



COLLABORATION  
CONFERENCE

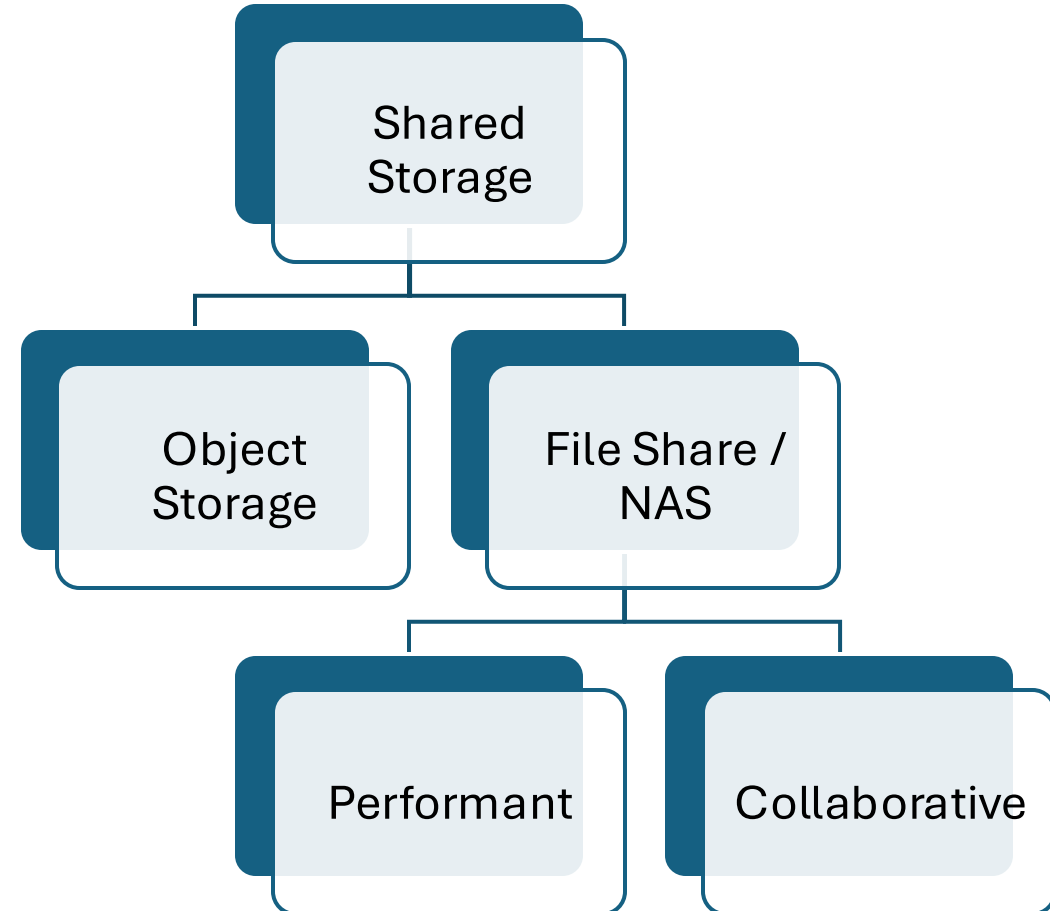
# Shared FileSystems

Abhisar Sinha, ShapeBlue



November 20 - 22, 2024 | Madrid, Spain

# Shared Storage for Instances : A missing piece





OpenStack Manila (2014)



Azure Files (2015)



Elastic File System (2016)



Google Cloud FileStore (2018)



# What was required?



Easy to  
Setup and  
Manage

Shared by  
multiple  
Instances:  
Concurrency

Backup and  
Recovery











High  
Availability

Usage / Billing

Scalable





-  Dashboard
-  Compute 
-  Storage 
-  Volumes
-  Volume Snapshots
-  Backups
-  Buckets
-  Shared FileSystems



