VEXXHOST

How to:

Public/Hosted Private Cloud

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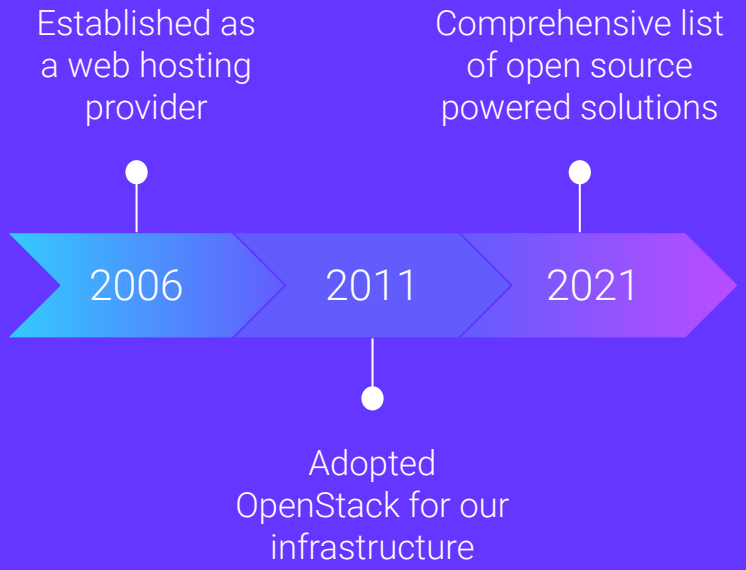
Cloud OpenStack Engineer @ VEXXHOST,
+
Individual board of Director @ OIF
OID & CND Asia co-Founder

Who We Are



Our Global Footprint

Public Cloud
Montreal, Santa Clara, Amsterdam

Private Clouds
America, Europe, Asia

Other Services Offered:
Support, Consulting, Upgrades, Zuul CI

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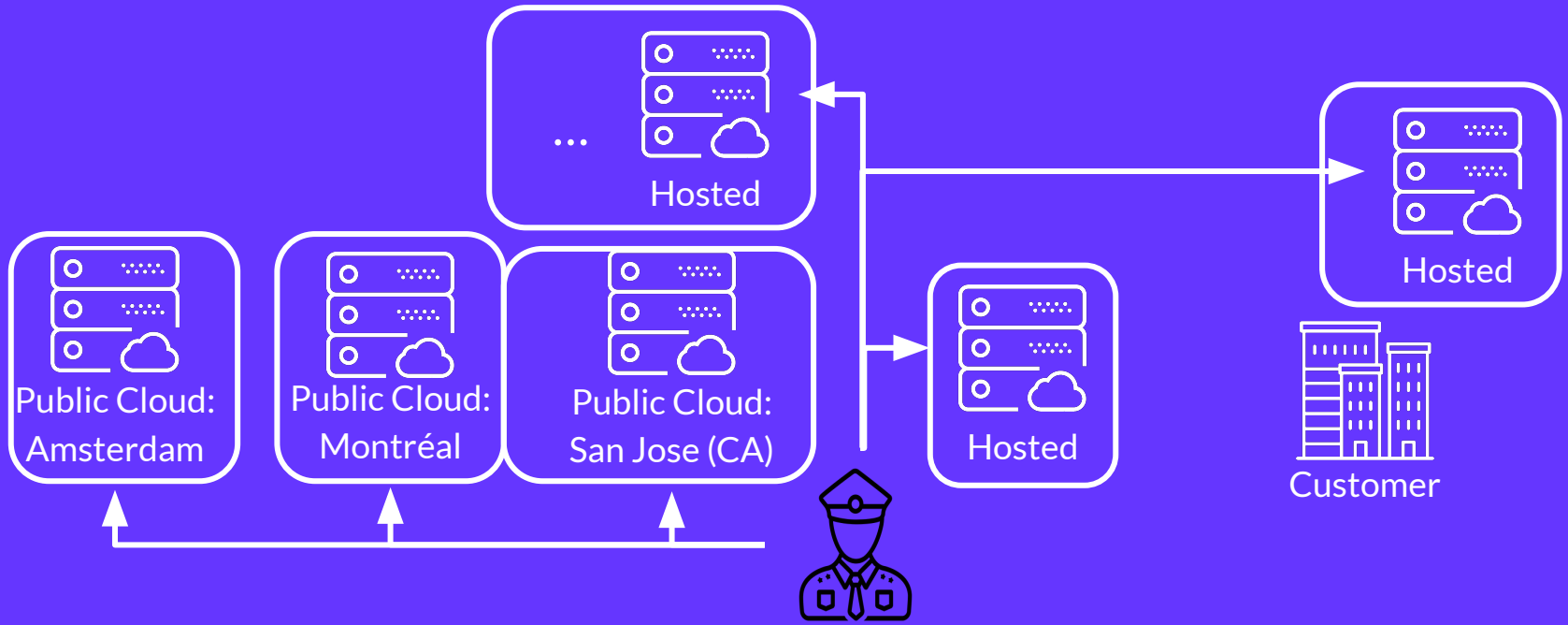
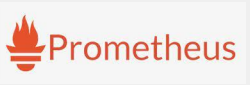
Public/Hosted Private Cloud



