

Elastic Meetup 杭州

Monitoring Docker with Elastic Stack

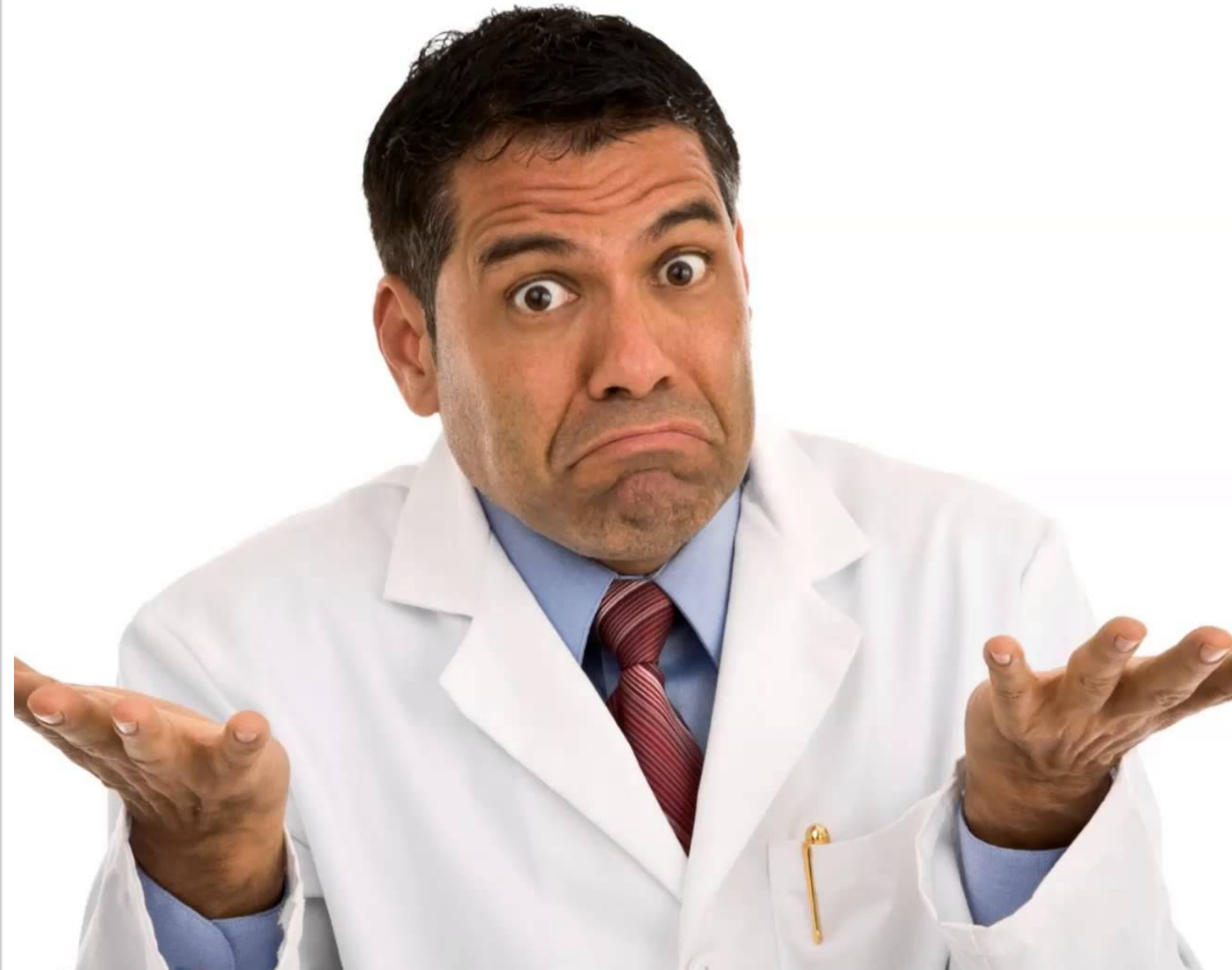
Medcl, Elastic

Do you know if
your containers
are healthy?



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Agenda

- What should you be monitoring in your microservice architecture?
- What is Metricbeat?
- How can Metricbeat help monitor your container infrastructure?

