Getting Started with the Adobe CF Docker Images

Charlie Arehart
Adobe CF Dev Week 2020

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So many perspectives…

How YOU can run Docker

- You can install it, for free
  - See Docker docs for simple Installation steps for…
  - Linux
  - Windows
    - Windows 10 Pro, Enterprise, Education – use Docker Desktop
    - Windows 10 **Home** or earlier – use Docker Toolbox
    - Windows Server 2016 and up – Docker Enterprise (free license)
    - WSL2 coming in next Windows updates, still better Linux support
  - MacOS
    - 10.13 (Sierra) or higher – use Docker Desktop
    - Earlier – use Docker Toolbox

- Or just go to play-with-docker.com (also free)

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Demo time

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What we did…

- docker run hello-world

- docker run httpd

- docker run -P httpd

- docker run -p 80:80 httpd

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Options for working with Docker (all free)

- Command line (Docker commands)
    - Linux and macOS terminal
    - Windows command line or Powershell
        - New Windows Terminal

- Visual Studio Code extension
    - And available VS terminal

- Docker Desktop dashboard (in latest version)

- Portainer

- And more

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Using the
Adobe CF
Docker images

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Demo time

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What we did…

- docker run eaps-docker-coldfusion.bintray.io/cf/coldfusion <u>info</u>

- docker run eaps-docker-coldfusion.bintray.io/cf/coldfusion <u>help</u>

- docker run <u>-e acceptEULA=YES</u> eaps-docker-coldfusion.bintray.io/cf/coldfusion
  - Add <u>-p 8500:8500</u> to set port
  - Add <u>-e password=coldfusio</u>n to set admin password
  - Add –v hostpath:/app to name a hostpath to run your CFML code

- Docker ps
  - Docker stop <containerid|name>

- https://bintray.com/eaps/coldfusion/cf%3Acoldfusion

- https://helpx.adobe.com/coldfusion/using/docker-images-coldfusion.html

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Configuring CF containers

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Options to configure CF

- CAR files and the /data folder

- Admin API calls, stored in CFML, pointed to by setupScript var
  - And mounted to the /app folder

- Use a Docker file to copy files INTO the image before it runs

- As well as volumes and the CF image's many environment vars

- Why we need these

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Poll time

True or false: you can't use the Adobe CF images without
creating a Dockerfile

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Elephants in
the room

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- Other ways to run CF and Docker
  - Use the Ortus Commandbox Docker images
  - Lucee images (from lucee.org)
  - Create your own Docker image

- Licensing and CF Docker images (*tinyurl.com/cfdockerlicensing*)
  - Developer edition: free
  - Enterprise edition: 8 containers per license
  - Standard edition: each container must be licensed
    - Possible changes coming in CF2020
  - These apply to Ortus Commandbox CF images as well (but can't run Standard)

- Getting help (*cf411.com/cfhelp*)

- Filing bug reports (*tinyurl.com/cfdockerbugs*)

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Changes
coming in
CF2020

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- Reduced image size (faster to download)

- Reduced image startup time

- New modular design (include only features you need)

- New cfsetup feature, to read/set, import/export admin settings
  - Can point to ANY CF home directory (/cfusion) to work with its settings
  - Result of export is a json file, can be imported into another server
  - Can be placed in the /app folder for Docker image, as alternative to CAR approach

