

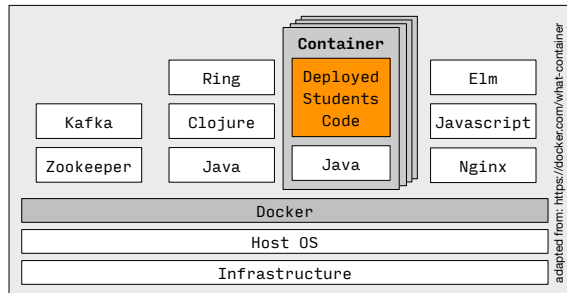
VIRTUALISIERTE ARBEITSUMGEBUNG FÜR DEN TEST VERTEILTER SYSTEME

Microservice-Architektur mit Docker, Kafka, Clojure & Elm

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GLIEDERUNG

1. Kontext
2. Docker
3. Inspiration
4. „VAR-Tool“
5. Ausblick

KONTEXT

BISHERIGER ABLAUF

ANFORDERUNGEN

ERHOFFTE VORTEILE

DOCKER

DESCRIPTION

CONTAINER

DOCKERFILE

- Deskriptive & triviale Beschreibung eines Systems und dessen Bestandteile
- Trägt implizit zur Dokumentation bei

DOCKER-COMPOSE

- Definition von Services als Bestandteil einer App
- Dokumentation!

INSPIRATION

TMUX PANES

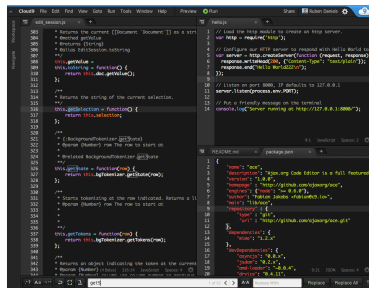
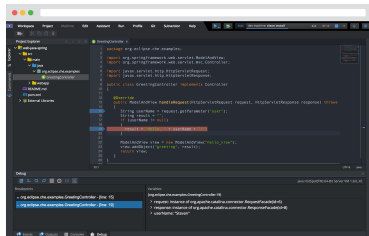
```

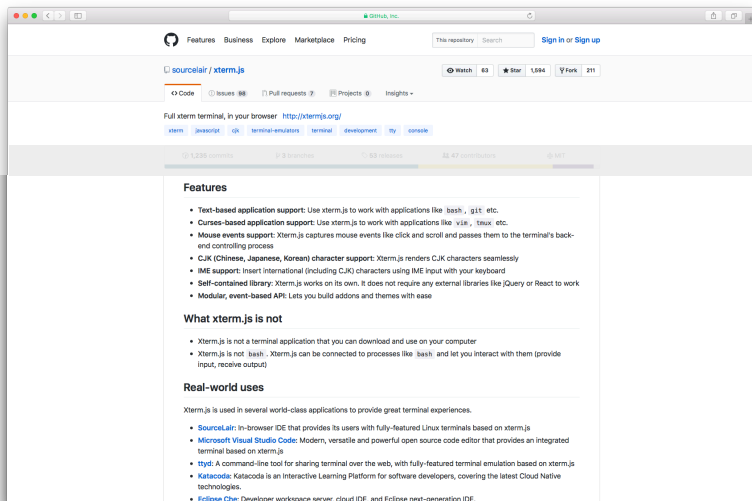
4/28/2020
jen-mbp21docker-var jan$ ls -ls
total 64
drwxr-xr-x 13 jan staff 442 May 29 12:27 .
drwxr-xr-x 20 jan staff 608 Jun 5 21:53 ..
-rw-r--r-- 1 jan staff 8196 Jun 19 20:46 .DS_Store
drwxr-xr-x 17 jan staff 678 Jun 19 21:27 .git
-rw-r--r-- 1 jan staff 2076 Apr 10 16:47 .gitignore
-rw-r--r-- 1 jan staff 104 May 26 19:52 .gitmodules
-rw-r--r-- 1 jan staff 1075 Apr 10 16:46 LICENSE
-rw-r--r-- 1 jan staff 25 May 8 22:11 README.md
drwxr-xr-x 12 jan staff 408 Jun 19 21:27 client
-rw-r--r-- 1 jan staff 1271 May 26 19:53 docker-compose.yml
drwxr-xr-x 15 jan staff 518 May 26 19:53 docker-master
drwxr-xr-x 8 jan staff 272 Jun 19 10:41 docs
drwxr-xr-x 10 jan staff 340 May 26 19:33 kafka-websocket
jen-mbp21docker-var jan$
|
| | tokenize-arg-string.js
| | |-- node_modules
| | | |-- camelcase
| | | |-- index.js
| | | |-- license
| | | |-- package.json
| | | |-- readme.md
| | | |-- package.json
| |-- package.json
| |-- public
| |-- css
| | |-- app.css
| | |-- app.css.map
| |-- index.html
| |-- js
| | |-- app.js
| | |-- app.js.map
|
| 1268 directories, 6762 files
jen-mbp21docker-var jan$
|
| ./bootstrap.sh && \
| make install && \
| cd .. && rm -rf kafkacat
| # && AUTO_ADDED_PACKAGES="apt-mark showauto" && \
| # apt-get remove --purge -y $BUILD_PACKAGES $AUTO_ADDED_PACKAGES && \
| # rm -rf /var/lib/apt/lists/* /tmp/* /var/tmp/*
|
| RUN mkdir -p /usr/src/app
| WORKDIR /usr/src/app
|
| # closure app
| # COPY project.clj /usr/src/app/
| # run lein deps
| # copy . /usr/src/app
| # RUN mv "lib/uberjar" sed -n 's/^Created (.*/standalone.jar)/i/p' app-standalone.jar
|
| # ENTRYPOINT ["kafkacat"]
| # CMD ["java", "-jar", "app-standalone.jar"]
| CMD ls -ls | kafkacat -b kafka -t logSTOKEN
jen-mbp21docker-var jan$

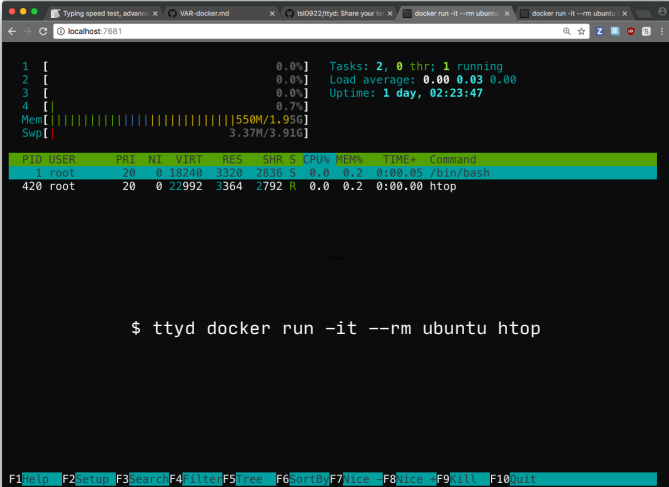
```