Built-in Tooling

docker ps / docker stats

- Decentralized

No Historical Data

Reactive monitoring

Doesn't Scale

CPU %	MEM USAGE / LIMIT	MEM %	NET I/O
0.01%	51.79 MiB / 31.29 GiB		
0.00%	1.445 MiB / 31.29 GiB	0.00%	6.23 kB
3.09%	200.3 MiB / 31.29 GiB	0.63%	4.93 kB
0.14%	386.1 MiB / 31.29 GiB	1.21%	5.11 kB
0.05%	6.23 MiB / 31.29 GiB	0.02%	7.55 kB
0.05%	8.52 MiB / 31.29 GiB	0.03%	5.87 kB
0.56%	308.7 MiB / 31.29 GiB	0.96%	5.54 kB
0.03%	25.27 MiB / 31.29 GiB	0.08%	6.05 kB
0.07%	18.39 MiB / 31.29 GiB	0.06%	7.74 kB
0.05%	240 MiB / 31.29 GiB	0.75%	9.02 kB
0.26%	29.71 MiB / 31.29 GiB	0.09%	6.32 kB
0.00%	1.527 MiB / 31.29 GiB	0.00%	8.62 kB
0.05%	40.99 MiB / 31.29 GiB	0.13%	8.19 kB
4.52%	440.5 MiB / 31.29 GiB	1.37%	8.71 kB
0.15%	799 MiB / 31.29 GiB	2.49%	1.79 MB
0.00%	760 KiB / 31.29 GiB	0.00%	9.86 MB
2.38%	596 MiB / 31.29 GiB	1.86%	233 kB /
0.30%	355.5 MiB / 31.29 GiB	1.11%	125 kB /
0.23%	795.4 MiB / 31.29 GiB	2.48%	1.49 MB
0.05%	12.22 MiB / 31.29 GiB	0.04%	23.5 MB



Monitor all the things that are critical to availability of your service.

