

VMware® VMmark® V2.5.2 Results

Vendor and Hardware Platform: Fujitsu Server PRIMERGY RX2530 M2
 Virtualization Platform: VMware ESXi 6.0.0 U2 Build 3620759
 VMware vCenter Server : VMware vCenter Server 6.0.0 Build 3018524

**VMmark V2.5.2 Score =
34.93 @ 28 Tiles**

| | | |
|--|--|---|
| Number of Hosts: 2 | Uniform Hosts [yes/no]: yes | Total sockets/cores/threads in test: 4/88/176 |
| Tested By: Fujitsu | | Test Date: 07-04-2016 |
| Performance Section Performance | Configuration Section Configuration | Notes Section Notes for Workload |

Performance

| | mailserver | | | olio | | | dvdstoreA | | | dvdstoreB | | | dvdstoreC | | | |
|---------------|------------|-------|-------|---------|-------|--------|-----------|-------|-------|-----------|-------|-------|-----------|-------|-------|------|
| TILE_0 | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | GM |
| p0 | 327.57 | 0.99 | 56.73 | 4705.60 | 1.01 | 113.69 | 4216.77 | 1.92 | 57.33 | 3114.53 | 2.05 | 59.23 | 2211.75 | 2.09 | 63.84 | 1.53 |
| p1 | 330.35 | 1.00 | 64.00 | 4678.82 | 1.01 | 167.85 | 4153.00 | 1.89 | 59.63 | 3337.95 | 2.20 | 58.37 | 2443.95 | 2.31 | 61.99 | 1.57 |
| p2 | 333.88 | 1.01 | 71.25 | 4582.57 | 0.99 | 255.02 | 4196.68 | 1.91 | 58.08 | 3100.55 | 2.04 | 59.92 | 2319.72 | 2.19 | 63.48 | 1.54 |
| TILE_1 | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | GM |
| p0 | 324.82 | 0.98 | 54.25 | 4721.43 | 1.02 | 117.34 | 4263.88 | 1.94 | 55.78 | 3109.30 | 2.05 | 59.66 | 2316.45 | 2.19 | 63.86 | 1.54 |
| p1 | 327.23 | 0.99 | 63.50 | 4654.00 | 1.00 | 190.72 | 4172.57 | 1.90 | 58.86 | 3253.35 | 2.14 | 57.77 | 2467.15 | 2.33 | 60.71 | 1.57 |
| p2 | 326.27 | 0.99 | 73.75 | 4570.20 | 0.98 | 283.95 | 4201.43 | 1.91 | 57.90 | 3135.00 | 2.06 | 58.43 | 2247.90 | 2.12 | 61.61 | 1.52 |
| TILE_2 | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | GM |
| p0 | 326.98 | 0.99 | 54.25 | 4736.07 | 1.02 | 111.15 | 4262.52 | 1.94 | 55.67 | 3177.68 | 2.09 | 61.87 | 2278.28 | 2.15 | 66.28 | 1.55 |
| p1 | 325.50 | 0.99 | 63.75 | 4687.88 | 1.01 | 160.30 | 4228.88 | 1.92 | 56.54 | 3179.62 | 2.09 | 61.40 | 2389.05 | 2.26 | 65.65 | 1.55 |
| p2 | 324.32 | 0.98 | 64.00 | 4624.35 | 1.00 | 249.54 | 4267.55 | 1.94 | 55.18 | 3028.15 | 1.99 | 64.01 | 2140.55 | 2.02 | 69.48 | 1.50 |
| TILE_3 | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | GM |
| p0 | 323.93 | 0.98 | 53.23 | 4690.93 | 1.01 | 116.22 | 4204.35 | 1.91 | 57.47 | 3116.45 | 2.05 | 64.49 | 2243.53 | 2.12 | 68.75 | 1.52 |
| p1 | 328.05 | 0.99 | 58.12 | 4642.50 | 1.00 | 194.87 | 4177.90 | 1.90 | 58.06 | 3062.00 | 2.02 | 62.22 | 2281.88 | 2.16 | 66.24 | 1.52 |
| p2 | 326.65 | 0.99 | 74.00 | 4588.15 | 0.99 | 265.09 | 4230.00 | 1.92 | 56.45 | 3053.70 | 2.01 | 62.77 | 2166.28 | 2.05 | 67.16 | 1.51 |
| TILE_4 | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | GM |
| p0 | 325.45 | 0.99 | 54.00 | 4715.10 | 1.02 | 115.60 | 4221.20 | 1.92 | 57.09 | 3207.25 | 2.11 | 59.93 | 2437.93 | 2.30 | 62.59 | 1.56 |
| p1 | 332.43 | 1.01 | 62.50 | 4652.50 | 1.00 | 181.37 | 4192.90 | 1.91 | 58.10 | 3234.18 | 2.13 | 58.88 | 2353.78 | 2.22 | 61.20 | 1.56 |
| p2 | 327.23 | 0.99 | 64.00 | 4574.95 | 0.99 | 257.24 | 4202.25 | 1.91 | 57.55 | 3104.65 | 2.04 | 59.81 | 2237.28 | 2.11 | 62.39 | 1.52 |
| TILE_5 | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | GM |
| p0 | 328.23 | 0.99 | 59.25 | 4717.30 | 1.02 | 115.27 | 4249.10 | 1.93 | 56.05 | 3198.72 | 2.11 | 60.34 | 2433.10 | 2.30 | 63.01 | 1.57 |
| p1 | 327.40 | 0.99 | 64.25 | 4659.30 | 1.00 | 174.40 | 4199.65 | 1.91 | 57.67 | 3156.53 | 2.08 | 57.61 | 2268.70 | 2.14 | 60.26 | 1.53 |

