Real-time computing

Real-time computing is a field of Computer science. The idea is to design systems that have a *real-time constraint*. Real time systems will guarantee to give a result within a specified time. There are two kinds of real-time systems:

- *Hard real-time systems*: After the delay has passed the result is totally useless (and considered to be an error). No matter what happens, hard-real time systems deliver the result in the specified time. Real world examples are the controller for the airbag in a car. The reaction time of an airbag system is around 1 ms. Another example for a hard real-time system is the Anti-lock braking system in a car. If it does not react fast enough, an accident will occur. People might die because the result was not there fast enough.
- *Soft real-time systems*: On average, these systems work *fast enough* to make it feel like real-time. A videoconferencing system has microseconds to record sound and video, to send them to the other party, and to process the incoming data. If at one time, this cannot be done, the video will be blurred, and the sound may be out of sync for a few moments. This is however not a catastrophe, and the system can continue to work.

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