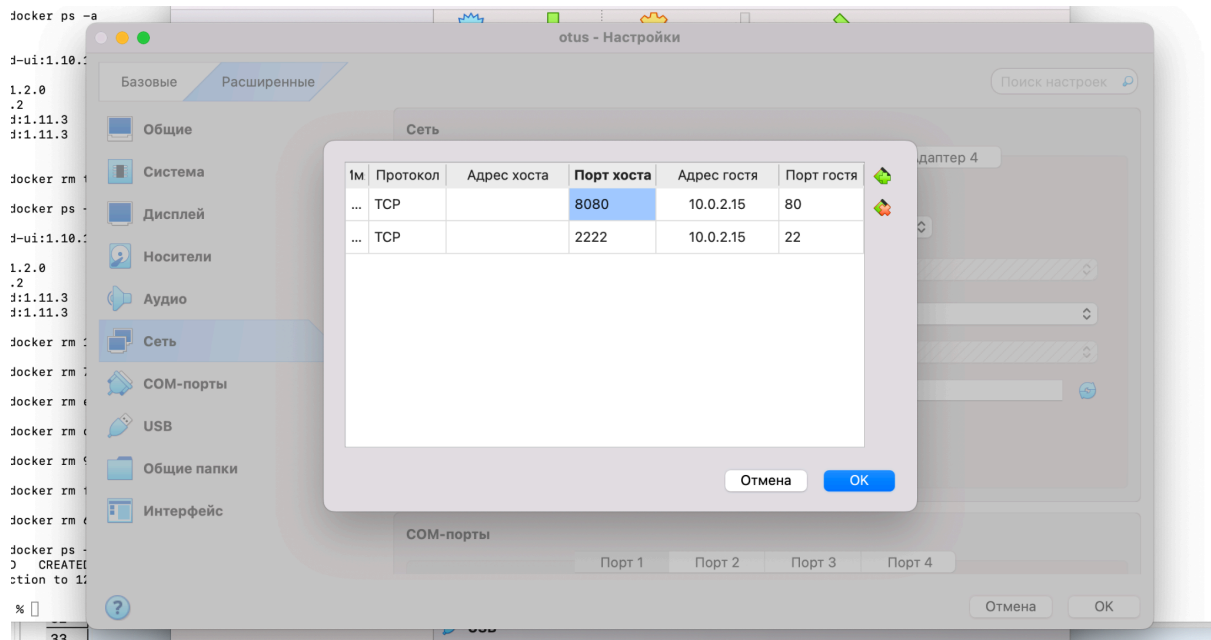Алгоритм запуска кластера Selenoid

Итак, создал ВМ и установил Ubuntu.
В настройках ВМ настроил проброс портов вот так:


