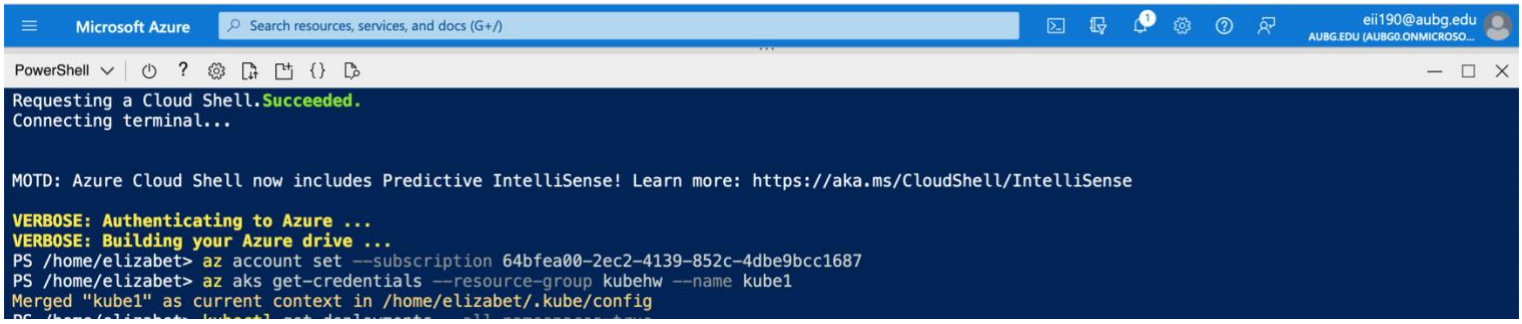
SFA Homework #17
Elizabet Ivanova

Kubernetes Pods Lab

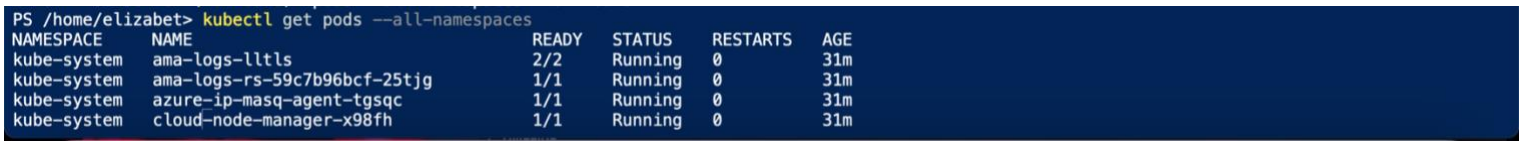
Practice1: Simple pods operations

1. Connecting to my AKS cluster



2. Checking how many pods are running the default namespace – none.

3. Checking all the namespaces.



```
kube-system   azure-ip-masq-agent-tgsqc             1/1     Running   0          31m
kube-system   cloud-node-manager-x98fh              1/1     Running   0          31m
kube-system   coredns-59b6bf8b4f-k2628              1/1     Running   0          31m
kube-system   coredns-59b6bf8b4f-txcxw              1/1     Running   0          30m
kube-system   coredns-autoscaler-6cdbf5c7bc-mstx6   1/1     Running   0          31m
kube-system   csi-azuredisk-node-2klgh              3/3     Running   0          31m
kube-system   csi-azurefile-node-5zqnv              3/3     Running   0          31m
kube-system   konnectivity-agent-58c8c75568-bc2mh   1/1     Running   0          28m
kube-system   konnectivity-agent-58c8c75568-ffw5h   1/1     Running   0          28m
kube-system   kube-proxy-95srz                      1/1     Running   0          31m
kube-system   metrics-server-7dd74d8758-gp2mq       2/2     Running   0          29m
kube-system   metrics-server-7dd74d8758-mn9tn       2/2     Running   0          29m
```

4. These many different pods are running in the kube-system namespace, which is a system namespace in Kubernetes used for running core system components and add-ons. The pods are important system components used by Kubernetes and Azure to run, monitor and manage containerized workloads. They are, so to say, the necessary defaults.