CLOUD-IDES

- Cloud 9
- Source Lair
- Eclipse Che
- ...







The screenshot shows a web browser window with multiple tabs. The active tab is titled 'ts/0922/ttyd: Share your terminal'. The browser address bar shows 'localhost:7681'. The terminal content is as follows:

```
1 [                                0.0%] Tasks: 2, 0 thr; 1 running
2 [                                0.0%] Load average: 0.00 0.03 0.00
3 [                                0.0%] Uptime: 1 day, 02:23:47
4 [                                0.7%]
Mem[|||||]550M/1.95G
Swp[|||||]3.37M/3.91G
```

PID	USER	PRI	NI	VIRT	RES	SHR	S	CPU%	MEM%	TIME+	Command
1	root	20	0	18240	3320	2836	S	0.0	0.2	0:00.05	/bin/bash
420	root	20	0	22992	3364	2792	R	0.0	0.2	0:00.00	htop

\$ ttyd docker run -it --rm ubuntu htop

At the bottom of the terminal, there is a status bar with the following text: F1 Help F2 Setup F3 Search F4 Filter F5 Tree F6 SortBy F7 Nice F8 Vnice F9 Kill F10 Quit

„VAR-TOOL“

Experimente

Java RMI Chat

Excercise

Excercise

Excercise

Excercise

Excercise

Excercise

Excercise

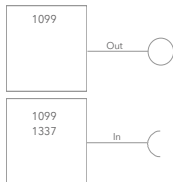
ChatServer



Container-Einstellungen

Dieser Container enthält bereits Dateien. 📁

Ports



Main Class

Argumente

ChatClient



```
Exception in thread "main" java.io.FileNotFoundException: Could
not locate var_server/core__init.class or var_server/core.clj on
classpath. Please check that namespaces with dashes use
underscores in the Clojure file name., compiling:(var_server/
core_test.clj:1:1)
```

```
at clojure.lang.Compiler.load(Compiler.java:7391)
at clojure.lang.RT.loadResourceScript(RT.java:372)
at clojure.lang.RT.loadResourceScript(RT.java:363)
at clojure.lang.RT.load(RT.java:453)
at clojure.lang.RT.load(RT.java:419)
at clojure.core$load$fn__5677.invoke(core.clj:5893)
at clojure.core$load.invokeStatic(core.clj:5892)
at clojure.core$load.doInvoke(core.clj:5876)
at clojure.lang.RestFn.invoke(RestFn.java:408)
at clojure.core$load_one.invokeStatic(core.clj:5697)
```

Container 3



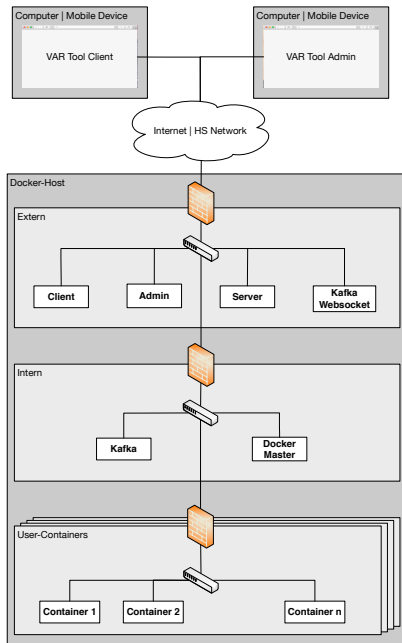
Datei hochladen.

