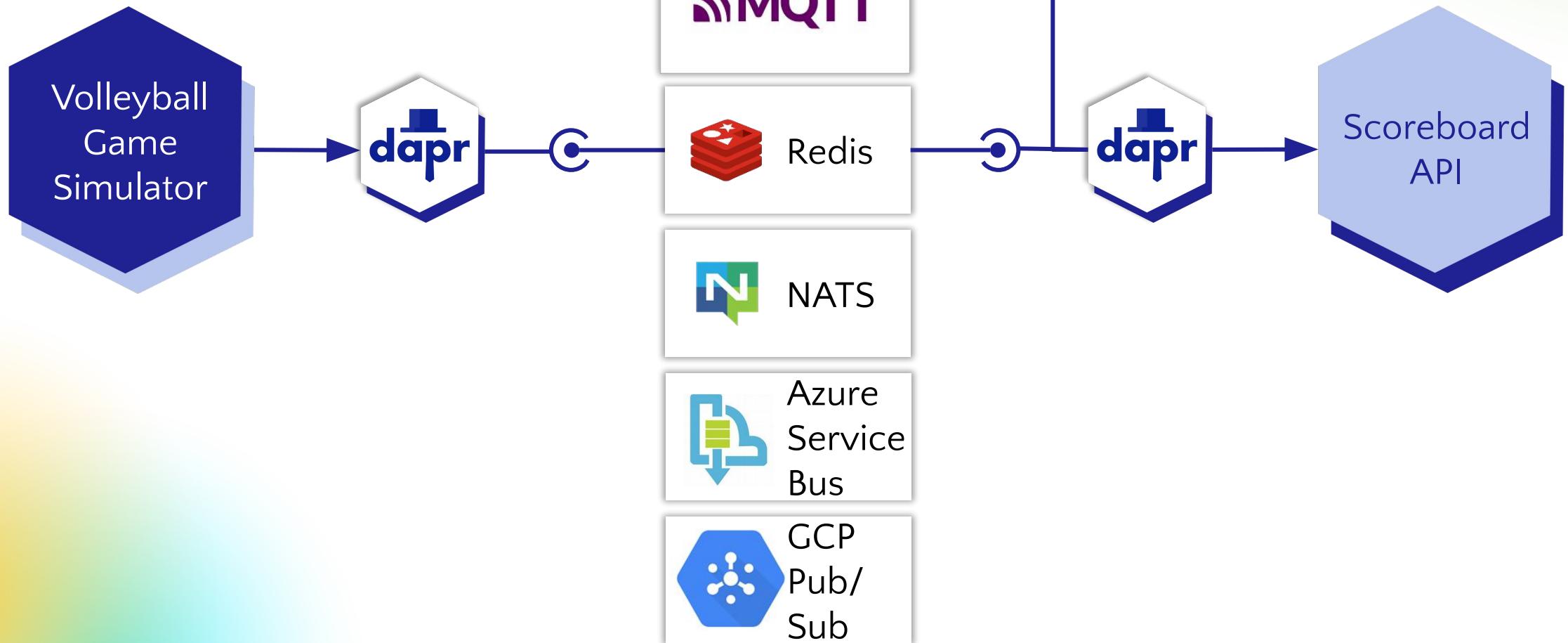
```
{"gameID":0,"firstTeamName":"team0","secondTeamName":  
  :"team1","firstTeamScore":0,"secondTeamScore":1}
```