5. Deploying the nginx pod.

```
PS /home/elizabet> kubectl run nginx --image=nginx
pod/nginx created
```

6. Validating that the pod has been created – status states it is running.

```
PS /home/elizabet> kubectl get pods nginx
NAME    READY   STATUS    RESTARTS   AGE
nginx   1/1     Running   0          3m55s
```

7. Checking the logs:

```
PS /home/elizabet> kubectl logs nginx
/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: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/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
2023/04/04 15:22:25 [notice] 1#1: using the "epoll" event method
2023/04/04 15:22:25 [notice] 1#1: nginx/1.23.4
2023/04/04 15:22:25 [notice] 1#1: built by gcc 10.2.1 20210110 (Debian 10.2.1-6)
2023/04/04 15:22:25 [notice] 1#1: OS: Linux 5.4.0-1104-azure
2023/04/04 15:22:25 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2023/04/04 15:22:25 [notice] 1#1: start worker processes
2023/04/04 15:22:25 [notice] 1#1: start worker process 29
2023/04/04 15:22:25 [notice] 1#1: start worker process 29
2023/04/04 15:22:25 [notice] 1#1: start worker process 30
```

8. Checking the resource consumption:

```
PS /home/elizabet> kubectl top pod nginx
NAME    CPU(cores)   MEMORY(bytes)
nginx   0m           3Mi
```

9. Checking the node on which the pod is scheduled:

```
PS /home/elizabet> kubectl get pods -o wide
NAME    READY   STATUS    RESTARTS   AGE   IP            NODE                                NOMINATED NODE   READINESS GATES
nginx   1/1     Running   0          10m   10.244.0.15   aks-agentpool-78322948-vmss000000   <none>           <none>
```

10. Describing the nginx pod:

```
PS /home/elizabet> kubectl describe pod nginx
Name:             nginx
Namespace:        default
Priority:         0
Service Account:  default
Node:             aks-agentpool-78322948-vmss000000/10.224.0.4
Start Time:       Tue, 04 Apr 2023 15:22:22 +0000
Labels:           run=nginx
Annotations:      <none>
Status:           Running
IP:               10.244.0.15
IP:               10.244.0.15
IPs:
  IP:  10.244.0.15
Containers:
  nginx:
    Container ID:   containerd://6e773e8badc71b2015941ecbbc7f6793ddf9724c406bf5b6b6a4fe698b565f0a
    Image:          nginx
    Image ID:       docker.io/library/nginx@sha256:2ab30d6ac53580a6db8b657abf0f68d75360ff5cc1670a85acb5bd85ba1b19c0
    Port:           <none>
    Host Port:      <none>
    State:          Running
      Started:      Tue, 04 Apr 2023 15:22:25 +0000
    Ready:          True
    Restart Count:  0
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-j8v5l (ro)
Conditions:
  Type              Status
  Initialized       True
  Ready             True
  ContainersReady   True
  PodScheduled      True
Volumes:
  kube-api-access-j8v5l:
    Type:                    Projected (a volume that contains injected data from multiple sources)
    TokenExpirationSeconds:  3607
    ConfigMapName:           kube-root-ca.crt
    ConfigMapOptional:       <nil>
    DownwardAPI:             true
QoS Class:                   BestEffort
Node-Selectors:              <none>
Tolerations:                 node.kubernetes.io/not-ready:NoExecute op=Exists for 300s
                             node.kubernetes.io/unreachable:NoExecute op=Exists for 300s

Events:
  Type    Reason     Age   From               Message
  ----    ------     ----  ----               -------
  Normal  Scheduled  11m   default-scheduler  Successfully assigned default/nginx to aks-agentpool-78322948-vmss000000
  Normal  Pulling    11m   kubelet            Pulling image "nginx"
  Normal  Pulled     11m   kubelet            Successfully pulled image "nginx" in 2.730635425s
  Normal  Created    11m   kubelet            Created container nginx
  Normal  Started    11m   kubelet            Started container nginx
```

