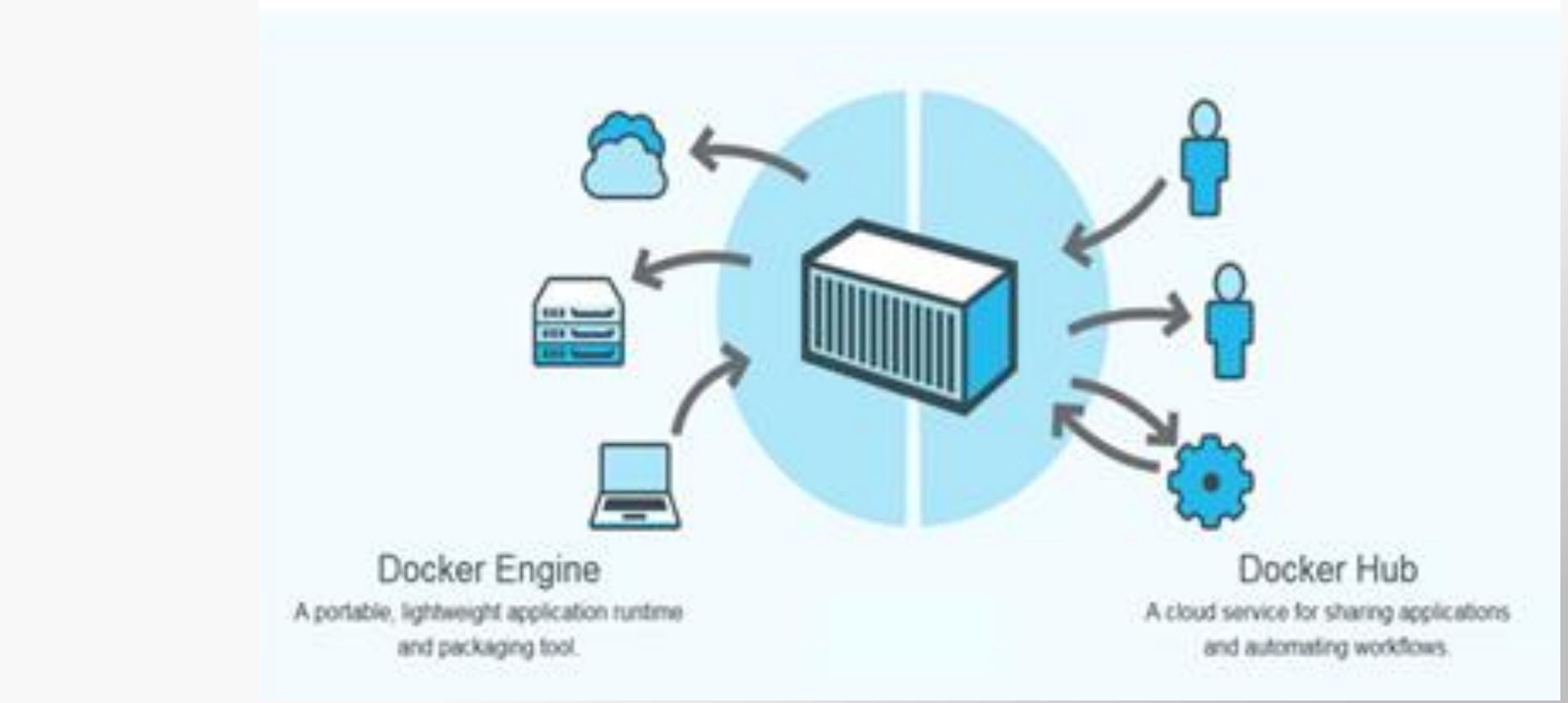
Docker Introduction

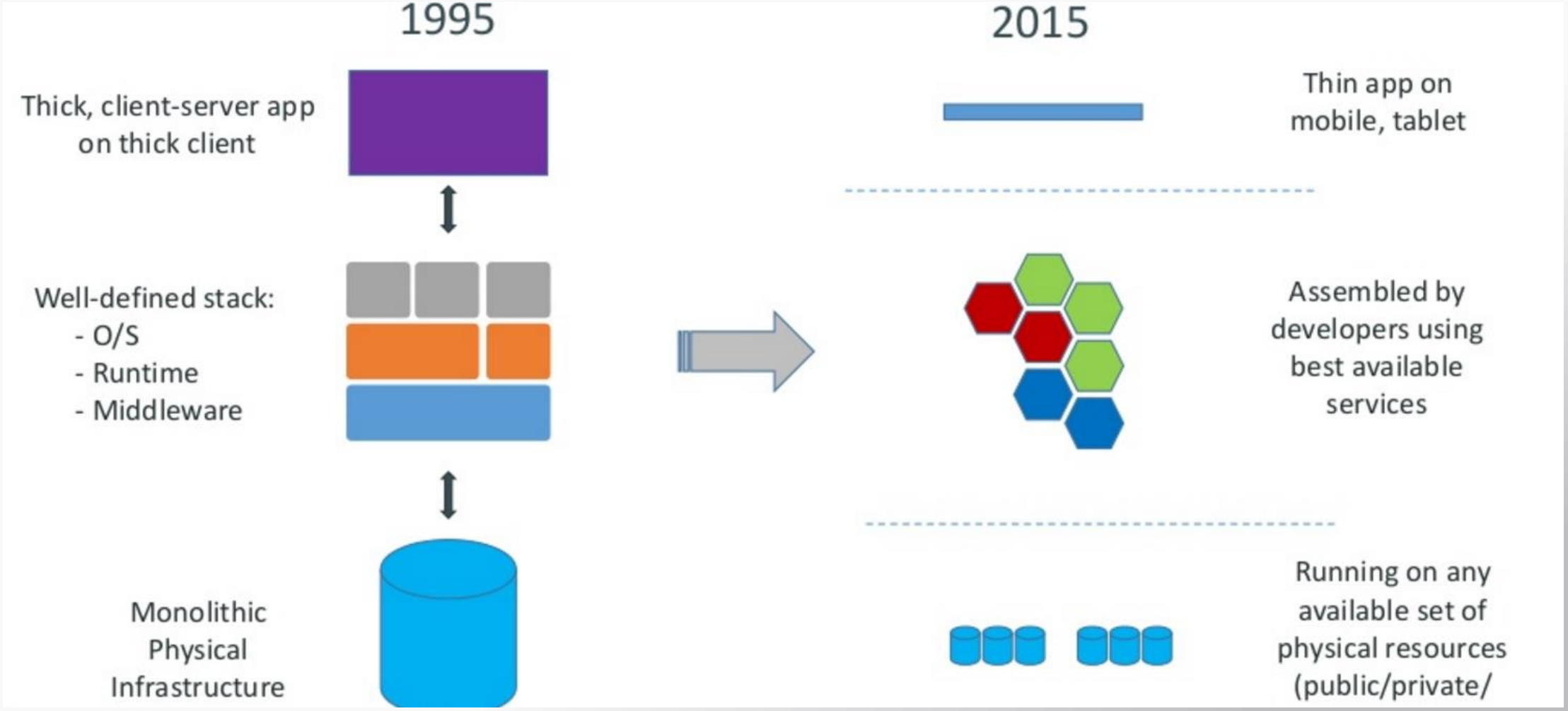
Cloud Tech Blr