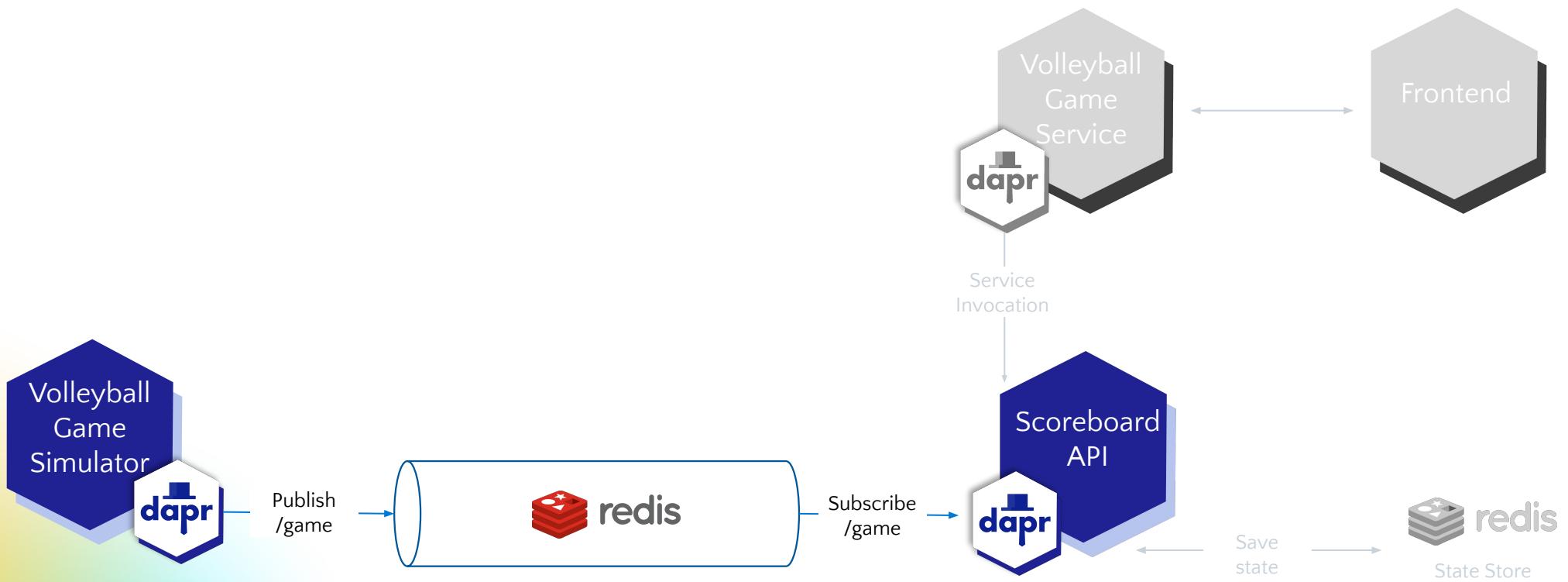
POST  
<http://10.0.0.4:8000/updatescore>

```
{"gameID":0,"firstTeamName":"team0","se  
condTeamName":"team1","firstTeamScore":  
  0,"secondTeamScore":1}
```

