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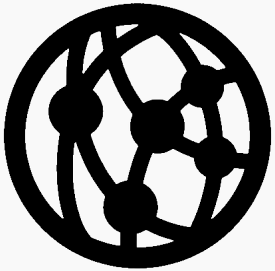

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"New Approach to Memory Hierarchy: Connecting Swap Space over the Network"

Developers: Viren Sachdev, Andy Pacheco, Aleksandr Ulitin

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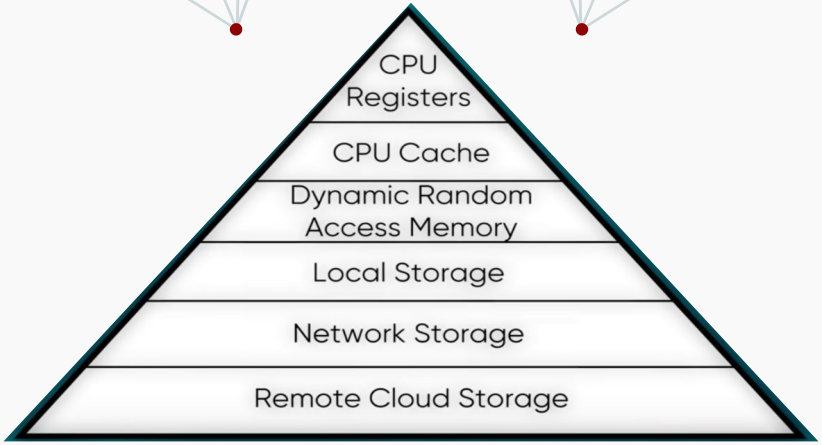
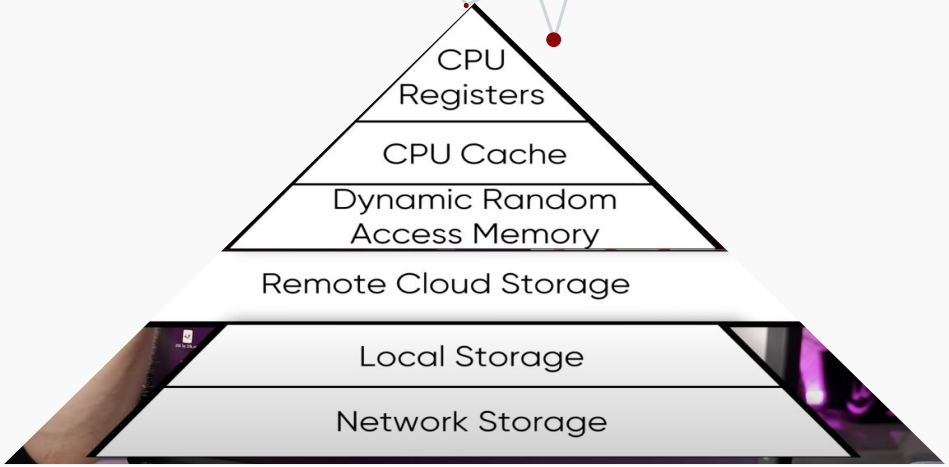
Mission and Purpose

Memory hierarchy is a critical component of modern computer systems. One important layer of the memory hierarchy is swap space, which is a reserved area of a hard disk or other storage device that is used to temporarily store data that cannot be held in RAM. In this project, we present a new approach to memory hierarchy that involves connecting swap space over the network to increase processing power and physical resources. We propose a new product that enables the sharing of swap space over the network, allowing multiple computers to share resources and greatly increase processing power and physical resources. By leveraging the power of multiple computers, our product can help reduce processing times and improve the overall performance of computing systems. Our approach is particularly suited for use in distributed computing environments, where resources may be spread across different locations. We present a detailed design and implementation of our product, along with experimental results that demonstrate its effectiveness in increasing processing power and physical resources. Our product offers a new approach to memory hierarchy that can help to overcome many of the limitations of traditional memory hierarchy, and enable the development of more powerful and efficient computing systems.



Memory Hierarchy



Memory Hierarchy Manipulated

Automation and Scripting

gui.py 1 ● | gui_test_1.py 1 | Reciever_Script.py ×

Reciever_Script.py > ...