Course 0: Cloud Architecture

ATMOSPHERE



Github: vexxhost/atmosphere

```
root@ctl1:~# cat openrc
export OS_IDENTITY_API_VERSION=3
export OS_AUTH_URL="https://identity.3
export OS_AUTH_TYPE=password
export OS_REGION_NAME="RegionOne"
export OS_USER_DOMAIN_NAME=Default
export OS_USERNAME="admin-RegionOne"
export OS_PASSWORD="ZiHVIzlati1tLk7yFN
export OS_PROJECT_DOMAIN_NAME=Default
export OS_PROJECT_NAME=admin
```

```
→  atmosphere git:(main) x source openrc
→  atmosphere git:(main) x tox -e molecule -- converge
molecule installed: ansible==6.4.0,ansible-compat==2.2.
ppdirs==1.4.4,arrow==1.2.3,attrs==22.1.0,bcrypt==4.0.0,
rus==1.3.2,certifi==2022.9.24,cffi==1.15.1,chardet==5.0
.1.1,click==8.1.3,click-help-colors==0.9.1,commonmark==
1,cryptography==38.0.1,decorator==5.1.1,distro==1.7.0,d
ch==1.2.7,idna==3.4,importlib-resources==5.9.0,iso8601=
```

```
*
ctl1                       : ok=224  changed=112  unreachable=0    failed=0
skipped=21   rescued=0    ignored=0
ctl2                       : ok=91   changed=55   unreachable=0    failed=0
skipped=19   rescued=0    ignored=0
ctl3                       : ok=88   changed=54   unreachable=0    failed=0
skipped=19   rescued=0    ignored=0
kvm1                       : ok=29   changed=18   unreachable=0    failed=0
skipped=5    rescued=0    ignored=0
kvm2                       : ok=27   changed=17   unreachable=0    failed=0
skipped=4    rescued=0    ignored=0
nvme1                      : ok=42   changed=23   unreachable=0    failed=0
skipped=7    rescued=0    ignored=0
nvme2                      : ok=40   changed=23   unreachable=0    failed=0
skipped=7    rescued=0    ignored=0
nvme3                      : ok=40   changed=23   unreachable=0    failed=0
skipped=7    rescued=0    ignored=0

_____________________________________________________________ summary _____
_____________________________________________________________
  molecule: commands succeeded
  congratulations :)
→  atmosphere git:(main)
```

