Lampiran 1: Kode Program Main_script.sh

```bash
#!/bin/bash

###INPUT VARIABLE
maxhvm=80
date=`date`
migration=`cat /home/Script/migration.txt | head -n 1`
###GET CPU & MEMORY LOAD
cpuload=`cat /home/Script/hvmload.txt | head -n 1`
bufcach=`free | awk 'FNR==3 {print $3}'`
memtot=`free | awk 'FNR==2 {print $2}'`
let memload=$bufcach*100/$memtot
######
hvm2=`cat /home/Script/hvm2.txt | head -n 1`
hvm3=`cat /home/Script/hvm3.txt | head -n 1`
sleep 1
if [ $hvm2 -eq 0 ]&&[ $hvm3 -eq 0 ];then
    data1=`cat /home/Script/virttop1.txt | head -n 1 | tail -1`
    data2=`cat /home/Script/virttop1.txt | head -n 2 | tail -1`
    data3=`cat /home/Script/virttop1.txt | head -n 3 | tail -1`
    data4=`cat /home/Script/virttop1.txt | head -n 4 | tail -1`
    data5=`cat /home/Script/virttop1.txt | head -n 5 | tail -1`
    data6=`cat /home/Script/virttop1.txt | head -n 6 | tail -1`
elif [ $hvm2 -eq 1 ]&&[ $hvm3 -eq 0 ];then
    data1=`cat /home/Script/virttop1.txt | head -n 1 | tail -1`
    data2=`cat /home/Script/virttop1.txt | head -n 2 | tail -1`
    data3=`cat /home/Script/virttop1.txt | head -n 3 | tail -1`
    data4=`cat /home/Script/virttop1.txt | head -n 4 | tail -1`
    data5=`cat /var/lib/libvirt/images/kvmshared/virttop2.txt | head -n 1 | tail
-1`
    data6=`cat /var/lib/libvirt/images/kvmshared/virttop2.txt | head -n 2 | tail
-1`
elif [ $hvm2 -eq 0 ]&&[ $hvm3 -eq 1 ];then
    data1=`cat /home/Script/virttop1.txt | head -n 1 | tail -1`
    data2=`cat /home/Script/virttop1.txt | head -n 2 | tail -1`
    data3=`cat /home/Script/virttop1.txt | head -n 3 | tail -1`
    data4=`cat /home/Script/virttop1.txt | head -n 4 | tail -1`
    data5=`cat /var/lib/libvirt/images/kvmshared/virttop3.txt | head -n 1 | tail
-1`
    data6=`cat /var/lib/libvirt/images/kvmshared/virttop3.txt | head -n 2 | tail
-1`
elif [ $hvm2 -eq 1 ]&&[ $hvm3 -eq 1 ];then
    data1=`cat /home/Script/virttop1.txt | head -n 1 | tail -1`
    data2=`cat /home/Script/virttop1.txt | head -n 2 | tail -1`
    data3=`cat /var/lib/libvirt/images/kvmshared/virttop2.txt | head -n 1 | tail
-1`
    data4=`cat /var/lib/libvirt/images/kvmshared/virttop2.txt | head -n 2 | tail
-1`
    data5=`cat /var/lib/libvirt/images/kvmshared/virttop3.txt | head -n 1 | tail
-1`
    data6=`cat /var/lib/libvirt/images/kvmshared/virttop3.txt | head -n 2 | tail
-1`
fi
######
if [ $data1 == "server1" ];then
    vm1load=$data2
    if [ $data3 == "server2" ];then
        vm2load=$data4
        vm3load=$data6
    elif [ $data5 == "server2" ];then
        vm2load=$data6
        vm3load=$data4
    fi
elif [ $data1 == "server2" ];then
    vm2load=$data2
    if [ $data3 == "server1" ];then
        vm1load=$data4
        vm3load=$data6
```

```
    elif [ $data5 == "server1" ];then
        vm1load=$data6
        vm3load=$data4
    fi
elif [ $data1 == "server3" ];then
    vm3load=$data2
    if [ $data3 == "server2" ];then
        vm2load=$data4
        vm1load=$data6
    elif [ $data5 == "server2" ];then
        vm2load=$data6
        vm1load=$data4
    fi
fi
######
vm1load=${vm1load/.*}
vm2load=${vm2load/.*}
vm3load=${vm3load/.*}

###MAIN PROCESS
if [ $migration -eq 0 ];then
    if [ $cpuload -gt $maxhvm ];then
        totalvm=`virsh list | awk 'END{print NR-3}'`
        if [ $totalvm -eq 3 ];then
            if [ $vm1load -gt $vm2load ];then
                if [ $vm1load -gt $vm3load ];then
                    vmtarget=1
                else
                    vmtarget=3
                fi
            elif [ $vm2load -gt $vm3load ];then
                vmtarget=2
            else
                vmtarget=3
            fi
            #ether-wake 10:78:D2:CB:8F:AB
            #sleep 15
            echo "$vmtarget" > '/home/Script/hvm2vm.txt'
            echo "2" > '/home/Script/hvmon.txt'
            echo "$vmtarget" > '/home/Script/vmmigrate.txt'
            echo "1" > '/home/Script/migration.txt'
            echo "1" > '/home/Script/hvm2.txt'
            echo "2" > '/home/Script/totalvm.txt'
            echo -en $date "\tMIGRASI (VM"$vmtarget" KE HVM2)\t\tHVM1 CPU =
"$cpuload"%\tHVM1 MEM = "$memload"%\t\tVM1 LOAD = "$vm1load"%\tVM2 LOAD =
"$vm2load"%\tVM3 LOAD = "$vm3load"%\n" >> '/home/Script/log.txt'
            if [ $vmtarget -eq 1 ];then
                virsh migrate --live server1 qemu+ssh://kvmnode2.localdomain/system
            elif [ $vmtarget -eq 2 ];then
                virsh migrate --live server2 qemu+ssh://kvmnode2.localdomain/system
            elif [ $vmtarget -eq 3 ];then
                virsh migrate --live server3 qemu+ssh://kvmnode2.localdomain/system
            fi
            exit

        elif [ $totalvm -eq 2 ];then
            vmmigrate=`cat /home/Script/vmmigrate.txt | head -n 1`
            if [ $vmmigrate -eq 1 ];then
                if [ $vm2load -gt $vm3load ];then
                    vmtarget=2
                else
                    vmtarget=3
