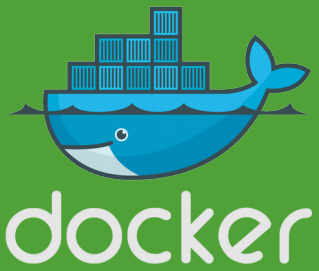
Clustering Docker with Docker Swarm on openSUSE®



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Hi,

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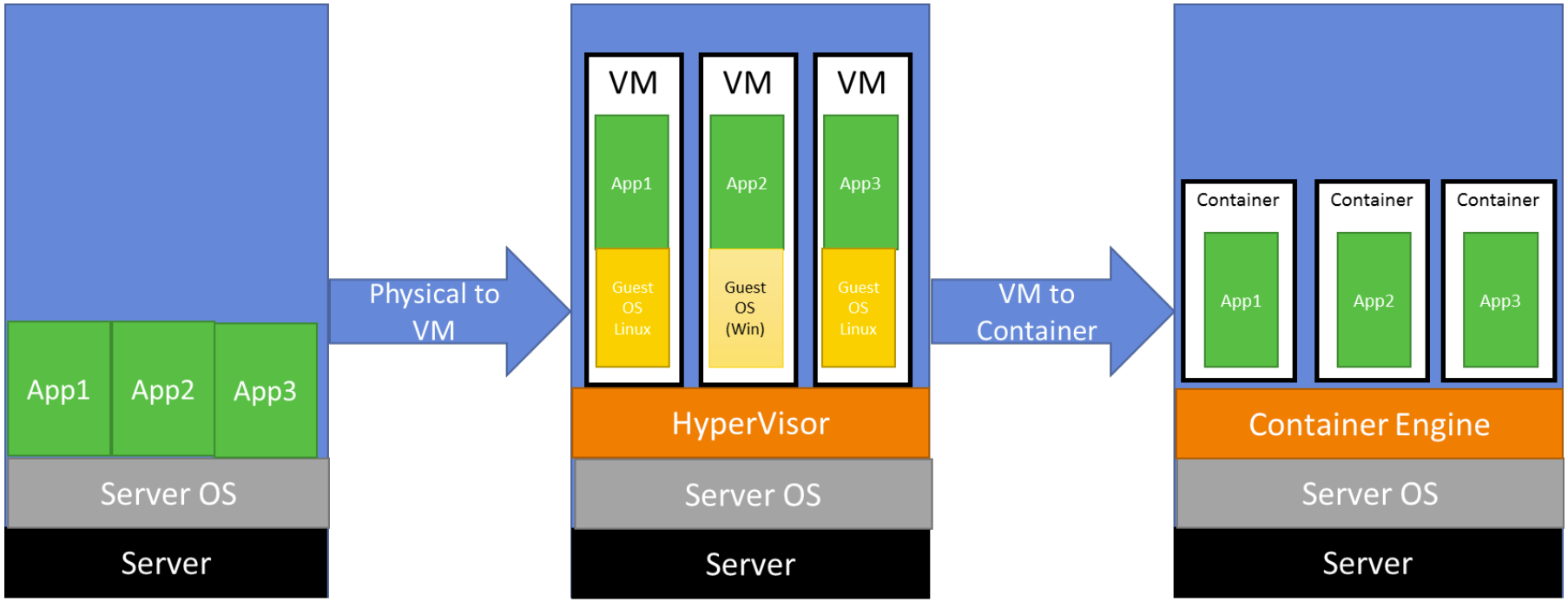
- Local Commitee at GNOME.Asia Summit 2015
- Amateur Dota2 Player :)

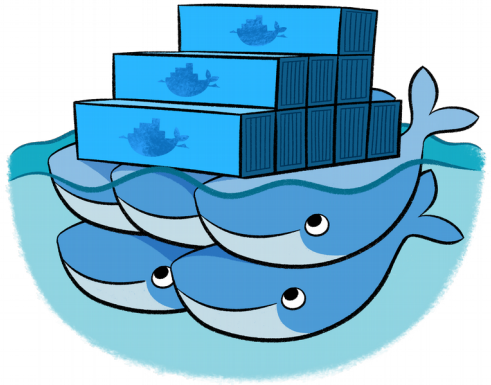
What is Docker?

