

Transformasi IT Infrastructure Menjadi DevOps

Possible or Impossible ?

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Bank BTPN Syariah

Jakarta, August 21, 2021

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About Me



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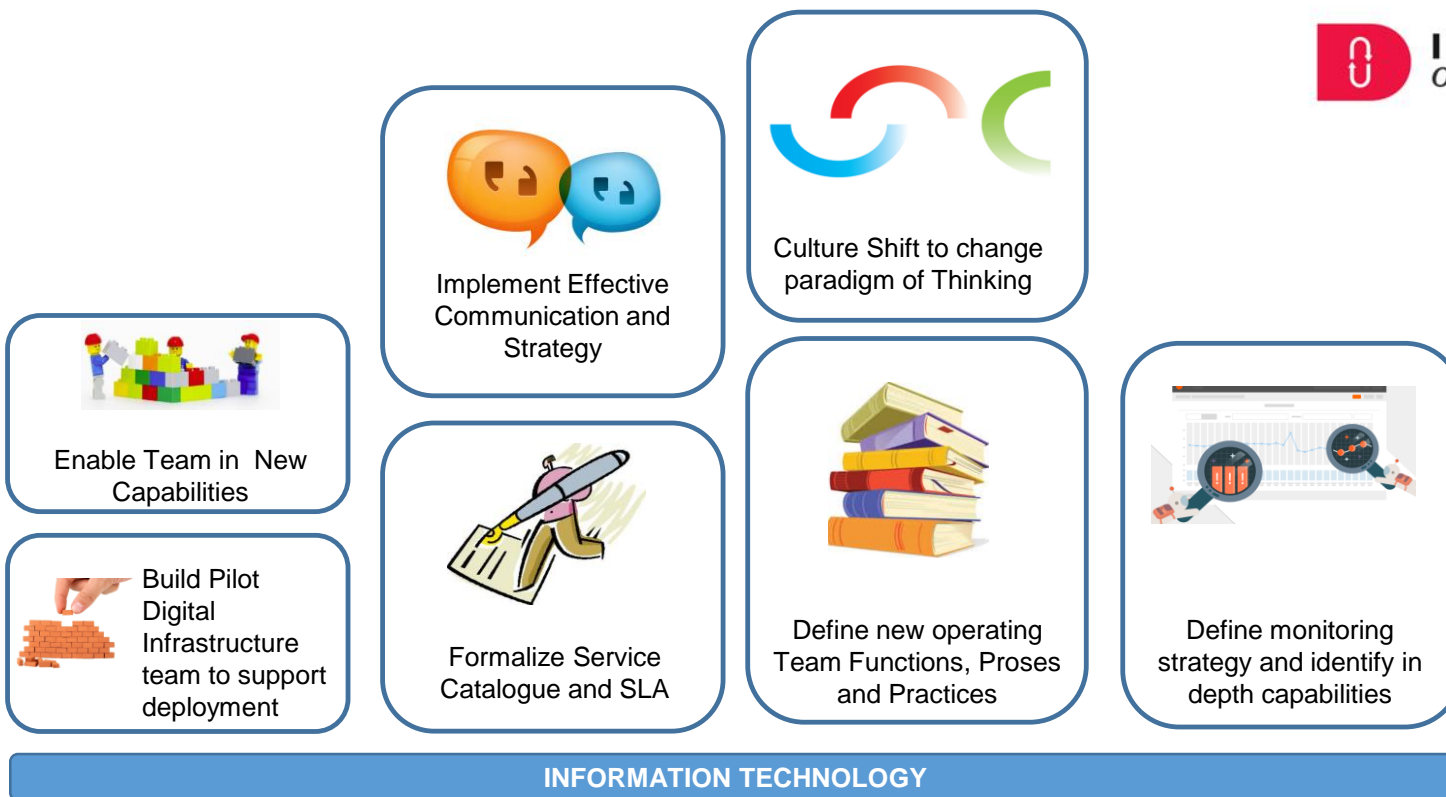
OpenStack Indonesia
Indonesia OpenStack Foundation Community
www.openstack.id

