

Build
Distributed
Multi-cloud Applications
With **Dapr**

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Distributed Application Challenges

- Service Resilience and Fault Tolerance
- Security and Access Control
 - Authentication and authorization // Communication channel // Auditing and logging
- Monitoring and Observability and Tracing
 - Infra // Application // Service level
- Service Coordination
 - Service Discovery // Load Balancing // Workflow execution, etc
- Configuration Management
 - Security // Consistency // scalability
- Compatibility and Portability
- Lack of Expertise ([oracle](#))



What is Dapr?

Open-Source distributed application framework.

- **Standardize** Distributed Application Development.
 - Allows developers to focus on writing business logic
 - Make developers productive
- **Consistent**, Portable and Platform-Independent
- Microservices and Event-Driven Style
- Language-Agnostic and Decentralized
- Built With **Best Practices** in Mind



Dapr Building blocks

- HTTP // GRPC API
- Expose A Specific Interface

										
Service-to-service invocation	State management	Publish and subscribe	Bindings (input/output)	Actors	Observability	Secrets	Configuration	Distributed Lock	Workflows	Cryptography
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	Perform operations for encrypting and decrypting data

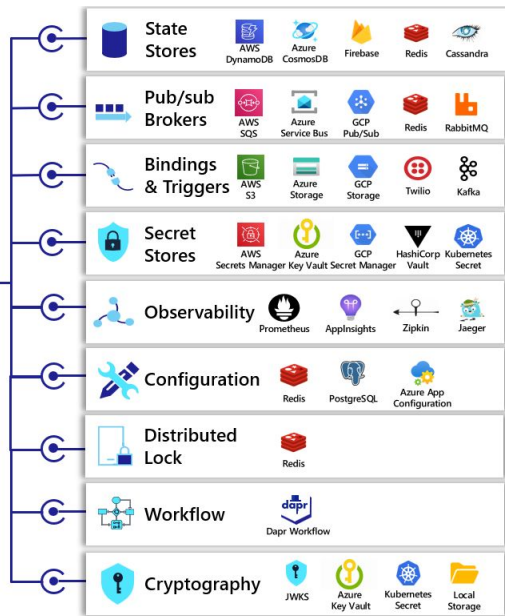
Component Schema

```
apiVersion: dapr.io/v1alpha1
kind: Component
metadata:
  name: [COMPONENT-NAME]
  namespace: [COMPONENT-NAMESPACE]
spec:
  type: [COMPONENT-TYPE]
  version: v1
  initTimeout: [TIMEOUT-DURATION]
  ignoreErrors: [BOOLEAN]
  metadata:
    - name: [METADATA-NAME]
      value: [METADATA-VALUE]
  ...
```

[More details](#)

