DEVOPS AUTOMATION USING DOCKER, KUBERNETES AND OPENSIFT

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# DEFINE DEVOPS

<table>
<thead>
<tr>
<th>Everything as code</th>
<th>Application monitoring</th>
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<tbody>
<tr>
<td>Automate everything</td>
<td>Rapid feedback</td>
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<tr>
<td>Continuous Integration/Delivery</td>
<td>Rebuild vs. Repair</td>
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<tr>
<td>Application is always “releaseable”</td>
<td>Delivery pipeline</td>
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CONTAINER
A KEY ENABLER
OPENSHIFT

physical

virtual

private cloud

public cloud
DEVOPS WITH CONTAINERS

dev → source repository → CI/CD engine → container → target environment
OPENSHIFT
WE NEED MORE THAN JUST CONTAINERS

- **Scheduling:** Where should my containers run?
- **Lifecycle and health:** Keep my containers running despite failures
- **Discovery:** Where are my containers now?
- **Monitoring:** What’s happening with my containers?
- **Auth{en,z}:** Control who can do things to my containers
- **Aggregates:** Compose sets of containers into jobs
- **Scaling:** Making jobs bigger or smaller
Kubernetes is an open-source system for automating deployment, operations, and scaling of containerized applications across multiple hosts.
KUBERNETES PROVIDES

Scheduling  Auth\{n,z\}
Lifecycle and health  (Auto)Scaling
Discovery  Self-healing
Monitoring  Persistence
DEVOPS WITH CONTAINERS AND KUBERNETES
INDUSTRY CONVERGING ON KUBERNETES

Google Container Engine

Kismatic

Mesosphere

Apprenda

APCERA

OpenShift by Red Hat

DEIS

Tectonic by CoreOS
DEVOPS WITH CONTAINERS AND KUBERNETES

Not enough! Need networking
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Not enough! Need an image registry
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Not enough! Need metrics and logging
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Not enough! Need complex deployments e.g. A/B and Blue/Green
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Not enough! Need application lifecycle management
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Not enough! Need application services e.g. database and messaging
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Not enough! Need self-service portal
Container application platform based on Docker and Kubernetes for building, distributing and running containers at scale
DEVOPS WITH OPENSHIFT
...and many more!
TAKEAWAYS

- Containers are a key enabler for DevOps
- Automation with Docker and Kubernetes needs lots of DIY work
- OpenShift is an enterprise-grade container application platform for building, distributing and running containers at scale. DevOps automation out-of-the-box