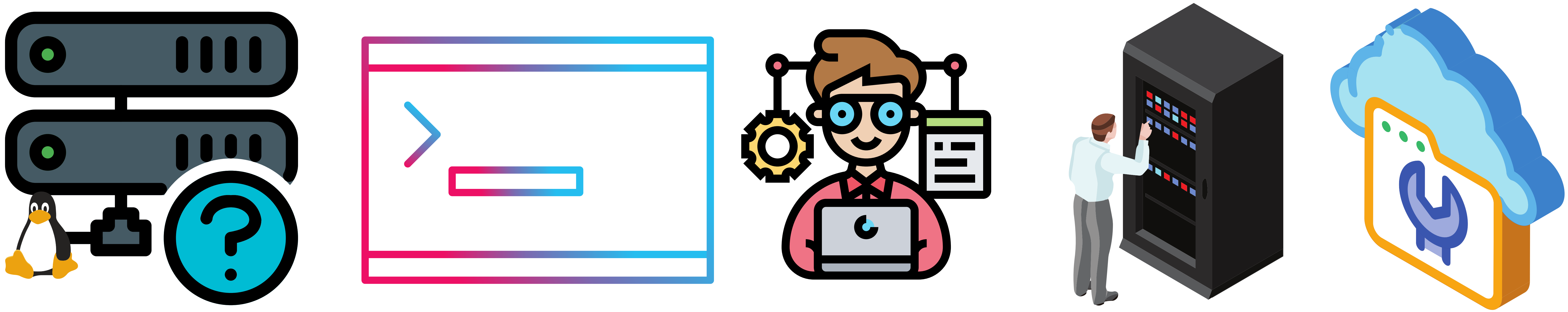
Learn With Sandip

Linux Server Troubleshooting



Learn Common Linux Server Troubleshooting