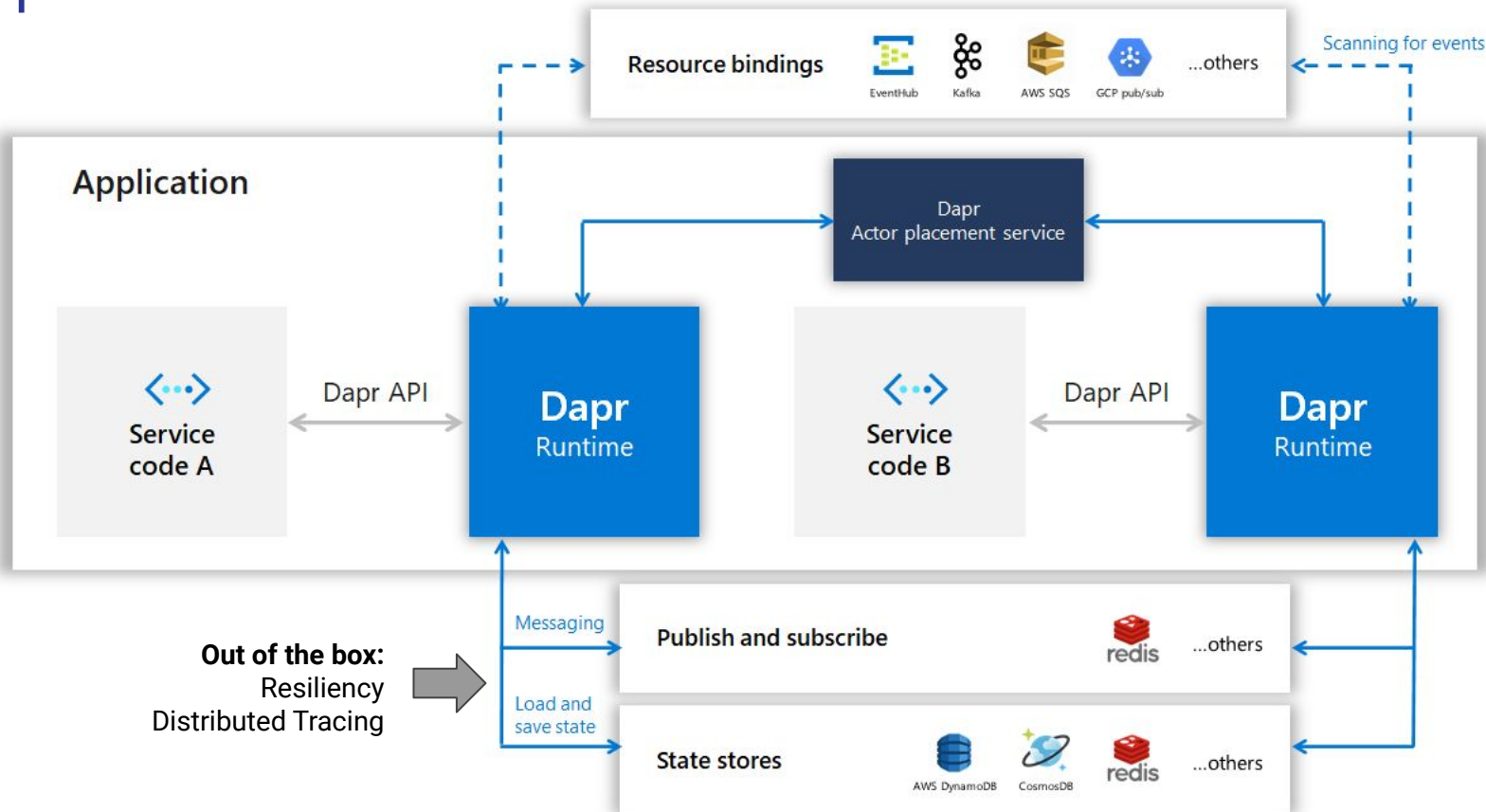


Swappable YAML files with
resource connection metadata
Over 100 components available

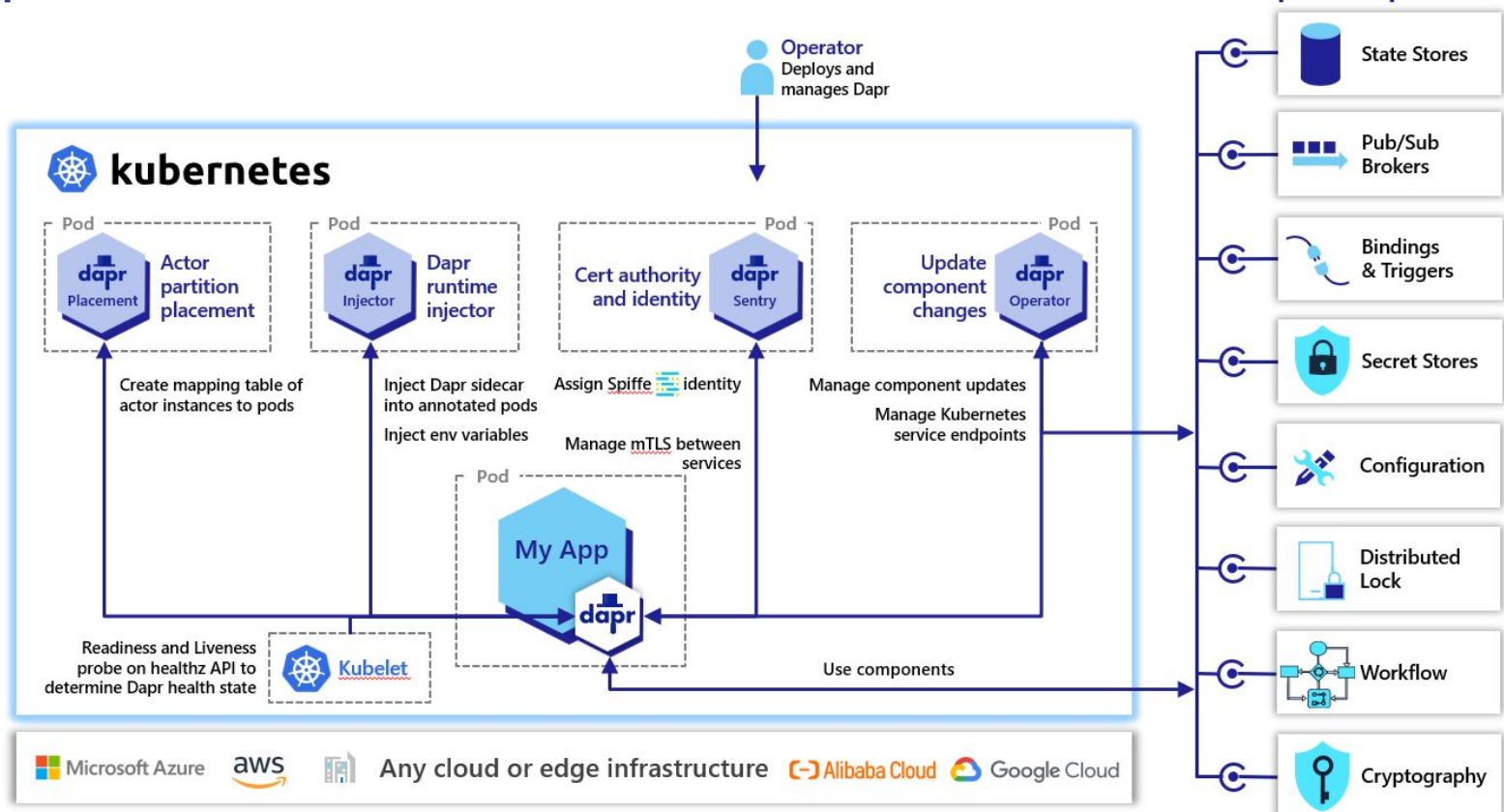


POST/GET /v1.0/{componentTYPE}/{componentName}/...

Dapr Sidecar



Dapr and Kubernetes



Using Dapr

- Dapr CLI
- Helm
- Github actions

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: myapp
  labels:
    app: go
spec:
  replicas: 2
  selector:
    matchLabels:
      app: go
  template:
    metadata:
      labels:
        app: node
    annotations:
      daprio.io/enabled: "true"
      daprio.io/app-id: "myapp"
      daprio.io/app-port: "3000"
```

...

Kubernetes

```
dapr run --app-id serving \
-P http \
-p 8080 \
-H 3500 \
-d ./config \
--log-level debug \
go run .
```

Self-hosted

```
- name: Install Dapr
uses: dapr/setup-dapr@v1
with:
  version: '1.11.0'
```

GHA

Demo

