	Heavy Workload Server (Class A) - Rack	
	OEM & Model/Part Number:	
Reference Number	**Requirement**	**Rack Mount Server**
1	Solution must provide x86 or x64 processor. The solution requires the minimum number of processor sockets on the server.	>=2
2	Solution must meet performance capacity with the minimum value within the SPEC INT_RATE_BASE 2006 benchmark test. This should be demonstrated via published benchmark results applicable to the specific server configuration.	>=300
3	Solution must support a minimum Socket Count of which meets the Peformance Benchmark Standards (found in reference 2)	Y
4	Solution must support a core count at a minimal amount to meet the Performance Benchmark Standards. (found in reference 2)	Y
5	Solution requires the minimum cores per processor as specified in the SPEC Benchmark Standard. (found in reference 2)	Y
6	Solution must have minimal Socket Count due to licensing cost per socket, and have minimum count for performance/capacity	Y
7	Solution must have minimum Core count expected for performance / capacity, level is equal to quad-core. Any amount that meets the Performance Benchmark Standards is sufficient	Y
8	Solution requires at minimum, the following GB of RAM. RAM must be compatible with CPU and full error correction functionality to include ECC. All memory modules must be the same type and size. All memory must be installed in a manner to take full advantage of processor capabilities.	128GB
9	Solution requires that all memory channels must be symmetrically populated to achieve memory bandwidth of referenced performance benchmark	Y
10	Solution requires at minimum 25% of the provided DIMM slots to be unpopulated at time of delivery.	Y
11	The solution must support at minimum, the following sustainable throughput IOs per second.	375 IOPs
12	Rack Mounted Server should not exceed (4U) in size and fit in an “industry standard” 42U rack without special modifications to the rack and/or server. The server mount brackets should be “generic” for all types of 42U racks. Rail type: Tool-less square-hole sliding. Cable: Side-reversible for non-blade solutions.	Y
13	Rack mount type	4U max

14	The solution must be a rack or blade (specified at time of delivery order) server. If Rack mounted server, the rail type will be tool-less square-holes (default is RACK)	Y
15	(1) Hard drive raid controller that will support at minimum RAID1 and “hot spare” automatic drive rebuild functionality for (at minimum) RAID1 for “Rack Mount Servers”. When server is configured as a transaction server, a separate RAID Controller or second channel on the same controller is required for the “temp file” RAID group. Must support SAS drives.	Y
16	The solution must support RAID 1 for Blade Servers. Must support SAS drives.	N
17	The solution is required to have a minimum Controller Cache of 256MB. Blade Servers are only mandatory if not being virtualized. If virtualized, they will be boot from SAN.	Y
18	The solution must support a minimum of 1 Controller.	Y
19	The solution must support a minimum private 32KB L1 instructional cache and private 32KB L1 data cache for each processor core. Minimum 2MB L2 unified cache on chip and 6MB or greater shared L3 cache.	Y
20	The solution must support processors capable of Symmetrical multi processing.	Y
21	Solution must support at minimum the following number of network interface cards with TCP checkcum offload functionality. for Windows only.	4
22	Solution must support a minimum network port count of 2. More may be required dependant on virtual infrastructure requirements (to be specified at time of delivery order), for Rack Mount Servers Only.	Y
23	Solution must support a minimum of 1GB of Bandwith.	Y
24	Solution must support dual imbedded switches for Blade Chassis components for Blade Servers.	N
25	For Virtual Environments only, solution must support a base set of 4 ports to be used for virtual guests, 1 for the console, 1 for the live migration. Additional may be required dependant on the profile of workload/application. For Rack Mount Servers Only.	Y
26	Solution must support a base set of 2 ports or more for cluster interconnects dependant on cluster traffic. For Cluster Environments. Number required…(minimum is 2)	Y
27	Solution must support embedded port count of one “card”, all interfaces used are spread across two “cards” (to include at least on add-on NIC). The goal is physical separation of the chipset / ASIC used on the redundant port, for each function. Support for “simple failover” (with a single IP address) and independent usage (with multiple IP addresses) is required.	Y

28	Solution must provide a minimum of (3) internal hard drives with average throughput of 80 MB/s with no greater than 4ms latency. Drives must support 3ms read times and 4ms write times. In support of this solution, the drives must provide at minimum the application specific (provided at time of delivery order) usable disk space.	Y
29	Solution for Blade Servers will consist of Number required…(the required amount is 2) Internal Hard Drives with an average throughput of 80MB/s with no greater than 4ms latency. Drives must support 3ms read time and 4ms write times. The drives must be Number required…(the required amount is 72GB) each. Mandatory for Blade Servers only is not being used for virtualization.	Y
30	Solution must support Internal hard drive speed with a minimum of 10K RPM. Mandatory for Blade Servers only is not being used for virtualization.	Y
31	Solution must support Internal hard drive capacity requirement with a minimum specified per Workload specific usable storage space for Rack Mount Servers.	450GB
32	The solution is required to support a minimum Controller Cache for internal storage of 512MB with battery backup.	Y
33	If there is a need for additional local storage, than Internal drives will be configured with the following RAID configuration on controller 2 provided (e.g. “temp file” for transaction or standalone server configurations). The additional drives may be required and will be configured with the appropriate RAID technology based on the application's performance and availability requirements. For any application that requires a database server the second controller is a requirement. Optimal configuration consists of the fewest quantity of drives in order to meet the performance and reliability requirements. The drives will be configured in the vendor’s factory prior to delivery at the VA. RAID Configuration will be RAID1 for Rack Mount Servers. Not applicable for Blade Server.	Y
34	Solution BIOS must support boot from SAN	Y
35	Solution must be virtualization aware and capable of supporting Type 1 virtualization	Y
36	Solution must be configured with a minimum of N+1 redundancy for the cooling fan.	Y
37	External storage will be fibre channel/iSCSI/NFS/or determined by application requirements (specified at time of delivery order). If the connection is FC (fibre channel) the server must provide dual HBA FC cards with duplex LC connector. If using FC HBAs, the HBAs must provide load balancing and failover. If the connect is SCSI, the server must provide (2) PCI-E compatible SCSI cards (one card will be connected, one will be a cold spare). All external storage cards will be installed and configured in the vendor factory prior to arrival at a VA facility. if the external storage is NONE, the server will require internal storage only as defined above in requirement 10 (default is SCSI)	Y

38	Solution must consist of a minimum port count for External storage of 2 independent cards with a minimum or 2 ports each. For Rack Mount Servers only.	Y
39	Solution must consist of a minimum Bandwidth for External storage of 4GB for optical or 1GB for copper. Required number is 4GB for Optical and 1GB for Copper.	Y
40	Solution for External Storage must support storage interface devices in accordance to the task order. Solution must be supported by the Operating System specified within the task order.	Y
41	Solution for External storage for Blade Chassis Component must include Dual embedded switches. This also may require Blade Enclosure Chassis to include required components as per task order. Mandatory for Blade Servers, only for Legacy Blade Architectures.	N
42	Server must support USB v2.0 or higher	Y
43	Server power supplies must provide N+1 redundancy.	Y
44	Server voltage must be 208V input voltage on power supply.	Y
45	Server cord type must be IEC.	Y
46	SERVER must provide lights out / out of band management functionality to include command line and console access, secure IP-based remote management that complies with all VA security requirements as listed within the PWS and the ability to power off/on/reset the server remotely through the use of a dedicated network interface.	Y
47	Server must provide remote management capability for Virtual media (allows remote system's CD/DVD (or ISO file) to be mounted on the managed system during management connection.	Y
48	Server must provide remote management capability to include Virtual Console (keyboard/video/mouse usage).	Y
49	Server must provide remote management capability for Virtual Console Sharing	Y
50	Server must provide remote management capability for Virtual flash media support (allows remote system's flash memory storage device to be mounted on the managed system during management connection.	Y
51	System will provide Active Directory support integration.	Y
52	Server will provide hardware management software as an agent or agent-less SNMP agent	Y
53	Hardware events for the server will include exceptions, diagnostics and failures. Information will be exposed through SNMP with documented MIBs	Y
54	All server information collected will be available to be collected to an enterprise management framework. Server collection data structure must be ODBC / JDBC compliant in a manner that preserves data fields for the diagnostic information (e.g: date/time, error code, module, description, system identification, status and system configuration)	Y

