in addition to **Building with Docker**

Scaling with Kubernetes

presented by Borislav Borislavov

kubernetes

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How others are doing it.

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How we are doing it.

What is Kubernetes?

Kubernetes: a system for managing containerized applications in a cluster. Intended to make deploying containerized/microservice-based applications easy but powerful.

Pods: smallest deployable units that can be created, scheduled, and managed.

Replication Controllers: manage the lifecycle of pods. They ensure that a specified number of pods are running at any given time, by creating or killing pods as required.

Services: Services provide a single, stable name and address for a set of pods. They act as basic load balancers.

Replica

Selector

Label

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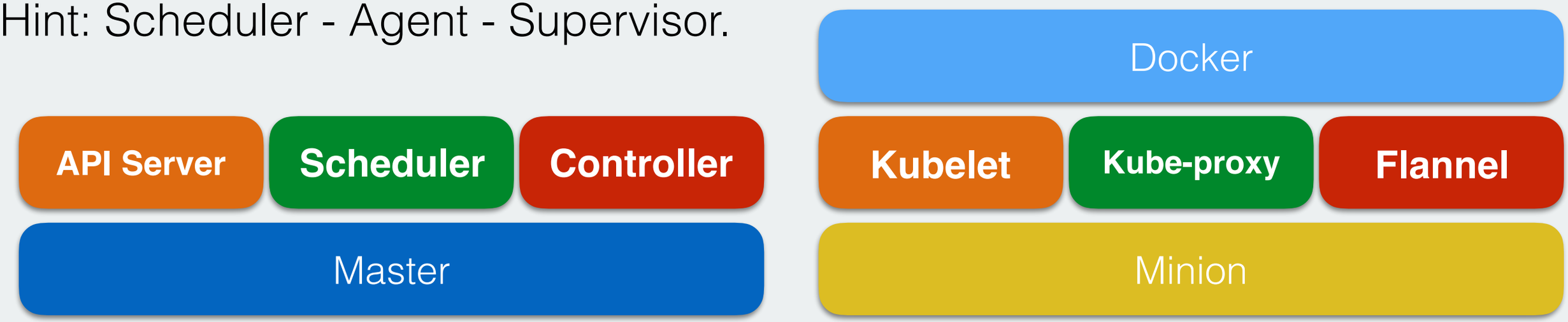
What are Kubernetes building blocks?

Master: Central server, managing all the minion nodes - master server.
Minion: Computing node which hosts all the containers - hypervisor server.
Kubelet: You can think of it as a process watcher like supervisord, system resources, but focused on containers.
Kube-Proxy: Port-Mapping, Docker-Linking, Service-Talking, All dash verbs :)
Flannel: Software defined network.
API: RESTFull API for interacting with the system.
Scheduler: a policy-rich, topology-aware, workload-specific function that significantly impacts availability, performance, and capacity.
Controller: Supervisor of the Replication Controller.
Hint: Scheduler - Agent - Supervisor.



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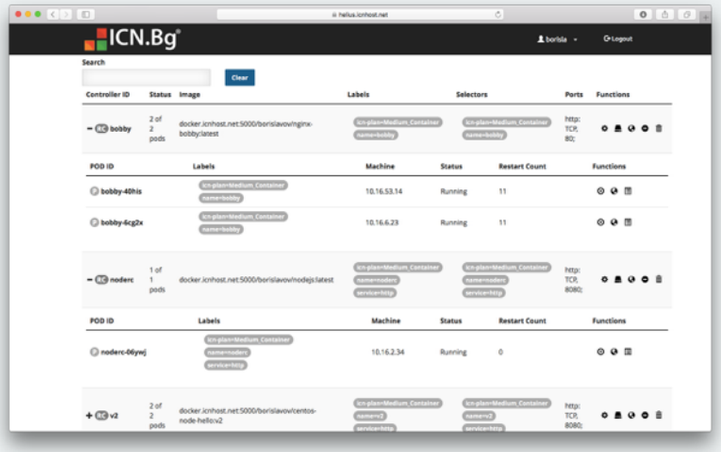
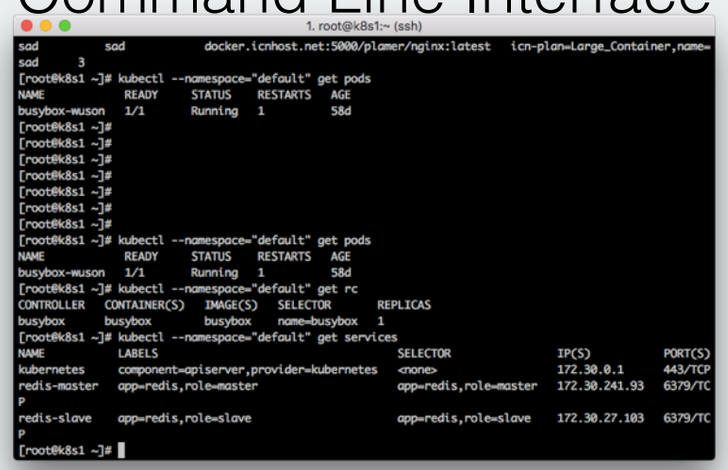
How it works?

Control Panel



Command Line Interface



MASTER

Minion

Docker

POD | POD | POD

Container | Container | Container

Minion

Docker

POD | POD | POD

Container | Container | Container

Minion

Docker

POD | POD | POD

Container | Container | Container

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Controller ID	Status	Image	Labels	Selectors	Ports	Functions
− RC bobby	2 of 2 pods	docker.icnhost.net:5000/borislavov/nginx-bobby:latest	icn-plan=Medium_Container name=bobby	icn-plan=Medium_Container name=bobby	http: TCP, 80;	

POD ID	Labels	Machine	Status	Restart Count	Functions
P bobby-40his	icn-plan=Medium_Container name=bobby	10.16.53.14	Running	11	
P bobby-6cg2x	icn-plan=Medium_Container name=bobby	10.16.6.23	Running	11	

Controller ID	Status	Image	Labels	Selectors	Ports	Functions
− RC noderc	1 of 1 pods	docker.icnhost.net:5000/borislavov/nodejs:latest	icn-plan=Medium_Container name=noderc service=http	icn-plan=Medium_Container name=noderc service=http	http: TCP, 8080;	

POD ID	Labels	Machine	Status	Restart Count	Functions
P noderc-06ywj	icn-plan=Medium_Container name=noderc service=http	10.16.2.34	Running	0	

Controller ID	Status	Image	Labels	Selectors	Ports	Functions
+ RC v2	2 of 2 pods	docker.icnhost.net:5000/borislavov/centos-node-hello:v2	icn-plan=Medium_Container name=v2 service=http	icn-plan=Medium_Container name=v2 service=http	http: TCP, 8080;	

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