ip адрес взял с ВМ:

```
[pavel@pavel-VirtualBox:~$ sudo ifconfig
[[sudo] password for pavel:
br-c5bd60246d8d: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        inet 172.18.0.1  netmask 255.255.0.0  broadcast 172.18.255.255
        ether 62:8c:85:89:36:df  txqueuelen 0  (Ethernet)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 28 overruns 0  carrier 0  collisions 0

br-ff561bb72739: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        inet 172.19.0.1  netmask 255.255.0.0  broadcast 172.19.255.255
        ether 42:01:6b:d5:bb:74  txqueuelen 0  (Ethernet)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 26 overruns 0  carrier 0  collisions 0

docker0: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        inet 172.17.0.1  netmask 255.255.0.0  broadcast 172.17.255.255
        ether b6:41:51:69:a6:d0  txqueuelen 0  (Ethernet)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 28 overruns 0  carrier 0  collisions 0

enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.2.15  netmask 255.255.255.0  broadcast 10.0.2.255
        inet6 fd17.625c.f037.2:a00:27ff:fea2:5cce  prefixlen 64  scopeid 0x0<global>
        inet6 fd17:625c:f037:2:6f4:3cc5:5f4a:f26d  prefixlen 64  scopeid 0x0<global>
        inet6 fe80::a00:27ff:fea2:5cce  prefixlen 64  scopeid 0x20<link>
        ether 08:00:27:a2:5c:ce  txqueuelen 1000  (Ethernet)
        RX packets 291  bytes 42218 (42.2 KB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 316  bytes 38344 (38.3 KB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

Не знаю, влияет ли на что-то параметр Тип адаптера???:
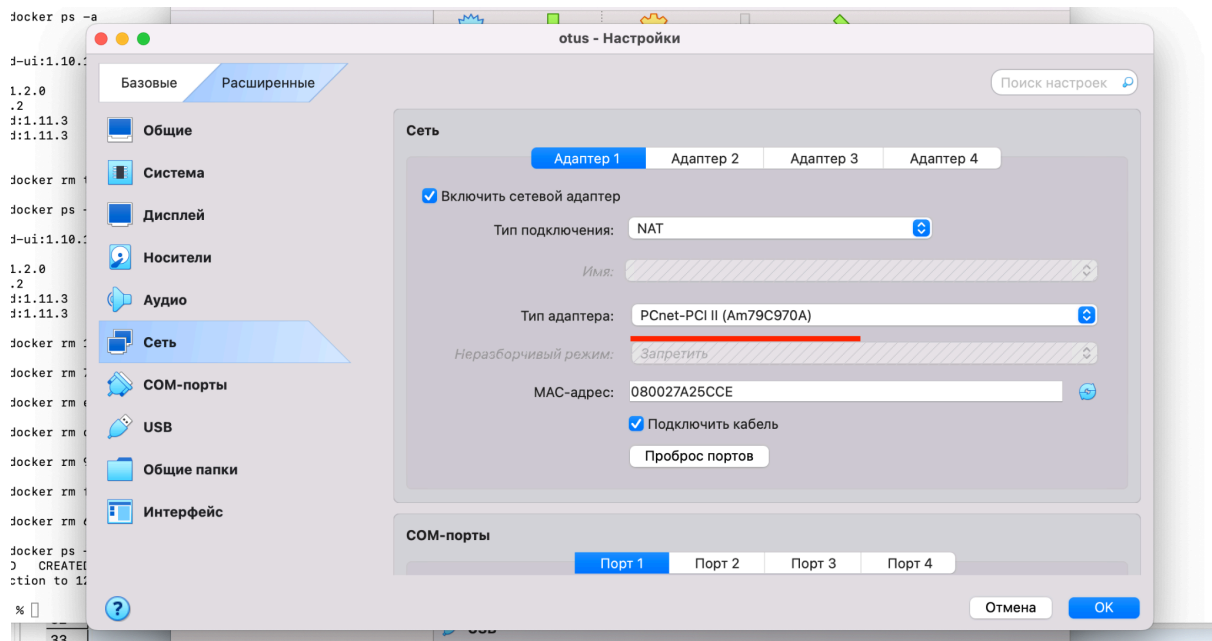
Перед запуском удалил все контейнеры:

```
[pavel@pavel-VirtualBox:~$ sudo docker ps -a
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS   PORTS     NAMES
```

Поехали.
Создал папку Selenoid:

```
[pavel@pavel-VirtualBox:~$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  selenoid  snap  Templates  Videos
[pavel@pavel-VirtualBox:~$ cd selenoid
[pavel@pavel-VirtualBox:~/selenoid$ pwd
/home/pavel/selenoid
[pavel@pavel-VirtualBox:~/selenoid$
```

Создал файл browsers.json:

```
[pavel@pavel-VirtualBox:~/selenoid$ ls
browsers.json  nginx
[pavel@pavel-VirtualBox:~/selenoid$ cat browsers.json
{
    "chrome": {
        "default": "128.0",
        "versions": {
            "128.0": {
                "image": "selenoid/chrome:128.0",
                "port" : "4444",
                "path" : "/"
            },
            "127.0": {
                "image": "selenoid/chrome:127.0",
                "port" : "4444",
                "path" : "/"
            }
        }
    }
}
[pavel@pavel-VirtualBox:~/selenoid$
```

Образы контейнеров браузеров скачал:

```
ƒ
[pavel@pavel-VirtualBox:~/selenoid$ sudo docker pull selenoid/chrome:128.0
128.0: Pulling from selenoid/chrome
Digest: sha256:0a3626278323dc19584598fcc9d4209a4c1dc5ef2065b29812f1dc277d6e0640
Status: Image is up to date for selenoid/chrome:128.0
docker.io/selenoid/chrome:128.0
[pavel@pavel-VirtualBox:~/selenoid$ sudo docker pull selenoid/chrome:127.0
127.0: Pulling from selenoid/chrome
Digest: sha256:e430b66317e86743bcdaa0047dd515482d0c597c809d3029c0e400ed605cec86
Status: Image is up to date for selenoid/chrome:127.0
docker.io/selenoid/chrome:127.0
pavel@pavel-VirtualBox:~/selenoid$
```

Сетки создал:

```
[pavel@pavel-VirtualBox:~/selenoid$ sudo docker network ls
NETWORK ID      NAME        DRIVER      SCOPE
d9cd52407c45    bridge      bridge      local
ed099949ee10    host        host        local
2422534aa41d    none        null        local
c5bd60246d8d    selenoid1   bridge      local
ff561bb72739    selenoid2   bridge      local
pavel@pavel-VirtualBox:~/selenoid$
```

Запустил два селенойда:

```
pavel@pavel-VirtualBox:~/selenoid$ sudo docker run -d --name=selenoid1 --network=selenoid1 -p 4445:4444  -v /var/run/docker.sock:/var/run/docker.sock -v /home/pavel/selenoid/
browsers.json:/etc/selenoid/browsers.json:ro -t aerokube/selenoid:1.11.3 -container-network=selenoid1 -limit 10
ab01e4e5718f3adf5a5b9efac3d3787994cc24f830e5322c7a583bfd0a88b529
pavel@pavel-VirtualBox:~/selenoid$ sudo docker logs selenoid1
2025/05/27 14:23:09 [-] [INIT] [Loading configuration files...]
2025/05/27 14:23:09 [-] [INIT] [Loaded configuration from /etc/selenoid/browsers.json]
2025/05/27 14:23:09 [-] [INIT] [Video Dir: /opt/selenoid/video]
2025/05/27 14:23:10 [-] [INIT] [Did not manage to determine your Docker API version - using default version: 1.45]
2025/05/27 14:23:10 [-] [INIT] [Timezone: UTC]
2025/05/27 14:23:10 [-] [INIT] [Listening on :4444]
pavel@pavel-VirtualBox:~/selenoid$ sudo docker run -d --name=selenoid2 --network=selenoid2 -p 4446:4444  -v /var/run/docker.sock:/var/run/docker.sock -v /home/pavel/selenoid/
browsers.json:/etc/selenoid/browsers.json:ro -t aerokube/selenoid:1.11.3 -container-network=selenoid2 -limit 10
5fbc71cfc5d2d3d548095dd488a0fed14b79a6e0f3b4dc278c2fcdd4439de803
pavel@pavel-VirtualBox:~/selenoid$ sudo docker logs selenoid2
2025/05/27 14:24:38 [-] [INIT] [Loading configuration files...]
2025/05/27 14:24:38 [-] [INIT] [Loaded configuration from /etc/selenoid/browsers.json]
2025/05/27 14:24:38 [-] [INIT] [Video Dir: /opt/selenoid/video]
2025/05/27 14:24:38 [-] [INIT] [Did not manage to determine your Docker API version - using default version: 1.45]
2025/05/27 14:24:38 [-] [INIT] [Timezone: UTC]
2025/05/27 14:24:38 [-] [INIT] [Listening on :4444]
pavel@pavel-VirtualBox:~/selenoid$
```

Создал файл users.htpasswd:

pavel@pavel-VirtualBox:/etc/grid-router$ sudo htpasswd -bc /etc/grid-router/users.htpasswd test test-password
Adding password for user test
pavel@pavel-VirtualBox:/etc/grid-router$ ls
quota users.htpasswd

Создал файл test.xml:

pavel@pavel-VirtualBox:~/selenoid/grid-router/quota$ cd /etc/grid-router/quota
pavel@pavel-VirtualBox:/etc/grid-router/quota$ pwd
/etc/grid-router/quota
pavel@pavel-VirtualBox:/etc/grid-router/quota$ ls
test.xml
pavel@pavel-VirtualBox:/etc/grid-router/quota$ cat test.xml
<qa:browsers>

```xml
<browser name="chrome" defaultVersion="127.0">
        <version number="127.0">
                <region name="1">
                        <host name="172.18.0.1" port="4445" count="1"/>
                        <host name="172.19.0.1" port="4446" count="1"/>
                </region>
        </version>
        <version number="128.0">
                <region name="1">
                        <host name="172.18.0.1" port="4445" count="1"/>
                        <host name="172.19.0.1" port="4446" count="1"/>
                </region>
        </version>
</browser>
</qa:browsers>
```

Результат docker inspect selenoid1:

```
                        "IPAMConfig": null,
                        "Links": null,
                        "Aliases": null,
                        "MacAddress": "26:2a:ee:06:c2:5b",
                        "DriverOpts": null,
                        "GwPriority": 0,
                        "NetworkID": "c5bd60246d8d40ea65884cfa875f45419814b
                        "EndpointID": "43324854c8080394c09718d6add8d83b8c69
                        "Gateway": "172.18.0.1",
                        "IPAddress": "172.18.0.2",
                        "IPPrefixLen": 16,
                        "IPv6Gateway": "",
                        "GlobalIPv6Address": "",
                        "GlobalIPv6PrefixLen": 0,
                        "DNSNames": [
                            "selenoid1",
                            "ab01e4e5718f"
                        ]
                    }
                }
            }
        }
    ]
```

Результат docker inspect selenoid2:

```
                "IPAMConfig": null,
                "Links": null,
                "Aliases": null,
                "MacAddress": "4e:8f:c7:29:24:8e",
                "DriverOpts": null,
                "GwPriority": 0,
                "NetworkID": "ff561bb72739752b54d0b12617729cf7b479f
                "EndpointID": "7b942d2debf0ca3875901a99d0b32f614d49
                "Gateway": "172.19.0.1",
                "IPAddress": "172.19.0.2",
                "IPPrefixLen": 16,
                "IPv6Gateway": "",
                "GlobalIPv6Address": "",
                "GlobalIPv6PrefixLen": 0,
                "DNSNames": [
                    "selenoid2",
                    "5fbc71cfc5d2"
                ]
            }
          }
        }
      }
    ]
```

Проверяем соединения:

```
 ]
[pavel@pavel-VirtualBox:/etc/grid-router/quota$ sudo telnet 172.18.0.1 4445
 Trying 172.18.0.1...
 Connected to 172.18.0.1.
 Escape character is '^]'.
[^C^C^C
 Connection closed by foreign host.
[pavel@pavel-VirtualBox:/etc/grid-router/quota$ sudo telnet 172.19.0.1 4446
 Trying 172.19.0.1...
 Connected to 172.19.0.1.
 Escape character is '^]'.
[^C^C^C
 Connection closed by foreign host.
pavel@pavel-VirtualBox:/etc/grid-router/quota$
```

Запускаем ggr:

pavel@pavel-VirtualBox:/etc/grid-router/quota$ sudo docker run --name=ggr -d -v /etc/grid-router/:/etc/grid-router:ro -p 4444:4444 -t aerokube/ggr:1.7.2 -guests-allowed -guests-quota "test" -verbose -quotaDir /etc/grid-router/quota
83e0427652840b06e4af3646cd3cfa3aa55436e7abf7cca82c9e0727d366d982
pavel@pavel-VirtualBox:/etc/grid-router/quota$ sudo docker logs ggr
2025/05/27 15:34:00 [-] [-] [INIT] [-] [-] [-] [-] [-] [-] [Users file is "/etc/grid-router/users.htpasswd"]
2025/05/27 15:34:00 [-] [-] [INIT] [-] [-] [-] [-] [-] [-] [Loading configuration files from "/etc/grid-router/quota"]
2025/05/27 15:34:00 [-] [-] [INIT] [-] [-] [-] [-] [-] [-] [Loaded configuration from "/etc/grid-router/quota/test.xml"]
{{qa browsers} [{chrome 127.0 [{127.0 [{1 [{172.18.0.1 4445 1   1 <nil>} {172.19.0.1 4446 1   1 <nil>}]}]} {128.0 [{1 [{172.18.0.1 4445 1   1 <nil>} {172.19.0.1 4446 1   1 <nil>}]}]}]}]}}

Запускаем ggr-ui:
pavel@pavel-VirtualBox:**/etc/grid-router**$ sudo docker run -d --name=ggr_ui -v
/etc/grid-router/quota/:/etc/grid-router/quota:ro -p 8888:8888 -t aerokube/ggr-ui:1.2.0
[sudo] password for pavel:
5d67d7842f6a45582de2efd88c765e0b027577cbed7b1f8d171f4e64eadd0816
pavel@pavel-VirtualBox:**/etc/grid-router**$ sudo docker logs
5d67d7842f6a45582de2efd88c765e0b027577cbed7b1f8d171f4e64eadd0816
2025/05/27 17:40:14 [INIT] [Loading quota files from /etc/grid-router/quota]
2025/05/27 17:40:14 [INIT] [Loaded quota for user: test]
2025/05/27 17:40:14 [INIT] [Listen on :8888]
pavel@pavel-VirtualBox:**/etc/grid-router**$

Проверка статуса:
pavel@pavel-VirtualBox:**/etc/grid-router**$ curl -s http://172.17.0.1:8888/status
{"browsers":{"chrome":{"127.0":{},"128.0":{}}},"pending":0,"queued":0,"total":20,"used":0}

Запускаем selenoid-ui:
pavel@pavel-VirtualBox:**/etc/grid-router**$ sudo docker run -d --name=selenoid_ui -p 8080:8080 -t
aerokube/selenoid-ui:1.10.11 --selenoid-uri http://172.17.0.1:8888
c87a4fba9591b573689e274be9437deb57bd92e5d1765f610b422b28b83b6f16
pavel@pavel-VirtualBox:**/etc/grid-router**$ sudo docker logs
c87a4fba9591b573689e274be9437deb57bd92e5d1765f610b422b28b83b6f16
2025/05/27 17:51:48 [INIT] [Listening on :8080]

Проверяем:
pavel@pavel-VirtualBox:**~/selenoid/nginx**$ sudo telnet 172.17.0.1 8080
Trying 172.17.0.1...
Connected to 172.17.0.1.
Escape character is '^]'.

 Создаю файл конфигурации nginx и и кладу его в /home/pavel/selenoid/nginx:

pavel@pavel-VirtualBox:**~/selenoid/nginx**$ pwd
/home/pavel/selenoid/nginx
pavel@pavel-VirtualBox:**~/selenoid/nginx**$ ls
selenoid.conf
pavel@pavel-VirtualBox:**~/selenoid/nginx**$ cat selenoid.conf
upstream selenoid_ui {
        random;
        server 172.17.0.1:8080;
}
upstream ggr {
    random;
    server 172.17.0.1:4444;
}
server {
        listen 80 default_server;
        location / {
        proxy_pass http://selenoid_ui/;

        proxy_http_version1.1;
        proxy_set_header Upgrade $http_upgrade;
        proxy_set_header Connection "Upgrade";
        proxy_set_header Host $host;
        proxy_buffering   off;
        }
        location ~ /static/js/ {
        proxy_pass http://selenoid_ui;