55	There will be no Operating System loaded on any purchased system unless otherwise specified within task order. Hardware is required to Support the latest version of both Windows and Linux Operating Systems. Hardware is required to support the latest stable kernel version of Operating System. If Hardware is purchased with or for Linux Operating Systems it is required to be 64-bit hardware.	Y
56	Support for Remote KVM Control will include Remote Keyboard/Video/Mouse Control with the ability to remotely connect to the server's external keyboard, video, and mouse ports through a networked KVM switch. Also, include Remote Power Disconnect with the ability to remotely disconnect/reconnect server to power source	Y
57	The existing KVM technology is IP.	Y
58	The server solution will include KVM connectors/dongles as per task order	Y

	Heavy Workload Server (Class A) - Blade	
	OEM & Model/Part Number:	
Reference Number	**Requirement**	**Blade Server**
1	Solution must provide x86 or x64 processor. The solution requires the minimum number of processor sockets on the server.	>=2
2	Solution must meet performance capacity with the minimum value within the SPEC INT_RATE_BASE 2006 benchmark test. This should be demonstrated via published benchmark results applicable to the specific server configuration.	>=300
3	Solution must support a minimum Socket Count of which meets the Peformance Benchmark Standards (found in reference 2)	Y
4	Solution must support a core count at a minimal amount to meet the Performance Benchmark Standards. (found in reference 2)	Y
5	Solution requires the minimum cores per processor as specified in the SPEC Benchmark Standard. (found in reference 2)	Y
6	Solution must have minimal Socket Count due to licensing cost per socket, and have minimum count for performance/capacity	Y
7	Solution must have minimum Core count expected for performance / capacity, level is equal to quad-core. Any amount that meets the Performance Benchmark Standards is sufficient	Y
8	Solution requires at minimum, the following GB of RAM. RAM must be compatible with CPU and full error correction functionality to include ECC. All memory modules must be the same type and size. All memory must be installed in a manner to take full advantage of processor capabilities.	128GB
9	Solution requires that all memory channels must be symmetrically populated to achieve memory bandwidth of referenced performance benchmark	Y
10	Solution requires at minimum 25% of the provided DIMM slots to be unpopulated at time of delivery.	Y
11	The solution must support at minimum, the following sustainable throughput IOs per second.	375 IOPs
12	Rack Mounted Server should not exceed (4U) in size and fit in an “industry standard” 42U rack without special modifications to the rack and/or server. The server mount brackets should be “generic” for all types of 42U racks. Rail type: Tool-less square-hole sliding. Cable: Side-reversible for non-blade solutions.	N
13	Blade type:	Double slot full height blade server (max)

14	The solution must be a rack or blade (specified at time of delivery order) server. If Rack mounted server, the rail type will be tool-less square-holes (default is RACK)	Y
15	(1) Hard drive raid controller that will support at minimum RAID1 and “hot spare” automatic drive rebuild functionality for (at minimum) RAID1 for “Rack Mount Servers”. When server is configured as a transaction server, a separate RAID Controller or second channel on the same controller is required for the “temp file” RAID group. Must support SAS drives.	N
16	The solution must support RAID 1 for Blade Servers. Must support SAS drives.	Y
17	The solution is required to have a minimum Controller Cache of 256MB. Blade Servers are only mandatory if not being virtualized. If virtualized, they will be boot from SAN.	Y
18	The solution must support a minimum of 1 Controller.	Y
19	The solution must support a minimum private 32KB L1 instructional cache and private 32KB L1 data cache for each processor core. Minimum 2MB L2 unified cache on chip and 6MB or greater shared L3 cache.	Y
20	The solution must support processors capable of Symmetrical multi processing.	Y
21	Solution must support at minimum the following number of network interface cards with TCP checkcum offload functionality. for Windows only.	N
22	Solution must support a minimum network port count of 2. More may be required dependant on virtual infrastructure requirements (to be specified at time of delivery order), for Rack Mount Servers Only.	N
23	Solution must support a minimum of 1GB of Bandwith.	N
24	Solution must support dual imbedded switches for Blade Chassis components for Blade Servers.	N
25	For Virtual Environments only, solution must support a base set of 4 ports to be used for virtual guests, 1 for the console, 1 for the live migration. Additional may be required dependant on the profile of workload/application. For Rack Mount Servers Only.	N
26	Solution must support a base set of 2 ports or more for cluster interconnects dependant on cluster traffic. For Cluster Environments. Number required…(minimum is 2)	N
27	Solution must support embedded port count of one “card”, all interfaces used are spread across two “cards” (to include at least on add-on NIC). The goal is physical separation of the chipset / ASIC used on the redundant port, for each function. Support for “simple failover” (with a single IP address) and independent usage (with multiple IP addresses) is required.	N

28	Solution must provide a minimum of (3) internal hard drives with average throughput of 80 MB/s with no greater than 4ms latency. Drives must support 3ms read times and 4ms write times. In support of this solution, the drives must provide at minimum the application specific (provided at time of delivery order) usable disk space.	N
29	Solution for Blade Servers will consist of Number required…(the required amount is 2) Internal Hard Drives with an average throughput of 80MB/s with no greater than 4ms latency. Drives must support 3ms read time and 4ms write times. The drives must be Number required…(the required amount is 72GB) each. Mandatory for Blade Servers only is not being used for virtualization.	Y
30	Solution must support Internal hard drive speed with a minimum of 10K RPM. Mandatory for Blade Servers only is not being used for virtualization.	Y
31	Solution must support Internal hard drive capacity requirement with a minimum specified per Workload specific usable storage space for Rack Mount Servers.	N
32	The solution is required to support a minimum Controller Cache for internal stoage of 512MB with battery backup.	N
33	If there is a need for additional local storage, than Internal drives will be configured with the following RAID configuration on controller 2 provided (e.g. “temp file” for transaction or standalone server configurations). The additional drives may be required and will be configured with the appropriate RAID technology based on the application's performance and availability requirements. For any application that requires a database server the second controller is a requirement. Optimal configuration consists of the fewest quantity of drives in order to meet the performance and reliability requirements. The drives will be configured in the vendor’s factory prior to delivery at the VA. RAID Configuration will be RAID1 for Rack Mount Servers. Not applicable for Blade Server.	N
34	Solution BIOS must support boot from SAN	Y
35	Solution must be virtualization aware and capable of supporting Type 1 virtualization	Y
36	Solution must be configured with a minimum of N+1 redundancy for the cooling fan.	Y
37	External storage will be fibre channel/iSCSI/NFS/or determined by application requirements (specified at time of delivery order). If the connection is FC (fibre channel) the server must provide dual HBA FC cards with duplex LC connector. If using FC HBAs, the HBAs must provide load balancing and failover. If the connect is SCSI, the server must provide (2) PCI-E compatible SCSI cards (one card will be connected, one will be a cold spare). All external storage cards will be installed and configured in the vendor factory prior to arrival at a VA facility. if the external storage is NONE, the server will require internal storage only as defined above in requirement 10 (default is SCSI)	N

