DATASHEET

Distributed Environments With Containers

Increased flexibility, efficiency and reliability through automated deployments and orchestration

In recent years, there has been a clear trend away from physical hardware and towards virtualization. The reasons are diverse: costs need to be reduced, activities should be automatized and downtime decreased. Even though virtual machines offer clear advantages compared to physical hosts, they are still cumbersome to manage, especially when the number of users or the relevance of the infrastructure increases. Additionally, the installation of additional machines e.g. for testing or training purposes as well as a proper documentation is extremely time consuming. Therefore, container-based virtualization is finding its way into the IT infrastructure of companies, as the benefits of containers are obvious: They are more flexible, efficient, faster, and stable, have many advantages in maintenance, and make applications scalable. However, as soon as the container architecture becomes more complex the next challenges arise: How to deploy and manage those numerous isolated, stand-alone software packages (containers) of software pieces? fme supports you with the creation of container infrastructures and container orchestration.

Benefits

Increased stability
Due to the redundancy of the containers and the automated monitoring through orchestration tools, a high stability of the software installation is guaranteed. Moreover, software containers can automatically be reseted to their initial state after each re-start to drop unwished changes, avoid corrupted files, and to increase the reliability regarding the ongoing state of the container as well as to reduce the backup need for this immutable software containers. Additionally, it is easily possible to roll back any updates of data containers.

Improved predictability
Due to their effective isolation, changes only affect the container itself. Therefore, the impact of changes can be rated reliably.

Fast testing of new software versions
It is possible to copy and change existing containers easily to create temporary throwaway containers for testing purposes of new software versions.

Ensure repeatability
Through scripts, manual effort is reduced to a minimum. Thus, errors or deviations are avoided so there is a high probability of repeating processes one-to-one (e.g. when changing the computing environment) ensuring unity for all stages of environments.

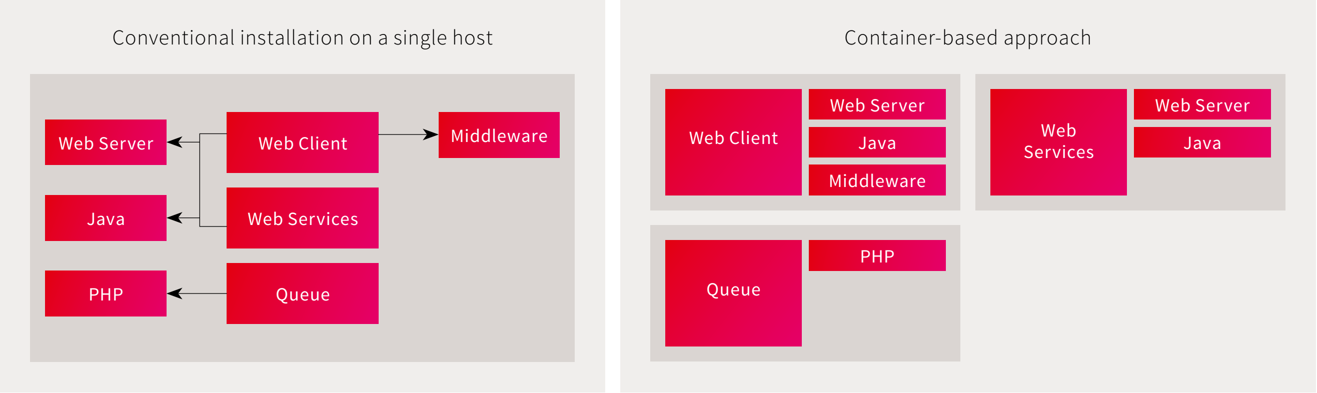
Considerably less documentation
Fewer documentation is needed due to less manual work. Especially highly regulated companies like Life Sciences companies profit from the automatic rollout processes streamlining their installation qualifications (IQ).

Quickfacts Container

Containers rely on an isolation layer provided by the operating system (OS). The purpose of a container is to host a dedicated software package namely a service (and its dependencies) with the following advantages:

- Services run reliably and consistently when moved or copied from one computing environment to another (e.g. from development to testing, from testing to production).
- The isolation is enforced by the host OS and most core OS services are shared from the host system without any needed hypervisor, which means that container are more lightweight than virtual machines (VMs).
- They hold only components necessary for the service, which is intended to be provided by the appropriate container. Therefore, each container has a dedicated purpose.
- Containers do not affect each other, so containers with same software and different versions can be run on the same host (e.g. for intermediate testing purposes).
- Usually software and data are spread over different containers, differentiating between changing and immutable containers.

Extreme timesavings in documentation & rollout
Significant timesaving in documentation and at new rollouts can be achieved, as the pre-build, script-based container images which are already tested in the test system can be used in other areas, e.g. in the productive system, without testing them all over again. Instead of several days, rollouts can often be done within an hour with a minimum of downtime.



Our Offering

We assist you with the implementation of a container and orchestration infrastructure as well as the creation of needed container images. Furthermore, we offer you a comprehensive container service package containing e.g. log aggregation and orchestration services to ensure your container landscape runs smoothly.

Workshops
Togehter with you, we identify your exact needs and analyze your current infrastructure. On this basis we will work with you to create an overall roadmap for introducing container infrastructure in your company.

Implementation of containers and creation of images
After extensive consultation, our fme containerization experts enable a smooth container implementation and support you with the creation of images.

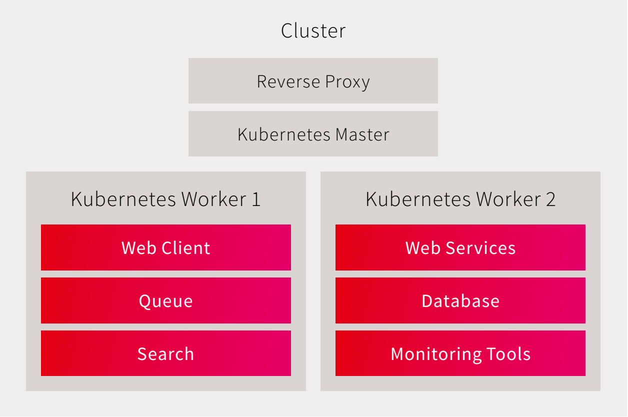
Log aggregation services
As well as with conventional e.g. OpenText Documentum installations numerous log files are spread over many hosts and directories when using software containers. For more convenient and faster access, the generated log messages can be collected by log aggregations. The so-called ELK stack is used to simplify searching and analyzing large sets of log files. This stack consist of Elasticsearch (for indexing), Logstash (for grabbing and splitting log messages), and Kibana (as web-based user interface). With our log aggregation service, we provide you with a powerful analysis tool.

Orchestration services
Providing and managing only a few containers is comparatively simple, setting up a multi-tier application without using additional tools is extremely difficult. Orchestration tools like Kubernetes offer the solution by taking control over the containers: They provide a powerful platform for automated management of all related services, deployment, scaling, failure recovery and more – they basically automate the deployment and execution, and they function as a link between the isolated containers.

Quickfacts Orchestration

An orchestration software is able to manage containers automatically. This includes following aspects:

- Launching of needed containers on hosts with idle resources
- Monitoring of containers and re-starting of faulted containers
- Scaling of containers
- Propagating configuration data into the containers
- Applying resource limits
- Partitioning your host cluster into namespaces and zones



Orchestration

Your Partner For Distributed Environments with Containers

With our containerization and orchestration expertise, fme is your partner of choice for your container projects.

We look forward to your challenge!