

Choice Case Study

Design for the DR (Disaster Recovery) Datacenter for Syndicate Bank, Bangalore

Project Preface

Project Dates: June 2008 – November 2008

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Choice Solutions Ltd. was engaged to recommend if the candidate DC site was suitable for building a datacenter for Syndicate Bank. If found suitable, provide the specifications of all infrastructure equipment (UPS, Precision AC cooling, electrical utility, diesel generator) deployed to support the servers and storage within the datacenter in Bangalore. The second phase of the work was to architect the layout of the racks within the datacenter to provide for optimal air flow, cooling and foot-print utilization.

Project Background

Syndicate Bank has implemented Core Banking Solution in 1700 branches across India. They are now in the process of expanding the network by migrating non-networked branches as well as opening new branches.

The bank has its primary datacenter in Mumbai and a disaster recovery (DR) site hosted within a Reliance IDC in Bangalore. Syndicate Bank has acquired one floor of a multi storied building at National Games Village, Koramangala, in Bengaluru. It intends to convert part of the floor (approx 1620 sft.) into a datacenter. The bank planned to shift the DR center from the Reliance IDC to this new datacenter in Bangalore.

The bank planned to shift the DR center from the Reliance IDC to this new data center in Bangalore.

Syndicate Bank retained Choice Solutions Ltd. to provide consultancy services for:

- i. Assessment of the technical viability and validating the RFP
- ii. Assessment of the datacenter site and making recommendations for the datacenter design, power and cooling requirements, rack layout, server placement, location of NOC and staging areas and UPS room layout
- iii. Assessment of the compliance at each stage of the data center build-out
- iv. Advise improvements to the plan and infrastructure wherever possible during all stages

The Bank desires the site to be a Tier III datacenter – the site should facilitate high availability, quick scalability, and efficient management.

Project Challenge

The Bank desires the site to be a Tier III datacenter – the site should facilitate high availability, quick scalability, and efficient management and optimized utilization of resources. Existing equipment from the Reliance IDC will be moved to this new site once it is ready. There are several challenges:

- i. Due to the HAL airport in the vicinity being used for military flight tests, the vibrations induced by the flights to the racks and equipment would lower the shelf life of the active equipment
- ii. The floor had not been constructed for an enterprise datacenter. The estimated server and storage load was expected to be approx 40,000 Kgs. The challenge was the fact that the datacenter was to be built on the second floor. The raised and tiled-floor and the concrete layer below must be made capable of bearing the pressure
- iii. The datacenter used large storage arrays and dense rack-mounted server farms. The heat generated needed to be effectively removed
- iv. Another challenge was to move the large equipment, some weighing up to 1500 kgs from the Reliance IDC to the second floor of the Building, where the data center was built. An efficient system was needed to move the equipment
- v. Additionally the power infrastructure and cooling should not have any single point of failure

Choice Role and Solution

Datacenter consultants from Choice Solutions Ltd. spent approx two weeks at the client site, studying the feasibility of the location for a datacenter. They reviewed various aspects, particularly those related to the site condition and location to recommend if it was suitable for a datacenter:

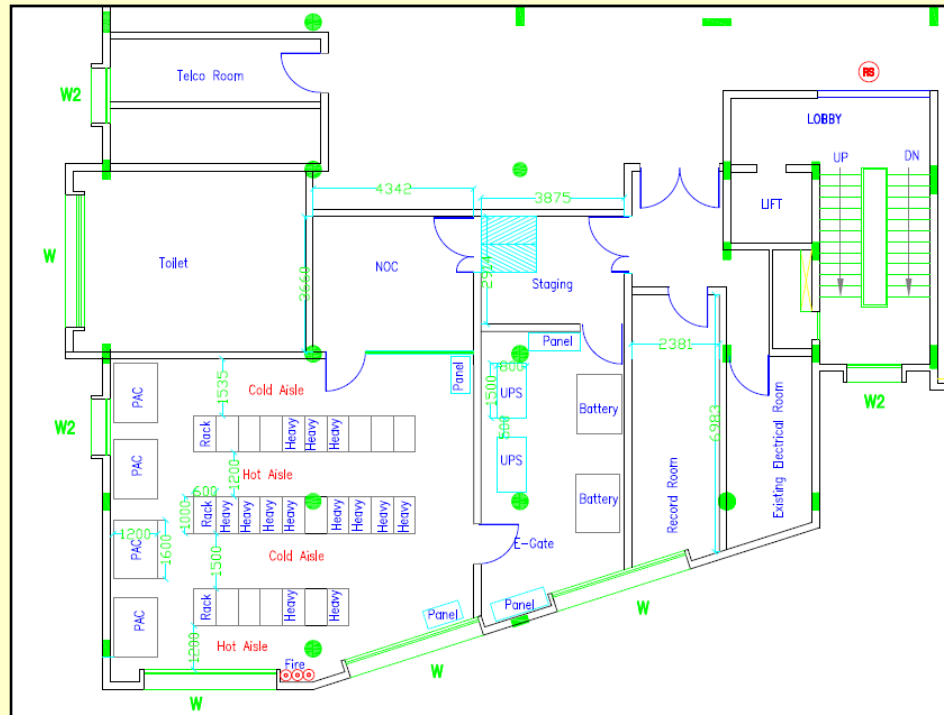
1. Natural Disasters
2. Electromagnetic Interference
3. Industrial Pollution
4. Vibration, especially due to the flights from the military aircrafts from the HAL airport which was approx 6 km away
5. Established Security and Threats (if any)
6. Proximity to Neighboring Structures
7. Emergency Services
8. Availability of Utilities
9. Strength of the floor to bear the expected equipment load

