BALTIMORE
DRUPALCON 2017

CAPTAINING A CONTAINER SHIP

DOCKER ORCHESTRATION WITH KONTENA

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현대 드라이브
HYUNDAI DRIVE

WHY ORCHESTRATION?

▸ With Docker, there's never only one container, and they all need to be

  ▸ managed

  ▸ distributed

  ▸ scheduled

  ▸ load balanced

▸ Dependencies between containers require

  ▸ Links

  ▸ Service discovery

  ▸ Shared secrets

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"KONTENA IS AN OPEN SOURCE CONTAINER PLATFORM BUILT TO MAXIMISE DEVELOPER HAPPINESS. WORKS ON ANY CLOUD, EASY TO SETUP, SIMPLE TO USE."

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WHY KONTENA?

▸ Simple

▸ Inexpensive

▸ Full-featured

▸ Production-ready

▸ Secure

▸ Flexible

KONTENA IS SIMPLE

▸ Easy to install in < 1h

▸ Comes with all important functionality

▸ Extends docker-compose configuration syntax

KONTENA IS INEXPENSIVE

▸ Open Source Software

▸ Supports Let's Encrypt out of the box

KONTENA IS FULL-FEATURED

▸ Private image registry

▸ Load balancer

▸ Service discovery

▸ Secrets storage ("Vault")

▸ Key-Value store

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KONTENA IS PRODUCTION-READY

▸ User authentication and authorisation

▸ Health checks

▸ Support for stateful applications

▸ Real-time log and statistics streams

▸ Audit trail

KONTENA IS SECURE
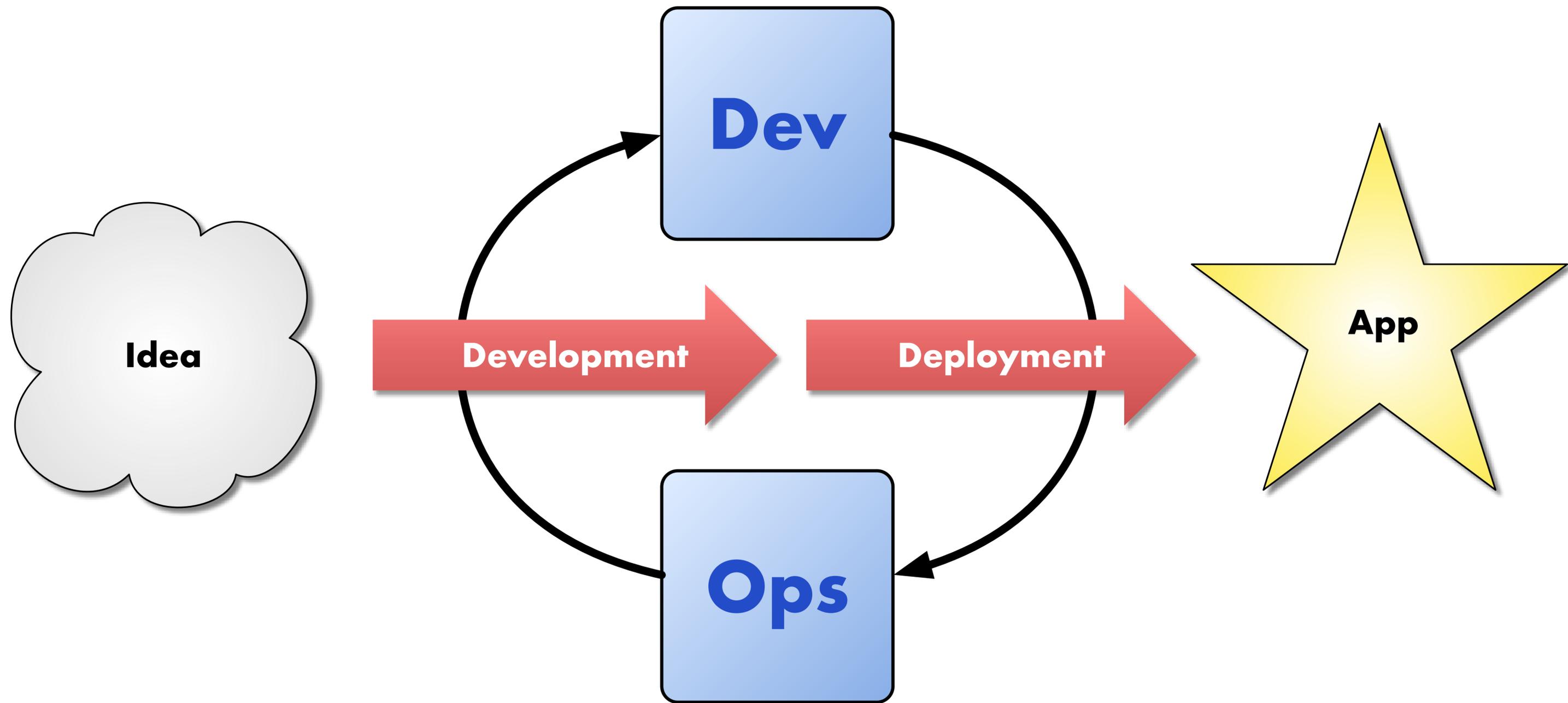
▸ Virtual networks with encrypted traffic

