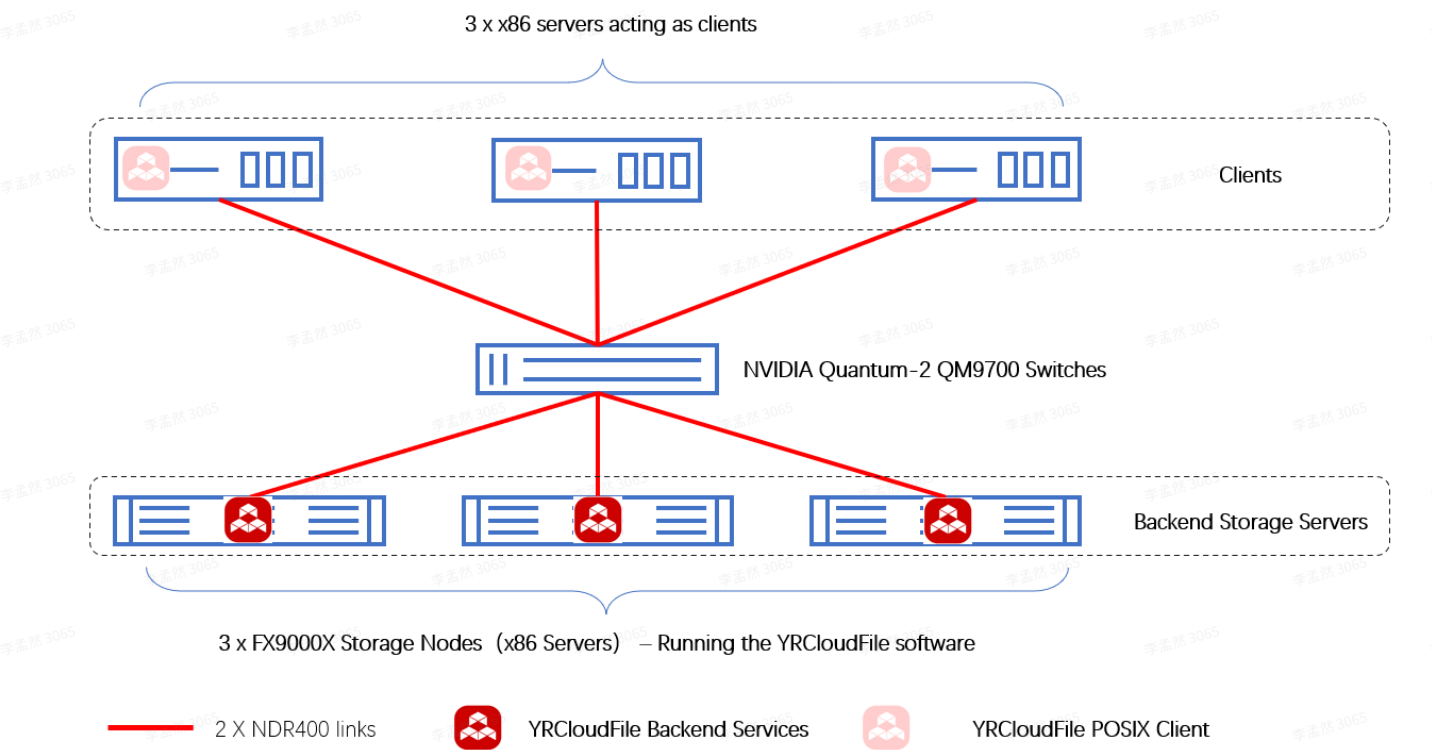# F9000X_10x7000GiB_nvme_2xNDR400_Nclients3

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 Intel 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
Client CPU	• INTEL(R) XEON(R) PLATINUM 8558 x 2	3
Client Memory	• 256GB DDR5 5600	

| Client OS Boot Drive | • 446GiB nvme SSD x 2 | |
| Client network_type | • Mellanox CX7 Single-port NDR400 InfiniBand HCAs x 2 | |

1.2 Server

The server is a commercial YanRongTech F9000X appliance (storage), based on the x86 server architecture, using the YRCloudFile distributed file storage system.For this testing environment, the F9000X storage system consists of 3 storage server nodes. The configuration of each storage node includes: 1 x 446GiB SATA SSD as the system OS drives, 2 x Intel P5620 1536 GiB NVMe SSDs as metadata drives, 10 x Memblaze 7940 7000 GiB NVMe SSDs as data drives, and 2 x single-port CX7 400Gbps NDR InfiniBand HCAs.

The server communicate with the client through IB:

• 2x single-port NDR400 adapters for a total of 2x NDR400 links

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

Server Node components	Configuration Description	Server Node Count
Server CPU	• Intel(R) Xeon(R) Gold 6430 x 2	3
Server Memory	• 256GB DDR4 4800	
Server OS Boot Drive	• 446GiB SATA SSD x 1	
Metadata drives	• Intel P5620 1536 GiB nvme SSD x 2	
Data drives	• Memblaze 7940 7000 GiB nvme SSD x 10	
Server network_type	• Mellanox CX7 Single-port NDR400 InfiniBand HCAs x 2	

1.3 Switch

The switch is a commercial NVIDIA （Mellanox） QM9700 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	F9000X
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

```
1  cluster_addr = 100.10.10.30,100.10.10.31,100.10.10.32
2  enable_cache = false
3  enable_multi_channel = true
4  timeout_sock_conn_ms = 100
5  nr_conn_socks_pernode = 512
6  rdma_mode=0
7  mnt_wait_timeout_ms = 1600
```

4.1.2 Storage Backend Configuration

Configure storage through the yrcli command line:

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