- Possible licensing changes regarding Docker

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Leveraging
Docker Compose

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Demo time

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A simple CF docker-compose.yml file

```
version: "3.7"

services:

 cf:

   image: eaps-docker-coldfusion.bintray.io/cf/coldfusion

   environment:

     acceptEULA: "YES"

     password: "password"

   ports:

     - "8500:8500"

   volumes:

     - c:\inetpub\wwwroot:/app
```
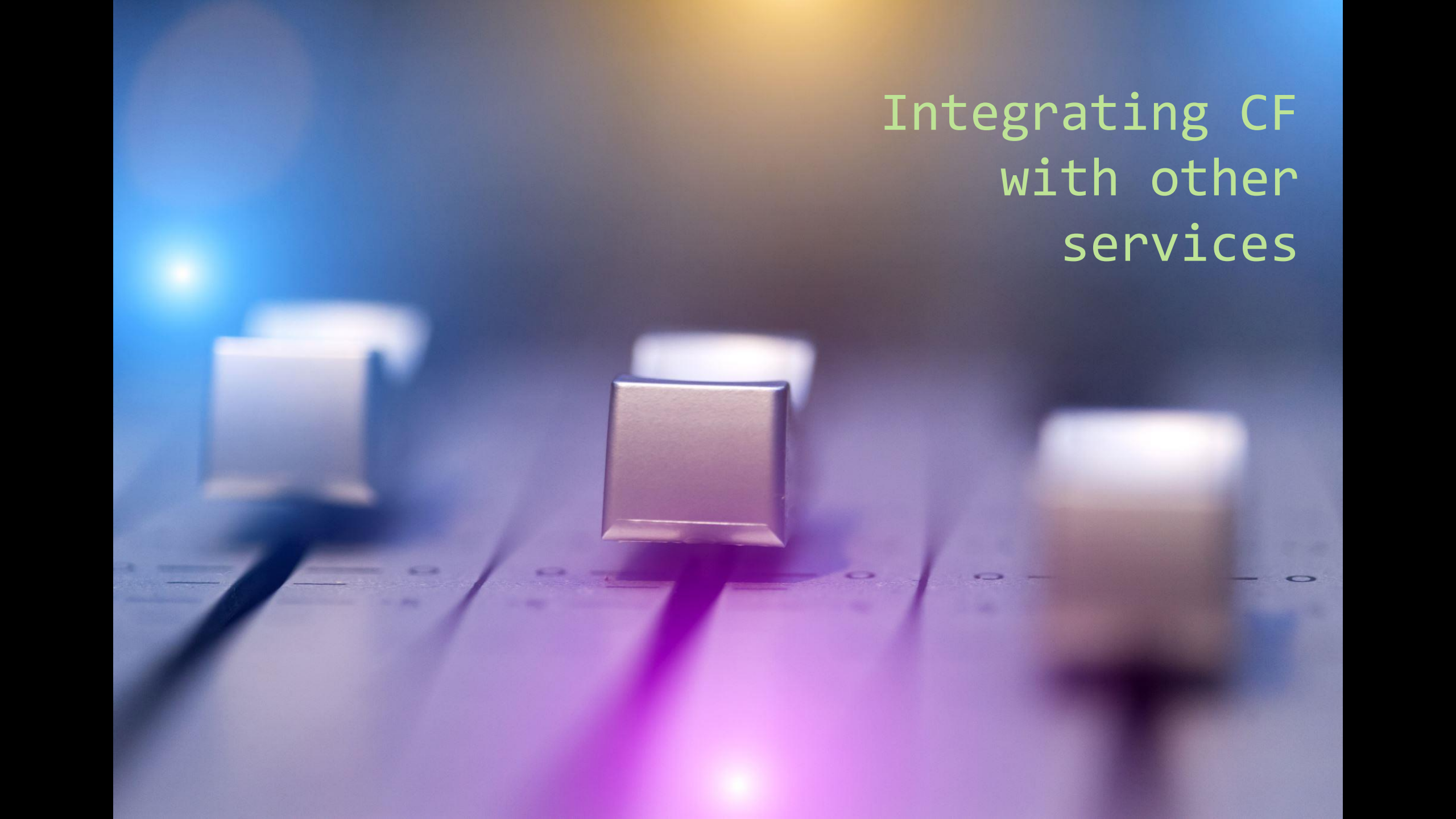
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What we did…

- Created a folder, in which to place the docker-compose.yml file

- Changed to that directory (cd)

- docker-compose up

- docker-compose down

- docker-compose up –d

- docker-compose logs

- docker-compose logs <servicename>

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Integrating CF
with other
services

Many possibilities…

- Database servers

- Web servers

- Caching servers

- Reverse proxy servers

- And more

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Demo time

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What we did… (part 1)

- Created another folder

- Placed the next 4 files in there
  - docker-compose.yml : adding config to have CF use Redis sessions
  - Application.cfc - to enable session mgt for this app (folder)
  - setsession.cfm – sets CF session var
  - getsession.cfm – dumps CF session scope

- Changed to that directory (cd)