▸ VPN access

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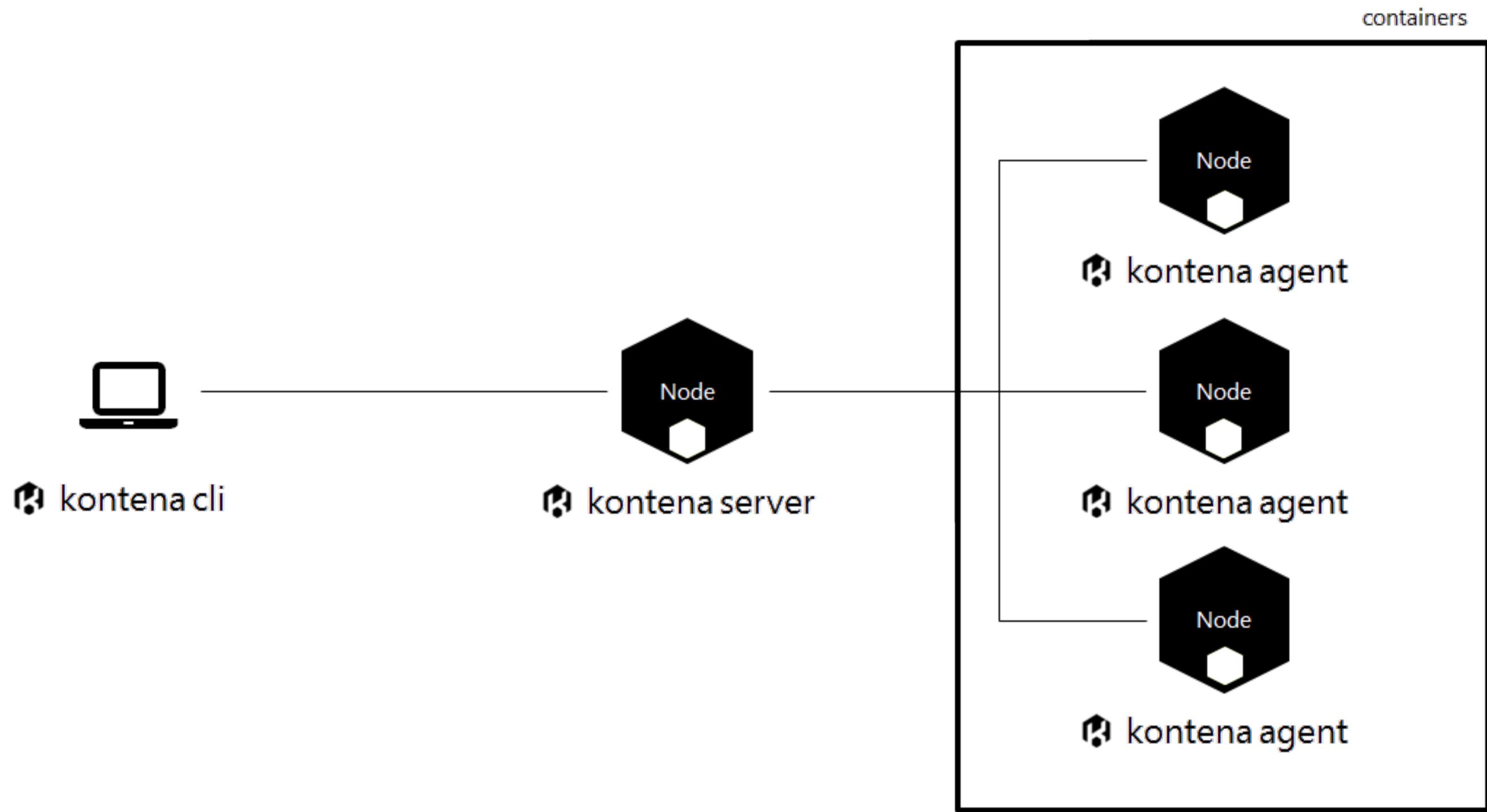next-generation managed hosting

