

Time _____

Rank _____

NETWORK DESIGN TEAM (51)

Regional 2013

TOTAL POINTS _____ (500)

Failure to adhere to any of the following rules will result in disqualification:

- 1. Contestant must hand in this test booklet and all printouts. Failure to do so will result in disqualification.***
- 2. No equipment, supplies, or materials other than those specified for this event are allowed in the testing area. No previous BPA tests and/or sample tests or facsimile (handwritten, photocopied, or keyed) are allowed in the testing area.***
- 3. Electronic devices will be monitored according to ACT standards.***

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Description

Analyze existing and planned business environments and develop a strategy for the implementation of a network infrastructure that addresses the business needs of the scenario provided.

Topic

Business has been growing steadily for Reynolds, Washburn, Cobb & Tam Equity Partners, LLC, over the last several decades. This trading firm caters to the very famous and the very wealthy, and as such has garnered holdings measured in billions of US Dollars. Such success attracts attention from hackers around the globe. The last eighteen (18) months has seen several attempted attacks on RWC&T network assets via local, wireless and remote vectors. Due to the firm's vested interest in client security and privacy, they are seeking a complete network design review as well as a redraft of all IT security practices.

Reynolds, Washburn, Cobb & Tam Equity Partners, LLC (hereafter, RWC&T) is a large equities & commodities trading firm based in New York, NY. Specializing in discrete high-risk, high-yield trades, RWC&T has a list of well-known clients who wish to keep the details of their financial dealings out of the public eye. As such, high standards of security and privacy are of the utmost importance for their enterprise.

RWC&T's physical infrastructure consists of three national offices: the main headquarters and trading office in New York, NY, and client service satellite offices in Los Angeles, CA and Miami, FL.

Firm Headquarters: New York, NY

RWC&T's New York headquarters occupies thirteen (13) floors of office space between the 11th and 23rd floors (inclusive) of a high-rise office building in lower Manhattan. The space accommodates three hundred eighty-two (382) employees including the firm's four general partners, the company IT and human resources departments, and the bulk of RWC&T's client managers and trading associates. Main reception is on the 11th floor. Offices for the four general partners are on the 23rd floor. All other offices and support spaces are in between. All floors except the 11th floor are considered high security areas for the purposes of physical access control.

With the IT department on the 14th floor the main corporate datacenter. The datacenter consists of one hundred eighty-five (185) high-density rack mount servers used to support operations on the trading floor. All workstations throughout the facility are cabled with Category 5 UTP cable to floor-centric intermediate distribution frames (IDFs) housing 10/100 Mbit/s Ethernet switches. All outlying IDFs are cabled back to the datacenter's MDF via a pair of 100 Mbit/s multi-mode optical fibers.

Satellite Offices: Los Angeles, CA & Miami, FL

RWC&T's satellite offices are staffed by client managers responsible for directly assisting clients with their financial needs. Performing these duties requires secure access to client account and portfolio data stored within the datacenter at the New York headquarters. Workstations at each offices are cabled with Category 5 UTP cable to a centralized equipment closed housing a 10/100 Mbit/s Ethernet switch and a WAN router/gateway.

The Los Angeles, CA office accommodates thirty-five (35) client managers. The Miami, FL office accommodated twenty-five (25) client managers.

Existing network subnets are not provided, as you are tasked with creating a complete network redesign proposal.

What the customer wants:

Reynolds, Washburn, Cobb & Tam, LLC has been steadily growing over the last several decades. With holdings in the billions of dollars comes added attention from hackers and other thieves. Over the past 18 months there has been several attempted hacks on the network from almost every possible avenue- Local, wireless and remote. With all of this and the firm's continued commitment to security and privacy RWC&T is seeking a complete network review of all security measures and practices. This would include servers, WAN links, Network, etc.

Immediate needs:

1. Prepare a network redesign proposal to adequately address RWC&T's immediate security needs.
2. Review all network equipment. Recommend upgrades where needed.
3. Review all WAN connections for proper performance, bandwidth and security, taking into account the growing client base and holdings of the firm (and the explosive growth in datasets that implies.)
4. Provide an off-site data backup solution for the New York, NY corporate headquarters. Allow for backups of 1 to 5 terabytes (TB) of data on a weekly basis. Both physical and digital backup solutions may be considered.
5. Address network latency. Clients on the trading floor occasionally complain of high latency in the trading system. Unnecessary delays in trading operations can cost RWC&T and their clients large amounts of money, and must be minimized.
6. Address the possibility of utility or hardware failure. The New York, NY datacenter currently has no hot-standby system in place to deal with such outages. Outline the needs of such a system and possible solutions.
7. All proposed systems must make use of two-factor authentication. Outline a two-factor authentication system in detail.