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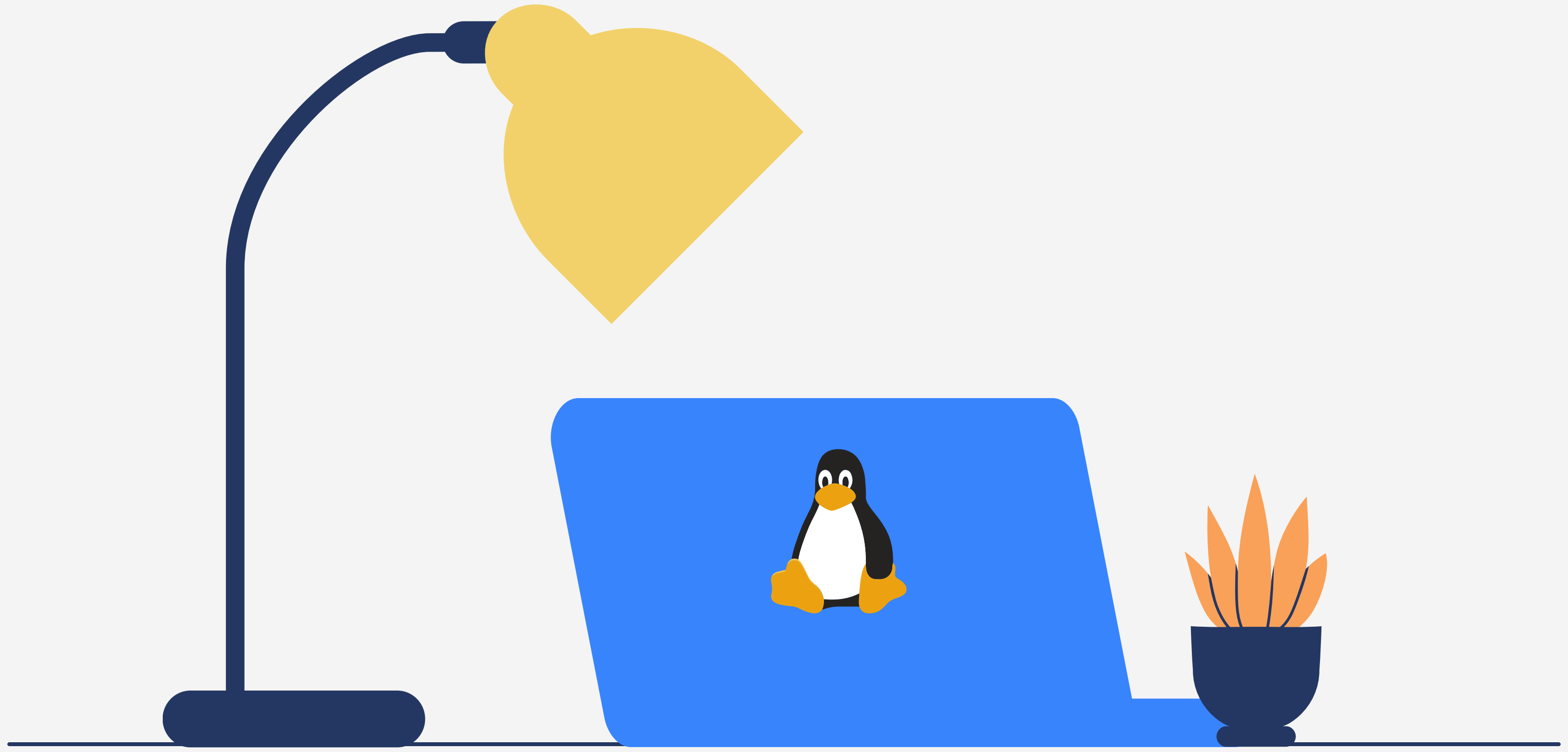
Topics



