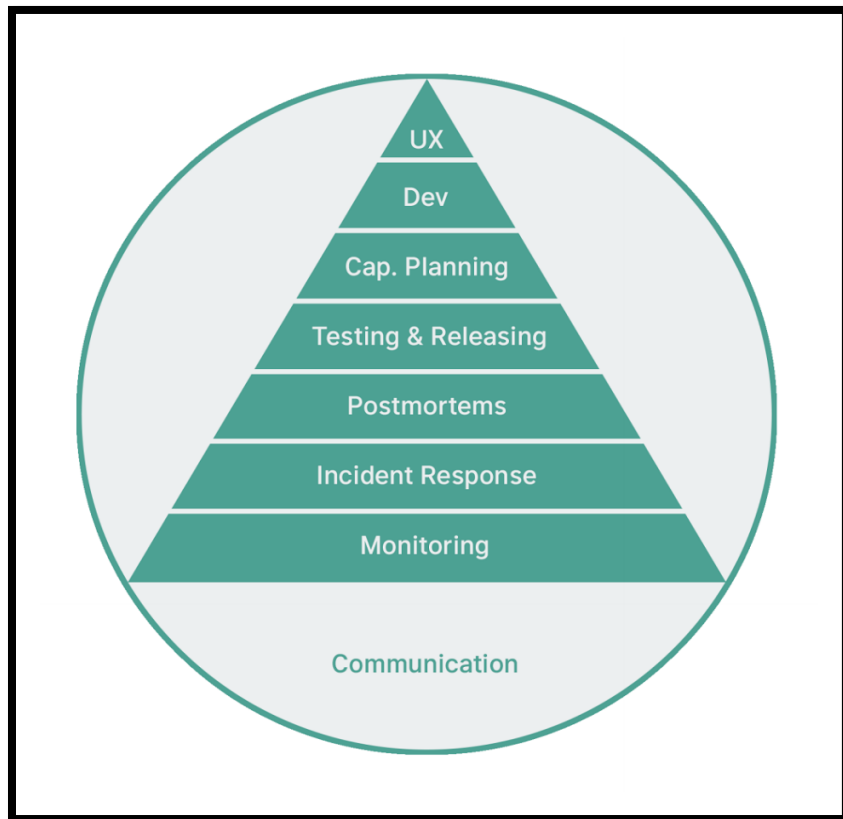
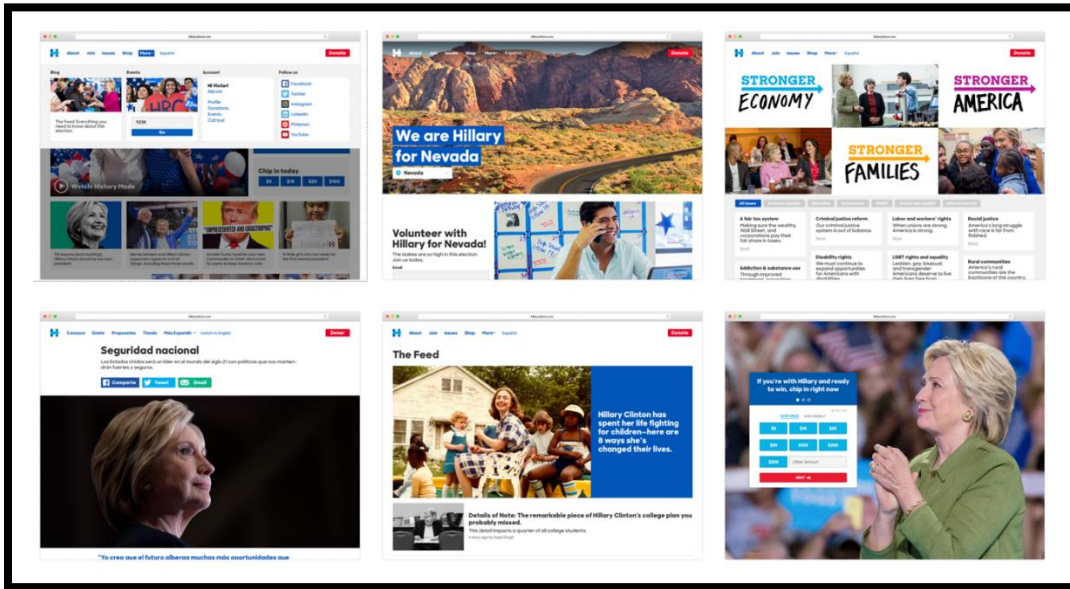
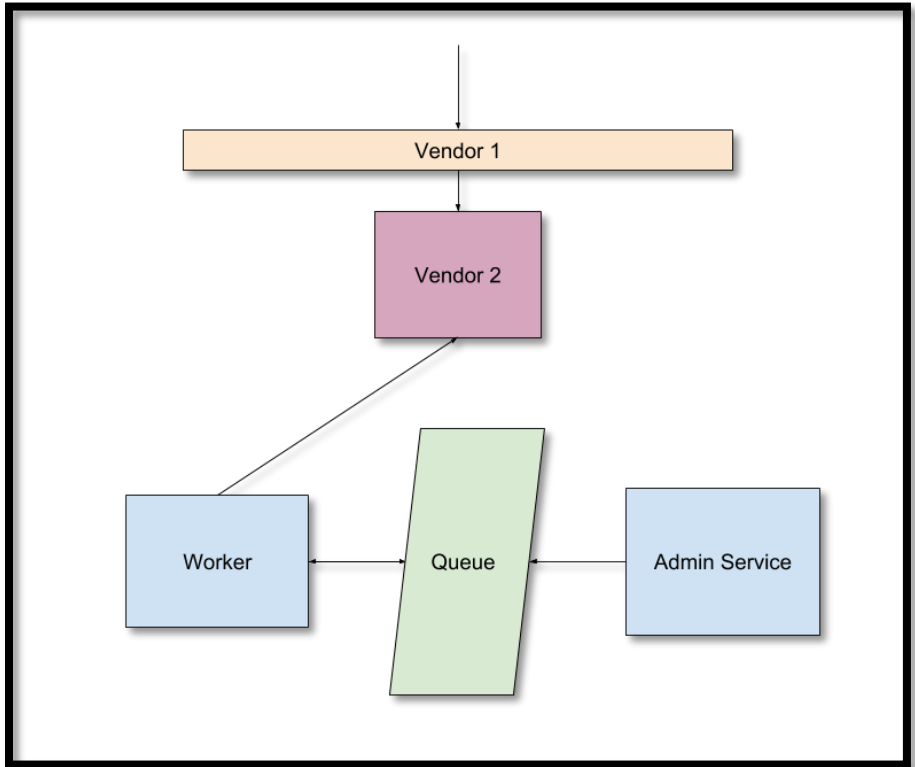
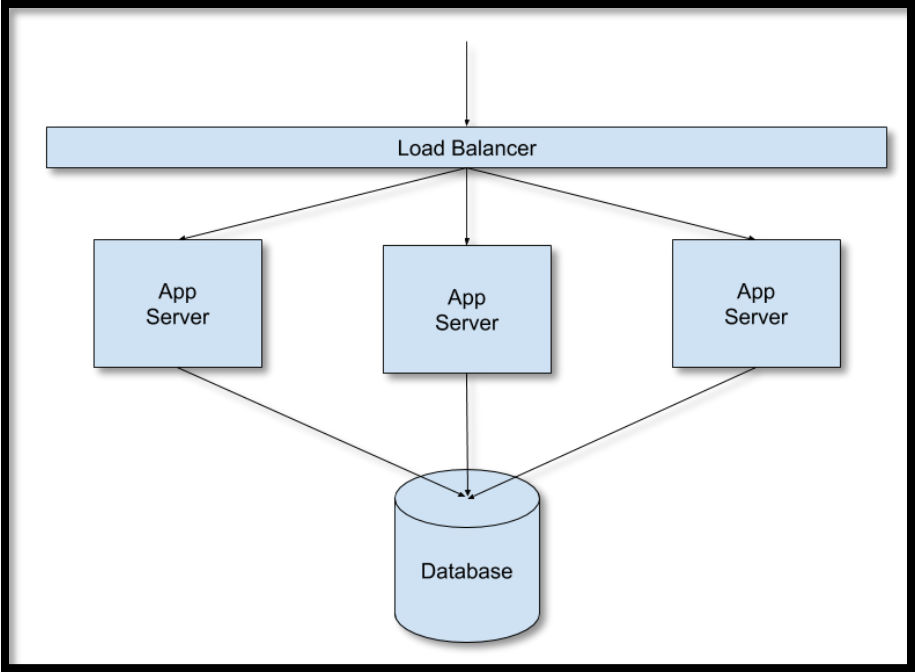
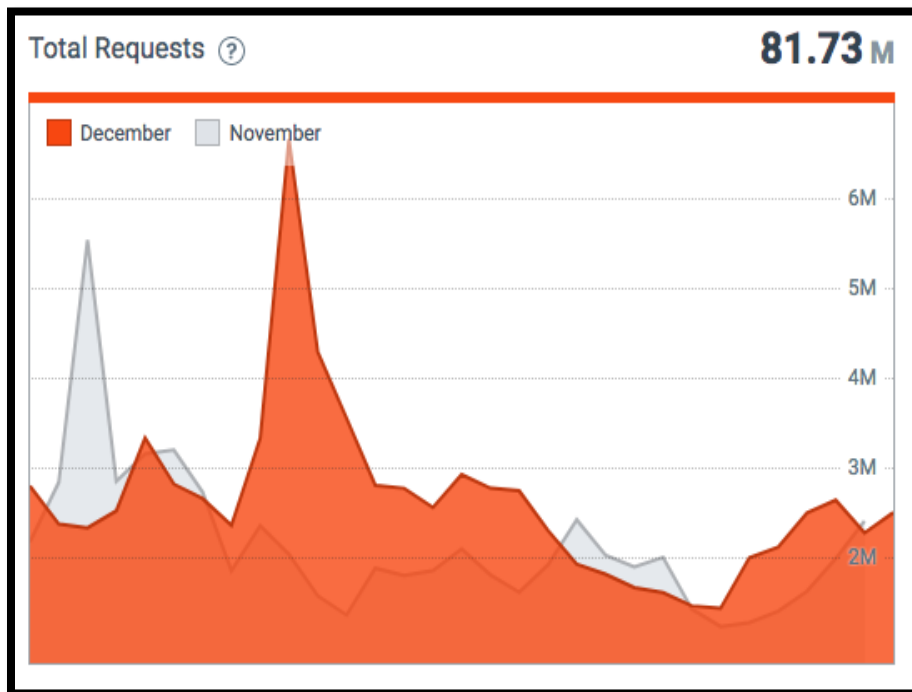
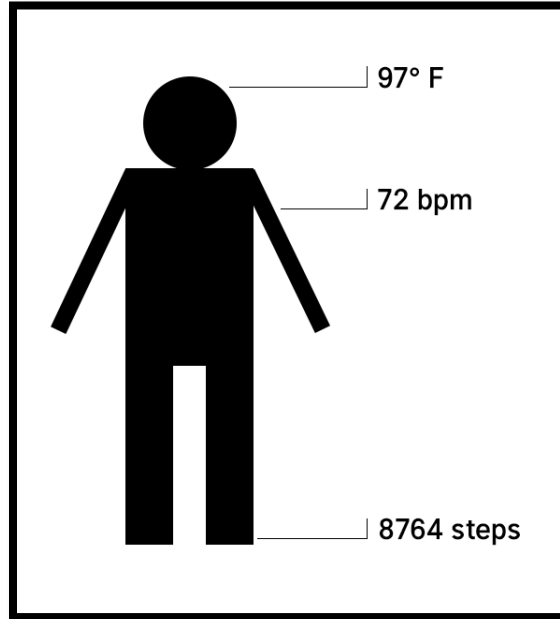


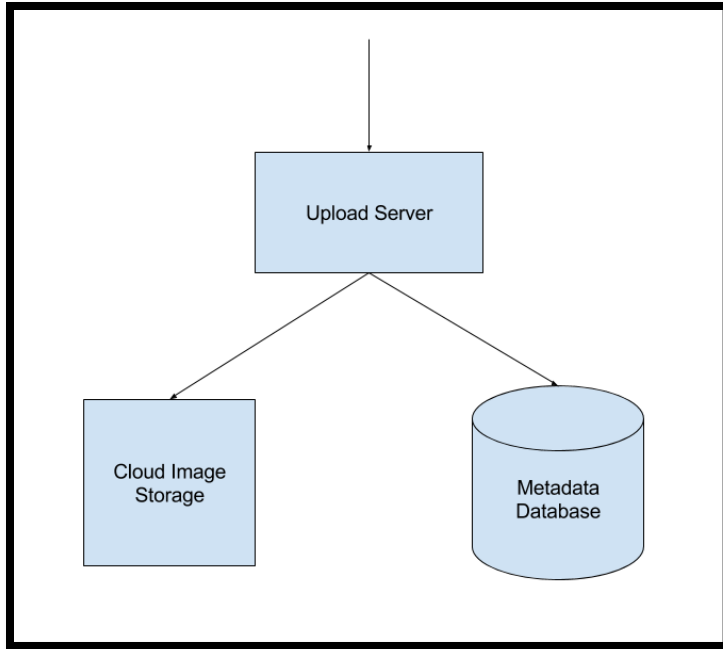
# Chapter 1: What is Reinforcement Learning?