Docker

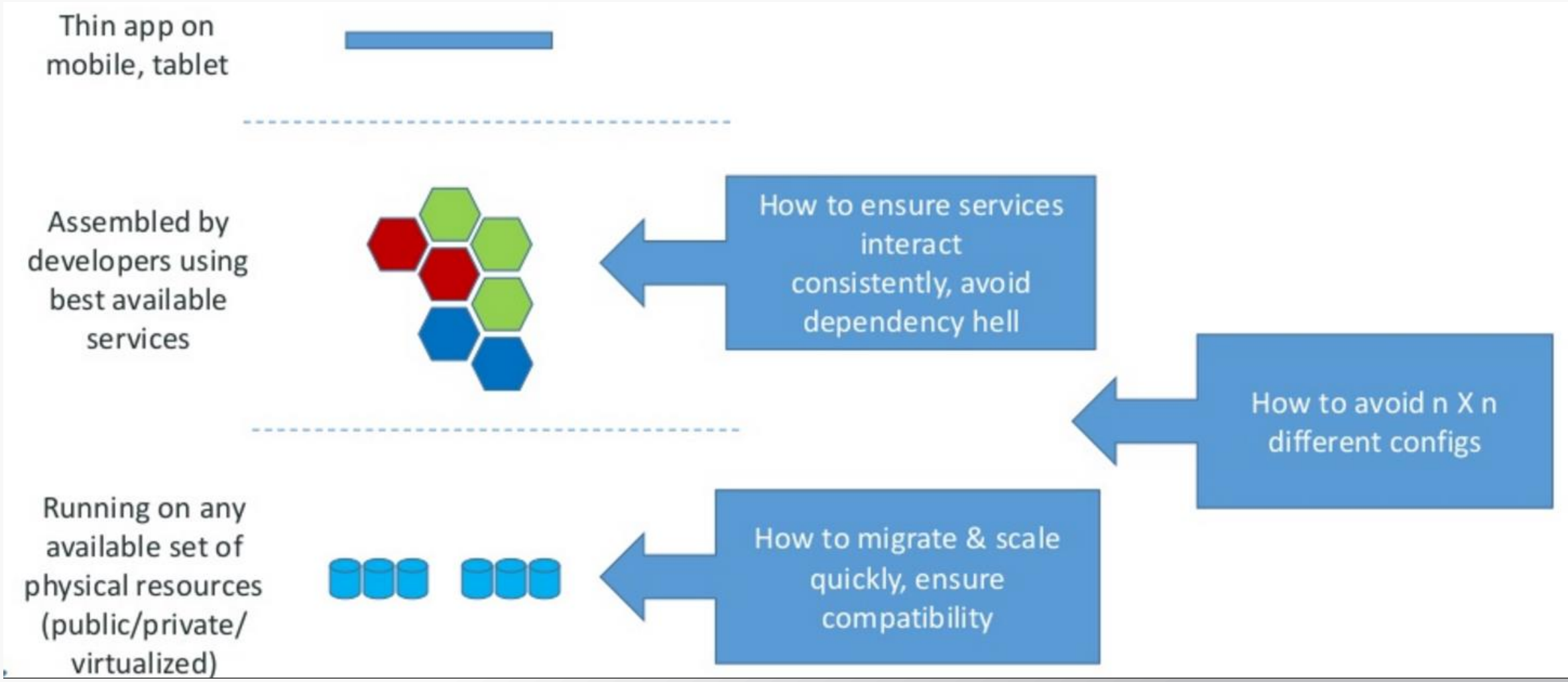
Open platform for developers and system administrators to build