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```
→  atmosphere git:(main) tox -e molecule -- login -h ctl1
molecule installed: ansible==6.4.0,ansible-compat==2.2.1,ar
ppdirs==1.4.4,arrow==1.2.3,attrs==22.1.0,bcrypt==4.0.0,bina
rus==1.3.2,certifi==2022.9.24,cffi==1.15.1,chardet==5.0.0,c
.1.1,click==8.1.3,click-help-colors==0.9.1,commonmark==0.9.
1,cryptography==38.0.1,decorator==5.1.1,distro==1.7.0,dogpi
ch==1.2.7,idna==3.4,importlib-resources==5.9.0,iso8601==1.1
ja2-time==0.2.0,jmespath==1.0.1,jsonpatch==1.32,jsonpointer
16.0,keystoneauth1==5.0.0,MarkupSafe==2.1.1,molecule==3.5.2
r==0.8.0,netifaces==0.11.0,openstacksdk==0.61.0,os-service-
ng==21.3,paramiko==2.11.0,pbr==5.10.0,pkgutil_resolve_name=
```

```
ubuntu@ctl1:~$ sudo su
root@ctl1:/home/ubuntu# source ~/openrc
root@ctl1:/home/ubuntu# openstack image list
+--------------------------------------+--------+--------+
| ID                                   | Name   | Status |
+--------------------------------------+--------+--------+
| beb518b5-e24a-4fd0-89ce-71df0561f184 | cirros | active |
+--------------------------------------+--------+--------+
root@ctl1:/home/ubuntu# kubectl get pod -n openstack
NAME                                                    READY
TARTS        AGE
atmosphere-operator-775bbdcff-hdds2                     1/1
             4d23h
barbican-api-6bfdb458fd-2zmkb                           1/1
             4d23h
barbican-api-6bfdb458fd-9wffx                           1/1
             4d23h
```

```
root@ctl1:~# ceph -s
  cluster:
    id:     8ff5795a-4f41-511f-b94e-09410d4374cc
    health: HEALTH_WARN
            mons are allowing insecure global_id reclaim

  services:
    mon: 3 daemons, quorum ctl1,ctl2,ctl3 (age 5d)
    mgr: ctl1(active, since 5d), standbys: ctl3, ctl2
    osd: 9 osds: 9 up (since 5d), 9 in (since 5d)

  data:
    pools:   5 pools, 129 pgs
    objects: 1.80k objects, 5.4 GiB
    usage:   21 GiB used, 339 GiB / 360 GiB avail
    pgs:     129 active+clean