## → Publish and subscribe components



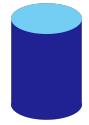
# Publish & Subscribe



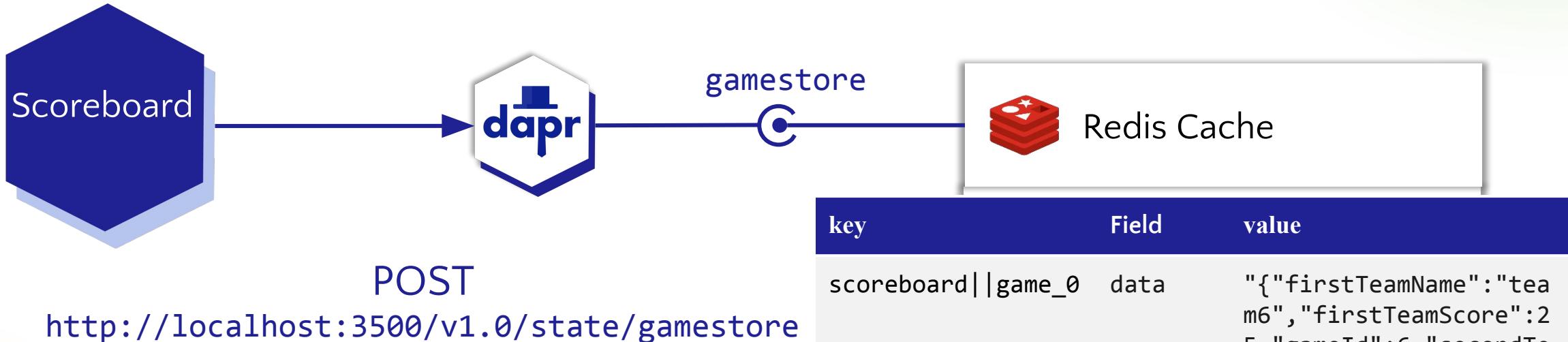
# Publish Code

# Subscribe Code

# State Management

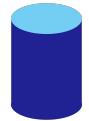


# State management

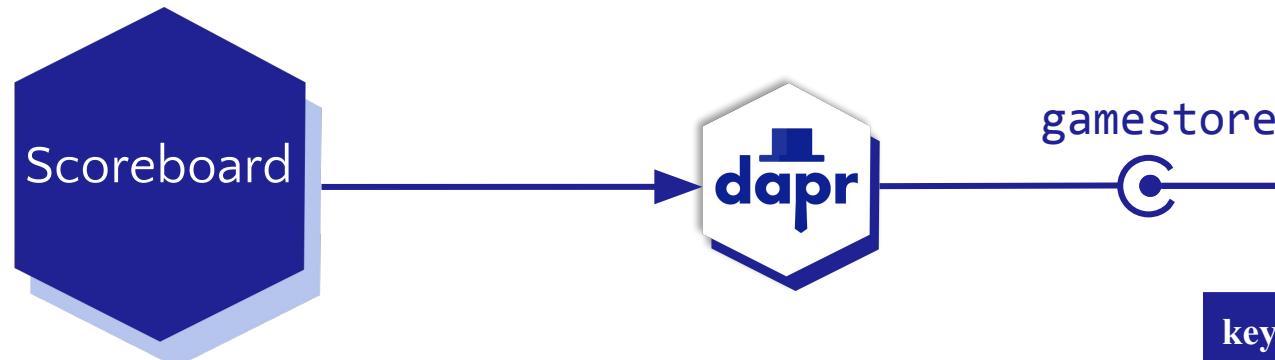


```
{  
  "key": "game_0",  
  "value":  
    {"firstTeamName": "team6", "firstTeamScore": 25, "gameId":  
     :6, "secondTeamName": "team7", "secondTeamScore": 22},  
}
```

key	Field	value
scoreboard  game_0	data	{"firstTeamName": "team6", "firstTeamScore": 25, "gameId": 6, "secondTeamName": "team7", "secondTeamScore": 22}
scoreboard  game_0	version	1



# State management



GET

`http://localhost:3500/v1.0/state/gamestore/game_0`

```
{"firstTeamName": "team6", "firstTeamScore": 25,  
"gameId": 6, "secondTeamName": "team7", "secondTea  
mScore": 22}
```

key	Field	value
scoreboard  game_0	data	{"firstTeamName": "team6", "firstTeamScore": 25, "gameId": 6, "secondTeamName": "team7", "secondTeamScore": 22}
scoreboard  game_0	version	1