Docker *is an open platform for developers and sysadmins to build, ship, and run distributed applications, whether on laptops, data center VMs, or the cloud.*

Virtual Machines vs Containers

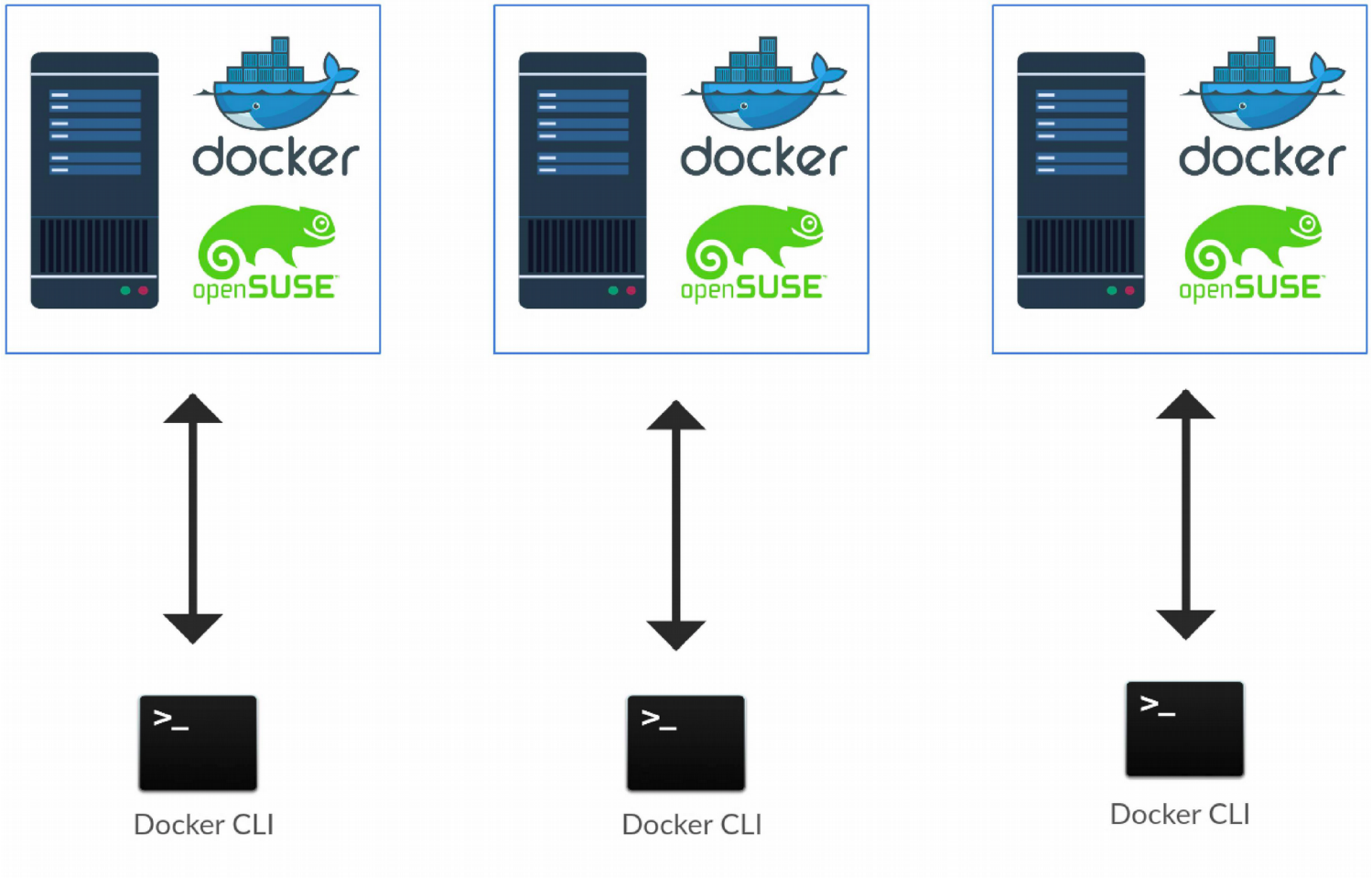


Docker Swarm



Docker Swarm *is native clustering for Docker. It turns a pool of Docker hosts into a single, virtual Docker host.*

