IBM Enterprise Containers

Docker Mission

Build **Ship** **Run**

ubuntu · MySQL · node · mongoDB · CentOS · redis · NGINX

Any App

IBM Bluemix · vmware · Google Compute Engine · Windows Azure · amazon web services

Anywhere

Docker is an open platform for building distributed applications for developers and sysadmins.

Why do Customers care about Containers?

- **Demand for Increased Application Development Efficiency**
  - Enable Continuous Integration/Continuous Delivery
  - Developer Laptops, through automated test, to production, and through scaling without modification
- **DevOps Requires Improved Deployment Efficiency**
  - Higher Density of Compute Resources (CPU, Memory, Storage)
- **Hybrid Cloud and Choice Require Portability**
  - Cross Cloud Deployment - move the same application across multiple clouds.
  - Eliminate “lock-in”, become a “Cloud Broker”

Customer pain points	User scenarios	How this offering helps
Need resources faster	Get a working environment up and running in minutes, not hours or weeks	Users can instantiate new container instances in seconds with the consistent experience working directly with Docker
Innovation requires agility and DevOps	Continuous delivery pipeline	IBM Containers integrates with Bluemix apps including a continuous delivery pipeline, partnered with the fast deployments of containers
Ability to migrate workload from on-prem to off-prem infrastructure	Changes made on developer’s local image is ready to deploy to production cloud	Portability as images can be developed on a local workstation, tested in a staging cloud on-prem, and finally to the production off-prem cloud
Environment to facilitate incremental production deployment	Business wants to deploy in a phased approach to validate the expected experience of the new version	Users can deploy new releases in a controlled manner enabling them to monitor the performance and behavior with the ability to roll back if needed

IBM and Docker Partnership

- Strategic partnership announced December, 2014
  https://www-03.ibm.com/press/us/en/pressrelease/45597.wss
- Objective: Deliver next generation enterprise-grade, portable, distributed applications that are composed of interoperable Docker containers
  - Enables hybrid cloud use cases for the enterprise

Initiatives Underway

- **IBM Enterprise Containers** on Bluemix enables enterprises to launch Docker containers to automate application deployment on or off premise
- **IBM UrbanCode** automates the deployment of multiple Docker containers to various dev/test and staging environments, as part of the DevOps pipeline
- **PureApplication** Systems & Services builds, deploys and runs Pure patterns with Docker containers
- **Docker Hub Enterprise** (DHE) integration
  - Extend IBM DevOps and IBM cloud solutions by integrating with and reselling Docker Hub Enterprise software & support

IBM Enterprise Containers on Bluemix

***Deploy and manage* distributed cloud workloads in a Hybrid environment packaged as Docker containers**

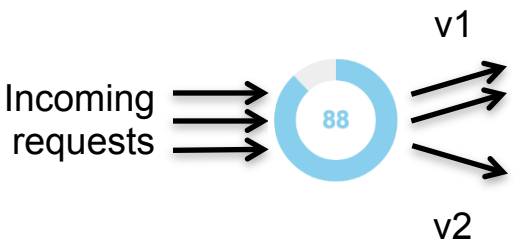
Docker Value		IBM Value-add		Customer Value
Docker Hub Registry holds a repository of 75000+ docker images	+	• IBM hosted public registry containing IBM images - linked to Docker Hub • Client private registry available on and off premises • Curated Enterprise-ready Images	=	Customers have at their figure tips the images they require to deploy containers that meet their business needs and strategy
Open-source, standardized, lightweight , self sufficient LXC container technology	+	• Enhanced performance with bare metal deployment • Run images to local datacenter or cloud • Deployment choice with pSeries & zSeries	=	Hybrid Cloud choice and flexibility to choose the right mix for their business
Build, ship and run standardized containers	+	• Integrated monitoring & logging • Elasticity to grow storage & container needs • life-cycle management of containers and data volumes	=	Docker simplicity and ease of use with the Enterprise-level of integrity and confidence to run a business
Container connections using links and service discovery	+	• Private net work communication • External IP address	=	Extends and connects Docker containers to production-ready Enterprise environments

Netflix – Example Micro-Services Principle adoption at scale

Netflix typifies an emerging approach to building and running in the cloud
others include AirBnb, Twitter, Etsy ….
Approach typified by agility and availability
tens of live code pushes a day, 5 9's availability
Open source libraries, framework and services for deploying, running, maintaining and scaling cloud applications. Fills gap between what is provided by IaaS and what Netflix needed.

