

Assignment 2 – Instructions

Assignment Instructions

Please consider the following scenario as providing the context for this assignment. Make all your choices, assumptions, ideas, suggestions, and explanations explicit. Phrase your answers in a professional manner, as you would do in a business/professional environment. **Hint:** it is always advisable to use professional terminology and established terms instead of social or common expressions that show lack of knowledge in the area (for example, say connectivity is neither consistent nor well-thought” instead of “there is a mess of cables”). Please pay attention to every single detail and answer the questions as precisely as you can. Providing an answer “close” to what you are expected to provide will most often not earn you a score “close” to the one possible but a low score on that specific question/task.

Be concise and organize your answers in sections that map directly onto the tasks below.

Submission guidelines: Please write your answers in a MS Word file, name the file using the format Group#.docx (e.g. Group1-A2.docx), upload it to your group folder, and give me a printed hard copy in class.

Scenario:

You are a networking and communications consultant working for HoustonComm Services, Inc, further referred to as HCS. HCS is a company providing technology consulting services to start-ups and established large companies. Recently HCS has been approached by Mr. Smith, the Chief Operations Officer of Procter & Gamble (PG). PG has many regional divisions across US, each organized around a central regional headquarter. They are now trying to expand into the South US area and are working on the logistics for opening a new regional headquarter in close proximity to the Dallas – Fort Worth metropolitan area. As part of these efforts, Mr. Smith has recently contacted HCS to provide them with one consultant to design the IT infrastructure for the new regional headquarter. You are assigned to this role.

Available information as provided by PG:

The already established architecture for the new regional headquarter has been deemed inappropriate and inefficient. Therefore, a new architecture has to be developed. The regional headquarter will be located in a new campus comprised of a 3-story office building and a very large 1-story warehouse. Each level in the office building will host 12 individual offices, 1 meeting room (with only minimum required equipment), one server/mainframe/technical room, and one utility room (cleaning, pipes, A/C, etc). Ground floor’s technical room will be larger in order to accommodate for servers, mainframes, security center, data center, etc. It is expected that this regional headquarter will have very frequent exchanges of data (large amounts of inventory data and various reports) with a few smaller regional warehouses that are located across South US. Additionally, it will have sporadic (usually once a day) exchanges of information (large reports) with other regional headquarters across US. Most of PG’s communication with its business partners is based on the S-Connect, which is an online portal. PG’s clients can use their business user accounts on S-Connect to order new products, to make payments, to schedule deliveries, to adjust agreement parameters for previous or future transactions, to send messages to PG, to seek technical support or business support, etc. Initial marketing forecasts show about 120 new business partners for the new PG regional headquarter during their first 12 months of operation, with a potential to grow to around 210 at the end of the second year. Business clients using S-Connect commonly use it at least few times a week and they tend to use it for most of the collaboration they have with PG. Some clients use S-Connect up to about a dozen times a day.

Task 1:

Propose a **communications/IT infrastructure** for PG’s new regional headquarter. At a minimum, specify the following in your proposal:

- Type of network(s) architecture(s)
- What types of devices will be part of the architecture
- Types of lines/circuits considered

Please **clearly explain/justify your decisions** for the elements of the proposal and address the issues of architecture scalability and reliability.

Task 2:

Assuming that the implementation of S-Connect at the new Dallas headquarters can be done in many different ways, propose an **application architecture** for S-Connect and justify why you consider this application architecture to be the most feasible option. Clearly describe the architecture you are proposing and discuss its potential advantages and disadvantages.

Task 3:

For the network architecture proposed in Task 1, specify the **type of circuit configuration** you propose and explain why you suggest that option. Describe the **types of data flows** within the proposed architecture and provide a justification for why those data flows are recommended. Specify what **connectivity** within the proposed architecture is guided, which one is wireless, and for each one of them please also specify how it should be realized (what type of wires or wireless communication) and why.