KONTENA IS FLEXIBLE
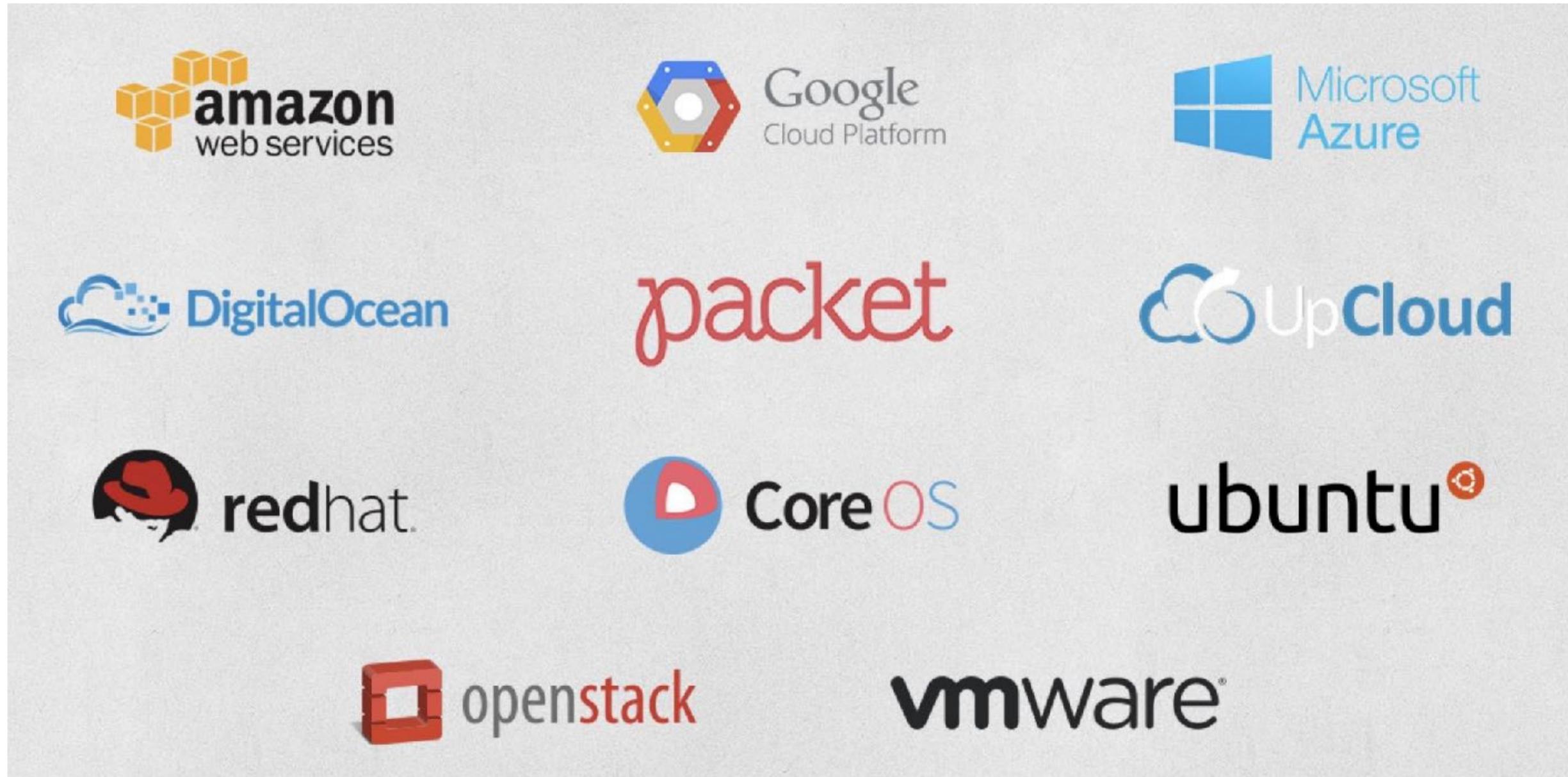
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USING KONTENA

KONTENA SERVER

▸ Controls the whole platform

▸ Access via OAuth tokens

  ▸ Kontena Cloud

  ▸ External OAuth providers

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CREATING A KONTENA SERVER

```
kontena digitalocean master create
--name kontena-dcl
--token $DO_TOKEN
--region lon1
--ssh-key ~/.ssh/id_rsa.pub
--size 1gb
--use-kontena-cloud
```

