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GVP HSG Pages

Performance Comparison of Different Virtual Machines Configurations

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Overall CPU usage on a physical server beyond peak port capacity is actually higher than overall CPU usage on virtual machines, while audio quality actually shows a quick downfall on a physical server. So the splitting the load into multiple MCPs in a VM environment will definitely take advantage of hardware resources and will achieve high port capacity with fewer audio quality concerns. There are three different VM configurations on the same hardware spec (counting the dual hex cores, 12 vCPUs in total) that are used for this purpose:

- 3 VMs in total, 4 vCPU are assigned to each VM, only one MCP installed on one VM.
- 4 VMs in total, 3 vCPU are assigned to each VM, only one MCP installed on one VM.
- 6 VMs in total, 2 vCPU are assigned to each VM, only one MCP installed on one VM.

The graph below compares overall system CPU usage.

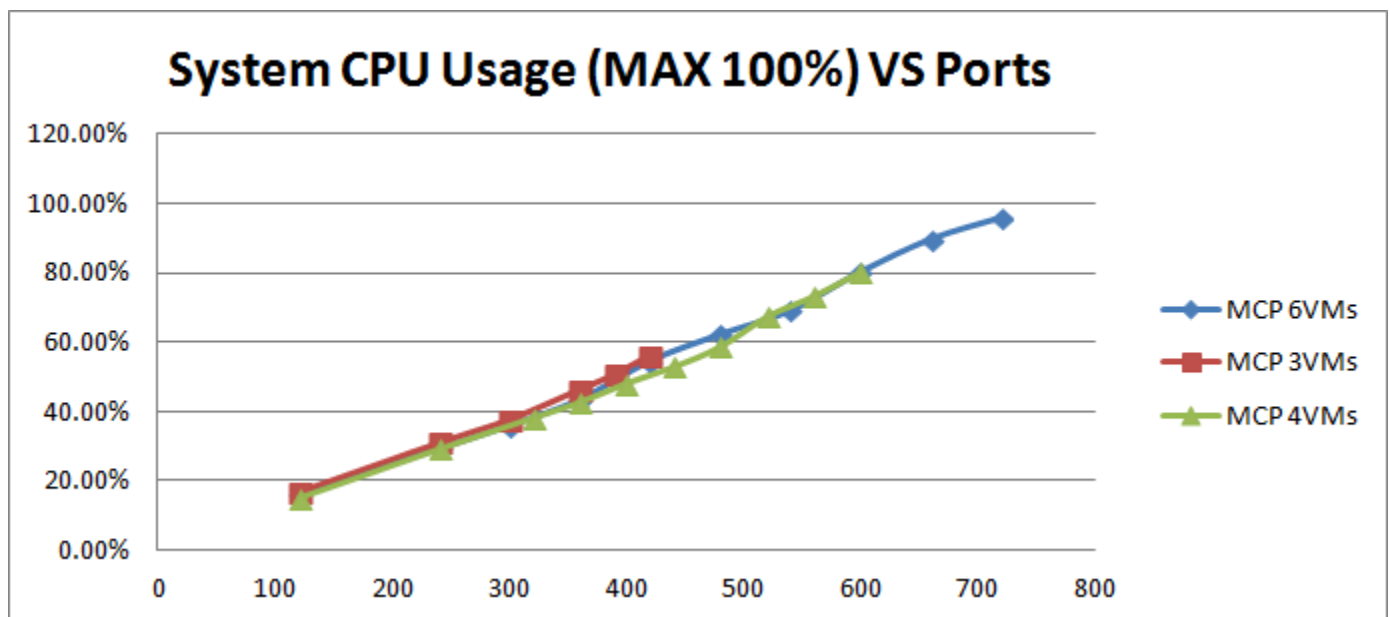


Figure 14: Comparison of System CPU Usage among different VMs configurations

Overall CPU usage scales linearly against port capacity, regardless of how many VMs are configured.