what are we doing now
what are we doing now

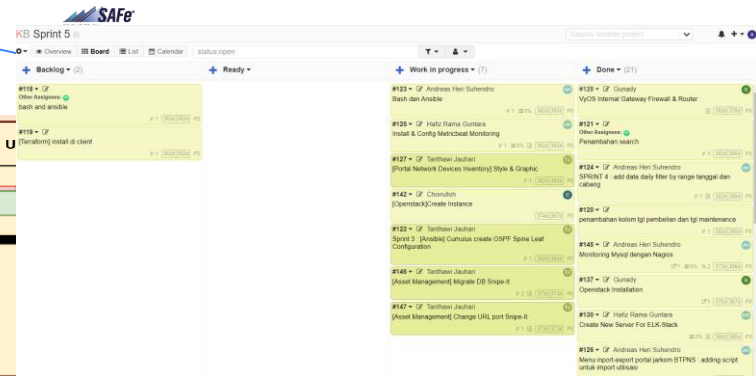
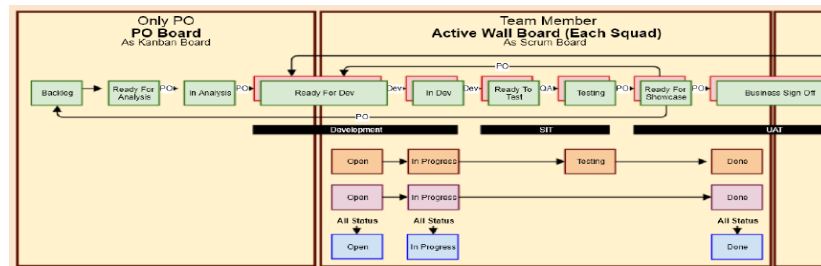
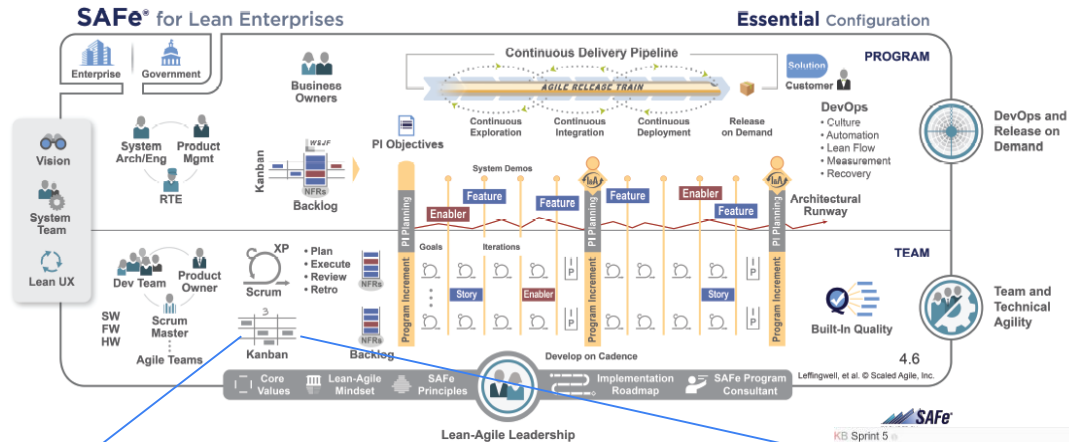
Agenda

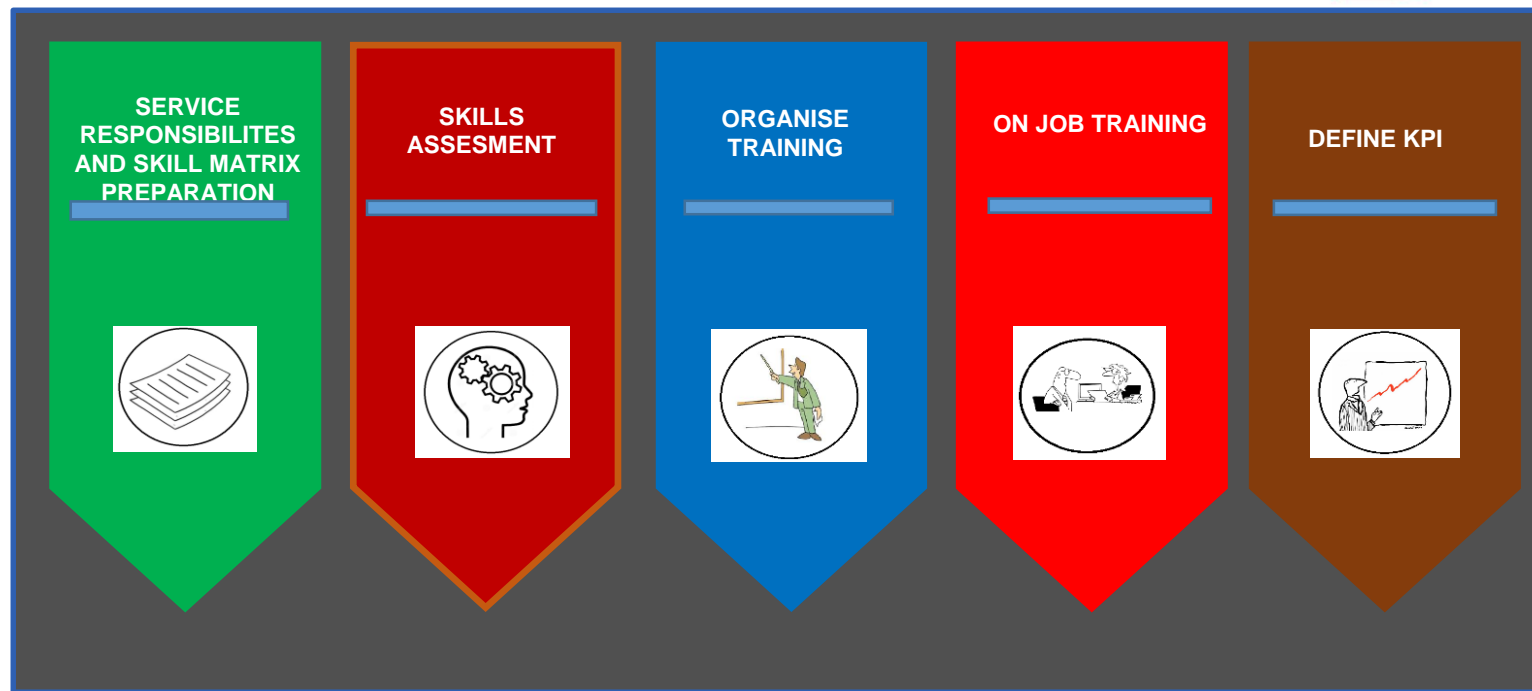
- Digital Modeling And Conceptual For Infrastructure Devops
- What we are doing now ?

