IT Best Practices Audit™

TCS offers a wide range of IT Best Practices Audit content covering 15 subjects and over 2200 topics, including:

1. IT Cost Containment — 84 topics
2. Cloud Computing Readiness — 225 topics
3. Networks — 185 topics
4. Desktops and Printers — 208 topics
5. Storage — 130 topics
6. Microsoft Servers — 191 topics
7. iSeries Servers — 116 topics
8. Web Servers — 119 topics
9. Unix and Linux Servers — 134 topics
10. Database — 115 topics
11. Software Licensing — 24 topics
12. Telephony — 82 topics
13. Data Center — 253 topics
14. IT Leadership and Governance — 185 topics
15. Compliance and Security — 296 topics

IT Best Practices Audit™

Microsoft Servers Audit Categories and Topics

Category	Audit Topic
General	Name(s) of client resources providing data for this subject
General	Title(s) of client resources providing data for this subject
General	Collect General Server Info
General	Role of Server (file, print, database, application, desktop, DHCP, DNS, Web, Firewall, load balancer, virus, Intrusion detection/Prevention, etc)
General	Server Configuration and Operational Documentation
General	Change management process
General	Change management logs
General	Hypervisor name if applicable (VMware, Xen, HyperV, etc.)
General	Separate Development, Test, and Production Environments
General	Capacity Utilization and Planning Processes
General	Server management/data collection tools
General	Proactive meetings/communication with vendor representatives
Cost Metrics	IT Cost Metrics - Total Annual Cost Per Server
Cost Metrics	IT Cost Metrics - Number of Servers supported per Server Support Staff FTE
Staffing	Server Staffing
Staffing	Staff Certifications
Staffing	Staff Selection practices
Staffing	Staff Training
Staffing	Support hours
Hardware	% of servers less than 24 months old
Hardware	% of servers 25 - 48 months old
Hardware	% of servers more than 48 months old
Hardware	FSB speed/Chipset is use
Hardware	Number of Physical CPUs
Hardware	CPU Speed in GHz
Hardware	CPU Cache Size (Level 2 and Level 3)
Hardware	Total CPU Cores in server

Category	Audit Topic
Hardware	CPU utilization of Core #0
Hardware	% of CPU time spent in kernel or privileged mode
Hardware	% of CPU time spent handling interrupts from system devices
Hardware	CPU Queue length - total number of processes waiting for CPU resources. Divide this number by the available processors to obtain the metric for analysis
Hardware	Context switches per second -
Hardware	Server RAM provisioned/installed
Hardware	Physical memory - available bytes to processes after the OS and all other startup programs are loaded.
Hardware	Virtual memory - totals the page file reads and writes per second -
Hardware	Physical memory - Pool Nonpaged Bytes Counter. Check this at system startup for base value -
Hardware	Physical memory - Pool paged Bytes Counter. Check this at system startup for base value -
Hardware	Physical memory - Pool paged Failures Counter.
Hardware	Memory - Committed Bytes Counter
Virtualization	Use of OS Virtualization
Virtualization	Virtualization business case/justification
Virtualization	Use of 32 bit Virtualization OS (VMware, Hyper-V, Xen, etc)
Virtualization	Use of 64 bit Virtualization OS (VMware, Hyper-V, Xen, etc)
Virtualization	Server CPUs supports VT (Virtualization Technology) - may be required for 64 bit VMware host and guest operating system support
Virtualization	Compatibility of CPU's/Operating systems in a VMware VMotion server farm
Virtualization	Technical design - is there a single point of failure in the virtualized environment?
Virtualization	Compatibility and support of applications in a virtualized environment
Virtualization	Suitability of applications/servers for use in virtualization
Virtualization	Placement of domain controllers
Virtualization	Platform suitability assessment/due diligence
Virtualization	Contingency planning - what if a host server fails?
Virtualization	Capacity planning - how many guest machines can a host support, and what are the expected peak loads and times?
Virtualization	Review of Software licensing needs
Virtualization	Use or disposition of older (displaced) hardware
Virtualization	Plan for use of virtualization and clusters
Virtualization	Backups of hypervisors and environments
Virtualization	Use of resource throttling

Category	Audit Topic
Virtualization	Use of virtualization specific monitoring and data collection tools
Virtualization	Staff training
Virtualization	Security of virtualized systems
Virtualization	High availability strategy - use of host clusters, guest failover clusters, and network load balancing
Virtualization	VM Configuration mapping
Virtualization	Use of 802.1Q VLAN Tagging
Virtualization	Mapping of Host NICs and Physical Ethernet Switch ports
Virtualization	Network bandwidth design
Virtualization	Configuration and management of host Virtual Ethernet Switches
Virtualization	Network change and configuration management (NCCM)
Virtualization	Level of collaboration between the server and network teams
Hardware	Is firmware (like BIOS and I/O controllers) current?
Hardware	Redundant power supplies
Hardware	Use of UPS (uninterruptible Power Supply)
Hardware	Use of Power Conditioning and Surge Protectors
Hardware	2 separate power feeds to key components
Hardware	Dedicated power circuits for key components
Hardware	I/O bus/cards in use - PCI, PCI-E, etc
Hardware	Use of Out of Band Server management tools (like HP Integrated Lights Out Adapters, etc.)
Hardware	Use of multiple cards per bus
Operating System	Operating System in Use - NT 3.51 or earlier
Operating System	Operating System in Use - NT 4.0
Operating System	Operating System in Use - Server 2000
Operating System	Operating System in Use - Server 2003
Operating System	Operating System in Use - Server 2008
Operating System	Use of 32 bit server operating systems
Operating System	Use of 64 bit server operating systems
Operating System	Max memory supported by installed OS
Operating System	Support for more than 2GB address space
Operating System	Patch levels
Operating System	Patch Application/Management
Operating System	Are device and print drivers current?