  io:
    client:   763 KiB/s wr, 0 op/s rd, 47 op/s wr
```

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Is OpenStack & Kubernetes Works For Us?

==========

Kubernetes

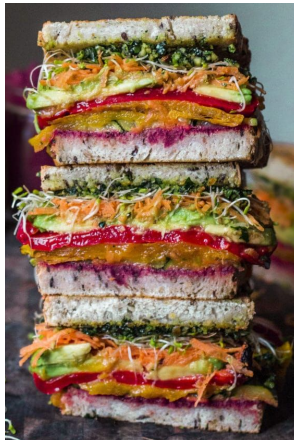
==========

OpenStack

==========

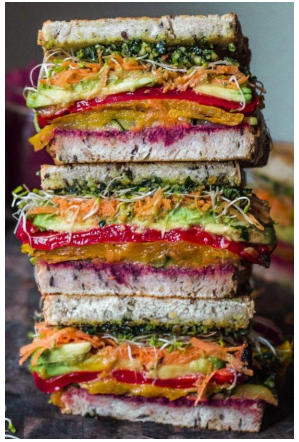
Kubernetes

==========

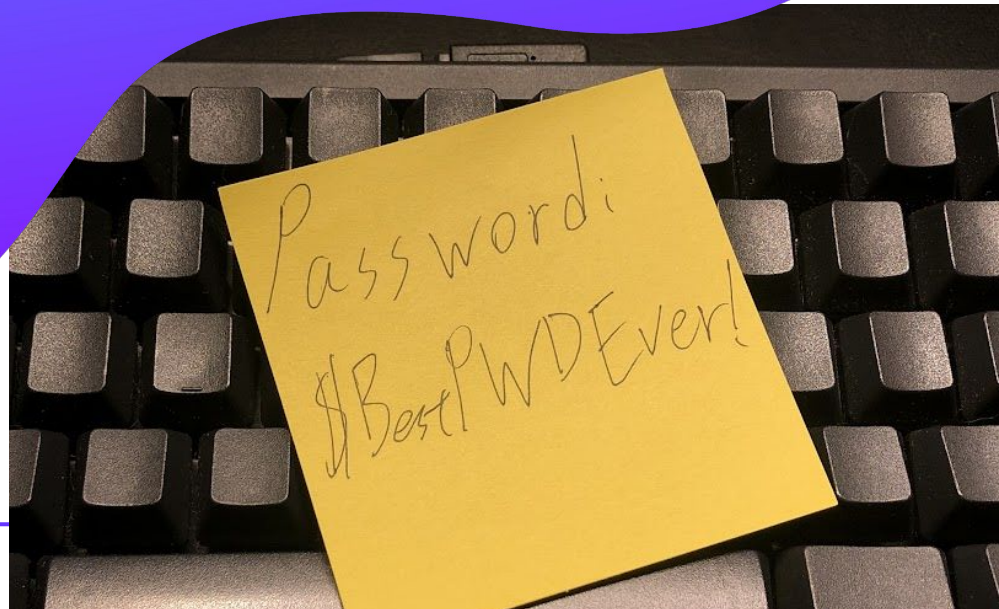


Key Factors for Public / Hosted Private Cloud?

? +



Course 101: Risk Control



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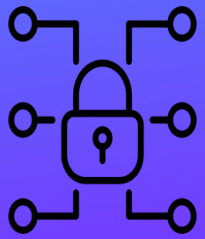
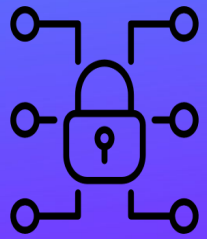


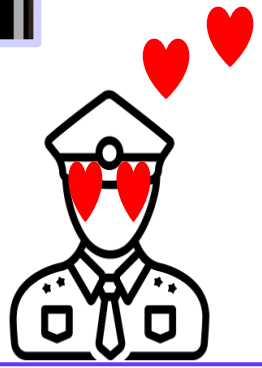


Teleport

```
rico@dev:~
→ ~ tsh kube ls
→ ~ tsh kube login supersecuredcloud.net
→ ~ kubectl get pod
→ ~
```

```
rico@dev:~
→ ~ openstack service list
```

```
rico@dev:~
→ ~ tsh ls
→ ~ tsh ssh rico@supersecuredcloud.net
→ ~
```



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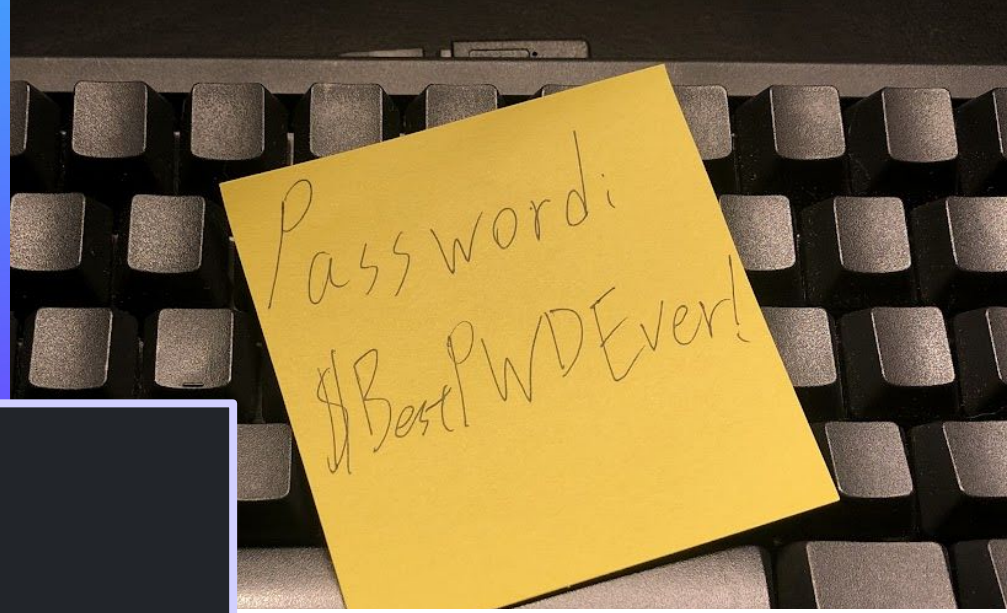

SSH APP 5:36 AM

SSH login outside Teleport

- Host: [redacted]
- Username: [redacted]
- Source IP: [redacted]
- Time: Fri, 23 Sep 2022 [redacted] +0000

Authentication Details:

```
publickey ssh-ed25519 [redacted]
```

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How To:

Mindset for cloud provider

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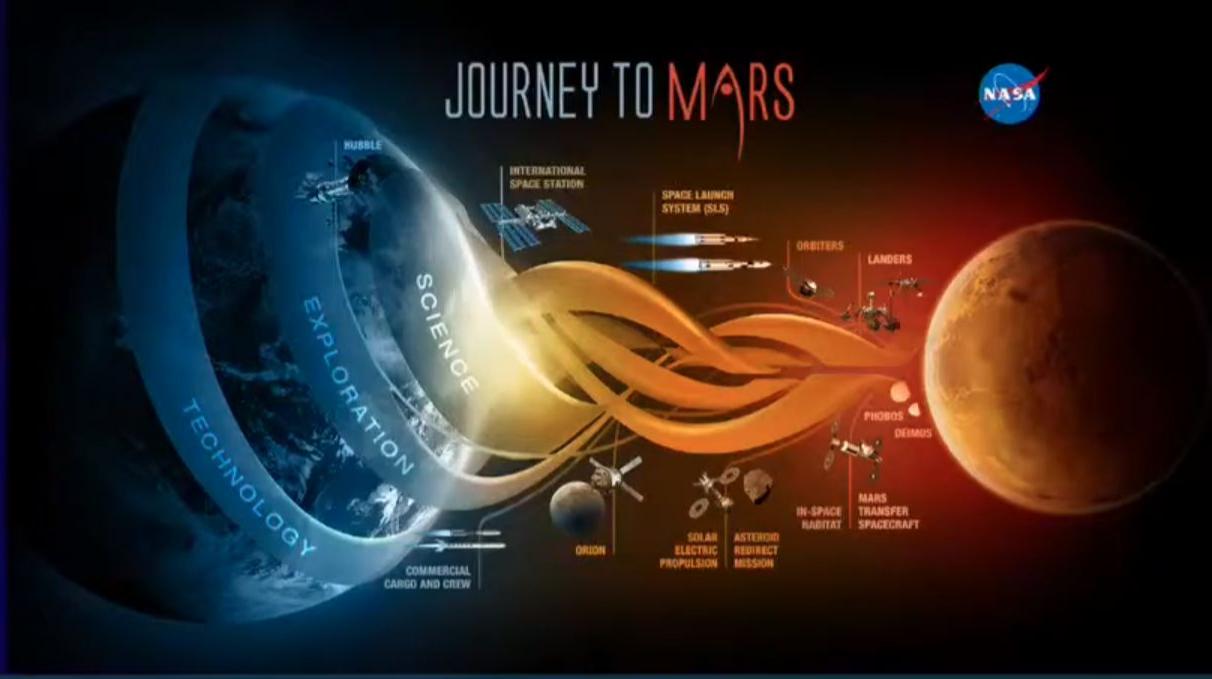


NASA Jet Propulsion Laboratory
California Institute of Technology

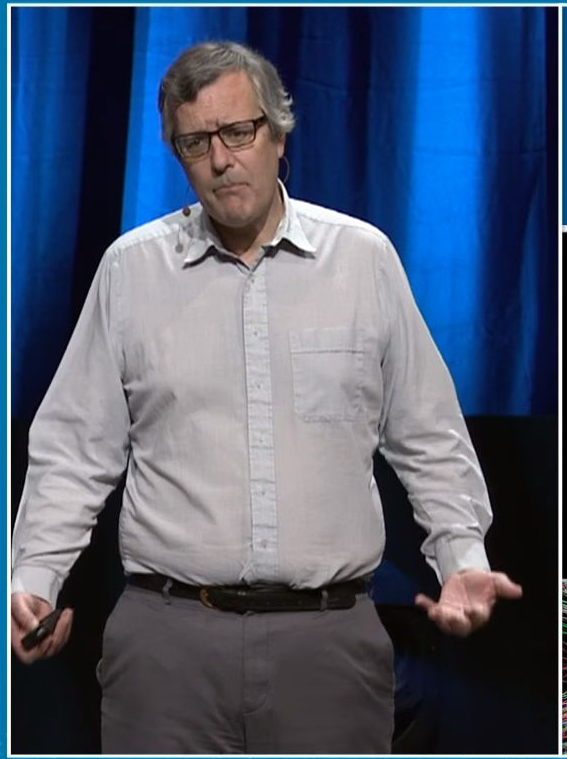
Jonathan Chiang

IT Chief Engineer, NASA JPL

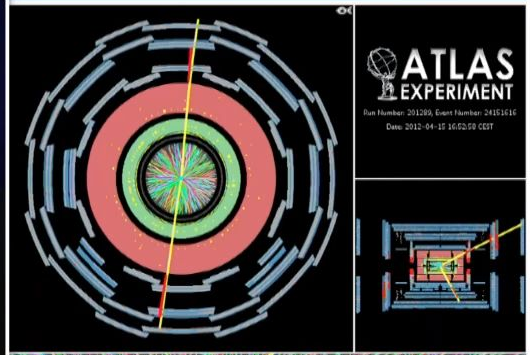
devs openstack summit users

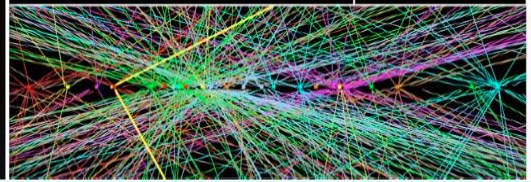