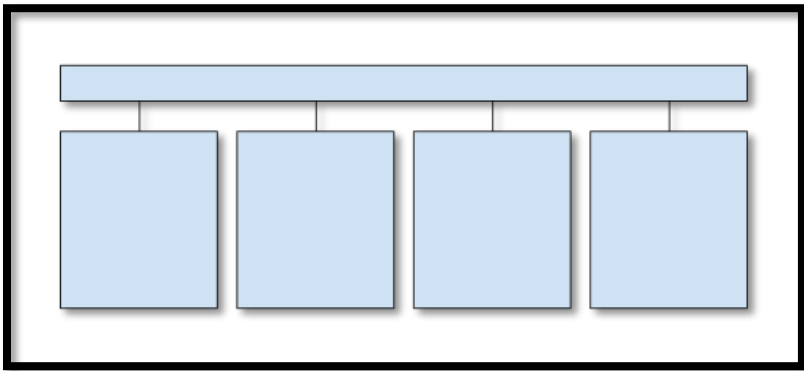
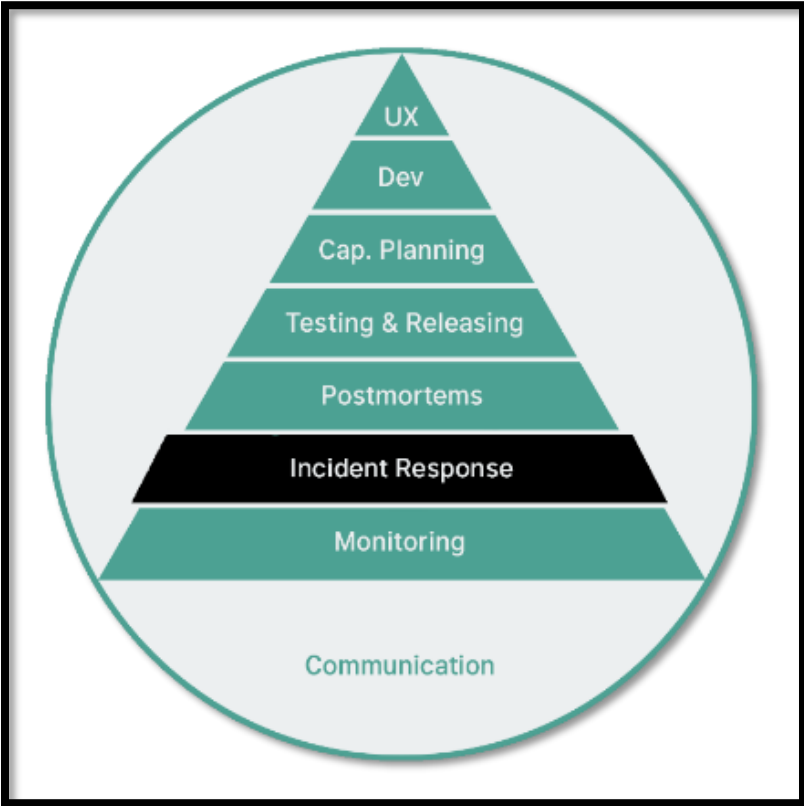


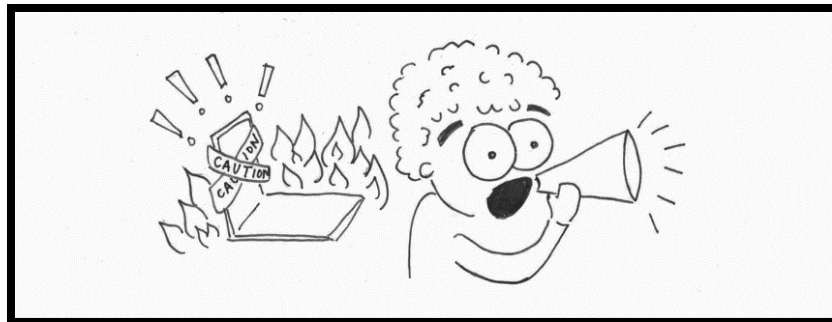
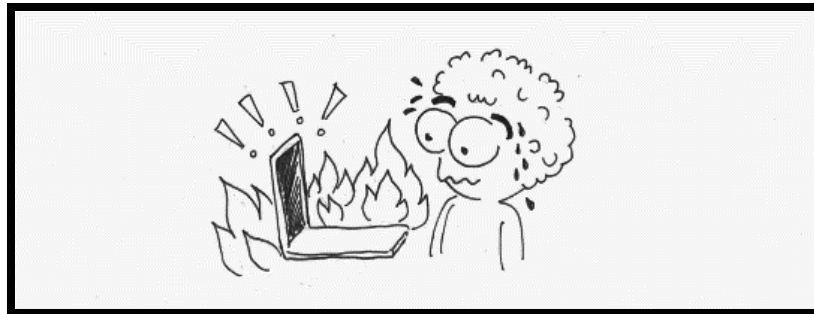
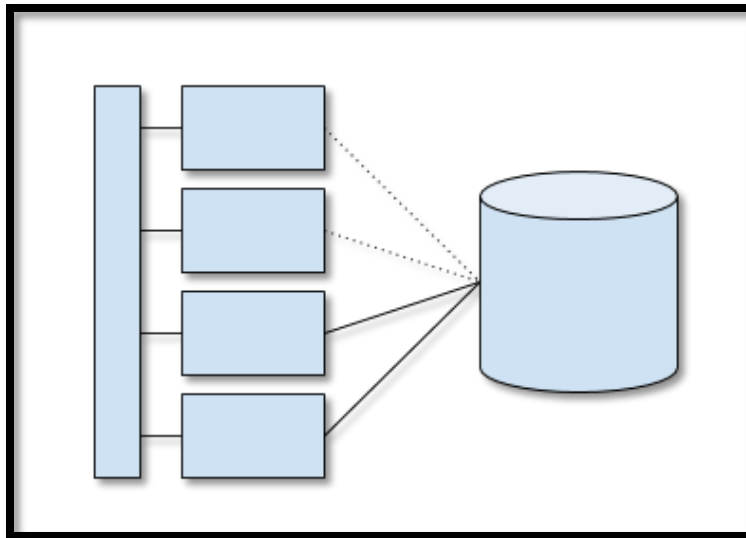
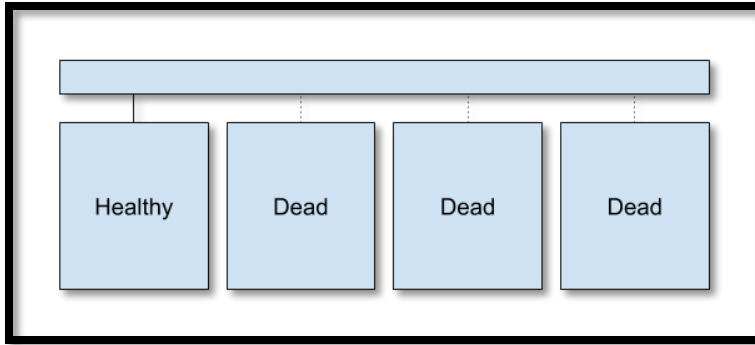
## Chapter 2: Monitoring

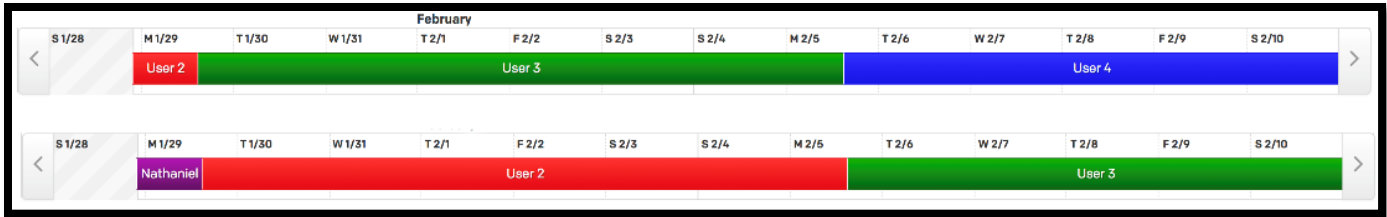
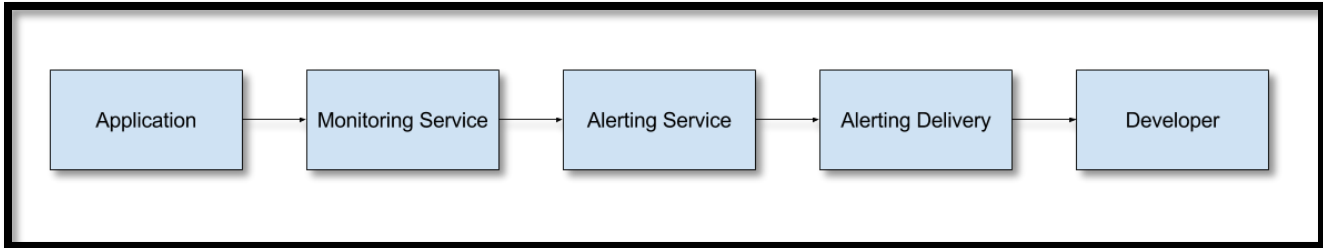
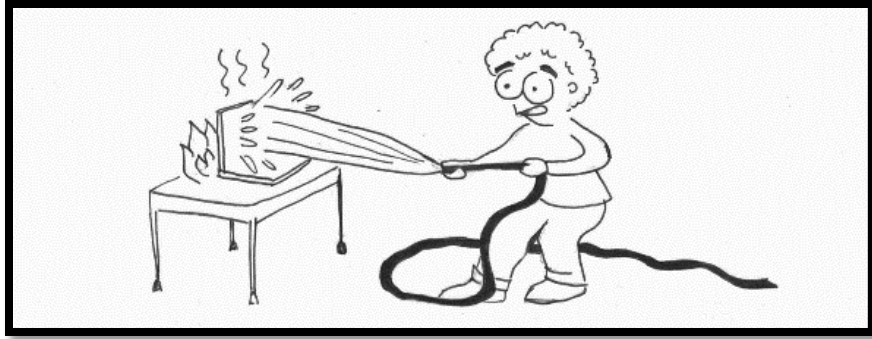




# Chapter 3: Incident Response







## Elevated 500 Errors.

### Incident Report for imgix

#### Resolved

This incident has been resolved.

Posted about 22 hours ago. Jan 27, 2018 - 13:53 PST

#### Monitoring

Reports of 500 Errors has been recovered and we will continue to monitor the situation as it progresses.

Posted about 23 hours ago. Jan 27, 2018 - 13:33 PST

#### Investigating

We are currently investigating reports of elevated error response rates. We will update once we obtain further information.