and test cloud applications



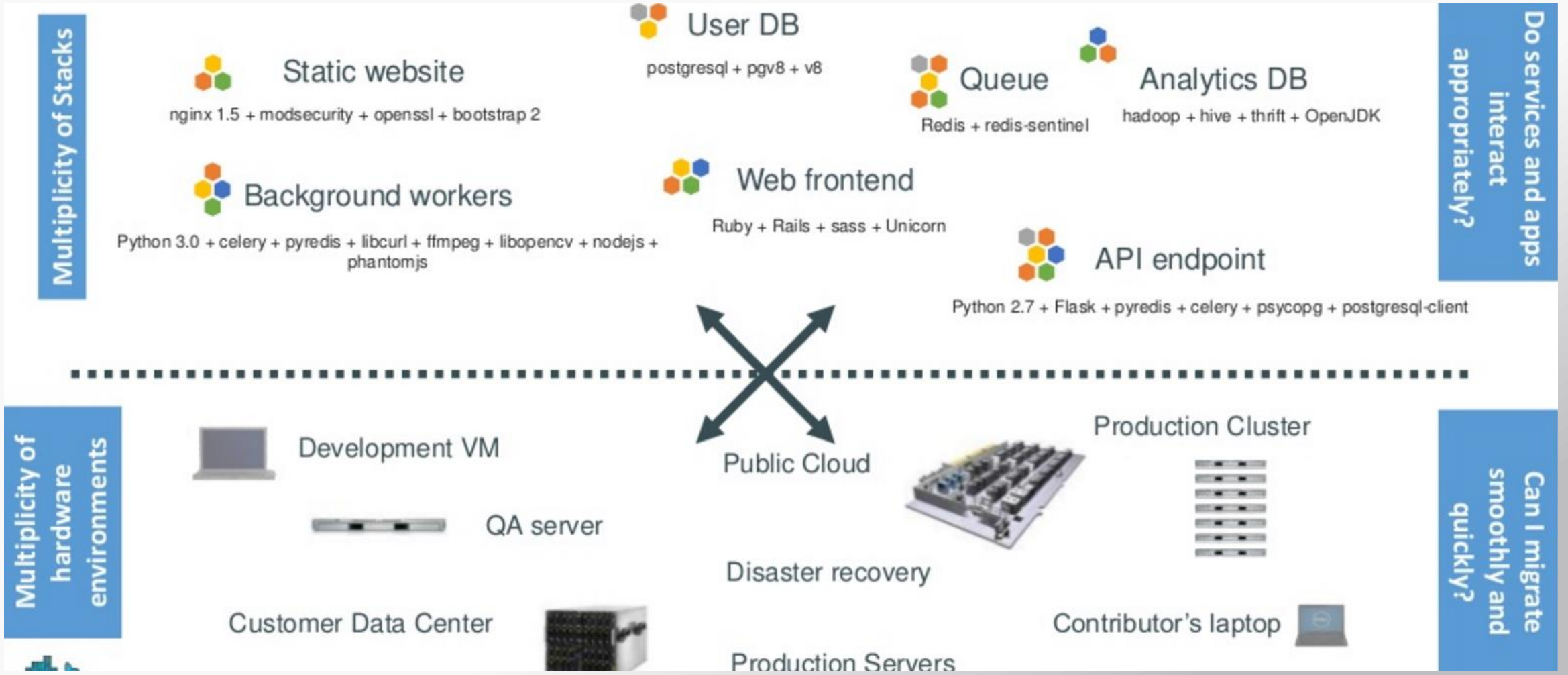
Motivation for the Creation of Containers



