Cloud Computing

Summer Term 2017
Tutorial Session 3

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Complex and Distributed IT-Systems

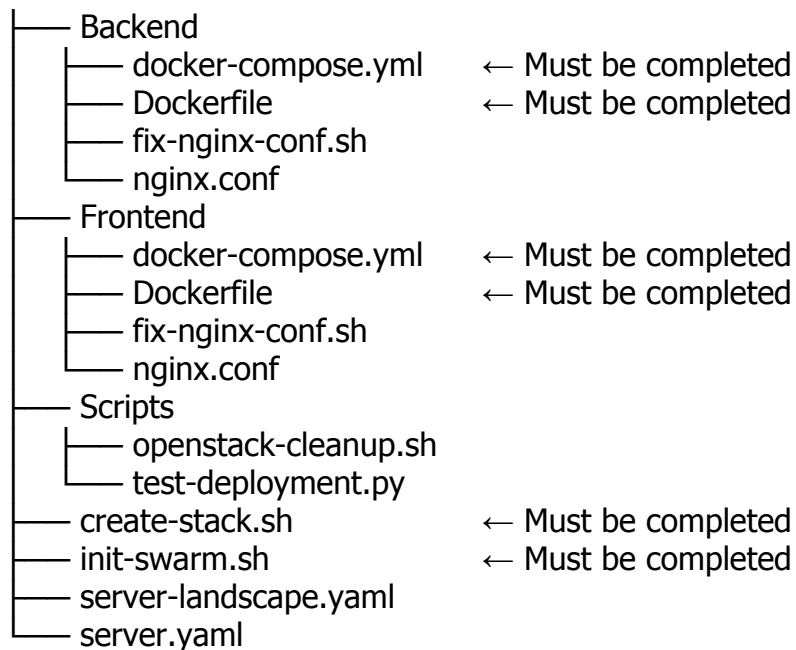anton.gulenko@tu-berlin.de

Organization

- Last tutorial session before the exam
- An example exam will be uploaded on ISIS
- Grading the assignments will take until the end of the semester
- If you want to change groups for assignment 3: write me a short email

Project Assignment 3

- Due: 16.07.2017 23:59
- Summary:
  - Deploy replicated services in the VMs created by Heat
  - Create and upload Docker containers
  - Use Docker swarm to replicate and manage services

- Submission
  - Through ISIS
  - One single **.zip** file

Project Assignment 3 Submission

- Submission for this assignment: **.zip** file
- Directory and file structure exactly like the provided assignment3-resources.zip file.
- You have to complete parts of the provided files (replace **[[TODO]]**)
- Your solution will mostly be graded by automated scripts.
- Hint:
  - server-landscape.yaml is an extended version of the "solution" for the Heat stack you developed in assignment 2

```
├── Backend
│   ├── docker-compose.yml        ← Must be completed
│   ├── Dockerfile                ← Must be completed
│   ├── fix-nginx-conf.sh
│   └── nginx.conf
├── Frontend
│   ├── docker-compose.yml        ← Must be completed
│   ├── Dockerfile                ← Must be completed
│   ├── fix-nginx-conf.sh
│   └── nginx.conf
├── Scripts
│   ├── openstack-cleanup.sh
│   └── test-deployment.py
├── create-stack.sh               ← Must be completed
├── init-swarm.sh                 ← Must be completed
├── server-landscape.yaml
└── server.yaml
```

Docker

- Uses containers: a lightweight form of virtualization
- Containers share the same kernel, but are not aware of each other
- Can be used inside VMs to combine the benefits of both virtualization techniques
- Defines format for containers and tool chain for managing containers, uploading them to container registries for sharing, etc.
- Docker compose: describes how to run a service based on a container image
- Docker swarm: runs service stacks distributed on multiple docker hosts

- nginx: Open-Source HTTP server similar to Apache
  - Used as service-layer in this assignment

Target Deployment