38	Solution must consist of a minimum port count for External storage of 2 independent cards with a minimum or 2 ports each. For Rack Mount Servers only.	N
39	Solution must consist of a minimum Bandwidth for External storage of 4GB for optical or 1GB for copper. Required number is 4GB for Optical and 1GB for Copper.	N
40	Solution for External Storage must support storage interface devices in accordance to the task order. Solution must be supported by the Operating System specified within the task order.	N
41	Solution for External storage for Blade Chassis Component must include Dual embedded switches. This also may require Blade Enclosure Chassis to include required components as per task order. Mandatory for Blade Servers, only for Legacy Blade Architectures.	Y
42	Server must support USB v2.0 or higher	Y
43	Server power supplies must provide N+1 redundancy.	Y
44	Server voltage must be 208V input voltage on power supply.	Y
45	Server cord type must be IEC.	Y
46	SERVER must provide lights out / out of band management functionality to include command line and console access, secure IP-based remote management that complies with all VA security requirements as listed within the PWS and the ability to power off/on/reset the server remotely through the use of a dedicated network interface.	Y
47	Server must provide remote management capability for Virtual media (allows remote system's CD/DVD (or ISO file) to be mounted on the managed system during management connection.	Y
48	Server must provide remote management capability to include Virtual Console (keyboard/video/mouse usage).	Y
49	Server must provide remote management capability for Virtual Console Sharing	Y
50	Server must provide remote management capability for Virtual flash media support (allows remote system's flash memory storage device to be mounted on the managed system during management connection.	Y
51	System will provide Active Directory support integration.	Y
52	Server will provide hardware management software as an agent or agent-less SNMP agent	Y
53	Hardware events for the server will include exceptions, diagnostics and failures. Information will be exposed through SNMP with documented MIBs	Y
54	All server information collected will be available to be collected to an enterprise management framework. Server collection data structure must be ODBC / JDBC compliant in a manner that preserves data fields for the diagnostic information (e.g: date/time, error code, module, description, system identification, status and system configuration)	Y

55	There will be no Operating System loaded on any purchased system unless otherwise specified within task order. Hardware is required to Support the latest version of both Windows and Linux Operating Systems. Hardware is required to support the latest stable kernel version of Operating System. If Hardware is purchased with or for Linux Operating Systems it is required to be 64-bit hardware.	Y
56	Support for Remote KVM Control will include Remote Keyboard/Video/Mouse Control with the ability to remotely connect to the server's external keyboard, video, and mouse ports through a networked KVM switch. Also, include Remote Power Disconnect with the ability to remotely disconnect/reconnect server to power source	Y
57	The existing KVM technology is IP.	Y
58	The server solution will include KVM connectors/dongles as per task order	Y

	Medium Workload Server (Class B) - Rack	
	OEM & Model/Part Number:	
Reference Number	**Requirement**	**Rack Mount Server**
1	Solution must provide x86 or x64 processor. The solution requires the minimum number of processor sockets on the server.	>=2
2	Solution must meet performance capacity with the minimum value within the SPEC INT_RATE_BASE 2006 benchmark test. This should be demonstrated via published benchmark results applicable to the specific server configuration.	>=200
3	Solution must support a minimum Socket Count of which meets the Peformance Benchmark Standards (found in reference 2)	Y
4	Solution must support a core count at a minimal amount to meet the Performance Benchmark Standards. (found in reference 2)	Y
5	Solution requires the minimum cores per processor as specified in the SPEC Benchmark Standard. (found in reference 2)	Y
6	Solution must have minimal Socket Count due to licensing cost per socket, and have minimum count for performance/capacity	Y
7	Solution must have minimum Core count expected for performance / capacity, level is equal to quad-core. Any amount that meets the Performance Benchmark Standards is sufficient	Y
8	Solution requires at minimum, the following GB of RAM. RAM must be compatible with CPU and full error correction functionality to include ECC. All memory modules must be the same type and size. All memory must be installed in a manner to take full advantage of processor capabilities.	48GB
9	Solution requires that all memory channels must be symmetrically populated to achieve memory bandwidth of referenced performance benchmark	Y
10	Solution requires at minimum 25% of the provided DIMM slots to be unpopulated at time of delivery.	Y
11	The solution must support at minimum, the following sustainable throughput IOs per second.	150 IOPs
12	Rack Mounted Server should not exceed (2U) in size and fit in an “industry standard” 42U rack without special modifications to the rack and/or server. The server mount brackets should be “generic” for all types of 42U racks. Rail type: Tool-less square-hole sliding. Cable: Side-reversible for non-blade solutions.	Y
13	Rack mount type	2U

14	The solution must be a rack or blade (specified at time of delivery order) server. If Rack mounted server, the rail type will be tool-less square-holes (default is RACK)	Y
15	(1) Hard drive raid controller that will support at minimum RAID1 and “hot spare” automatic drive rebuild functionality for (at minimum) RAID1 for “Rack Mount Servers”. When server is configured as a transaction server, a separate RAID Controller or second channel on the same controller is required for the “temp file” RAID group. Must support SAS drives.	Y
16	The solution must support RAID 1 for Blade Servers. Must support SAS drives.	N
17	The solution is required to have a minimum Controller Cache of 256MB. Blade Servers are only mandatory if not being virtualized. If virtualized, they will be boot from SAN.	Y
18	The solution must support a minimum of 1 Controller.	Y
19	The solution must support a minimum private 32KB L1 instructional cache and private 32KB L1 data cache for each processor core. Minimum 2MB L2 unified cache on chip and 6MB or greater shared L3 cache.	Y
20	The solution must support processors capable of Symmetrical multi processing.	Y
21	Solution must support at minimum the following number of network interface cards with TCP checkcum offload functionality. for Windows only.	2
22	Solution must support a minimum network port count of 2. More may be required dependant on virtual infrastructure requirements (to be specified at time of delivery order), for Rack Mount Servers Only.	Y
23	Solution must support a minimum of 1GB of Bandwith.	Y
24	Solution must support dual imbedded switches for Blade Chassis components for Blade Servers.	N
25	For Virtual Environments only, solution must support a base set of 4 ports to be used for virtual guests, 1 for the console, 1 for the live migration. Additional may be required dependant on the profile of workload/application. For Rack Mount Servers Only.	Y
26	Solution must support a base set of 2 ports or more for cluster interconnects dependant on cluster traffic. For Cluster Environments. Number required…(minimum is 2)	Y
27	Solution must support embedded port count of one “card”, all interfaces used are spread across two “cards” (to include at least on add-on NIC). The goal is physical separation of the chipset / ASIC used on the redundant port, for each function. Support for “simple failover” (with a single IP address) and independent usage (with multiple IP addresses) is required.	Y

