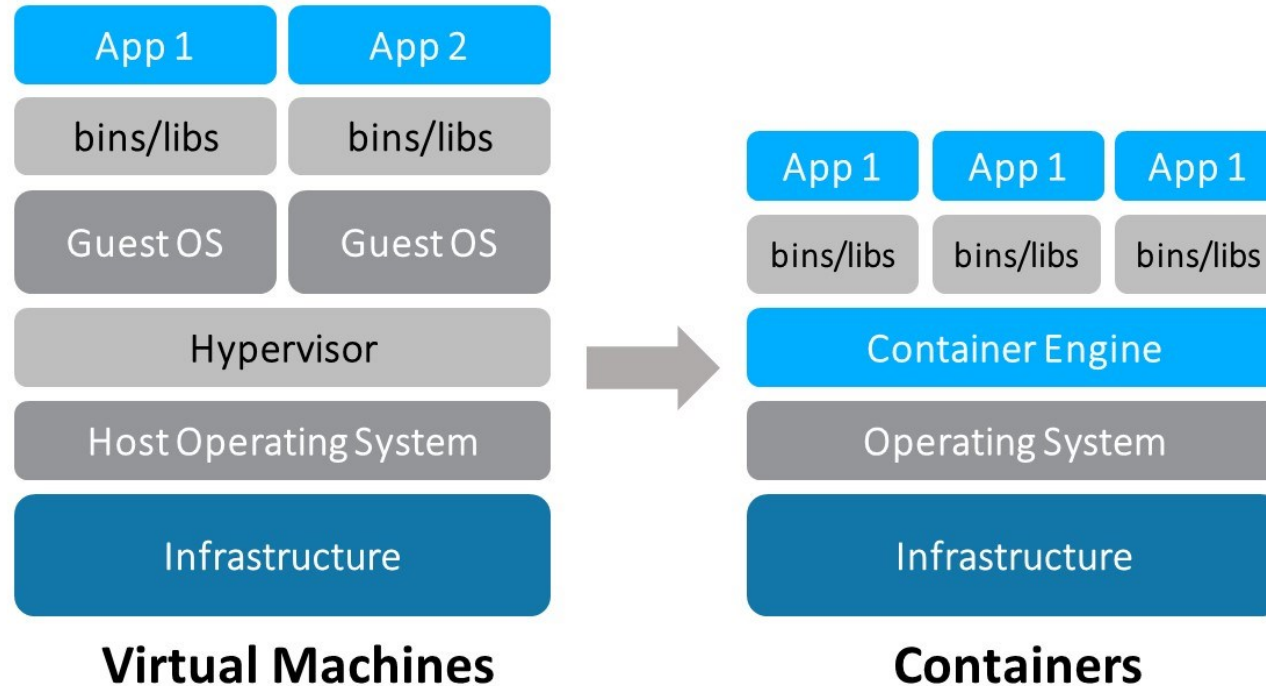


FROM VIRTUALIZATION TO CONTAINERIZATION

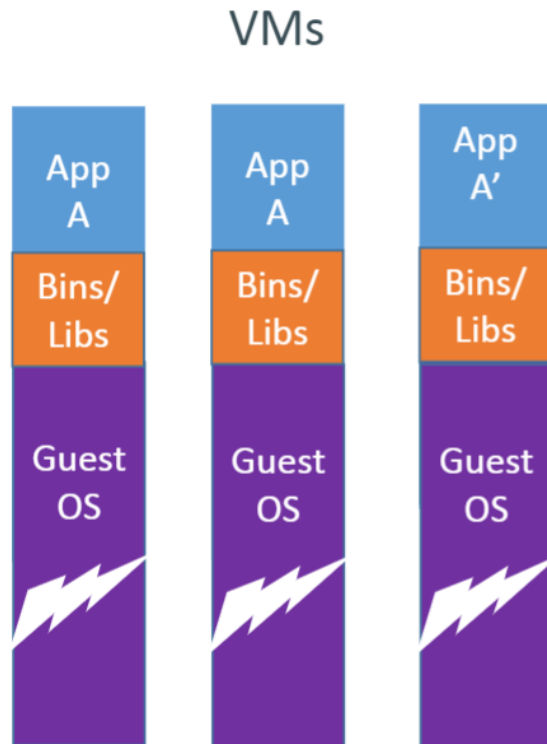


VIRTUAL MACHINES TO CONTAINERS

- VM is too heavy for a simple process since it requires the whole OS to be installed
- Containers are isolated, but **share OS**, and, where appropriate, **bins/libs**