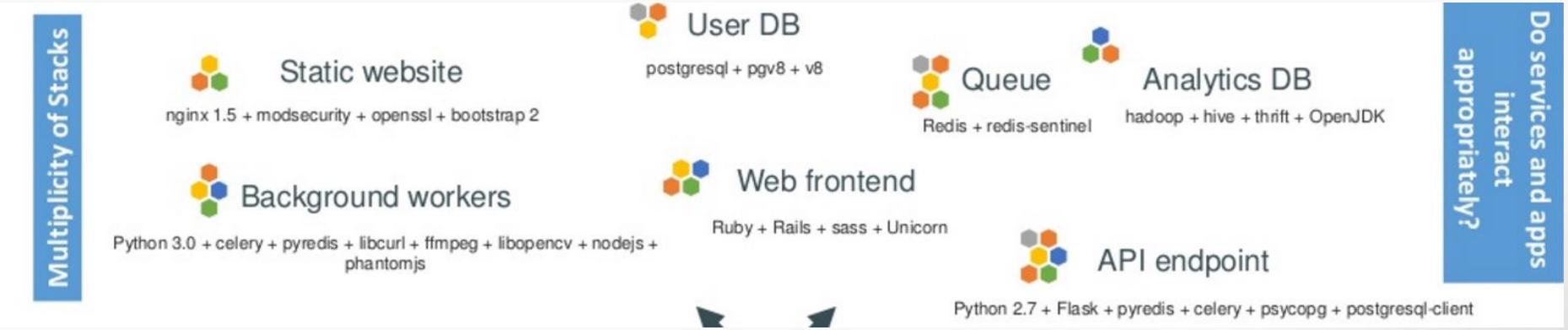
The challenge



The challenge continued



What were some of these technologies??



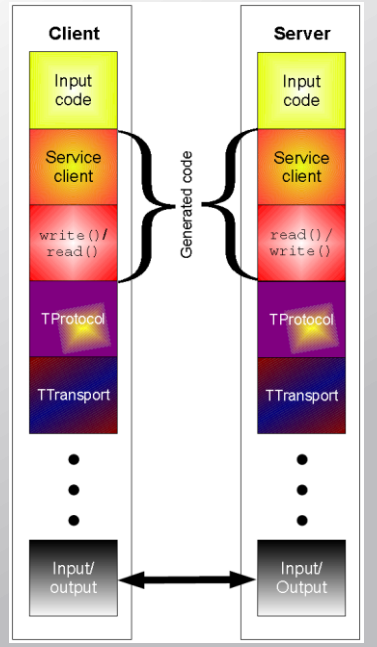
Static web: nginx is a fast webserver, generally faster than Apache

Queue: Redis = in-memory **data structure store**, used as a database, **cache** and message broker.