28	Solution must provide a minimum of (3) internal hard drives with average throughput of 80 MB/s with no greater than 4ms latency. Drives must support 3ms read times and 4ms write times. In support of this solution, the drives must provide at minimum the application specific (provided at time of delivery order) usable disk space.	Y
29	Solution for Blade Servers will consist of Number required…(the required amount is 2) Internal Hard Drives with an average throughput of 80MB/s with no greater than 4ms latency. Drives must support 3ms read time and 4ms write times. The drives must be Number required…(the required amount is 72GB) each. Mandatory for Blade Servers only is not being used for virtualization.	Y
30	Solution must support Internal hard drive speed with a minimum of 10K RPM. Mandatory for Blade Servers only is not being used for virtualization.	Y
31	Solution must support Internal hard drive capacity requirement with a minimum specified per Workload specific usable storage space for Rack Mount Servers.	300GB
32	The solution is required to support a minimum Controller Cache for internal stoage of 512MB with battery backup.	Y
33	If there is a need for additional local storage, than Internal drives will be configured with the following RAID configuration on controller 2 provided (e.g. “temp file” for transaction or standalone server configurations). The additional drives may be required and will be configured with the appropriate RAID technology based on the application's performance and availability requirements. For any application that requires a database server the second controller is a requirement. Optimal configuration consists of the fewest quantity of drives in order to meet the performance and reliability requirements. The drives will be configured in the vendor’s factory prior to delivery at the VA. RAID Configuration will be RAID1 for Rack Mount Servers. Not applicable for Blade Server.	Y
34	Solution BIOS must support boot from SAN	Y
35	Solution must be virtualization aware and capable of supporting Type 1 virtualization	Y
36	Solution must be configured with a minimum of N+1 redundancy for the cooling fan.	Y
37	External storage will be fibre channel/iSCSI/NFS/or determined by application requirements (specified at time of delivery order). If the connection is FC (fibre channel) the server must provide dual HBA FC cards with duplex LC connector. If using FC HBAs, the HBAs must provide load balancing and failover. If the connect is SCSI, the server must provide (2) PCI-E compatible SCSI cards (one card will be connected, one will be a cold spare). All external storage cards will be installed and configured in the vendor factory prior to arrival at a VA facility. if the external storage is NONE, the server will require internal storage only as defined above in requirement 10 (default is SCSI)	Y

38	Solution must consist of a minimum port count for External storage of 2 independent cards with a minimum or 2 ports each. For Rack Mount Servers only.	Y
39	Solution must consist of a minimum Bandwidth for External storage of 4GB for optical or 1GB for copper. Required number is 4GB for Optical and 1GB for Copper.	Y
40	Solution for External Storage must support storage interface devices in accordance to the task order. Solution must be supported by the Operating System specified within the task order.	Y
41	Solution for External storage for Blade Chassis Component must include Dual embedded switches. This also may require Blade Enclosure Chassis to include required components as per task order. Mandatory for Blade Servers, only for Legacy Blade Architectures.	N
42	Server must support USB v2.0 or higher	Y
43	Server power supplies must provide N+1 redundancy.	Y
44	Server voltage must be 208V input voltage on power supply.	Y
45	Server cord type must be IEC.	Y
46	SERVER must provide lights out / out of band management functionality to include command line and console access, secure IP-based remote management that complies with all VA security requirements as listed within the PWS and the ability to power off/on/reset the server remotely through the use of a dedicated network interface.	Y
47	Server must provide remote management capability for Virtual media (allows remote system's CD/DVD (or ISO file) to be mounted on the managed system during management connection.	Y
48	Server must provide remote management capability to include Virtual Console (keyboard/video/mouse usage).	Y
49	Server must provide remote management capability for Virtual Console Sharing	Y
50	Server must provide remote management capability for Virtual flash media support (allows remote system's flash memory storage device to be mounted on the managed system during management connection.	Y
51	System will provide Active Directory support integration.	Y
52	Server will provide hardware management software as an agent or agent-less SNMP agent	Y
53	Hardware events for the server will include exceptions, diagnostics and failures. Information will be exposed through SNMP with documented MIBs	Y
54	All server information collected will be available to be collected to an enterprise management framework. Server collection data structure must be ODBC / JDBC compliant in a manner that preserves data fields for the diagnostic information (e.g: date/time, error code, module, description, system identification, status and system configuration)	Y

55	There will be no Operating System loaded on any purchased system unless otherwise specified within task order. Hardware is required to Support the latest version of both Windows and Linux Operating Systems. Hardware is required to support the latest stable kernel version of Operating System. If Hardware is purchased with or for Linux Operating Systems it is required to be 64-bit hardware.	Y
56	Support for Remote KVM Control will include Remote Keyboard/Video/Mouse Control with the ability to remotely connect to the server's external keyboard, video, and mouse ports through a networked KVM switch. Also, include Remote Power Disconnect with the ability to remotely disconnect/reconnect server to power source	Y
57	The existing KVM technology is IP.	Y
58	The server solution will include KVM connectors/dongles as per task order	Y

	Medium Workload Server (Class B) - Blade	
	OEM & Model/Part Number:	
Reference Number	**Requirement**	**Blade Server**
1	Solution must provide x86 or x64 processor. The solution requires the minimum number of processor sockets on the server.	>=2
2	Solution must meet performance capacity with the minimum value within the SPEC INT_RATE_BASE 2006 benchmark test. This should be demonstrated via published benchmark results applicable to the specific server configuration.	>=200
3	Solution must support a minimum Socket Count of which meets the Peformance Benchmark Standards (found in reference 2)	Y
4	Solution must support a core count at a minimal amount to meet the Performance Benchmark Standards. (found in reference 2)	Y
5	Solution requires the minimum cores per processor as specified in the SPEC Benchmark Standard. (found in reference 2)	Y
6	Solution must have minimal Socket Count due to licensing cost per socket, and have minimum count for performance/capacity	Y
7	Solution must have minimum Core count expected for performance / capacity, level is equal to quad-core. Any amount that meets the Performance Benchmark Standards is sufficient	Y
8	Solution requires at minimum, the following GB of RAM. RAM must be compatible with CPU and full error correction functionality to include ECC. All memory modules must be the same type and size. All memory must be installed in a manner to take full advantage of processor capabilities.	48GB
9	Solution requires that all memory channels must be symmetrically populated to achieve memory bandwidth of referenced performance benchmark	Y
10	Solution requires at minimum 25% of the provided DIMM slots to be unpopulated at time of delivery.	Y
11	The solution must support at minimum, the following sustainable throughput IOs per second.	150 IOPs
12	Rack Mounted Server should not exceed (2U) in size and fit in an “industry standard” 42U rack without special modifications to the rack and/or server. The server mount brackets should be “generic” for all types of 42U racks. Rail type: Tool-less square-hole sliding. Cable: Side-reversible for non-blade solutions.	N
13	Blade type	Double slot full height blade server (max)