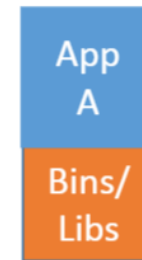


FROM VIRTUALIZATION TO CONTAINERIZATION



VMs

Every app, every copy of an app, and every slight modification of the app requires a new virtual server



Original App
(No OS to take up space, resources, or require restart)

Containers



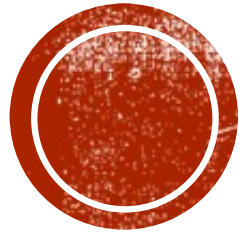
Copy of App
No OS. Can Share bins/libs



Modified App

Union file system allows us to only save the diffs Between container A and container A'





WHY DO WE NEED CONTAINERIZATION?



DEVELOPMENT CHALLENGES

This app runs on
mobile, tablet or
Desktop

Assembled by
Developers using best
available services

Running on any
available resources



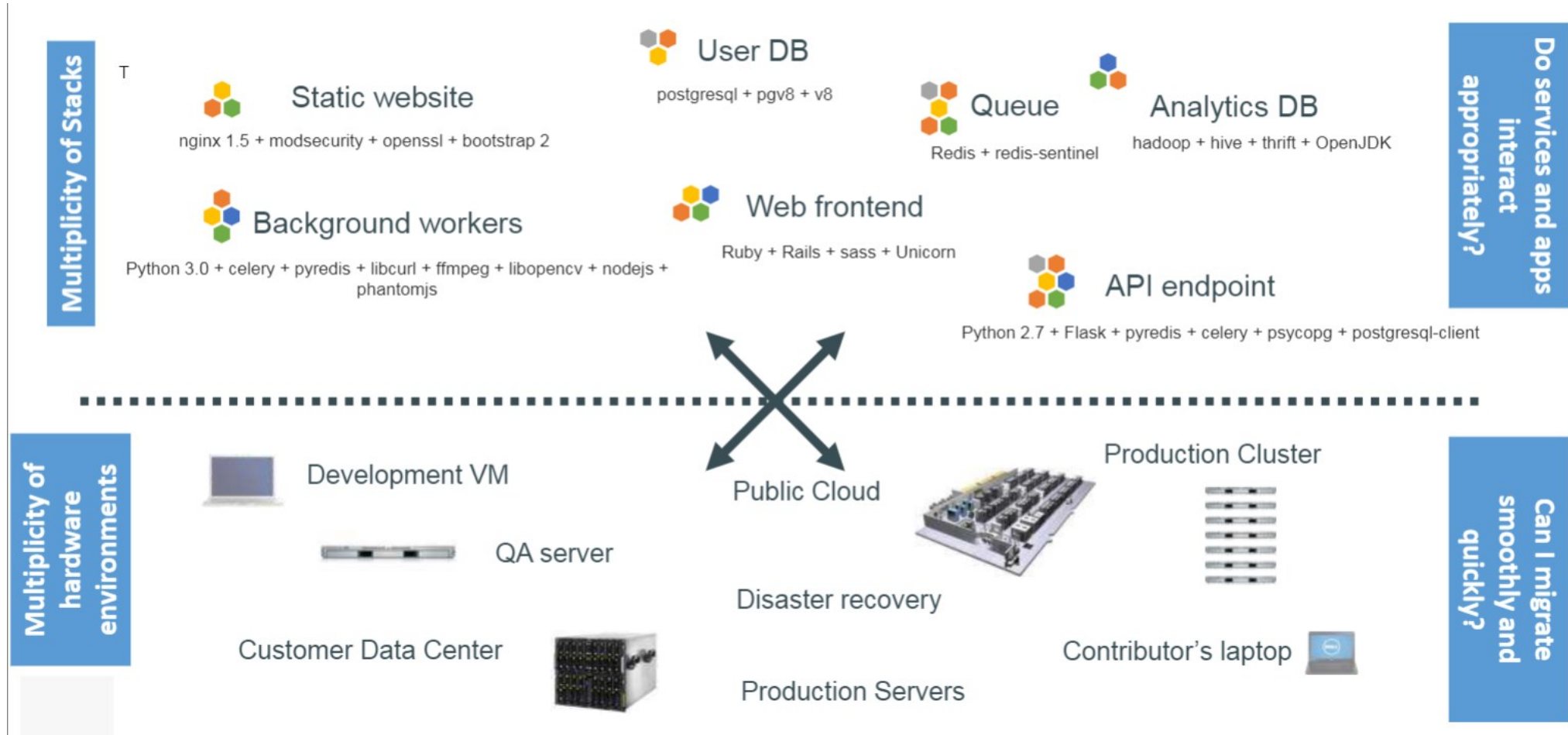
How to ensure services
interact consistently, avoid
dependency?