What were some of these technologies??

Analytics DB:

- Hadoop = distributed storage and processing of dataset of big data using MapReduce programming model
- Hive = Hadoop based Database, offer SQL-like interfaces with HDFS-based data
  - ---allows these database developers or data analysts to use Hadoop without knowing the Java programming language or MapReduce. Now, instead of challenging MapReduce code, you can design a star schema data warehouse or a normalized database.
- Thrift = used to define and create services for numerous languages.[2]
  - It is used as a remote procedure call (RPC) framework and was developed at Facebook for "scalable cross-language services development".



Looking for all kinds of solutions…

Too many to consider

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

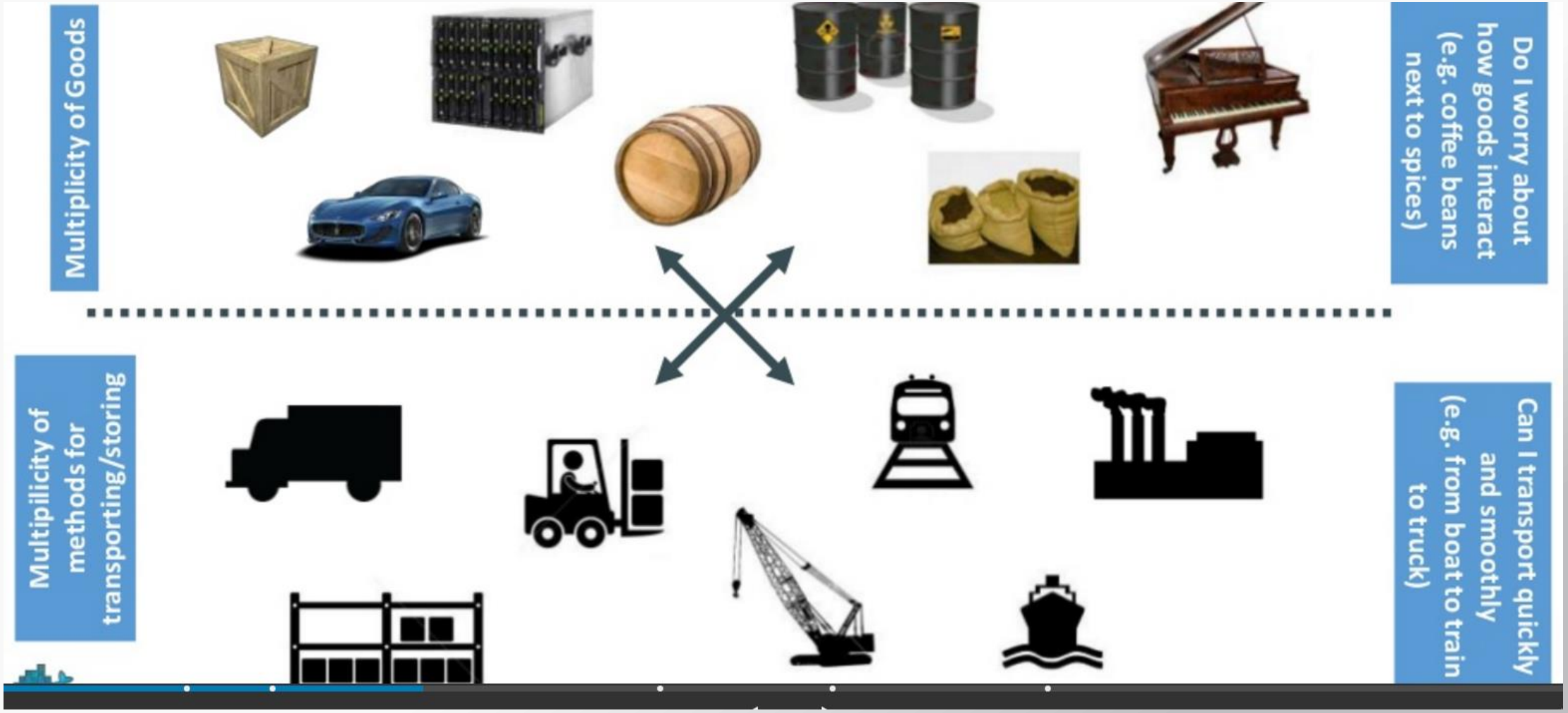
THE ANSWER

Something called a CONTAINER ----which is the business Docker has created.