Choice Solutions Ltd. drew on various industry-leading standards such as EIA/TIA-942, The Uptime Institute, NFPA 75 and ASHRAE TC9.9.

Once the site passed the selection criteria, we estimated the requirements for UPS, PAC, and floor strength and provided the optimal layout for the racks within the datacenter. In executing this project, Choice Solutions Ltd. drew on various industry-leading standards such as EIA/TIA-942, The Uptime Institute, NFPA 75 and ASHRAE TC9.9.

Client Benefit

The recommendations included proper security recommendations, raised flooring design and rack layout within the DC. We had to study the DC needs and recommend sizing for UPS, electrical mains, diesel generator and PAC (Precision Air Conditioning). The resulted drawing is presented in the figure below.



Datcenter Drawing

Rack layout

The rack layout is designed to optimize the floor space utilization and cooling capacity of the PAC. There are provisions for efficiently removing the hot air from the hot aisles. The DC design is scalable and there is provision to increase the rack area by 200 sft. by using the NOC room space (if and when required). The design provides enough work space area between the rows for maintenance activities.

Power

The total dedicated mains power is conditioned and converted into usable, clean power for use within the datacenter. There is a set of independent power feeders, dedicated for the active equipment in the datacenter.

UPS

The online UPS (Uninterrupted Power Supply) provides single-phase or three-phase with Neutral AC to the desired load through a 4-wire power system. It is fully redundant with 2(N+1) configuration with at least 30 minutes of backup time. It is designed to be capable of remote configuration and management. The power fed to the different racks is sourced from two different UPS.

Diesel Generators (DG)

A backup Diesel Generators set to provide emergency power supply to the computer equipment, UPS, PAC, physical security devices and other equipment during prolonged power outage. To provide redundancy, the design includes 2 DGs with an interfacing Automatic Transfer Switch (ATS). The ATS is again configured as a highly-available, redundant switch that has two input sources: the first or primary source is the utility company or mains and the secondary source are the redundant DGs. If the primary source is unavailable, the ATS provides an automatic kick-off for the secondary source.

To provide redundancy, the design includes 2 DGs with an interfacing Automatic Transfer Switch (ATS).

Next Steps

Choice Solutions Ltd has prepared the RFP for various products that was required for the new DR datacenter in Bangalore. These products include UPS, PAC, battery racks, network racks and server racks. Choice Solutions Ltd. will guide and provide consulting services during the bid evaluation and vendor selection process.

When the DR datacenter was being implemented, Choice Solutions Ltd. supervised the progress and audit the work quality to make sure it is being made to the required standards.

About Choice Solutions

Established in 1991 Choice Solutions Ltd. is a leading IT and Facilities solutions provider. Choice Solutions Ltd. business comprises of Six different practices, namely

IMS

- Desktop, Server, Network, Storage, Support, OS, Assets, Apps, Non IT
- Hardware - A-Add, M-Modify, I-Install, C-Change, R-Repair
- Assets, Security, Software Distribution, Upgrades

Networking

- Packaged Services Monitoring & Management
- Products, Security, Design, Deploy, Maintain
- Auditing & Compliance, SOC

Datacenter

- DC Audit, Monitor & Manage, Training
- Assess, Design, Built, Deploy, Disaster Recovery

Consulting

- Business Consulting, CIO & Technology Services, Physical Security, Power Devices, IT Consulting
- DC Consulting, ERP, CRM & Custom Apps

Cloud Computing

- Cold Site – Backup, Disaster Recovery
- Hot Site – HaaS, Software, Manage
- Public Cloud, Private Cloud, Hybrid Cloud
- CaaS, License Software, IaaS
- Disaster Recovery

Power

- Power Audit, Equipment Management
- Physical Security, Power Devices
- Power Saving Devices
- Design & Audit
- Renewable Energy Products