                fi
            elif [ $vmmigrate -eq 2 ];then
                if [ $vm1load -gt $vm3load ];then
                    vmtarget=1
                else
                    vmtarget=3
                fi
            else
                if [ $vm1load -gt $vm2load ];then
                    vmtarget=1
```

```
            else
                vmtarget=2
            fi
        fi
        hvmon=`cat /home/Script/hvmon.txt | head -n 1`
        if [ $hvmon -eq 2 ];then
            #ether-wake 10:78:D2:C6:E6:C8
            #sleep 15
            echo -en $date "\tMIGRASI (VM"$vmtarget" KE HVM3)\t\tHVM1 CPU =
"$cpuload"%\tHVM1 MEM = "$memload"%\t\tVM1 LOAD = "$vm1load"%\tVM2 LOAD =
"$vm2load"%\tVM3 LOAD = "$vm1load"%\n" >> '/home/Script/log.txt'
            echo "$vmtarget" > '/home/Script/hvm3vm.txt'
            echo "1" > '/home/Script/hvm3.txt'
            echo $vmtarget > '/home/Script/vmmigrate2.txt'
            echo "1" > '/home/Script/migration.txt'
            echo "1" > '/home/Script/totalvm.txt'
            virsh          migrate          --live          server$vmtarget
qemu+ssh://kvmnode3.localdomain/system
        elif [ $hvmon -eq 3 ];then
            #ether-wake 10:78:D2:CB:8F:AB
            #sleep 15
            echo -en $date "\tMIGRASI (VM"$vmtarget" KE HVM2)\t\tHVM1 CPU =
"$cpuload"%\tHVM1 MEM = "$memload"%\t\tVM1 LOAD = "$vm1load"%\tVM2 LOAD =
"$vm2load"%\tVM3 LOAD = "$vm1load"%\n" >> '/home/Script/log.txt'
            echo "$vmtarget" > '/home/Script/hvm2vm.txt'
            echo "1" > '/home/Script/hvm2.txt'
            echo $vmtarget > '/home/Script/vmmigrate2.txt'
            echo "1" > '/home/Script/migration.txt'
            echo "1" > '/home/Script/totalvm.txt'
            virsh          migrate          --live          server$vmtarget
qemu+ssh://kvmnode2.localdomain/system
        fi
        exit

    elif [ $totalvm -eq 1 ];then
        echo -en $date "\tTIDAK ADA MIGRASI (1VM)\t\tHVM1 CPU =
"$cpuload"%\tHVM1 MEM = "$memload"%\t\tVM1 LOAD = "$vm1load"%\tVM2 LOAD =
"$vm2load"%\tVM3 LOAD = "$vm3load"%\n" >> '/home/Script/log.txt'
        exit
    fi

  else
      totalvm=`virsh list | awk 'END{print NR-3}'`
      echo -en "TotalVM = "$totalvm"\n\n"
      if [ $totalvm -eq 3 ];then
        echo -en $date "\tTIDAK ADA MIGRASI (3VM)\t\tHVM1 CPU =
"$cpuload"%\tHVM1 MEM = "$memload"%\t\tVM1 LOAD = "$vm1load"%\tVM2 LOAD =
"$vm2load"%\tVM3 LOAD = "$vm3load"%\n" >> '/home/Script/log.txt'
        exit

    elif [ $totalvm -eq 2 ];then
        hvmon=`cat /home/Script/hvmon.txt | head -n 1`
        vmmigrate=`cat /home/Script/vmmigrate.txt | head -n 1`
        let vmtotal=$vm1load+$vm2load+$vm3load
        if [ $vmtotal -gt $maxhvm ];then
            echo -en $date "\tTIDAK ADA MIGRASI (2VM)\t\tHVM1 CPU =
"$cpuload"%\tHVM1 MEM = "$memload"%\t\tVM1 LOAD = "$vm1load"%\tVM2 LOAD =
"$vm2load"%\tVM3 LOAD = "$vm3load"%\n" >> '/home/Script/log.txt'
            exit
        else
            echo -en $date "\tREMIGRASI (VM"$vmmigrate" KE HVM1)\t\tHVM1 CPU =
"$cpuload"%\tHVM1 MEM = "$memload"%\t\tVM1 LOAD = "$vm1load"%\tVM2 LOAD =
"$vm2load"%\tVM3 LOAD = "$vm3load"%\n" >> '/home/Script/log.txt'
            echo "3" > '/home/Script/totalvm.txt'
            echo "1" > '/home/Script/migration.txt'
            echo "0" > '/home/Script/hvm'$hvmon'.txt'
            virsh  --connect  qemu+ssh://kvmnode$hvmon.localdomain/system  \
migrate --live server$vmmigrate qemu+ssh:///system
            #sleep 15
            #ssh root@kvmnode$hvmon.localdomain pm-suspend
            exit
        fi
```

```
        elif [ $totalvm -eq 1 ];then
            vmmigrate=`cat /home/Script/vmmigrate.txt | head -n 1`
            vmmigrate2=`cat /home/Script/vmmigrate2.txt | head -n 1`
            hvm2vm=`cat /home/Script/hvm2vm.txt | head -n 1`
            hvm3vm=`cat /home/Script/hvm3vm.txt | head -n 1`
            if [ $vmmigrate -eq 1 ]&&[ $vmmigrate2 -eq 2 ];then
                vmload=$vm1load
                vmload2=$vm2load
                vmload3=$vm3load
            elif [ $vmmigrate -eq 1 ]&&[ $vmmigrate2 -eq 3 ];then
                vmload=$vm1load
                vmload2=$vm3load
                vmload3=$vm2load
            elif [ $vmmigrate -eq 2 ]&&[ $vmmigrate2 -eq 1 ];then
                vmload=$vm2load
                vmload2=$vm1load
                vmload3=$vm3load
            elif [ $vmmigrate -eq 2 ]&&[ $vmmigrate2 -eq 3 ];then
                vmload=$vm2load
                vmload2=$vm3load
                vmload3=$vm1load
            elif [ $vmmigrate -eq 3 ]&&[ $vmmigrate2 -eq 1 ];then
                vmload=$vm3load
                vmload2=$vm1load
                vmload3=$vm2load
            elif [ $vmmigrate -eq 3 ]&&[ $vmmigrate2 -eq 2 ];then
                vmload=$vm3load
                vmload2=$vm2load
                vmload3=$vm1load
            fi
            let vmtotal_1=$vmload3+$vmload