# What is a Shared FileSystem?



CloudStack Managed NAS



Supports NFS



Self Service / Automation



Hypervisor / Storage Agnostic



Works out of the box

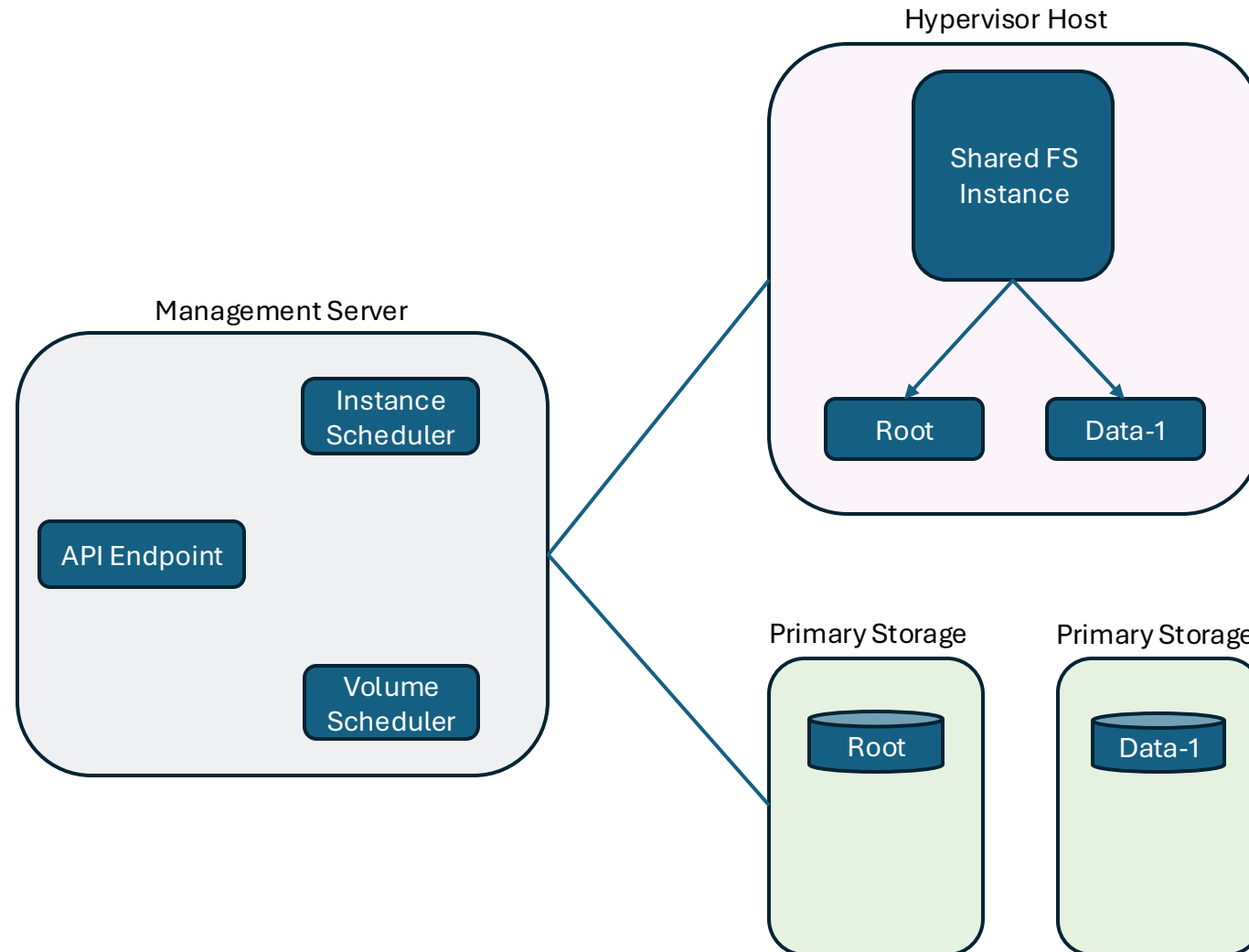


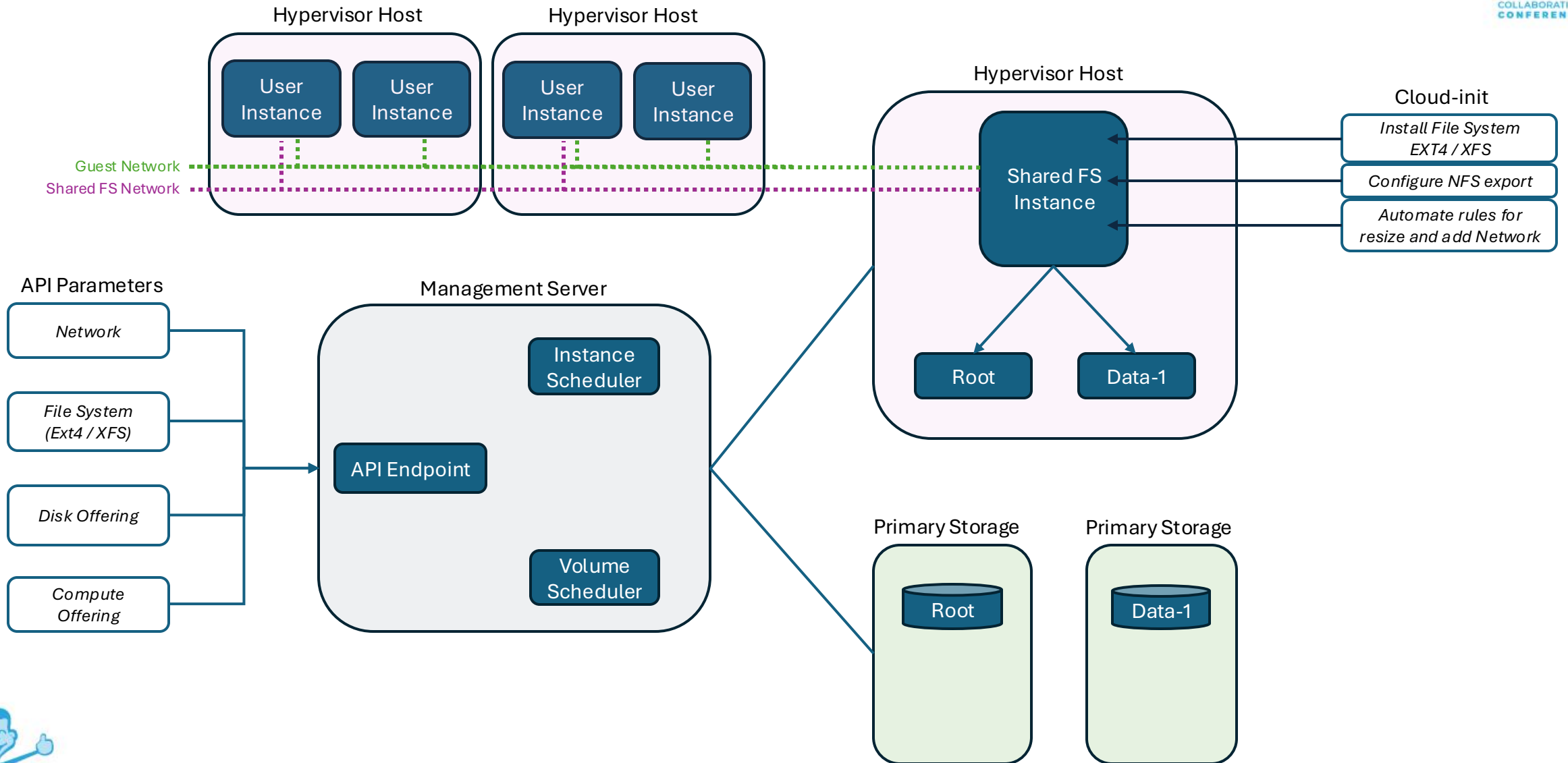
Framework – Plugin Model

*Releasing in 4.20*



# Architecture







# Features



NFS



Isolated / Shared /  
VPC Tier Networks



Volume  
Snapshots



Backup and  
Recovery



Hypervisor and  
Storage Agnostic



EXT4 / XFS  
Backend



Configurable  
Disk Offering



Storage Tags



Configurable  
Compute Offering



Highly Available



Usage / Billing