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|------------------|--------|-------|-------|---------|-------|--------|---------|-------|-------|---------|-------|-------|---------|-------|-------|------|
| p2 | 326.30 | 0.99 | 64.00 | 4620.60 | 1.00 | 244.37 | 4252.65 | 1.93 | 56.32 | 3093.07 | 2.04 | 60.37 | 2270.70 | 2.15 | 60.23 | 1.53 |
| TILE_24 | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | GM |
| p0 | 326.43 | 0.99 | 73.25 | 4721.40 | 1.02 | 108.43 | 4235.85 | 1.93 | 56.68 | 3227.80 | 2.13 | 58.80 | 2295.28 | 2.17 | 64.78 | 1.55 |
| p1 | 326.35 | 0.99 | 64.25 | 4696.90 | 1.01 | 153.10 | 4266.30 | 1.94 | 55.66 | 3142.25 | 2.07 | 58.06 | 2277.60 | 2.15 | 65.88 | 1.54 |
| p2 | 333.60 | 1.01 | 70.75 | 4624.30 | 1.00 | 218.30 | 4225.25 | 1.92 | 56.91 | 3225.53 | 2.12 | 59.12 | 2311.43 | 2.18 | 63.84 | 1.55 |
| TILE_25 | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | GM |
| p0 | 328.62 | 1.00 | 63.95 | 4724.88 | 1.02 | 113.83 | 4217.30 | 1.92 | 57.10 | 3325.93 | 2.19 | 59.24 | 2418.50 | 2.29 | 63.62 | 1.58 |
| p1 | 331.75 | 1.00 | 64.00 | 4655.50 | 1.00 | 188.72 | 4298.10 | 1.95 | 54.45 | 3154.62 | 2.08 | 57.72 | 2287.25 | 2.16 | 65.25 | 1.55 |
| p2 | 329.35 | 1.00 | 64.00 | 4593.77 | 0.99 | 268.51 | 4291.10 | 1.95 | 54.95 | 3161.32 | 2.08 | 57.14 | 2192.82 | 2.07 | 64.98 | 1.53 |
| TILE_26 | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | GM |
| p0 | 326.10 | 0.99 | 65.25 | 4750.52 | 1.02 | 106.60 | 4239.12 | 1.93 | 56.74 | 3199.75 | 2.11 | 60.49 | 2426.78 | 2.29 | 63.31 | 1.57 |
| p1 | 325.48 | 0.99 | 64.00 | 4694.15 | 1.01 | 154.34 | 4271.20 | 1.94 | 55.94 | 3136.57 | 2.07 | 58.82 | 2228.12 | 2.11 | 62.93 | 1.53 |
| p2 | 328.80 | 1.00 | 64.00 | 4623.30 | 1.00 | 218.96 | 4207.98 | 1.91 | 58.13 | 3172.03 | 2.09 | 62.17 | 2275.53 | 2.15 | 66.42 | 1.54 |
| TILE_27 | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | Actual | Ratio | QoS | GM |
| p0 | 324.82 | 0.98 | 65.75 | 4718.93 | 1.02 | 115.11 | 4179.95 | 1.90 | 59.18 | 3163.50 | 2.08 | 62.28 | 2379.15 | 2.25 | 66.24 | 1.55 |
| p1 | 325.32 | 0.99 | 64.00 | 4665.55 | 1.01 | 175.40 | 4262.57 | 1.94 | 56.07 | 3117.00 | 2.05 | 59.92 | 2203.75 | 2.08 | 64.79 | 1.52 |
| p2 | 325.60 | 0.99 | 64.00 | 4583.98 | 0.99 | 260.02 | 4244.10 | 1.93 | 56.73 | 3211.78 | 2.12 | 60.04 | 2301.95 | 2.18 | 64.76 | 1.54 |
| p0_score: | 43.36 | | | | | | | | | | | | | | | |
| p1_score: | 43.47 | | | | | | | | | | | | | | | |
| p2_score: | 43.10 | | | | | | | | | | | | | | | |