            let vmtotal_2=$vmload3+$vmload2
            if [ $vmtotal_1 -lt $maxhvm ];then

                if [ $vmmigrate -eq 1 ]&&[ $vmmigrate2 -eq 2 ];then
                    echo "2" > '/home/Script/vmmigrate.txt'
                elif [ $vmmigrate -eq 1 ]&&[ $vmmigrate2 -eq 3 ];then
                    echo "3" > '/home/Script/vmmigrate.txt'
                elif [ $vmmigrate -eq 2 ]&&[ $vmmigrate2 -eq 1 ];then
                    echo "1" > '/home/Script/vmmigrate.txt'
                elif [ $vmmigrate -eq 2 ]&&[ $vmmigrate2 -eq 3 ];then
                    echo "3" > '/home/Script/vmmigrate.txt'
                elif [ $vmmigrate -eq 3 ]&&[ $vmmigrate2 -eq 1 ];then
                    echo "1" > '/home/Script/vmmigrate.txt'
                elif [ $vmmigrate -eq 3 ]&&[ $vmmigrate2 -eq 2 ];then
                    echo "2" > '/home/Script/vmmigrate.txt'
                fi
                echo -en $date "\tREMIGRASI (VM"$vmmigrate" KE HVM1)\t\tHVM1 CPU =
"$cpuload"%\tHVM1  MEM  =  "$memload"%\t\tVM1  LOAD  =  "$vm1load"%\tVM2  LOAD  =
"$vm2load"%\tVM3 LOAD = "$vm3load"%\n" >> '/home/Script/log.txt'
                if [ $hvm2vm -eq $vmmigrate ];then
                    echo "0" > '/home/Script/hvm2.txt'
                    echo "2" > '/home/Script/totalvm.txt'
                    echo "1" > '/home/Script/migration.txt'
                    echo "3" > '/home/Script/hvmon.txt'
                    virsh --connect qemu+ssh://kvmnode2.localdomain/system \ migrate
--live server$vmmigrate qemu+ssh:///system
                    #sleep 15
                    #ssh root@kvmnode2.localdomain pm-suspend
                    exit
                else
                    echo "0" > '/home/Script/hvm3.txt'
                    echo "2" > '/home/Script/hvmon.txt'
                    echo "2" > '/home/Script/totalvm.txt'
                    echo "1" > '/home/Script/migration.txt'
                    virsh --connect qemu+ssh://kvmnode3.localdomain/system \ migrate
--live server$vmmigrate qemu+ssh:///system
                    #sleep 15
                    #ssh root@kvmnode3.localdomain pm-suspend
                    exit
                fi
```

```bash
                exit
          elif [ $vmtotal_2 -lt $maxhvm ];then
            if [ $vmmigrate2 -eq 1 ]&&[ $vmmigrate -eq 2 ];then
              echo "2" > '/home/Script/vmmigrate.txt'
            elif [ $vmmigrate2 -eq 1 ]&&[ $vmmigrate -eq 3 ];then
              echo "3" > '/home/Script/vmmigrate.txt'
            elif [ $vmmigrate2 -eq 2 ]&&[ $vmmigrate -eq 1 ];then
              echo "1" > '/home/Script/vmmigrate.txt'
            elif [ $vmmigrate2 -eq 2 ]&&[ $vmmigrate -eq 3 ];then
              echo "3" > '/home/Script/vmmigrate.txt'
            elif [ $vmmigrate2 -eq 3 ]&&[ $vmmigrate -eq 1 ];then
              echo "1" > '/home/Script/vmmigrate.txt'
            elif [ $vmmigrate2 -eq 3 ]&&[ $vmmigrate -eq 2 ];then
              echo "2" > '/home/Script/vmmigrate.txt'
            fi
            echo -en $date "\tREMIGRASI (VM"$vmmigrate2" KE HVM1)\t\tHVM1 CPU =
"$cpuload"%\tHVM1 MEM = "$memload"%\t\tVM1 LOAD = "$vm1load"%\tVM2 LOAD =
"$vm2load"%\tVM3 LOAD = "$vm3load"%\n" >> '/home/Script/log.txt'
            if [ $hvm2vm -eq $vmmigrate2 ];then
                echo "0" > '/home/Script/hvm2.txt'
                echo "3" > '/home/Script/hvmon.txt'
                echo "2" > '/home/Script/totalvm.txt'
                echo "1" > '/home/Script/migration.txt'
                virsh --connect qemu+ssh://kvmnode2.localdomain/system \ migrate
--live server$vmmigrate2 qemu+ssh:///system
                #sleep 15
                #ssh root@kvmnode2.localdomain pm-suspend
                exit
            else
                echo "0" > '/home/Script/hvm3.txt'
                echo "2" > '/home/Script/hvmon.txt'
                echo "2" > '/home/Script/totalvm.txt'
                echo "1" > '/home/Script/migration.txt'
                virsh --connect qemu+ssh://kvmnode3.localdomain/system \ migrate
--live server$vmmigrate2 qemu+ssh:///system
                #sleep 15
                #ssh root@kvmnode3.localdomain pm-suspend
                exit
            fi
            exit
        fi
        echo   -en   $date   "\tTIDAK   ADA   MIGRASI   (1VM)\t\tHVM1   CPU   =
"$cpuload"%\tHVM1 MEM = "$memload"%\t\tVM1 LOAD = "$vm1load"%\tVM2 LOAD =
"$vm2load"%\tVM3 LOAD = "$vm3load"%\n" >> '/home/Script/log.txt'
        exit
     fi
  fi

elif [ $migration -eq 1 ];then
   echo -en $date "\tPROSES PERPINDAHAN BERJALAN\tHVM1 CPU = "$cpuload"%\tHVM1
MEM = "$memload"%\n" >> '/home/Script/log.txt'
   echo "2" > '/home/Script/migration.txt'
   exit

elif [ $migration -eq 2 ];then
   echo -en $date "\tPROSES PERPINDAHAN BERJALAN\tHVM1 CPU = "$cpuload"%\tHVM1
MEM = "$memload"%\n" >> '/home/Script/log.txt'
   echo "0" > '/home/Script/migration.txt'
   exit

fi
```