DIGITAL MODELING AND CONCEPTUAL

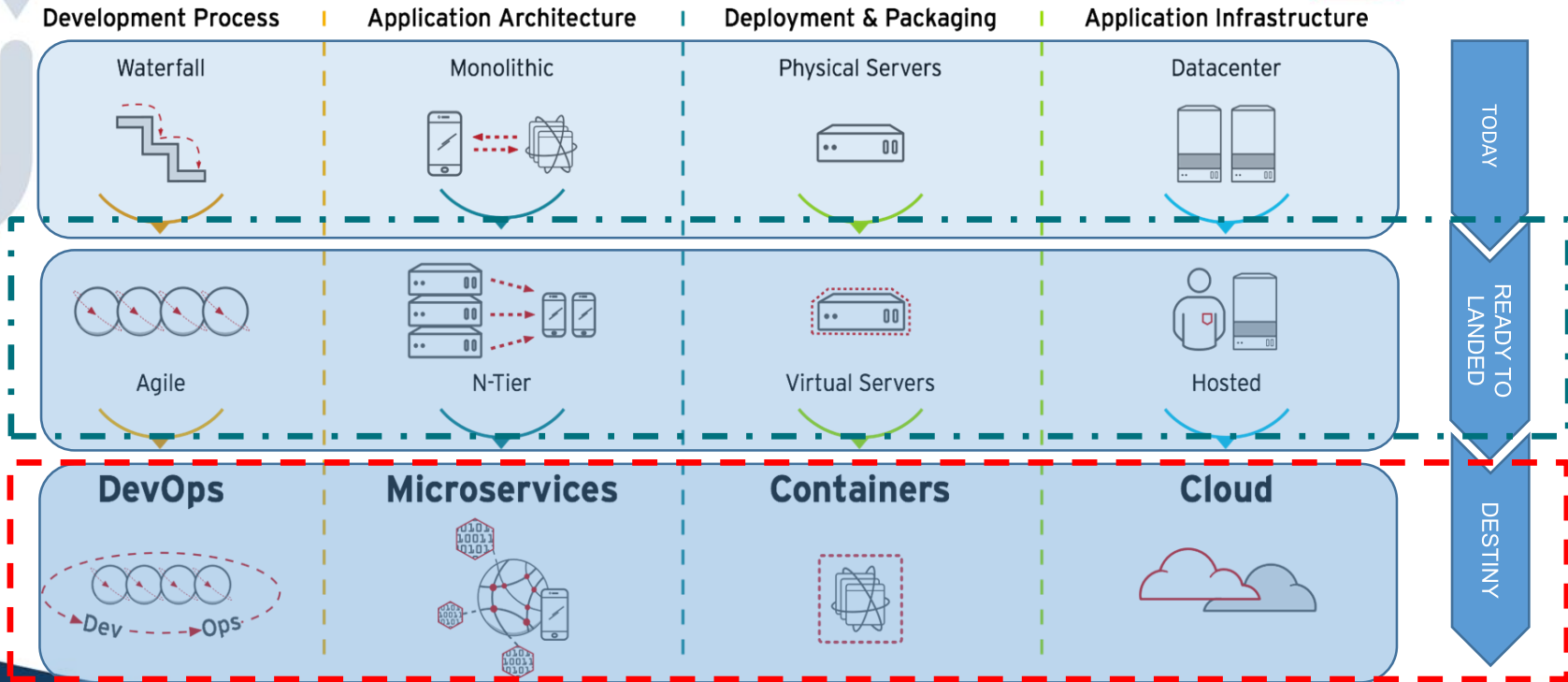


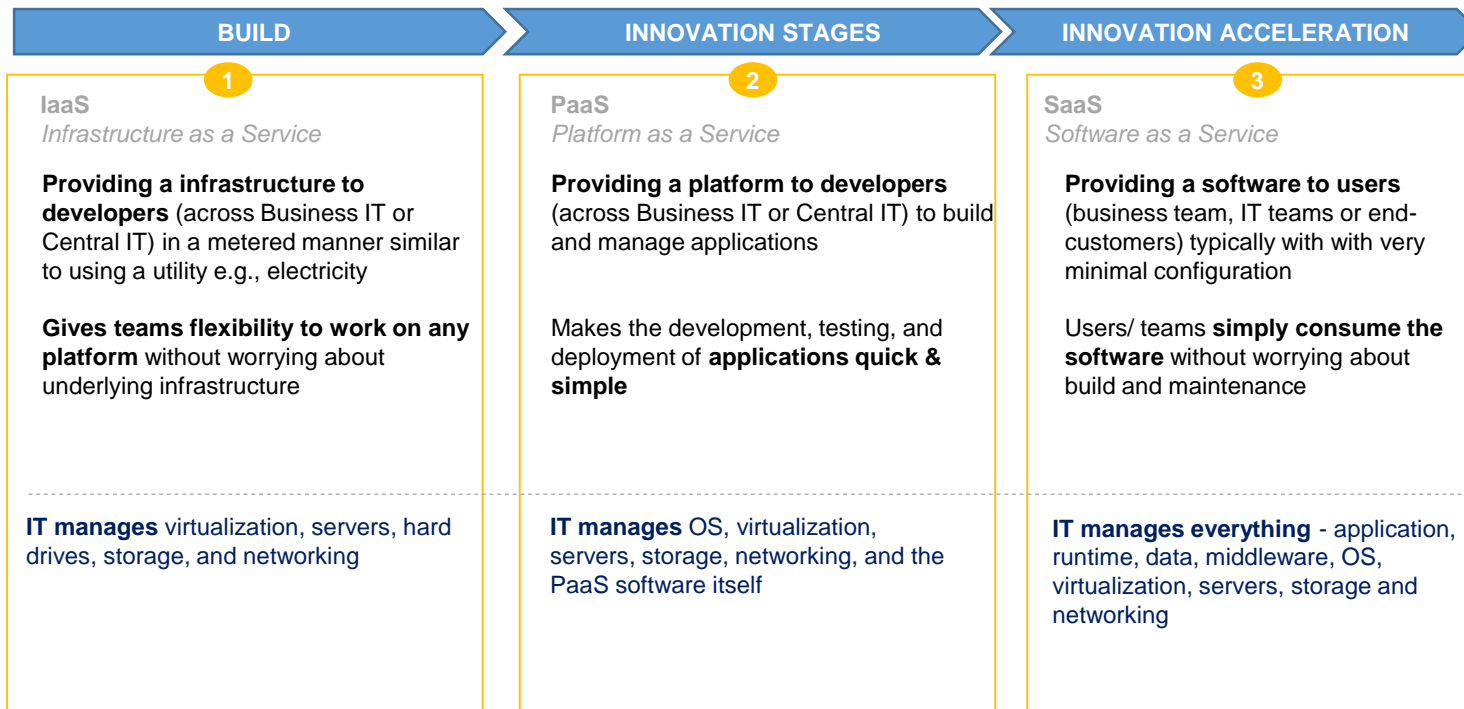
- Network as Code
- Pipeline Orchestration
- Micro and Immutable Architecture
- Orchestrated Upgrades
- Resiliency Design and Drills
- Continuous Measurement
- Continuous Response
- Continuous Improvement