How to avoid “n x m”
different configurations?














How to migrate & scale
quickly, ensure
compatibility?



DEVELOPMENT CHALLENGES

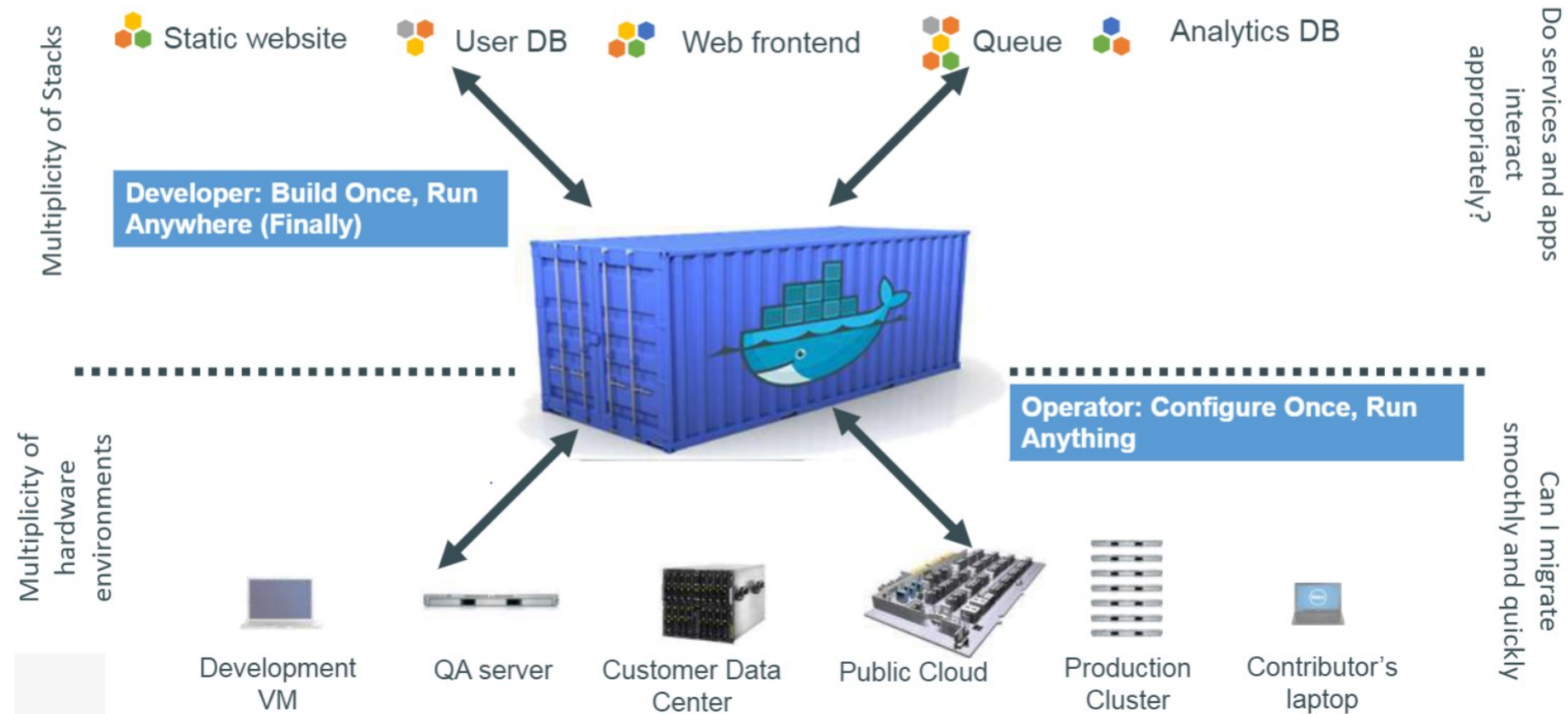


DEVELOPMENT CHALLENGES

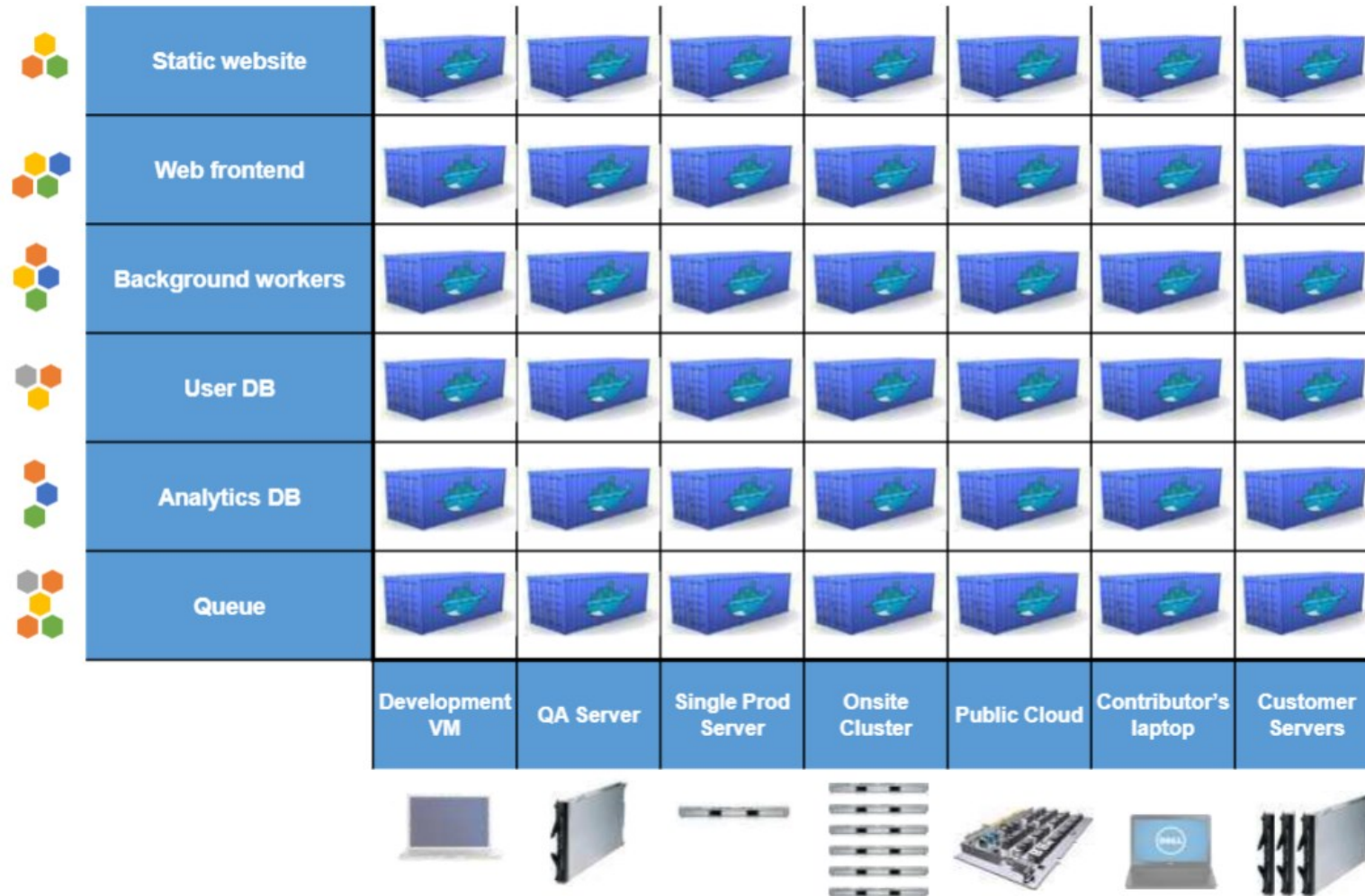
	Static website	?	?	?	?	?	?	?
	Web frontend	?	?	?	?	?	?	?
	Background workers	?	?	?	?	?	?	?
	User DB	?	?	?	?	?	?	?
	Analytics DB	?	?	?	?	?	?	?
	Queue	?	?	?	?	?	?	?
		Development VM	QA Server	Single Prod Server	Onsite Cluster	Public Cloud	Contributor's laptop	Customer Servers
								



THE SOLUTION



THE SOLUTION – NXM CONFIGURATIONS



DOCKER — LEADING CONTAINER

- Most widely known, and used
- Easy to download and install
- Free
- By mid-2013, **dotCloud** company released a tool that used these ideas to provide a better way to deploy encapsulated applications
 - The tool is later became **Docker**
 - **dotCloud** became **Docker Inc.**



WHAT MAKES DOCKER POPULAR

- Ease of use
 - Command line, Docker compose, Kubernetes
- Speed
 - Load fast - sharing library among containers
- Docker Hub – for sharing images
 - <http://hub.docker.com/>
- Modularity and Scalability