Lampiran 2: Pengujian Skenario Satu

Skenario Satu Percobaan Satu

Menit	Proses	HVM 1 CPU *Load* (%)	HVM 2 CPU *Load* (%)	HVM 3 CPU *Load* (%)	VM1 CPU *Load* (%)	VM2 CPU *Load* (%)	VM3 CPU *Load* (%)
1	HVM1 (3VM)	8	0	0	2	2	2
2	HVM1 (3VM)	60	0	0	57	1	1
3	HVM1 (3VM)	60	0	0	55	1	1
4	HVM1 (3VM)	59	0	0	54	1	1
5	HVM1 (3VM)	59	1	0	56	1	1
6	HVM1 (3VM)	58	0	0	54	1	1
7	HVM1 (3VM)	59	0	0	55	1	1
8	HVM1 (3VM)	58	0	0	54	1	1
9	HVM1 (3VM)	58	0	0	55	1	1
10	HVM1 (3VM)	58	0	0	54	1	1
11	HVM1 (3VM)	58	0	0	54	1	1
12	HVM1 (3VM)	9	0	0	2	2	2

Skenario Satu Percobaan Dua

Menit	Proses	HVM 1 CPU *Load* (%)	HVM 2 CPU *Load* (%)	HVM 3 CPU *Load* (%)	VM1 CPU *Load* (%)	VM2 CPU *Load* (%)	VM3 CPU *Load* (%)
1	HVM1 (3VM)	8	0	0	2	2	2
2	HVM1 (3VM)	56	0	0	54	1	1
3	HVM1 (3VM)	59	0	0	56	1	1
4	HVM1 (3VM)	57	0	2	53	1	1
5	HVM1 (3VM)	61	0	0	57	1	1
6	HVM1 (3VM)	62	0	0	58	1	1
7	HVM1 (3VM)	58	0	0	54	1	1
8	HVM1 (3VM)	61	0	0	57	1	1
9	HVM1 (3VM)	61	0	1	56	1	1