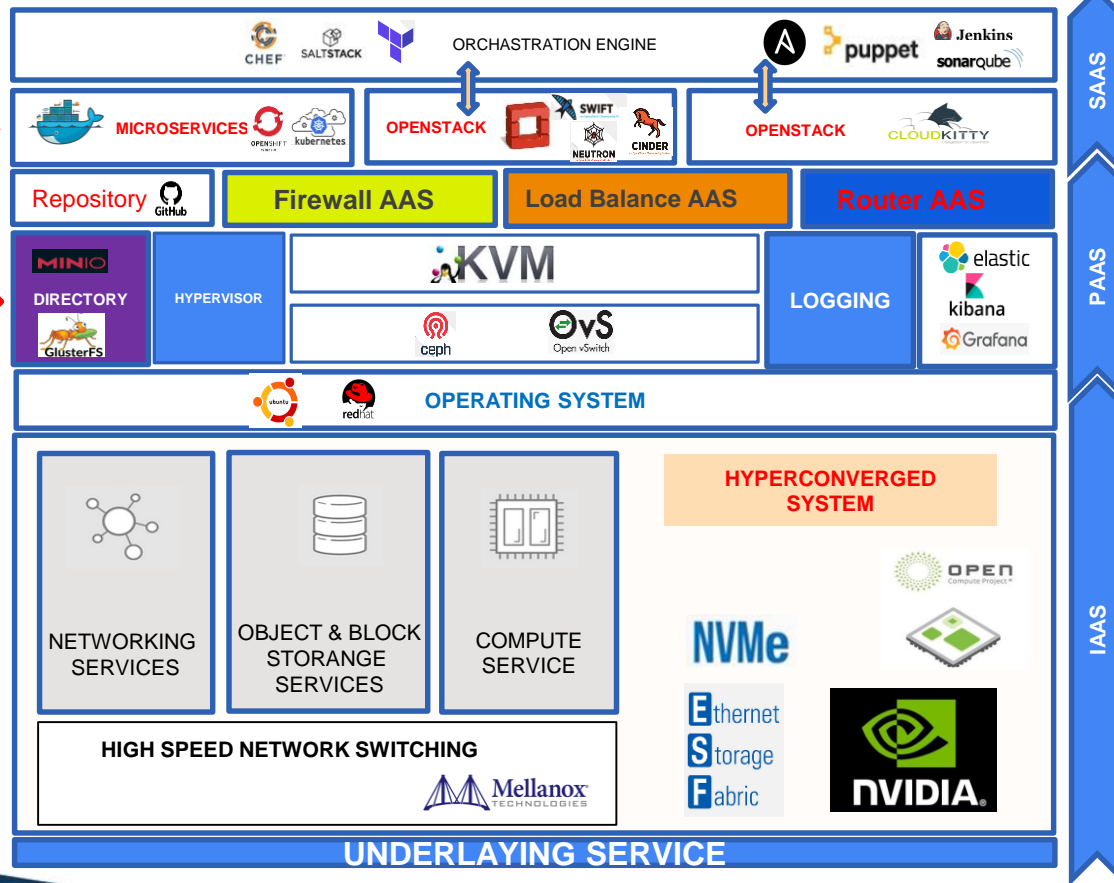
Prepare a Journey to Platform As A Services