Miyashita, S., Guitron, S., Ludersdorfer, M., Sung, C., and Rus, D. (2015) An Untethered Miniature Origami Robot that Self-folds, Walks, Swims, and Degrades, ICRA 2015

Boston



1 Billion Collisions/s





Course 102:
What Matters to You The Most?

"Controlling your time is the highest dividend of money pays"

-- The Psychology of Money

Course 2:
How We Support IT?!

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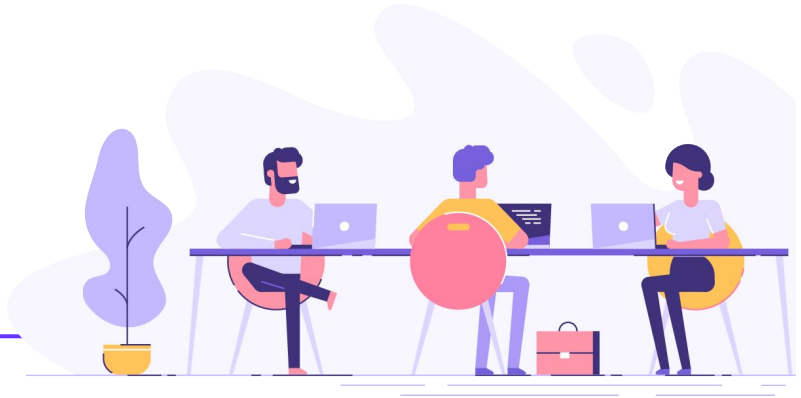
Monitoring Everything

I see you!



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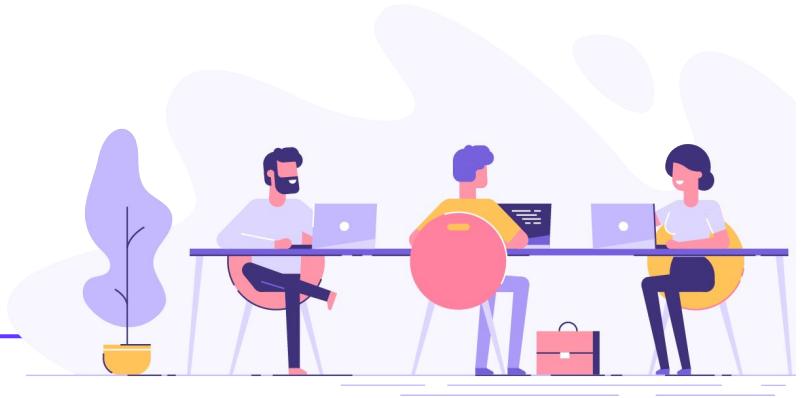