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Operating System	Unused OS Services
Operating System	Page file configuration and management
Operating System	Location of Page Files
Operating System	Location of OS files
Operating System	Server tuning
Operating System	Maintenance Activities
Operating System	Server change monitoring
Operating System	Use of common time service for all devices -
Operating System	Software - All servers in a farm are identically configured and patched
Operating System	Hardware - For multiple servers in a farm, are they configured the same? Same horsepower, ram, etc?
Operating System	Creation of server farms
Operating System	Appropriate use of specific base versions of software (OS, DB, tools, etc.) 32 or 64 bit, etc.
Operating System	Size and configuration of error logs
Operating System	Use of a single server instance for multiple, major applications
Operating System	DW20.exe – Dr Watson
Operating System	.Net version
Operating System	Server Power settings
Reliability	Overall Availability (% of planned uptime) - check system uptime counters
Reliability	Hardware Failures
Reliability	Software Failures
Reliability	Other failures (unknown)
Anti Virus Protection	Status of Virus checking software
Anti Virus Protection	Use of Application White listing software
Anti Virus Protection	Status of AV software subscriptions
Anti Virus Protection	Frequency of AV software/pattern updates
Anti Virus Protection	Proper configuration of Virus protection servers (for NAS type devices) for example to enable maximum throughput
Anti Virus Protection	Frequency of scans
Anti Virus Protection	Timing of scans
Anti Virus Protection	AV configuration - are scans of certain directories selectively enabled or disabled
Anti Virus Protection	Disable automatic scanning of databases and email DB
Anti Virus Protection	Disable real-time scanning of databases and email DB
External	Use/reference to external/3rd party products or web sites by the applications – for example, calling the cXML template from

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Dependencies	a site each transaction, advertising services, site analytics, payment services, virus checking software (TrendMicro for example), etc.
Error Logging	Application error checking/logging
Networking	NIC speed
Networking	NIC utilization during "normal" business use/hours (not during backups, etc.)
Networking	Number of seconds of 100% link utilization per minute during "normal" business use/hours (not during backups, etc.)
Networking	TCP/IP connections counters
Networking	Use of teamed NICS (MPIO for networks or iSCSI)
Networking	LACP capable Ethernet switches
Networking	TCP/IP Tuned (Selective acknowledgement, max packet sizes, receive window size (and auto tuning in 2008), etc.)
Networking	Separate NIC's/networks for front end and backend/storage
Networking	Separate NIC's for any teamed traffic
Networking	NIC power management settings
Networking	Number of send and receive buffers for each NIC
Networking	Use of TCP/IP auto window size tuning in older MS OS's (2003 and older)
Networking	DNS servers/services
Storage	C: Free disk space as percent of drive size
Storage	C: Volume Size
Storage	Data drives - Free disk space as percent of drive size
Storage	# of logical volumes that share the same physical disks
Storage	C: - # of physical drives per logical volume
Storage	Disk Drive type
Storage	Individual drive capacity
Storage	Disk drive form factors in use
Storage	Drive rotation speed in RPM
Storage	Direct attached storage (DAS) controller RAID capabilities
Storage	Primary Data Storage Interconnect
Storage	Fiber Channel Speed
Storage	Infiniband speed
Storage	Hot spare drive available and configured
Storage	Format (sector) size of data drives
Storage	Stripe Size of disks

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Category	Audit Topic
Storage	Aligning the start of disk volumes on physical RAID stripe boundaries
Storage	RAID level of C and Page files
Storage	RAID level of data volumes
Storage	Average Response time in MS for Drive C:
Storage	Average Response time in MS for Drive D:
Storage	Average Response time in MS for Data drives
Storage	Average disk busy % for Drive/volume C
Storage	Average disk busy % for Paging drive/volume
Storage	Average disk busy % for Data Drive/volume
Storage	Average queue depth on data volumes
Storage	Split I/O's per second
Storage	Use of Multipath I/O
Storage	Use of shadow copies - are they enabled, how frequently used, and how much disk space is allocated for them?
Storage	Write caching of volumes
Storage	Number of files on a server or in a single directory
Storage	Is any type of file replication being used in a large server or web farm for caching?
Storage	Clean up unnecessary files
Storage	Defragmenting Storage
Storage	Use of the CHKDSK utility
Storage	Indexing of files by the OS
Storage	Updating the date/time of last file access
Storage	Creation of 8.3 DOS file names and NTFS names
Storage	Data Backup Policy
Storage	Backup frequency
Storage	Defined Business Recovery window
Storage	Defined Data Recovery window
Storage	Physical location of backup files
Storage	Testing of backup media, restore procedures, and restore speeds
Operations	Review server error logs on a daily basis.
Operations	Selective use of auditing
Operations	Selective use of encryption
Operations	Log all print activity to log load on the networks.

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Operations	Scan the list of server processes to identify and terminate "run-away" jobs
Operations	Capture of server utilization data
Operations	Display outputs of monitoring tools in data center and in IT staff areas to show real-time utilization and status.
Operations	Automatic alerts to IT staff and management when utilization is consistently higher than defined standards.
Operations	Log off the server console
Operations	Disable all animated screen savers on the server
Operations	Use of NET CONFIG SERVER commands
Operations	Monitor the proper execution of all business critical applications – the data transfers from one system to another, proper operation of EDI, fax, etc gateway, backups, etc.
Operations	Monitor and minimize system startup tasks