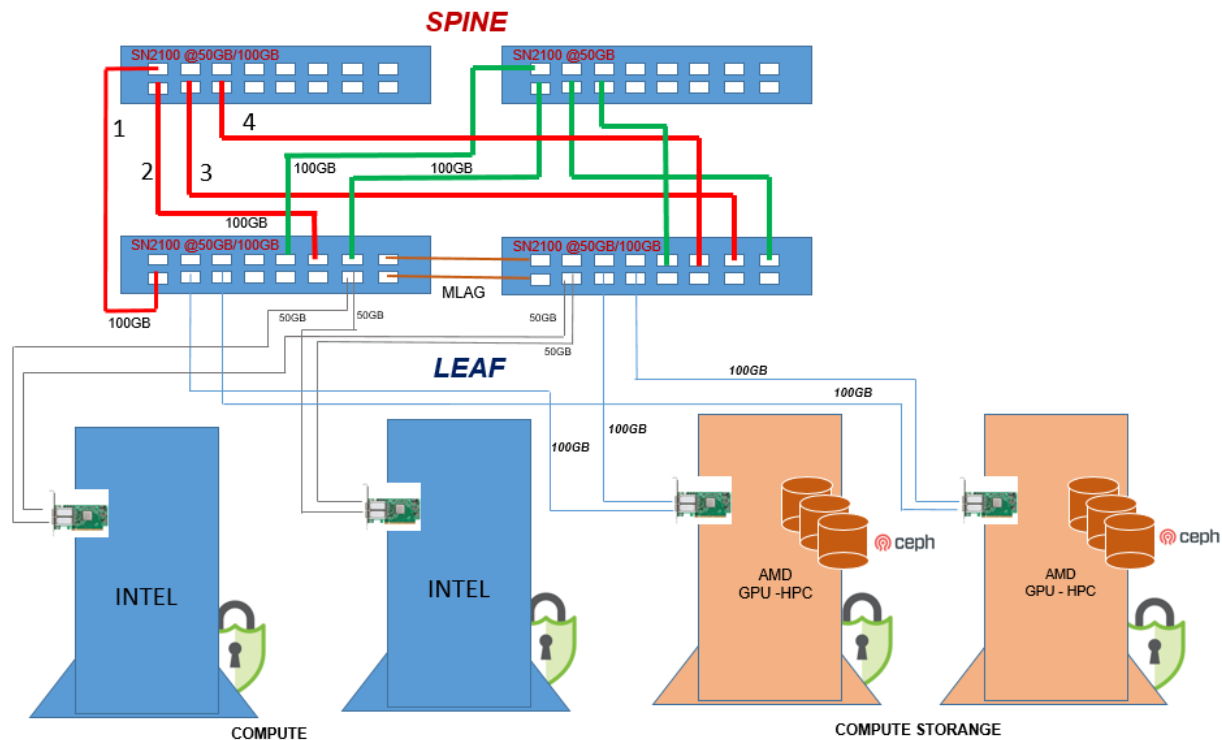


CONTAINER
SAAS
PAAS
Server
Hypervisor
Network
Storage
Hardware

3 Month	3 Month	3 Month	3 Month
Early Adopter	Innovation Stage	Acceleration Phase	Digital Transformation
Introduce hyperconverged model into Bank using Hyperconverse Platform, meanwhile developing open source digital infrastructure model	Infra team start to introduce open source digital infrastructure model into production ready environment, in the meantime also enrich the capabilities	The infrastructure shift from IAS into PAAS and Container model.	The infrastructure evolve into catalog model (private cloud).
Use Hyperconverse Platform base Opensource	Research for PAAS pattern in : automation, integration and security	Research of SAS Model	Developing SAS Model
Change the server management Compute, Storage, and Network and Openstack (Lab)	Develop Container Platform	PAAS become standard deployment model for infrastructure	Infra team already introduce PAAS Catalog to users.
Adopt new hypervisor using Kernel Virtual Machine	Developing Openstack Capability & Integration	Container Platform implemented in production	Implementation of DevSecOps & DevNetOps
Introducing Spine Leaf Architecture (Open Networking & Open Compute)	Use KVM based Hypervisor for UAT & Dev environment	Openstack already implement in Production	Openstack become standard platform
Change storage model from SAN based into hyperconverged based.	Introduction of VXLAN concept in digital infrastructure	KVM become standard hypervisor	Integration of multiple hypervisor
AMD/INTEL Platform Physical Server	Creating high speed hyperconverged storage based on open technology	VXLAN implemented on production	Active-Active Datacenter
	AMD/INTEL Physical Server	High Speed Hyperconverged Storage	Combination of multiple storage
		Mainly Commodity Hardware	Commodity Hardware



WHAT ARE WE DOING NOW ?





```
c3:00.0 Non-Volatile memory controller: Micron Technology Inc Device 51b2 (rev 02)
c4:00.0 Non-Volatile memory controller: Micron Technology Inc Device 51b2 (rev 02)
c5:00.0 PCI bridge: ASPEED Technology, Inc. AST1150 PCI-to-PCI Bridge (rev 04)
root@iconsv05r09:~# lspci | grep Mellanox
43:00.0 Infiniband controller: Mellanox Technologies MT28908 Family [ConnectX-6]
43:00.1 Infiniband controller: Mellanox Technologies MT28908 Family [ConnectX-6]
root@iconsv05r09:~#
```

```
root@iconsv02r09:/home/compute-02# mlxconfig -d /dev/mst/mt4123_pciconf0 set LINK_TYPE_P1=2 LINK_TYPE_P2=2
```

Device #1:

```
Device type: ConnectX6
Name: MCX653106A-ECA_Ax
Description: ConnectX-6 VPI adapter card; H100Gb/s (HDR100; EDR IB and 100GbE); dual-port QSFP56; PCIe3.0 x16; tall bracket;
ROHS R6
Device: /dev/mst/mt4123_pciconf0
```

