

# Cloud Architectures & Management

Assignment 2

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## 2.1 Deploy WordPress from AMI

Services ▾ Edit ▾ Thomas Reinhardt ▾ Oregon ▾

Launch Instance Connect Actions ▾

search : i-e933ad1f Add filter ? K < 1 t

<input type="checkbox"/>	Name ▾	Instance ID ▾	Instance Type ▾	Availability Zone ▾	Instance State ▾	Status Checks ▾	Alarm Status	Public DNS ▾	Public IP ▾	Key Name ▾
<input type="checkbox"/>		i-e933ad1f	t1.micro	us-west-2b	<span style="color: green;">●</span> running	Initializing	None	ec2-54-200-212-90.us-...	54.200.212.90	Cloud_FaPra

Instance: i-e933ad1f Public DNS: ec2-54-200-212-90.us-west-2.compute.amazonaws.com

Description Status Checks Monitoring Tags Usage Instructions

Instance ID	i-e933ad1f	Public DNS	ec2-54-200-212-90.us-west-2.compute.amazonaws.com
Instance state	running	Public IP	54.200.212.90
Instance type	t1.micro	Elastic IP	-
Private DNS	ip-172-31-33-110.us-west-2.compute.internal	Availability zone	us-west-2b
Private IPs	172.31.33.110	Security groups	WordPress powered by Bitnami-4-1-1-0 on Ubuntu 14-04-1-AutogenByAWSMP- . view rules
Secondary private IPs		Scheduled events	No scheduled events

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## 2.2 Deploy WordPress from Docker image

```
# check if docker is installed. If not, install docker
if [[ -z $(command -v docker &> /dev/null) ]]; then
    sudo yum install -y docker
fi

# start docker -> ignored if docker's already running
echo -e "${B}==> Starting docker${RES}"
sudo service docker start
echo -e "${B}==> Pulling images${RES}"
sudo docker pull tutum/wordpress

# run docker image
if [[ -z $(sudo docker ps | grep "tutum/wordpress:latest") ]]; then
    echo -e "${B}==> Starting wordpress container${RES}"
    sudo docker run -d --name wordpress -p 80:80 tutum/wordpress
else
    echo -e "${B}Wordpress container already running${RES}"
fi
```

## 2.2 Deploy WordPress from Docker image

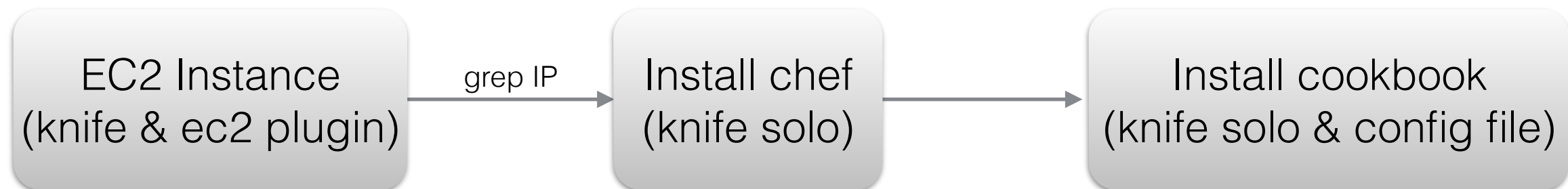
### **Hypervisor**

- + security
  - + different guest/host
  - + error propagation
- 
- virtualization overhead

### **Docker**

- + performance
  - + storage efficient
  - + more parallel instances
  - + faster initialization
  - + lightweight
- 
- security?

## 2.3 Deploy WordPress using Chef solo



- Configuration & installation of servers via scripts and local chef
- Manage dependencies with librarian-chef

## 2.3 Deploy WordPress using Chef solo

### **Chef**

machine configuration and  
administration

- + modify running instances
- + system independent
- + ready-to-use cookbooks
- environment dependent
- complex
- external dependencies

