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™

Data Center 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	Inventory of all DC equipment
General	Contact and account info for all equipment and service providers (DR, power, maintenance, telecomm, facilities, suppliers, consumables, staff, emergency, etc)
General	Proactive meetings/communication with vendor representatives
General	DC Equipment Configuration, Maintenance and Operational Documentation
General	Change management process
General	Change management logs
General	DC safety inspections
General	DC equipment maintenance
Operations	Data center workflow/process documentation
Operations	Environment Management and Migration processes (from Dev to Test to Production)
Operations	Use of IT Process Automation /Run Book Automation
Operations	Applications monitoring
Operations	Data Backup and Archiving
Operations	Equipment Monitoring (fans, temperature, failed components, etc.)
Cleaning	Paper dust from printing
Cleaning	Toner dust from printing
Cleaning	Filters
Cleaning	HVAC coils
Cleaning	Electronic Equipment
Cleaning	HVAC drains for any condensation
Reliability	Overall Availability (% of planned uptime)
Reliability	Hardware Failures (production printers, etc.)
Reliability	Software Failures (equipment monitors, controls for power, HVAC, security, etc.)
Reliability	Environmental systems (HVAC, Power, Security, etc)
Reliability	Other failures (non controllable building issues, construction, unknown sources)

Category	Audit Topic
DC Equipment	Equipment location
DC Equipment	Use of racks for secure equipment mounting
DC Equipment	Standardize racks where possible
DC Equipment	Use of rails/slides for heavy equipment
DC Equipment	Labeled
DC Equipment	Equipment Carts
DC Equipment	Dollies
DC Equipment	Tables
DC Equipment	Chairs
DC Equipment	Speaker phones
DC Equipment	Flashlights and spare batteries
DC Equipment	Battery operated "Coleman style" lights and spare batteries
DC Equipment	Manuals/documentation
DC Equipment	Hearing protection
DC Equipment	Portable fire extinguisher
DC Equipment	Firesafe
DC Equipment	Media and supplies storage shelves, cabinets
DC Equipment	Displays/consoles
DC Equipment	Operator area
DC Equipment	KVM switches
DC Equipment	Vacuum
DC Equipment	Brooms/dustpans/Dustbusters
DC Equipment	Trash bins
DC Equipment	Shredders
DC Equipment	First aid kit
DC Equipment	Cell Phones
DC Equipment	FRS Walkie Talkies
DC Equipment	Bottled Water and Emergency Food
DC Equipment	Emergency blankets and cots
DC Equipment	Label maker and supplies
DC Equipment	Tools
DC Equipment	Data cable tester (like a Fluke)

Category	Audit Topic
DC Equipment	Electrical Circuit tester
DC Equipment	Spare cables of all types (video, USB, PS/2, SAS, SCSI, power, etc.
DC Equipment	Spare components (disks, ram, I/O cards, CPU's, fans, power supplies, etc.)
DC Equipment	Spare power strips
DC Equipment	Heavy duty electrical extension cords
DC Equipment	Network analyzers & cable toners (data and telephony)
DC Equipment	Raised floor puller (as needed)
DC Equipment	Razor knife/box cutters
DC Equipment	Office supplies (paper, pens, Post-it notes, markers, Scotch tape, etc.)
DC Equipment	Wireless data card for emergency access to the Internet
DC Equipment	On-site DC spares (PCs, monitors, servers, disks, printers, parts, etc.)
DC Equipment	Battery operated wall clocks
DC Equipment	White boards and dry erase markers
DC Equipment	Packing tape
DC Equipment	Laptops with diagnostic tools
DC Equipment	Operating System, tools, utilities, and application media
DC Equipment	Scratch media (tapes, DVDs, USB keys, USB drives, etc.)
HVAC/Cooling	HVAC design and installation
HVAC/Cooling	Type of HVAC unit
HVAC/Cooling	Age/Condition of HVAC equipment - use average age if multiple units are present
HVAC/Cooling	Availability/Redundant features
HVAC/Cooling	Monitoring features
HVAC/Cooling	Support contract type
HVAC/Cooling	Available excess capacity
HVAC/Cooling	Portable cooling unit
HVAC/Cooling	HVAC systems connected to UPS or backup power
HVAC/Cooling	Window/Large Fans to assist with hot spots
HVAC/Cooling	Automatic, graceful shutdown of DC components if thermal levels are exceeded
Staffing	DC staff training
Noise management	Wall and Ceiling Insulation
Noise management	Isolation of data center noise
Noise management	White noise/noise cancelling

