





Management Plane in SDV

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SDV compute environment

- Heterogenous, distributed environment
 - Various OS
 - Various hardware
 - Cloud and mobile phones
 - Various application formats, capabilities and constraints
 - Various communication protocols
 - Various safety zones
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Three planes

	Networking	Cloud	K8s
Management Plane	Manage and monitor networked devices and their configurations	Manage and monitor cloud resources	API Server, etcd, controller manager, scheduler etc.
Control Plane	Make routing and forwarding decisions	Orchestrate cloud resources to support various workloads	
Data Plane	Where the actual data flows	Compute and storage resources	Container runtime, Kubelet, Kube-proxy, service proxy, etc.

Why Kubernetes (or not)?

Benefit	Single Node
High Availability	
Restart	Yes
Redundancy	Limited
Failover	No
Workload Elasticity	Limited
Resource load balancing	No

What else is needed?

- Payload formats other than OCI containers
- Non TCP/IP network
- Constrained devices
- Fleet management
- Cloud services



Characteristics

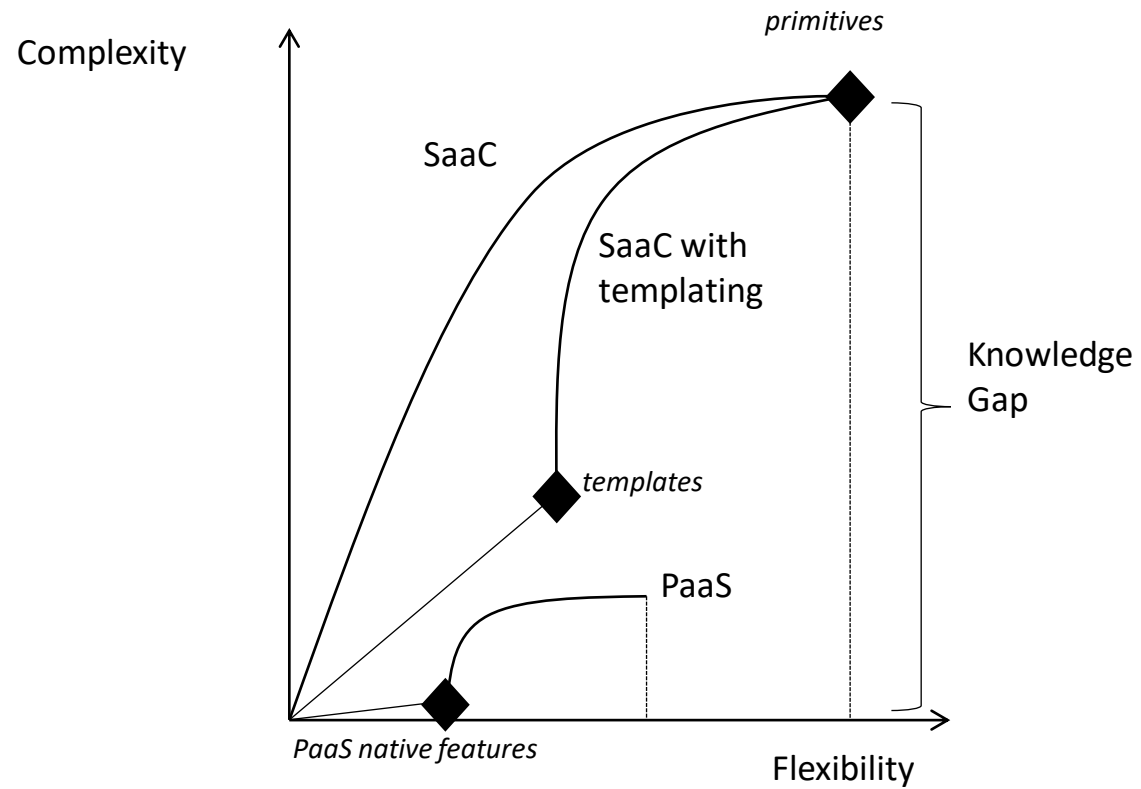
- Technology Neutral
- Adaptive
- Extensible
- Kubernetes native and standalone
- Cloud-connected and autonomous
- End-to-end observability
- Secured and compliant
- Low TCO



Technology-agnostic Abstractions

- **Microservices**
 - List/graph of components
- **State Seeking**
 - OS/firmware update
 - Runtime update
 - Payload deployment/management
 - Configuration
 - Policy
- **Virtualization**
 - Virtualized infrastructure
 - Workload isolation

Modeling challenge





THANK YOU!