Posted about 23 hours ago. Jan 27, 2018 - 13:28 PST



**nat.welch** 15:13

Just got paged about field of vision being down since 15:07, verified all pages on [fieldofvision.org](https://fieldofvision.org) are down.

Logs in the node servers are showing 500s when talking to our graphql servers

Oh fun, graphql servers can't resolve the elastic search cluster.

Elastic Search cluster seems to be up. I can query the search endpoint and cluster status is green.

Oh, looks like DNS record for elasticsearch is empty.

Readding the CNAME to the load balancer.

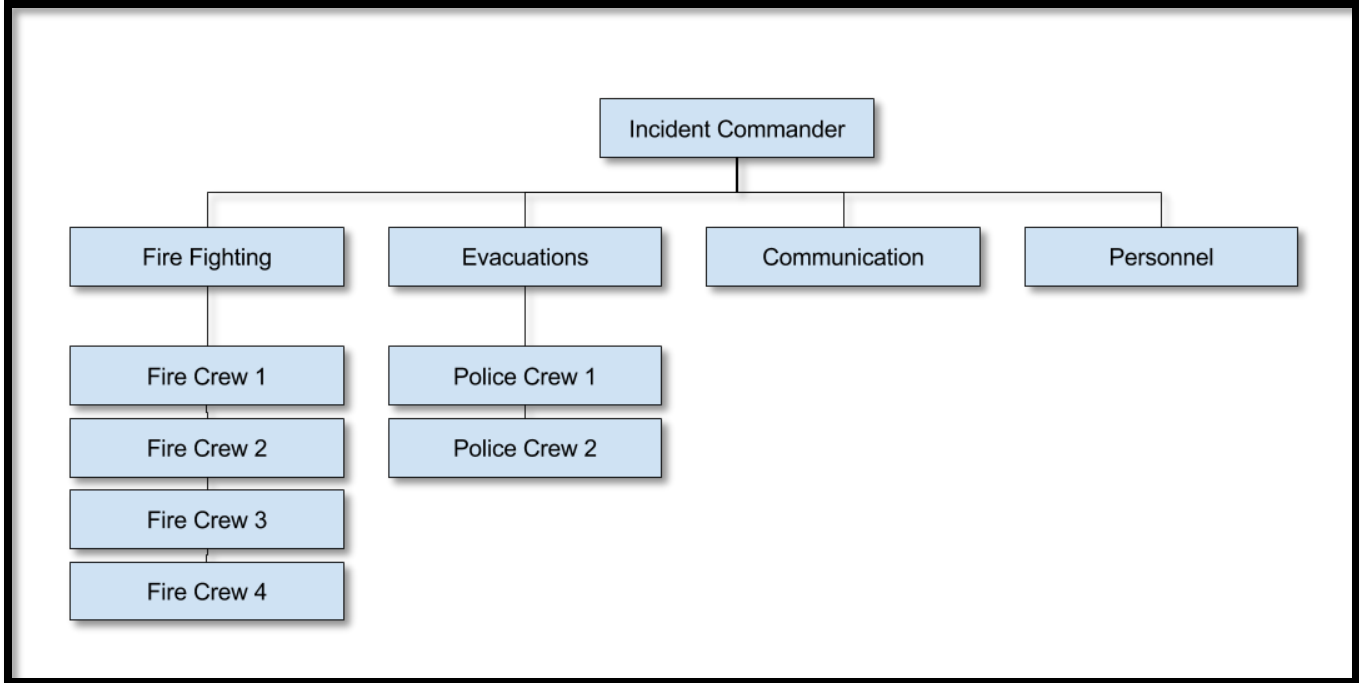
TTL on the DNS is five seconds... this should start working...

Hmm, graphql servers are still not talking to es... I'm going to kick one and see what happens.

Restarted graphql server is up, and looks like it's talking to ES again. Going to restart the others.

Pingdom just reported [fieldofvision.org](https://fieldofvision.org) back up. Incident is over, but going to go look as to why the DNS record disappeared.





**Google Cloud Networking Incident #18004**

We are investigating an issue with Google Cloud Networking. We will provide more information by 13:00 US/Pacific.

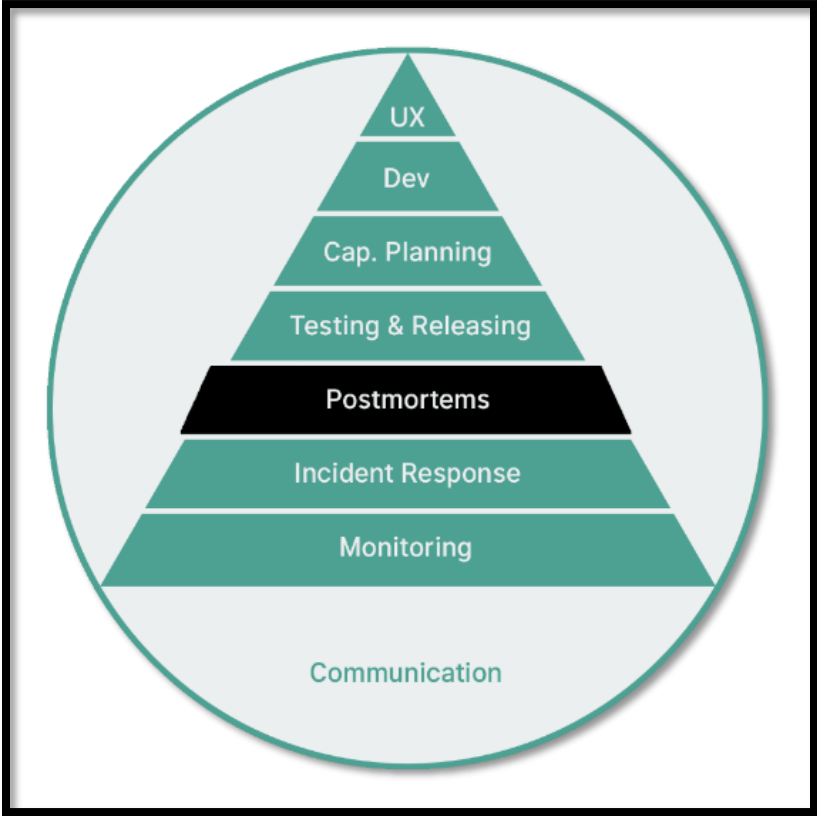
Incident began at **2018-01-25 12:21** and ended at **2018-01-25 13:18** (all times are **US/Pacific**).

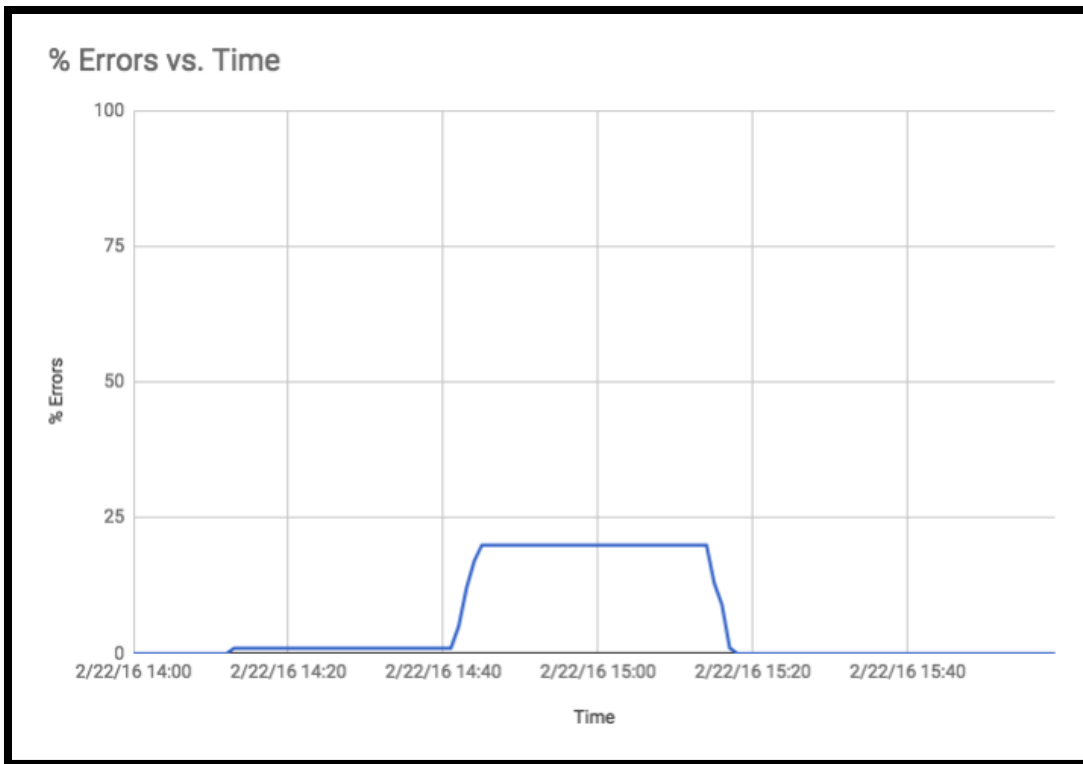
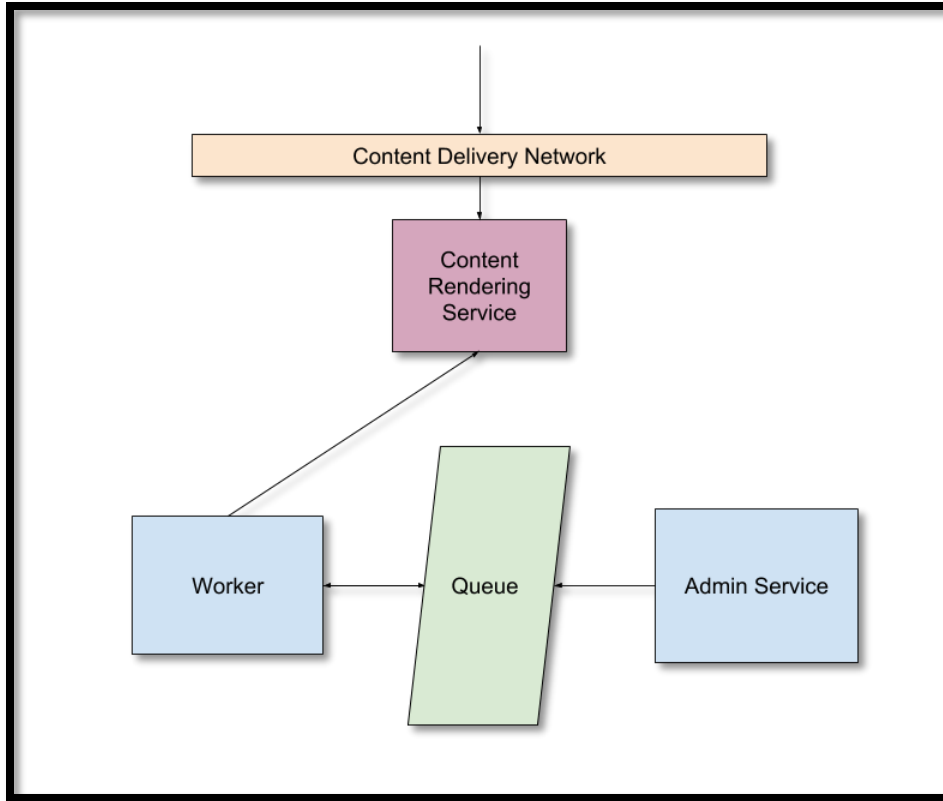
DATE	TIME	DESCRIPTION
✓ Jan 25, 2018	13:18	The issue with Google Cloud Networking has been resolved for all affected users as of 2018-01-25 13:15 US/Pacific. We will conduct an internal investigation of this issue and make appropriate improvements to our systems to help prevent or minimize future recurrence. We will provide a more detailed analysis of this incident once we have completed our internal investigation.
⚠ Jan 25, 2018	13:11	The issue with Google Cloud Networking should be resolved for the majority of users and we expect a full resolution in the near future. We will provide another status update by 2018-01-25 14:00 US/Pacific with current details.
⚠ Jan 25, 2018	12:21	We are investigating an issue with Google Cloud Networking. We will provide more information by 13:00 US/Pacific.

