

Habari Node's Experience creating a Datacenter and Cloud Services Infrastructure

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Who is habari node ltd

- ▮ Habari Node Limited is a licensed Internet Service Provider
- ▮ Habari Node Limited was founded by Afam (T) Limited and Arusha Node Marie in 2010
- ▮ Arusha Node Marie, a society that has been operational since 1994.

What do we use?

- CEPH-software defined storage which can provide block devices, object storage and normal file system
- OPENSTACK- OpenStack software controls large pools of compute, storage, and networking resources throughout a datacenter
- OWN CLOUD- Provide storage interface like dropbox

Storage challenges

Scalability- NAS and Raid are not scalable

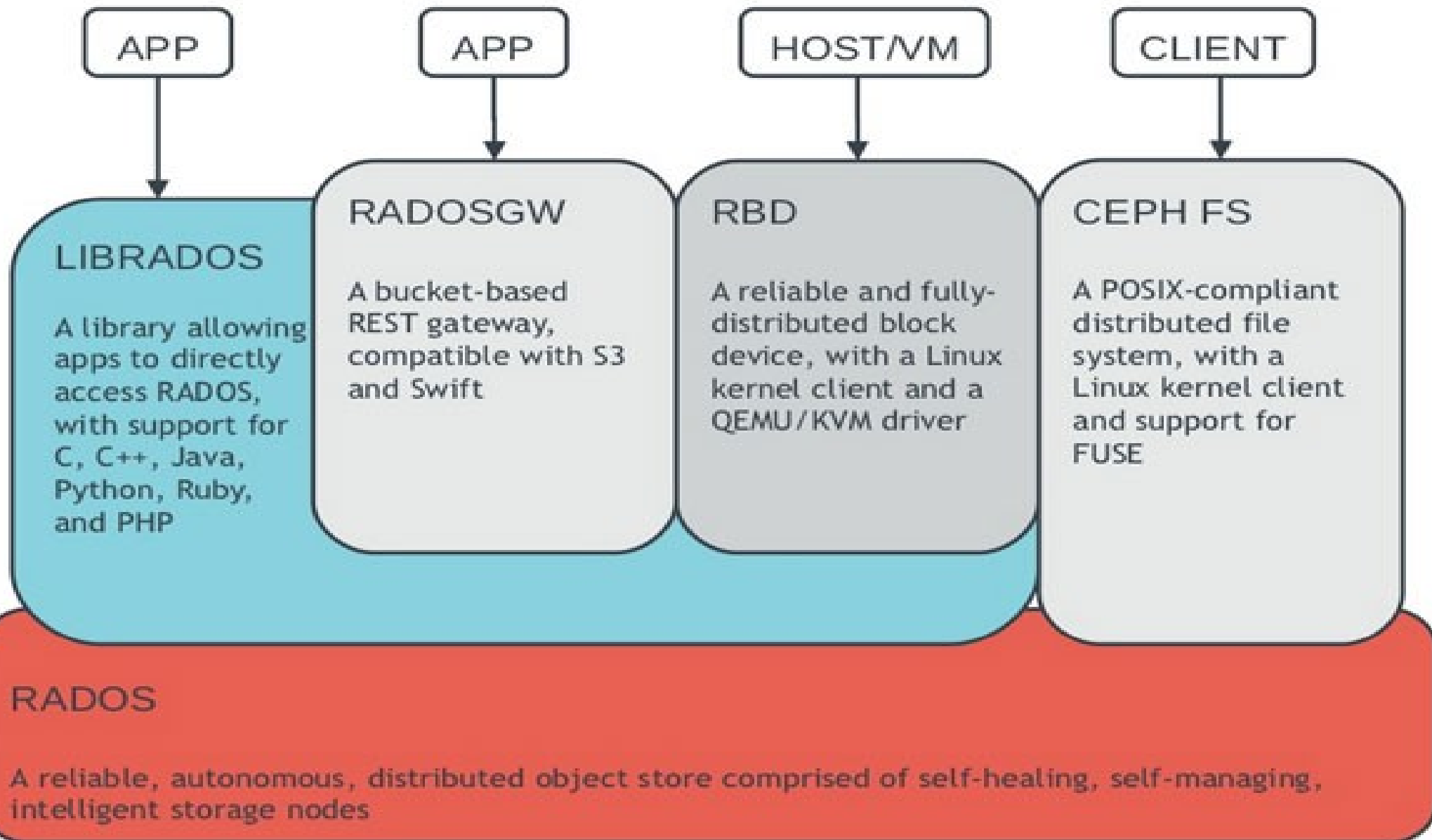
Recovery- Storage should handle failures

Performance- Big storage should support high performance and which can scale

CEPH

- This resolve all challenges mentioned above
- Ceph's CRUSH algorithm liberates storage clusters from the scalability and performance limitations imposed by centralized data table mapping.
- It replicates and rebalances data within the cluster dynamically—eliminating this tedious task for administrators, while delivering high-performance and infinite scalability.