14	The solution must be a rack or blade (specified at time of delivery order) server. If Rack mounted server, the rail type will be tool-less square-holes (default is RACK)	Y
15	(1) Hard drive raid controller that will support at minimum RAID1 and “hot spare” automatic drive rebuild functionality for (at minimum) RAID1 for “Rack Mount Servers”. When server is configured as a transaction server, a separate RAID Controller or second channel on the same controller is required for the “temp file” RAID group. Must support SAS drives.	N
16	The solution must support RAID 1 for Blade Servers. Must support SAS drives.	Y
17	The solution is required to have a minimum Controller Cache of 256MB. Blade Servers are only mandatory if not being virtualized. If virtualized, they will be boot from SAN.	Y
18	The solution must support a minimum of 1 Controller.	Y
19	The solution must support a minimum private 32KB L1 instructional cache and private 32KB L1 data cache for each processor core. Minimum 2MB L2 unified cache on chip and 6MB or greater shared L3 cache.	Y
20	The solution must support processors capable of Symmetrical multi processing.	Y
21	Solution must support at minimum the following number of network interface cards with TCP checkcum offload functionality. for Windows only.	N
22	Solution must support a minimum network port count of 2. More may be required dependant on virtual infrastructure requirements (to be specified at time of delivery order), for Rack Mount Servers Only.	N
23	Solution must support a minimum of 1GB of Bandwith.	N
24	Solution must support dual imbedded switches for Blade Chassis components for Blade Servers.	N
25	For Virtual Environments only, solution must support a base set of 4 ports to be used for virtual guests, 1 for the console, 1 for the live migration. Additional may be required dependant on the profile of workload/application. For Rack Mount Servers Only.	N
26	Solution must support a base set of 2 ports or more for cluster interconnects dependant on cluster traffic. For Cluster Environments. Number required…(minimum is 2)	N
27	Solution must support embedded port count of one “card”, all interfaces used are spread across two “cards” (to include at least on add-on NIC). The goal is physical separation of the chipset / ASIC used on the redundant port, for each function. Support for “simple failover” (with a single IP address) and independent usage (with multiple IP addresses) is required.	N

28	Solution must provide a minimum of (3) internal hard drives with average throughput of 80 MB/s with no greater than 4ms latency. Drives must support 3ms read times and 4ms write times. In support of this solution, the drives must provide at minimum the application specific (provided at time of delivery order) usable disk space.	N
29	Solution for Blade Servers will consist of Number required…(the required amount is 2) Internal Hard Drives with an average throughput of 80MB/s with no greater than 4ms latency. Drives must support 3ms read time and 4ms write times. The drives must be Number required…(the required amount is 72GB) each. Mandatory for Blade Servers only is not being used for virtualization.	Y
30	Solution must support Internal hard drive speed with a minimum of 10K RPM. Mandatory for Blade Servers only is not being used for virtualization.	Y
31	Solution must support Internal hard drive capacity requirement with a minimum specified per Workload specific usable storage space for Rack Mount Servers.	N
32	The solution is required to support a minimum Controller Cache for internal stoage of 512MB with battery backup.	N
33	If there is a need for additional local storage, than Internal drives will be configured with the following RAID configuration on controller 2 provided (e.g. “temp file” for transaction or standalone server configurations). The additional drives may be required and will be configured with the appropriate RAID technology based on the application's performance and availability requirements. For any application that requires a database server the second controller is a requirement. Optimal configuration consists of the fewest quantity of drives in order to meet the performance and reliability requirements. The drives will be configured in the vendor’s factory prior to delivery at the VA. RAID Configuration will be RAID1 for Rack Mount Servers. Not applicable for Blade Server.	N
34	Solution BIOS must support boot from SAN	Y
35	Solution must be virtualization aware and capable of supporting Type 1 virtualization	Y
36	Solution must be configured with a minimum of N+1 redundancy for the cooling fan.	Y
37	External storage will be fibre channel/iSCSI/NFS/or determined by application requirements (specified at time of delivery order). If the connection is FC (fibre channel) the server must provide dual HBA FC cards with duplex LC connector. If using FC HBAs, the HBAs must provide load balancing and failover. If the connect is SCSI, the server must provide (2) PCI-E compatible SCSI cards (one card will be connected, one will be a cold spare). All external storage cards will be installed and configured in the vendor factory prior to arrival at a VA facility. if the external storage is NONE, the server will require internal storage only as defined above in requirement 10 (default is SCSI)	N

38	Solution must consist of a minimum port count for External storage of 2 independent cards with a minimum or 2 ports each. For Rack Mount Servers only.	N
39	Solution must consist of a minimum Bandwidth for External storage of 4GB for optical or 1GB for copper. Required number is 4GB for Optical and 1GB for Copper.	N
40	Solution for External Storage must support storage interface devices in accordance to the task order. Solution must be supported by the Operating System specified within the task order.	N
41	Solution for External storage for Blade Chassis Component must include Dual embedded switches. This also may require Blade Enclosure Chassis to include required components as per task order. Mandatory for Blade Servers, only for Legacy Blade Architectures.	Y
42	Server must support USB v2.0 or higher	Y
43	Server power supplies must provide N+1 redundancy.	Y
44	Server voltage must be 208V input voltage on power supply.	Y
45	Server cord type must be IEC.	Y
46	SERVER must provide lights out / out of band management functionality to include command line and console access, secure IP-based remote management that complies with all VA security requirements as listed within the PWS and the ability to power off/on/reset the server remotely through the use of a dedicated network interface.	Y
47	Server must provide remote management capability for Virtual media (allows remote system's CD/DVD (or ISO file) to be mounted on the managed system during management connection.	Y
48	Server must provide remote management capability to include Virtual Console (keyboard/video/mouse usage).	Y
49	Server must provide remote management capability for Virtual Console Sharing	Y
50	Server must provide remote management capability for Virtual flash media support (allows remote system's flash memory storage device to be mounted on the managed system during management connection.	Y
51	System will provide Active Directory support integration.	Y
52	Server will provide hardware management software as an agent or agent-less SNMP agent	Y
53	Hardware events for the server will include exceptions, diagnostics and failures. Information will be exposed through SNMP with documented MIBs	Y
54	All server information collected will be available to be collected to an enterprise management framework. Server collection data structure must be ODBC / JDBC compliant in a manner that preserves data fields for the diagnostic information (e.g: date/time, error code, module, description, system identification, status and system configuration)	Y

55	There will be no Operating System loaded on any purchased system unless otherwise specified within task order. Hardware is required to Support the latest version of both Windows and Linux Operating Systems. Hardware is required to support the latest stable kernel version of Operating System. If Hardware is purchased with or for Linux Operating Systems it is required to be 64-bit hardware.	Y
56	Support for Remote KVM Control will include Remote Keyboard/Video/Mouse Control with the ability to remotely connect to the server's external keyboard, video, and mouse ports through a networked KVM switch. Also, include Remote Power Disconnect with the ability to remotely disconnect/reconnect server to power source	Y
57	The existing KVM technology is IP.	Y
58	The server solution will include KVM connectors/dongles as per task order	Y

	Light Workload Server (Class C) - Rack	
	OEM & Model/Part Number:	
Reference Number	**Requirement**	**Rack Mount Server**
1	Solution must provide x86 or x64 processor. The solution requires the minimum number of processor sockets on the server.	>=1
2	Solution must meet performance capacity with the minimum value within the SPEC INT_RATE_BASE 2006 benchmark test. This should be demonstrated via published benchmark results applicable to the specific server configuration.	>=200
3	Solution must support a minimum Socket Count of which meets the Peformance Benchmark Standards (found in reference 2)	Y
4	Solution must support a core count at a minimal amount to meet the Performance Benchmark Standards. (found in reference 2)	Y
5	Solution requires the minimum cores per processor as specified in the SPEC Benchmark Standard. (found in reference 2)	Y
6	Solution must have minimal Socket Count due to licensing cost per socket, and have minimum count for performance/capacity	Y
7	Solution must have minimum Core count expected for performance / capacity, level is equal to quad-core. Any amount that meets the Performance Benchmark Standards is sufficient	Y
8	Solution requires at minimum, the following GB of RAM. RAM must be compatible with CPU and full error correction functionality to include ECC. All memory modules must be the same type and size. All memory must be installed in a manner to take full advantage of processor capabilities.	16GB
9	Solution requires that all memory channels must be symmetrically populated to achieve memory bandwidth of referenced performance benchmark	Y
10	Solution requires at minimum 25% of the provided DIMM slots to be unpopulated at time of delivery.	Y
11	The solution must support at minimum, the following sustainable throughput IOs per second.	75 IOPs
12	Rack Mounted Server should not exceed (2U) in size and fit in an “industry standard” 42U rack without special modifications to the rack and/or server. The server mount brackets should be “generic” for all types of 42U racks. Rail type: Tool-less square-hole sliding. Cable: Side-reversible for non-blade solutions.	Y
13	Rack mount type	2U