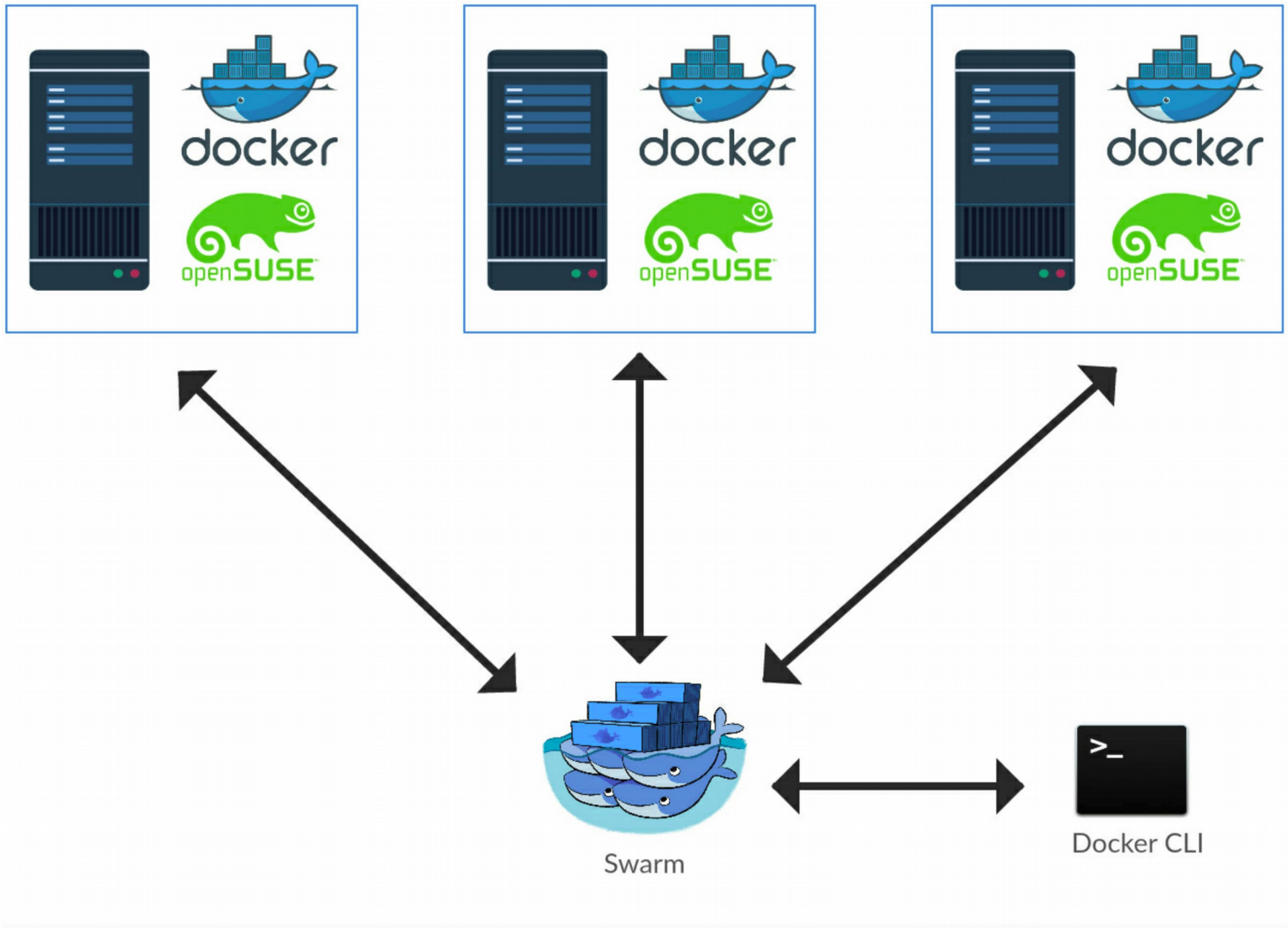
Today


docker
openSUSE
docker
openSUSE
docker
openSUSE
Docker CLI
Docker CLI
Docker CLI

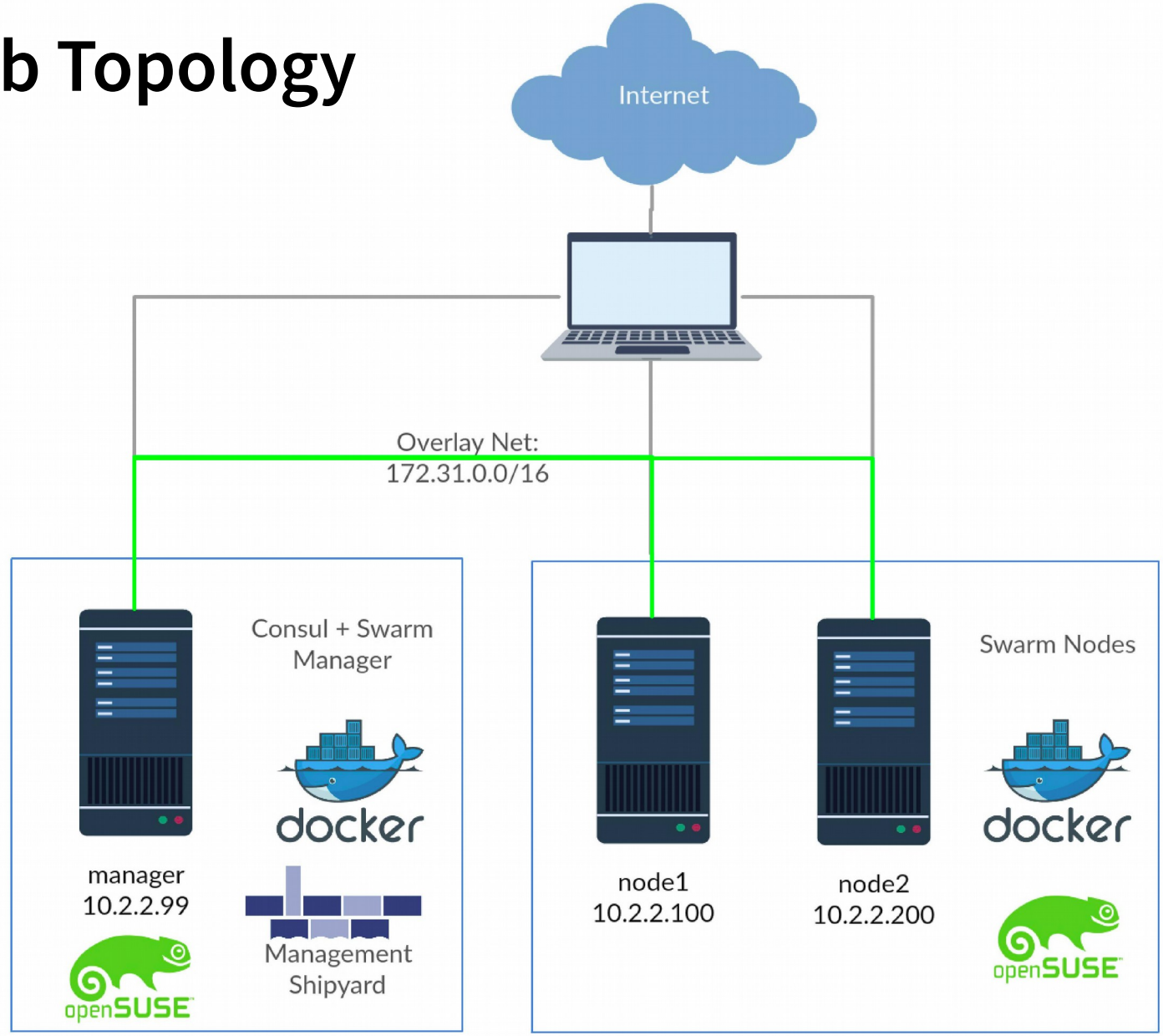
How can I manage them?

- Individually? Why not if you like that
- On a cluster with a manager? ***Yeah!!***

With Docker Swarm



Lab Topology



Install and Setup Docker

```
# zypper in -y docker

# sed -i '/DOCKER_OPTS=/s/^/#/g'
/etc/sysconfig/docker

# echo 'DOCKER_OPTS="-H tcp://0.0.0.0:2375 -H
unix:///var/run/docker.sock --cluster-
store=consul://10.2.2.99:8500 --cluster-
advertise=10.2.2.XX:2375"' >> /etc/sysconfig/docker

# systemctl restart docker.service

# systemctl enable docker.service

# systemctl status docker.service
```

* XX= node IP

Running consul discovery backend & Swarm manager

```
# docker run -d --restart=always --name=consul
-h consul -p 8500:8500 progrium/consul -server
-bootstrap
```

```
# docker run -d --restart=always --name swarm-
manager -h swarm-manager -p 4000:4000 swarm
manage -H :4000 --replication --advertise
10.2.2.99:4000 consul://10.2.2.99:8500
```