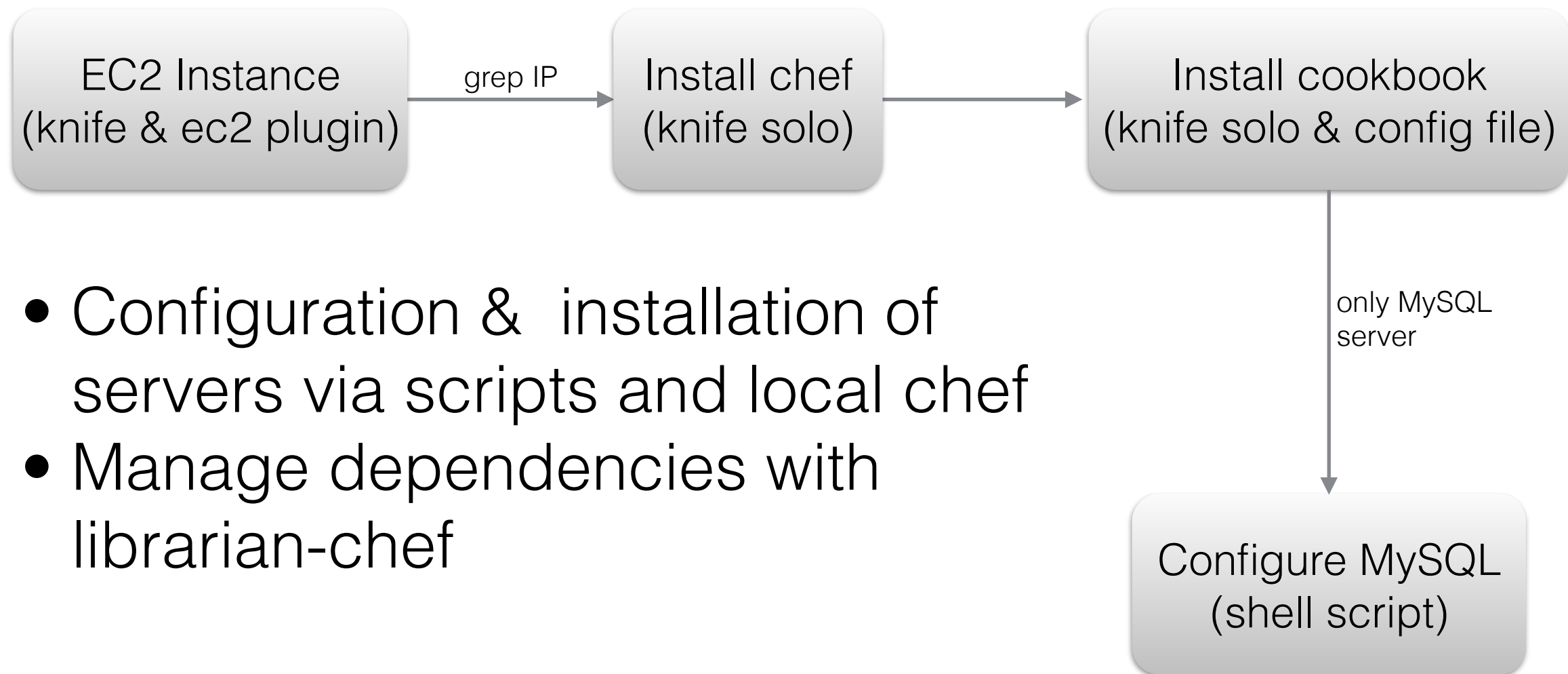
### **Docker**

container virtualization

- + faster initialization
- + lightweight
- + ready-to-use images
- + snapshots
- orchestration in beta

vs.

## 2.4 Two VMs - Concept



## 2.4 One VM, Two Containers

```
# start docker -> ignored if docker's already running
echo -e "${B}==> Starting docker${RES}"
sudo service docker start

echo -e "${B}==> Pulling images${RES}"
sudo docker pull tutum/mysql:5.5
sudo docker pull tutum/wordpress-stackable

# run docker images
if [[ -z $(sudo docker ps | grep "tutum/mysql:5.5") ]]; then
    echo -e "${B}==> Starting database container${RES}"
    sudo docker run -d -e MYSQL_PASS="cloud1fapra" --name db -p 3306:3306
    tutum/mysql:5.5
fi

if [[ -z $(sudo docker ps | grep "tutum/wordpress-stackable") ]]; then
    echo -e "${B}==> Starting wordpress container${RES}"
    sudo docker run -d --link db:db -e DB_PASS="cloud1fapra" --name wordpress
    -p 80:80 tutum/wordpress-stackable
fi
```



## 2.5 Deploy WordPress using ECS

- Service running in ECS, defined by JSON:

```
{
  "family": "Clould_FaPra_SS15_G2_A2-5",
  "containerDefinitions": [
    {
      "name": "wordpress",
      "links": [
        "mysql"
      ],
      "image": "wordpress",
      "essential": true,
      "memory": 300,
      "cpu": 10,
      "portMappings": [
        {
          "containerPort": 80,
          "hostPort": 80
        }
      ]
    }
  ],
  ...
},
...
{
  "name": "mysql",
  "image": "mysql",
  "essential": true,
  "memory": 400,
  "cpu": 10,
  "environment": [
    {
      "name": "MYSQL_ROOT_PASSWORD",
      "value": "Clould_FaPra_SS15_G2_A2-5"
    },
    {
      "name": "MYSQL_DATABASE",
      "value": "wordpress"
    }
  ]
}
}
```