11. Deleting the pod:

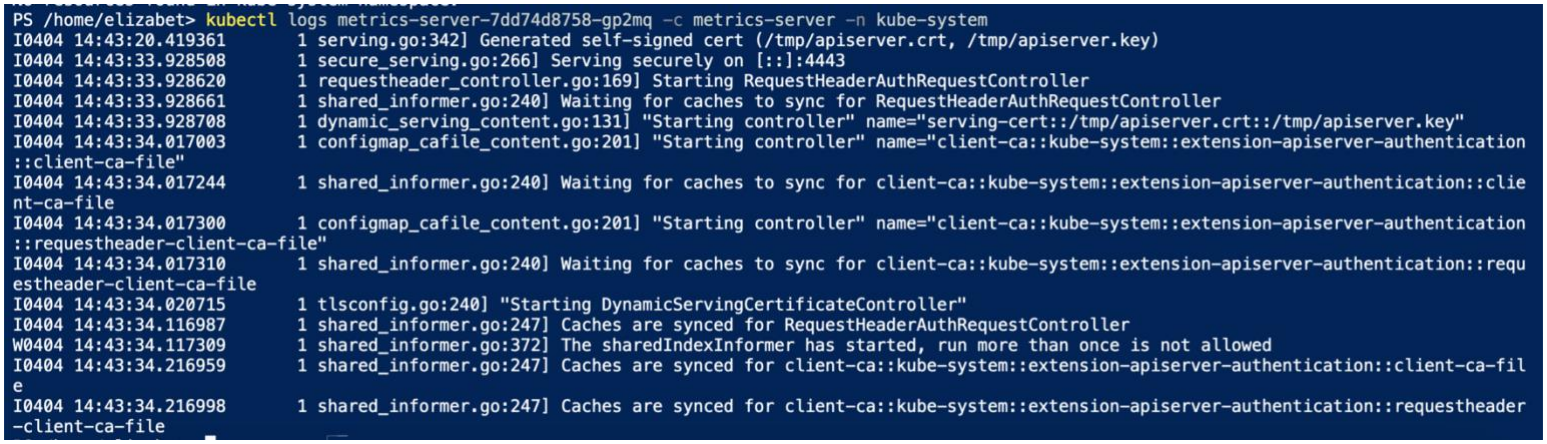
```
PS /home/elizabet> kubectl delete pod nginx
pod "nginx" deleted
```

12. Finding the image of a coredns pod:

```
PS /home/elizabet> kubectl describe pod coredns-59b6bf8b4f-txcxw -n kube-system
Name:                 coredns-59b6bf8b4f-txcxw
Namespace:            kube-system
Priority:             2000001000
Priority Class Name:  system-node-critical
Service Account:      coredns
Node:                 aks-agentpool-78322948-vmss000000/10.224.0.4
Start Time:           Tue, 04 Apr 2023 14:43:02 +0000
Labels:               k8s-app=kube-dns
                      kubernetes.io/cluster-service=true
                      pod-template-hash=59b6bf8b4f
                      version=v20
Annotations:          prometheus.io/port: 9153
Status:               Running
IP:                   10.244.0.10
IPs:
  IP:           10.244.0.10
Controlled By:  ReplicaSet/coredns-59b6bf8b4f
Containers:
  coredns:
```

```
Containers:
  coredns:
    Container ID:  containerd://2cc25a22aa701a8b866d7b257f5ab68f77750dce740aeabe27160537bf77fd2a
    Image:         mcr.microsoft.com/oss/kubernetes/coredns:v1.9.3
    Image ID:      sha256:c38f956b642366c8eeb0babfda6b0bb2aa92f27a968589804cadb445f6df72d6
    Ports:         53/UDP, 53/TCP, 9153/TCP
    Host Ports:    0/UDP, 0/TCP, 0/TCP
    Args:
      -conf
      /etc/coredns/Corefile
    State:          Running
      Started:      Tue, 04 Apr 2023 14:43:04 +0000
    Ready:          True
    Restart Count:  0
    Limits:
      cpu:     3
      memory:  500Mi
    Requests:
      cpu:      100m
      memory:   70Mi
    Liveness:   http-get http://:8080/health delay=60s timeout=5s period=10s #success=1 #failure=5
    Readiness:  http-get http://:8181/ready delay=0s timeout=1s period=10s #success=1 #failure=3
    Environment:
      KUBERNETES_PORT_443_TCP_ADDR:  kube1-dns-5if4ag5y.hcp.eastus.azmk8s.io
      KUBERNETES_PORT:               tcp://kube1-dns-5if4ag5y.hcp.eastus.azmk8s.io:443
      KUBERNETES_PORT_443_TCP:       tcp://kube1-dns-5if4ag5y.hcp.eastus.azmk8s.io:443
      KUBERNETES_SERVICE_HOST:       kube1-dns-5if4ag5y.hcp.eastus.azmk8s.io
    Mounts:
      /etc/coredns from config-volume (ro)
      /etc/coredns/custom from custom-config-volume (ro)
      /tmp from tmp (rw)
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-z5x92 (ro)
Conditions:
```

13. Checking the logs of the metrics-server pod:



Practice2: Working with pod manifest files

14. Attempting to deploy the pod in redis.yaml:

15. Correcting the redis.yaml file by setting the API version to be v1, not v11;

kind to be capitalized as Pod;

adding indentation;

correctly spelling spec.