14	The solution must be a rack or blade (specified at time of delivery order) server. If Rack mounted server, the rail type will be tool-less square-holes (default is RACK)	Y
15	(1) Hard drive raid controller that will support at minimum RAID1 and “hot spare” automatic drive rebuild functionality for (at minimum) RAID1 for “Rack Mount Servers”. When server is configured as a transaction server, a separate RAID Controller or second channel on the same controller is required for the “temp file” RAID group. Must support SAS drives.	Y
16	The solution must support RAID 1 for Blade Servers. Must support SAS drives.	N
17	The solution is required to have a minimum Controller Cache of 256MB. Blade Servers are only mandatory if not being virtualized. If virtualized, they will be boot from SAN.	Y
18	The solution must support a minimum of 1 Controller.	Y
19	The solution must support a minimum private 32KB L1 instructional cache and private 32KB L1 data cache for each processor core. Minimum 2MB L2 unified cache on chip and 6MB or greater shared L3 cache.	Y
20	The solution must support processors capable of Symmetrical multi processing.	Y
21	Solution must support at minimum the following number of network interface cards with TCP checkcum offload functionality. for Windows only.	2
22	Solution must support a minimum network port count of 2. More may be required dependant on virtual infrastructure requirements (to be specified at time of delivery order), for Rack Mount Servers Only.	Y
23	Solution must support a minimum of 1GB of Bandwith.	Y
24	Solution must support dual imbedded switches for Blade Chassis components for Blade Servers.	N
25	For Virtual Environments only, solution must support a base set of 4 ports to be used for virtual guests, 1 for the console, 1 for the live migration. Additional may be required dependant on the profile of workload/application. For Rack Mount Servers Only.	Y
26	Solution must support a base set of 2 ports or more for cluster interconnects dependant on cluster traffic. For Cluster Environments. Number required…(minimum is 2)	Y
27	Solution must support embedded port count of one “card”, all interfaces used are spread across two “cards” (to include at least on add-on NIC). The goal is physical separation of the chipset / ASIC used on the redundant port, for each function. Support for “simple failover” (with a single IP address) and independent usage (with multiple IP addresses) is required.	Y

28	Solution must provide a minimum of (3) internal hard drives with average throughput of 80 MB/s with no greater than 4ms latency. Drives must support 3ms read times and 4ms write times. In support of this solution, the drives must provide at minimum the application specific (provided at time of delivery order) usable disk space.	Y
29	Solution for Blade Servers will consist of Number required…(the required amount is 2) Internal Hard Drives with an average throughput of 80MB/s with no greater than 4ms latency. Drives must support 3ms read time and 4ms write times. The drives must be Number required…(the required amount is 72GB) each. Mandatory for Blade Servers only is not being used for virtualization.	Y
30	Solution must support Internal hard drive speed with a minimum of 10K RPM. Mandatory for Blade Servers only is not being used for virtualization.	Y
31	Solution must support Internal hard drive capacity requirement with a minimum specified per Workload specific usable storage space for Rack Mount Servers.	72GB
32	The solution is required to support a minimum Controller Cache for internal stoage of 512MB with battery backup.	Y
33	If there is a need for additional local storage, than Internal drives will be configured with the following RAID configuration on controller 2 provided (e.g. “temp file” for transaction or standalone server configurations). The additional drives may be required and will be configured with the appropriate RAID technology based on the application's performance and availability requirements. For any application that requires a database server the second controller is a requirement. Optimal configuration consists of the fewest quantity of drives in order to meet the performance and reliability requirements. The drives will be configured in the vendor’s factory prior to delivery at the VA. RAID Configuration will be RAID1 for Rack Mount Servers. Not applicable for Blade Server.	Y
34	Solution BIOS must support boot from SAN	Y
35	Solution must be virtualization aware and capable of supporting Type 1 virtualization	Y
36	Solution must be configured with a minimum of N+1 redundancy for the cooling fan.	Y
37	External storage will be fibre channel/iSCSI/NFS/or determined by application requirements (specified at time of delivery order). If the connection is FC (fibre channel) the server must provide dual HBA FC cards with duplex LC connector. If using FC HBAs, the HBAs must provide load balancing and failover. If the connect is SCSI, the server must provide (2) PCI-E compatible SCSI cards (one card will be connected, one will be a cold spare). All external storage cards will be installed and configured in the vendor factory prior to arrival at a VA facility. if the external storage is NONE, the server will require internal storage only as defined above in requirement 10 (default is SCSI)	Y

38	Solution must consist of a minimum port count for External storage of 2 independent cards with a minimum or 2 ports each. For Rack Mount Servers only.	Y
39	Solution must consist of a minimum Bandwidth for External storage of 4GB for optical or 1GB for copper. Required number is 4GB for Optical and 1GB for Copper.	Y
40	Solution for External Storage must support storage interface devices in accordance to the task order. Solution must be supported by the Operating System specified within the task order.	Y
41	Solution for External storage for Blade Chassis Component must include Dual embedded switches. This also may require Blade Enclosure Chassis to include required components as per task order. Mandatory for Blade Servers, only for Legacy Blade Architectures.	N
42	Server must support USB v2.0 or higher	Y
43	Server power supplies must provide N+1 redundancy.	Y
44	Server voltage must be 208V input voltage on power supply.	Y
45	Server cord type must be IEC.	Y
46	SERVER must provide lights out / out of band management functionality to include command line and console access, secure IP-based remote management that complies with all VA security requirements as listed within the PWS and the ability to power off/on/reset the server remotely through the use of a dedicated network interface.	Y
47	Server must provide remote management capability for Virtual media (allows remote system's CD/DVD (or ISO file) to be mounted on the managed system during management connection.	Y
48	Server must provide remote management capability to include Virtual Console (keyboard/video/mouse usage).	Y
49	Server must provide remote management capability for Virtual Console Sharing	Y
50	Server must provide remote management capability for Virtual flash media support (allows remote system's flash memory storage device to be mounted on the managed system during management connection.	Y
51	System will provide Active Directory support integration.	Y
52	Server will provide hardware management software as an agent or agent-less SNMP agent	Y
53	Hardware events for the server will include exceptions, diagnostics and failures. Information will be exposed through SNMP with documented MIBs	Y
54	All server information collected will be available to be collected to an enterprise management framework. Server collection data structure must be ODBC / JDBC compliant in a manner that preserves data fields for the diagnostic information (e.g: date/time, error code, module, description, system identification, status and system configuration)	Y