Menit	Proses	HVM1 CPU Load (%)	HVM2 CPU Load (%)	HVM3 CPU Load (%)	VM1 CPU Load (%)	VM2 CPU Load (%)	VM3 CPU Load (%)
10	HVM1 (3VM)	56	0	0	51	1	1
11	HVM1 (3VM)	59	0	0	55	1	1
12	HVM1 (3VM)	11	0	0	2	2	2

Skenario Satu Percobaan Tiga

Menit	Proses	HVM 1 CPU Load (%)	HVM 2 CPU Load (%)	HVM 3 CPU Load (%)	VM1 CPU Load (%)	VM2 CPU Load (%)	VM3 CPU Load (%)
1	HVM1 (3VM)	9	0	0	2	2	2
2	HVM1 (3VM)	58	0	0	56	1	1
3	HVM1 (3VM)	61	0	0	57	1	1
4	HVM1 (3VM)	62	0	0	58	1	1
5	HVM1 (3VM)	62	0	0	59	1	1
6	HVM1 (3VM)	61	0	0	58	1	1
7	HVM1 (3VM)	61	0	0	58	1	1
8	HVM1 (3VM)	61	0	0	58	1	1
9	HVM1 (3VM)	60	2	0	56	1	1
10	HVM1 (3VM)	57	0	0	53	1	1
11	HVM1 (3VM)	62	0	0	59	1	1
12	HVM1 (3VM)	10	0	1	2	2	2

Skenario Satu Percobaan Empat

Menit	Proses	HVM 1 CPU Load (%)	HVM 2 CPU Load (%)	HVM 3 CPU Load (%)	VM1 CPU Load (%)	VM2 CPU Load (%)	VM3 CPU Load (%)
1	HVM1 (3VM)	8	0	0	2	2	2
2	HVM1 (3VM)	60	0	0	58	1	1
3	HVM1 (3VM)	61	0	0	57	1	1
4	HVM1 (3VM)	58	0	0	53	1	1
5	HVM1 (3VM)	62	0	0	59	1	1
6	HVM1 (3VM)	63	0	0	59	1	1

Menit	Proses	HVM1 CPU Load (%)	HVM2 CPU Load (%)	HVM3 CPU Load (%)	VM1 CPU Load (%)	VM2 CPU Load (%)	VM3 CPU Load (%)
7	HVM1 (3VM)	61	0	0	58	1	1
8	HVM1 (3VM)	62	1	0	59	1	1
9	HVM1 (3VM)	63	0	0	60	1	1
10	HVM1 (3VM)	62	0	0	59	1	1
11	HVM1 (3VM)	64	1	0	60	1	1
12	HVM1 (3VM)	11	0	0	2	2	2

Skenario Satu Percobaan Lima

Menit	Proses	HVM1 CPU Load (%)	HVM2 CPU Load (%)	HVM3 CPU Load (%)	VM1 CPU Load (%)	VM2 CPU Load (%)	VM3 CPU Load (%)
1	HVM1 (3VM)	8	0	0	2	2	2
2	HVM1 (3VM)	58	1	0	56	1	1
3	HVM1 (3VM)	59	0	0	55	1	1
4	HVM1 (3VM)	60	0	0	57	1	1
5	HVM1 (3VM)	58	0	0	54	1	1
6	HVM1 (3VM)	59	0	0	55	1	1
7	HVM1 (3VM)	59	0	0	56	1	1
8	HVM1 (3VM)	58	0	0	55	1	1
9	HVM1 (3VM)	58	0	0	55	1	1
10	HVM1 (3VM)	58	0	0	54	1	1
11	HVM1 (3VM)	61	0	0	58	1	1
12	HVM1 (3VM)	12	0	0	3	2	2

Jmeter *Summary Report* Skenario Satu Klien Satu

Percobaan	Samples	Std. Dev	Error (%)	Throughput	KB/sec	Avg. Bytes
1	547893	50.93	0.58%	910.6/sec	317.11	356.6
2	558247	50.53	1.70%	931.3/sec	339.44	373.2
3	573783	53.17	0.72%	962.5/sec	337.22	358.8
4	580089	54.08	0.44%	964.8/sec	334.08	354.6
5	544303	48.21	0.01%	906.9/sec	308.35	348.2

Lampiran 3: Pengujian Skenario Dua

Skenario Dua Percobaan Satu

Menit	Proses	HVM 1 CPU Load (%)	HVM 2 CPU Load (%)	HVM 3 CPU Load (%)	VM1 CPU Load (%)	VM2 CPU Load (%)	VM3 CPU Load (%)
1	HVM1 (3VM)	9	0	0	2	2	0
2	MIGRASI VM1→HVM2	83	32	0	41	40	0
3	PERPINDAHAN	60	58	0	-	-	-
4	PERPINDAHAN	57	58	0	-	-	-
5	HVM1 (2VM)	58	58	1	58	56	1
6	HVM1 (2VM)	58	57	0	59	56	1
7	HVM1 (2VM)	58	58	0	57	56	1
8	HVM1 (2VM)	56	58	0	59	54	1
9	HVM1 (2VM)	57	56	0	59	54	1
10	HVM1 (2VM)	58	54	0	57	56	1
11	HVM1 (2VM)	57	6	0	54	55	1
12	REMIGRASI VM1	7	4	0	3	2	2
13	PERPINDAHAN	7	0	0	-	-	-
14	PERPINDAHAN	7	0	0	-	-	-
15	HVM1 (3VM)	7	0	0	2	2	2