1

Network

2

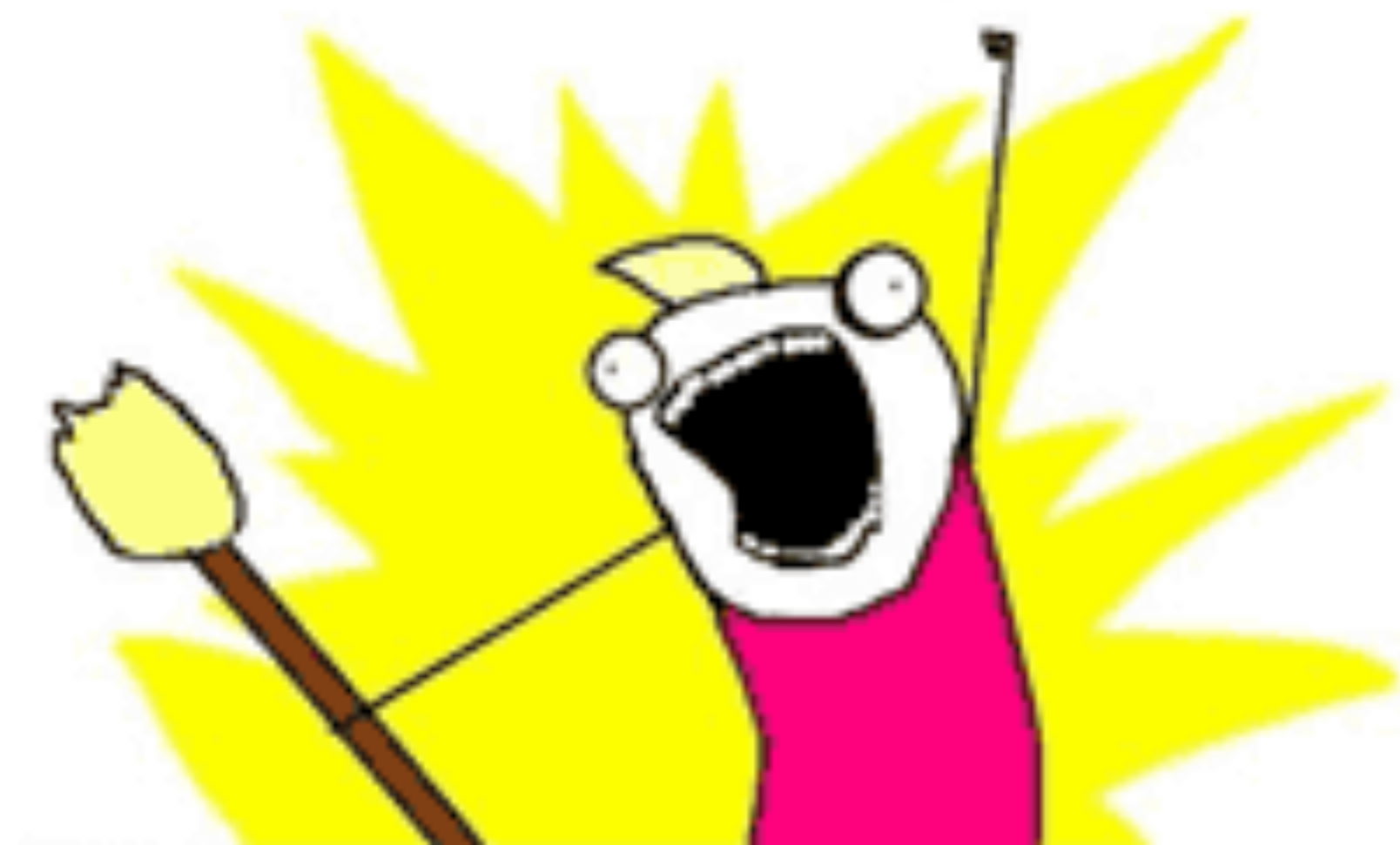
Hosts

3

Containers

4

Applications



Monitor all of the things that are critical to the availability of your service.

1 **Network** - switch / router monitoring via syslog and snmp traps with Logstash

2 Hosts

3 Containers

4 Applications

Monitor all of the things that are critical to the availability of your service.

