



"Microservices & Istio with Openshift on Azure"

Seattle, WA

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@debianmaster

Topics!

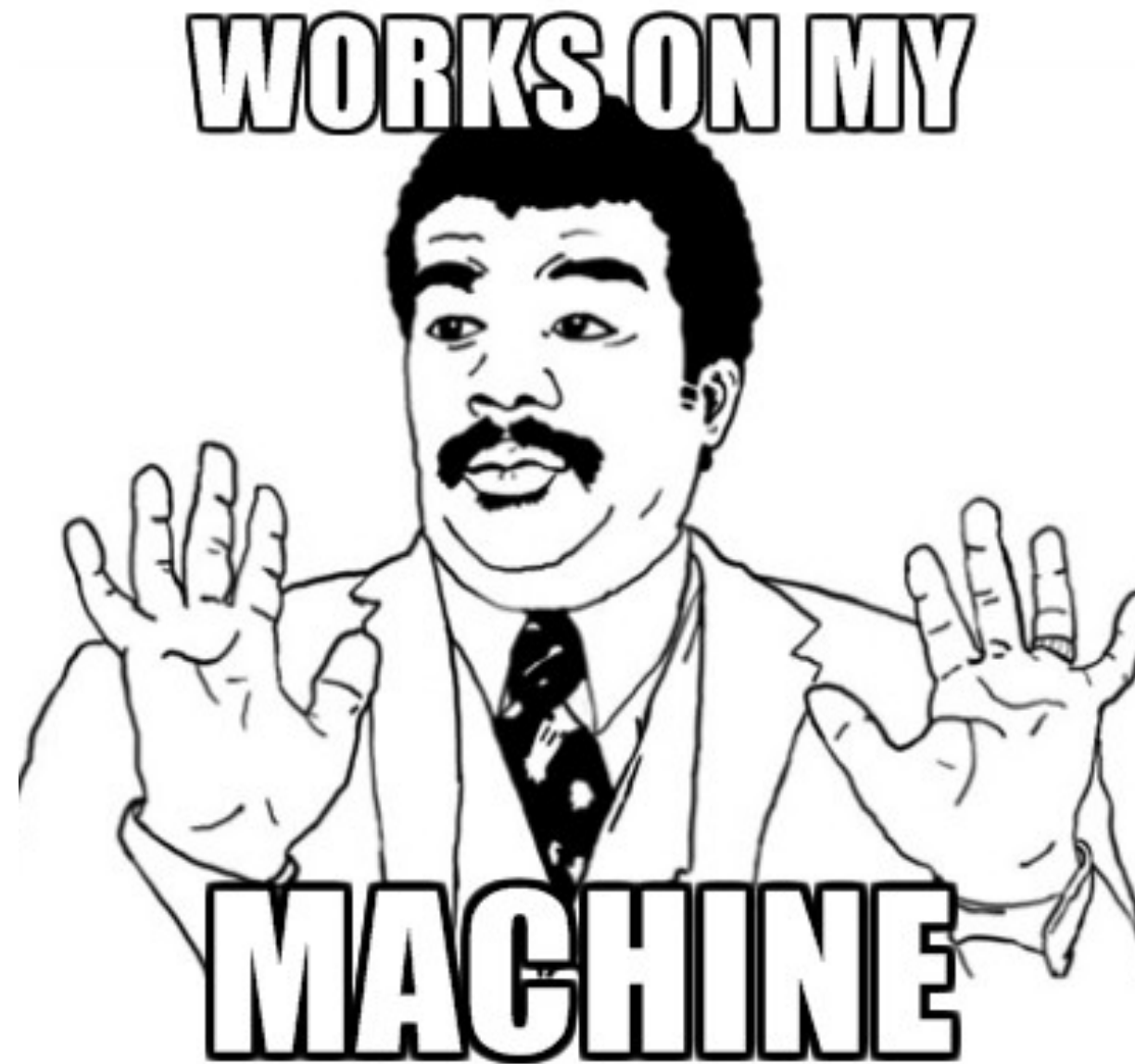
-> What is Docker?

-> What is K8s?

-> What is openshift?

-> What is Istio?




"Why K&S?"



ENVIRONMENT ISSUES

"Why K8s?"

APP DEPLOYMENT

	DEV	QA	PROD
APPS	 Microsoft	 amazon web services	 KVM
Middleware	v1	v1.1	v1.1.1
Runtime	app A,B,C	app A,B,D	app A
Data	old	few days ago	latest

"What can i do about this issue?"

What if i can package my

- 1) operating system
- 2) middleware
- 3) application

as single binary?

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How do i run these binaries?

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"What is docker container?"