Skenario Dua Percobaan Dua

Menit	Proses	HVM 1 CPU Load (%)	HVM 2 CPU Load (%)	HVM 3 CPU Load (%)	VM1 CPU Load (%)	VM2 CPU Load (%)	VM3 CPU Load (%)
1	HVM1 (3VM)	7	0	0	2	2	2
2	MIGRASI VM1→HVM2	85	27	0	44	42	0
3	PERPINDAHAN	64	64	0	-	-	-
4	PERPINDAHAN	67	37	0	-	-	-
5	REMIGRASI VM1	44	41	0	36	38	1

Menit	Proses	HVM1 CPU Load (%)	HVM2 CPU Load (%)	HVM3 CPU Load (%)	VM1 CPU Load (%)	VM2 CPU Load (%)	VM3 CPU Load (%)
6	PERPINDAHAN	70	0	0	-	-	-
7	PERPINDAHAN	88	0	0	-	-	-
8	MIGRASI VM2→HVM2	81	27	0	39	41	0
9	PERPINDAHAN	62	66	0	-	-	-
10	PERPINDAHAN	66	57	0	-	-	-
11	HVM1 (2VM)	39	2	0	35	58	1
12	REMIGRASI VM2	9	3	0	5	2	2
13	PERPINDAHAN	11	0	0	-	-	-
14	PERPINDAHAN	9	0	0	-	-	-
15	HVM1 (3VM)	9	0	0	1	1	2

Skenario Dua Percobaan Tiga

Menit	Proses	HVM 1 CPU Load (%)	HVM 2 CPU Load (%)	HVM 3 CPU Load (%)	VM1 CPU Load (%)	VM2 CPU Load (%)	VM3 CPU Load (%)
1	HVM1 (3VM)	10	0	0	1	1	2
2	MIGRASI VM2→HVM2	84	24	0	39	44	0
3	PERPINDAHAN	65	65	0	-	-	-
4	PERPINDAHAN	66	43	0	-	-	-
5	HVM1 (2VM)	42	65	0	39	43	1
6	HVM1 (2VM)	59	49	0	59	66	1
7	HVM1 (2VM)	41	57	0	38	50	1
8	HVM1 (2VM)	66	54	0	65	58	1
9	HVM1 (2VM)	55	62	0	53	56	1
10	HVM1 (2VM)	63	47	0	63	63	1
11	HVM1 (2VM)	42	0	0	39	47	1
12	REMIGRASI VM2	8	4	1	5	2	2
13	PERPINDAHAN	10	0	0	-	-	-
14	PERPINDAHAN	6	0	0	-	-	-
15	HVM1 (3VM)	5	0	0	2	1	2

Skenario Dua Percobaan Empat

Menit	Proses	HVM 1 CPU Load (%)	HVM 2 CPU Load (%)	HVM 3 CPU Load (%)	VM1 CPU Load (%)	VM2 CPU Load (%)	VM3 CPU Load (%)
1	HVM1 (3VM)	5	0	0	2	1	2
2	HVM1 (3VM)	79	0	0	37	47	0
3	MIGRASI VM1→HVM2	87	20	0	44	40	0
4	PERPINDAHAN	64	64	0	-	-	-
5	PERPINDAHAN	70	27	0	-	-	-
6	HVM1 (2VM)	60	64	0	25	56	1
7	HVM1 (2VM)	60	36	0	65	58	1
8	HVM1 (2VM)	59	65	1	35	59	1
9	HVM1 (2VM)	53	38	0	65	51	1
10	HVM1 (2VM)	63	64	2	38	62	1
11	HVM1 (2VM)	55	4	0	66	53	1
12	REMIGRASI VM1	3	2	0	3	2	2
13	PERPINDAHAN	6	0	0	-	-	-
14	PERPINDAHAN	9	0	0	-	-	-
15	HVM1 (3VM)	9	0	0	2	2	2

Skenario Dua Percobaan Lima

Menit	Proses	HVM 1 CPU Load (%)	HVM 2 CPU Load (%)	HVM 3 CPU Load (%)	VM1 CPU Load (%)	VM2 CPU Load (%)	VM3 CPU Load (%)
1	HVM1 (3VM)	8	0	0	2	2	2
2	MIGRASI VM2→HVM2	85	13	0	42	43	0
3	PERPINDAHAN	59	67	0	-	-	-
4	PERPINDAHAN	67	35	0	-	-	-
5	REMIGRASI VM2	38	52	0	33	33	1
6	PERPINDAHAN	66	0	0	-	-	-

7	PERPINDAHAN	89	0	0	-	-	-
8	MIGRASI VM2→HVM2	86	11	0	40	42	0
9	PERPINDAHAN	60	65	0	-	-	-
10	PERPINDAHAN	68	42	0	-	-	-
11	HVM1 (2VM)	33	2	0	28	66	1
12	REMIGRASI VM2	10	6	0	4	41	2
13	PERPINDAHAN	12	0	1	-	-	-
14	PERPINDAHAN	11	0	0	-	-	-
15	HVM1 (3VM)	8	0	0	2	2	2

