DOCKER ECOSYSTEM

Service Discovery

Marathon
Runs on
Mesos
Apache

Panamax is a containerized app creator with an open-source app marketplace hosted in GitHub. Panamax provides a friendly interface for users of Docker, Fleet & CoreOS. With Panamax, you can easily create, share and deploy any containerized app no matter how complex it might be. Stitch together Docker containers. You can configure links, ports and environment variables, as well as organize your application services into categories.
Save your application template to a git repository and share it with your friends. You can source your friends' template repositories or submit a pull request and have your template be canonical and accessible by anyone in the world. www.panamax.io

With the help of Docker executor for Mesos, Mesos can run and manage Docker containers in conjunction with Chronos and Mesosphere's Marathon frameworks. mesos.apache.org

Marathon is an Apache Mesos framework for long-running applications. Given that you have Mesos running as the kernel for your datacenter, Marathon is the init or upstart daemon. Marathon provides a REST API for starting, stopping, and scaling applications. Marathon is written in Scala and can run in highly-available mode by running multiple copies. http://mesosphere.github.io/marathon/

A highly-available key value store for shared configuration and service discovery. github.com/coreos/etcd

Flynn is a "distribution" of components that out-of-the-box gives companies a reasonable starting point for an internal "platform" for running their applications and services.
Flynn is the banner for a collection of independent projects that together make up a toolkit or loose framework for building distributed systems. Flynn is both a whole and many parts, depending on what is most useful for you. The common goal is to democratize years of experience and best practices in building distributed systems. It is the software layer between operators and developers that makes both their lives easier.
www.flynn.io

Serf
Flynn

Serf is a tool for cluster membership, failure detection, and orchestration that is decentralized, fault-tolerant and highly available. Serf runs on every major platform: Linux, Mac OS X, and Windows. It is extremely lightweight: it uses 5 to 10 MB of resident memory and primarily communicates using infrequent UDP messages. Serf only provides membership, failure detection, and user events. www.serfdom.io

CoreOS is designed for security, consistency, and reliability. Instead of installing packages via yum or apt, CoreOS uses Linux containers to manage your services at a higher level of abstraction. A single service's code and all dependencies are packaged within a container that can be run on one or many CoreOS machines. coreos.com

Shipyard
includes
Helios
Spotify

Built on the Docker cluster management toolkit Citadel, Shipyard gives you the ability to manage Docker resources including containers, hosts and more. Shipyard differs from other management applications in that it promotes composability. At the core, Shipyard only manages Docker (containers, etc). However, using "Extention Images" you can add functionality such as application routing and load balancing, centralized logging, deployment and more. You decide which components to use that fit your needs. shipyard-project.com

Helios is a Docker orchestration platform for deploying and managing containers across an entire fleet. github.com/spotify/helios

Citadel

A docker centric package for scheduling containers on a docker cluster. citadeltoolkit.org

Consul

A tool for discovering and configuring services in your infrastructure. It provides several key features: Service Discovery, Health Checking, Key/Value Store, Multi Datacenter. www.consul.io

Prometheus
SoundCloud

Prometheus is a systems and service monitoring system. It collects metrics from configured targets at given intervals, evaluates rule expressions, displays the results, and can trigger alerts if some condition is observed to be true. http://prometheus.io

Zenoss Control Center
NEW

Zenoss Control Center is an open source application management and orchestration system. Control Center can not only manage the Zenoss platform but other Docker applications, from a simple web application to a multi-tiered stateful application stack. Control Center is based on a service oriented architecture which enables applications to run as a set of distributed services that can span hosts, datacenters, and geographic regions. A simple declarative application template file is used to describe how an application is configured, deployed, managed and monitored. Declarative monitoring support is built into Control Center. Applications can be automatically monitored and modeled upon provisioning. www.controlcenter.io

Scout
NEW

Scout collects key performance metrics automatically. Scout automatically monitors new servers when they come online. Scout's agent includes a feather-weight StatsD collector. No separate monitoring server to manage: just install our agent and you've got monitoring. Scout's roles-based approach to grouping servers makes monitoring group of servers as easy a one server. scoutapp.com