CEPH



S3/SWIFT

HOST/HYPERVISOR

iSCSI

CIFS/NFS

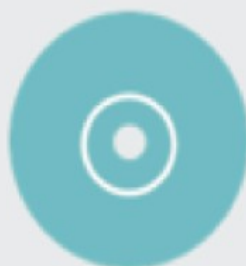
SDK



INTERFACES



OBJECT
STORAGE



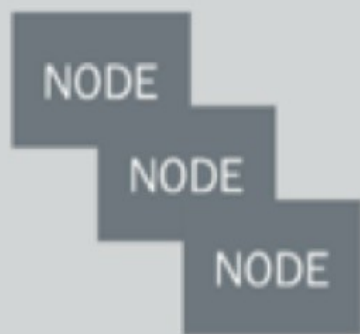
BLOCK
STORAGE



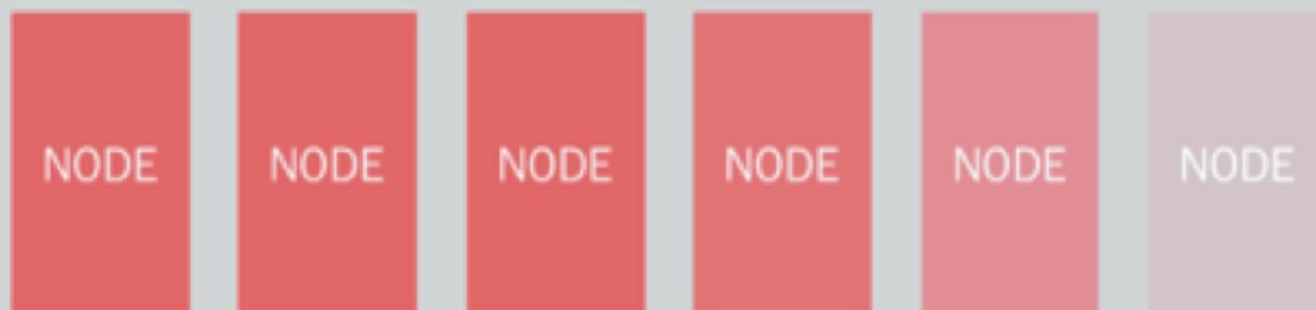
FILE SYSTEM

STORAGE CLUSTER

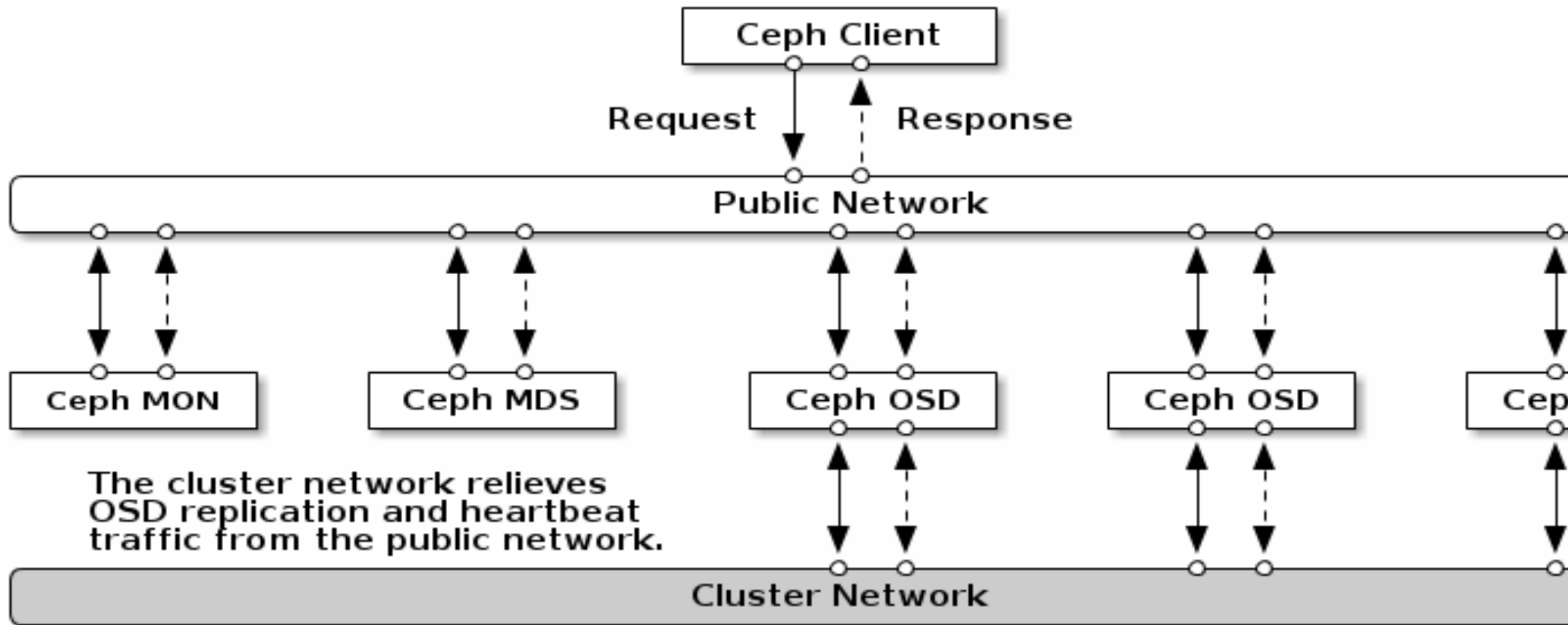
MONITORS



OBJECT STORAGE DAEMONS (OSD)



LOGICAL NETWORK STRUCTURE



Network specs

- ▯ We are bonding 5 interfaces for osd node/servers(5G) for each server
- ▯ Client servers are running under 3G(bonding 3 gig interfaces)
- ▯ Monitor servers are under 1G

OSD NODE SPECS

- ▯ six 3TB Hard drive on each server
- ▯ 32GB of RAM
- ▯ 12 Core of cpu
- ▯ six 1G interface

How we use ceph

- ▮ As block device for VM
- ▮ As file server
- ▮ Storing user data via owncloud

OPENSTACK



Controller Node

Horizon

Keystone

Heat

Ceilometer

Neutron

Compute Node

Nova

Ceilometer

Neutron

Network Node

Neutron

Storage Node

Glance

Cinder

Swift

Nova	compute service responsible for creating virtual machine instances and managing their life cycle, as well as managing the hypervisor of choice.
neutron	A network service responsible for creating network connectivity and network services
Keystone:	An identity management system responsible for user and service authentication. Keystone is capable of integrating with third-party directory services such as LDAP.