```
        }
        location ~ /static/css/ {
    proxy_pass http://selenoid_ui;
        }
        location ~ /static/media/ {
    proxy_pass http://selenoid_ui;
        }
        location ~ /status {
    proxy_pass http://selenoid_ui;
        }
        location /events {
    proxy_pass http://selenoid_ui;
        }
        location ~ /vnc/ {
    proxy_pass http://selenoid_ui;
        proxy_http_version      1.1;
    proxy_set_header        Upgrade $http_upgrade;
    proxy_set_header        Connection "upgrade";
    proxy_set_header        Host $host;
        }
        location ~ /logs/ {
    proxy_pass http://selenoid_ui;
    proxy_http_version      1.1;
    proxy_set_header        Upgrade $http_upgrade;
    proxy_set_header        Connection "upgrade";
    proxy_set_header        Host $host;
        }
        location ~ /wd/hub/ {
        proxy_pass http://ggr;
        }
        }
```

Запускаем nginx :

pavel@pavel-VirtualBox:**~/selenoid/nginx**$ sudo docker run -d --name=nginx -p 80:80 -v
/home/pavel/selenoid/nginx/:/etc/nginx/conf.d:ro -t nginx:latest
41c568d1aa76667ac134178c79b639edbea1573482f328b94cf2bd1f5822613f
pavel@pavel-VirtualBox:**~/selenoid/nginx**$ sudo docker logs
41c568d1aa76667ac134178c79b639edbea1573482f328b94cf2bd1f5822613f
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: /etc/nginx/conf.d/default.conf is not a file or does not exist
/docker-entrypoint.sh: Sourcing /docker-entrypoint.d/15-local-resolvers.envsh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2025/05/27 18:14:29 [notice] 1#1: using the "epoll" event method
2025/05/27 18:14:29 [notice] 1#1: nginx/1.27.5
2025/05/27 18:14:29 [notice] 1#1: built by gcc 12.2.0 (Debian 12.2.0-14)
2025/05/27 18:14:29 [notice] 1#1: OS: Linux 6.11.0-26-generic
2025/05/27 18:14:29 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2025/05/27 18:14:29 [notice] 1#1: start worker processes
2025/05/27 18:14:29 [notice] 1#1: start worker process 19
2025/05/27 18:14:29 [notice] 1#1: start worker process 20