Configurations:

```
LINK_TYPE_P1
LINK_TYPE_P2
```

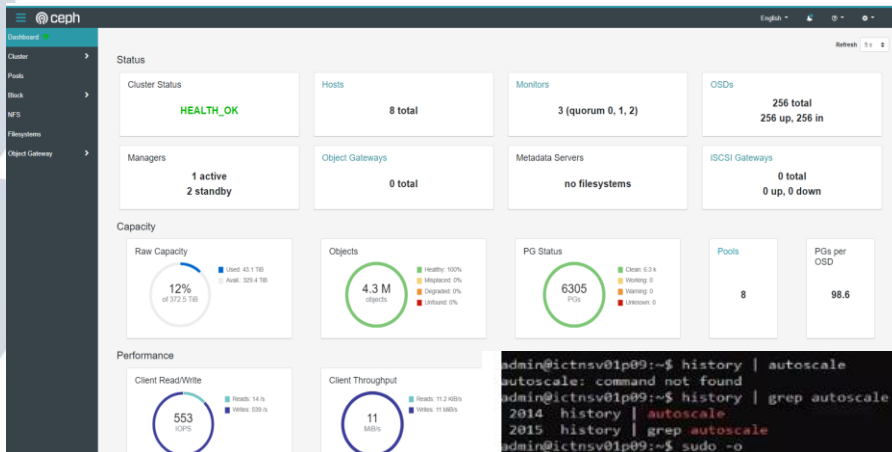
Next Boot	New
IB(1)	ETH(2)
IB(1)	ETH(2)

```
Apply new Configuration? (y/n) [n] : y
```