55	There will be no Operating System loaded on any purchased system unless otherwise specified within task order. Hardware is required to Support the latest version of both Windows and Linux Operating Systems. Hardware is required to support the latest stable kernel version of Operating System. If Hardware is purchased with or for Linux Operating Systems it is required to be 64-bit hardware.	Y
56	Support for Remote KVM Control will include Remote Keyboard/Video/Mouse Control with the ability to remotely connect to the server's external keyboard, video, and mouse ports through a networked KVM switch. Also, include Remote Power Disconnect with the ability to remotely disconnect/reconnect server to power source	Y
57	The existing KVM technology is IP.	Y
58	The server solution will include KVM connectors/dongles as per task order	Y

	Light Workload Server (Class C) - Blade	
	OEM & Model/Part Number:	
Reference Number	**Requirement**	**Blade Server**
1	Solution must provide x86 or x64 processor. The solution requires the minimum number of processor sockets on the server.	>=1
2	Solution must meet performance capacity with the minimum value within the SPEC INT_RATE_BASE 2006 benchmark test. This should be demonstrated via published benchmark results applicable to the specific server configuration.	>=200
3	Solution must support a minimum Socket Count of which meets the Peformance Benchmark Standards (found in reference 2)	Y
4	Solution must support a core count at a minimal amount to meet the Performance Benchmark Standards. (found in reference 2)	Y
5	Solution requires the minimum cores per processor as specified in the SPEC Benchmark Standard. (found in reference 2)	Y
6	Solution must have minimal Socket Count due to licensing cost per socket, and have minimum count for performance/capacity	Y
7	Solution must have minimum Core count expected for performance / capacity, level is equal to quad-core. Any amount that meets the Performance Benchmark Standards is sufficient	Y
8	Solution requires at minimum, the following GB of RAM. RAM must be compatible with CPU and full error correction functionality to include ECC. All memory modules must be the same type and size. All memory must be installed in a manner to take full advantage of processor capabilities.	16GB
9	Solution requires that all memory channels must be symmetrically populated to achieve memory bandwidth of referenced performance benchmark	Y
10	Solution requires at minimum 25% of the provided DIMM slots to be unpopulated at time of delivery.	Y
11	The solution must support at minimum, the following sustainable throughput IOs per second.	75 IOPs
12	Rack Mounted Server should not exceed (2U) in size and fit in an “industry standard” 42U rack without special modifications to the rack and/or server. The server mount brackets should be “generic” for all types of 42U racks. Rail type: Tool-less square-hole sliding. Cable: Side-reversible for non-blade solutions.	N
13	Blade type	Double slot full height blade server (max)

14	The solution must be a rack or blade (specified at time of delivery order) server. If Rack mounted server, the rail type will be tool-less square-holes (default is RACK)	Y
15	(1) Hard drive raid controller that will support at minimum RAID1 and “hot spare” automatic drive rebuild functionality for (at minimum) RAID1 for “Rack Mount Servers”. When server is configured as a transaction server, a separate RAID Controller or second channel on the same controller is required for the “temp file” RAID group. Must support SAS drives.	N
16	The solution must support RAID 1 for Blade Servers. Must support SAS drives.	Y
17	The solution is required to have a minimum Controller Cache of 256MB. Blade Servers are only mandatory if not being virtualized. If virtualized, they will be boot from SAN.	Y
18	The solution must support a minimum of 1 Controller.	Y
19	The solution must support a minimum private 32KB L1 instructional cache and private 32KB L1 data cache for each processor core. Minimum 2MB L2 unified cache on chip and 6MB or greater shared L3 cache.	Y
20	The solution must support processors capable of Symmetrical multi processing.	Y
21	Solution must support at minimum the following number of network interface cards with TCP checkcum offload functionality. for Windows only.	N
22	Solution must support a minimum network port count of 2. More may be required dependant on virtual infrastructure requirements (to be specified at time of delivery order), for Rack Mount Servers Only.	N
23	Solution must support a minimum of 1GB of Bandwith.	N
24	Solution must support dual imbedded switches for Blade Chassis components for Blade Servers.	N
25	For Virtual Environments only, solution must support a base set of 4 ports to be used for virtual guests, 1 for the console, 1 for the live migration. Additional may be required dependant on the profile of workload/application. For Rack Mount Servers Only.	N
26	Solution must support a base set of 2 ports or more for cluster interconnects dependant on cluster traffic. For Cluster Environments. Number required…(minimum is 2)	N
27	Solution must support embedded port count of one “card”, all interfaces used are spread across two “cards” (to include at least on add-on NIC). The goal is physical separation of the chipset / ASIC used on the redundant port, for each function. Support for “simple failover” (with a single IP address) and independent usage (with multiple IP addresses) is required.	N

28	Solution must provide a minimum of (3) internal hard drives with average throughput of 80 MB/s with no greater than 4ms latency. Drives must support 3ms read times and 4ms write times. In support of this solution, the drives must provide at minimum the application specific (provided at time of delivery order) usable disk space.	N
29	Solution for Blade Servers will consist of Number required…(the required amount is 2) Internal Hard Drives with an average throughput of 80MB/s with no greater than 4ms latency. Drives must support 3ms read time and 4ms write times. The drives must be Number required…(the required amount is 72GB) each. Mandatory for Blade Servers only is not being used for virtualization.	Y
30	Solution must support Internal hard drive speed with a minimum of 10K RPM. Mandatory for Blade Servers only is not being used for virtualization.	Y
31	Solution must support Internal hard drive capacity requirement with a minimum specified per Workload specific usable storage space for Rack Mount Servers.	N
32	The solution is required to support a minimum Controller Cache for internal stoage of 512MB with battery backup.	N
33	If there is a need for additional local storage, than Internal drives will be configured with the following RAID configuration on controller 2 provided (e.g. “temp file” for transaction or standalone server configurations). The additional drives may be required and will be configured with the appropriate RAID technology based on the application's performance and availability requirements. For any application that requires a database server the second controller is a requirement. Optimal configuration consists of the fewest quantity of drives in order to meet the performance and reliability requirements. The drives will be configured in the vendor’s factory prior to delivery at the VA. RAID Configuration will be RAID1 for Rack Mount Servers. Not applicable for Blade Server.	N
34	Solution BIOS must support boot from SAN	Y
35	Solution must be virtualization aware and capable of supporting Type 1 virtualization	Y
36	Solution must be configured with a minimum of N+1 redundancy for the cooling fan.	Y
37	External storage will be fibre channel/iSCSI/NFS/or determined by application requirements (specified at time of delivery order). If the connection is FC (fibre channel) the server must provide dual HBA FC cards with duplex LC connector. If using FC HBAs, the HBAs must provide load balancing and failover. If the connect is SCSI, the server must provide (2) PCI-E compatible SCSI cards (one card will be connected, one will be a cold spare). All external storage cards will be installed and configured in the vendor factory prior to arrival at a VA facility. if the external storage is NONE, the server will require internal storage only as defined above in requirement 10 (default is SCSI)	N

