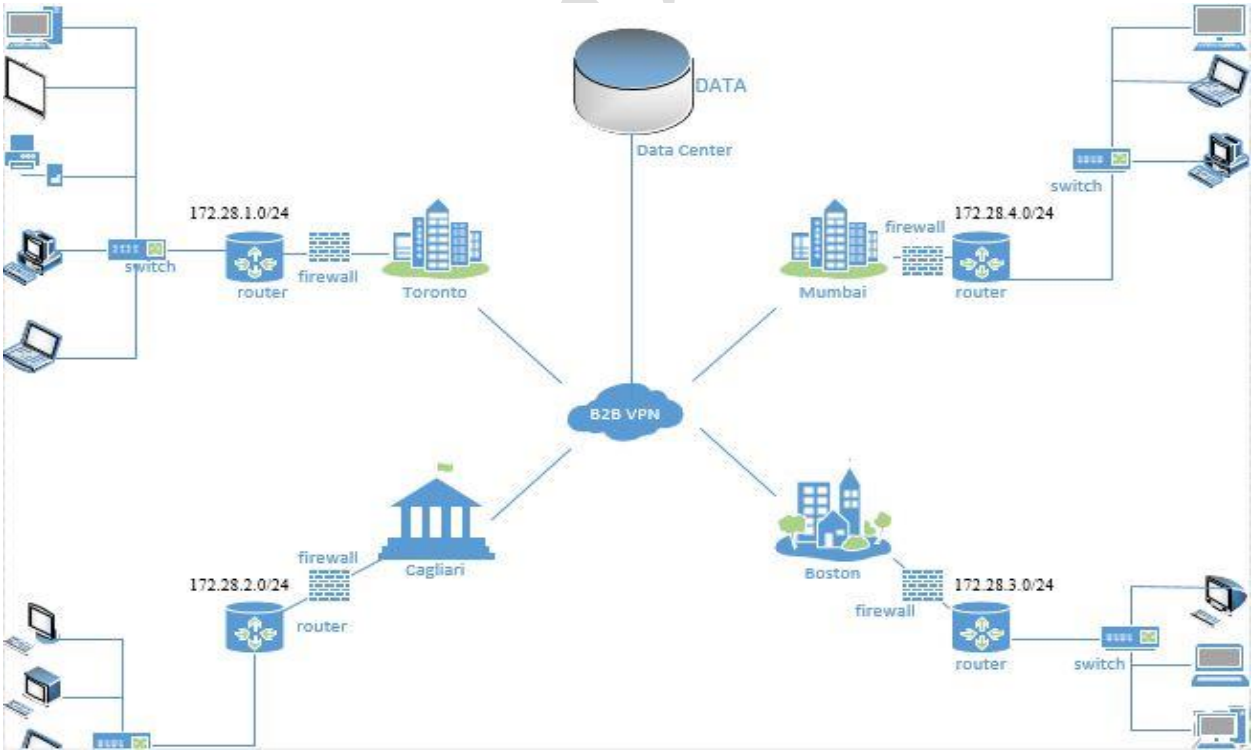
MHDC Consulting, Inc. Network Documentation.

Contents

Physical and Logical Network Design:



Clearly brought out in the .vsdx file.

Business Goals:

- Increase revenue and profit: by Increasing market share, increase employee productivity, opening new markets plus Building relationships and access information
- Streamline processes, that is, standardize web based applications and converge voice and data and video networks
- Boost Collaboration by enhancing access to information and services for employees, customers, vendors, partners or suppliers.
- Consistent experience from any of the business locations and via a variety of devices – PC, notebook, phone.

Business Constraints:

- Scope changes over time (Scope Creep).
- The ever dynamic business and technology worlds.
- Budget Constraints, Financial support to realize the network's goals
- Staffing… Are the needed skilled persons to implement the network available? And training requirements that may arise.
- Legal, regulatory and contractual requirements plus Security and privacy policies.
- Time constraints. How long?

Technical Goals

- Focus here is on operational and implementation aspects such as:
  i. Scalability: How much growth can the network support and continue to function properly and efficiently.

  ii. Availability: The time the network is operational and available to users, the percentage uptime the network.

  iii. Reliability: The accuracy, error rates, stability and the time between failures of equipment and technology
  What is its Mean time between failures (MTBF) and Mean time to repair (MTTR)

  iv. Performance: The network's response time. Time between a request for a network service and a response arriving for the network service. Factors such as capacity and bandwidth.

  v. Security: The network needs to stand strong against threats from within the network and outside the network

Technical Constraints

- To achieve the above technical goals, the following trade-offs have to be made:
  i. High cost circuits and redundant components will be required.
  ii. Qualified and adequate staffing and retraining may be required
  iii. High costs may have to be incurred – maintenance and installation costs.
  iv. Expensive monitoring and high tech equipment- To enforce strict security policies.

Statement on Anticipated network traffic

Based on the number of members of staff for each location the following is the current network traffic and expected projections are listed on the below table:

Location	Staff	Traffic	5 year projection
Toronto	150 –Head Office	At most 150	<= 165
Calgary	10 (via VPN) - Sales	,, 10	<= 11
Boston	25 - sales	,, 25	<= 28
Mumbai	100 - Development / Engineering	,, 100	<= 110
		285	<= 314

Switching/Routing Protocols and Addressing/Naming Model.

Each location needs to have an Ethernet switch in a network closet. The switch/s connects to a centralized router providing an interface that gives one sub-network for each location of the network.

The routers will perform Network Address Translation between the local location network and the VPN. Each sub-network except Cagliari (Where staff will work from home and connect into the organization's services via VPN), needs to be assigned a CIDR /24 sized network from the IANA private range of 172.28.0.0/16 that will provide at least 40% expansion room. One network gets 172.28.1.0/24, the next gets 172.28.2.0/24, the other 172.28.3.0/24 etc.

Security Strategy

The network must be available 99.999 percent of the time. The following will help improve the Network Security and Resiliency.

i. Separation of the data network from the voice over IP network.
ii. Connection of the sub-networks to the VPN via firewall.
iii. User authentication and authorization.

Technologies/Devices for Campus and Internetwork

- File transfer, sharing, and access
- Database access and updating
- Web browsing
- Videoconferencing
- Surveillance and security camera video
- Internet or intranet voice (IP telephony)
- Internet or intranet fax
- Sales order entry
- Management reporting
- Sales tracking
- Computer-aided design
- Document imaging
- Inventory control and shipping
- Email
- Interactive Voice Response (IVR)
- Unified messaging
- Desktop and Web publishing
- Electronic whiteboard
- Online directory (phone book)
- Distance Training
- Point of sales (retail store)
- E-Commerce
- Financial Management
- Human resources management
- Process control and Coordination

Services

- User authentication and authorization
- Host naming and name resolution
- Dynamic host addressing
- Directory services
- Network backup
- Network management
- Software distribution

The Test Plan Checklist

❑ Budgetary and Staffing Requirements achieved?

❑ Clear Scope and Network Objective.

❑ Project schedule is known, including the final due date and major mile-stones, and are they practical?

❑ Organizational policies, standards and requirements not violated?

❑ Policies on approved vendors, protocols, or platforms clear?

❑ Criteria for success and the ramifications of failure understood?

❑ Situation-critical operations identified?

❑ Existing network applications (using the Network Applications chart) Have been noted?

❑Clearly understood technical expertise of clients and any relevant internal or external staff.

❑A staff-education plan has been put in place.