Filter → Eliminate Others → Prioritize → Alert on Actionable

Monitoring Everything



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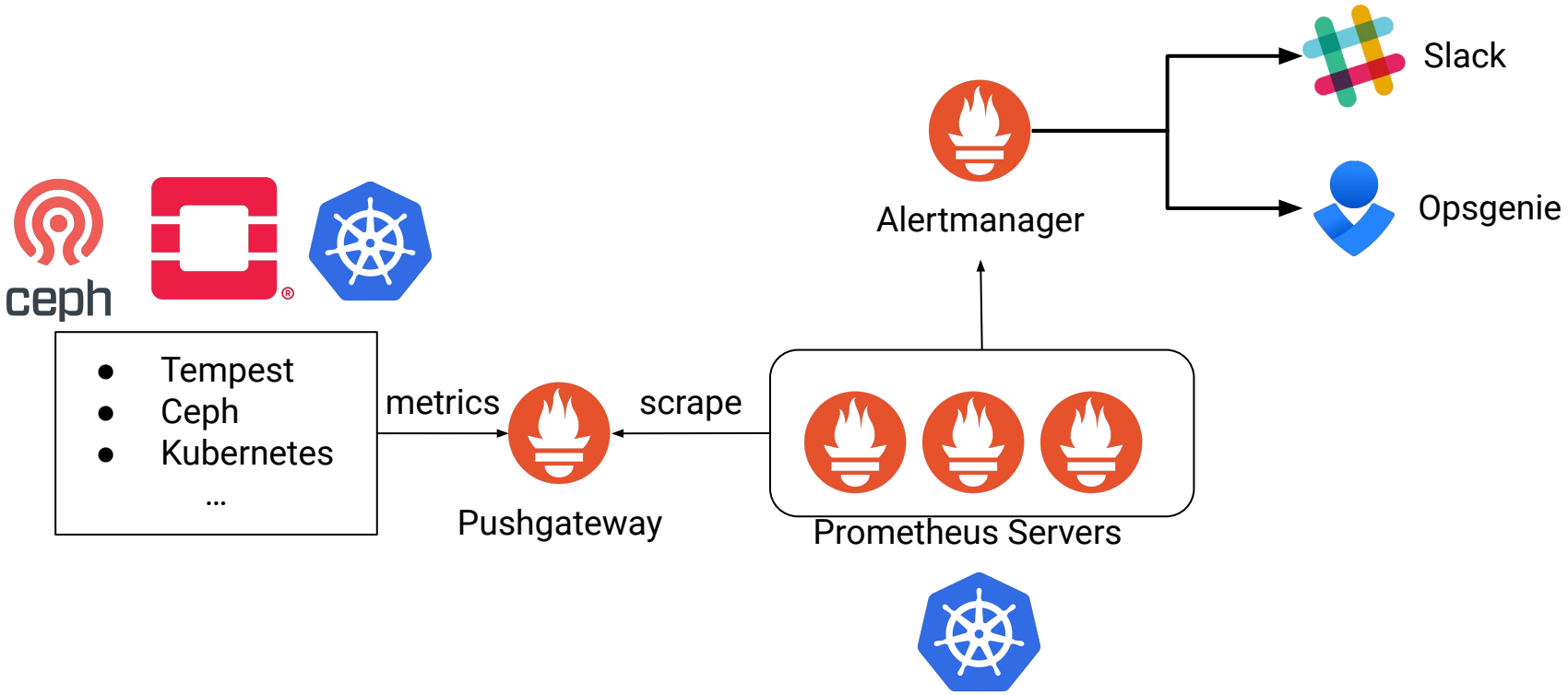
Slack
Alertmanager
Opsgenie
ceph
Tempest
Ceph
Kubernetes
...
metrics
scrape
Pushgateway
Prometheus Servers

Facing the Hard Problem

Because it is right there

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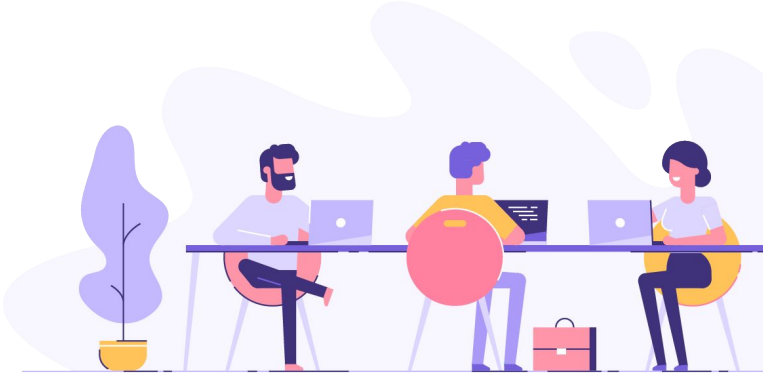
Iteration & Automation

Iteration

- Rework-ability on Cloud Infrastructure
- Ability to Upgrade
