# Datacenter Design Assessment Checklist

**Introduction: How to Use This Tool**

Use this checklist to aid in the process of selecting a new site for the data center. When visiting potential building sites, print the checklist off and take it along to record impressions and comments on the building and/or its location.

Fill in Table 1 with the sites details on location, ownership, and size.

To use Table 2, check off the appropriate columns for each item as they are assessed. Columns are recorded using the following:

- **Yes** – the site fully conforms.
- **PAR** – Partial conformity. NOTE: If a partial conformity exists, an explanation describing the partial conformity along with planned actions to remediate should be entered in the comments field.
- **No** – Does not conform. NOTE: If a non-conformity exists describe the non-conformity and if any action to remediate is planned. Also note where no remediation is possible.
- **N/A** – Not applicable

To use Table 3 Fill budget value against Capital Cost or Operating cost with appropriate remarks

- **Capital Cost** –one-time expenses to be made for Building datacenter. Some time referred as Non-Reoccurring Cost (NRC)
- **Operating Cost** – The expenses made for maintenance and operations of facility. Also referred as Recurring cost (RC) or Monthly Recurring Cost (MRC).

**Table 1: Site Details**

| | |
|---|---|
| **Site Address:** | |
| **Location Type: (i.e. Urban, Suburban, Industrial complex)** | |
| **Is it in an existing building or a new building?** | |
| **Floor Number** | |
| **Leased or owned?** | |
| **Floor space (square feet):** | |

**Table 2: Data Center Cabling Assessment Checklist**

| Item # | Item | Yes | PAR | NO | N/A | Comments |
|---|---|---|---|---|---|---|
| | | | | | | |
| 1 | What kind of **LAN Cables** is used for Rack to Rack LAN cabling? | | | | | |
| 1.1 | What is the data Speed of the Backbone? | | | | | |

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|---|---|---|---|---|---|---|
| 1.2 | What is the Brand of Cables used? | | | | | |
| 1.3 | What is maximum length used for LAN cables? | | | | | |
| 1.4 | Are the connections in same room or data Center is divided in multiple rooms/floors? | | | | | |
| 1.5 | Provide example of patch panel nomenclature (how ports are named)? | | | | | |
| | | | | | | |
| 2 | What kind of **Fiber Cable** are used for Rack to Rack cabling? | | | | | |
| 2.1 | What is the data Speed of the Backbone? | | | | | |
| 2.2 | What is the Brand of Cables used? | | | | | |
| 2.3 | What is maximum length used for Fiber cables? | | | | | |
| 2.4 | Are the connections in same room or data Center is divided in multiple rooms/floors? | | | | | |
| 2.5 | Provide example of patch panel nomenclature (how ports are named)? | | | | | |
| 2.6 | Is the fiber cables used are Single mode? | | | | | |
| | | | | | | |
| 3 | Data Center is connected to how many remote **locations/branch offices**? | | | | | |
| 3.1 | What kind of WAN connection solution is being used? | | | | | |
| 3.2 | Who are all service provider? | | | | | |
| 3.3 | Is the remote location has redundant connection(s)? | | | | | |
| 3.3.1 | What is solution used for redundant/backup connection? | | | | | |
| 3.3.2 | What is the minimum time required to switch over to backup connection? | | | | | |
| 3.3.3 | Is the failover automatic? | | | | | |
| 3.3.4 | If the failover is manual, who is responsible and what is availability of the team/resource? | | | | | |
| | | | | | | |
| 4 | Is the **Core redundant**? | | | | | |
| 4.1 | What is solution implemented for redundancy? | | | | | |

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| 4.2 | When was last time to test redundancy of core failure? | | | | | |
| | | | | | | |
| 5 | How many router/switches are serving as **WAN routers**? | | | | | |
| 5.1 | How many links are aggregated on all routers? | | | | | |
| 5.2 | Does links provide device level redundancy? | | | | | |
| 5.3 | How the access to these devices is secured? | | | | | |
| 5.4 | Who all has access to routers? | | | | | |
| 5.5 | How the accounting for access is done? | | | | | |
| 5.6 | Does router(s) has access-list to prevent access? | | | | | |
| 5.7 | What is way of taking backup of Router(s)? | | | | | |
| 5.8 | What is the frequency of taking backup of config? | | | | | |
| 5.9 | For how long backup config is kept? | | | | | |
| 5.10 | Does changes to devices are controlled by change control process? | | | | | |
| | | | | | | |
| 6 | Type of **Core switches**? | | | | | |
| 6.1 | How many and which are copper modules used? | | | | | |
| 6.2 | What is the role of copper module connected? | | | | | |
| 6.3 | How many and which are Fiber modules used? | | | | | |
| 6.4 | What is the role of Fiber module connected? | | | | | |
| 6.5 | How many and which are Other modules used? | | | | | |
| 6.6 | What is the role of Other module connected? | | | | | |
| 6.7 | Redundant Power Supplies? | | | | | |
| 6.8 | Does Switches have routing Engine? | | | | | |
| 6.8.1 | Are Routing engines redundant: physically? | | | | | |
| 6.8.2 | Are Routing Engines configured as redundant? | | | | | |
| 6.8.3 | When was the last redundancy checked for failover? | | | | | |
| 6.9 | What is Code/iOS/Software on switches? | | | | | |