- ✓ **Is is Still Ralevet?**

  It's modern age , modern tools

- ✓ **Storage Issue**

  Tips to solve storage issues

- ✓ **High CPU/Memory Useage Issue**

  Tips to solve high CPU useage issues

- ✓ **Logs issue**

  Tips to keep logs in check

- ✓ **Monitoring & Alerting**

  How to constantly monitor and alert if any issue happens

Is it still ralevent?

01 Virtualization & Cotainerization

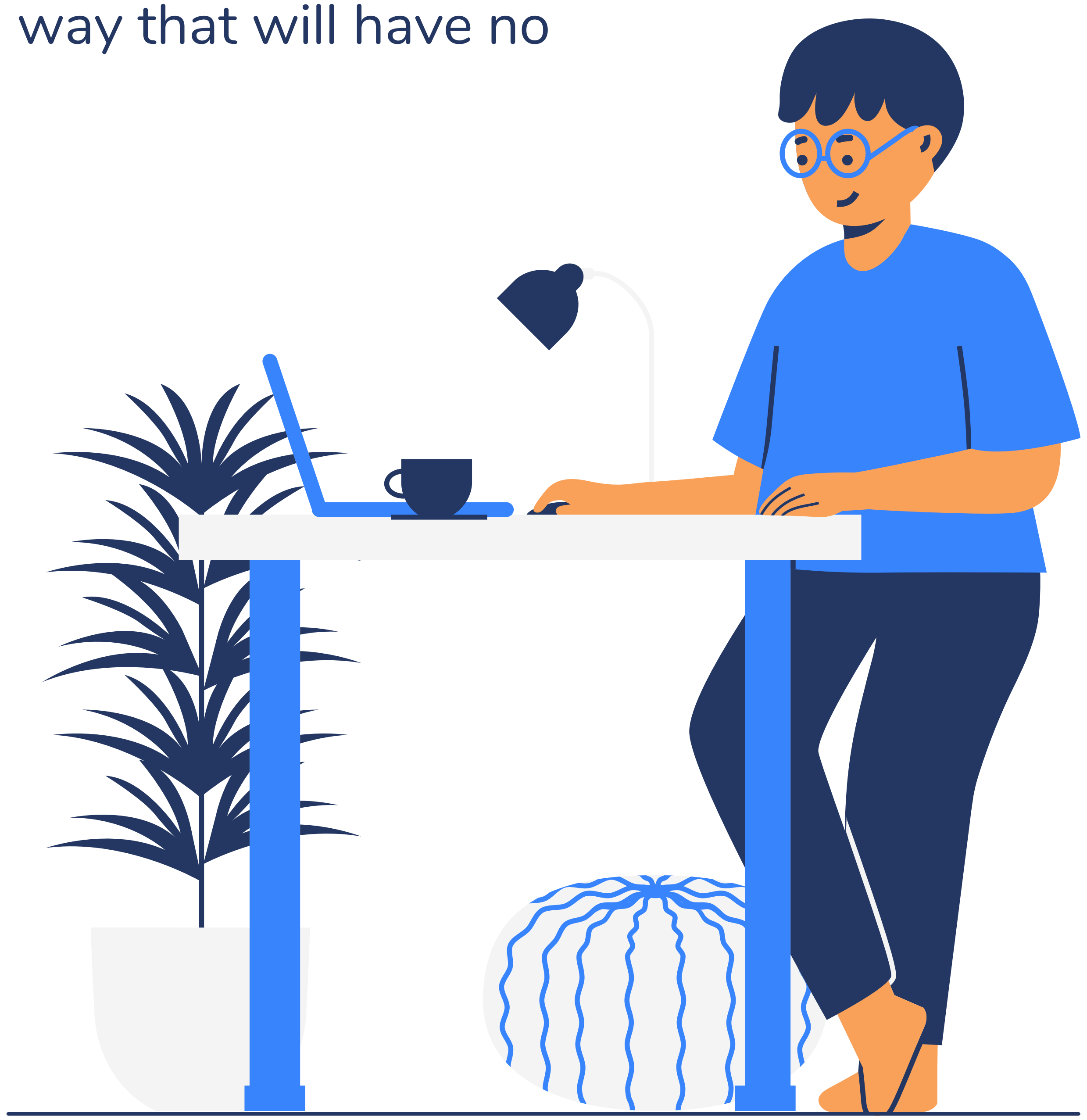
We can any time face any issue, we can simply replace with the new container or even better with tools like Kubernetes, Docker Swarm we ca do it such a way that will have no impact and normal users will see no difference

02 Modern DevOps Tools

With Modern DevOps Tools Such as Terraform, Ansible, Chef, Puppet we can reconfigure etire infra within few seconds/mins.

03 Serverless Computing

With Serverless computing such as AWS Lambda, GCP/Azure Functions, iron.io, etc, now cloud service providers (CSP) handle all the complex capacity, scaling, patching, etc, we just run the Program/APIs/Scripts



But......Finding root cause is important

Finding root cause and fixing it well, so that it will not happen again is more important then simply replacing resources

Storage Issue

- ! Not able to create files
- ! Processes are not able to run properly and failing
- ! The web application not accepting requests and giving 5xx errors

Find out what causig Storage issue

Run: **sudo df -h**

It will show data about hard drives in human-readable format

By This, we can find out how is the current status and i which drive getting filled fast

Run:

```
sudo du -a /dir/ | sort -n -r | head -n 20
```

or

```
sudo du -a / 2>/dev/null | sort -n -r | head -n 20
```

To find out where is your big files and remove them if necessary else consider increasing your drive size

