



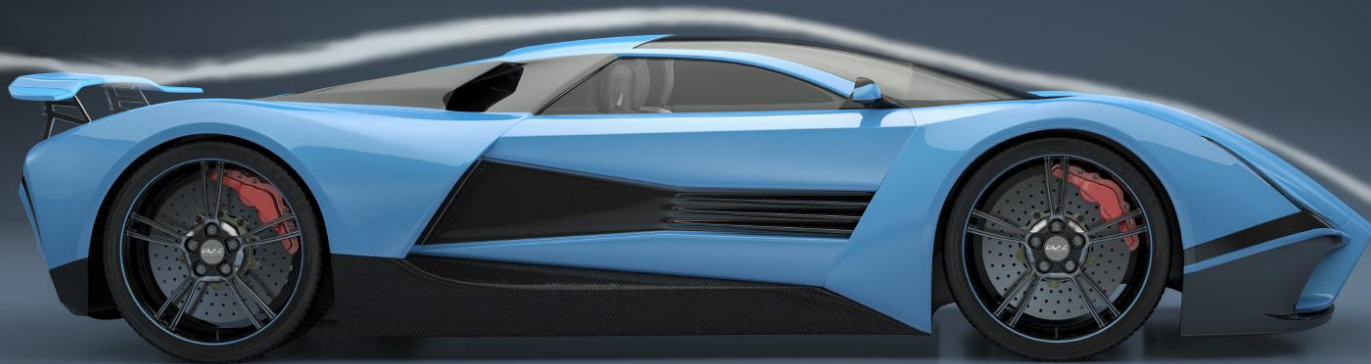
NAFEMS  
AMERICAS  
CONFERENCE  
2016

# Toward the Democratization of CAE with Software Containers

Burak Yenier and Wolfgang Gentzsch  
UberCloud Co-founders



We enable you to use your favorite  
CAE software - as a service





**2012**

**Founded**

in Silicon Valley  
by Burak Yenier & Wolfgang Gentzsch  
Offices in California & Germany