The two graphs below compare RTP stream quality related Max Jitter and Max Delta on these three different VM configurations:

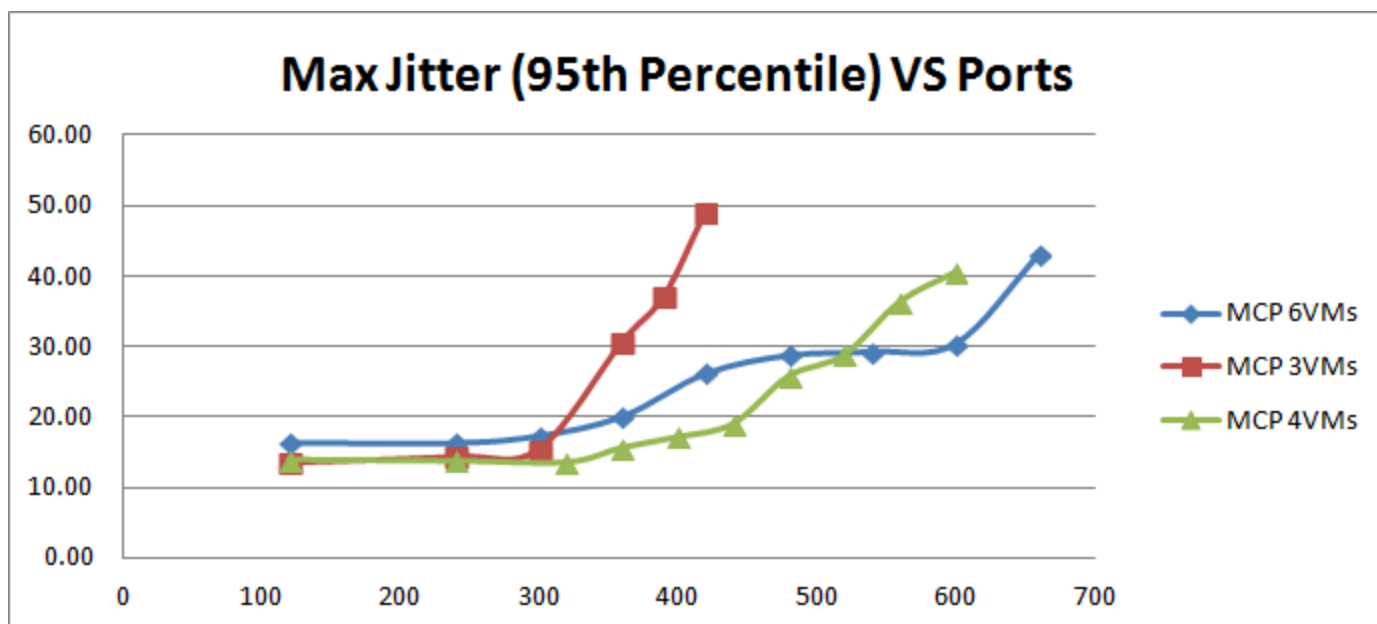


Figure 15: Comparison of Max Jitter among different VM configurations

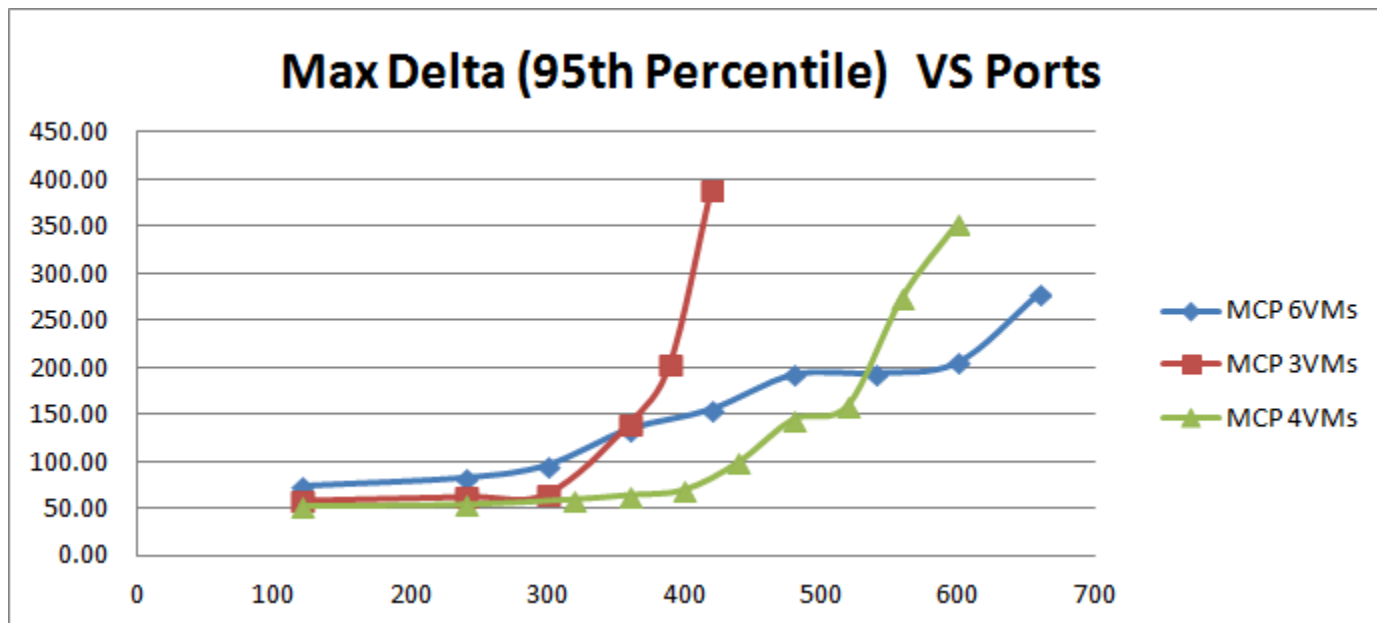


Figure 16: Comparison of Max Delta among different VM configurations

To achieve higher port capacity, configure more VMs and assign less vCPU to each VM. With audio quality criteria considered, Genesys recommends 600 ports as peak for six VM configurations. Six VMs with two vCPUs for each VM is the optimal configuration.

Below is the table of IOPS for 6 VM configurations:

Table: Disk IOPS of sum of all 6 VMs of dual hex cores, MP3 only

Ports Total	Overall Disk IOPS (kbps)		
	Reads	Writes	
120	25.18	0.028	25.15
240	42.75	0.052	42.70
300	51.16	0.004	51.15
360	59.61	0.000	59.61
420	67.04	0.000	67.04
480	74.82	0.000	74.82
540	86.30	0.000	86.30
600	94.11	0.000	94.11
660	102.05	0.000	102.04
720	111.30	0.000	111.29

The graph below compares the two tables of IOPS ([Table: Disk IOPS of sum of all 3 VMs of dual hex cores](#) for 3 VMs and [Table: Disk IOPS of sum of all 6 VMs of dual hex cores, MP3 only](#) for 6 VMs), on the same hardware spec of dual hex cores:

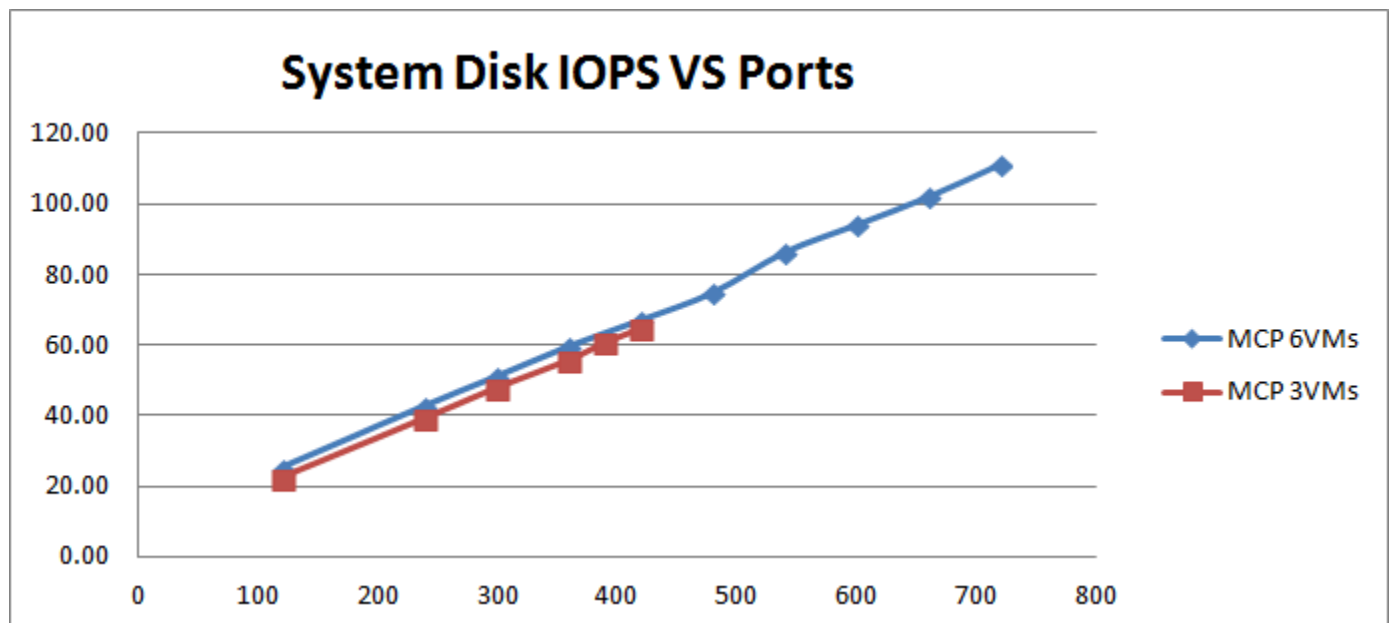


Figure 18: Comparison of System Disk IOPS among different VMs.

- System Disk IOPS scales linearly against port capacity, but not related for VM configurations.
- We ran an additional test with only 1 vCPU assigned to each VM, on a single hex core server [Hardware profile 2](#), with a 6-VMs in total on the one server. We could barely run beyond 150 ports—the single CPU cannot be linearly scaled—which compares with a 3-VMs configuration:

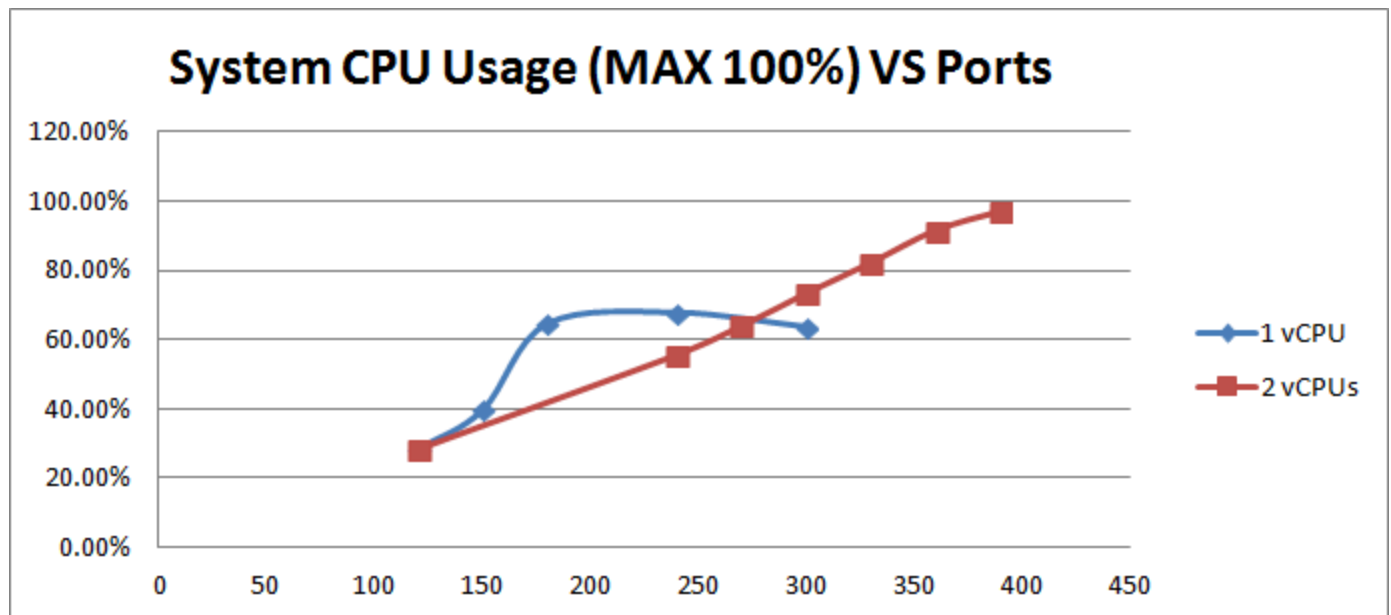


Figure 19: Comparison of System Usage for one vCPU vs two vCPUs VMs configuration

The two graphs below show that both Max Jitter and Max Delta jump significantly beyond 150 ports:

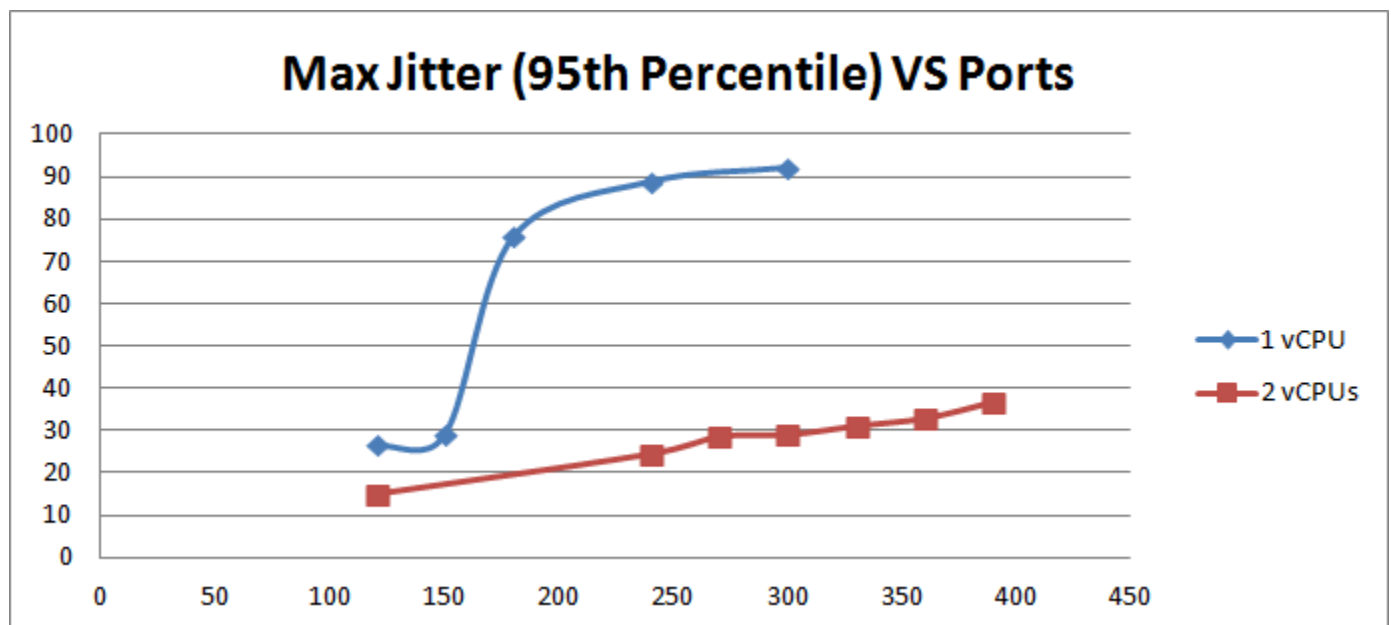


Figure 20: Comparison of Max Jitter for one vCPU vs two vCPUs VMs configuration

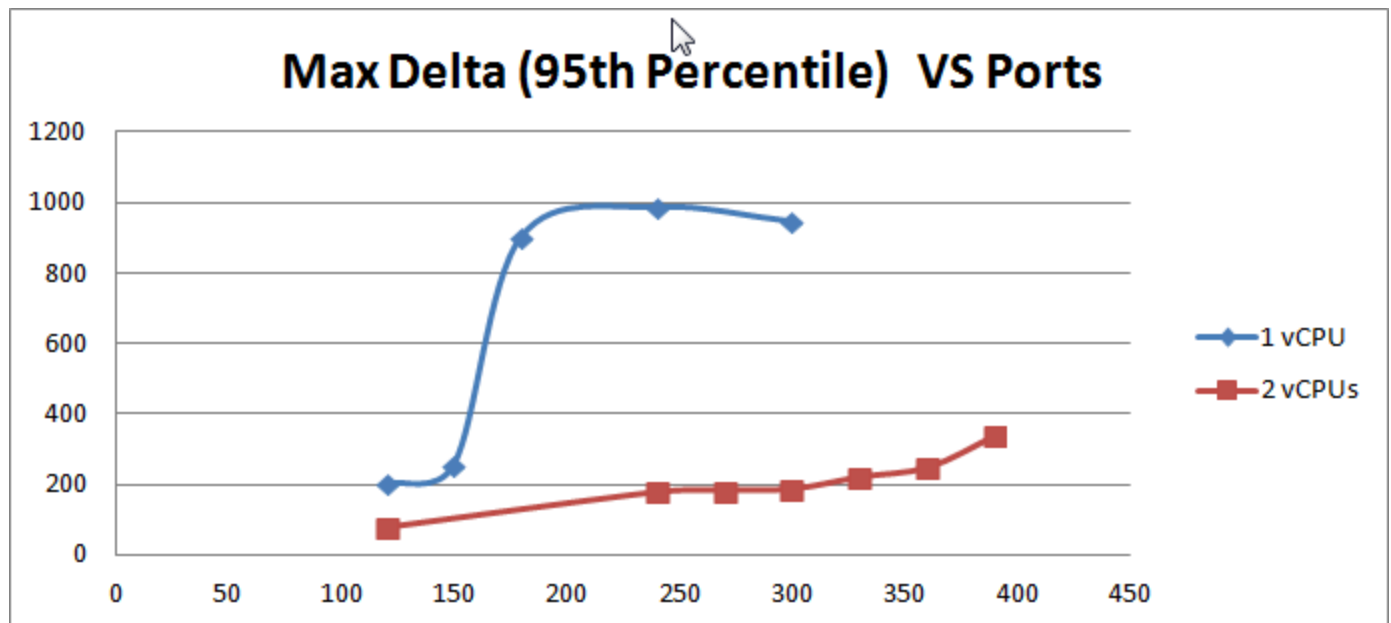


Figure 21: Comparison of Max Delta for one vCPU vs two vCPUs VMs configuration

The comparison indicates that MCP doesn't perform well on a single vCPU VM.