1

Network

2

Hosts - Metricbeat

3

Containers

4

Applications

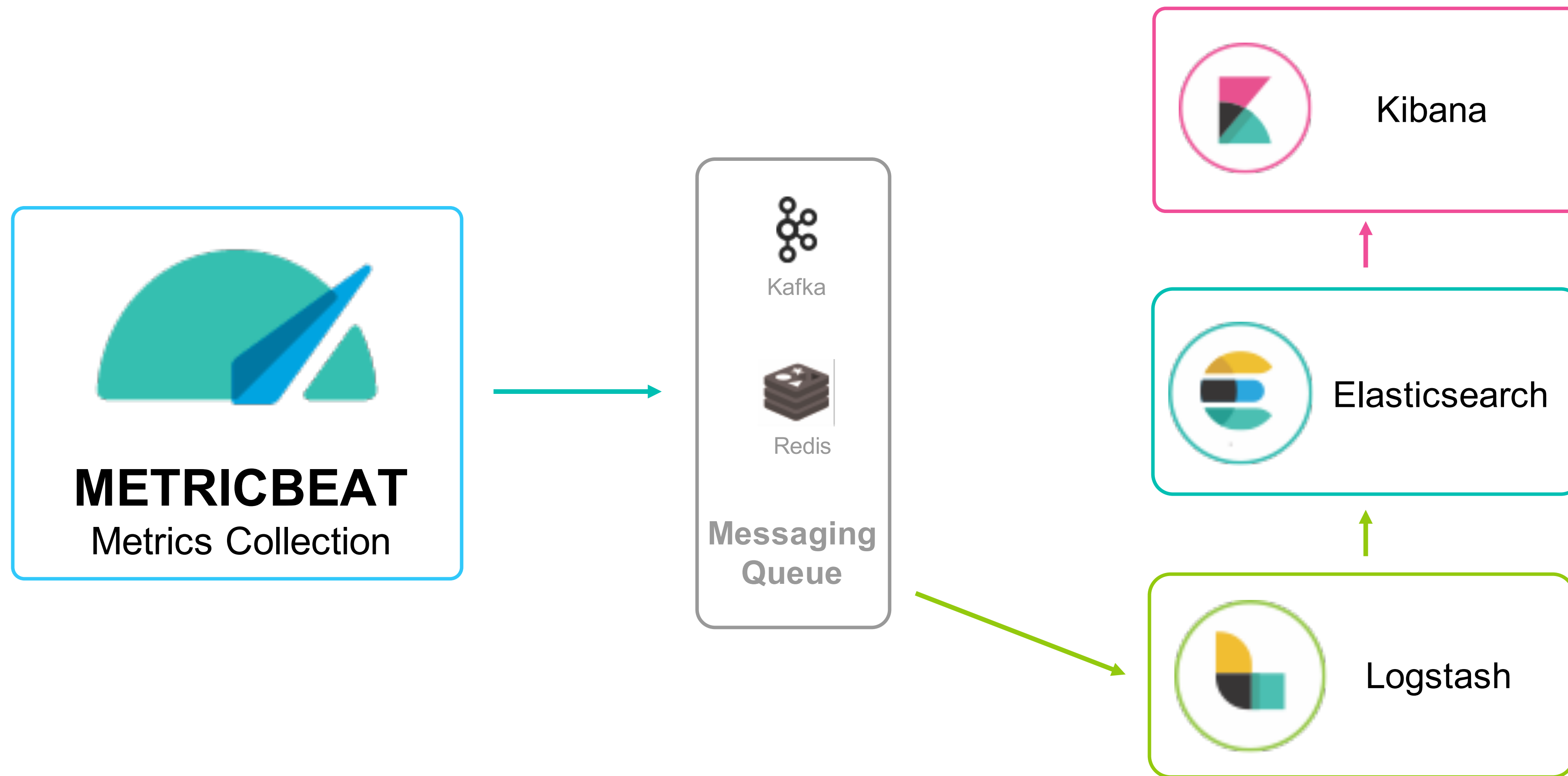
Use the Metricbeat system module to monitor hosts.

```
metricbeat.modules:  
- module: system  
  metricsets:  
    - cpu                # /proc/stat  
    - load               # /proc/loadavg  
    - memory             # /proc/meminfo  
    - network            # /proc/net/dev  
    - diskio             # /proc/diskstats  
    - filesystem         # /etc/mtab -> statfs()  
    - fsstat  
    - process            # /proc/[pid]/{stat,status,statm,cmdline,environ}  
  processes: ['.*']  
  cgroups: true
```

Metricbeat can be deployed on the host or container.

```
docker run \  
  -v /proc:/hostfs/proc:ro \  
  -v /sys/fs/cgroup:/hostfs/sys/fs/cgroup:ro \  
  -v /:/hostfs:ro \  
  -v /var/run/docker.sock:/var/run/docker.sock \  
  my/metricbeat:latest -system.hostfs=/hostfs
```

Metricbeat has several outputs for architecture flexibility.



Elastic now has official container images



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Details.

```
FROM docker.elastic.co/beats/metricbeat:5.4.2
```

```
COPY metricbeat.yml /usr/share/metricbeat/metricbeat.yml
```



<https://github.com/elastic/beats-docker>





Monitor all the things that are critical to the availability of your service.

1

Network

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Hosts

3

Containers - Metricbeat

4

Applications

Use the Metricbeat docker module to collect daemon and container metrics.

```
metricbeat.modules:
```