**2014**



**2016**



**2013**



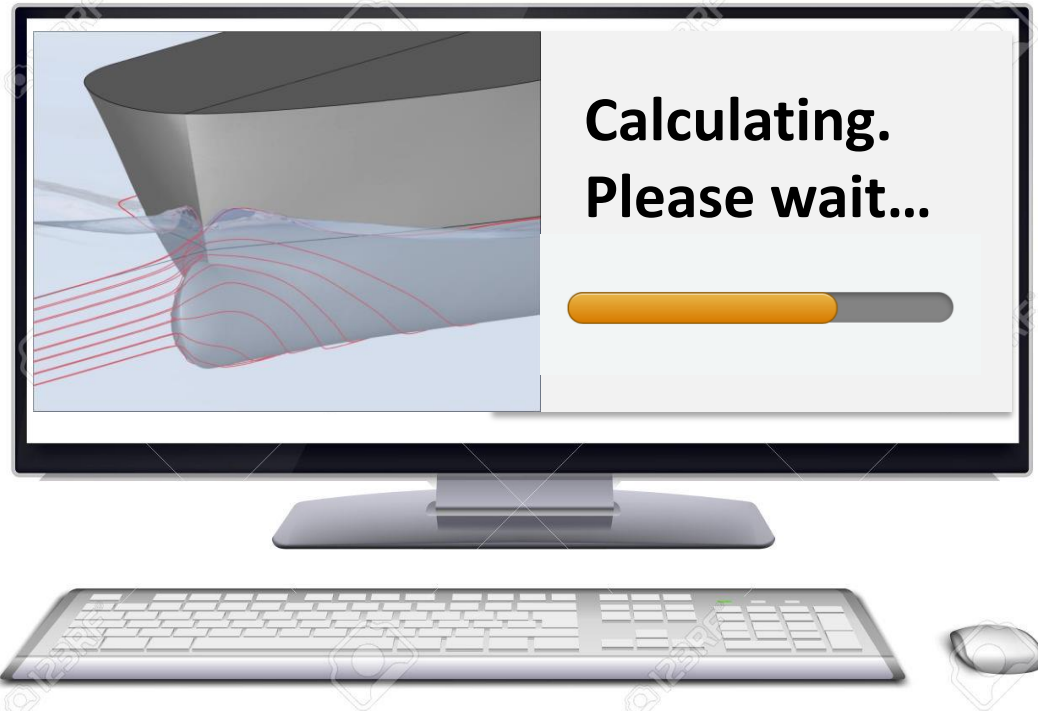
**2015**



## BEFORE UBERCLOUD

**100 Hours  
per run**

## OUR SHIPBUILDER CUSTOMER



## WITH UBERCLOUD

**10 Hours  
per run**



Delivers 10x performance  
with containerized software  
running in the Cloud.



# CAE for the Masses

CAE & traditional HPC

CAE for the Masses

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Tight coupling

-->

Portability

Speed, speed, speed

-->

UX, UX, UX

Customize everything

-->

Automate everything

The background of the slide features a pattern of overlapping triangles in various shades of gray, creating a geometric, crystalline effect.

Computer Aided Engineering for the Masses

**Your competition is already  
using this new tool.**



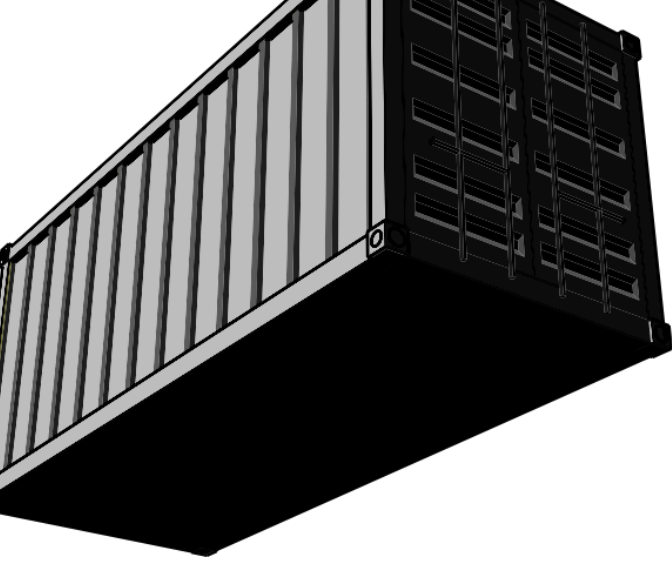
# Software Containers

## What are they?

Core feature of Linux, enabling virtualization of the OS.

Container technology is not new.

Containers offer a solution for portability of software reliably from one computing environment to another.



# Software Containers

## Why relevant?

Extremely low overhead, has small image sizes.

Works on most modern Linux kernel versions.

UberCloud uses containers to automate distribution of ready-to-run bundles of engineering software, tools, and configuration to any Cloud.





# Software Containers

## An Example:

```
FROM          ubuntu:14.04
RUN           apt-get update && apt-get install -y redis-server
EXPOSE        6379
ENTRYPOINT    [ "/usr/bin/redis-server" ]
```

```
$ docker build -t <your username>/redis .
```

```
$ docker run --name redis -d <your username>/redis
```