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| Infrastructure_Operations_Scores: | vmotion | svmotion | deploy |
| Completed_Ops_PerHour | 17.50 | 11.00 | 5.00 |
| Avg_Seconds_To_Complete | 25.96 | 18.79 | 308.66 |
| Failures | 0.00 | 0.00 | 0.00 |
| Ratio | 1.09 | 1.22 | 1.25 |
| Number_Of_Threads | 1 | 1 | 1 |

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| Summary | Run_Is_Compliant | Turbo_Setting:0 |
| | Number_Of_Compliance_Issues(0)* | Median_Phase(p0) |
| Unreviewed_VMmark2_Applications_Score | 43.36 | |
| Unreviewed_VMmark2_Infrastructure_Score | 1.19 | |
| Unreviewed_VMmark2_Score | 34.93 | |

Configuration

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|--------------------------------|
| Virtualization Software |
|--------------------------------|

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|---|---|
| Hypervisor Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY) | VMware ESXi 6.0.0 U2 Build 3620759 / 03-15-2016 |
| Datacenter Management Software Vendor, Product, Version, and Build / Availability Date (MM-DD-YYYY) | VMware vCenter Server 6.0.0 Build 3018524 / 09-16-2015 |
| Supplemental Software | none |
| Servers | |
| Quantity | 2 |
| Server Manufacturer and Model | Fujitsu Server PRIMERGY RX2530 M2 |
| Processor Vendor and Model | Intel Xeon E5-2699 v4 |
| Processor Speed (GHz) | 2.2 |
| Total Sockets/Total Cores/Total Threads | 2 Sockets / 44 Cores / 88 Threads |
| Primary Cache | 32KB I + 32KB D on chip per core |
| Secondary Cache | 256KB I+D on chip per core |
| Other Cache | 55MB I+D on chip per chip L3 |
| BIOS Version | V5.0.0.11 R1.6.0 for D3279-B1x |
| Memory Size (in GB, Number of DIMMs) | 512, 16 |
| Memory Type and Speed | 32GB DIMMs 2Rx4 PC4-2400T ECC |
| Disk Subsystem Type | FC SAN |
| Number of Disk Controllers | 0 |
| Disk Controller Vendors and Models | |
| Number of Host Bus Adapters | 1 |
| Host Bus Adapter Vendors and Models | Dual port Emulex LPe16002 |
| Number of Network Controllers | 2 |
| Network Controller Vendors and Models | One Intel I350-T2 Dual Port 1GbE Adapter One Emulex OneConnect OCe14000 Dual Port Adapter with 10Gb SFP+ DynamicLoM interface module |
| Other Hardware | none |
| Other Software | none |
| Hardware Availability Date (MM-DD-YYYY) | 07-05-2016 |
| Software Availability Date (MM-DD-YYYY) | 03-15-2016 |
| Network | |
| Network Switch Vendors and Models | Fujitsu PRIMERGY BX600 GbE Switch Blade 30/12, Brocade VDX 6740 |
| Network Speed | 1Gbps for SUT management and VMotion, 10Gbps for Clients and VMs |
| Storage | |