Join Swarm Nodes

```
# docker run -d --restart=always --name=swarm-
node1 -h swarm-node1 swarm join
--advertise=10.2.2.100:2375
consul://10.2.2.99:8500
```

```
# docker run -d --restart=always --name=swarm-
node2 -h swarm-node2 swarm join
--advertise=10.2.2.200:2375
consul://10.2.2.99:8500
```

From Manager node verify

```
# docker -H :4000 info
```

Create Overlay Network

```
# docker -H :4000 network create --driver
overlay --subnet=172.31.0.0/16 overlay

# docker -H :4000 network ls

# docker -H :4000 network inspect overlay
```

Verify

Create Docker Guest from Manager node

```
# docker -H :4000 run -d --name cirros1 -h
cirros1 --net=overlay cirros init


# docker -H :4000 run -d --name cirros2 -h
cirros2 --net=overlay cirros init
```

From Manager node verify

```
# docker -H :4000 ps -a
```

Verify (2)

Inspect docker guest IP

```
# docker -H :4000 inspect cirros1 | grep
"172.31"

# docker -H :4000 inspect cirros2 | grep
"172.31"
```

Test ping from other guest

```
# docker -H :4000 exec -it cirros1 bash

# ping -c 3 172.31.x.x
```

Shipyard?

Shipyard

Composable Docker Management. Built on Docker Swarm, Shipyard gives you the ability to manage Docker resources including containers, images, private registries and more.

Running Shipyard

```
# docker run -ti -d --restart=always -h shipyard-
rethinkdb --name shipyard-rethinkdb rethinkdb


# docker run -ti -d --restart=always --name
shipyard-controller -h shipyard-controller --link
shipyard-rethinkdb:rethinkdb --link swarm-
manager:swarm -p 8080:8080
shipyard/shipyard:latest server -d
tcp://swarm:4000
```

Next?

- On-failure Rescheduling
- High Availability, State replication
- Load Balancing
- Etc.

Questions?

More info

- @aryulianto
- http://aryulianto.com
- http://github.com/aryulianto
- http://twitter.com/saputroyulianto
- http://facebook.com/saputro19

Reference

- https://docs.docker.com/engine/installation/linux/SUSE/
- https://docs.docker.com/engine/userguide/networking/get-started-overlay/
- https://docs.docker.com/swarm/install-manual/
- https://shipyard-project.com/docs/deploy/manual/
- http://utian.azoebs.com/2016/06/latihan-membuat-cluster-docker-dengan.html

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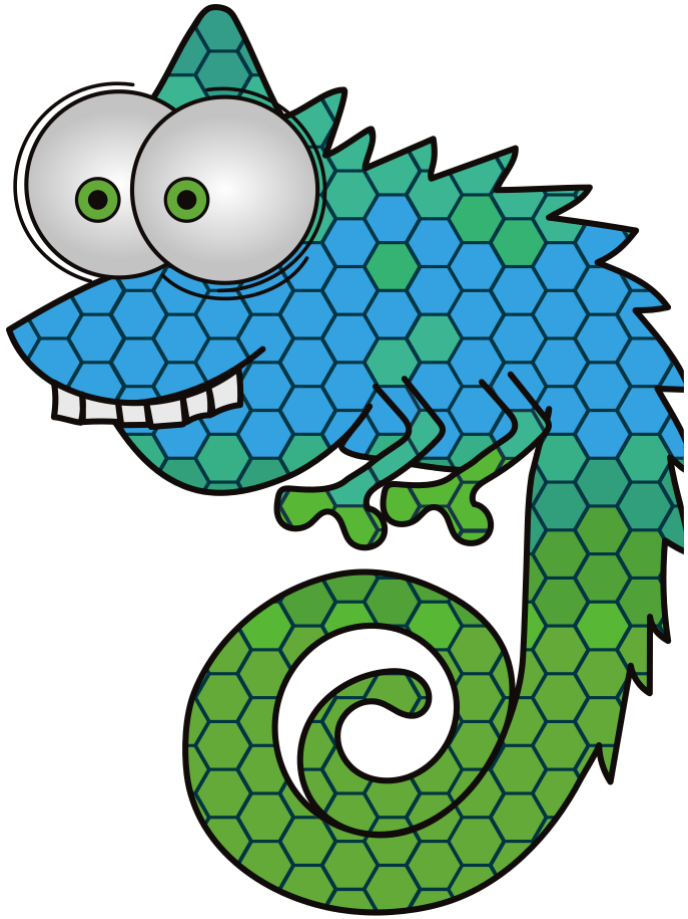
Thank you.



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