Signal fx
NEW

High resolution. Streaming and historical analytics. Multidimensional metrics. Uses CollectD plugin for Docker. As soon as the docker-collectd-plugin is installed, and assuming your CollectD is configured to send metrics to SignalFx, it will start reporting container metrics for the running containers on that host, with any new container being picked up automatically. Once you log into SignalFx, you should see a new Docker page that was automatically created with a dashboard showing your container statistics in real time.
blog.signalfx.com/signalfx-is-proud-to-join-the-docker-ecosystem-technology-partner-program

Sysdig cloud
NEW

Sysdig Cloud's new approach to monitoring provides visibility into Docker, LXC, and libvirt-lxc container technologies. At a high level, it is as simple as this: with Sysdig Cloud you get full visibility inside every container, but you do it from outside the containers.
Sysdig Cloud's approach is grounded in the fact that containers all share a common kernel with their host OS. The Sysdig Cloud agent is installed on the host OS or into its own privileged container. From here, Sysdig Cloud is able to collect the internal activity of every container, along with the broader context of the host system! And of course all the information is then correlated together across all of your distributed host systems – containerized or not.
The result? A holistic view of your entire distributed infrastructure and full context into how containers interact with each other and with other components of your systems. PLUS the ability to drill down into what happens inside any container, no matter what popular container technology you're running. sysdig.com/distributed-container-monitoring-sysdig-cloud-revolution/

OpenShift Origin
geard
Project Atomic
uses
Redhat

Project Atomic facilitates application-centric IT architecture by providing an end-to-end solution for deploying containerized applications quickly and reliably, with atomic update and rollback for application and host alike. The core of Project Atomic is the Project Atomic Host. This is a lightweight operating system that has been assembled out of upstream RPM content. It is designed to run applications in Docker containers. Atomic taps geard to install and link Docker containers into systemd and coordinate these containers across hosts. www.projectatomic.io

RancherOS

Built on Docker: a minimalist Linux distribution for running Docker containers. Docker is run directly on top of the Linux Kernel, and all user-space Linux services are distributed as Docker containers. There is no need to use a separate software package distribution mechanism for RancherOS itself.
An OS made of Containers: the Docker daemon runs as PID 1, the first process the kernel starts. It is responsible for initiating system services, such as udev, DHCP and the console. System Docker takes the place of the init system, such as sysvinit or systemd, in other Linux distributions.
rancher.com/rancher-os/

Rancher
uses

Provides infrastructure services such as multi-host networking, global and local load balancing, and volume snapshots. It integrates native Docker management capabilities such as Docker Machine and Docker Swarm. www.rancher.io

Datadog

Datadog Agent uses the native cgroup accounting metrics to gather CPU, memory, network and I/O metrics of the containers every 15 seconds before they are forwarded to Datadog.
www.datadoghq.com/integrations/#docker

Docker Monitoring Extention for AppDynamics
NEW

community.appdynamics.com/t5/eXchange-Community-AppDynamics/Docker-Monitoring-Extension/idi-p/14749

New Relic
NEW

New Relic Docker Beta will enable the following features: Navigation between Application Performance Monitoring and Servers when applications are hosted within Docker containers. Granular visibility about containers and hosts that are running your APM-instrumented applications.CPU and Memory metrics rolled up by Docker image for a given host. A historical view of number of running containers of a given Docker image type.
discuss.newrelic.com/t/how-to-try-out-the-docker-beta/19478

Orchestration

Panamax
Runs on
uses

etcd
fleet
CoreOS
Rudder
CoreOS Inc

Kubernetes
Google

Kubernetes enables users to ask a cluster to run a set of containers. The system automatically chooses hosts to run those containers on. Has scheduler.
Architecturally, we want Kubernetes to be built as a collection of pluggable components and layers, with the ability to use alternative schedulers, storage systems, and distribution mechanisms.
Kubernetes is intended to run on multiple cloud providers, as well as on physical hosts.
A single Kubernetes cluster is not intended to span multiple availability zones.
Kubernetes is not currently suitable for use by multiple users.
Kubernetes provides higher-level organizational constructs in support of common cluster-level usage patterns, currently focused on service applications, but which could also be expanded to batch and test workloads in the future. http://kubernetes.io.