| | |
|---|--|
| Array Vendors, Models, and Firmware Versions | Two Fujitsu Server PRIMERGY RX300 S8, Firmware V4.6.5.4 R1.1.0 One Fujitsu ETERNUS DX100 S3, Firmware version V10L32-0000 |
| Fibre Channel Switch Vendors and Models | Brocade 6510 |
| Disk Space Used | 9.31TB |
| Array Cache Size | 1GB(Fujitsu Server PRIMERGY RX300 S8), 4GB(Fujitsu ETERNUS DX100) |
| Total Number of Physical Disks Used | 2xSAS-HDD, 15xSAS-SSD, 4xPCIe-SSD |
| Total Number of Enclosures/Pods/Shelves Used | 3 |
| Number of Physical Disks Used per Enclosure/Pod/Shelf | Details in section Storage Notes |
| Total Number of Storage Groups Used | 0 |
| Number of LUNs Used | 41 |
| LUN Size and Number of Disks Per LUN | Details in section Storage Notes |
| RAID Type | 0 |
| Number of Members per RAID Set | Details in section Storage Notes |
| Disk Vendors, Models, and Speeds | 2xSeagate, ST1200MM0007, 10krpm; 15xSSD Toshiba PX02SMF040; 4xFusion-io ioDrive2 1.2TB PCIe SSD |

Datacenter Management Server

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|--|--|
| System Model | Fujitsu Server PRIMERGY BX620 S5 |
| Processor Vendor and Model | Intel Xeon X5570 |
| Processor Speed (GHz) | 2.93 |
| Total Sockets/Total Cores/Total Threads | Hypervisor: 2 Sockets / 8 Cores / 16 Threads Virtual Center VM: Details in section Datacenter Management Server Notes |
| Memory | Hypervisor: 24GB Virtual Center VM: Details in section Datacenter Management Server Notes |
| Network Controller(s) Vendors and Models | 3 Intel Dual port 82575EB |
| Operating System, Version, Bitness, and Service Pack | Hypervisor: VMware ESXi 5.1.0 Build 799733 Virtual Center VM: Details in section Datacenter Management Server Notes |
| Other Hardware | none |
| Other Software | none |

Clients

| | |
|---|--|
| Total Number of Clients / Total Physical Clients / Total Virtual Client Hosts | 29 / 1 / 3 |
| System Model(s) | 1xFujitsu Server PRIMERGY BX620 S5 (Prime Client) 3xFujitsu Server PRIMERGY RX600 S6 (Virtual Client Hosts) |
| Processor Vendor(s) and Model(s) | Prime Client: Intel Xeon Intel Xeon X5570 Virtual Client Hosts: PRIMERGY RX600 S6: Intel Xeon E7-4870 |
| | Prime Client: 2.93 |

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|---|--|
| Processor Speed(s) (GHz) | Virtual Client Hosts: PRIMERGY RX600 S6: 2.4 |
| Total Sockets/Total Cores/Total Threads | Prime Client: 2 Sockets / 8 Cores / 16 Threads Virtual Client Hosts: PRIMERGY RX600 S6: 4 Sockets / 40 Cores / 80 Threads |
| Memory per Physical Client | Prime Client: 12GB Virtual Client Hosts: PRIMERGY RX600 S6: 512GB |
| Network Controller(s) Vendors and Models | Prime Client: Three Intel Dual Port 82575EB Virtual Client Hosts: PRIMERGY RX600 S6: Two Intel Dual Port 82576NS, Intel Dual Port 82599 |
| Operating System, Version, Bitness, and Service Pack | Clients: Windows Server 2008 Enterprise 64-bit SP2 Virtual Client Hosts: VMware ESX 4.1 U2 Build 502767 |
| Number of Virtual Clients | 28 |
| Number of vCPUs Per Virtual Client | 4 |
| Number of vMem (GB) Per Virtual Client | 4 |
| Virtual Client Networking Notes | All virtual clients were distributed evenly over 2 vSwitches per Virtual Client Host |
| Virtual Client Storage Notes | none |
| Other Hardware | One Dual Port Emulex LPe12002 for each virtual client host, three shared Fujitsu ETERNUS DX80 with 24x300GB disks, one Brocade 5100 Fibre Channel Switch |
| Other Software | none |