- docker-compose up

- …

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What we did…

- Visit the site (localhost:8500)

- Run setsession.cfm to set var, and getsession.cfm to see var

- docker-compose restart cf (to restart the "cf" service within compose)

- Visit the site again, run getsession.cfm

- See that session is STILL set, even after CF restart

  - This would be true for your "real" CF environments

  - If you enabled "redis sessions" feature in CF admin>Memory Variables

- docker-compose down

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Docker-compose.yml (part 1)

```
version: "3"
services:
 cf:
   image: eaps-docker-coldfusion.bintray.io/cf/coldfusion
   environment:
     acceptEULA: "YES"
     password: "password"
     configureExternalSessions: "true"
     externalSessionsHost: redis
     externalSessionsPort: 6379
   ports:
     - "8500:8500"
   volumes:
     - .\app:/app
```

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Docker-compose.yml (part 2)

```yaml
  redis:
    image: redis
    ports:
      - "6379:6379"
    volumes:
      - "redis_data:/data"
volumes:
  redis_data:
```

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3 supporting templates

- **Application.cfc**

  component {

       this.sessionmanagement="true";

  }

- **setsession.cfm**

  <cfset session.name="bob">

- **getsession.cfm**

  <cfdump var="#session#">

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Finding more compose examples

- github.com/docker/awesome-compose

- And announcing today
    - github.com/carehart/awesome-cf-compose
    - To cover use of not only the ACF, but also the Ortus CF/Lucee, and Lucee images
   - Just a placeholder now. Let's start building it up!

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Poll time

True or false: you can't run multiple Docker containers without an orchestrator like Swarm or Kubernetes

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Running multiple
CF containers

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- Docker run

- In docker-compose.yml, scale setting for service

- Docker-compose up –scale <service>=<num>

- And coming up next, orchestration

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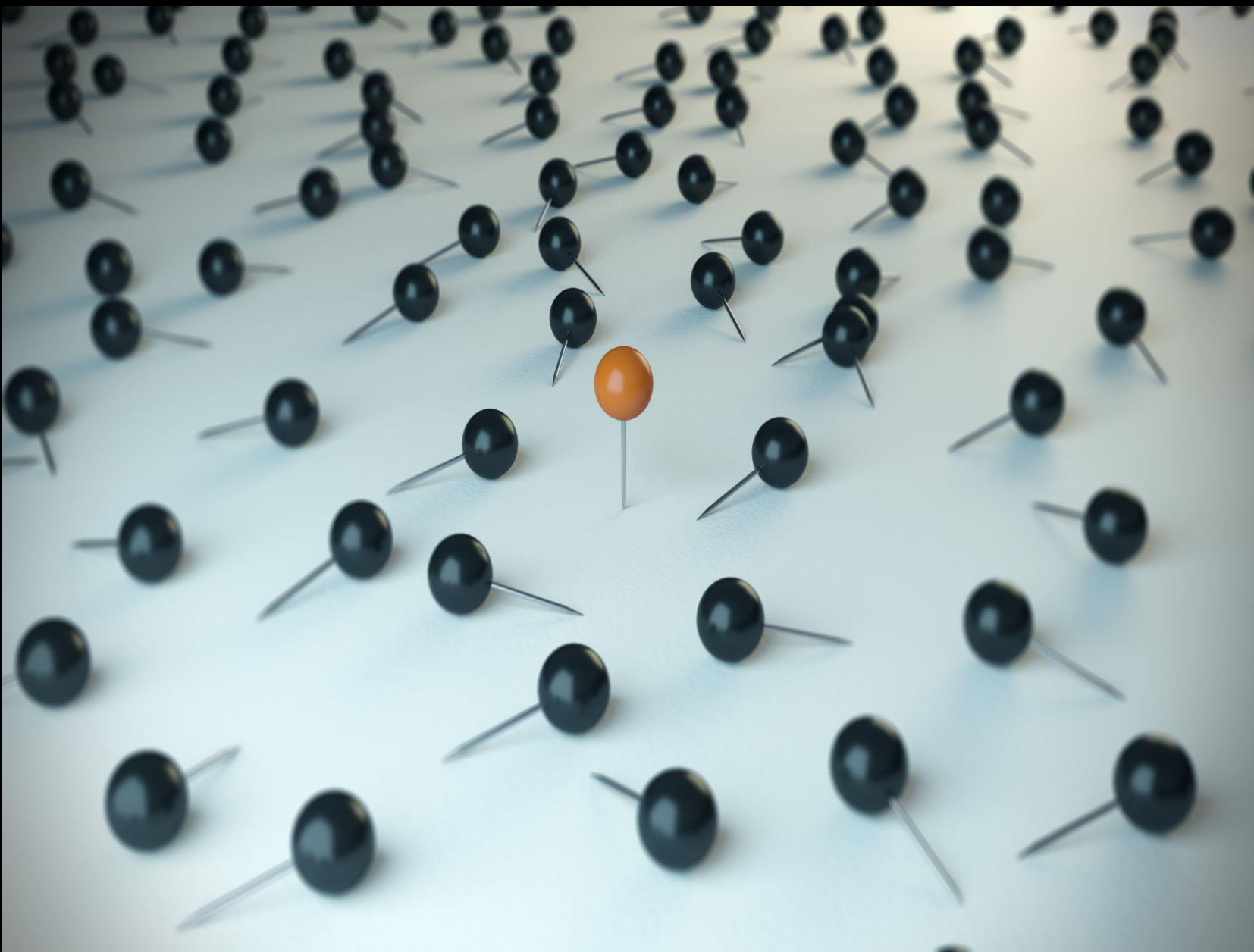
Orchestration with Kubernetes and more