Huh??? Container

Here is an analogy that Docker use’s to let you understand….

Understanding….an analogy
…cargo transport pre-1960

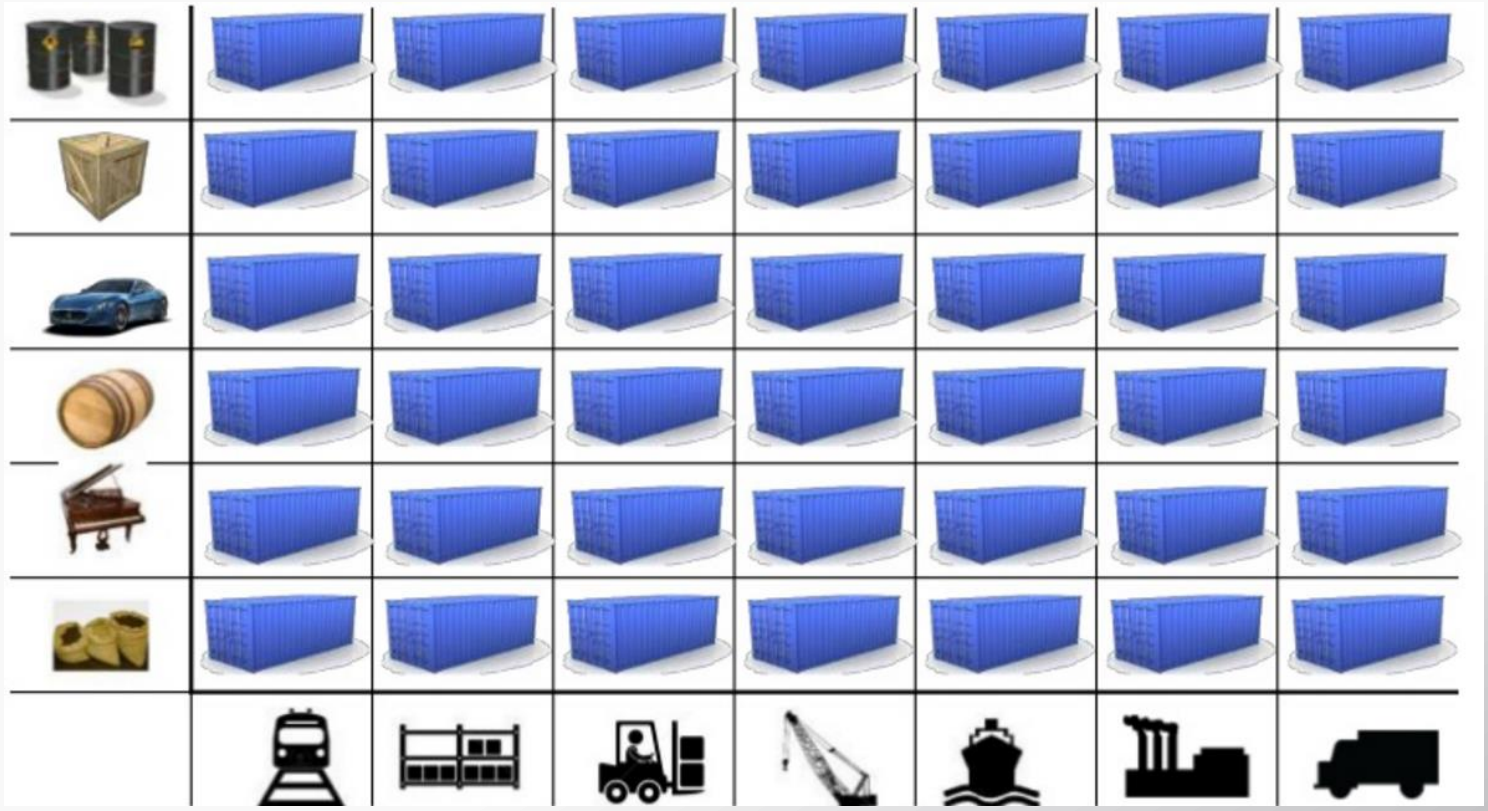


What are the possibilities

	?	?	?	?	?	?	?
	?	?	?	?	?	?	?
	?	?	?	?	?	?	?
	?	?	?	?	?	?	?
	?	?	?	?	?	?	?
	?	?	?	?	?	?	?
							