- Simplify your Clouds OPS
- Community First

Automation

- Auto. Clean jobs
- CI/CD
- Config & Code auto-apply to Cloud
- Fail & Restart



The Very Last Course:

Live Long!

"Spend each day trying to be a little wiser than you were when you woke up. Day by day, and at the end of the day-if you live long enough-like most people, you will get out of life what you deserve."

— Charles T. Munger

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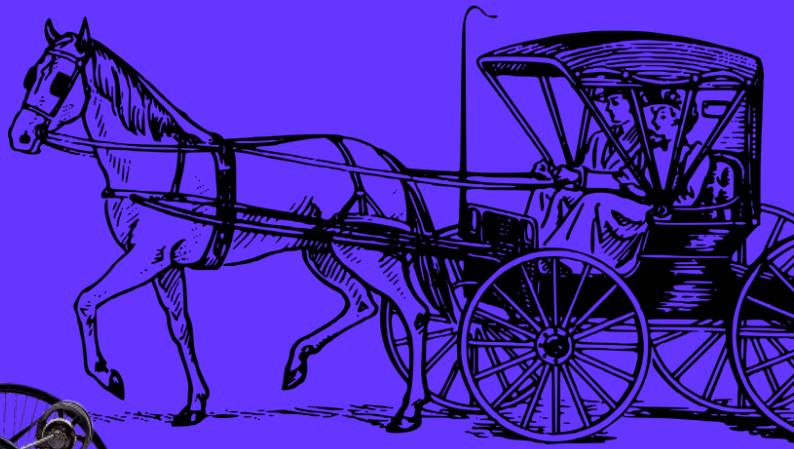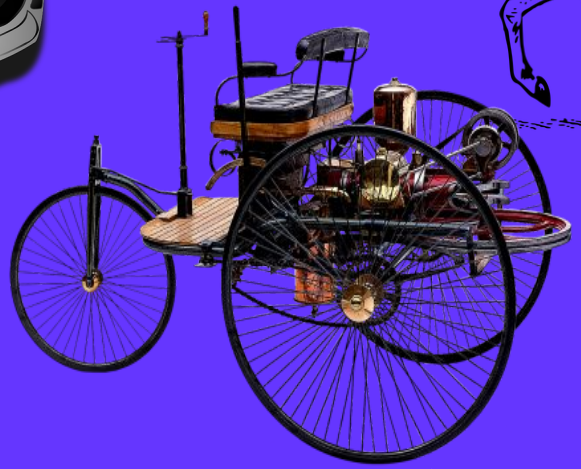
Q&A