

NETWORK DESIGN TEAM (325)

REGIONAL – 2019

TOTAL POINTS _____ (540)

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:

Bright Community Bank and Trust is an upcoming bank in the New England region of the United States offering a variety of financial services to its small, yet diverse, set of clients. As part of its five-year roadmap, the institution wants to expand its geographical footprint further south, and to rebrand itself as a user-friendly and customer-first bank. In order to facilitate customer experience and as another facet of the five-year roadmap, the bank wants to improve its use of technology and to rebuild its infrastructure. In addition to innovating its existing technological capabilities, the institution must also be able to accommodate the three new branches it will be building in the geographical expansion phase of the roadmap.

Main Branch - Bangor, Maine:

The main branch in Bangor acts as the institution's base of operations. The following departments are housed at the location: information technology, accounting, human resources, operations, commercial lending, and compliance. Currently, due to the size of the institution, all departments are on the same network subnet, but during the expansion, additional employees will be added to each department. Network segmentation should be emphasized in the design build-out, as this will provide for increased maintainability and security with the additional employees.

With the expansion and additional employees, the institution will also be adding additional desktop clients. Currently, the desktop clients are a mix of different brands, mostly corporate and enterprise style machines, but the institution wants to work with a single vendor to supply the desktops. The proposal should include the most appropriate vendor for a mix of value and quality, and should account for 200 enterprise-class desktop clients. Approximately half of the desktops will remain at the main branch, while the additional machines will be distributed to the other five branches (the two existing branches and the three planned branches).

As part of the planned expansion and technology improvements, the bank wants to leverage more cloud services to boost its offering to customers and to create efficiencies within the departments. While open to novel ideas and innovation, the bank does have several explicit requests. The first requirement is a document imaging and management product. The proposal should include a solution for managing customer documents, addressing both intraorganizational and business-to-customer needs. The second request is an internal service desk system that will allow departments to make requests to other departments, such as a service ticket with IT or reimbursement requests to accounting. The final request is for all email communication to be moved to cloud-based service. While not limited to the requests above, cost vs value must be emphasized in the final design.

Due to the increase in the number of network-connected machines, the proposal should take into consideration network devices (routers, switches, firewalls, etc.) that can provide enough bandwidth. The wide area network (WAN) connection should also be addressed in the proposal by recommending reputable fiber networks in the Bangor, Maine area. A reliable and fast connection WAN connection will be of the utmost importance with the new cloud services being added.

With the expanded technological footprint, the bank will have, information security should be accounted for in all areas of the proposal. Financial institutions are inherently higher risk for information technology breaches, and proper measures must always be taken to ensure a secure environment. In addition to the cloud services and local area network requirements above, a secure virtual private network (VPN) is required to allow employees to connect while traveling and attending to customers offsite. An anti-virus software vendor will need to be recommended as well for the enterprise desktop rollout, and firewall devices are needed to address security at the edge.

All Branches:

The auxiliary branches all follow a similar layout so that consistency is maintained throughout the company and to provide for brand recognition. Each branch will require business-class Internet (preferably fiber), but a specific internet services provider (ISP) does *not* need to be recommended as several locations are still being considered. Teller counters at each branch will have approximately 10 desktop machines, split between the lobby and motor banking. The teller counter should be on its own separate subnet to facilitate security, department separation, and maintainability. The other 10 desktop clients at each branch will be distributed for new accounts representatives and back office operations personnel. In total, each branch will have four network subnets: tellers, new accounts representatives, operations, and guest network access. Similar to the main headquarters, information security must be addressed at the branch level as well.

Customer's needs:

- Propose a reasonable and thorough network design for the testbed specified.
- Recommend an effective design for the subnetting of the entire network and provide descriptions of the VLANs that will be utilized.
- Provide a cost-effective solution and vendor recommendation for enterprise-class desktop clients.
- Recommend cloud services that will address the following needs:
 - Document imaging
 - Service desk
 - Email communications
- Address all network connections, both intranet and internet connections
- Security must be addressed in all areas of the proposal due to the inherent risk of financial institutions
- Network design and plans for each branch