Jmeter *Summary Report* Skenario Dua Klien Satu

Percobaan	Samples	Std. Dev	Error (%)	Throughput	KB/sec	Avg. Bytes
1	555035	85.00	0.66%	919.9/sec	321.41	357.8
2	393036	164.63	4.03%	653.5/sec	260.32	407.9
3	561803	93.32	6.18%	936.2/sec	402.14	439.9
4	511303	120.75	5.75%	854.8/sec	361.76	433.4
5	373467	162.35	5.29%	624.1/sec	260.01	426.6

Jmeter *Summary Report* Skenario Dua Klien Dua

Percobaan	Samples	Std. Dev	Error (%)	Throughput	KB/sec	Avg. Bytes
1	447441	103.17	0.00%	750.7/sec	256.59	350.0
2	409520	162.97	2.55%	680.5/sec	255.22	384.0
3	595308	99.49	5.15%	989.8/sec	404.62	418.6
4	516922	125.12	3.42%	863.0/sec	333.37	395.6
5	384991	171.28	3.89%	641.4/sec	251.74	401.9

Lampiran 4: Pengujian Skenario Tiga

Skenario Tiga Percobaan Satu

Menit	Proses	HVM 1 CPU *Load* (%)	HVM 2 CPU *Load* (%)	HVM 3 CPU *Load* (%)	VM1 CPU *Load* (%)	VM2 CPU *Load* (%)	VM3 CPU *Load* (%)
1	HVM1 (3VM)	6	0	0	1	2	2
2	MIGRASI VM3→HVM2	92	17	0	31	31	46
3	PERPINDAHAN	83	32	0	-	-	-
4	PERPINDAHAN	85	38	0	-	-	-
5	MIGRASI VM2→HVM3	93	40	12	41	48	41
6	PERPINDAHAN	64	40	66	-	-	-
7	PERPINDAHAN	66	40	58	-	-	-
8	REMIGRASI VM3	37	20	57	32	58	40
9	PERPINDAHAN	73	0	54	-	-	-
10	PERPINDAHAN	90	0	55	-	-	-
11	MIGRASI VM1→HVM2	87	5	5	49	55	49
12	PERPINDAHAN	11	7	0	-	-	-
13	PERPINDAHAN	3	9	0	-	-	-
14	REMIGRASI VM2	3	12	3	2	2	2
15	PERPINDAHAN	4	8	0	-	-	-
16	PERPINDAHAN	5	5	0	-	-	-
17	REMIGRASI VM1	4	3	0	2	1	1
18	PERPINDAHAN	10	0	0	-	-	-
19	PERPINDAHAN	14	0	0	-	-	-
20	HVM1 (3VM)	14	0	0	2	1	1

Skenario Tiga Percobaan Dua

Menit	Proses	HVM 1 CPU Load (%)	HVM 2 CPU Load (%)	HVM 3 CPU Load (%)	VM1 CPU Load (%)	VM2 CPU Load (%)	VM3 CPU Load (%)
1	HVM1 (3VM)	14	0	0	2	1	1
2	MIGRASI VM3→HVM2	93	18	0	29	30	32
3	PERPINDAHAN	81	42	0	-	-	-
4	PERPINDAHAN	86	42	0	-	-	-
5	MIGRASI VM2→HVM3	87	42	9	40	46	40
6	PERPINDAHAN	58	42	67	-	-	-
7	PERPINDAHAN	67	41	49	-	-	-
8	REMIGRASI VM3	37	31	66	31	48	41
9	PERPINDAHAN	69	0	50	-	-	-
10	PERPINDAHAN	90	0	64	-	-	-
11	MIGRASI VM1→HVM2	90	1	10	47	65	47
12	PERPINDAHAN	16	1	8	-	-	-
13	PERPINDAHAN	3	2	6	-	-	-
14	REMIGRASI VM2	3	0	9	2	2	2
15	PERPINDAHAN	3	2	0	-	-	-
16	PERPINDAHAN	3	0	0	-	-	-
17	REMIGRASI VM1	3	2	0	2	2	2
18	PERPINDAHAN	10	0	0	-	-	-
19	PERPINDAHAN	9	0	0	-	-	-
20	HVM1 (3VM)	7	0	0	2	2	2

Skenario Tiga Percobaan Tiga

Menit	Proses	HVM 1 CPU Load (%)	HVM 2 CPU Load (%)	HVM 3 CPU Load (%)	VM1 CPU Load (%)	VM2 CPU Load (%)	VM3 CPU Load (%)
1	HVM1 (3VM)	8	0	0	2	2	2
2	MIGRASI VM2→HVM2	93	3	0	34	38	25
3	PERPINDAHAN	74	66	0	-	-	-
4	PERPINDAHAN	90	58	1	-	-	-
5	MIGRASI VM1→HVM3	89	61	6	47	62	47
6	PERPINDAHAN	50	63	65	-	-	-
7	PERPINDAHAN	43	62	46	-	-	-
8	HVM1 (1VM)	43	66	58	47	64	38
9	HVM1 (1VM)	43	57	37	60	67	40
10	REMIGRASI VM1	42	59	45	37	60	39
11	PERPINDAHAN	45	10	0	-	-	-
12	PERPINDAHAN	8	0	0	-	-	-
13	REMIGRASI VM2	3	2	0	2	2	2
14	PERPINDAHAN	8	0	0	-	-	-
15	PERPINDAHAN	10	0	0	-	-	-
16	HVM1 (3VM)	10	0	0	2	2	1
17	HVM1 (3VM)	11	0	0	2	2	1
18	HVM1 (3VM)	11	0	0	2	2	1
19	HVM1 (3VM)	11	0	0	2	2	1
20	HVM1 (3VM)	10	2	3	2	2	1