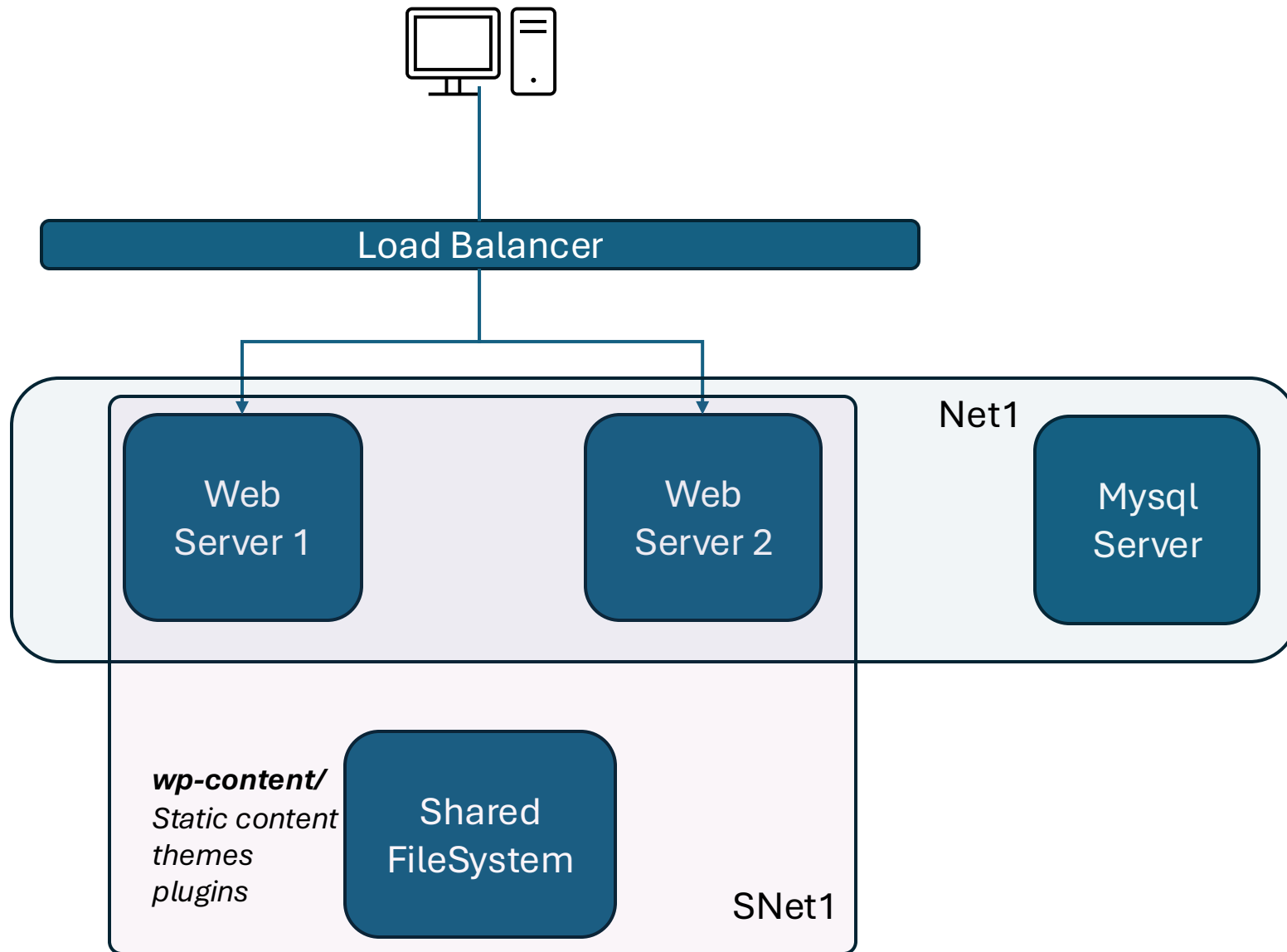
Resource Limits



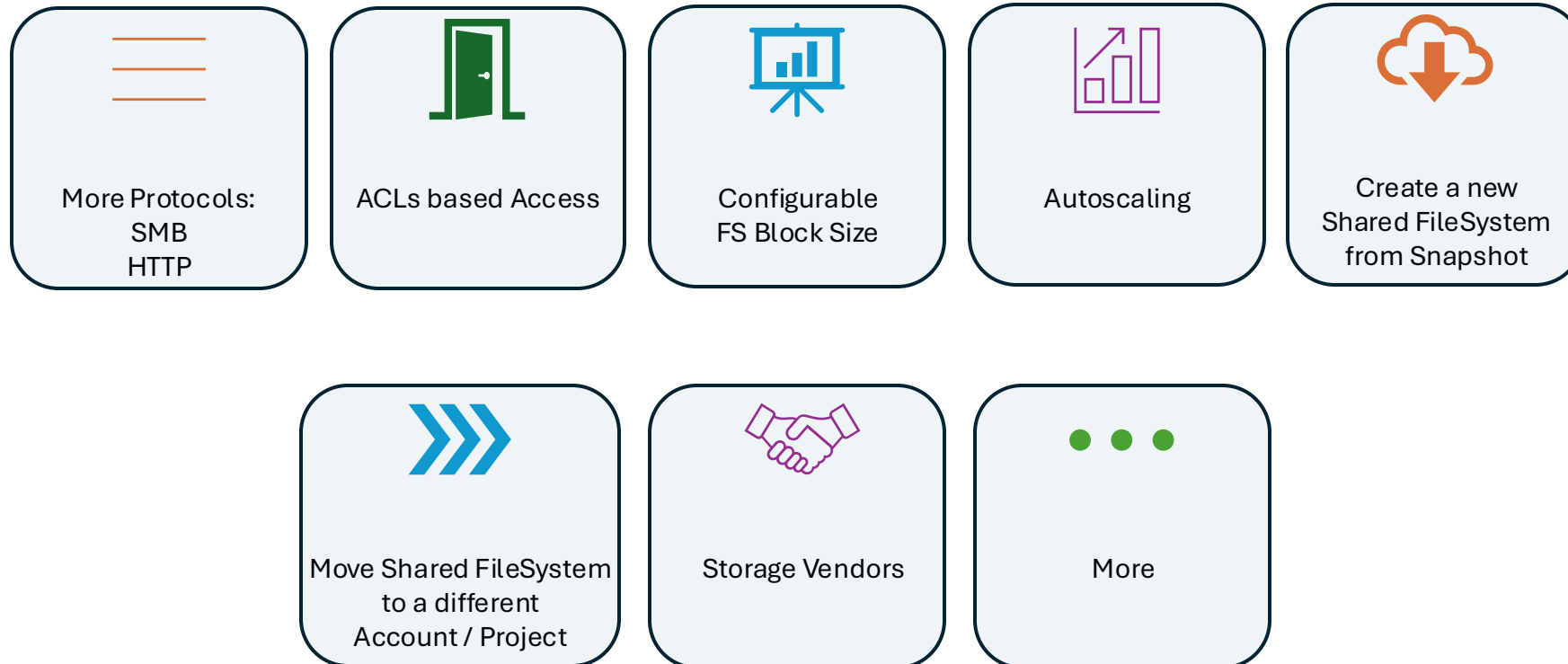
# Demo

Shared FileSystems





# The Way Forward..



# Questions?

#CSCollab24  
@CloudStack



# Thank you!

#CSCollab24  
@CloudStack



# Demo Screenshots

Shared FileSystems



Home / Instances ?

Refresh

Mine







Metrics

Projects

Add Instance +

Search



<input type="checkbox"/>	Name	State	IP Address	Compute offering	Zone	
<input type="checkbox"/>	 db-server	 Running	10.1.1.145	Medium Instance	ref-trl-7642-v-Mol8-abhisar-sinha	
<input type="checkbox"/>	 web-server-1	 Running	10.1.1.108	Medium Instance	ref-trl-7642-v-Mol8-abhisar-sinha	