# Dapr state API

Save state

POST /v1.0/state/gamestore

Retrieve state

GET /v1.0/state/gamestore/game\_0

Delete state

DELETE /v1.0/state/gamestore/game\_0

Get bulk state

POST /v1.0/state/gamestore/bulk

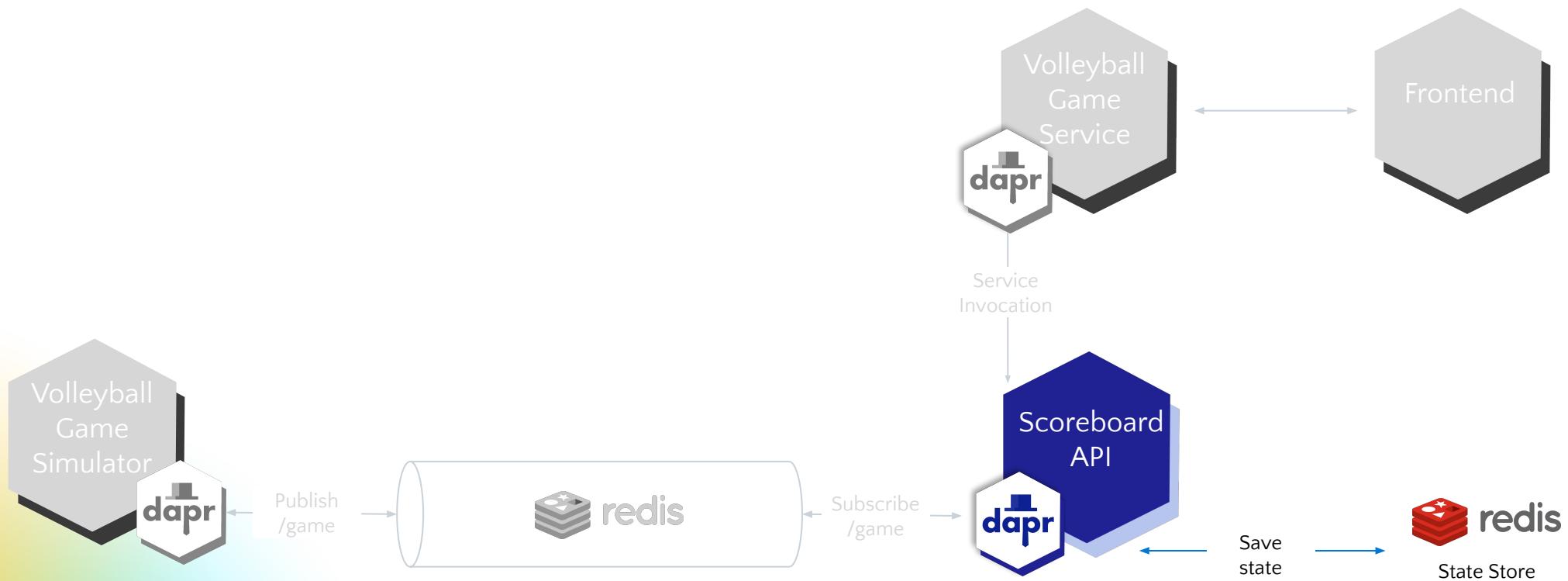
Submit multiple state transactions

POST /v1.0/state/gamestore/transaction

statestore.yaml

```
apiVersion: dapr.io/v1alpha1
kind: Component
metadata:
  name: gamestore
spec:
  type: state.redis
  version: v1
  metadata:
    - name: redisHost
      value: redis-master.default.svc.cluster.local:6379
    - name: redisPassword
      secretKeyRef:
        name: redis-secret
        key: redis-password
```