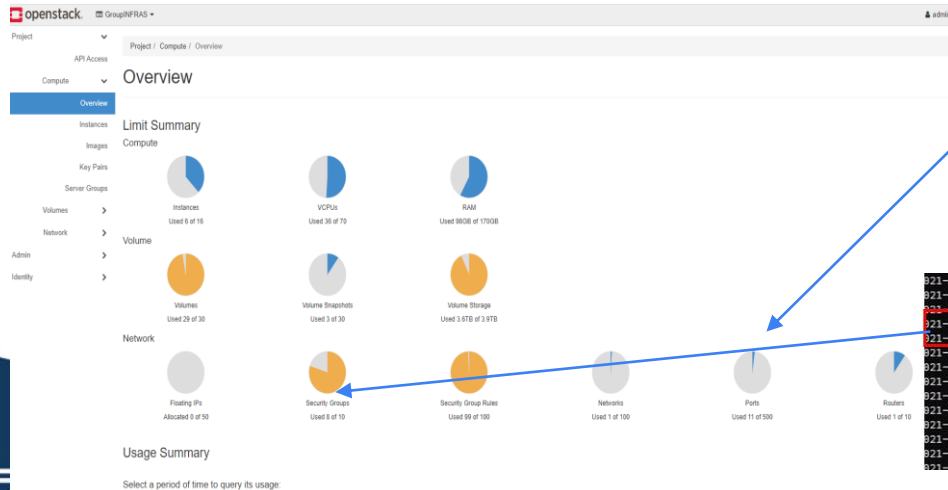
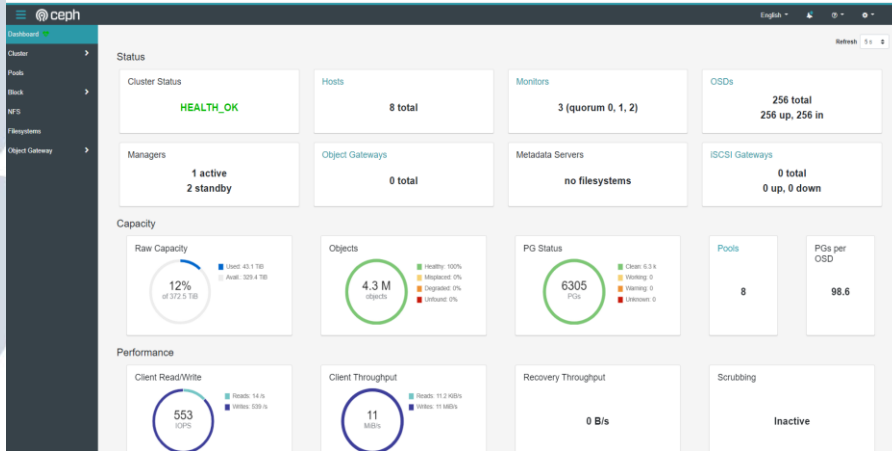
```
root@iconsv02r09:/home/compute-02# ip link
```

```
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: ensif0: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT group default qlen 1000
    link/ether 04:3f:72:e9:ad:9a brd ff:ff:ff:ff:ff:ff
3: ensif1: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT group default qlen 1000
    link/ether 04:3f:72:e9:ad:9b brd ff:ff:ff:ff:ff:ff
4: enx26b426893812: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT group default qlen 1000
    link/ether 26:b4:26:89:38:12 brd ff:ff:ff:ff:ff:ff
```

```
root@iconsv02r09:/home/compute-02# _
```



```
admin@ictnsv01p09:~$ history | autoscale
autoscale: command not found
admin@ictnsv01p09:~$ history | grep autoscale
2014: history | autoscale
2015: history | grep autoscale
admin@ictnsv01p09:~$ sudo -o
sudo: invalid option -- 'o'
usage: sudo -h | -K | -k | -V
usage: sudo -v [-AknS] [-g group] [-h host] [-p prompt] [-u user]
usage: sudo -l [-AknS] [-g group] [-h host] [-p prompt] [-u user] [command]
usage: sudo [-AbEHknPS] [-r role] [-t type] [-C num] [-g group] [-h host] [-p prompt] [-T timeout] [-u user] [VAR=value] [-i|-s] [<command>]
usage: sudo -e [-AknS] [-r role] [-t type] [-C num] [-g group] [-h host] [-p prompt] [-T timeout] [-u user] file ...
admin@ictnsv01p09:~$ sudo -i
root@ictnsv01p09:~# history | grep autoscale
1898: ceph osd pg_autoscale status
1899: ceph pg_autoscale status
1901: ceph --help | grep autoscale
1902: ceph osd pool autoscale-status
1906: ceph osd pool autoscale-status
2000: history | grep autoscale
root@ictnsv01p09:~# ceph osd pool autoscale-status
POOL          SIZE    TARGET SIZE    RATE    RAW CAPACITY    RATIO    TARGET RATIO    EFFECTIVE RATIO    BIAS    PG_NUM    NEW PG_NUM    AUTOSCALE
device_health_metrics 41520k          3.0    372.4T 0.0000          0.0001          0.0022          1.0      1      on
vms                7282k          3.0    372.4T 0.0000          0.0001          0.3158          1.0     32      on
images             32555k          3.0    372.4T 0.0000          0.0001          0.6820          1.0     32      on
volumes            69096k          3.0    372.4T 0.0000          0.0001          0.0001          1.0     32      on
backups              0          3.0    372.4T 0.0000          0.0001          0.0001          1.0     32      on
vms-data            34324M          1.5    372.4T 0.0001          0.0001          0.0001          1.0     32      on
images-data         3705G          1.5    372.4T 0.0146          0.0146          0.0146          1.0    512      on
volumes-data        7656G          1.5    372.4T 0.0301          0.0301          0.0301          1.0   2048      on
snapshots-data       0          1.5    372.4T 0.0000          0.0000          0.0000          1.0     32      on
```

```
type: geneve
options: {csum="true", key=flow, remote_ip="192.168.203.16"}
Port tap93db884-d0
Interface tap93db884-d0
Interface patch-br-int-to-provnet-0e51d02f-2fa2-433e-a8ec-4047f5db8f3e
type: patch
options: {peer=patch-provnet-0e51d02f-2fa2-433e-a8ec-4047f5db8f3e-to-br-int}
Port patch-br-int-to-provnet-56f48a26-65fd-40bf-86e2-5a7eb7495888
Interface patch-br-int-to-provnet-56f48a26-65fd-40bf-86e2-5a7eb7495888
type: patch
options: {peer=patch-provnet-56f48a26-65fd-40bf-86e2-5a7eb7495888-to-br-int}
Port tap1ef62874-52
Interface tap1ef62874-52
Port tap59258588-a9
Interface tap59258588-a9
Port tap042c2fa2-8f
Interface tap042c2fa2-8f
Port ovn-84d3f7-0
Interface ovn-84d3f7-0
type: geneve
options: {csum="true", key=flow, remote_ip="192.168.203.10"}
bfd_status: {diagnostic="No Diagnostic", flap_count="1", forwarding="true", remote_diagnostic="No Diagnostic"}
Port ovn-77ed48-0
Interface ovn-77ed48-0
type: geneve
options: {csum="true", key=flow, remote_ip="192.168.203.11"}
bfd_status: {diagnostic="No Diagnostic", flap_count="1", forwarding="true", remote_diagnostic="No Diagnostic"}
Port tap13efc789-46
Interface tap13efc789-46
Port ovn-cd1b16-0
Interface ovn-cd1b16-0
type: geneve
options: {csum="true", key=flow, remote_ip="192.168.203.14"}
Port patch-br-int-to-provnet-81785a29-fd75-4d3f-beb0-677cf2f3ecb4
Interface patch-br-int-to-provnet-81785a29-fd75-4d3f-beb0-677cf2f3ecb4
type: patch
options: {peer=patch-provnet-81785a29-fd75-4d3f-beb0-677cf2f3ecb4-to-br-int}
Port br-int
Interface br-int
type: internal
Port tap0b334f50-f0
```

```
821-82-11785:07:25.688Z|00046|dpif_netlink(handler1)|ERR|failed to offload flow: Invalid argument: tap1978f66d-41
821-82-11785:07:26.019Z|00118|netdev_offload_tc(INFO|added ingress qdisc to tap13efc789-46
821-82-11785:07:26.019Z|00120|bridge|INFO|bridge br-int: added interface tap13efc789-46 on port 22
821-82-11785:07:38.293Z|00001|netdev_offload_tc(revalidator125)|ERR|parse_userspace_userdata: no sFlow cookie
821-82-11785:07:38.293Z|00002|dpif_netlink(revalidator125)|ERR|failed to offload flow: Invalid argument: tap1978f66d-41
821-82-11785:07:46.231Z|00047|netdev_offload_tc(handler1)|ERR|parse_userspace_userdata: no sFlow cookie
821-82-11785:07:46.231Z|00048|dpif_netlink(handler1)|ERR|failed to offload flow: Invalid argument: tap13efc789-46
821-82-11785:07:52.831Z|00049|netdev_offload_tc(handler1)|ERR|parse_userspace_userdata: no sFlow cookie
821-82-11785:07:52.831Z|00050|dpif_netlink(handler1)|ERR|failed to offload flow: Invalid argument: tap042c2fa2-8f
821-82-11785:07:53.205Z|00051|netdev_offload_tc(handler1)|ERR|parse_userspace_userdata: no sFlow cookie
821-82-11785:07:53.205Z|00052|dpif_netlink(handler1)|ERR|failed to offload flow: Invalid argument: tap0b334f50-2a
821-82-11785:07:53.688Z|00053|netdev_offload_tc(handler1)|ERR|parse_userspace_userdata: no sFlow cookie
821-82-11785:07:53.688Z|00054|dpif_netlink(handler1)|ERR|failed to offload flow: Invalid argument: tap1978f66d-41
```