All times are US/Pacific

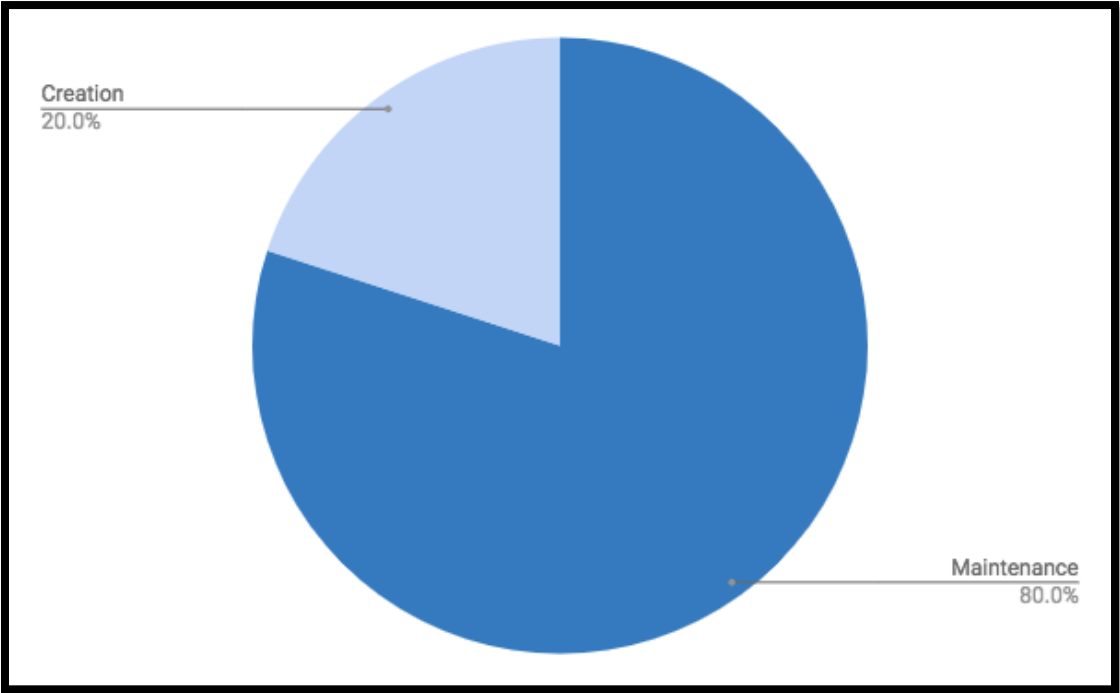
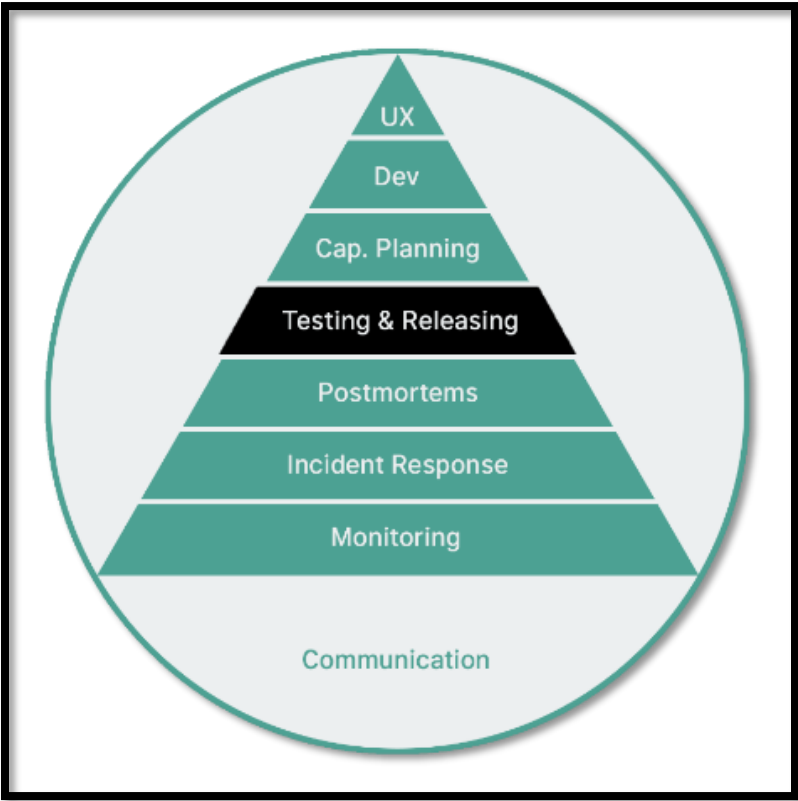
[Send Feedback](#)

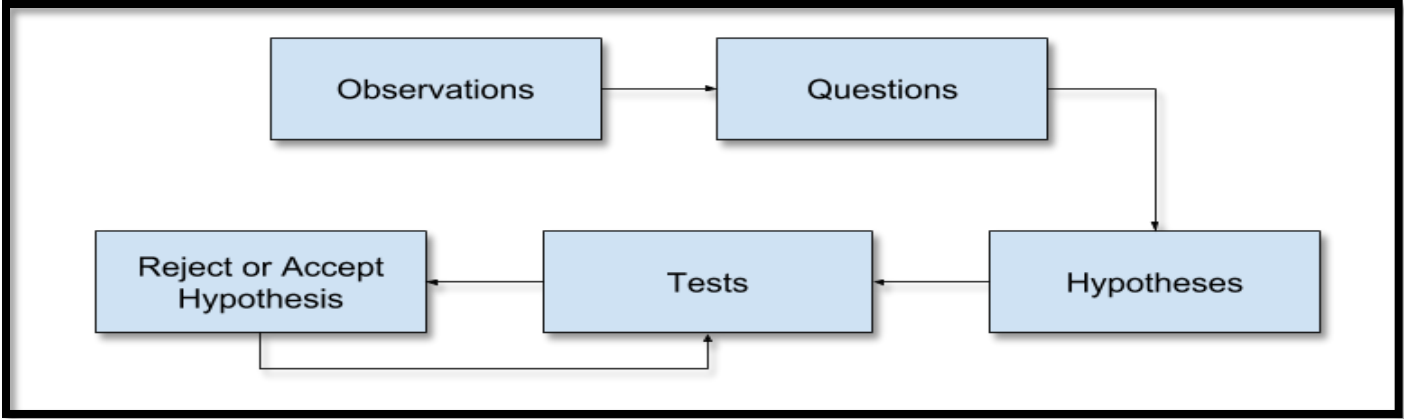
# Chapter 4: Postmortems



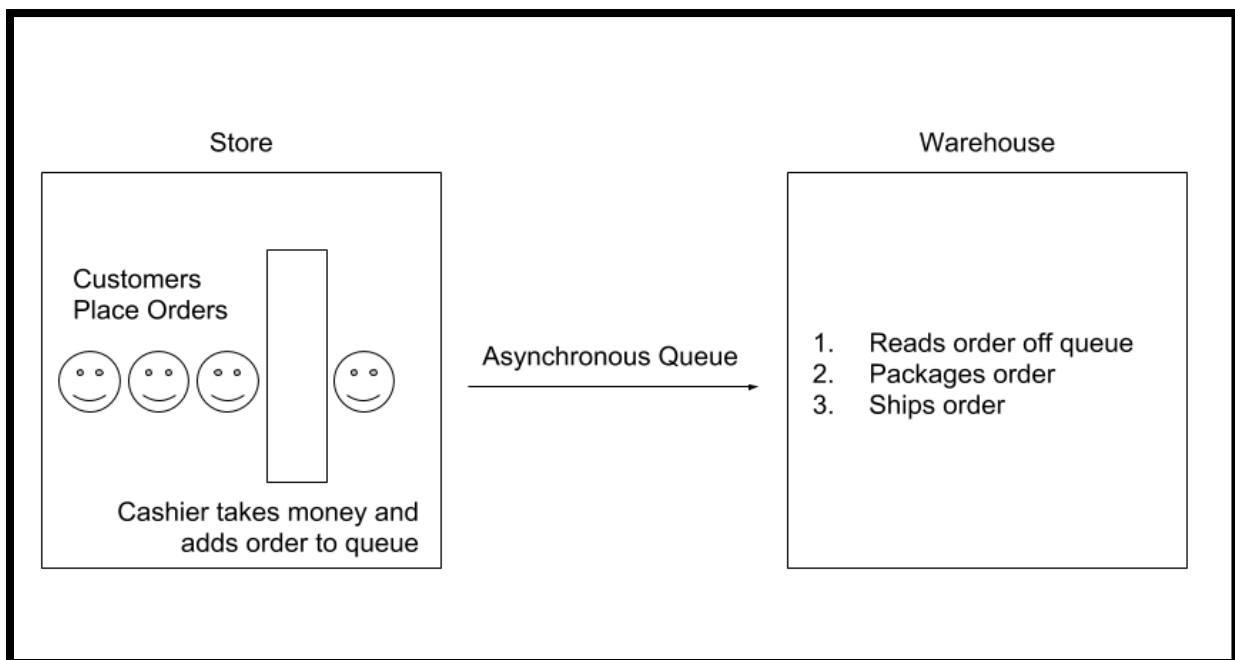
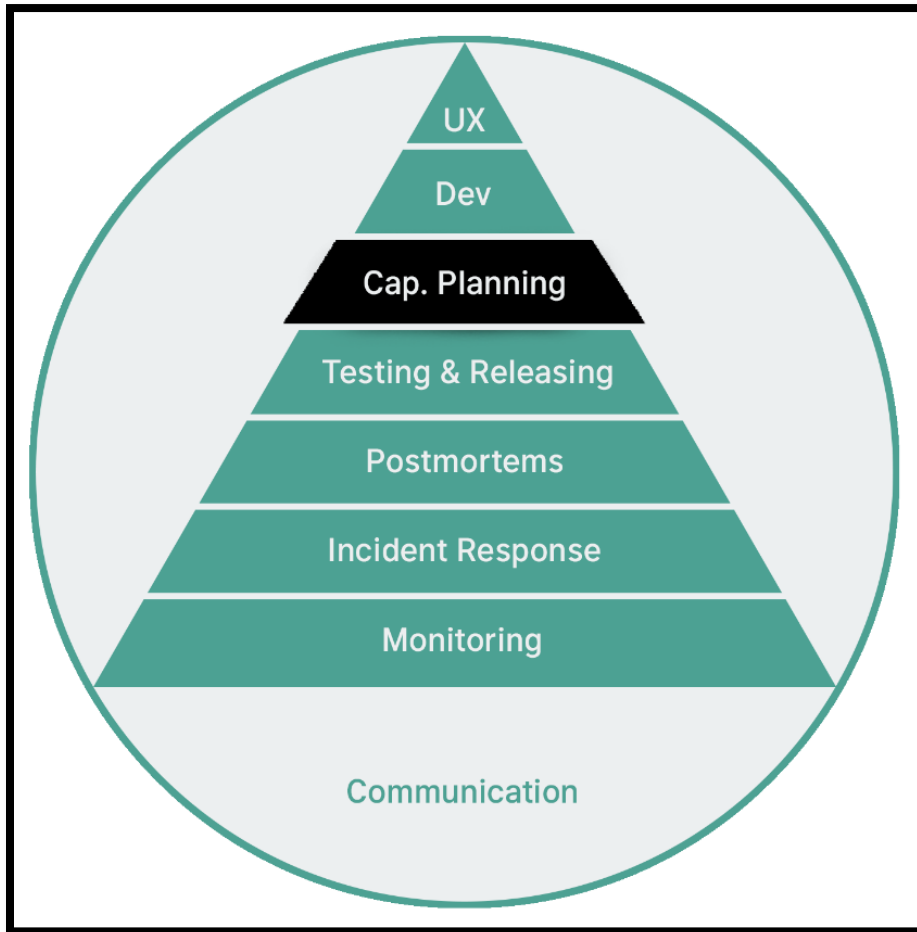