16. Creating the pod.

```
PS /home/elizabet> kubectl create -f redis.yaml
pod/static-web created
PS /home/elizabet>
```

17. Checking what's wrong with the pod:

```
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-kbdfk (ro)
Conditions:
  Type              Status
  Initialized       True
  Ready             False
  ContainersReady   False
  PodScheduled      True
Volumes:
  kube-api-access-kbdfk:
    Type:                    Projected (a volume that contains injected data from multiple sources)
    TokenExpirationSeconds:  3607
    ConfigMapName:           kube-root-ca.crt
    ConfigMapOptional:       <nil>
    DownwardAPI:             true
QoS Class:                   BestEffort
Node-Selectors:              <none>
Tolerations:                 node.kubernetes.io/not-ready:NoExecute op=Exists for 300s
                             node.kubernetes.io/unreachable:NoExecute op=Exists for 300s
Events:
  Type     Reason     Age                  From               Message
  ----     ------     ----                 ----               -------
  Normal   Scheduled  2m23s                default-scheduler  Successfully assigned default/static-web to aks-agentpool-78322948-vmss000000
  Normal   Pulling    45s (x4 over 2m22s)  kubelet            Pulling image "redis123"
  Warning  Failed     45s (x4 over 2m22s)  kubelet            Failed to pull image "redis123": rpc error: code = Unknown desc = failed to pull and un
pack image "docker.io/library/redis123:latest": failed to resolve reference "docker.io/library/redis123:latest": pull access denied, repository does
not exist or may require authorization: server message: insufficient_scope: authorization failed
  Warning  Failed     45s (x4 over 2m22s)  kubelet            Error: ErrImagePull
  Warning  Failed     33s (x6 over 2m21s)  kubelet            Error: ImagePullBackOff
  Normal   BackOff    20s (x7 over 2m21s)  kubelet            Back-off pulling image "redis123"
PS /home/elizabet> kubectl get pods -o wide
NAME         READY   STATUS             RESTARTS   AGE     IP            NODE                                NOMINATED NODE   READINESS GATES
static-web   0/1     ImagePullBackOff   0          3m18s   10.244.0.16   aks-agentpool-78322948-vmss000000   <none>           <none>
PS /home/elizabet>
```

The events indicate that the pod was scheduled successfully but failed to pull the image "redis123" from the container registry. The image was incorrect, so I found the proper name and changed it.

18. Now, the pod is running.

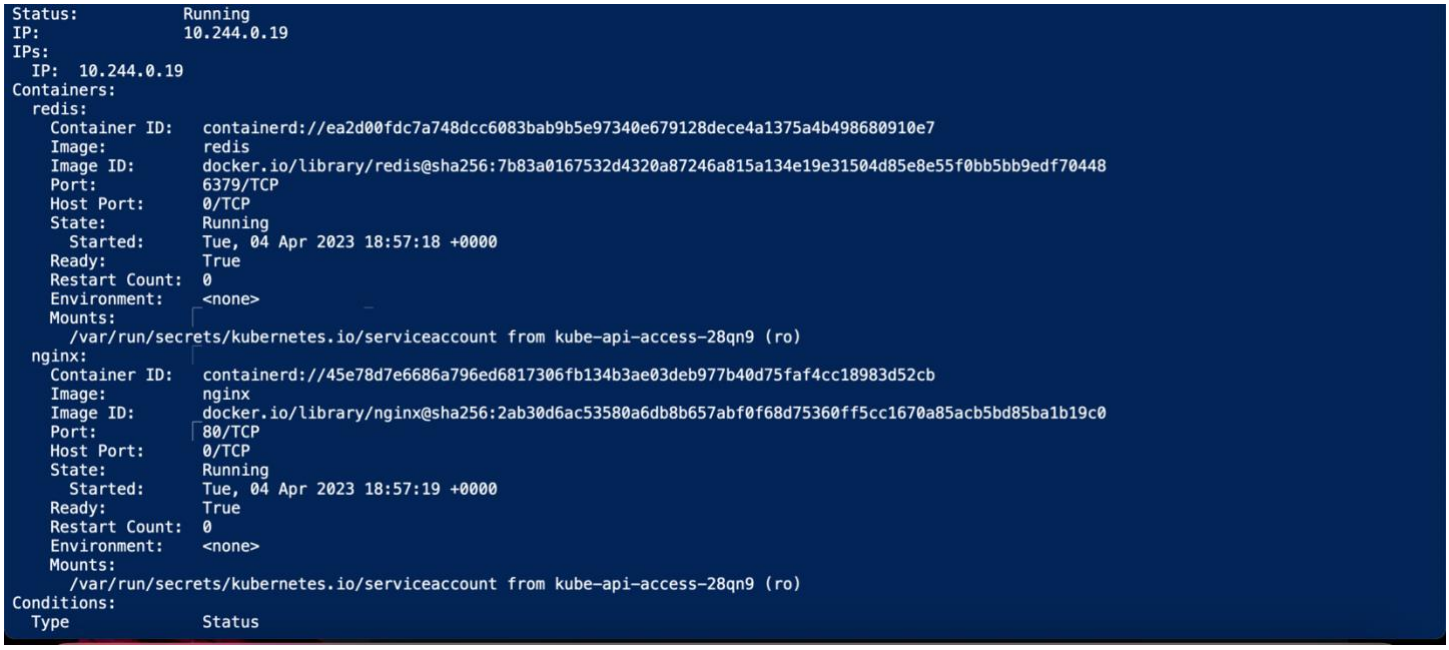
```
PS /home/elizabet> kubectl delete pod static-web
pod "static-web" deleted
PS /home/elizabet> kubectl create -f redis.yaml
pod/static-web created
PS /home/elizabet> kubectl describe pod static-web
Name:             static-web
Namespace:        default
Priority:         0
Service Account:  default
Node:             aks-agentpool-78322948-vmss000000/10.224.0.4
Start Time:       Tue, 04 Apr 2023 16:41:20 +0
Labels:           role=myrole
Annotations:      <none>
Status:           Running
IP:               10.244.0.17
```