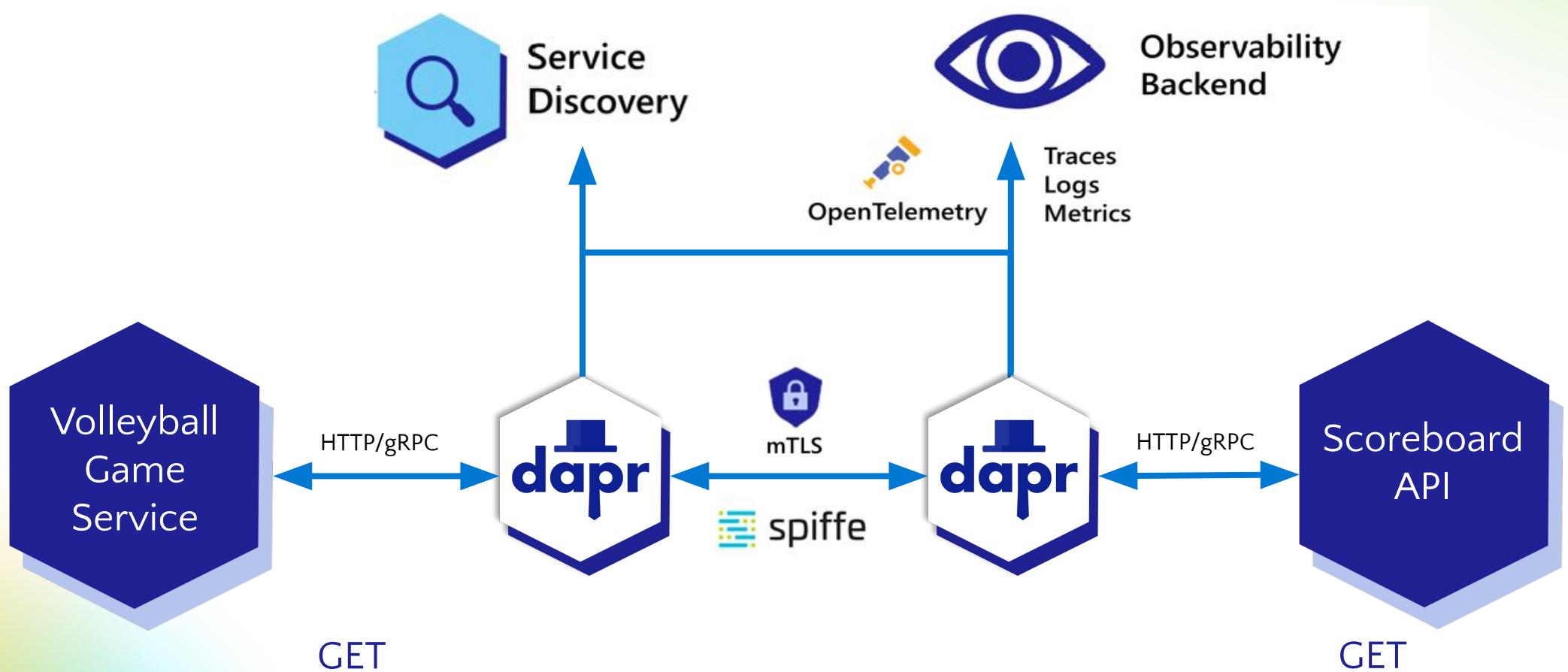
# Saving State



# State Management Code

# Service Invocation

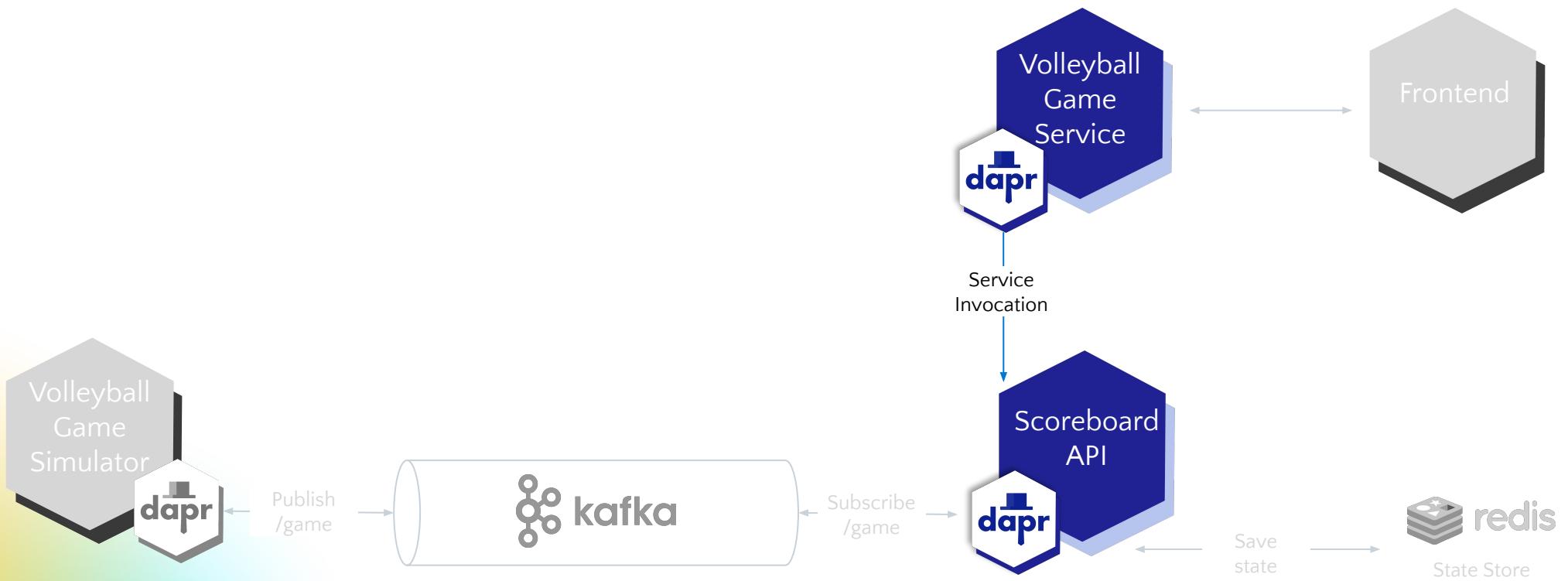
# Service Invocation



[http://localhost:3500/v1.0/invoke\(scoreboard/method\(score](http://localhost:3500/v1.0/invoke(scoreboard/method(score)

