Hey Quineice, your post was very enlightening and encouraged me to think differently about the topics. To start, what is an example of how a distributed database makes data more relatable to a user? Are you looking at this in terms of a commercial company with a public interface? If a company decided to use a distributed database, would the schema be set up in such a way that all necessary data for a specific region reside within that region, or would only certain tables exist within a certain region? I agree with you that a distributed database is reliable due to its autonomy of data sets. Aurora distributed database management system (DBMS) is a great example of a distributed database. It separates storage from computing, thus reducing the necessary instance sizes, as well as replicating data in multiple regions (Chen et al., 2021). I use Aurora DBMS for my work, and I find it is quite beneficial for decoupling database reads and writes.

You make an excellent point that response time must account for the user’s response time as well. This can be a varying number as everyone is different. Making the distinction of response times on computers and laptops versus smartphones and tablets, do acceptable response times change? Should a smartphone be less responsive than a computer, or just as fast, and with lesser processing power?

With much of the country moving to remote work in recent years, is centralized data processing facility still the best option for IT support? An estimated 37% of American are now working from home. Would they still be able to perform their IT tasks on a centralized data processing facility from home? This is definitely a question that ties into more areas than just centralized data facilities, but it worth noting, given the numerous advantages of centralized data processing.

When looking into equipment and processes for redundancies in data facilities, what might a couple of environmental controls? Are these processes like system cooling and environmental protection? When creating data processing facilities, the direction of server rack affects it’s performance. This is because hardware operates best within certain temperature ranges. A mix of “hot aisle” and “cold aisle” racks are now the standard (Manganelli et al., 2021). Also, the use of water cooling is being implemented, which reduces the need for large loud fans. Rolling redundancy makes sense if the infrastructure and cost allow for it. But duplicating an entire system might not be feasible for some use cases

References

Manganelli, M., Soldati, A., Martirano, L., & Ramakrishna, S. (2021). Strategies for improving the sustainability of data centers via energy mix, energy conservation, and circular energy. *Sustainability*, *13*(11), 6114. https://doi.org/10.3390/su13116114

Qu, L., Wang, Q., Chen, T., Li, K., Zhang, R., Zhou, X., Xu, Q., Yang, Z., Yang, C., Qian, W., & Zhou, A. (2022). Are current benchmarks adequate to evaluate distributed transactional databases? *BenchCouncil Transactions on Benchmarks, Standards and Evaluations*, *2*(1), 100031. https://doi.org/10.1016/j.tbench.2022.100031

Yang, L., Holtz, D., Jaffe, S., Suri, S., Sinha, S., Weston, J., Joyce, C., Shah, N., Sherman, K., Hecht, B., & Teevan, J. (2021). The effects of remote work on collaboration among information workers. *Nature Human Behaviour*, *6*(1), 164. https://doi.org/10.1038/s41562-021-01228-z