# UberCloud Containers

Application Layer

ANSYS



Middleware Layer



Base Layer



redhat

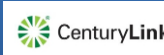


CentOS

Infrastructure Integration



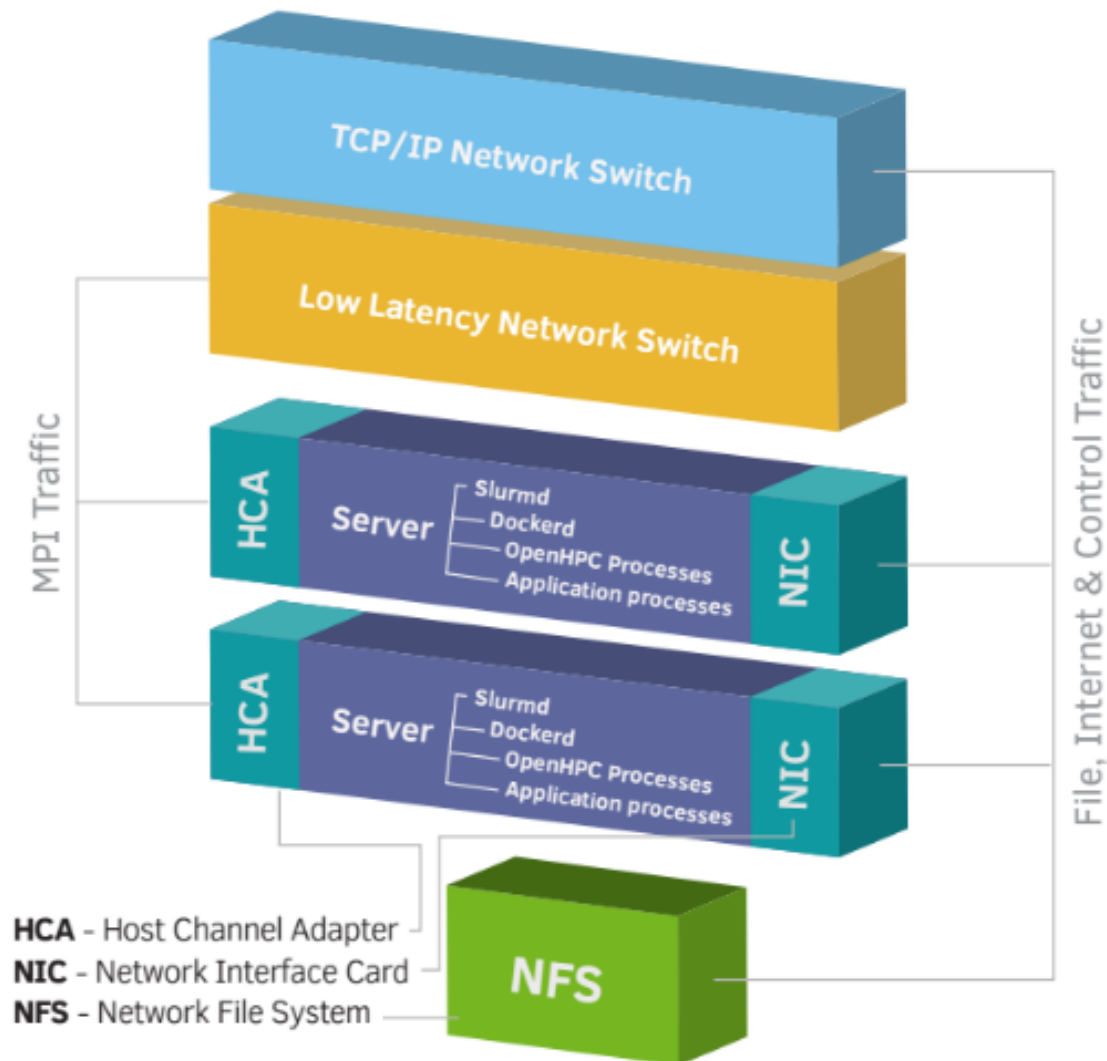
Microsoft



Container Run time

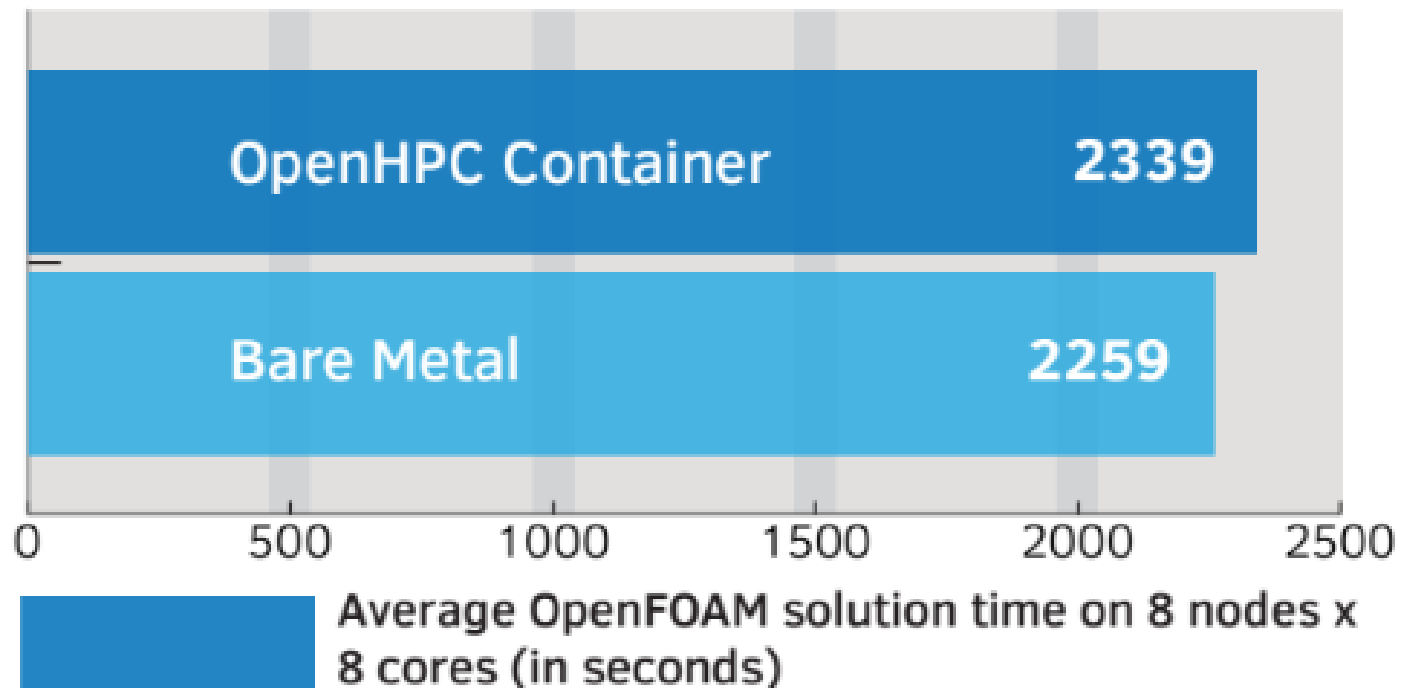


# Deploying High Performance Containers



# Parallel Processing Performance

OpenHPC container has minimal performance impact when compared to bare metal performance





Here is my most important point...

**CAE as a service offers  
are not perfect!**

# CAE as a service: What to look for

- YOUR CAE app running on on-demand
- Pre- and post-processing working the same way that it would on your desktop
- User experience matches your desktop
- Parallel processing on a dedicated infra
- Automated monitoring to keep you connected, in control
- Information security controls

CAE for the Masses is here. Let me demonstrate that...

**You can and you need to  
learn how to use this new tool.**

<http://www.theubercloud.com/burak-yenier-at-the-stanford-hpc-conference-ubercloud-workloads-marketplace/>

**Live DEMO**



# Your Cloud is already supported

- Azure
- CPU24/7
- R-Systems
- Advania
- NephoScale
- And others...

# Your CAE software is already supported

- ANSYS
- ABAQUS
- NEOSIS
- RED-CEDAR
- STAR-CCM+
- And others...

# Don't be left behind...

- Email [burak@TheUberCloud.com](mailto:burak@TheUberCloud.com) for :
  - A relevant, detailed case study to inspire you
  - 30 minute demo of your CAE s/w as a service
  - ROI study for your business

# Thank You!

Burak Yenier  
Co-founder and CEO  
[Burak@TheUberCloud.com](mailto:Burak@TheUberCloud.com)

# Thank You!

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