<input type="checkbox"/>	 web-server-2	 Running	10.1.1.92	Medium Instance	ref-trl-7642-v-Mol8-abhisar-sinha	





10.0.57.103

Source NAT

Status  
● Allocated

ID  
 d30c346f-c773-4945-a3e5-5f3f149b19b8

IP address  
 10.0.57.103

Associated Network  
 Net1

Zone  
 ref-trl-7642-v-Mol8-abhisar-sinha

Account  
 ACSUser

Details Firewall Port forwarding Load balancing VPN Events Comments

\* Name  \* Public port  \* Private port

CIDR list  Algorithm Round-robin Protocol TCP AutoScale No Add Instances Add

<input type="checkbox"/>	Name	Public port	Private port	Algorithm	CIDR list	Protocol	State	Stickiness	Add Instances	AutoScale	Actions
<input type="checkbox"/>	Lb-1	80	80	Round-robin		TCP	Active	Configure	<span>+ Add</span>		
	web-server-1						10.1.1.108				
	web-server-2						10.1.1.92				

Total 1 items < 1 > 10 / page



## Add Network [?](#)



Isolated L2 Shared

\* Name [?](#)

SNet1

Description [?](#)

the display text of the network

\* Zone [?](#)

ref-trl-7642-v-Mol8-abhisar-sinha

Network domain [?](#)

network domain

\* Network offering [?](#)

Offering for Isolated networks with Source Nat service enabled

External Id [?](#)

ID of the network in an external system.

