Imagine you're designing a wireless network for a specific purpose, like a disaster relief operation or a remote environmental monitoring system. What factors would you consider when choosing between a proactive and a reactive routing protocol for your network? How would the specific needs of your chosen application influence your decision?

As I am required to design a mission-critical wireless network like the disaster relief system or environmental monitoring system.

The most important factor I think is the system availability. Its always important to develop and maintain disaster recovery plans to minimize unexpected network disruption(*What Is Network Availability & How to Improve It - Obkio*, n.d.).

According to (Jahir et al., 2019), network shall be reliable and robust to maintain necessary communication among rescue operators.

* Network shall be avoided from traffic congestion.
* Network should include higher redundancy to be easily and timely recognized regardless if system is damaged.
* The system shall be constantly updating the information and properly maintaining it.
* Latency shall be emphasized as timely update is crucial.
* Network stability and predictability are important in environment monitor system.
* Energy efficiency is also a concern for such system.

In a disaster system, the network might be changed during unpredictable events. Thus

A reactive protocol can be easily adapted for the changing environment. Another benefit of using reactive routing protocol is that the reactive one is more energy efficient and less resource consumption.

However, in mission-critical system, latency and stability are often in higher priorities. Thus, the proactive protocol might be preferred to provide a better response time and lower latency as well as more stability and predictability(Jahir et al., 2019).

Reference

Jahir, Y., Atiquzzaman, M., Refai, H., Paranjothi, A., & LoPresti, P. G. (2019). Routing protocols and architecture for disaster area network: A survey. *Ad Hoc Networks*, *82*, 1–14. https://doi.org/https://doi.org/10.1016/j.adhoc.2018.08.005

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