



Network Design Team

(325)

REGIONALS 2025

Topic:

Java Junction, headquartered in Maplewood, New Jersey, is a growing coffee shop chain with three existing locations. They plan to expand and open three more locations within a few years. Each is a miniature shack in the parking lots of larger businesses. The new locations are looking into migrating to a retail/restaurant space with the other three locations. Their organization and unification of their computer network are nonexistent. Java Junction seeks contracts to redesign and build a current network design to support its existing locations and add additional locations to industry standards and current specifications. Hoping to provide that warm and inviting coffee shop atmosphere where coffee enthusiasts can seek a cozy retreat with the espresso sounds to read an eBook, but also can provide space for customers to continue their daily work outside the office. Additionally, it caters to the students and patrons busy with study, seeking inspiration for their next adventure.

As a part of their business expansion plan, they would like to update their Java Junction shacks with better network infrastructure, providing a reliable and secure connection to these locations and a state-of-the-art network infrastructure to carry them forward. Currently, Java Junction has three existing locations. These built-in mini shacks are in parking lots of anchor stores, and the headquarters is in a small office space in Maplewood, New Jersey.

Currently, the three locations are Bend, Oregon; Ashville, North Carolina; and Fredericksburg, Texas. These mini shacks are cleverly utilized for the coffee-making experience. They are on a short-term lease with their anchor stores and must be mobile to move at any time. The front has a walk-up window, and the side is a drive-thru window. Inside, the coffee machines are in the center of the hut. There is no customer seating on the inside, but it does have some outdoor patio seating in a section of the parking spaces each is occupying. In Bend, Oregon, the location currently uses an employee phone to connect their credit card terminal to the Internet to process credit cards because there is no suitable wired connection. The transactions are in a cash drawer under the front and drive-thru counters. In Ashville, North Carolina, this location was fortunate enough for the anchor store to allow them to connect an Ethernet cable from the store to a small aging 802.11b wireless Cable/DSL router for credit card transactions. Finally, Fredericksburg, Texas, obtained a cellular hotspot to provide Internet access to its credit card terminal and computerized point-of-sale system. At the Texas location, they also allow customers to connect to the hotspot to enjoy the Internet while they have coffee and work on tasks outside the office on the patio.

The Maplewood, New Jersey office has a receptionist, inventory curator/quality manager, accounts payable/receivable, and owner. They have a small five-room office with separate spaces for each employee and a break room which doubles as the conference room. Currently, they are using a single 802.11g wireless router connected to a small DSL connection of 25Mbps through a wireless connection. Each employee complains that the Internet is slow and that their computers are constantly buffering. They also travel to the locations several times throughout the year to ensure their business is still top-notch.

Java Junction is looking into expanding into Austin, Texas, Myrtle Beach, South Carolina, and Oak Bluff, Massachusetts. Each of these locations will be structured the same. All have a coffee counter with two order stations, a drive-thru window, a kitchen in the center, a customer

seating/lounge area, and a private room for events; the whole space is approximately 2,000 square feet. Eventually, they will expand their menu to include food items other than the bakery items they are receiving frozen from the delivery supply food service.

Java Junction needs a proposal for the following:

- Secure and reliable network infrastructure for the office and all locations, existing and new
- Ability to centrally manage devices, point-of-sale, applications, and inventory across all coffee shops
- Scalable design to accommodate the ever-expanding coffee shop growth
- New and improved Wi-Fi performance for customers.

JUDGING PROCEDURE

- As a team of judges, formulate two to three questions to ask at the conclusion of the presentation. **Be sure to ask the same questions of each team.**
- No more than three (3) minutes for set-up.
- The length of the presentation will be no more than ten (10) minutes; followed by judges' questions not to exceed ten (10) minutes.
- The presentation will be stopped at ten (10) minutes.
- Excuse teams upon completion of judges' questions.
- **There can be no ties in the top ten (10) teams.** It is the responsibility of the judges to break any ties.
- The administrator will fill out a ranking sheet prior to dismissing the judges.
- If more than one (1) section is necessary, finalists will be determined by selecting an equal number from each section.
- Give the administrator all Judges' Rating Sheets, Judge Evaluation Sheets and contest materials.
- No audience is allowed in the contest room.

POTENTIAL QUESTIONS

1. What specific technologies and equipment would you recommend to ensure a secure and reliable network infrastructure for all Java Junction locations?
2. How would you implement a centralized management system for devices, point-of-sale systems, applications, and inventory across all coffee shops?
3. What design principles would you follow to ensure the network infrastructure is scalable to accommodate future growth and additional locations?
4. What strategies would you use to improve Wi-Fi performance for customers at all Java Junction locations?
5. What security measures would you put in place to protect customer data and ensure secure transactions at each location?

Please double-check and verify all scores!