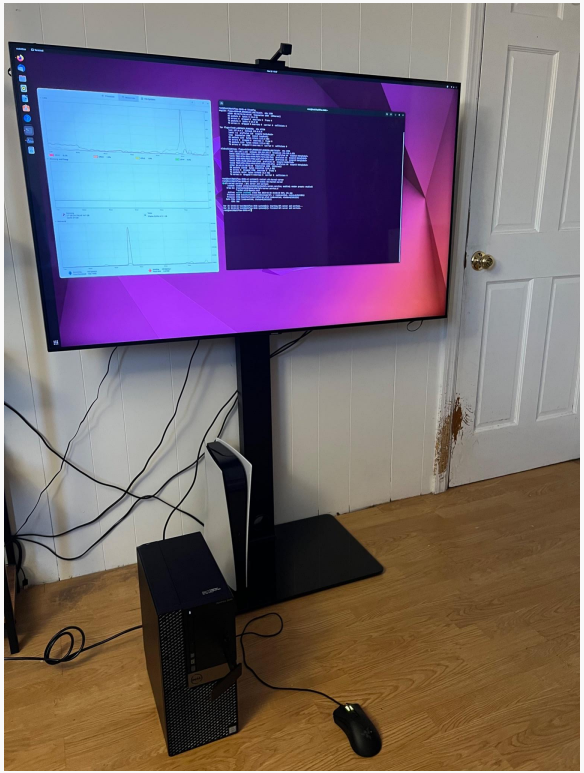
```python
import os

#Getting machines IP addresses
os.system("sudo sh -c \"ifconfig wlxbca5112641aa | awk '/inet / {print $2}'
os.system("cat /ip_address.txt")
ip_addr = input("Enter IP address: ")


#NFS server instalation
#os.system('echo "Y" | sudo apt update')
os.system('echo "Y" | sudo apt-get install nfs-kernel-server nfs-common')
os.system("sudo systemctl restart nfs-kernel-server")

#Creation Shared Folder
os.system("sudo mkdir /swap_mount")
os.system("sudo chmod 777 /swap_mount")

#Mounting to Sender
os.system(f'sudo mount {ip_addr}:/swap_share /swap_mount')
os.system("sudo swapon /swap_mount/swapfile_network")

#Exit
#os.system("exit")
```

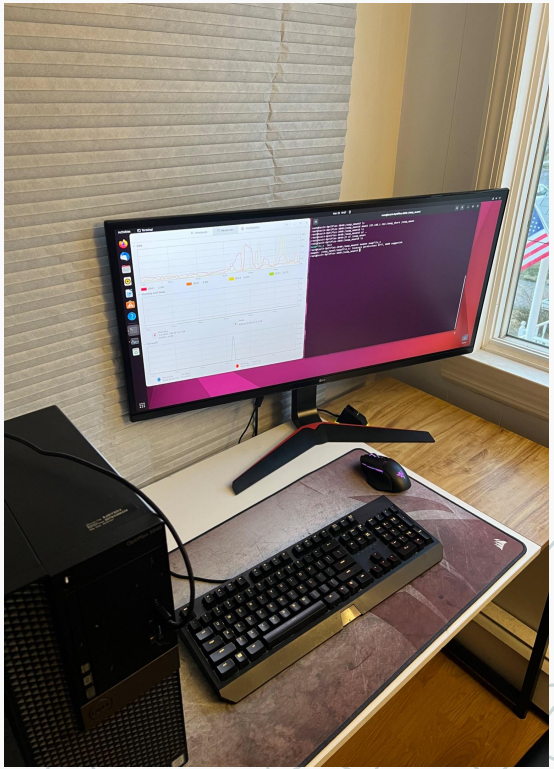
Reset_Reciever.py | Sender_Script.py ×

Sender_Script.py > ...

```python
import os

#Getting machines IP addresses
os.system('sudo sh -c "ifconfig | grep -oP \'(?<=inet\s)\d+(\.\d+){3}\' | he
os.system("cat /ip_address.txt")
ip_addr = input("Enter IP address: ")

#NFS server instalation
#os.system('echo "Y" | sudo apt update')
os.system('echo "Y" | sudo apt-get install nfs-kernel-server nfs-common')
os.system("sudo systemctl restart nfs-kernel-server")

#Creation Shared Folder
os.system("sudo mkdir /swap_share")
os.system("sudo chmod 777 /swap_share")

#Exports file edit
os.system(f'sudo sh -c "echo \'/swap_share {ip_addr}(rw,sync,no_subtree_chec
os.system("sudo systemctl restart nfs-kernel-server")

#Swapfile
os.system("sudo fallocate -l 4G /swapfile_network")
os.system("sudo chmod 600 /swapfile_network")
os.system("sudo mkswap /swapfile_network")
os.system("sudo mv /swapfile_network /swap_share/")
os.system("sudo chmod 777 /swap_share/swapfile_network")

#Exit
#os.system("exit")
```

DEMO





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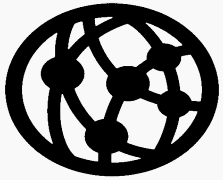
Questions?



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Thanks!