@jessfraz

Here is a server:



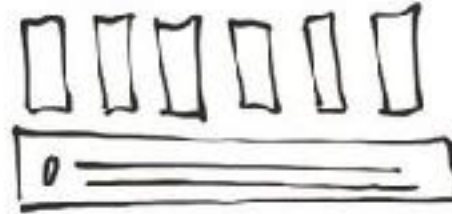
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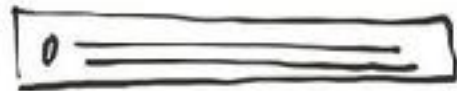
It has some processes...



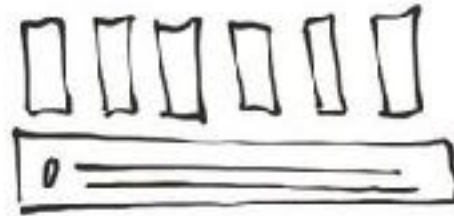
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We can sandbox our processes with
seccomp & cgroups

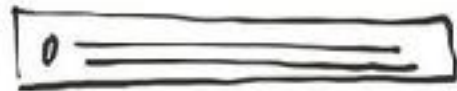


Protected

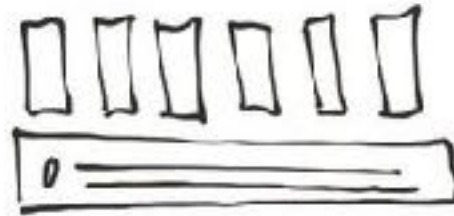
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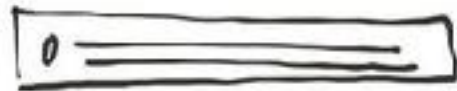
block clone NEWNS
NEW-NET

block ptrace

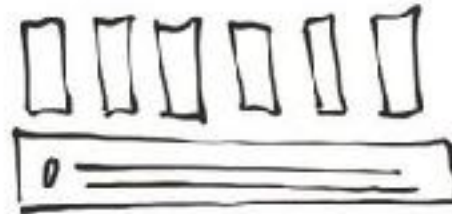
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~~fork bomb~~
pids.max=5

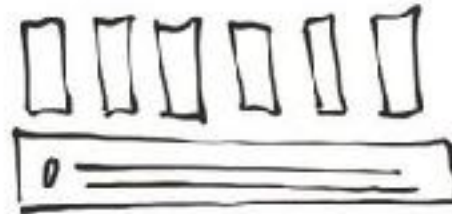
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pin to a specific cgroup



OR memory limit in bytes
















"Why K8s?"



kubernetes

APP DEPLOYMENT

	DEV	QA	PROD
APPS	 docker	 docker	 docker
Middleware	 docker	 docker	 docker
Runtime	   docker docker docker	   docker docker docker	 docker

How do i run these containers at
scale?



What/why is openshift?

OPENSIFT
origin

=



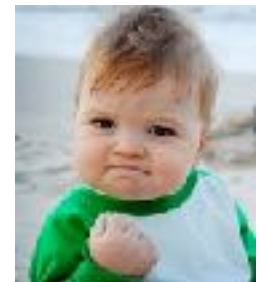
k8s

+



dev-tools

+



awesomeness

Analogy



=

Kernel for you DC



=

O/S for your DC

Topics!

- > What is Docker? → Container Runtime & Packaging
- > What is K8s? → Container Orchestrator / Kernel for your DC
- > What is openshift? → Enterprise Ready K8s / Operating System for your DC
- > What is Istio? → Service Mesh / Day 2 Microservice Management

Start from anywhere

Docker
image

Source
code

Dockerfile

JAR

WAR

Microservices Operations requirements

- * Distributed tracing - zipkin and zipkin libraries
- * service discovery (Ex:- Netflix Ribbon)
- * Retries
- * Load balancing (Ex:- Netflix Zuul , Ribbon)
- * Securing connection
- * Metrics - (Ex: Netflix atlas)
- * Circuit breaking Timeouts (Ex:- Netflix Hystrix)
- * Testing for failures

What if we can get all these features w/o
writing code?

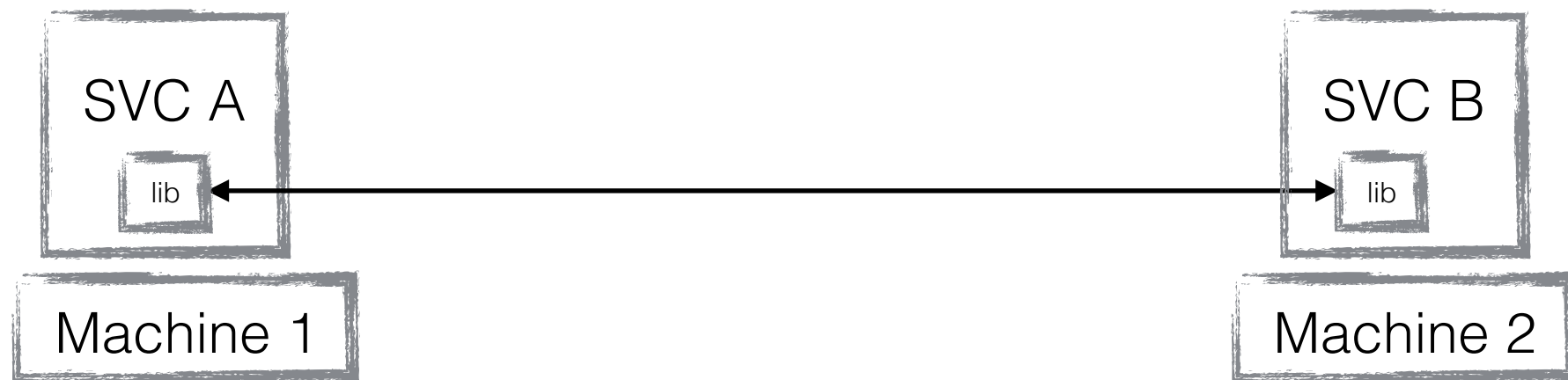
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What is istio?