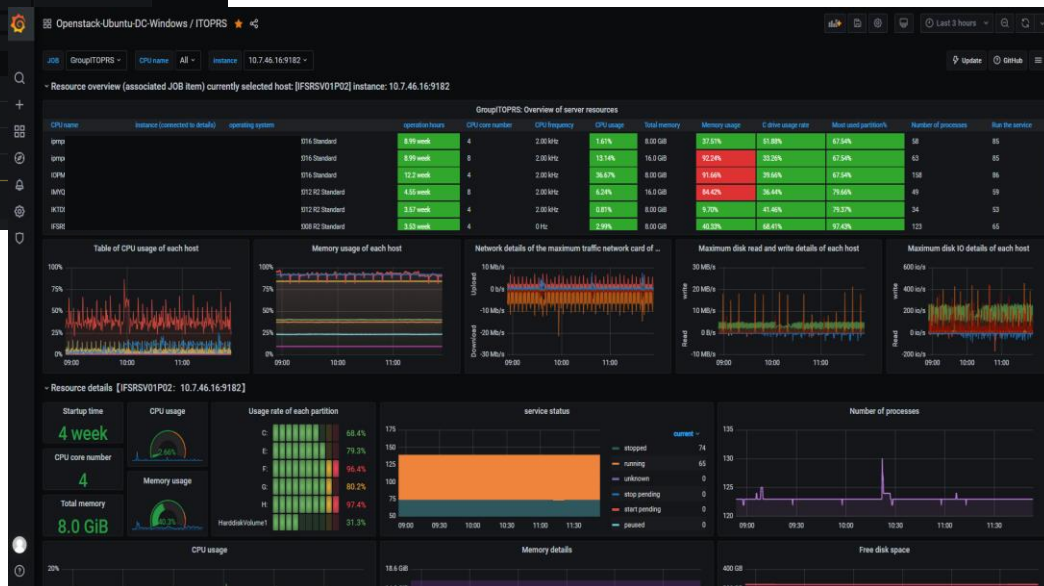
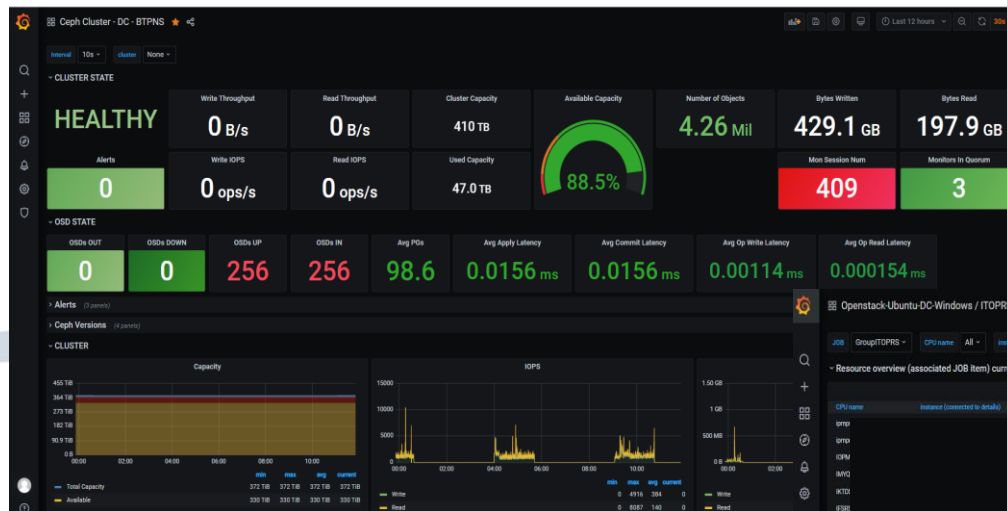

```

$ curl -s http://10.10.10.10:8080/v1/nova/instance/000003e5 | jq
{
  "domain": "type",
  "type": "kvm",
  "id": "55",
  "name": "instance-000003e5",
  "uuid": "3f98fc1-ae0c-43cf-afbc-e03ad754f935",
  "metadata": {
    "nova:instance_xmlns": "http://openstack.org/xmlns/libvirt/nova/1.0",
    "nova:package_version": "21.1.0",
    "nova:name": "BAGSV0A4P0C",
    "nova:creationTime": "2021-02-01 09:15:13",
    "nova:flavor": "m1.tiny3.migrate",
    "nova:memory": "8192",
    "nova:disk": "80",
    "nova:swap": "8",
    "nova:ephemeral": "0"
  },
  "target": "tap0904a5bf-55",
  "model": "virtio"
}

```

```
virsh # dumpxml instance-000003e5
<domain type='kvm' id='55'>
  <name>instance-000003e5</name>
  <uuid>3f398fc1-ae0b-43cf-afb6-e03ad754f935</uuid>
  <metadata>
    <nova:instance xmlns:nova="http://openstack.org/xmlns/libvirt/nova/1.0">
      <nova:package version="21.1.0"/>
      <nova:name>BAGV5W04P09</nova:name>
      <nova:creationTime>2021-02-16 09:15:13</nova:creationTime>
      <nova:flavor name="m1.tiny.migrate">
        <nova:memory>8192</nova:memory>
        <nova:disk>80</nova:disk>
        <nova:swap>0</nova:swap>
        <nova:ephemeral>0</nova:ephemeral>
        <nova:vcpus>2</nova:vcpus>
      </nova:flavor>
      <nova:owner>
        <nova:user uid="9637fdcd0f754d4c7088d2754543a2f">admin</nova:user>
        <nova:project uid="446e4ef9d08c456ea3a4302ec294d207">groupB1M0LK</nova:project>
      </nova:owner>
    </nova:instance>
  </metadata>
  <memory unit='KiB'>8388608</memory>
  <currentMemory unit='KiB'>8388608</currentMemory>
  <vcpu placement='static'>2</vcpu>
  <cpu>
    <shares>2048</shares>
    <cn>none</cn>
  </cpu>
</domain>
```

Beda Mac address
Ada Bug



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