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| 6.10 | What is the up-time of the switch? | | | | | |
| 6.10.1 | Was the last reboot planned or unplanned and what was the reason? | | | | | |
| 6.11 | How the access to these devices is secured? | | | | | |
| 6.12 | Who all has access to routers? | | | | | |
| 6.13 | How the accounting for access is done? | | | | | |
| 6.14 | Does router(s) has access-list to prevent access? | | | | | |
| 6.15 | What is way of taking backup of Router(s)? | | | | | |
| 6.16 | What is the frequency of taking backup of config? | | | | | |
| 6.17 | For how long backup config is kept? | | | | | |
| 6.18 | Does changes to devices are controlled by change control process? | | | | | |
| | | | | | | |
| 7 | Type of **Distribution switches**? | | | | | |
| 7.1 | How many and which are copper modules used? | | | | | |
| 7.2 | What is the role of copper module connected? | | | | | |
| 7.3 | How many and which are Fiber modules used? | | | | | |
| 7.4 | What is the role of Fiber module connected? | | | | | |
| 7.5 | How many and which are Other modules used? | | | | | |
| 7.6 | What is the role of Other module connected? | | | | | |
| 7.7 | Redundant Power Supplies? | | | | | |
| 7.8 | Is the redundant powers are connected to different sources? | | | | | |
| 7.8.1 | Are the switches having redundant connections to core and/or access switches? | | | | | |
| 7.8.2 | Is the redundancy tested? | | | | | |
| 7.8.3 | When was the last redundancy checked for failover? | | | | | |
| 7.9 | What is Code/iOS/Software on switches? | | | | | |
| 7.10 | What is the up-time of the switch? | | | | | |

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|---|---|---|---|---|---|---|
| 7.10.1 | Was the last reboot planned or unplanned and what was the reason? | | | | | |
| 7.11 | How the access to these devices is secured? | | | | | |
| 7.12 | Who all has access to routers? | | | | | |
| 7.13 | How the accounting for access is done? | | | | | |
| 7.14 | Does router(s) has access-list to prevent access? | | | | | |
| 7.15 | What is way of taking backup of Router(s)? | | | | | |
| 7.16 | What is the frequency of taking backup of config? | | | | | |
| 7.17 | For how long backup config is kept? | | | | | |
| 7.18 | Does changes to devices are controlled by change control process? | | | | | |
| | | | | | | |
| 8 | Type of **Access switches**? | | | | | |
| 8.1 | How many and which are copper modules used? | | | | | |
| 8.2 | What is the role of copper module connected? | | | | | |
| 8.3 | How many and which are Fiber modules used? | | | | | |
| 8.4 | What is the role of Fiber module connected? | | | | | |
| 8.5 | How many and which are Other modules used? | | | | | |
| 8.6 | What is the role of Other module connected? | | | | | |
| 8.7 | Redundant Power Supplies? | | | | | |
| 8.8 | Is the redundant powers are connected to different sources? | | | | | |
| 8.8.1 | Are the switches having redundant connections to distribution switches? | | | | | |
| 8.8.2 | Is the redundancy tested? | | | | | |
| 8.8.3 | When was the last redundancy checked for failover? | | | | | |
| 8.9 | What is Code/iOS/Software on switches? | | | | | |
| 8.10 | What is the up-time of the switch? | | | | | |
| 8.10.1 | Was the last reboot planned or unplanned and what was the | | | | | |

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|---|---|---|---|---|---|---|
| | reason? | | | | | |
| 8.11 | How the access to these devices is secured? | | | | | |
| 8.12 | Who all has access to routers? | | | | | |
| 8.13 | How the accounting for access is done? | | | | | |
| 8.14 | Does router(s) has access-list to prevent access? | | | | | |
| 8.15 | What is way of taking backup of Router(s)? | | | | | |
| 8.16 | What is the frequency of taking backup of config? | | | | | |
| 8.17 | For how long backup config is kept? | | | | | |
| 8.18 | Does changes to devices are controlled by change control process? | | | | | |
| | | | | | | |
| 9 | How many **internet firewalls** being used? | | | | | |
| 9.1 | How many and which are modules used? | | | | | |
| 9.2 | What is the role of module connected? | | | | | |
| 9.3 | Redundant Power Supplies? | | | | | |
| 9.4 | Is the redundant powers are connected to different sources? | | | | | |
| 9.5 | Is the firewall having redundant connections to distribution switches? | | | | | |
| 9.6 | Is the redundancy tested? | | | | | |
| 9.7 | When was the last redundancy checked for failover? | | | | | |
| 9.8 | What is Code/iOS/Software on Firewalls? | | | | | |
| 9.9 | What is the up-time of the Firewall? | | | | | |
| 9.10 | Was the last reboot planned or unplanned and what was the reason? | | | | | |
| 9.11 | How the access to these devices is secured? | | | | | |
| 9.12 | Who all has access to Firewalls? | | | | | |
| 9.13 | How many DMZ Zones? | | | | | |
| 9.14 | How do you manage Anti-virus on DMZ servers? | | | | | |