Notes for Workload

Virtualization Software Notes

- CDROM removed for all VMs (default enabled)
- Config.HostAgent.log.level set to warning (default info)
- CPU shares set to high for all DS2DB VMs (default normal)
- Floppy removed for all VMs (default enabled)
- Hardware version 8 used for all VMs
- Logging disabled for all VMs (default enabled)
- Logical CPU configuration changed for all Linux VMs to one socket with multiple cores (default: multiple sockets with one core per socket)
- sched.mem.maxmemctl = 0 set for all VMs (default defined through global parameter Mem.CtlMaxPercent)
- sched.mem.min and sched.mem.minsize set to the configured VM memory size (default 0)
- sched.mem.pin = TRUE set for all VMs (default FALSE)
- SCSI adapter type PVSCSI used for all Standby VMs and Deploy template (default LSI Logic parallel)
- SCSI adapter type PVSCSI used for all Mailserver and Linux VMs (default LSI Logic SAS)
- Syslog.global.defaultSize set to 112 (default 1024)
- VMware Tools build 10246 used for all VMs (default 10246)
- VMXNET3 enabled for all VMs (default VMXNET2)
- Vpx.Vpxa.config.log.level set to warning (default verbose)
- vSphere DRS Migration Threshold set to Fully Automated level 2

Changes in esx.conf:

- /adv/Cpu/CreditAgePeriod = 1000 (default 3000)
- /adv/Cpu/HTWholeCoreThreshold = 0 (default 200)
- /adv/DataMover/HardwareAcceleratedInit = 0 (default 1)
- /adv/DataMover/HardwareAcceleratedMove = 0 (default 1)
- /adv/Disk/IdleCredit = 64 (default 32)
- /adv/Disk/UseIOWorlds = 1 (default 0)
- /adv/Mem/CtlMaxPercent = 0 (default 65)
- /adv/Mem/ShareScanGHz = 0 (default 4)
- /adv/Net/MaxNetifRxQueueLen = 500 (default 100)
- /adv/Net/MaxNetifTxQueueLen = 1000 (default 500)
- /adv/Net/MaxTxCompDelay = 61 (default 50)
- /adv/Net/NetSchedCoalesceTxUsecs = 61 (default 33)
- /adv/Numa/LTermFairnessInterval = 0 (default 5)
- /adv/Numa/MigImbalanceThreshold = 57 (default 10)
- /adv/Numa/PageMigEnable = 0 (default 1)
- /adv/Numa/RebalancePeriod = 60000 (default 2000)
- /adv/Numa/SwapLoadEnable = 0 (default 1)
- /adv/Numa/SwapLocalityEnable = 0 (default 1)
- /adv/Power/CpuPolicy = static (default balanced)
- /adv/VMFS3/HardwareAcceleratedLocking = 0 (default 1)

Server Notes

- Server BIOS settings:
 - COD Enable: Enable (default Auto)
 - Onboard SAS/SATA controller disabled (default enabled)
 - Onboard Serial COM1 disabled (default enabled)
 - Turbo Boost Technology: Enabled (Intel Turbo Boost up to 3.6GHz, default enabled)

Networking Notes

- One dedicated VLAN for the systems under test, vCenter Server and Benchmark Controller (SUT-VLAN)
- One dedicated VLAN for the VMs and Clients (Load-VLAN)
- vSwitch Configuration:
 - vSwitch0 on vmnic2 for Service Console (1Gb/s)
 - vSwitch1 on vmnic3 for VMotion (1Gb/s)
 - vSwitch2 on vmnic0 (10Gb/s) All DS2-VMs
 - vSwitch3 on vmnic1 (10Gb/s) All VMs except DS2-VMs

Storage Notes

- First Fujitsu Server PRIMERGY RX300 S8 configured as a Fibre Channel Target:
 - Hardware details:
 - Two Intel Xeon E5-2667@3.3GHz processors
 - 128GB RAM (8x16 GB dual rank PC3-12800 Registered DDR3 / 1600 MHz DIMMs)
 - One QLogic QLE2562 8Gb FC HBA used as FC target controller