Category	Audit Topic
Noise management	Sound absorbing materials
Noise management	Hearing protection
Noise management	Use of doors and sides on racks/cabinets; use of blank filler panels on racks
Lighting	DC light levels
Lighting	Data Center light types
Lighting	Emergency lighting
Lighting	Electric task lights
Lighting	Glare reduction
Lighting	Energy efficiency
Lighting	Background lighting
Power	Use of dual power grids
Power	Use of multiple power providers
Power	Use of separate entrances for multiple power feeds
Power	Common ground for all DC equipment
Power	UPS - uninterruptable power supply
Power	Use of Power Conditioning and Surge Protectors
Power	Generator - maintenance; testing; appropriate capacity, etc.
Power	Circuit loading
Power	Clean power/surge protection
Power	Power distribution units/cables
Power	Assessment of Impact of adding new equipment - power, cooling, weight, UPS, space, air distribution, etc.
Power	20 amp circuits
Power	Power strips in each cabinet with real-time load displays
Power	Availability of 3 phase power for DC
Power	Use of 240V for high loads
Power	Emergency power disconnect
Power	UPS capacity, load, and health (bad batteries, etc.)
Power	Examine UPS logs for frequent under voltage/over voltage or spikes or outages
Power	Examine power circuit usage
Power	Power interruptions
Power	Use of IT circuits used for non IT purposes – running other office machinery, vacuum cleaners, coffee makers, water heaters/coolers, kitchen, heaters, fans, refrigerators, shredders, etc.

Category	Audit Topic
Power	Some component load on non UPS feeds
Power	Phone system components on UPS
Power	Smart Jack/DSL/Cable modem/routers/wireless access points/switches/firewalls on UPS
Power	Are there dual power supplies in critical components, and are they both plugged in?
Power	HVAC system covered by the UPS and/or backup power
Network	Use of a separate, out of band LAN for all component management
Network	Wireless DC LAN access point(s)
Cabling	Locations of cables
Cabling	Use of cable trays
Cabling	Condition of cable plant
Cabling	Use of best available cabling
Cabling	Use of proper cable types as required by building code (plenum, etc.)
Cabling	Over provision all cable installation by 100%, use Cat 5 or 6 also for phone
Cabling	Testing of every cable after installation
Cabling	Testing of all fiber optic cables after installation to ensure acceptable DB loss
Cabling	installation of "typical" ending cable counts to each rack as racks are installed, even if not yet filled
Cabling	Cable run in elevator shafts or next to high power lines
Fire safety/suppression	Professionally designed and installed system
Fire safety/suppression	System Type
Fire safety/suppression	Easily accessible portable fire extinguishers
Materials/supplies storage	Materials/supplies storage
Materials/supplies storage	Fireproof storage for backup media and important documents
Materials/supplies storage	Paper storage
Materials/supplies storage	Equipment receiving
Materials/supplies storage	Equipment staging
Materials/supplies storage	Pickup/delivery of backup media and equipment for off-site storage
Materials/supplies storage	Location of Spares
Auxiliary equipment	Printers located in data center
Auxiliary equipment	Bursters located in data center
Auxiliary equipment	Check/remittance processing equipment located in data center
Auxiliary equipment	Inserting/mailing equipment located in data center
Auxiliary equipment	Demagnetizing equipment located in data center

Category	Audit Topic
Waste management	Shredding of waste
Waste management	Disposal of old storage media
Waste management	Disposal of crates/packing material
Waste management	Equipment disposal
Security	Card/access control systems
Security	Unauthorized access/escort procedures
Security	Access logging
Security	Protection of data center entrances
Security	Responsibility to maintains security system
Security	Red analog emergency phone - not connected to PBX system
Security	Physical Security of Data Center
Security	Disaster recovery plan for Data Center
Security	Environmental Monitoring
Security	Closed circuit/Video monitoring
Security	Staff Security Plan
Security	Staff training on security policy/plan
DC Consolidation	Update all documentation of all DC components and applications of the data centers to be combined prior to the announcement of consolidation
DC Consolidation	Install high capacity, low latency data circuits to enable incremental, transparent migration of components from one DC to another
DC Consolidation	Use of retainer bonuses to DC staff to retain key staff thru the transition
DC Consolidation	Cross training of receiving DC staff of incoming components and applications prior to move
DC Consolidation	Have some staff of DC to be consolidated visit receiving DC to build relationships and perform knowledge transfer
DC Consolidation	Use of VMware, Xen or Hyper V to assist in migration of applications to new platforms
DC Consolidation	Perform image backups before de-installation and moving of equipment
DC Consolidation	Incremental moves of equipment/staff/functions to minimize duplicate equipment requirements
DC Consolidation	Use of new equipment in DC to ease migrations
Building/space	Hire an architect that specializes in DC design and construction
Building/space	Use of contractors that specialize in DC construction
Building/space	Electrical contractors
Building/space	Site selection
Building/space	Use of specialists to maximize tax incentives and other financial considerations
Building/space	Accessibility for employees