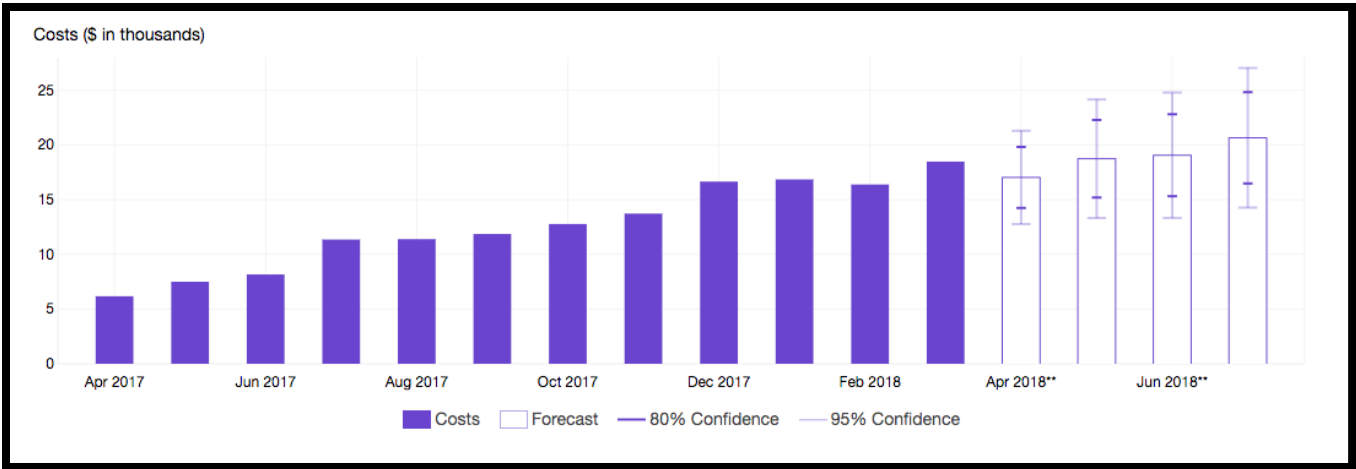
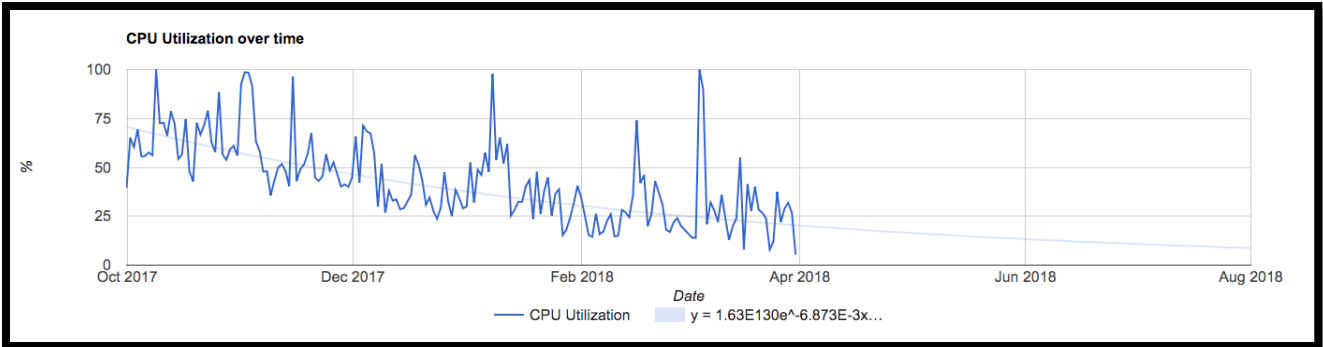
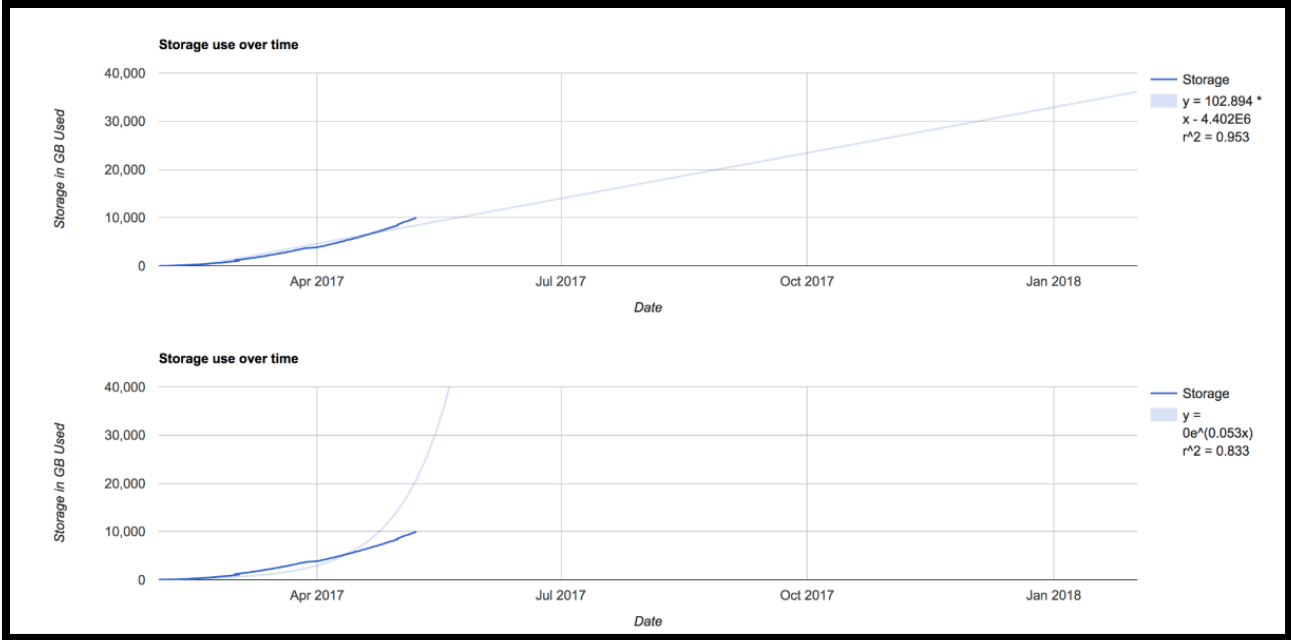
# Chapter 5: Testing and Releasing

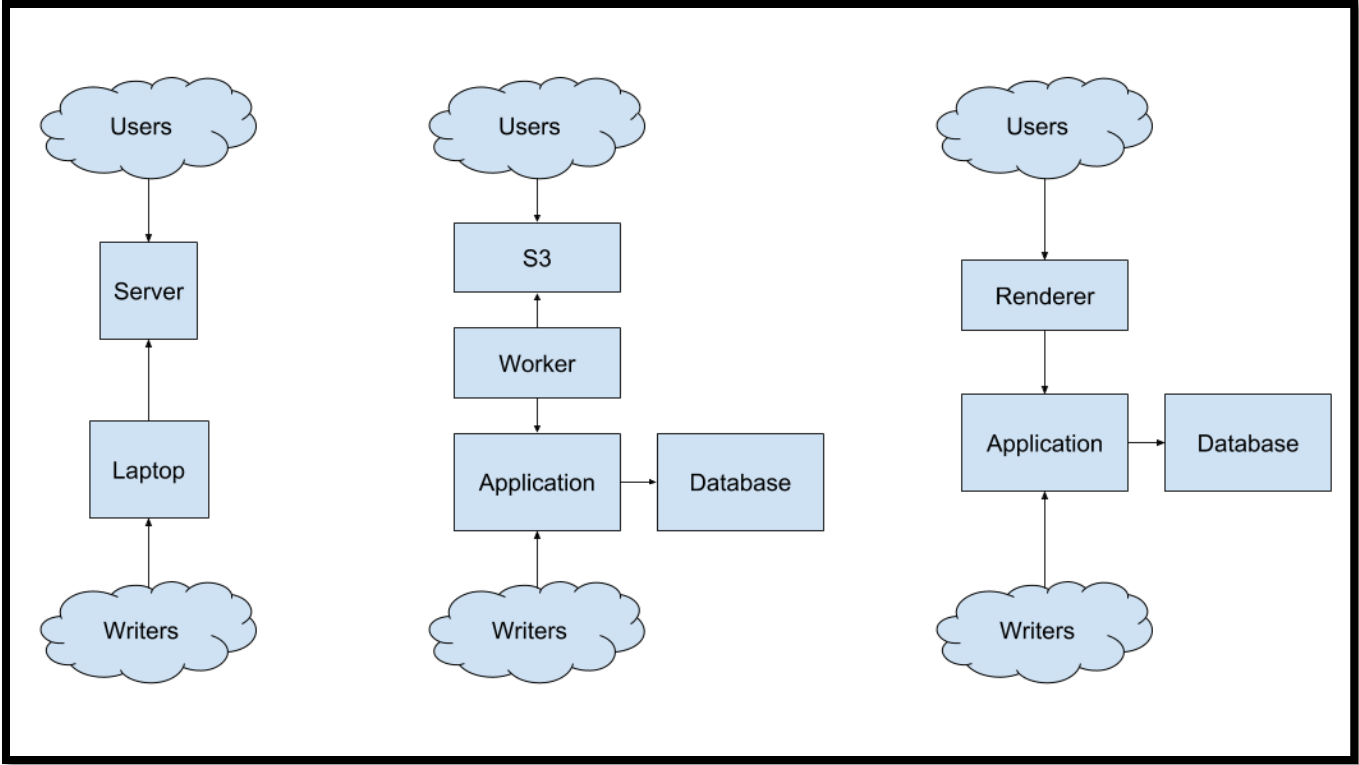
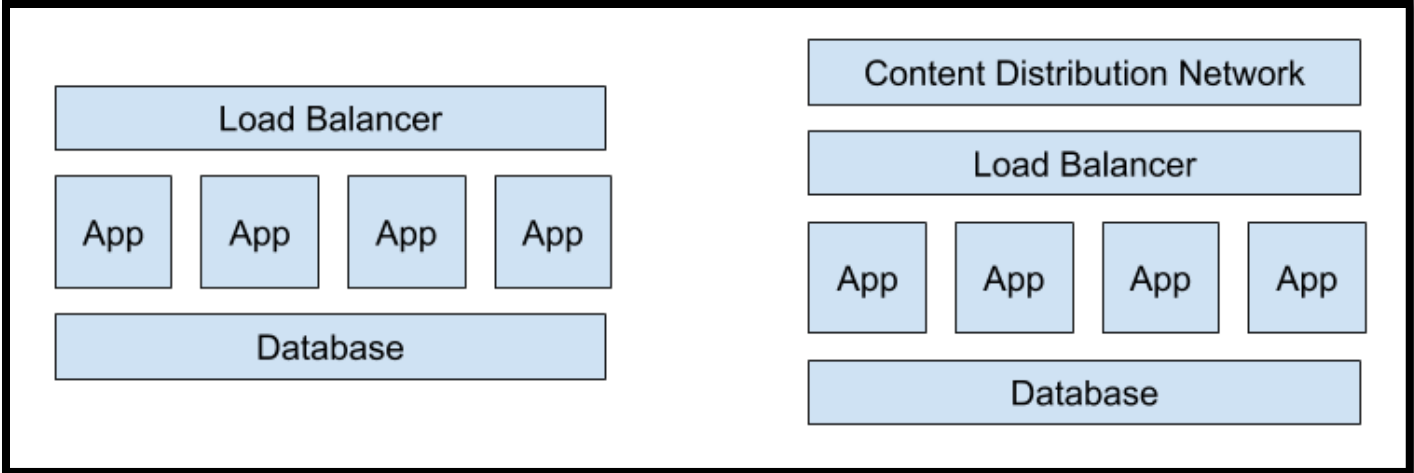