<http://10.0.0.2:3501/currentscore>

# Service Invocation



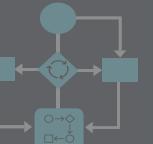
# Service Invocation Code

UI

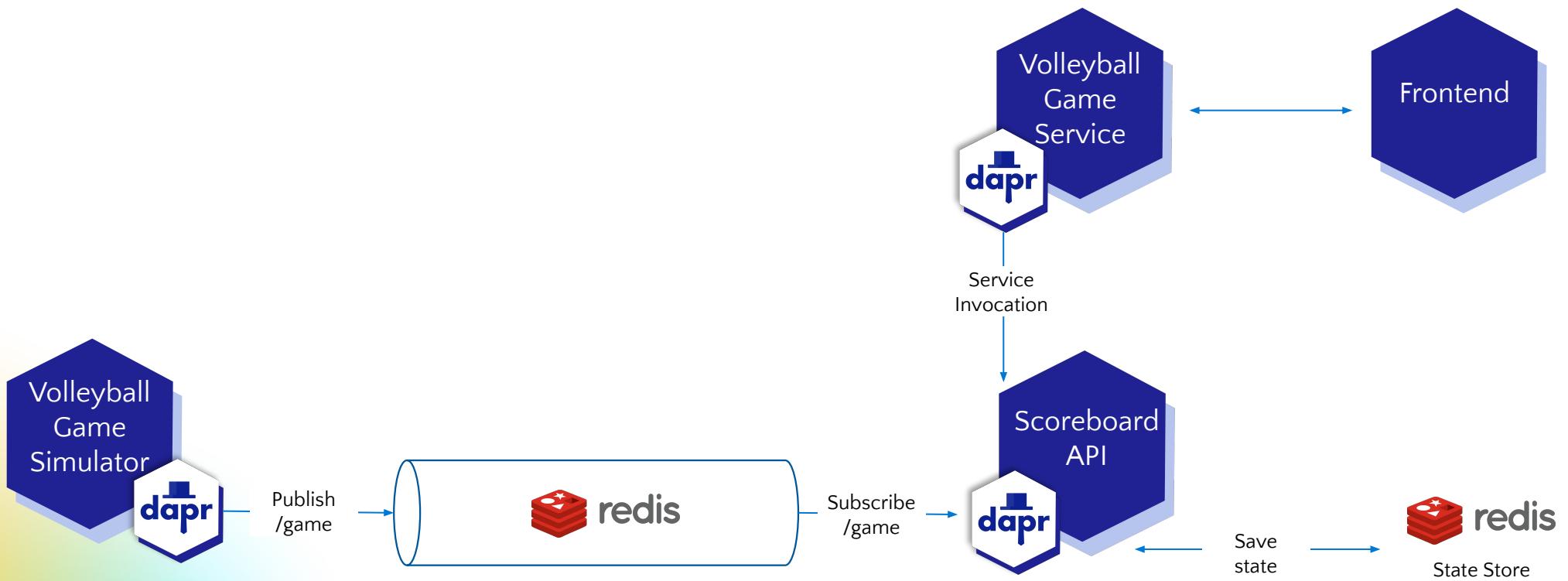
me  
+we

# Conclusion

# Dapr Building Blocks

										
Service-to-service invocation	State management	Publish and subscribe	Bindings (input/output)	Actors	Observability	Secrets	Configuration	Distributed Lock	Workflows	Jobs
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# Volleyball Scoreboard System



# How-To: Build the Future With Us in the Open

- Go
  - <https://github.com/dapr/dapr/issues>
  - <https://github.com/dapr/components-contrib/issues>
  - <https://github.com/dapr/go-sdk/issues>
- Java
  - <https://github.com/dapr/java-sdk/issues>
- Python
  - <https://github.com/dapr/python-sdk/issues>
- Dotnet
  - <https://github.com/dapr/dotnet-sdk/issues>
- JS
  - <https://github.com/dapr/js-sdk/issues>
- Rust
  - <https://github.com/dapr/rust-sdk/issues>
- C++
  - <https://github.com/dapr/cpp-sdk/issues>
- PHP
  - <https://github.com/dapr/php-sdk/issues>

# Find Out More



Get started at [dapr.io](https://dapr.io)  
<https://bit.ly/dapr-quickstarts>

Today's code

<https://github.com/sicoyle/ghc-dapr-workshop-2024/tree/main>

Discuss on Discord [bit.ly/dapr-discord](https://bit.ly/dapr-discord)

Watch on YouTube [bit.ly/dapr-youtube](https://bit.ly/dapr-youtube)

Follow on Twitter [@daprdev](https://twitter.com/daprdev)

Manage Dapr in production &  
use Dapr on any hosting platform  
at [diagrid.io](https://diagrid.io)

# Dapr Day



Sign up for Dapr Day Free Virtual Conference  
October 16th



# We're Hiring!



Engineering Team Lead - Open Source

Senior Site Reliability Engineer

<https://www.diagrid.io/careers>

# THANK YOU

Diagrid

Manage Dapr in production & use Dapr on any hosting platform at [diagrid.io](https://diagrid.io)



@cicoyle  
@sicoyle



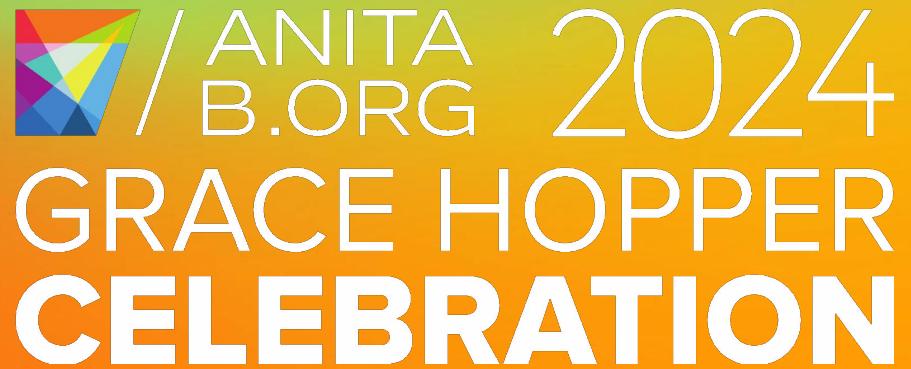
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[https://www.linkedin.com/in/  
sam-coyle/](https://www.linkedin.com/in/sam-coyle/)

me  
+we

# Q & A



me  
+ we