Toward the Democratization of CAE with Software Containers

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UberCloud Co-founders
We enable you to use your favorite CAE software - as a service
Established in 2012 in Silicon Valley by Burak Yenier & Wolfgang Gentzsch. Offices in California & Germany.
Calculating. Please wait...

Before UberCloud:
100 Hours per run

With UberCloud:
10 Hours per run

Delivers 10x performance with containerized software running in the Cloud.
<table>
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<th>CAE &amp; traditional HPC</th>
<th>CAE for the Masses</th>
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<td>Tight coupling</td>
<td>--&gt; Portability</td>
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<tr>
<td>Speed, speed, speed</td>
<td>--&gt; UX, UX, UX</td>
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<td>Customize everything</td>
<td>--&gt; Automate everything</td>
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Computer Aided Engineering for the Masses

Your competition is already using this new tool.
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

Middleware Layer

Base Layer

Infrastructure Integration

Container Run time
Deploying High Performance Containers
Parallel Processing Performance

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

- **OpenHPC Container**: 2339
- **Bare Metal**: 2259

Average OpenFOAM solution time on 8 nodes x 8 cores (in seconds)
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.

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 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!

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Thank You!