## Chapter 6: Capacity Planning

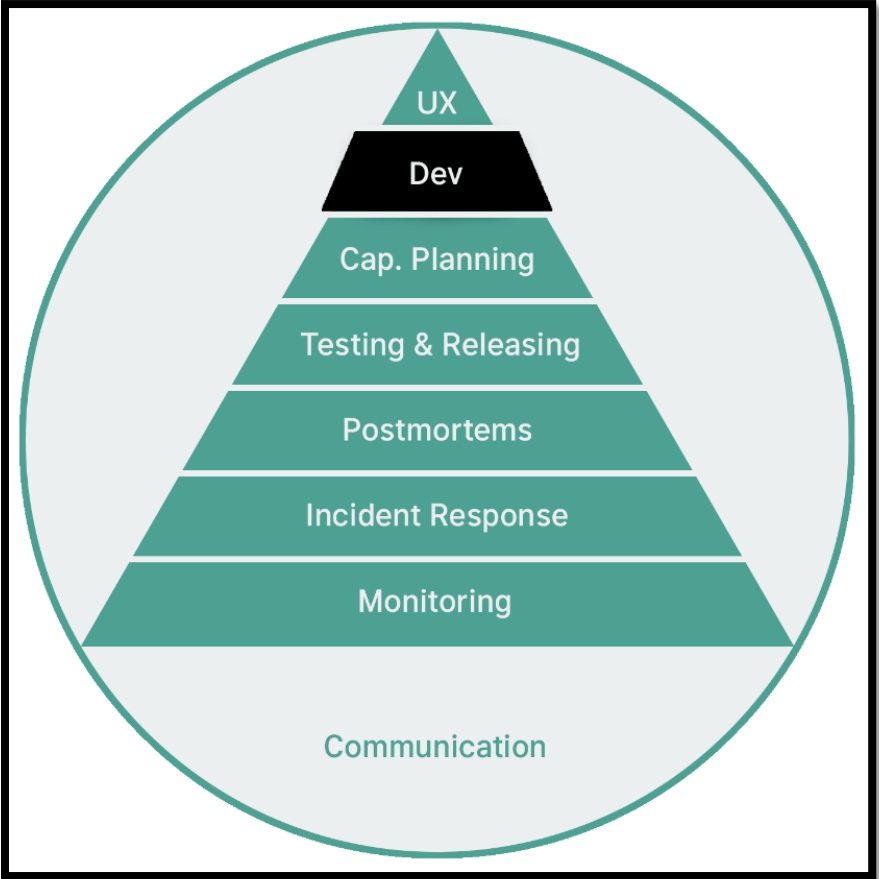




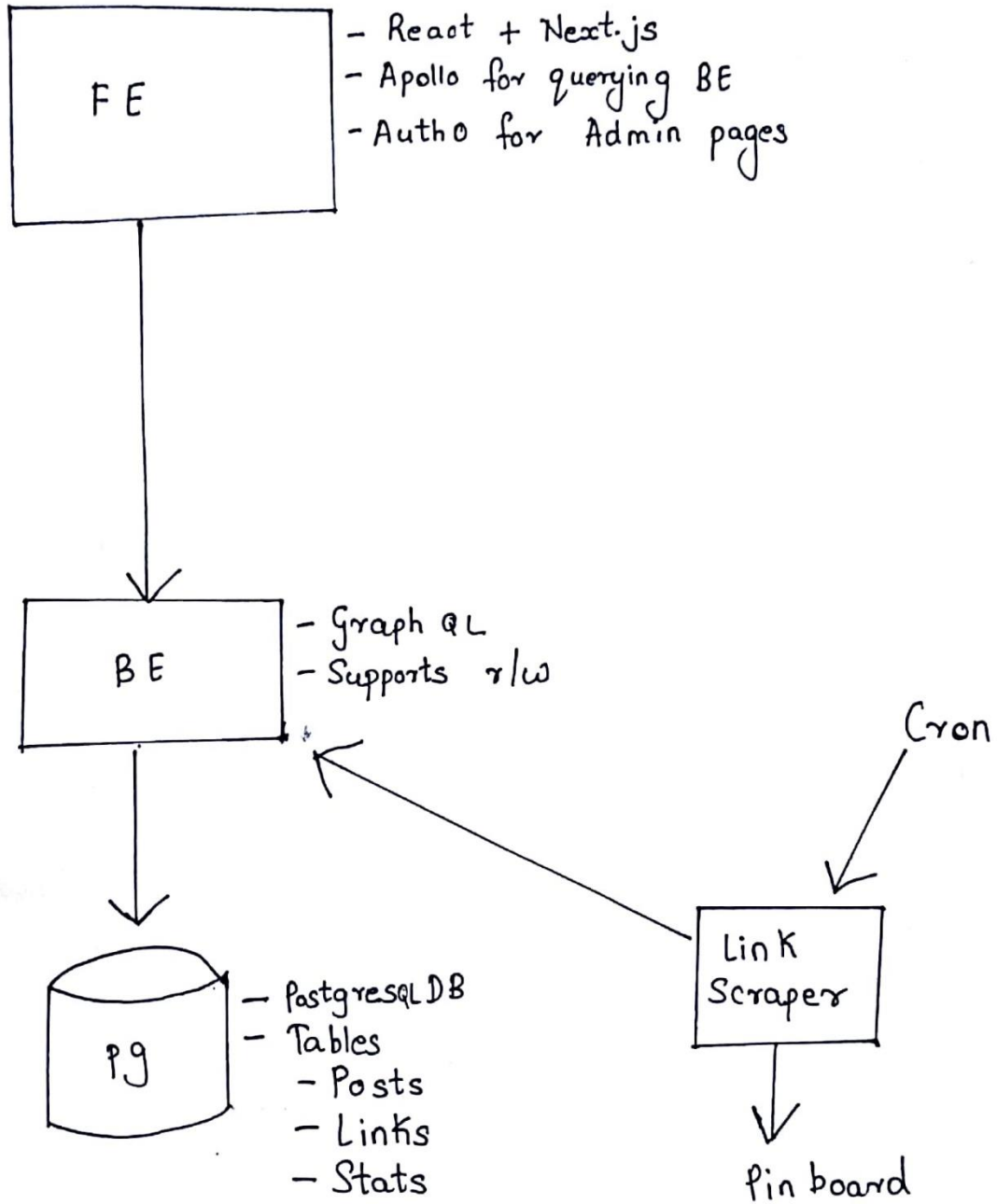




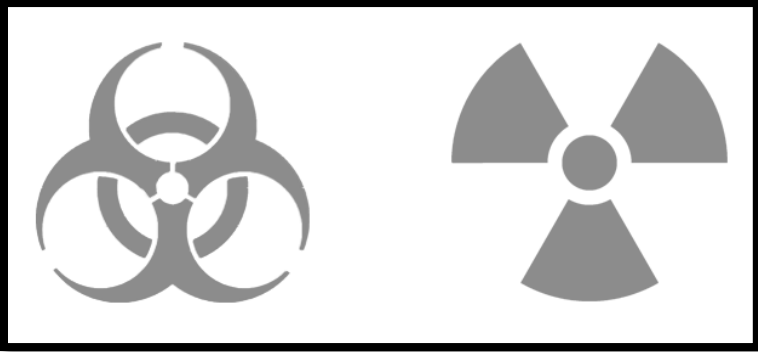
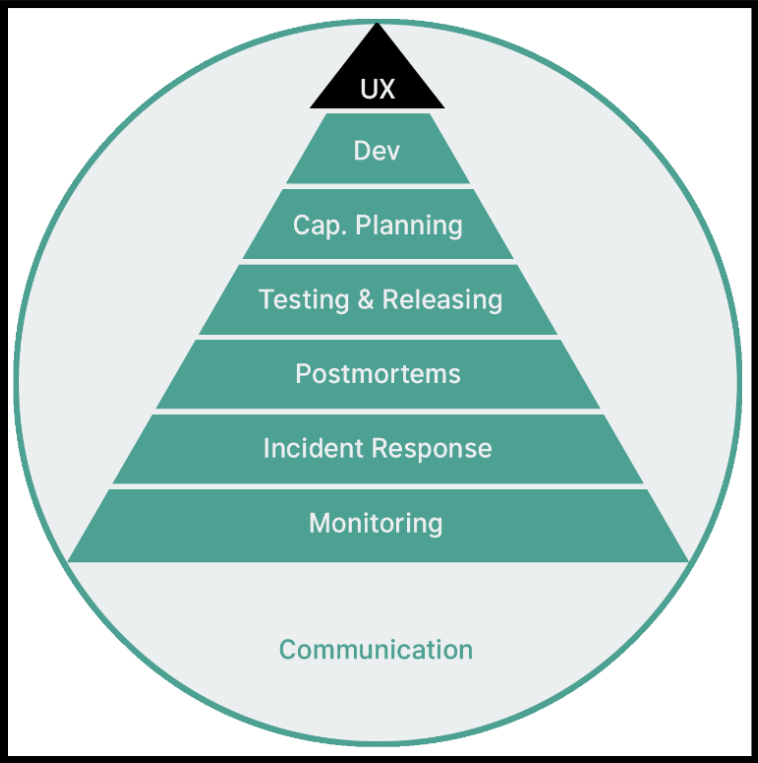
# Chapter 7: Building Tools

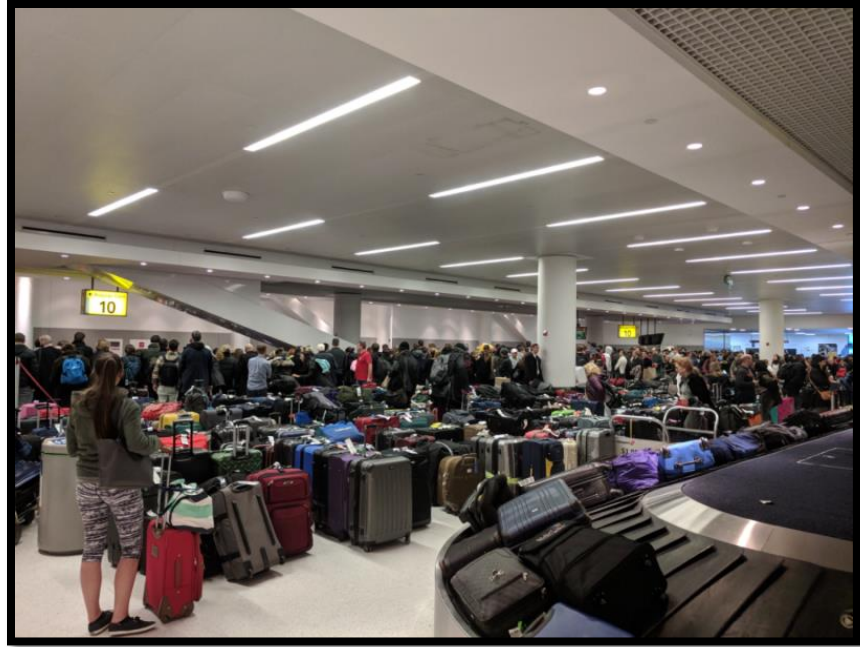


8/4/18



# Chapter 8: User Experience





```
[ Wed Aug 29 21:17:46 ]
```

```
[ nat@Tokyo ~/Projects ]$ terraform --help
```

```
Usage: terraform [-version] [-help] <command> [args]
```

The available commands for execution are listed below.  
The most common, useful commands are shown first, followed by less common or more advanced commands. If you're just getting started with Terraform, stick with the common commands. For the other commands, please read the help and docs before usage.