19. Describing the pod I created – memcached-web.

```
PS /home/elizabet> kubectl describe pod memcached-web
Name:             memcached-web
Namespace:        default
Priority:         0
Service Account:  default
Node:             aks-agentpool-78322948-vmss000000/10.224.0.4
Start Time:       Tue, 04 Apr 2023 16:49:13 +0000
Labels:           app=web
Annotations:      <none>
Status:           Running
IP:               10.244.0.18
IPs:
  IP:  10.244.0.18
Containers:
  memcached:
    Container ID:   containerd://0a63c4a31ea9d1191a9de72db38da477b84a6d9eba5648a94838661cfadb1df8
    Image:          memcached
    Image ID:       docker.io/library/memcached@sha256:7dd7b174649eb925e804d9308e8c580658e1c26f54fff56a462b0bf95c391d35
    Port:           11211/TCP
    Host Port:      0/TCP
    State:          Running
      Started:      Tue, 04 Apr 2023 16:49:14 +0000
    Ready:          True
    Restart Count:  0
    Limits:
    Requests:
      cpu:        350m
      memory:     150Mi
    Environment:  <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-dztms (ro)
Conditions:
  Type              Status
  Initialized       True
  Ready             True
  ContainersReady   True
  PodScheduled      True
Volumes:
  kube-api-access-dztms:
    Type:                    Projected (a volume that contains injected data from multiple sources)
    TokenExpirationSeconds:  3607
    ConfigMapName:           kube-root-ca.crt
    ConfigMapOptional:       <nil>
    DownwardAPI:             true
QoS Class:                   Burstable
Node-Selectors:              <none>
Tolerations:                 node.kubernetes.io/memory-pressure:NoSchedule op=Exists
                             node.kubernetes.io/not-ready:NoExecute op=Exists for 300s
                             node.kubernetes.io/unreachable:NoExecute op=Exists for 300s
Events:
  Type    Reason     Age   From               Message
  ----    ------     ----  ----               -------
  Normal  Scheduled  47s   default-scheduler  Successfully assigned default/memcached-web to aks-agentpool-78322948-vmss000000
  Normal  Pulling    47s   kubelet            Pulling image "memcached"
  Normal  Pulled     46s   kubelet            Successfully pulled image "memcached" in 883.70287ms
  Normal  Created    46s   kubelet            Created container memcached
  Normal  Started    46s   kubelet            Started container memcached
PS /home/elizabet>
```

Practice3: Multi-container pods

20. Describing the multi-container pod – 2 containers listed (nginx and redis).



21. Getting the status and ready values:

The ready values indicate the number of containers in the pod that are ready to serve requests.

- my-pod has two containers, and both containers are running and ready to serve requests, so the ready value is 2/2.
- memcached-web has only one container, and it is running and ready to serve requests, so the ready value is 1/1.