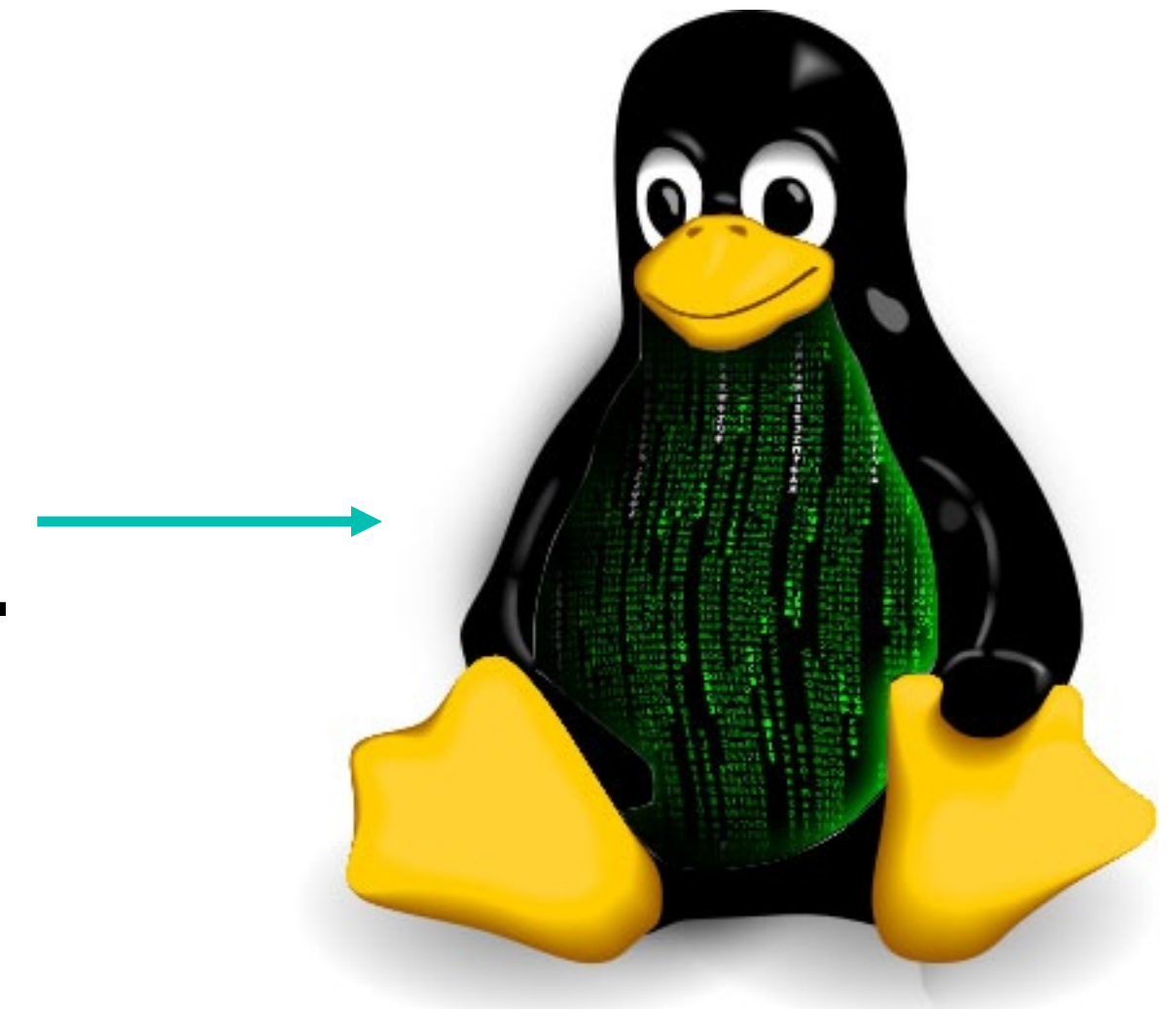
```
- module: docker
```

```
  metricsets:
```

- info # daemon info
- container # id, image, command, labels, status
- cpu # kernel, user, total, per cpu usage
- memory # usage, max, limit
- diskio # disk io activity, reads, writes
- network # network io
- healthcheck # application health checked by a command

Metricbeat's system process metricset collects cgroup

- Works with any container tool (Rocket, runC)
- No Docker API dependency
- Missing Docker metadata (name, labels)
- cgroup ID == container ID



Monitor all of the things that are critical to the availability of your service.