SOLUTION—shipping containers

This solved the problem



Today shipping is done with containers

- 90% of all cargo now shipped in a standard container
- Order of magnitude reduction in cost and time to load and unload ships
- Massive reduction in losses due to theft or damage
- Huge reduction in freight cost as percent of final goods (from >25% to <3%)

→ massive globalizations

- 5000 ships deliver 200M containers per year

How does this container idea translate to our problem

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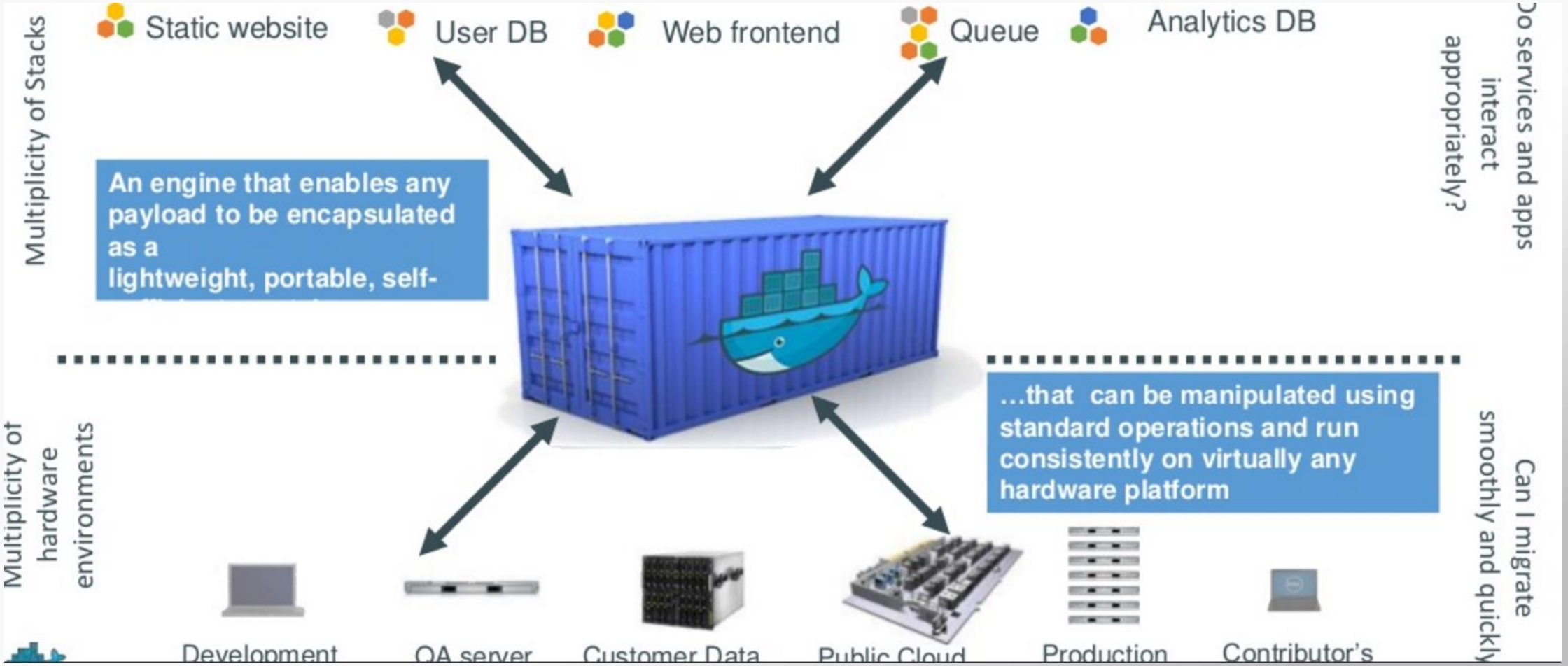
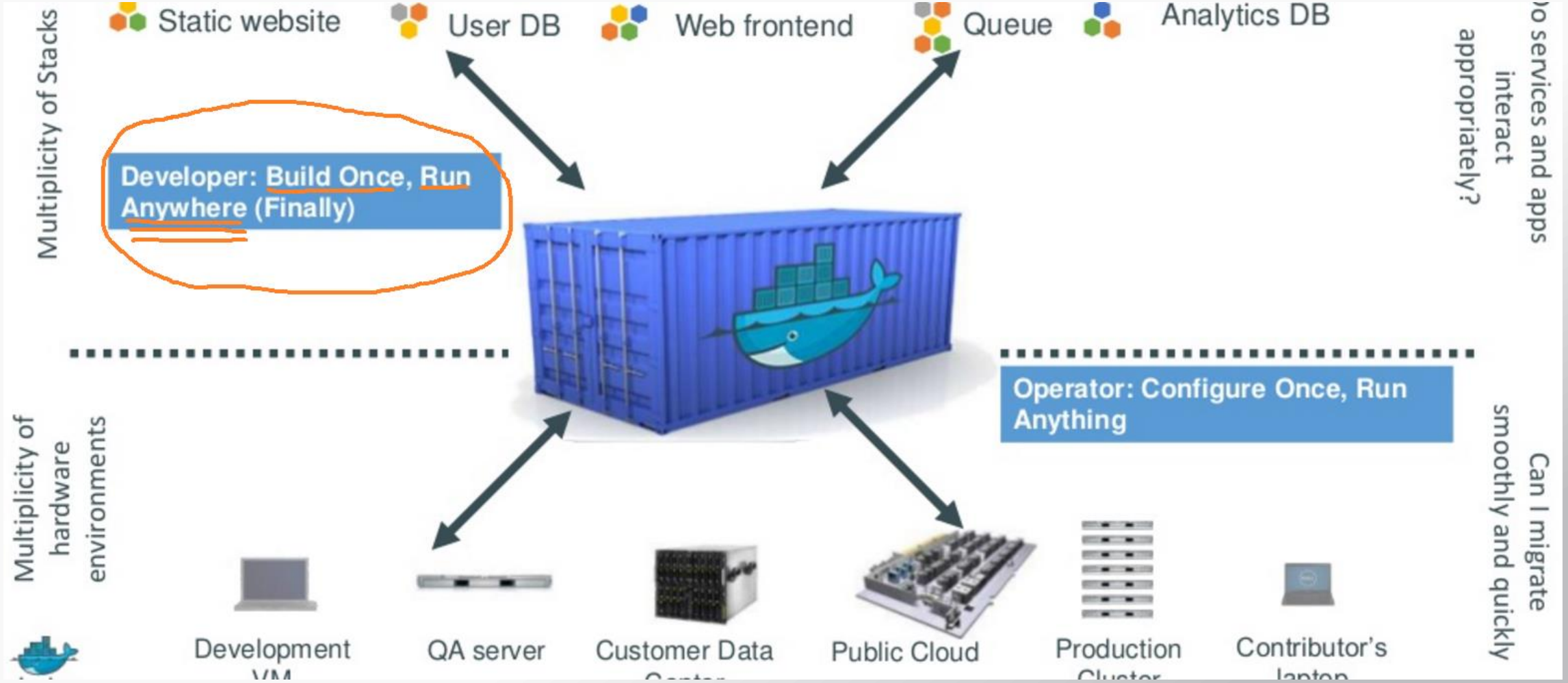
Web frontend	?	?	?	?	?	?	?
Background workers	?	?	?	?	?	?	?
User DB	?	?	?	?	?	?	?
Analytics DB	?	?	?	?	?	?	?
Queue	?	?	?	?	?	?	?

How does this container idea translate to our problem—container for code????



Do once run anywhere



Docker supported in many Cloud platforms

Docker container—developer viewpoint

Build once … run anywhere

Build once…run anywhere

- A clean, safe, hygienic and portable runtime environment for your app.
- No worries about missing dependencies, packages and other pain points during subsequent deployments.
- Run each app in its own isolated container, so you can run various versions of libraries and other dependencies for each app without worrying
- Automate testing, integration, packaging…anything you can script
- Reduce/eliminate concerns about compatibility on different platforms, either your own or your customers.
- Cheap, zero-penalty containers to deploy services? A VM without the overhead of a VM? Instant replay and reset of image snapshots? That's the power of Docker