- One Fujitsu RAID SAS 6G Controller with 1GB Cache and BBU (D3116)
- 11x400GB SAS-SSDs Toshiba PX02SMF040
- 2xFusion-io ioDrive2 1.2TB PCIe-SSD
- Software details:
 - Operating System: SUSE Linux Enterprise Server 11 SP3 - 3.0.101-0.46 (64-bit)
 - Fibre Channel Target SW: LIO (part of SUSE Linux Enterprise Server 11 SP3)

RAID configuration:

- SAS-SSD 1:
 - LUN 1: Storage system OS (12GB, this LUN is not counted in the Storage section)
 - LUN 2: Target LUN for Storage VMotion (10GB)
 - LUN 3: Source LUN for Deploy (10GB)
 - LUN 4: Target LUN for Deploy (10GB)
- SAS-SSD 2:
 - LUN 1: For Tile 0 Olio/Standby VMs and Mailserver VHDs (186GB)
 - LUN 2: For Tile 2 Olio/Standby VMs and Mailserver VHDs (186GB)
- SAS-SSD 3:
 - LUN 1: For Tile 1 Olio/Standby VMs and Mailserver VHDs (186GB)
 - LUN 2: For Tile 3 Olio/Standby VMs and Mailserver VHDs (186GB)
- SAS-SSD 4:
 - LUN 1: For Tile 4 Olio/Standby VMs and Mailserver VHDs (186GB)
 - LUN 2: For Tile 6 Olio/Standby VMs and Mailserver VHDs (186GB)
- SAS-SSD 5:
 - LUN 1: For Tile 5 Olio/Standby VMs and Mailserver VHDs (186GB)
 - LUN 2: For Tile 7 Olio/Standby VMs and Mailserver VHDs (186GB)
- SAS-SSD 6:
 - LUN 1: For Tile 8 Olio/Standby VMs and Mailserver VHDs (186GB)
 - LUN 2: For Tile 10 Olio/Standby VMs and Mailserver VHDs (186GB)
- SAS-SSD 7:
 - LUN 1: For Tile 9 Olio/Standby VMs and Mailserver VHDs (186GB)
 - LUN 2: For Tile 11 Olio/Standby VMs and Mailserver VHDs (186GB)
- SAS-SSD 8:
 - LUN 1: For Tile 12 Olio/Standby VMs and Mailserver VHDs (186GB)
 - LUN 2: For Tile 14 Olio/Standby VMs and Mailserver VHDs (186GB)
- SAS-SSD 9:
 - LUN 1: For Tile 13 Olio/Standby VMs and Mailserver VHDs (186GB)
 - LUN 2: For Tile 15 Olio/Standby VMs and Mailserver VHDs (186GB)
- SAS-SSD 10:

- LUN 1: For Tile 16 Olio/Standby VMs and Mailserver VHDs (186GB)
 - LUN 2: For Tile 18 Olio/Standby VMs and Mailserver VHDs (186GB)
- SAS-SSD 11:
 - LUN 1: For Tile 17 Olio/Standby VMs and Mailserver VHDs (186GB)
 - LUN 2: For Tile 19 Olio/Standby VMs and Mailserver VHDs (186GB)
- First PCIe-SSD:
 - LUN 1: Mailserver configuration files and DS2 VMs for tiles 0, 4, 8, 12, 16 (537GB)
 - LUN 2: Mailserver configuration files and DS2 VMs for tiles 2, 6, 10, 14, 18 (537GB)
- Second PCIe-SSD:
 - LUN 1: Mailserver configuration files and DS2 VMs for tiles 1, 5, 9, 13, 17 (537GB)
 - LUN 2: Mailserver configuration files and DS2 VMs for tiles 3, 7, 11, 15, 19 (537GB)
- All LUNs were configured as block devices; no system memory was used for caching
- Second Fujitsu Server PRIMERGY RX300 S8 configured as a Fibre Channel Target:
 - Hardware details:
 - Two Intel Xeon E5-2667@3.3GHz processors
 - 128GB RAM (8x16 GB dual rank PC3-12800 Registered DDR3 / 1600 MHz DIMMs)
 - One QLogic QLE2562 8Gb FC HBA used as FC target controller
 - One Fujitsu RAID SAS 6G Controller with 1GB Cache and BBU (D3116)
 - 5x400GB SAS-SSDs Toshiba PX02SMF040
 - 2xFusion-io ioDrive2 1.2TB PCIe-SSD
 - Software details:
 - Operating System: SUSE Linux Enterprise Server 11 SP3 - 3.0.101-0.46 (64-bit)
 - Fibre Channel Target SW: LIO (part of SUSE Linux Enterprise Server 11 SP3)