22. Deploying and describing the liveness-exec pod:

```
pod "my-pod" deleted
PS /home/elizabet> kubectl create -f probes_exec.yaml
pod/liveness-exec created
PS /home/elizabet> kubectl describe pod liveness-exec
Name:             liveness-exec
Namespace:        default
Priority:         0
Service Account:  default
Node:             aks-agentpool-78322948-vmss000000/10.224.0.4
Start Time:       Tue, 04 Apr 2023 19:08:42 +0000
Labels:           test=liveness
Annotations:      <none>
Status:           Running
IP:               10.244.0.20
IPs:
  IP:  10.244.0.20
Containers:
  liveness:
    Container ID:  containerd://4daefa578fd4ba93caad8ee9b6785ce90afaa82b2389e0cc0dee1fa1467756dd
    Image:         k8s.gcr.io/busybox
    Image ID:      sha256:36a4dca0fe6fb2a5133dc11a6c8907a97aea122613fa3e98be033959a0821a1f
    Port:          <none>
    Host Port:     <none>
    Args:
      /bin/sh
      -c
      touch /tmp/healthy; sleep 30; rm -rf /tmp/healthy; sleep 600
    State:         Running
```

Terminal container button

```
      Started:      Tue, 04 Apr 2023 19:08:43 +0000
    Ready:          True
    Restart Count:  0
    Liveness:       exec [cat /tmp/healthy] delay=5s timeout=1s period=5s #success=1 #failure=3
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-c5fbr (ro)
Conditions:
  Type              Status
  Initialized       True
  Ready             True
  ContainersReady   True
  PodScheduled      True
Volumes:
  kube-api-access-c5fbr:
    Type:                    Projected (a volume that contains injected data from multiple sources)
    TokenExpirationSeconds:  3607
    ConfigMapName:           kube-root-ca.crt
    ConfigMapOptional:       <nil>
    DownwardAPI:             true
QoS Class:                   BestEffort
Node-Selectors:              <none>
Tolerations:                 node.kubernetes.io/not-ready:NoExecute op=Exists for 300s
                             node.kubernetes.io/unreachable:NoExecute op=Exists for 300s
Events:
  Type    Reason     Age   From               Message
  ----    ------     ----  ----               -------
  Normal  Scheduled  33s   default-scheduler  Successfully assigned default/liveness-exec to aks-agentpool-78322948-vmss000000
  Normal  Pulling    33s   kubelet            Pulling image "k8s.gcr.io/busybox"
  Normal  Pulled     32s   kubelet            Successfully pulled image "k8s.gcr.io/busybox" in 492.829025ms
  Normal  Created    32s   kubelet            Created container liveness
  Normal  Started    32s   kubelet            Started container liveness
PS /home/elizabet>
```

- No fails yet

23. After 35 seconds, the events are different:

```
Events:
  Type     Reason     Age                From               Message
  ----     ------     ----               ----               -------
  Normal   Scheduled  98s                default-scheduler  Successfully assigned default/liveness-exec to aks-agentpool-78322948-vmss000000
  Normal   Pulled     97s                kubelet            Successfully pulled image "k8s.gcr.io/busybox" in 492.829025ms
  Warning  Unhealthy  53s (x3 over 63s)  kubelet            Liveness probe failed: cat: can't open '/tmp/healthy': No such file or directory
  Normal   Killing    53s                kubelet            Container liveness failed liveness probe, will be restarted
  Normal   Pulling    23s (x2 over 98s)  kubelet            Pulling image "k8s.gcr.io/busybox"
  Normal   Created    23s (x2 over 97s)  kubelet            Created container liveness
  Normal   Started    23s (x2 over 97s)  kubelet            Started container liveness
  Normal   Pulled     23s                kubelet            Successfully pulled image "k8s.gcr.io/busybox" in 290.477825ms
```

24. HTTP probe in the first 10 seconds:

```
Events:
  Type    Reason     Age   From               Message
  ----    ------     ----  ----               -------
  Normal  Scheduled  4s    default-scheduler  Successfully assigned default/liveness-http to aks-agentpool-78322948-vmss000000
  Normal  Pulling    4s    kubelet            Pulling image "k8s.gcr.io/liveness"
  Normal  Pulled     3s    kubelet            Successfully pulled image "k8s.gcr.io/liveness" in 713.99577ms
  Normal  Created    3s    kubelet            Created container liveness
  Normal  Started    3s    kubelet            Started container liveness
```

25. After the first 10 seconds:

```
Events:
  Type     Reason     Age                From               Message
  ----     ------     ----               ----               -------
  Normal   Scheduled  40s                default-scheduler  Successfully assigned default/liveness-http to aks-agentpool-78322948-vmss000000
  Normal   Pulled     39s                kubelet            Successfully pulled image "k8s.gcr.io/liveness" in 713.99577ms
  Normal   Pulled     21s                kubelet            Successfully pulled image "k8s.gcr.io/liveness" in 294.045439ms
  Normal   Pulling    4s (x3 over 40s)   kubelet            Pulling image "k8s.gcr.io/liveness"
  Warning  Unhealthy  4s (x6 over 28s)   kubelet            Liveness probe failed: HTTP probe failed with statuscode: 500
  Normal   Killing    4s (x2 over 22s)   kubelet            Container liveness failed liveness probe, will be restarted
  Normal   Created    3s (x3 over 39s)   kubelet            Created container liveness
  Normal   Started    3s (x3 over 39s)   kubelet            Started container liveness
  Normal   Pulled     3s                 kubelet            Successfully pulled image "k8s.gcr.io/liveness" in 288.558414ms
PS /home/elizabet>
```