Cloud66

libswarm
replaced by

Centurion

Docker

Automation

Stackato

Stackato is the first enterprise-grade, cloud application platform to incorporate Docker, an open-source project focused on packaging and deploying Linux Containers (LXC). In addition to securing your application from others in your cloud, these containers also provide a number of benefits to organizations such as utilizing computing resources more efficiently, simplifying the application lifecycle and enabling workload portability. www.activestate.com/stackato

hroot

Hroot provides transports and straightforward configuration files for Docker. Strongly version your containers, then distribute them offline or over SSH & HTTP with git! github.com/polydawn/hroot

Shutit

Fleet ties together systemd and etcd into a distributed init system. Think of it as an extension of systemd that operates at the cluster level instead of the machine level. This project is very low level and is designed as a foundation for higher order orchestration. github.com/coreos/fleet

Shutit is a tool for managing your build process that is both structured and flexible. Complex Docker Builds Made Simple.
github.com/ianmiell/shutit

Docker IaaS tools

Overlay network. github.com/coreos/rudder

Docker IaaS Tools is a tool set for creating basic single-host multi-tenant IaaS. github.com/pyotr777/dockerIaaSTools

Powerstrip

Powerstrip is a configurable, pluggable HTTP proxy for the Docker API which lets you plug multiple Docker extension prototypes into the same Docker daemon. github.com/ClusterHQ/powerstrip

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Fig
replaced by
Compose
Docker Swarm
Docker Machine
Kitematic
socketplane

Fast, isolated development environments. www.fig.sh

Cloud66 is a paid service for managing applications in Docker containers on a number of cloud providers.
http://www.cloud66.com

libswarm is a toolkit for composing network services. It defines a standard interface for services in a distributed system to communicate with each other.

Compose is a tool for defining and running complex applications with Docker. With Compose, you define a multi-container application in a single file, then spin your application up in a single command which does everything that needs to be done to get it running. Compose is great for development environments, staging servers, and CI. We don't recommend that you use it in production yet. https://github.com/docker/compose

Docker Swarm is a simple tool which controls a cluster of Docker hosts and exposes it as a single "virtual" host. It's Docker-native clustering system. It allows you to connect to a single Docker endpoint and run containers on an entire cluster.
https://github.com/docker/swarm/

Docker Machine makes it really easy to create Docker hosts on your computer, on cloud providers and inside your own data center. It creates servers, installs Docker on them, then configures the Docker client to talk to them.
https://docs.docker.com/machine/

Desktop application for running Docker in VirtualBox on OS X with GUI. https://kitematic.com

Open vSwitch-based Software Defined Networking over Docker for container-based clouds. SocketPlane provides a networking abstraction at the socket-layer. http://socketplane.io

Centurion is deployment tool for Docker. Takes containers from a Docker registry and runs them on a fleet of hosts with the correct environment variables, host volume mappings, and port mappings. https://github.com/newrelic/centurion

Flocker
ClusterHQ

OpenShift Origin is the open source upstream of OpenShift, the next generation application hosting platform developed by Red Hat. Also known as Platform-as-a-Service, OpenShift takes care of infrastructure, middleware, and management so that you can focus on your app. www.openshift.org

geard is a command-line client and agent for integrating and linking Docker containers into systemd across multiple hosts.
http://openshift.github.io/geard/

Flocker lets you move your Docker containers and their data together between hosts. This means that you can run your databases, queues and key-value stores in Docker and move them around as easily as the rest of your app. Even stateless apps depend on many stateful services and currently running these services in Docker containers in production is nearly impossible. Flocker aims to solve this problem by providing an orchestration framework that allows you to port both your stateful and stateless containers between environments. clusterhq.com

weave
Tenus
pipework

Weave creates a virtual network that connects Docker containers deployed across multiple hosts.
Applications use the network just as if the containers were all plugged into the same network switch, with no need to configure port mappings, links, etc. Services provided by application containers on the weave network can be made accessible to the outside world, regardless of where those containers are running. Similarly, existing internal systems can be exposed to application containers irrespective of their location. github.com/zettio/weave

Tenus is a Golang package which allows you to configure and manage Linux network devices programmatically. It communicates with Linux Kernel via netlink to facilitate creation and configuration of network devices on the Linux host. The package also allows for more advanced network setups with Linux containers including Docker. http://github.com/milosgajdos83/tenus

Software-Defined Networking for Linux Containers. github.com/jpetazzo/pipework

Monitoring

OS

Networking

Data Management

2015/06/11 Bryzgalov Peter @ Japan, RIKEN, AICS