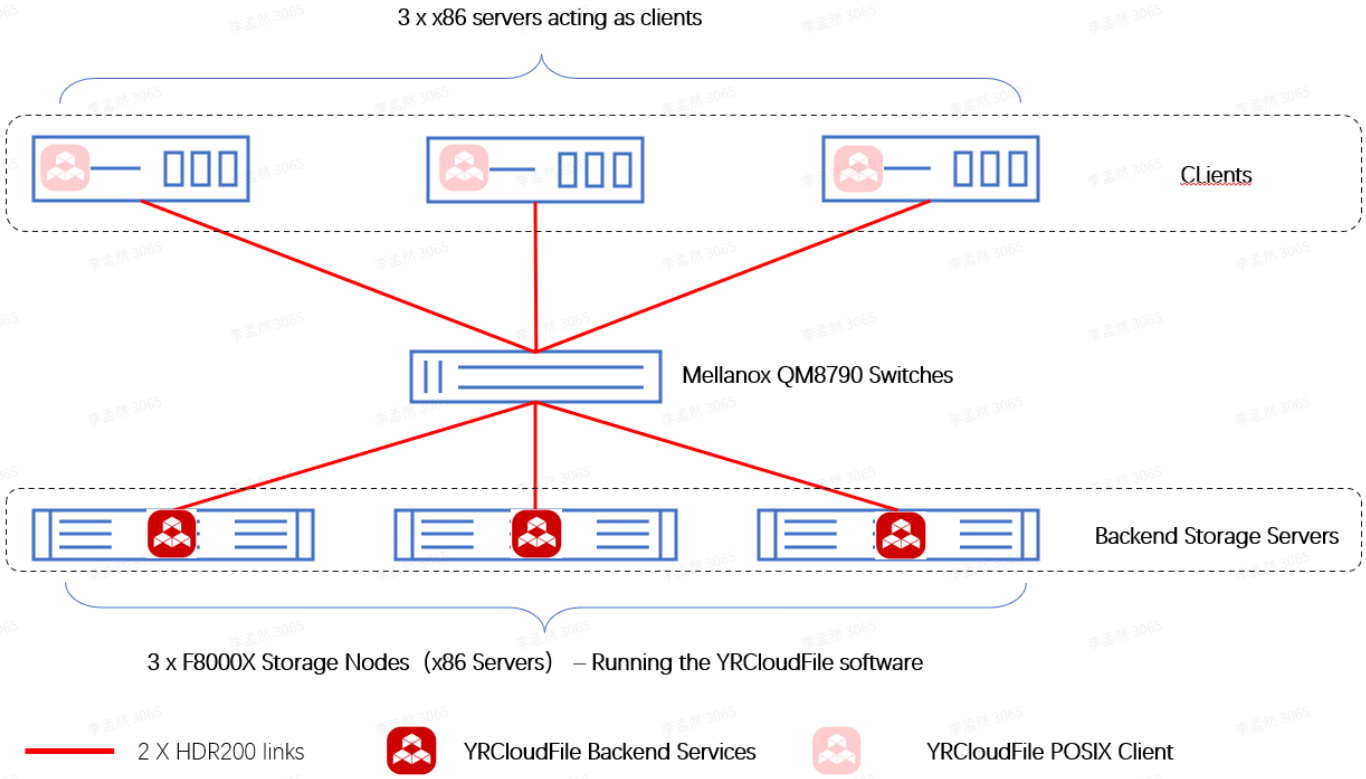
F8000X_8x7000GiB_nvme_2xHDR200_Nclients3

1. Hardware

The hardware is composed of three clients and three servers connected to the same switch.

Hardware Diagram



1.1 Client

The clients is a commercial x86 architecture server node with 2 CPU sockets and 256GiB of RAM based on AMD motherboard. All clients are congured the same (hw & sw).The clients communicate with the server through IB using the two links dedicated for storage.

The detailed configuration of the client is shown in the following table:

Client Node components	Configuration Description	Client Node Count
	• AMD EPYC 7642 48-Core Processor x 2	

Client CPU		3
Client Memory	• 256GB DDR4 3200	
Client OS Boot Drive	• 7000 GiB nvme SSD x 1	
Client network_type	• Mellanox CX6 Single-port HDR200 InfiniBand HCAs x 2	

1.2 Server

The server is a commercial YanRongTech F8000X appliance (storage), based on the x86 server architecture, using the YRCloudFile distributed file storage system.For this testing environment, the F8000X storage system consists of 3 storage server nodes. The configuration of each storage node includes: 1 x446GiB SATA SSD as the system OS drives, 2 x Memblaze 7940 7000 GiB NVMe SSDs as metadata drives, 8 x Memblaze 7940 7000 GiB NVMe SSDs as data drives, and 2x single-port CX6 200Gbps HDR InfiniBand Host Channel Adapters (HCAs).

The server communicate with the client through IB:

- 2x single-port HDR200 adapters for a total of 2x HDR200 links

The detailed configuration of the servers is shown in the following table：

Server Node components	**Configuration Description**	**Server Node Count**
Server CPU	• AMD EPYC 7543 32-Core Processor x 2	3
Server Memory	• 256GB DDR4 3200	
Server OS Boot Drive	• 446GiB SATA SSD x 1	
Metadata drives	• Memblaze 7940 7000 GiB nvme SSD x 2	
Data drives	• Memblaze 7940 7000 GiB nvme SSD x 8	
Server network_type	• Mellanox CX6 Single-port HDR200 InfiniBand HCAs x 2	

1.3 Switch

The switch is a commercial NVIDIA （Mellanox） QM8790 The client and server is connected to it.

2. Software

2.1 Client

The configuration of the client-side software is shown in the table below：

Software Type	Software Version
Client OS	Ubuntu 22.04
Client Kernel	5.5.0-104-generic
yrfs-client	YRCloudFile 6.10.5
Mellanox OFED version	MLNX_OFED_LINUX-23.10-2.1.3.1

2.2 Server

The configuration of the Server-side software is shown in the table below：

Software Type	Software Version
YRCloudFile OS	YRCloudFile 6.10.5
Storage Servers OS	CentOS Linux release 7.9.2009 (Core)
Storage Servers Kernel	5.3.18.20211010 x86_64 GNU/Linux
Mellanox OFED version	OFED-internal-5.4-3.4.0

3. Settings

3.1 Client

The standard yrfs-client（Version：YRCloudFile 6.10.5）is installed on the client using the default installation

procedure. yrfs-client is used for the client to access the remote YRCloudFile filesystem.

3.2 Server

For detailed configuration information about storage servers, see the table below：

storage_system	Description

vendor_name	YanRongTech
solution_name	YRCloudFile
model_name	F8000X
version	6.10.5
usable_capacity_GiB	81920
raw_capacity_GiB	163840

3.3 Switch

No tuning applied.

4. Configuration

4.1 Configure Direct IO

4.1.1 Client Configuration

Edit the configuration file /etc/yrfs/yrfs-client.conf

```
cluster_addr = 100.10.10.30,100.10.10.31,100.10.10.32
enable_cache = false
enable_multi_channel = true
timeout_sock_conn_ms = 100
nr_conn_socks_pernode = 512
rdma_mode=0
mnt_wait_timeout_ms = 1600
```

4.1.2 Storage Backend Configuration

Configure storage through the yrcli command line:

```
yrcli --config --type=oss --key=enable_read_cache --op=set --value=false
yrcli --config --type=oss --key=enable_dio_read --op=set --value=true
```