Gateway [?](#)

10.1.2.1

Netmask [?](#)

255.255.255.0

DNS 1 [?](#)

the first IPv4 DNS for the network

DNS 2 [?](#)

the second IPv4 DNS for the network

IPv4 address for the VR in this Network. [?](#)

IPV4 address to be assigned to the public interface of the network router. This address ...

Cancel

OK



<input type="checkbox"/>	Name	State	Type	VPC	IPv4 CIDR	IPv6 CIDR	Domain	Account	Zone
<input type="checkbox"/>	📦 SNet1	🟡 Allocated	Isolated		10.1.2.0/24		/	ACUser	<a href="#">ref-tr1-7642-v-Mol8-abhisar-sinha</a>
<input type="checkbox"/>	📦 Net1	🟢 Implemented	Isolated		10.1.1.0/24		/	ACUser	<a href="#">ref-tr1-7642-v-Mol8-abhisar-sinha</a>



- Dashboard
- Compute
- Storage
- Volumes
- Volume Snapshots
- Backups
- Buckets
- Shared FileSystems**
- Network
- Images
- Events
- Projects
- Accounts
- Zones
- Service offerings
- Tools
- API Docs

☰ Default view

🏠 / Shared FileSystems Refresh Metrics Projects

Create Shared FileSystem

🔍 Search

Name

Showing 0-0 of 0 items < 1 > 20 / page

### Create Shared FileSystem

\* Name

Description

\* Zone

Filesystem

\* Network

\* Disk offering

\* Compute offering for Instance





## SharedFS1

### Status

● Ready

### ID

 [7fd6704b-9880-4760-b4a0-17ad3e1b9d49](#)

### Disk size (in GB)

 5.00 GiB

### Network

 1 NIC(s)

 [eth0](#) [10.1.2.163](#)

 [SNet1](#)

### Instance name

 [246ab6da-16a4-40b7-a7f9-3e031177765c](#) ●

### Volume

 [DATA-26](#)

### Compute offering

 [SharedFS](#)

### Storage pool

 [ref-trl-7642-v-Mol8-abhisar-sinha-esxi-pri1](#)

Zone

### Details

#### Access

#### Networks

### Metrics

#### Events

### ID

7fd6704b-9880-4760-b4a0-17ad3e1b9d49

### Name

SharedFS1

### State

Ready

### Filesystem

XFS

### Disk offering

Small Disk, 5 GB

### Size

5.00 GiB

### Provisioning type

thin

### Utilisation

2.0%

### Disk read (KiB)

0

### Disk write (KiB)

0

### Disk read (IO)

0

### Disk write (IO)

0





## SharedFS1

### Status

● Ready

### ID

 [7fd6704b-9880-4760-b4a0-17ad3e1b9d49](#)