26. TCP probe in the first 10 seconds:

```
Events:
  Type    Reason     Age   From               Message
  ----    ------     ----  ----               -------
  Normal  Scheduled  3s    default-scheduler  Successfully assigned default/liveness-tcp to aks-agentpool-78322948-vmss000000
  Normal  Pulling    2s    kubelet            Pulling image "k8s.gcr.io/goproxy:0.1"
  Normal  Pulled     1s    kubelet            Successfully pulled image "k8s.gcr.io/goproxy:0.1" in 781.851832ms
  Normal  Created    1s    kubelet            Created container goproxy
  Normal  Started    1s    kubelet            Started container goproxy
PS /home/elizabet>
```

27. After 10 seconds:

```
Events:
  Type     Reason     Age                From               Message
  ----     ------     ----               ----               -------
  Normal   Scheduled  71s                default-scheduler  Successfully assigned default/liveness-tcp to aks-agentpool-78322948-vmss000000
  Normal   Pulling    70s                kubelet            Pulling image "k8s.gcr.io/goproxy:0.1"
  Normal   Pulled     69s                kubelet            Successfully pulled image "k8s.gcr.io/goproxy:0.1" in 781.851832ms
  Normal   Created    10s (x2 over 69s)  kubelet            Created container goproxy
  Normal   Started    10s (x2 over 69s)  kubelet            Started container goproxy
  Warning  Unhealthy  10s (x3 over 50s)  kubelet            Liveness probe failed: dial tcp 10.244.0.23:9999: connect: connection refused
  Normal   Killing    10s                kubelet            Container goproxy failed liveness probe, will be restarted
  Normal   Pulled     10s                kubelet            Container image "k8s.gcr.io/goproxy:0.1" already present on machine
PS /home/elizabet>
```

28. Deploying the readiness pod and checking status and ready values:

```
PS /home/elizabet> kubectl create -f readiness_http.yaml
pod/readiness-http created
PS /home/elizabet> kubectl get pods -A
NAMESPACE     NAME                                  READY   STATUS             RESTARTS         AGE
default       liveness-exec                         0/1     CrashLoopBackOff   13 (2m8s ago)    36m
default       liveness-http                         0/1     CrashLoopBackOff   14 (3m16s ago)   27m
default       liveness-tcp                          0/1     CrashLoopBackOff   9 (34s ago)      17m
default       readiness-http                        1/1     Running            0                30s
kube-system   ama-logs-lltls                        2/2     Running            0                5h21m
kube-system   ama-logs-rs-59c7b96bcf-25tjg          1/1     Running            0                5h22m
kube-system   azure-ip-masq-agent-tgsqc             1/1     Running            0                5h21m
kube-system   cloud-node-manager-x98fh              1/1     Running            0                5h21m
kube-system   coredns-59b6bf8b4f-k2628              1/1     Running            0                5h22m
kube-system   coredns-59b6bf8b4f-txcxw              1/1     Running            0                5h20m
kube-system   coredns-autoscaler-6cdbf5c7bc-mstx6   1/1     Running            0                5h22m
kube-system   csi-azuredisk-node-2klgh              3/3     Running            0                5h21m
kube-system   csi-azurefile-node-5zqnv              3/3     Running            0                5h21m
kube-system   konnectivity-agent-58c8c75568-bc2mh   1/1     Running            0                5h19m
kube-system   konnectivity-agent-58c8c75568-ffw5h   1/1     Running            0                5h19m
kube-system   kube-proxy-95srz                      1/1     Running            0                5h21m
kube-system   metrics-server-7dd74d8758-gp2mq       2/2     Running            0                5h20m
kube-system   metrics-server-7dd74d8758-mn9tn       2/2     Running            0                5h20m
```

29. Events for the pod:

```
Events:
  Type    Reason     Age   From               Message
  ----    ------     ----  ----               -------
  Normal  Scheduled  69s   default-scheduler  Successfully assigned default/readiness-http to aks-agentpool-78322948-vmss000000
  Normal  Pulling    69s   kubelet            Pulling image "nginx"
  Normal  Pulled     69s   kubelet            Successfully pulled image "nginx" in 163.207216ms
  Normal  Created    69s   kubelet            Created container nginx
  Normal  Started    68s   kubelet            Started container nginx
PS /home/elizabet>
```