38	Solution must consist of a minimum port count for External storage of 2 independent cards with a minimum or 2 ports each. For Rack Mount Servers only.	N
39	Solution must consist of a minimum Bandwidth for External storage of 4GB for optical or 1GB for copper. Required number is 4GB for Optical and 1GB for Copper.	N
40	Solution for External Storage must support storage interface devices in accordance to the task order. Solution must be supported by the Operating System specified within the task order.	N
41	Solution for External storage for Blade Chassis Component must include Dual embedded switches. This also may require Blade Enclosure Chassis to include required components as per task order. Mandatory for Blade Servers, only for Legacy Blade Architectures.	Y
42	Server must support USB v2.0 or higher	Y
43	Server power supplies must provide N+1 redundancy.	Y
44	Server voltage must be 208V input voltage on power supply.	Y
45	Server cord type must be IEC.	Y
46	SERVER must provide lights out / out of band management functionality to include command line and console access, secure IP-based remote management that complies with all VA security requirements as listed within the PWS and the ability to power off/on/reset the server remotely through the use of a dedicated network interface.	Y
47	Server must provide remote management capability for Virtual media (allows remote system's CD/DVD (or ISO file) to be mounted on the managed system during management connection.	Y
48	Server must provide remote management capability to include Virtual Console (keyboard/video/mouse usage).	Y
49	Server must provide remote management capability for Virtual Console Sharing	Y
50	Server must provide remote management capability for Virtual flash media support (allows remote system's flash memory storage device to be mounted on the managed system during management connection.	Y
51	System will provide Active Directory support integration.	Y
52	Server will provide hardware management software as an agent or agent-less SNMP agent	Y
53	Hardware events for the server will include exceptions, diagnostics and failures. Information will be exposed through SNMP with documented MIBs	Y
54	All server information collected will be available to be collected to an enterprise management framework. Server collection data structure must be ODBC / JDBC compliant in a manner that preserves data fields for the diagnostic information (e.g: date/time, error code, module, description, system identification, status and system configuration)	Y

55	There will be no Operating System loaded on any purchased system unless otherwise specified within task order. Hardware is required to Support the latest version of both Windows and Linux Operating Systems. Hardware is required to support the latest stable kernel version of Operating System. If Hardware is purchased with or for Linux Operating Systems it is required to be 64-bit hardware.	Y
56	Support for Remote KVM Control will include Remote Keyboard/Video/Mouse Control with the ability to remotely connect to the server's external keyboard, video, and mouse ports through a networked KVM switch. Also, include Remote Power Disconnect with the ability to remotely disconnect/reconnect server to power source	Y
57	The existing KVM technology is IP.	Y
58	The server solution will include KVM connectors/dongles as per task order	Y

	Heavy Workload Blade Chassis (Class A)		
	OEM & Model/Part Number:		
Reference Number	**Requirement**	**Mandatory**	**Optional Feature, Not Mandatory**
1	Solution must support device bays sufficient to support 8 half height or 4 full height server or storage blades and the ability to mix form factors within the same chassis.	Y	
2	Solution must support a minimum of 80 Gb per chassis.	Y	
3	Solution must support independent hot swappable power supplies of sufficient quantity to power a fully populated chassis if two power supply failures occur at the same time.	Y	
4	Solution must support single-phase power subsystem. It is optional to also support three-phase or a -48V DC power subsystem.	Y	
5	Solution must support hot swappable fans of sufficient quantity to maintain a fully populated chassis within designed temperature limits in the event of 2 simultaneous fan failures.	Y	
6	Solution must not exceed 10U in height per single chassis.	Y	
7	Blade Server Management Software - Must support the ability to manage more than one chassis from the same console - Must support two or more simultaneous users - Must support multiple authentication mechanisms including Active Directory - Must support the ability to connect a virtual CD-ROM drive to individual blades - Must support the ability to power on/off and reset blades individually - Must provide real time monitoring of operational environment including blade temperature, power consumption, and hard drives that have failed or are pending failure - Must provide KVM console access to each blade individually	Y	
8	Solution will support Role-based security locally and/or with LDAP directory services.	Y	
9	Solution will provide a Blade Management Solution for Configuration and administration purposes.	Y	
10	Solution must support one or more of the following SAN Connectivity requirements; 4Gb, 8Gb with redundancy.	Y	
11	Solution must support north-bound SAN connectivity with a minimum of 6-8 Gb FC Connectivity.	Y	
12	Solution must support one or more of the following; 3 Gb 8-port SAS 2.0, iSCSI, or FCOE	Y	
13	Support for the following Interconnects: Low-latency and up to 40Gbps bandwidth with management and switch module		Y

14	Solution must support the following network connectivity requirements; 1-GbE, 10-GbE, 8-GbE FC with redundancy.	Y	
15	Support for one of the optional Interconnect modules: be able to divide each 10 Gb network connection into four independent physical NIC server connections. Each NIC can be configured from 100 Mb up to 10 Gb. Provide a full set of Layer 2 switching and Layer 3 routing features, sixteen internal downlinks, five uplinks and two internal cross-connects in a single blade switch, Blade Switch, 10 Gb Ethernet Blade Switch, 1/10 Gb Ethernet Module, 1 Gb Ethernet pass Thru Module, Blade 8 Gb SAN Switch		Y
16	Solution must support one or more of the following Power Cord options:	LV Power Cords 100-120V AC C19/C20 Jumper Cords HV Power Cords 200-240V AC	

	Light Workload Blade Chassis (Class B-C)		
	OEM & Model/Part Number:		
Reference Number	**Requirement**	**Mandatory**	**Optional Feature, Not Mandatory**
1	Solution must support device bays sufficient to support 8 half height or 4 full height server or storage blades and the ability to mix form factors within the same chassis.	y	
2	Solution must support a minimum of 80 Gb per chassis.	y	
3	Solution must support independent hot swappable power supplies of sufficient quantity to power a fully populated chassis if two power supply failures occur at the same time.	y	
4	Solution must support single-phase power subsystem. It is optional to also support three-phase or a -48V DC power subsystem.	Y	
5	Solution must support hot swappable fans of sufficient quantity to maintain a fully populated chassis within designed temperature limits in the event of 2 simultaneous fan failures.	Y	
6	Solution must not exceed 10U in height per single chassis.	Y	
7	Blade Server Management Software - Must support the ability to manage more than one chassis from the same console - Must support two or more simultaneous users - Must support multiple authentication mechanisms including Active Directory - Must support the ability to connect a virtual CD-ROM drive to individual blades - Must support the ability to power on/off and reset blades individually - Must provide real time monitoring of operational environment including blade temperature, power consumption, and hard drives that have failed or are pending failure - Must provide KVM console access to each blade individually	Y	
8	Solution will support Role-based security locally and/or with LDAP directory services.	y	
9	Solution will provide a Blade Management Solution for Configuration and administration purposes.	y	
10	Solution must support one or more of the following SAN Connectivity requirements; 4Gb, 8Gb with redundancy.	y	
11	Solution must support north-bound SAN connectivity with a minimum of 6-8 Gb FC Connectivity.	y	
12	Solution must support one or more of the following; 3 Gb 8-port SAS 2.0, iSCSI, or FCOE	y	
13	Support for the following Interconnects: Low-latency and up to 40Gbps bandwidth with management and switch module		y

14	Solution must support the following network connectivity requirements; 1-GbE, 10-GbE, 8-GbE FC with redundancy.	Y	
15	Support for one of the optional Interconnect modules: be able to divide each 10 Gb network connection into four independent physical NIC server connections. Each NIC can be configured from 100 Mb up to 10 Gb. Provide a full set of Layer 2 switching and Layer 3 routing features, sixteen internal downlinks, five uplinks and two internal cross-connects in a single blade switch, Blade Switch, 10 Gb Ethernet Blade Switch, 1/10 Gb Ethernet Module, 1 Gb Ethernet pass Thru Module, Blade 8 Gb SAN Switch		Y
16	Solution must support one or more of the following Power Cord options:	LV Power Cords 100-120V AC 2m 15A C13/C20 Jumper Cords HV Power Cords 200-240V AC	