Container 4

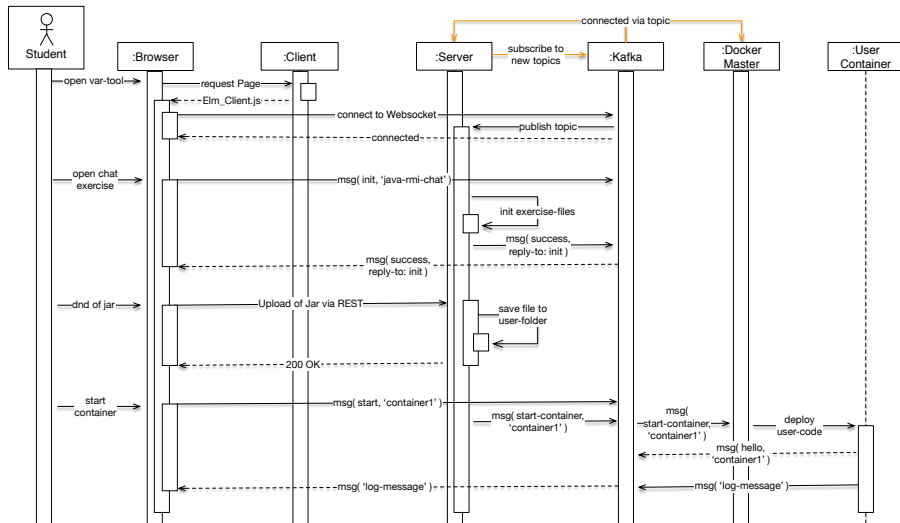


Datei wird hochgeladen.

NETWORK

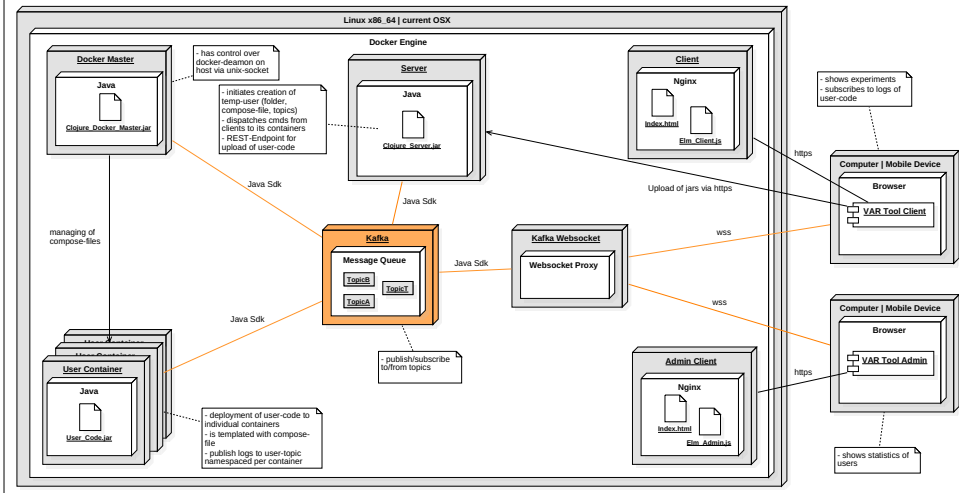


SEQUENCE



DEPLOYMENT

package VAR-Tool Deployment



COMPOSE-FILE

```
# TODO networks
version: '3'
services:
  server:
    build: ./server
    container_name: server
    ports:
      - "8080:3000"

  client:
    build: ./client
    container_name: client
    ports:
      - "80:80"

  docker-master:
    build: ./docker-master
    container_name: docker-master
    volumes:
      - /var/run/docker.sock:/var/run/docker.sock
      - /var/data/users:/var/data/users/
    environment:
      - "TOKEN=ZYX321"

  kafka:
    image: spotify/kafka
    ports:
      - "9092:9092"
      # and zookeeper
      - "2181:2181"
    environment:
      - "ADVERTISED_PORT=9092"

  kafka-websocket:
    build: ./kafka-websocket
    container_name: kafka-websocket
    ports:
      - "7080:7080"
```

AUSBLICK

AUSBLICK & FAZIT

- EFP: VAR-Tool, Bewertung & Feedback
- Thesis
- Veröffentlichung?

- Sehr spannend
- Viel Raum für weitere (studentische) Arbeiten
- Erstrebenswerte Aufgabe der Fakultät

FIN

Danke für die Aufmerksamkeit. – Fragen?