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- Desired state vs running state

- Docker swarm

- Kubernetes (aka k8s) implementations:
  - Docker Desktop
  - minikube, microk8s, k3s
  - play-with-k8s.com
  - Amazon Elastic Kubernetes Service (EKS)
  - Google Kubernetes Engine (GKE)
  - Azure Kubernetes Service (AKS)

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More you can and
should learn

Here's just some…

- Using Docker for CI/CD

- Microservices architecture

- 12-factor design principles

- Kubernetes tools
  - Istio
  - Rancher
  - Lens

- More about docker
  - more on volumes
  - docker network features
  - security and privileges in containers
  - secrets
  - multistage builds and buildkit
  - docker contexts
  - client in one place, host/daemon in another
  - managing resources for docker in general
    - and within containers in particular
  - and so on

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And still more…

- Docker Desktop experimental features

- Load balancing and clustering
  - as built into Docker, swarm, k8s
  - nginx
  - cf ajp connector
  - cf ent mgr & clustering feature

- Integrating FR and other apms

- How you can also run the CF pmt and api mgr in docker

- And lots, lots more

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Resources for learning more

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Generic (elaborated) Docker introductions

- Many, many on the web. Some stand out

- docs.docker.com

- www.bretfisher.com

- github.com/docker/awesome-compose

- training.play-with-docker.com

- training.play-with-kubernetes.com

- rominirani.com/docker-tutorial-series-a7e6ff90a023

- youtube.com/playlist?list=PLy7NrYWoggjwPggqtFsI_zMAwvG0SqYCb

- www.docker.com/blog/
  - Such as /designing-your-first-application-kubernetes-part1/

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Adobe ColdFusion Docker introductions

- helpx.adobe.com/coldfusion/using/docker-images-coldfusion.html

- www.carehart.org/presentations/#cfdocker_gs

- coldfusion.adobe.com/2020/01/creating-development-environment-workflow-solo-small-team-development-using-coldfusion-ms-sql-server-docker-compose-part-1/

- coldfusion.adobe.com/2020/03/part-2-creating-development-environment-workflow-solo-small-team-development-using-coldfusion-ms-sql-server-docker-compose/

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Ortus-oriented (elaborated) Docker introductions

- cfswarm.inleague.io

- hub.docker.com/r/ortussolutions/commandbox

- Also many blog posts from several people on various aspects of use

- Again, even those using the Adobe CF Docker images can learn from these

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Conclusion

- Again, so much we could have covered

    - Hope to have given you a taste

    - And a push in the right direction, suited to your place in the journey

- You'll surely have questions, hit snags

    - Again, hit up the CF community: *cf411.com/cfhelp*

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Final Poll

After this session, do you feel encouraged to go get started with the Adobe CF Docker images?

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