Logging and monitoring cheat sheet

Short Summary

Docker by default logs the stdout and stderr of a container using a log driver. Depending on the driver logs can be stored externally.

Log options for docker run

--log-driver Sets the log driver to use for this container

--log-opt **option=value**
Sets options for the log driver

Easy to use logging drivers

gelf Graylog extended logging format. Supported by graylog, logstash, and other solutions. Main option gelf-address=protocol://hostname:port the destination address of the log server. Disables docker logs command on this container.

fluentd Fluentd logging driver. Supported by fluentd. Takes config option fluentd-address=hostname:port. Disables docker logs command on this container.

syslog Logs to the system log.

journald Logs into journald.

json-file The default logging driver. Saves a json file. This file can be read by other logging solutions. For example Filebeat.

General monitoring on host

Built in tools:

```
docker ps    # Shows running containers
docker top   # Shows running processes in containers
docker stats # Shows detailed usage of resources by containers
```

External tools:

- Prometheus
- cAdvisor
- Portainer (WebGUI docker)

Monitoring health of a single container

Option 1

Have a HEALTHCHECK instruction in the Dockerfile that created the image that defines a command inside the container that returns its health status.

```
FROM ubuntu

COPY healthcheck.sh /root/healthcheck.sh

HEALTHCHECK --interval=1s --retries=3 CMD /root/healthcheck.sh
```

See also:
https://blog.alexellis.io/test-drive-healthcheck/
https://blog.sixeyed.com/docker-healthchecks-why-not-to-use-curl-or-iwr/

Option 2

Add a health check during container creation with

```
docker run --health-cmd commandToRun imageName
```

or in a docker compose by adding:

```
healthcheck:
  test: ["CMD", "curl", "-f", "http://localhost"]
  interval: 1m30s
  timeout: 10s
  retries: 3
  start_period: 40s
```

for a service.
See also:
https://docs.docker.com/engine/reference/run/#healthcheck
https://docs.docker.com/compose/compose-file/#healthcheck

Container resource limits

Container resources can be limited by runtime options to the docker run command:

--memory **amount (possible suffix b,k,m,g)**
Sets the amount of memory for the container. Container killed if exceeded.

--cpu-shares **shares**
Relative CPU weights of container

--cpus **numberOfCPUs**
Number of cpus that can be used. Can be a fractional number.

See also:
https://docs.docker.com/engine/reference/run/#runtime-constraints-on-resources