Category	Audit Topic
Building/space	Parking availability for employees, visitors, vendors, suppliers, snow piles, etc.
Building/space	Parking accessories - plugins for block heaters, electric cars, outdoor lighting, etc. For evening employee safety
Building/space	Design of access roads and delivery areas to accommodate heavy loads (cranes, fuel trucks, tractor trailers for supplies and equipment, etc.)
Building/space	External building signage needs, requirements, restrictions
Building/space	Internal building signage needs, requirements, restrictions (locations, types, sizes, colors, shapes, materials, fonts, etc.)
Building/space	Company branding needs or requirements (colors, styles, signs, furniture, pictures, etc.)
Building/space	Consideration of other tenants, neighbors, etc for security purposes
Building/space	Consideration of in ground utilities
Building/space	Consideration of telecommunications availability - wired and wireless; interference, etc.
Building/space	The location of the data center within a building (basement, first floor, top floor, etc.)
Building/space	The location of any plumbing (water, cooling, drains, sump pumps, sewers, etc) near data center
Building/space	The use of moisture sensors/alarms in and around the data center
Building/space	Consideration of climate
Building/space	Suitability of building construction to meet security needs (concrete vs. drywall, etc.)
Building/space	Suitability of building construction to meet climate needs (temperature, tornado, hurricane, flooding, wildfire, in-building (non DC) fires), etc.
Building/space	Selection of Security equipment
Building/space	Secure space for security equipment
Building/space	Use of anti-static materials
Building/space	Ability to expand capacity in modular or incremental fashion
Building/space	Ability of utilities to supply current and future needs/loads - for example, can the power company provide xx more megawatts from existing distribution
Building/space	Ceiling heights
Building/space	Separate rooms for Data communications Equipment
Building/space	Separate rooms for Phone Equipment
Building/space	Separate rooms for Mainframe Equipment
Building/space	Separate rooms for Server Equipment
Building/space	Separate rooms for Printing Equipment
Building/space	Separate rooms for Power distribution and UPS Equipment
Building/space	Separate rooms for Generators, transfer switches, and fuel
Building/space	Separate rooms for paper handling - check and remittance processing Equipment

Category	Audit Topic
Building/space	Separate rooms for Operations staff
Building/space	Separate rooms for equipment staging/testing
Building/space	Separate rooms for equipment receiving - docks, doors, security, etc.
Building/space	Separate meeting/conference rooms for staff
Building/space	Physical supports for racks and cabinets (bolting to floor, to ceiling, raised floor issues, etc.)
Building/space	Separate rooms for vendors
Building/space	Pre stage cables by cabinets - avoid pulling new cables on a daily basis; avoid pulling up the floor on a daily basis
Building/space	Secure reception area
Building/space	Plan for increasing equipment density - for power, heat/cooling/airflow/cables/weight - floor loading
Building/space	Provide for higher lighting levels (when needed) to improve visibility of equipment interiors by staff and vendors- see Lighting Section
Building/space	Use the best available cables that will accommodate future higher speeds
Building/space	Use of a common ground for all equipment in a facility
Building/space	Space for employee visitors
Building/space	Break rooms with vending machines or kitchen
Building/space	Expansion Space
Building/space	Plan non DC space and weights for additional equipment (for example - space for additional generators, additional HVAC units, ductwork, etc.
Building/space	Plan DC space and weights for additional equipment - HVAC, power/PDU, cables, racks, etc.
Building/space	Plan for isle widths to accommodate moving equipment into and out of DC
Building/space	Provide for needed levels of availability and redundancy (what if an HVAC unit fails?)
Building/space	Test Plan for all DC infrastructure prior to cutover
Building/space	Migration Plan
Building/space	Evaluate consolidation opportunities
Building/space	Communication Plan for all stakeholders during any major DC project
Building/space	Updated DR/BC plans
Building/space	Financial Planning and decision making - internal vs. hosted; expand now vs. later, etc.
Building/space	LEED planning - build the most energy efficient DC as practical (assume ever increasing energy costs)
Building/space	Furniture selection
Building/space	Loading of racks
Building/space	Some empty racks are in place to enable fast response to growth
Building/space	HVAC design and airflow to racks to handle high concentrations of heat loads - vs. costs of lower rack utilization

Category	Audit Topic
Building/space	Convenience outlets in DC for non-IT equipment (vacuums, etc.)
Building/space	Weight capacity/current loading of floors
Building/space	Concrete cored (drilled) floors in the DC
Building/space	Freight elevators
Building/space	Use of outside windows in DC
Building/space	Use of inside windows
DC Design	Cluster similar equipment together in racks
DC Design	DC design minimize operators time away from system consoles
DC Design	Enough space for permanent monitors for all key components