Glance	An image service responsible for managing images uploaded by users
Horizon	A dashboard that creates a GUI for users to control the OpenStack deployment
Cinder	A block storage service responsible for creating and managing external storage
swift	Used to store object but in our case we use ceph
ceilometer	Efficiently polls metering data related to OpenStack services.

Openstack controller spec

- ▯ 8 cores of cpu
- ▯ 3G interface
- ▯ 32GB of Ram

COMPUTE NODE

- ▮ 32 cores of cpu
- ▮ 64GB of RAM
- ▮ Three 1G interfaces for accessing storage image from ceph
- ▮ 1G interface for VMs

OWNCLOUD

- ownCloud is a self-hosted file sync and share server.
- It provides access to your data through a web interface, sync clients or WebDAV while providing a platform to view, sync and share across devices easily
- It is similar with dropbox
- We have integrated with onlyoffice to enable editing documents online
- It support mobile and desktop clients

ONLYOFFICE

- ▯ ONLYOFFICE offers document management, project management, CRM, calendar and mail
- ▯ Can be integrated with other storage like google drive, owncloud and other storage

Other softwares you should know

- Ganeti
- Synnefo
- Nextcloud

Online demo

- ▯ Openstack
- ▯ Onlyoffice
- ▯ Owncloud

| THANKS FOR LISTENING