RAID configuration:

- SAS-SSD 1:(this SSD is not counted in the Storage section)
 - LUN 1: Storage system OS (12GB, this LUN is not counted in the Storage section)
- SAS-SSD 2:
 - LUN 1: For Tile 20 Olio/Standby VMs and Mailserver VHDs (186GB)
 - LUN 2: For Tile 22 Olio/Standby VMs and Mailserver VHDs (186GB)
- SAS-SSD 3:
 - LUN 1: For Tile 21 Olio/Standby VMs and Mailserver VHDs (186GB)
 - LUN 2: For Tile 23 Olio/Standby VMs and Mailserver VHDs (186GB)
- SAS-SSD 4:
 - LUN 1: For Tile 24 Olio/Standby VMs and Mailserver VHDs (186GB)
 - LUN 2: For Tile 26 Olio/Standby VMs and Mailserver VHDs (186GB)
- SAS-SSD 5:

- LUN 1: For Tile 25 Olio/Standby VMs and Mailserver VHDs (186GB)
 - LUN 2: For Tile 27 Olio/Standby VMs and Mailserver VHDs (186GB)
- First PCIe-SSD:
 - LUN 1: Mailserver configuration files and DS2 VMs for tiles 20, 24 (537GB)
 - LUN 2: Mailserver configuration files and DS2 VMs for tiles 22, 26 (537GB)
- Second PCIe-SSD:
 - LUN 1: Mailserver configuration files and DS2 VMs for tiles 21, 25 (537GB)
 - LUN 2: Mailserver configuration files and DS2 VMs for tiles 23, 27 (537GB)
- All LUNs were configured as block devices; no system memory was used for caching
- Fujitsu ETERNUS DX100 S3(2 disks)
 - RAID set 0: (2 disks)
 - LUN 0: Boot/Console OS for SUT1 (11GB)
 - LUN 1: Boot/Console OS for SUT2 (11GB)

Datacenter Management Server Notes

- Virtual Center realized as a VM running on a dedicated Hypervisor system:
 - Number of vCPUs: 4 (one vCPU per vSocket)
 - Size of vRAM: 10GB
 - Operating System: Windows Server 2008 R2 Enterprise 64-bit

Operating System Notes

- Mailserver VMs: Microsoft Windows 2008 R2 Enterprise 64-bit.
- Linux VMs:
 - All SLES11 VMs were updated with SP2
 - VMXNET3 driver configured to use one receive and one request queue (default: number of queues matches the number of vCPUs)
 - Paravirtualized drivers (VMXNET3, PVSCSI, VMMEMCTL) compiled with gcc 4.3.4
- The file systems of all Linux and Standby VMs were aligned to a 4KB boundary

Software Notes

- Mailserver VMs: Microsoft Exchange 2007 Enterprise x64 Edition updated with SP3.

Client Notes

- Prime Client was running VMware vSphere PowerCLI 5.1 Release 1 Build 793510.
- Prime Client was updated via Windows Update.
- Virtual Client Hosts:
 - System 1 (PRIMERGY RX600 S6): Clients 0, 3, 6, 9, 12, 15, 18, 21, 24, 27
 - System 2 (PRIMERGY RX600 S6): Clients 1, 4, 7, 10, 13, 16, 19, 22, 25

- System 3 (PRIMERGY RX600 S6): Clients 2, 5, 8, 11, 14, 17, 20, 23, 26

Other Notes

- One client used as a dedicated Benchmark Controller.
- TILEDELAY reduced to 29 seconds (default: 60 seconds)

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