### Disk size (in GB)

 5.00 GiB

Details

Access

Networks

Metrics

Events

## Mount Shared FileSystem via NFS

### SNet1

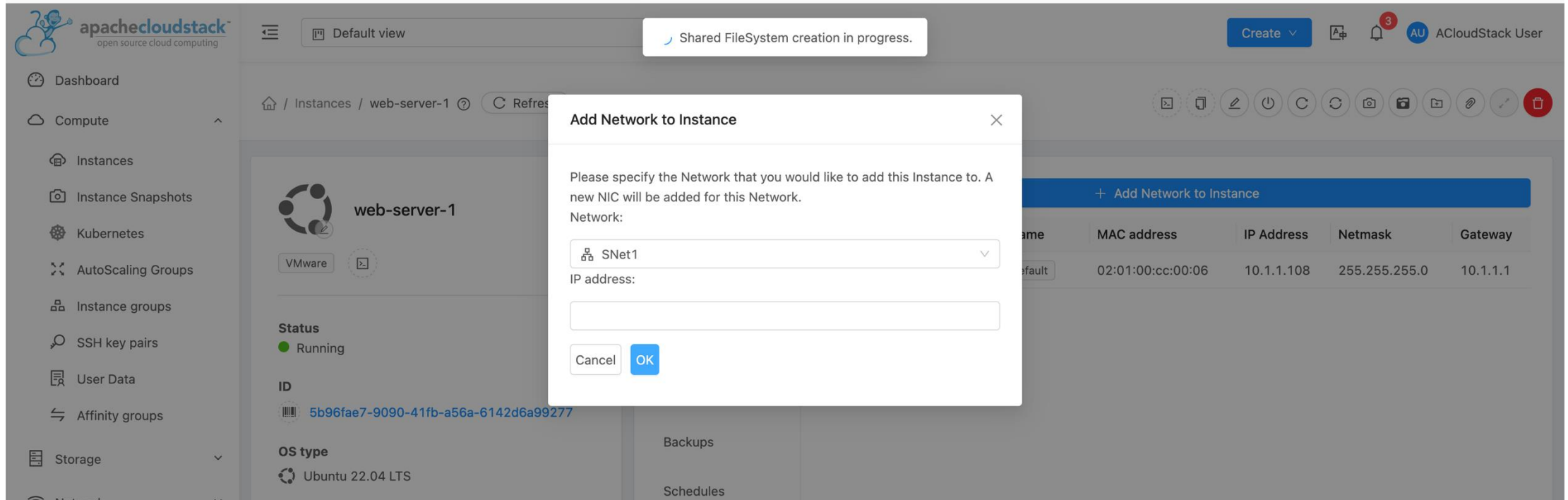
○ `mount -t nfs 10.1.2.163:/export [local_mount_path]`

*(Mount the NFS share. Additional mount options can be given as required.)*

○ `showmount -e 10.1.2.163`

*(Check the status of the NFS server using the showmount command.)*





The screenshot shows the Apache CloudStack management console. A modal dialog titled "Add Network to Instance" is open, prompting the user to specify a network for the instance "web-server-1". The dialog includes a dropdown menu for selecting a network (currently showing "SNet1") and a text input field for the IP address. The background interface shows the instance details, including its status as "Running", ID "5b96fae7-9090-41fb-a56a-6142d6a99277", and OS type "Ubuntu 22.04 LTS". A table of networks is also visible in the background.

Shared FileSystem creation in progress.

### Add Network to Instance

Please specify the Network that you would like to add this Instance to. A new NIC will be added for this Network.

Network:


SNet1

IP address:


Cancel OK

Name	MAC address	IP Address	Netmask	Gateway
default	02:01:00:cc:00:06	10.1.1.108	255.255.255.0	10.1.1.1







### web-server-1

VMware 

---

**Status**  
● Running

**ID**  
 5b96fae7-9090-41fb-a56a-6142d6a99277

**OS type**  
 Ubuntu 22.04 LTS

Details

Metrics

Volumes



**NICs**

Instance Snapshots

Backups

Schedules

+ Add Network to Instance

	Device ID	Network name	MAC address	IP Address	Netmask	Gateway
+	0	 Net1 <small>Default</small>	02:01:00:cc:00:06	10.1.1.108	255.255.255.0	10.1.1.1
+	1	 SNet1	02:01:00:d0:00:03	10.1.2.28	255.255.255.0	10.1.2.1





```
root@web-server-1:/var/www/html# ls wp-content
index.php  plugins  themes
root@web-server-1:/var/www/html# mv wp-content wp-content2
root@web-server-1:/var/www/html# mkdir wp-content
root@web-server-1:/var/www/html# mount -t nfs 10.1.2.163:/export wp-content
root@web-server-1:/var/www/html# df wp-content
Filesystem          1K-blocks  Used Available Use% Mounted on
10.1.2.163:/export  5177344 69120   5108224   2% /var/www/html/wp-content
root@web-server-1:/var/www/html# cp -r wp-content2/* wp-content/
root@web-server-1:/var/www/html# ls wp-content
index.php  plugins  themes
root@web-server-1:/var/www/html# █
```



```
-----  
root@web-server-2:/var/www/html# mount -t nfs 10.1.2.163:/export wp-content  
root@web-server-2:/var/www/html# ls wp-content  
index.php  plugins  themes  
root@web-server-2:/var/www/html# █
```



