



Bachelor thesis

Cloud infrastructure controlling for resource optimized use of distributed algorithms

Max Schrimpf

Objectives

- Evaluation of different Infrastructure as a service providers
- Evaluation of possibilities to configure and distribute different applications with all their dependencies in a cloud environment
- Definition of a concept for a computation
 - Start
 - Monitoring
 - Stop
- Implementation of a prototype for the defined concept.
- Test of the prototype with a sample computation.
- [...]

Technologies



CoreOS

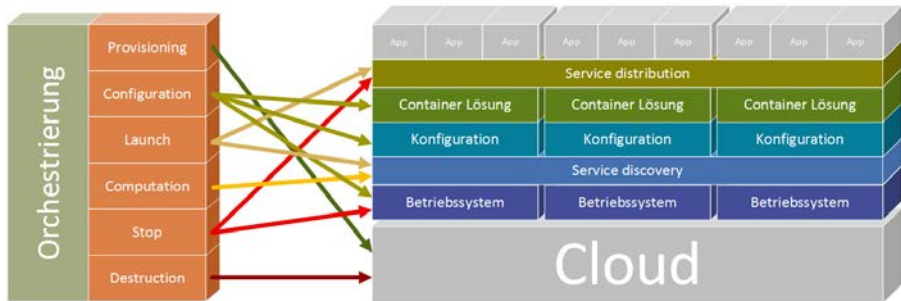


ANSIBLE



SWITCH

Concept of a computation



Elapsed time of the CPU benchmark (in seconds)

	1 Thread	2 Threads	4 Threads	8 Threads	∅
EC2	42.9704	43.0945	43.1302	43.107	43.0755
SWITCH	44.0359	42.7589	42.2763	43.3047	43.094
GCE	43.2985	43.3765	43.4104	43.3554	43.3602
Azure	55.1634	55.2703	55.2612	55.1446	55.2099

RAM speed (in MB/sec)

	1 Thread	2 Threads	4 Threads	∅
GCE	887.675	914.912	914.3	905.629
SWITCH	819.86	817.545	830.818	822.741
EC2	387.105	395.265	395.363	392.578
Azure	274.842	268.072	289.077	277.331

SWITCH engines as part of the thesis

- Without SWITCH engines the continuous tests of the prototype would have been way to expensive
 - Tests over many days
 - Tests with a high number of CPUs (up to 74)
 - Uncomplicated support in case of questions
- ⇒ The offering of SWITCH engines made this thesis possible

Questions?