GRIDS

▸ Separate groups of Kontena nodes

▸ Encrypted overlay network

▸ Direct access via VPN

CREATING A GRID

```
kontena grid create --initial-size=2 drupal-grid
kontena grid use drupal-grid
```

KONTENA NODES

▸ Automatic discovery

▸ Permanent connection to Kontena server

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ADDING NODES TO A GRID

```
kontena digitalocean node create
    --token $DO_TOKEN
    --ssh-key ~/.ssh/id_rsa.pub
    --size 1gb
    --region lon1
```

KONTENA
SERVICES

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SERVICES

▶ Container image

▶ Volumes

▶ Resources

▶ Links to other containers

▶ Environment variables

▶ Secrets

▶ Registration

SERVICE DEPLOYMENT

▸ Strategy

▸ No of instances

▸ Affinity to other services

▸ Port to wait for

▸ Health check

STATELESS SERVICE

```
kontena service create -p 80:80
    nginx nginx:latest
```

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STATEFUL SERVICE

```
kontena service create --stateful
    redis redis:latest
```

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SCALING A SERVICE

```
kontena service scale nginx 3
```

KONTENA STACKS

KONTENA STACKS

▶ Set of services

▶ Versioned

▶ Grid-local DNS domain

DEPLOYING A STACK

```
kontena stack install
--name drupal
drupal-demo/kontena.yml
```

STACK DEFINITION: PREAMBLE

```
stack: examples/drupal
version: 1.0.0
```

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STACK DEFINITION: VARIABLES

```
variables:
  drupal-mysql-root:
    type: string
    from:
      vault: drupal-mysql-root
      random_string: 32
    to:
      vault: drupal-mysql-root
  drupal-mysql-password:
    type: string
    from:
      vault: drupal-mysql-password
      random_string: 32
    to:
      vault: drupal-mysql-password
```

STACK DEFINITION: SERVICES

```yaml
services:
  drupal:
    image: drupal:8.2
    stateful: true
    ports:
      - 80
    environment:
      MYSQL_USER: drupal
    secrets:
      - secret: drupal-mysql-password
        name: MYSQL_PASSWORD
        type: env
    volumes:
      - /var/www/html/modules
      - /var/www/html/profiles
      - /var/www/html/themes
      - /var/www/html/sites
```

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STACK DEFINITION: SERVICES (CONT.)

```
mysql:
  image: mariadb:5.6
  stateful: true
  environment:
    MYSQL_DATABASE: drupal
    MYSQL_USER: drupal
  secrets:
    - secret: drupal-mysql-root
      name: MYSQL_ROOT_PASSWORD
      type: env
    - secret: drupal-mysql-password
      name: MYSQL_PASSWORD
      type: env
```

LOAD BALANCING

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ADDING A LOADBALANCER

```
services:
  drupal_lb:
    image: kontena/lb:latest
    ports:
      - 80:80
  drupal:
    image: drupal:8.2
    instances: 2
    environment:
      MYSQL_USER: drupal
      KONTENA_LB_MODE: http
      KONTENA_LB_BALANCE: roundrobin
      KONTENA_LB_INTERNAL_PORT: 80
      KONTENA_LB_VIRTUAL_HOSTS=www.example.com,example.com
    links:
      - drupal_lb
  secrets:
```

SSL

REGISTERING WITH LET'S ENCRYPT

```
$ kontena certificate register <you@example.com>

$ kontena certificate authorize www.example.com
Record name:_acme-challenge
Record type:TXT
Record content:5m1FCaNvneLduTN4AcPqAbyuQhBQA4ESisAQfEYvXIE

$ kontena certificate get www.example.com
```

USING THE LE CERTIFICATE

```yaml
services:
  drupal_lb:
    image: kontena/lb:latest
    ports:
      - 443:443
    secrets:
      - secret: LE_CERTIFICATE_www.example.com_BUNDLE
        name: SSL_CERTS
        type: env
  drupal:
```

SUMMARY

▸ Kontena is...

    ▸ simple

    ▸ inexpensive

    ▸ full-featured

    ▸ production-ready

    ▸ secure

    ▸ flexible

    ▸ **worth a try!**

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RESOURCES

www.freistilbox.com/**drupalcon.html**

JOIN US FOR CONTRIBUTION SPRINTS

Friday, April 28, 2017

First-Time Sprinter Workshop
9:00am-12:00pm
Room: 307-308

Mentored Core Sprint
9:00am-12:00pm
Room:301-303

General Sprints
9:00am-6:00pm
Room:309-310

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