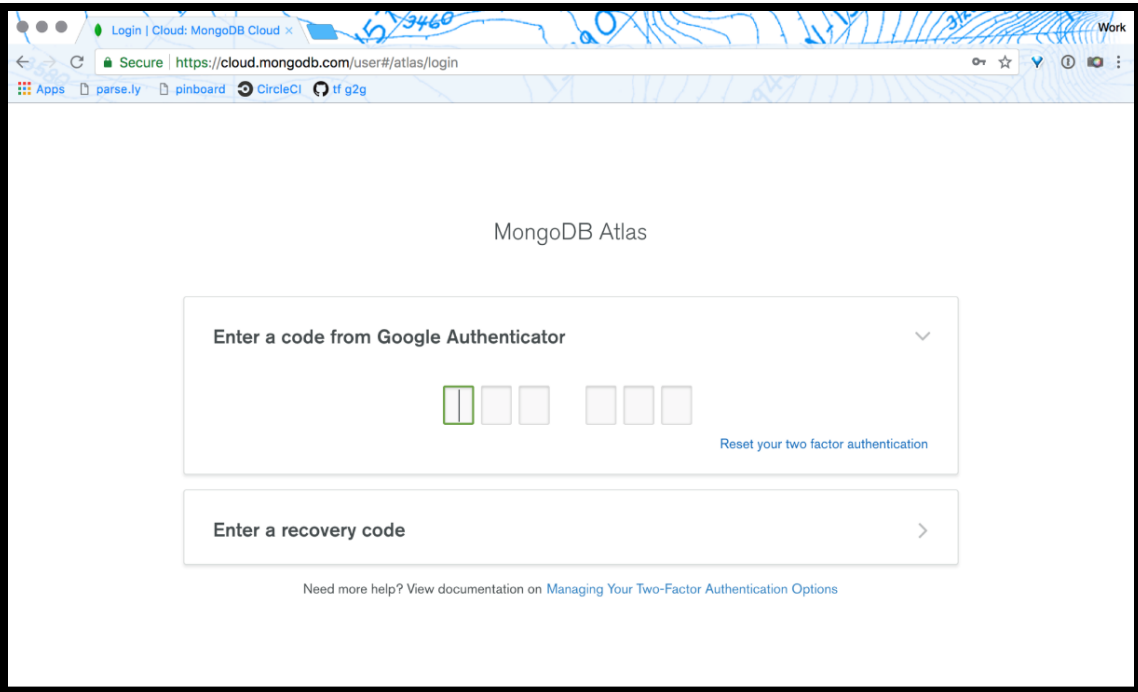
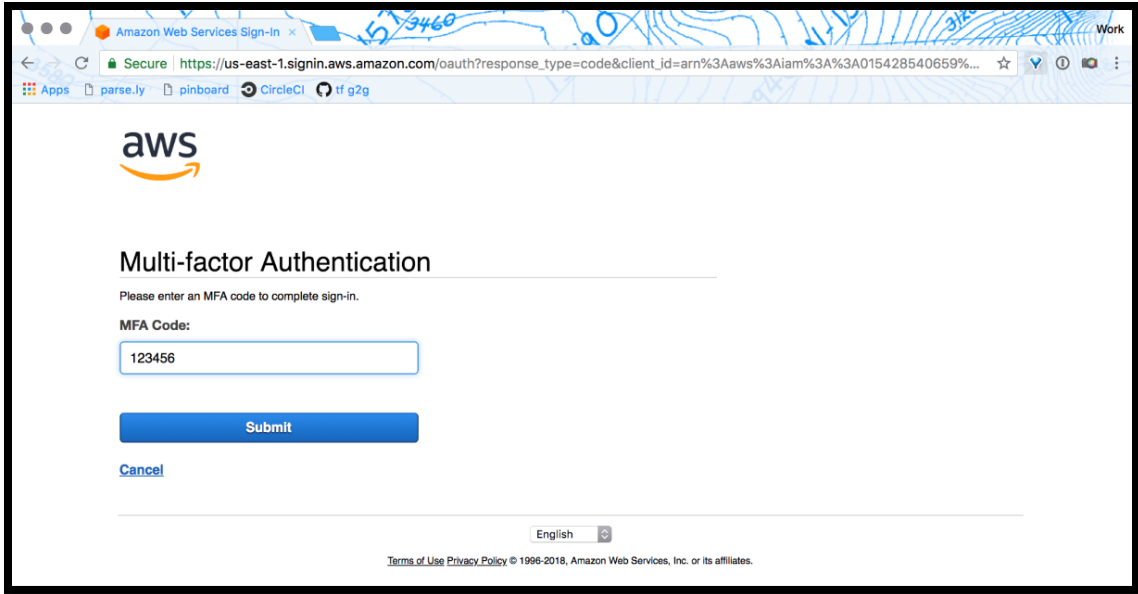
Common commands:

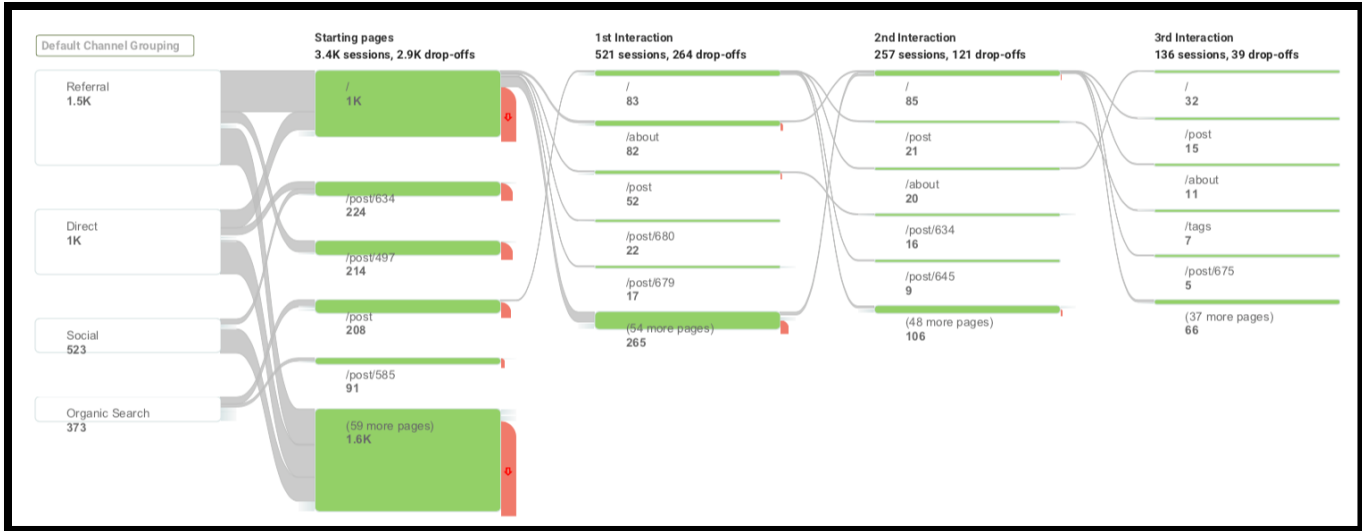
apply	Builds or changes infrastructure
console	Interactive console for Terraform interpolations
destroy	Destroy Terraform-managed infrastructure
env	Workspace management
fmt	Rewrites config files to canonical format
get	Download and install modules for the configuration
graph	Create a visual graph of Terraform resources
import	Import existing infrastructure into Terraform
init	Initialize a Terraform working directory
output	Read an output from a state file
plan	Generate and show an execution plan
providers	Prints a tree of the providers used in the configuration
push	Upload this Terraform module to Atlas to run
refresh	Update local state file against real resources
show	Inspect Terraform state or plan
taint	Manually mark a resource for recreation
untaint	Manually unmark a resource as tainted
validate	Validates the Terraform files
version	Prints the Terraform version
workspace	Workspace management

All other commands:

debug	Debug output management (experimental)
force-unlock	Manually unlock the terraform state
state	Advanced state management



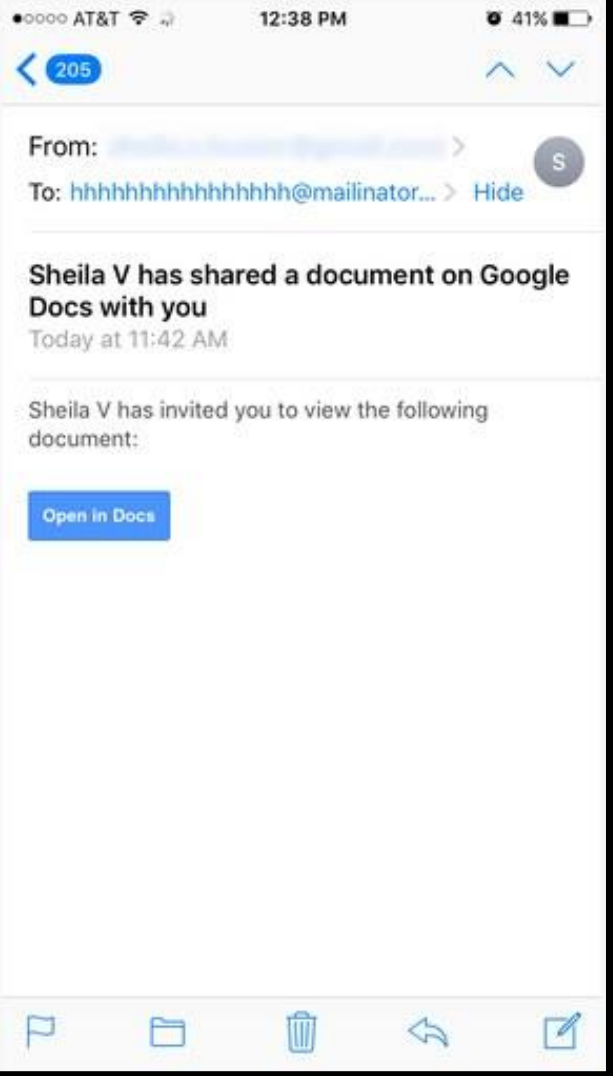




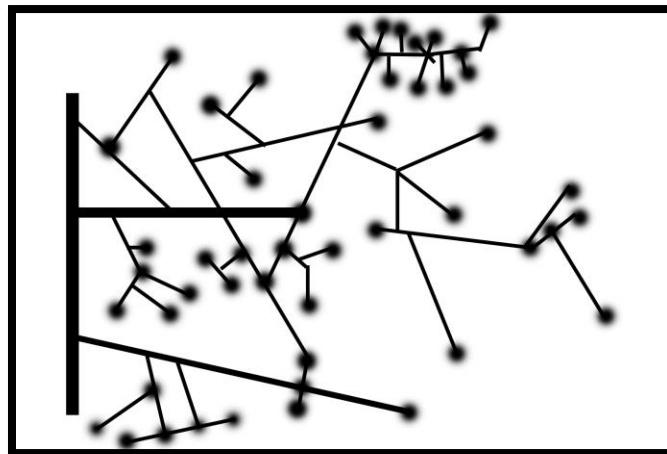
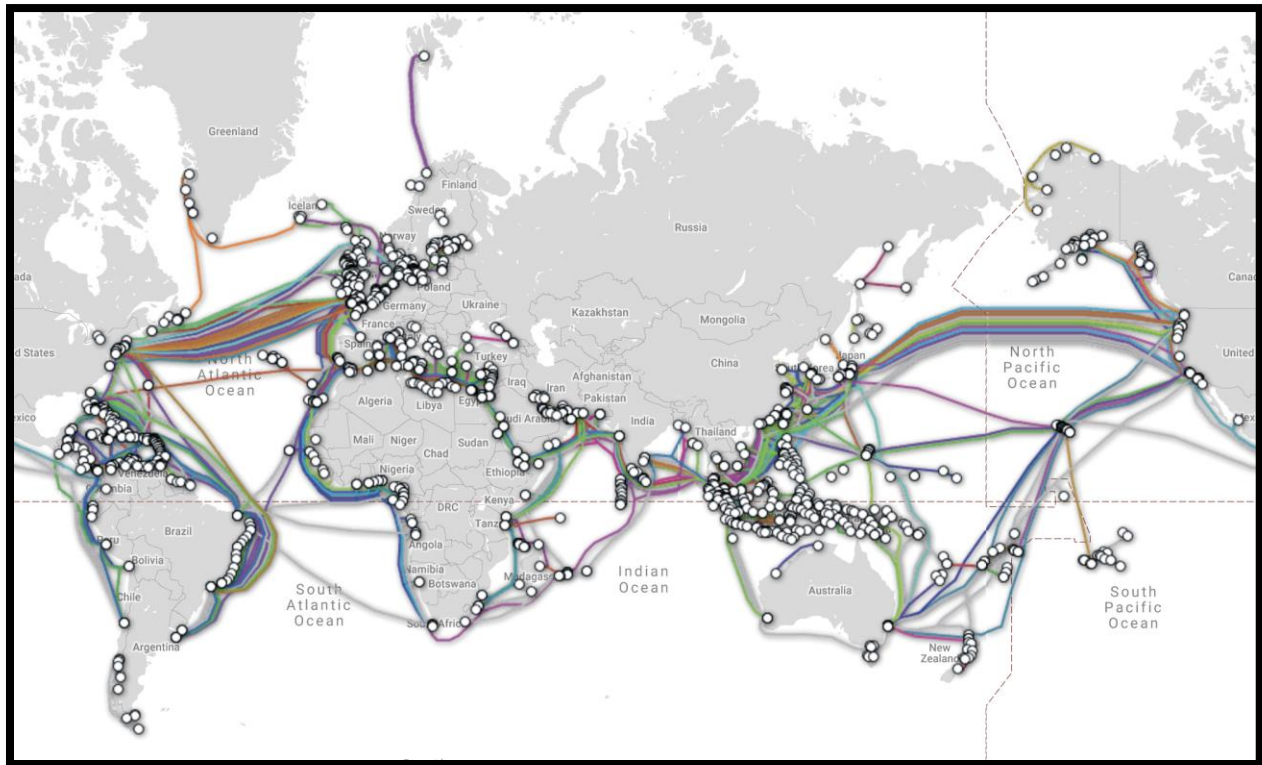
	Incidents				Breaches			
	Large	Small	Unknown	Total	Large	Small	Unknown	Total
Accommodation (72)	40	296	32	368	31	292	15	338
Administrative (56)	7	15	11	33	5	12	1	18
Agriculture (11)	1	0	4	5	0	0	0	0
Construction (23)	2	11	10	23	0	5	5	10
Education (61)	42	26	224	292	30	15	56	101
Entertainment (71)	6	19	7,163	7,188	5	17	11	33
Financial (52)	74	74	450	598	39	52	55	146
Healthcare (62)	165	152	433	750	99	112	325	536
Information (51)	54	76	910	1,040	29	50	30	109
Management (55)	1	0	1	2	0	0	0	0
Manufacturing (31-33)	375	21	140	536	28	15	28	71
Mining (21)	3	3	20	26	3	3	0	6
Other Services (81)	5	11	46	62	2	7	26	35
Professional (54)	158	59	323	540	24	39	69	132
Public (92)	22,429	51	308	22,788	111	31	162	304
Real Estate (53)	2	5	24	31	2	4	14	20
Retail (44-45)	56	111	150	317	38	86	45	169
Trade (42)	13	5	13	31	6	4	2	12
Transportation (48-49)	15	9	35	59	7	6	5	18
Utilities (22)	14	8	24	46	4	3	11	18
Unknown	1,043	9	17,521	18,573	82	3	55	140
<b>Total</b>	<b>24,505</b>	<b>961</b>	<b>27,842</b>	<b>53,308</b>	<b>545</b>	<b>756</b>	<b>915</b>	<b>2,216</b>