Skenario Tiga Percobaan Empat

Menit	Proses	HVM 1 CPU *Load* (%)	HVM 2 CPU *Load* (%)	HVM 3 CPU *Load* (%)	VM1 CPU *Load* (%)	VM2 CPU *Load* (%)	VM3 CPU *Load* (%)
1	HVM1 (3VM)	11	0	0	2	2	1
2	MIGRASI VM1→HVM2	92	2	3	37	29	32
3	PERPINDAHAN	74	65	1	-	-	-
4	PERPINDAHAN	85	36	1	-	-	-
5	MIGRASI VM2→HVM3	87	64	4	38	48	38
6	PERPINDAHAN	45	41	64	-	-	-
7	PERPINDAHAN	42	63	61	-	-	-
8	HVM1 (1VM)	42	43	61	64	65	39
9	HVM1 (1VM)	42	61	46	45	64	40
10	HVM1 (1VM)	42	39	54	62	48	39
11	HVM1 (1VM)	42	2	13	42	56	40
12	REMIGRASI VM1	6	4	7	2	7	3
13	PERPINDAHAN	3	0	6	-	-	-
14	PERPINDAHAN	7	0	4	-	-	-
15	REMIGRASI VM2	5	0	3	2	2	2
16	HVM1 (3VM)	8	0	0	-	-	-
17	HVM1 (3VM)	8	0	0	-	-	-
18	HVM1 (3VM)	17	0	0	2	2	2
19	HVM1 (3VM)	17	0	0	1	2	2
20	HVM1 (3VM)	20	0	0	1	2	1

Skenario Tiga Percobaan Lima

Menit	Proses	HVM 1 CPU *Load* (%)	HVM 2 CPU *Load* (%)	HVM 3 CPU *Load* (%)	VM1 CPU *Load* (%)	VM2 CPU *Load* (%)	VM3 CPU *Load* (%)
1	HVM1 (3VM)	20	0	0	1	2	1
2	MIGRASI VM1→HVM2	94	2	0	33	32	26
3	PERPINDAHAN	75	59	0	-	-	-
4	PERPINDAHAN	90	47	0	-	-	-
5	MIGRASI VM2→HVM3	89	53	2	52	46	52
6	PERPINDAHAN	51	48	56	-	-	-
7	PERPINDAHAN	41	49	62	-	-	-
8	HVM1 (1VM)	44	50	54	51	66	40
9	HVM1 (1VM)	43	52	56	54	57	39
10	HVM1 (1VM)	44	56	53	55	59	42
11	HVM1 (1VM)	41	0	8	61	54	39
12	REMIGRASI VM1	5	3	0	2	8	2
13	PERPINDAHAN	3	0	1	-	-	-
14	PERPINDAHAN	4	0	1	-	-	-
15	REMIGRASI VM2	3	0	6	2	2	2
16	HVM1 (3VM)	14	0	1	-	-	-
17	HVM1 (3VM)	14	0	0	-	-	-
18	HVM1 (3VM)	12	0	0	2	1	1
19	HVM1 (3VM)	10	0	0	1	1	1
20	HVM1 (3VM)	9	0	0	1	1	1

Jmeter *Summary Report* Skenario Tiga Klien Satu

Percobaan	*Samples*	*Std. Dev*	*Error (%)*	*Throughput*	*KB/sec*	*Avg. Bytes*
1	281278	233.81	3.36%	468.6/sec	182.10	397.9
2	275483	232.35	3.54%	463.8/sec	181.48	400.7
3	376330	162.66	5.17%	629.7/sec	261.29	414.9
4	549609	121.66	5.94%	916.5/sec	390.41	436.2
5	546906	121.61	5.51%	912.2/sec	382.99	429.9

Jmeter *Summary Report* Skenario Tiga Klien Dua

Percobaan	*Samples*	*Std. Dev*	*Error (%)*	*Throughput*	*KB/sec*	*Avg. Bytes*
1	401919	265.46	2.69%	669.9/sec	252.47	385.9
2	406419	177.46	2.60%	672.8/sec	252.74	384.7
3	595922	114.91	1.53%	980.1/sec	354.55	370.4
4	433288	156.04	2.77%	719.9/sec	272.08	387.0
5	422553	160.27	2.73%	698.9/sec	263.75	386.4

Jmeter *Summary Report* Skenario Tiga Klien Tiga

Percobaan	*Samples*	*Std. Dev*	*Error (%)*	*Throughput*	*KB/sec*	*Avg. Bytes*
1	1044853	74.95	0.00%	1741.0/sec	601.13	353.6
2	1038404	74.22	0.00%	1722.5/sec	594.80	353.6
3	974693	76.57	0.00%	1636.8/sec	565.14	353.6
4	1025355	70.55	0.00%	1721.5/sec	594.40	353.6
5	958707	70.27	0.00%	1606.6/sec	554.74	353.6