An open platform to connect,
manage, and secure
microservices

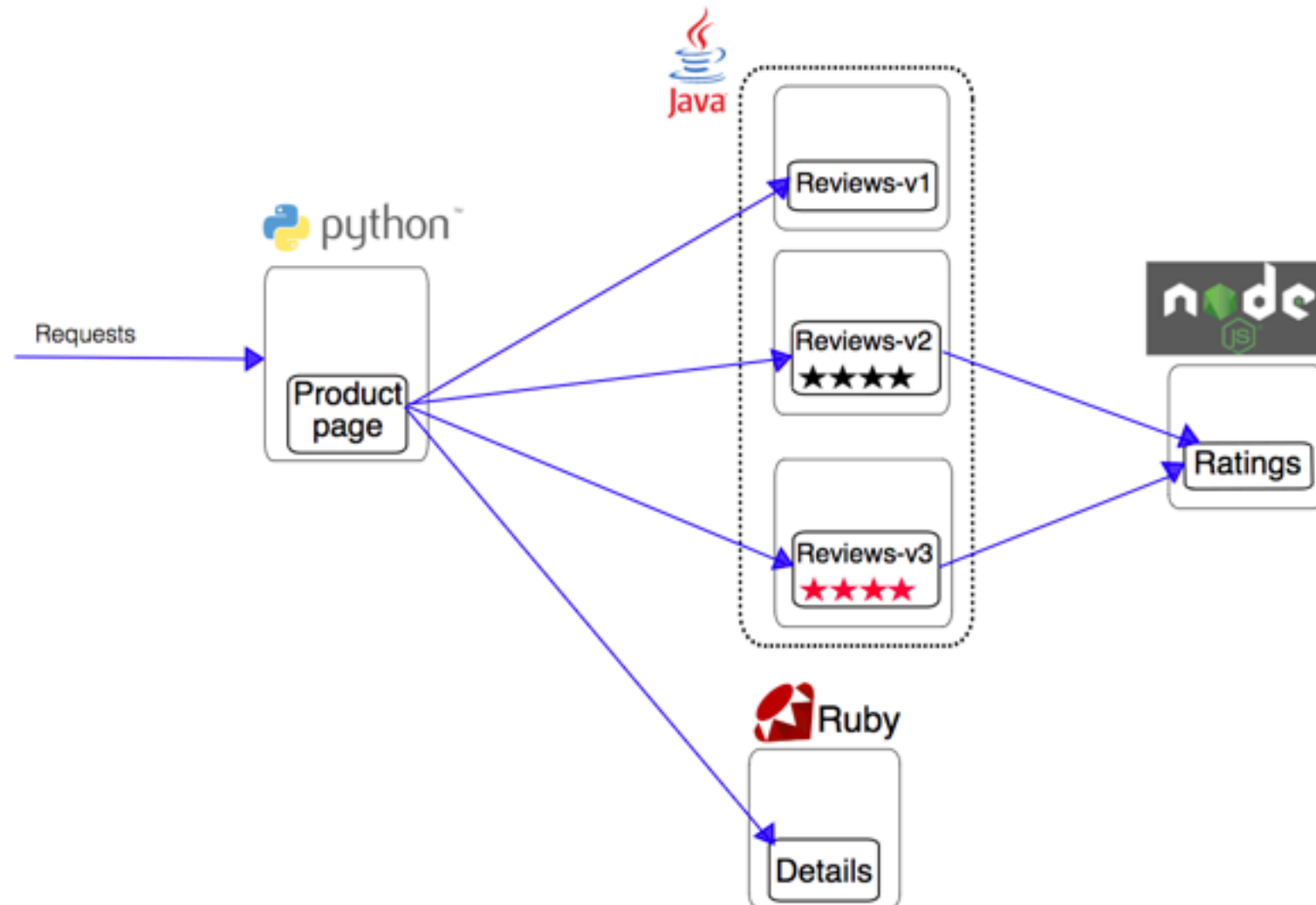
W/o istio



W/ istio



Example application



Example application with istio