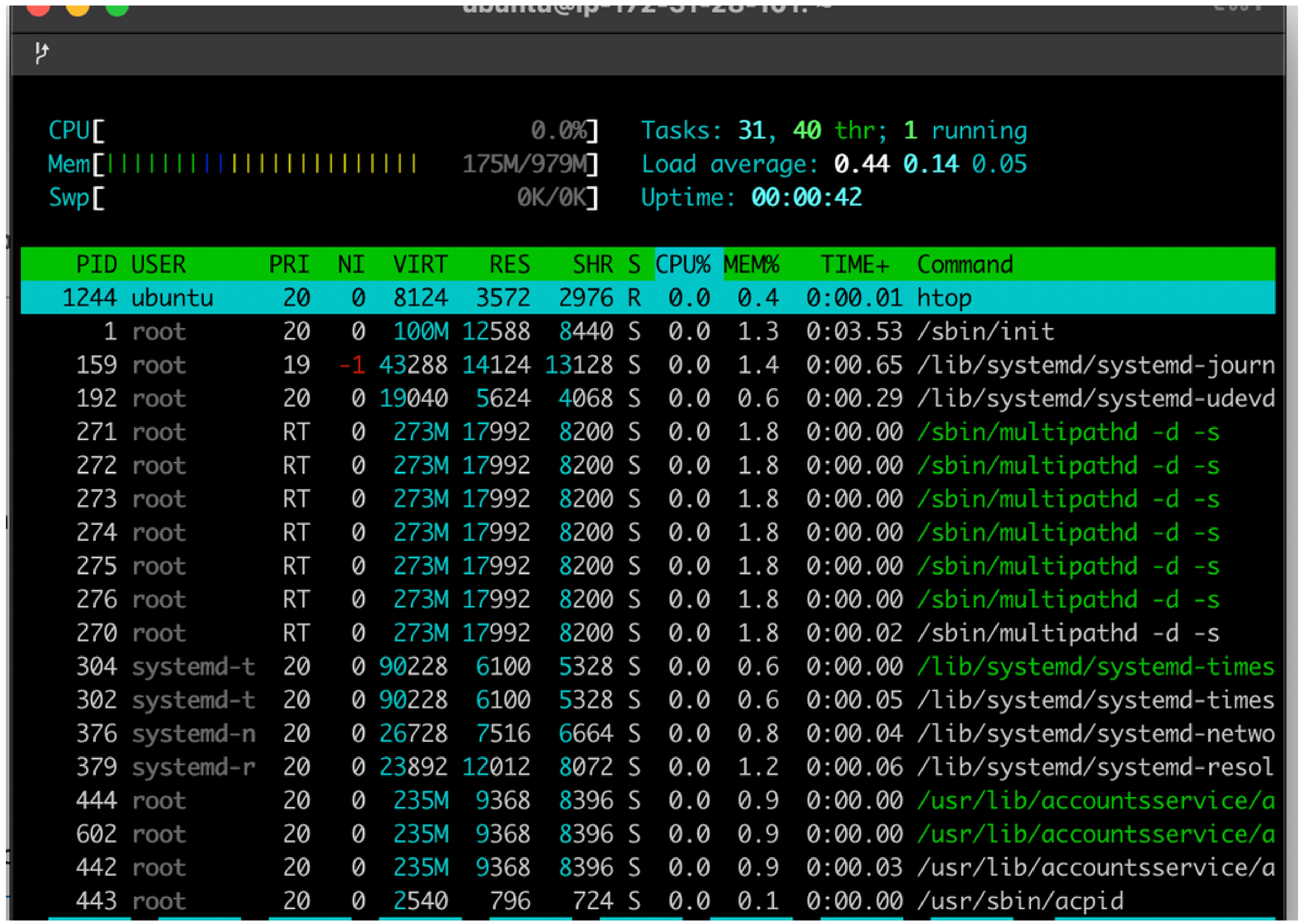
High CPU/Memory Useage Issue

- Processes or Applications getting slow down
- Web Apps getting slowed / Apis giving late response
- Request getting time out, possible 5** error