Dynamic routing

Enables canary, A/B testing, and staged deployment

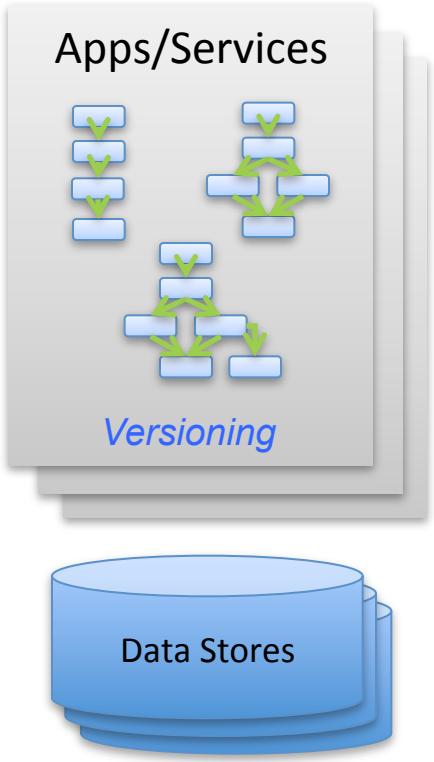


Resilience

Fallbacks, graceful degradation, thread isolation, fail fast and rapid recovery

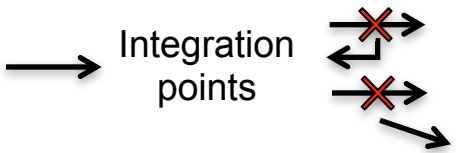
Configuration

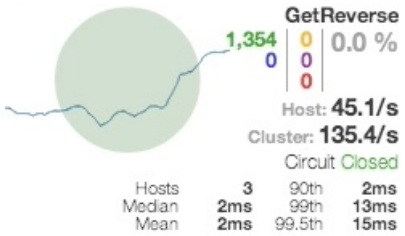
Realtime configuration and service changes



Fault isolation

Avoid cascading failures, and transparently retry failed invocations





Metrics/Monitoring

Quickly ascertain status and throughput of applications/services

How are IBM Enterprise Containers priced?

- Choice of pre-sized Containers (t-shirt sizes)
  - Sizes for compute resources are based on Memory and Disk Storage
  - Pricing is based on actual usage of container size at a single GB/hour fee
  - 365 container GB hours free monthly
    (i.e. 365 hours of 1 medium container running)

- 30-day free trial of an IBM Containers environment
  (up to: 8 containers, 2 GB total memory, 2 public IP address, 20 GB external storage)

- Upgrade Options for a fee:
  - Public IP addresses ~ increments of 8 IPs at $12/mon
  - External Storage Volumes ~ increments of 20GB at $12/mon

16MB & 32 MB options available

2XTiny	XTiny	Tiny	Small	Medium	Large	XLarge	2XLarge
64MB Memory	128MB Memory	256MB Memory	512MB Memory	1GB Memory	2GB Memory	4GB Memory	8GB Memory
0 GB Local Storage	0 GB Local Storage	10 GB Local Storage	20 GB Local Storage	40 GB Local Storage	80 GB Local Storage	120 GB Local Storage	160 GB Local Storage

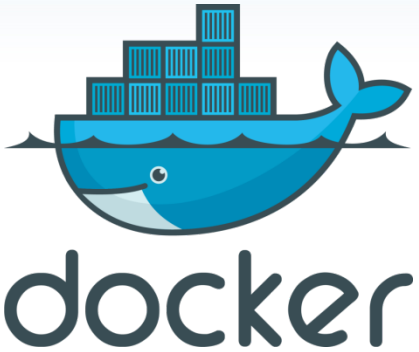
$0.00047 Memory GB/Minute Container Fee

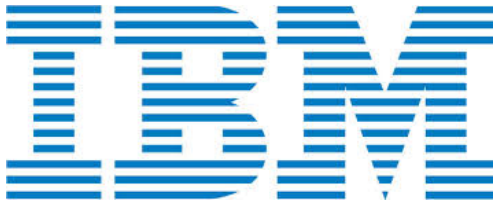
Customers only pay for the resources that are used.

[1]Shared vCPU

Summary

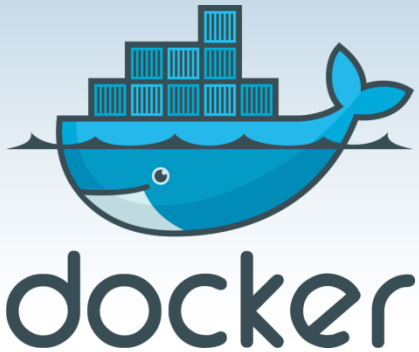
- Docker has changed the way that software is packaged, distributed, and deployed
- IBM has partnered with Docker to provide enterprise services for distributed hybrid workloads
  - IBM Enterprise Containers on Bluemix
  - DevOps delivery Pipeline with Docker
  - Hybrid Cloud deployment automation with Docker and UrbanCode Deploy
  - PureApplication Systems & Services builds, deploys and runs Pure patterns with Docker containers
  - Docker Hub Enterprise

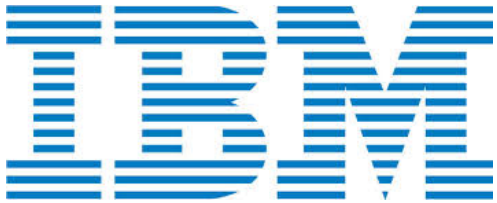




Where can I go for help?

- **Details** on Containers
  - https://www.ng.bluemix.net/docs/
- Containers **white paper**
  - https://w3-connections.ibm.com/communities/service/html/communityview?communityUuid=282da11c-af64-4816-b905-42b3d1b632a1
- **Approaches** to packaging your app
  - https://console.ng.bluemix.net/solutions/open-architecture
- **Demo** of IBM Enterprise Containers
  - https://www.youtube.com/watch?v=1UNMo4gTtKo
- **Blog** on IBM Enterprise Containers
  - http://thoughtsoncloud.com/2015/02/5-game-changing-capabilities-from-ibm-containers-on-bluemix/
- Containers **Labs**
  - https://developer.ibm.com/bluemix/docs/category/containers/
- Containers **Q&A** in DeveloperWorks
  - https://developer.ibm.com/answers/topics/containers.html
- **Blog post** - IBM Containers on Bluemix using the CLI and existing Docker images
  - https://www.linkedin.com/pulse/ibm-containers-bluemix-using-cli-existing-docker-images-chris-rosen?trk=hb_ntf_MEGAPHONE_ARTICLE_LIKE





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Thanks