1

Network

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Hosts

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Containers

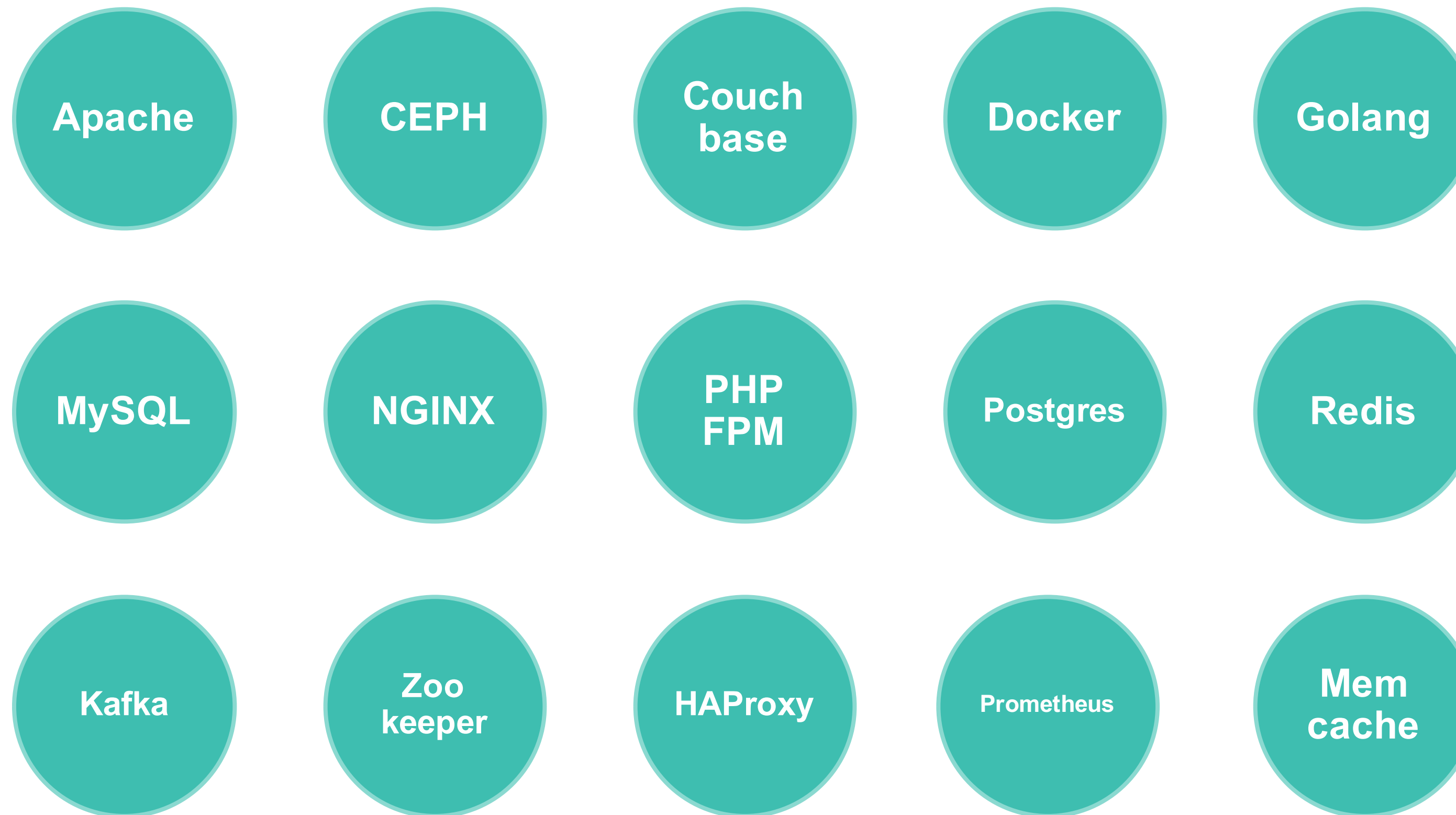
4

Applications - Metricbeat

Use the Metricbeat modules to monitor container applications.

```
metricbeat.modules:  
- module: mysql  
  metricsets: [status]  
  hosts: ["tcp(mysql01:3306)/"]  
  username: root  
  password: "${MYSQL_ROOT_PASSWORD}"
```

Monitor external services





Monitor all the things that are critical to the availability of your service.