Find out what this Storage issue

Run: **htop or top**

It will show applications/processes CPU and RAM usage data, from here find out which program causing it and debug to fix it



```
CPU[                                 0.0%]   Tasks: 31, 40 thr; 1 running
Mem[|||||||||||||||||||||||     175M/979M]   Load average: 0.44 0.14 0.05
Swp[                                0K/0K]   Uptime: 00:00:42

  PID USER       PRI  NI  VIRT   RES   SHR S CPU% MEM%   TIME+  Command
 1244 ubuntu      20   0  8124  3572  2976 R  0.0  0.4  0:00.01 htop
    1 root        20   0  100M 12588  8440 S  0.0  1.3  0:03.53 /sbin/init
  159 root        19  -1 43288 14124 13128 S  0.0  1.4  0:00.65 /lib/systemd/systemd-journ
  192 root        20   0 19040  5624  4068 S  0.0  0.6  0:00.29 /lib/systemd/systemd-udevd
  271 root        RT   0  273M 17992  8200 S  0.0  1.8  0:00.00 /sbin/multipathd -d -s
  272 root        RT   0  273M 17992  8200 S  0.0  1.8  0:00.00 /sbin/multipathd -d -s
  273 root        RT   0  273M 17992  8200 S  0.0  1.8  0:00.00 /sbin/multipathd -d -s
  274 root        RT   0  273M 17992  8200 S  0.0  1.8  0:00.00 /sbin/multipathd -d -s
  275 root        RT   0  273M 17992  8200 S  0.0  1.8  0:00.00 /sbin/multipathd -d -s
  276 root        RT   0  273M 17992  8200 S  0.0  1.8  0:00.00 /sbin/multipathd -d -s
  270 root        RT   0  273M 17992  8200 S  0.0  1.8  0:00.02 /sbin/multipathd -d -s
  304 systemd-t   20   0 90228  6100  5328 S  0.0  0.6  0:00.00 /lib/systemd/systemd-times
  302 systemd-t   20   0 90228  6100  5328 S  0.0  0.6  0:00.05 /lib/systemd/systemd-times
  376 systemd-n   20   0 26728  7516  6664 S  0.0  0.8  0:00.04 /lib/systemd/systemd-netwo
  379 systemd-r   20   0 23892 12012  8072 S  0.0  1.2  0:00.06 /lib/systemd/systemd-resol
  444 root        20   0  235M  9368  8396 S  0.0  0.9  0:00.00 /usr/lib/accountsservice/a
  602 root        20   0  235M  9368  8396 S  0.0  0.9  0:00.00 /usr/lib/accountsservice/a
  442 root        20   0  235M  9368  8396 S  0.0  0.9  0:00.03 /usr/lib/accountsservice/a
  443 root        20   0  2540   796   724 S  0.0  0.1  0:00.00 /usr/sbin/acpid
```

Logs Issue

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! Too many logs and logs not easy to read

! Logs files size getting huge and system storage getting filled

! Unfortunately system terminated , not able to get logs anymore

- **weekly** means that the tool will attempt to rotate the logs on a weekly basis. Other possible values are daily and monthly.
- **rotate** 3 indicates that only 3 rotated logs should be kept. Thus, the oldest file will be removed on the fourth subsequent run.
- **size=10M** sets the minimum size for the rotation to take place to 10M. In other words, each log will not be rotated until it reaches 10MB.
- **compress** and **delaycompress** are used to tell that all rotated logs, with the exception of the most recent one, should be compressed.

It's good practice is save system storage by moving important old logs files to cloud storage e.g. AWS S3, Azure Blob Storage, Google Cloud Storage etc

How to handle it?

All logs files usually get stored in: /var/log

Important Kernel related logs cab be checked by running this command:

```
dmesg | tail
```

Or to check in real-time logs, such as:

```
dmesg | tail -f /var/log/syslog
```

Use Log rotation

Install:

```
apt-get update
apt-get install logrotate
```

Make sure in /etc/logrotate.conf , include /etc/logrotate.d is un-commeted

Sample Config: /etc/logrotate.d/apache2.conf

```
/var/log/apache2/* {
   weekly
   rotate 3
   size 10M
   compress
   delaycompress
}
```

To run:

```
logrotate  /etc/logrotate.d/apache2.conf
```

Monitoring & Alerting

- Manually can't monitor 24x7
- Need to be alerted when the system get down or under load stress e.g. High CPU or Memory
- Monitor low usage resources, so to remove them to save cost

Prometheus

Grafana

Amazon CloudWatch

dynatrace

splunk>

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