

Capstone Project Scenario

You are a Junior Analyst working for MajEnt Consulting under the direction of Senior Analyst, Mrs. Melissa Parker. You will be completing tasks under her direction to satisfy the needs of clients.

Tanden Welding Company, a specialty welding company, has contacted your technology consulting firm to aid them in making changes to their computer systems and networks. This is a small welding company run by owner Mr. Tanden. The company does specialty welds in four unusual metals, copper, gold, silver, and tungsten steel. The company receives pieces that need welding from their customers, completes the welds and returns the finished product to the customer. Some of the projects require all four types of welds. The company consists of the owner, Mr. Tanden, one bookkeeper, one receptionist/data entry person, three sales representatives, and ten welders. In addition to a written description of the welding projects, the company receives large (up to 50GB) diagrams that are marked up as pieces go from one welding area to the next.

Currently the production is tracked using spreadsheets. The company has an Internet connection that provides a 10Mbps download speed and a 5Mbps upload speed. The owner, data entry person, and bookkeeper have computers connected to the Internet. At each of the four welding stations (one for each type of metal), there is a computer to access project descriptions, diagrams, and tracking information. These computers are not on the network. Data on the three office machines is backed up manually to external drives. The sales reps all have tablets or laptops.

Mr. Tanden has expressed the following areas of concern:

- Customers send in diagrams. Due to the limited network, the diagrams can take several hours to download, making it difficult for the company to be responsive to changes and to communications about the projects with customers.
- Project tracking is managed with spreadsheets and by marking up customer supplied diagrams. Files are transferred between welding stations using USB drives. Problems arise when USB drives are lost. Also, sometimes the welder makes changes to the tracking spreadsheet but forgets to update the diagram and vice versa.
- There is no central data repository that is accessible from all locations in the company.
- The sales team often has to work directly with the welders, but their laptops and tablets are wireless, and they have to rely on cell reception on the work floor. The construction of the building and the welding machines make cell reception

unreliable. Wireless connectivity would improve the sales team's ability to interact in the office and on the work floor.

- The company would like to open up business in neighboring states. Some initial interviews with customers there indicate some hesitancy to use Web interactions unless they can be assured of the security of Tanden Welding Company's networks and systems. The cost of sending sales representatives to other states for cold calls is prohibitive. The company would like to explore the creation of a website that would not only advertise its services, but allow customers to submit orders and work diagrams online. The site would need to be extremely secure.

Please complete the following tasks for this client. (Milestone due dates are listed in the course syllabus.)

1. **System Proposal Topic:** Describe the proposed problem scenario in your own words and a brief overview of proposed project topic ideas outlined.
2. **ISP and Data Plan:** Research and suggest a new data plan and ISP. The network connection to the Internet must be fast enough to allow quick downloads & uploads to the company's computers for the large project diagrams. Discuss the current network speed for transferring the client's largest files, be specific with times, and the speed given the solution you propose. Provide at least two ISP options and rationale for the one you feel is the best choice for the client.
3. **Tracking System:** Create screen shots and database diagrams (ERD) of a project tracking system that would be accessible by the sales force, the front office personnel, and all four computers at the welding stations. At minimum, the system should keep track of customer information, projects, the number of welds at each of the four stations, when the work at each station is completed, and the current location (station) of each project.
4. **Storage:** Stipulate the needed **server** and **storage** configuration to handle the new database and store the work diagrams. Assume that the company would like to keep up to 5 years of diagrams, and that they average 25 different projects per month. Recommend specific hardware and provide costs, specifications, and rationale for your choice. Describe a backup and retention policy for the front office data and work floor data.
5. **Network:** Design a network for the shop floor that would be fast enough to transfer the large diagrams nearly instantly between the company's computers. Indicate the equipment needed for the network (routers, switches, etc.) and **include a high level diagram of the proposed network**. Recommend specific hardware and provide costs, specifications, and rationale for your choice.
6. **Website:** Create screen shots of potential web site and necessary database diagrams for a website that would allow customers to place orders and upload project diagrams. Compare and contrast on-site versus cloud based hosting of

the website. Perform a financial feasibility analysis (ROI, etc.) where you consider developmental and ongoing costs for these two options.

7. **Security:** Describe security procedures for all proposed systems and networks.
8. **Deployment Timeline/ROI:** Estimate of project timeframe requirement from start to installation, training and overall all Return On the Invest.
9. **Executive Summary:** One-page overview of entire project summary. Includes problem statement, bulleted list of main services provided by new system. This milestone is completed at the end of the project when all research and analysis have been completed and compiled.

Your work will culminate in the following deliverables:

- **Systems Proposal** - Word document describing proposed solution and various trade-offs between options considered.
- **Presentation** – PowerPoint of your proposal to be shown to owner and company employees.