30. After setting the port to 81, the pod is running but not ready:

```
PS /home/elizabet> kubectl get pods -A
NAMESPACE     NAME                                  READY   STATUS             RESTARTS        AGE
default       liveness-exec                         1/1     Running            15 (19s ago)    40m
default       liveness-http                         0/1     CrashLoopBackOff   16 (114s ago)   32m
default       liveness-tcp                          0/1     CrashLoopBackOff   9 (5m ago)      22m
default       readiness-http                        0/1     Running            0               70s
kube-system   ama-logs-lltls                        2/2     Running            0               5h26m
kube-system   ama-logs-rs-59c7b96bcf-25tjg          1/1     Running            0               5h26m
kube-system   azure-ip-masq-agent-tgsqc             1/1     Running            0               5h26m
kube-system   cloud-node-manager-x98fh              1/1     Running            0               5h26m
kube-system   coredns-59b6bf8b4f-k2628              1/1     Running            0               5h26m
kube-system   coredns-59b6bf8b4f-txcxw              1/1     Running            0               5h25m
kube-system   coredns-autoscaler-6cdbf5c7bc-mstx6   1/1     Running            0               5h26m
kube-system   csi-azuredisk-node-2klgh              3/3     Running            0               5h26m
kube-system   csi-azurefile-node-5zqnv              3/3     Running            0               5h26m
kube-system   konnectivity-agent-58c8c75568-bc2mh   1/1     Running            0               5h23m
kube-system   konnectivity-agent-58c8c75568-ffw5h   1/1     Running            0               5h23m
kube-system   kube-proxy-95srz                      1/1     Running            0               5h26m
kube-system   metrics-server-7dd74d8758-gp2mq       2/2     Running            0               5h25m
kube-system   metrics-server-7dd74d8758-mn9tn       2/2     Running            0               5h25m
PS /home/elizabet>
```

31. Events of the readiness probe – connection refused:

```
Events:
  Type     Reason     Age                  From               Message
  ----     ------     ----                 ----               -------
  Normal   Scheduled  111s                 default-scheduler  Successfully assigned default/readiness-http to aks-agentpool-78322948-vmss000000
  Normal   Pulling    110s                 kubelet            Pulling image "nginx"
  Normal   Pulled     110s                 kubelet            Successfully pulled image "nginx" in 372.554824ms
  Normal   Created    110s                 kubelet            Created container nginx
  Normal   Started    110s                 kubelet            Started container nginx
  Warning  Unhealthy  74s (x21 over 109s)  kubelet            Readiness probe failed: Get "http://10.244.0.26:81/": dial tcp 10.244.0.26:81: connect:
 connection refused
PS /home/elizabet>
```

32. Deleting all pods:

```
PS /home/elizabet> kubectl delete pods --all -n default
pod "liveness-exec" deleted
pod "liveness-http" deleted
pod "liveness-tcp" deleted
pod "readiness-http" deleted
PS /home/elizabet> kubectl get pods -A
NAMESPACE     NAME                                  READY   STATUS    RESTARTS   AGE
kube-system   ama-logs-lltls                        2/2     Running   0          5h28m
kube-system   ama-logs-rs-59c7b96bcf-25tjg          1/1     Running   0          5h28m
kube-system   azure-ip-masq-agent-tgsqc             1/1     Running   0          5h28m
kube-system   cloud-node-manager-x98fh              1/1     Running   0          5h28m
kube-system   coredns-59b6bf8b4f-k2628              1/1     Running   0          5h28m
kube-system   coredns-59b6bf8b4f-txcxw              1/1     Running   0          5h27m
kube-system   coredns-autoscaler-6cdbf5c7bc-mstx6   1/1     Running   0          5h28m
kube-system   csi-azuredisk-node-2klgh              3/3     Running   0          5h28m
kube-system   csi-azurefile-node-5zqnv              3/3     Running   0          5h28m
kube-system   konnectivity-agent-58c8c75568-bc2mh   1/1     Running   0          5h25m
kube-system   konnectivity-agent-58c8c75568-ffw5h   1/1     Running   0          5h25m
kube-system   kube-proxy-95srz                      1/1     Running   0          5h28m
kube-system   metrics-server-7dd74d8758-gp2mq       2/2     Running   0          5h27m
kube-system   metrics-server-7dd74d8758-mn9tn       2/2     Running   0          5h27m
PS /home/elizabet>
```