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| 9.15 | Are there customer/Vendor Managed servers in DMZs? | | | | | |
| 9.16 | What is the frequency of taking backup of config? | | | | | |
| 9.17 | For how long backup config is kept? | | | | | |
| 9.18 | Does changes to devices are controlled by change control process? | | | | | |
| | | | | | | |
| 10 | How many **Internal firewalls** being used? | | | | | |
| 10.1 | How many and which are modules used? | | | | | |
| 10.2 | What is the role of module connected? | | | | | |
| 10.3 | Redundant Power Supplies? | | | | | |
| 10.4 | Is the redundant powers are connected to different sources? | | | | | |
| 10.5 | Is the firewall having redundant connections to distribution switches? | | | | | |
| 10.6 | Is the redundancy tested? | | | | | |
| 10.7 | When was the last redundancy checked for failover? | | | | | |
| 10.8 | What is Code/iOS/Software on Firewalls? | | | | | |
| 10.9 | What is the up-time of the Firewall? | | | | | |
| 10.10 | Was the last reboot planned or unplanned and what was the reason? | | | | | |
| 10.11 | How the access to these devices is secured? | | | | | |
| 10.12 | Who all has access to Firewalls? | | | | | |
| 10.13 | How many DMZ Zones? | | | | | |
| 10.14 | How do you manage Anti-virus on DMZ servers? | | | | | |
| 10.15 | Are there customer/Vendor Managed servers in DMZs? | | | | | |
| 10.16 | What is the frequency of taking backup of config? | | | | | |
| 10.17 | For how long backup config is kept? | | | | | |
| 10.18 | Does changes to devices are controlled by change control process? | | | | | |

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| 11 | Which network monitoring tool is being used? | | | | | |
| 11.1 | Which Team/ Person is responsible for managing the monitoring tool? | | | | | |
| 11.2 | Are Monitoring Alerts Configured? | | | | | |
| 11.3 | Who receives the Monitoring Alerts? | | | | | |
| 11.4 | Are alert defined for severity, holidays, on-call, VIP users, Critical devices/Services etc? | | | | | |
| 11.5 | How Monitoring tool is being monitored? | | | | | |
| 11.6 | Are alert also defined for degraded service (not loss-of-service but degrade)? | | | | | |
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| 12 | What is the Capacity of UPSs used? | | | | | |
| 12.1 | How UPSs are connected and configured? | | | | | |
| 12.2 | Are UPSs SNMP capable? | | | | | |
| 12.3 | Are UPSs Managed? | | | | | |
| | | | | | | |
| 13 | Cooling/Temperature/Humidity monitoring is being done? | | | | | |
| 13.1 | What is the defined temperature of Data Center? | | | | | |
| 13.2 | What is the Humidity level defined for Data Center? | | | | | |
| 13.3 | Has air quality been verified to meet ISA/ANSI S71.4? | | | | | |
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| 14 | | | | | | |

**Table 3. Budget related Checklist**

This list consider components on high level as you might need to have details cost sheet for each and every item needed for built datacenter.

| Item # | Item | Capital Cost | Operating Cost | Comments |
|---|---|---|---|---|
| 1 | Budget of Datacenter Space/Building | | | |

# Datacenter Design Assessment Checklist

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|---|---|---|---|---|
| 2 | Budget of Datacenter Electricity | | | |
| 3 | Budget for Generators | | | |
| 4 | Budget for UPS | | | |
| 5 | Budget for Safety system like CCTV etc | | | |
| 6 | Budget for electrical/ Service provider/network cabling etc | | | |
| 7 | Budget for fire safety | | | |
| 8 | Budget for interiors | | | |
| 9 | Network Racks | | | |
| 10 | Server Racks | | | |
| 11 | Telecom Racks | | | |
| 12 | Network Equipments | | | |
| 13 | Servers | | | |
| 14 | Storage SAN etc | | | |
| 15 | Backup Solution/ With Restore Solution | | | |
| 16 | Disaster Recovery, business Continuity Plan Option | | | |
| 17 | WAN Connections | | | |
| 18 | Internet Connections | | | |
| 19 | Internal Audits | | | |
| 20 | External audits/Certifications | | | |

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|---|---|---|---|---|
| 21 | Innovations/ Inventions/ Patents | | | |

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