Table 1. Security incidents and breaches by victim industry and organization size





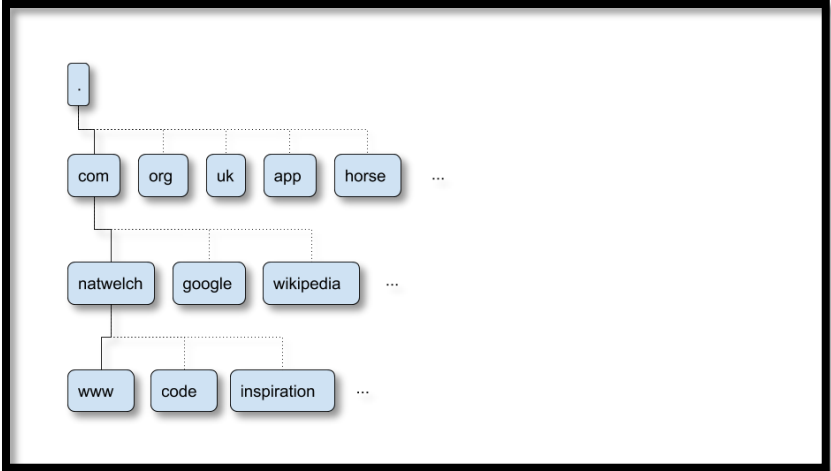
## Chapter 9: Networking Foundations



[natwelch.com](http://natwelch.com)

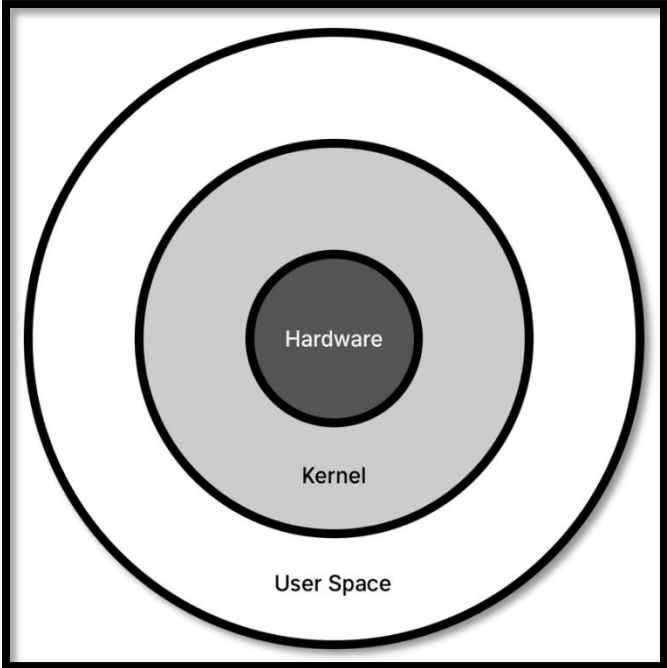
[natwelch.co.uk](http://natwelch.co.uk)

[natwelch.app](http://natwelch.app)





# Chapter 10: Linux and Cloud Foundations



System call	Kernel	Notes
<code>_llseek(2)</code>	1.2	
<code>_newselect(2)</code>	2.0	
<code>_sysctl(2)</code>	2.0	
<code>accept(2)</code>	2.0	See notes on <code>socketcall(2)</code>
<code>accept4(2)</code>	2.6.28	
<code>access(2)</code>	1.0	
<code>acct(2)</code>	1.0	
<code>add_key(2)</code>	2.6.10	
<code>adjtimex(2)</code>	1.0	
<code>alarm(2)</code>	1.0	
<code>alloc_hugepages(2)</code>	2.5.36	Removed in 2.5.44
<code>bdflush(2)</code>	1.2	Deprecated (does nothing) since 2.6
<code>bind(2)</code>	2.0	See notes on <code>socketcall(2)</code>
<code>bpf(2)</code>	3.18	
<code>brk(2)</code>	1.0	
<code>cacheflush(2)</code>	1.2	Not on x86
<code>capget(2)</code>	2.2	
<code>capset(2)</code>	2.2	
<code>chdir(2)</code>	1.0	
<code>chmod(2)</code>	1.0	
<code>chown(2)</code>	2.2	See <code>chown(2)</code> for version details
<code>chown32(2)</code>	2.4	
<code>chroot(2)</code>	1.0	
<code>clock_adjtime(2)</code>	2.6.39	
<code>clock_getres(2)</code>	2.6	
<code>clock_gettime(2)</code>	2.6	
<code>clock_nanosleep(2)</code>	2.6	
<code>clock_settime(2)</code>	2.6	
<code>clone(2)</code>	1.0	
<code>close(2)</code>	1.0	
<code>connect(2)</code>	2.0	See notes on <code>socketcall(2)</code>
<code>copy_file_range(2)</code>	4.5	
<code>creat(2)</code>	1.0	
<code>create_module(2)</code>	1.0	Removed in 2.6
<code>delete_module(2)</code>	1.0	
<code>dup(2)</code>	1.0	
<code>dup2(2)</code>	1.0	
<code>dup3(2)</code>	2.6.27	
<code>epoll_create(2)</code>	2.6	
<code>epoll_create1(2)</code>	2.6.27	
<code>epoll_ctl(2)</code>	2.6	
<code>epoll_pwait(2)</code>	2.6.19	
<code>epoll_wait(2)</code>	2.6	
<code>eventfd(2)</code>	2.6.22	
<code>eventfd2(2)</code>	2.6.27	
<code>execve(2)</code>	1.0	
<code>execveat(2)</code>	3.19	
<code>exit(2)</code>	1.0	
<code>exit_group(2)</code>	2.6	
<code>faccessat(2)</code>	2.6.16	
<code>fadvise64(2)</code>	2.6	
<code>fadvise64_64(2)</code>	2.6	
<code>fallocate(2)</code>	2.6.23	
<code>fanotify_init(2)</code>	2.6.37	
<code>fanotify_mark(2)</code>	2.6.37	
<code>fchdir(2)</code>	1.0	
<code>fchmod(2)</code>	1.0	
<code>fchmodat(2)</code>	2.6.16	

```
top - 22:48:18 up 5 days, 6:59, 1 user, load average: 0.21, 0.09, 0.08
Tasks: 140 total, 3 running, 85 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.3 us, 0.8 sy, 0.0 ni, 97.7 id, 0.1 wa, 0.0 hi, 0.1 si, 0.0 st
KiB Mem : 16296240 total, 167460 free, 296972 used, 15831808 buff/cache
KiB Swap: 0 total, 0 free, 0 used. 15652524 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
12107	nat	20	0	57576	7364	5584	R	6.0	0.0	9:52.56	ssh
12108	nat	20	0	36260	3216	1924	R	2.0	0.0	4:37.64	rsync
8	root	20	0	0	0	0	I	0.3	0.0	6:10.72	rcu_sched
851	root	20	0	303376	19788	8148	S	0.3	0.1	3:50.00	fail2ban-server
1110	root	20	0	1146664	20816	11476	S	0.3	0.1	21:30.25	docker-containe
18525	root	20	0	0	0	0	I	0.3	0.0	0:00.68	kworker/u8:2
1	root	20	0	78108	7544	4900	S	0.0	0.0	0:07.23	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.06	kthreadd
4	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/0:0H
6	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	mm_percpu_wq
7	root	20	0	0	0	0	S	0.0	0.0	0:00.47	ksoftirqd/0
9	root	20	0	0	0	0	I	0.0	0.0	0:00.00	rcu_bh
10	root	rt	0	0	0	0	S	0.0	0.0	0:00.64	migration/0
11	root	rt	0	0	0	0	S	0.0	0.0	0:01.06	watchdog/0
12	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/0
13	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/1
14	root	rt	0	0	0	0	S	0.0	0.0	0:01.06	watchdog/1
15	root	rt	0	0	0	0	S	0.0	0.0	0:00.64	migration/1
16	root	20	0	0	0	0	S	0.0	0.0	0:00.42	ksoftirqd/1
18	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/1:0H
19	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/2
20	root	rt	0	0	0	0	S	0.0	0.0	0:01.07	watchdog/2
21	root	rt	0	0	0	0	S	0.0	0.0	0:00.11	migration/2
22	root	20	0	0	0	0	S	0.0	0.0	0:00.69	ksoftirqd/2
24	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/2:0H
25	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/3
26	root	rt	0	0	0	0	S	0.0	0.0	0:01.09	watchdog/3
27	root	rt	0	0	0	0	S	0.0	0.0	0:00.66	migration/3
28	root	20	0	0	0	0	S	0.0	0.0	1:33.66	ksoftirqd/3
30	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/3:0H
31	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kdevtmpfs
32	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	netns
33	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_tasks_kthre
34	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kauditd
37	root	20	0	0	0	0	S	0.0	0.0	0:00.26	khungtaskd
38	root	20	0	0	0	0	S	0.0	0.0	0:00.00	oom_reaper
39	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	writeback
40	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kcompactd0
41	root	25	5	0	0	0	S	0.0	0.0	0:00.00	ksmd
42	root	39	19	0	0	0	S	0.0	0.0	0:01.30	khugepaged
43	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	crypto
44	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kintegrityd
45	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kblockd
48	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	ata_sff
49	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	md
50	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	edac-poller