10.0.57.103

Source NAT

Status

● Allocated

ID

d30c346f-c773-4945-a3e5-5f3f149b19b8

IP address

10.0.57.103

Associated Network

Net1

Zone

ref-trl-7642-v-Mol8-abhisar-sinha

Account

ACSUser

Details Firewall Port forwarding Load balancing VPN Events Comments

\* Name  \* Public port  \* Private port

CIDR list  Algorithm Round-robin Protocol TCP AutoScale No Add Instances Add

<input type="checkbox"/>	Name	Public port	Private port	Algorithm	CIDR list	Protocol	State	Stickiness	Add Instances	AutoScale	Actions
<input type="checkbox"/>	Lb-1	80	80	Round-robin		TCP	Active	Configure	<span>+ Add</span>		
<span style="color: green;">●</span>	web-server-1						10.1.1.108				
<span style="color: green;">●</span>	web-server-2						10.1.1.92				

Total 1 items < 1 > 10 / page





English (United States)

Afrikaans

አማርኛ

Aragonés

العربية

العربية المغربية

অসমীয়া

گۆنئی آذربایجان

Azərbaycan dili

Беларуская мова

Български

বাংলা

བོད་ཡིག

Bosanski

Català

Cebuano

Čeština

Cymraeg

Dansk

Deutsch (Schweiz)

Deutsch

Continue



CloudStack 0 + New
Howdy, abhisar Help


- Dashboard
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- Tools
- Settings
- Collapse menu

## Themes 3

Add New Theme

Stories Blog About Us Our Mission Contact

Blog



**Marshland birds at the Lake Havasu National Wildlife Refuge**


Highly skilled and award-winning photographer Kristen Lee has pioneered underwater photography, creating a stunning series of images that capture the vibrant life beneath the waves, including those seen at John Pennington Coastal State Park, located a few miles off Key Largo. Kristen's work in this series is particularly notable for her ability to capture the intricate details of the underwater world, showcasing colorful coral formations, schools of fish, and the dynamic interplay of light filtering through the water. Kristen's ability to capture these scenes with authenticity and clarity brought the hidden wonders of the ocean to the public eye, earning a greater appreciation for marine conservation. Her images not only highlight the aesthetic beauty of underwater environments but

Active: Twenty Twenty-Five
Customize

A commitment to innovation and sustainability

Exudes is a pioneering firm that seamlessly merges creativity and functionality to redefine architectural excellence.

Learn More



Twenty Twenty-Four

Mindblown: a blog about philosophy.

Nicomachean Ethics by Aristotle

Aristotle's take on ethics and the science of the good for human life.

October 19, 2022

Tao Te Ching (Daodejing) by Lao Tzu

A classic, canon-defining emblem and adapted as a text in college and university courses.

October 19, 2022

I Am Because We Are by Fred L. Hord

A classic, canon-defining emblem and adapted as a text in college and university courses.

October 19, 2022

Got any book recommendations?

Get in Touch

Twenty Twenty-Three

+

Add New Theme

Search installed themes



CloudStack
0
+ New
Howdy, abhisar

- Dashboard
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- Collapse menu

Twenty Twenty-Four

Twenty Twenty-Two

Hello Elementor

Twenty Twenty-One

Astra

Kadence

Twenty Twenty-Three

OceanWP

Twenty Twenty

Twenty Twenty

Twenty Seventeen

Twenty Seventeen

Install
Preview

GeneratePress

GeneratePress

Neve

Neve



CloudStack 0 + New Howdy, abhisar

Dashboard Posts Add New Post

All (1) | Published (1) Search Posts

Bulk actions Apply All dates All Categories Filter 1 item

<input type="checkbox"/> Title	Author	Categories	Tags	Comments	Date
<input type="checkbox"/> Hello world!	abhisar	Uncategorized	—	1	Published 2024/11/22 at 4:59 am
<input type="checkbox"/> Title	Author	Categories	Tags	Comments	Date







# CCC24



Type / to choose a block



Post Block

Paragraph  
Start with the basic building block of all narrative.

Color

- Text
- Background

Typography

SIZE

- S
- M
- L
- XL

Advanced





### POSTS

NOVEMBER 22, 2024 EDIT

## CCC24



NOVEMBER 22, 2024 EDIT

## Hello world!

Welcome to WordPress. This is your first post. Edit or delete it, then start writing!

### Search

Search

### Recent Posts

CCC24

Hello world!

### Recent Comments

**A WordPress Commenter** on **Hello world!**