1

Network

2

Hosts

3

Containers

4

Applications

Bundled with X-Pack

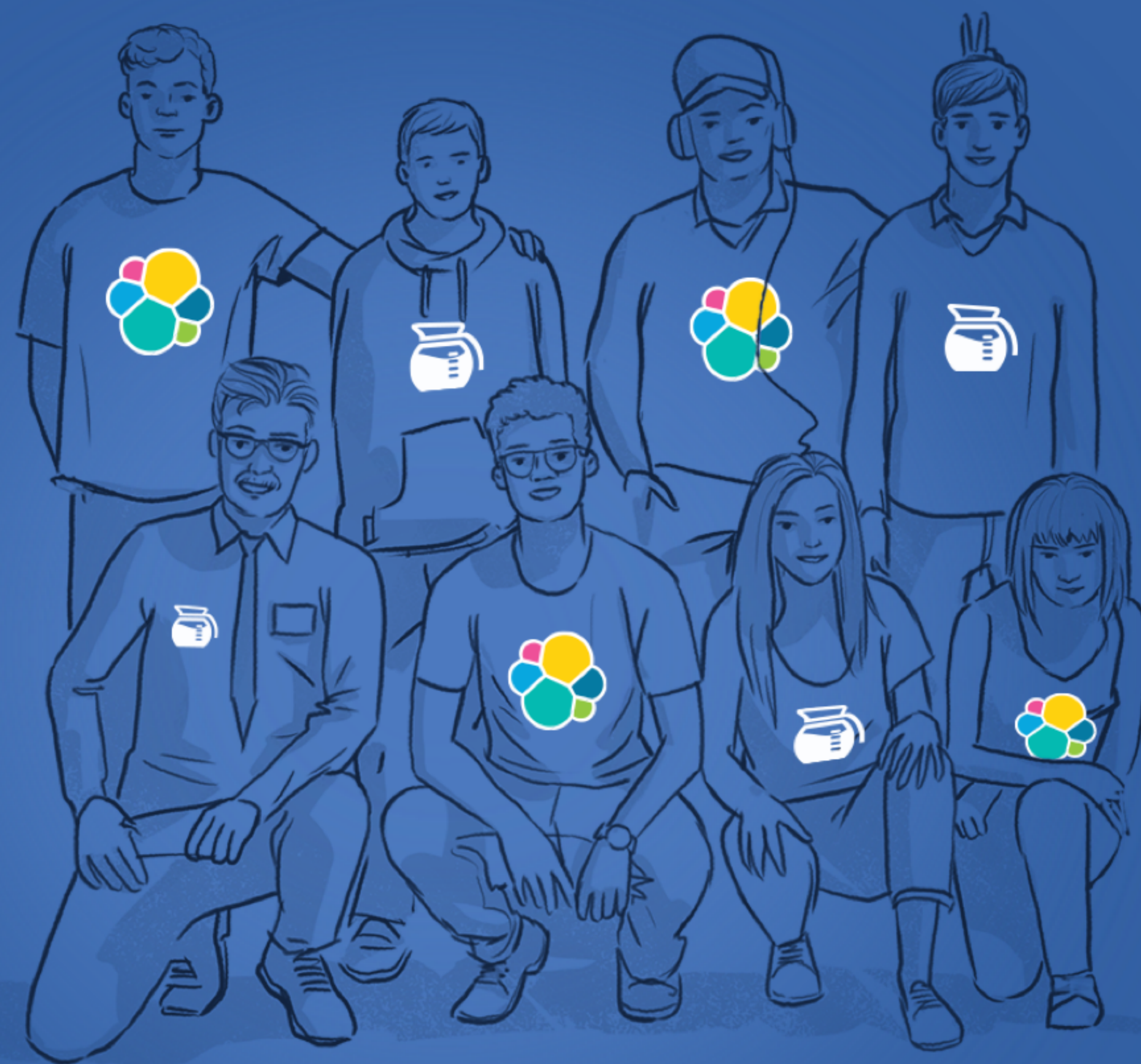


- Shield, Watcher, Marvel, Graph, reporting ... soon also Machine Learning!
- Free Basic License provides monitoring and 18 zoom levels for the tile service

DEMO

Opbeat is joining forces with Elastic.

[Read our blog post](#)





www.elastic.co