Abstract

In the past few years, the wide application of online map applications and location based services have significantly changed the ways of our life. Today, it is typical for us to search for directions or businesses on the Internet and find our ways through cell phones. Lots of the location based services require to provide answers to users continuously so that the users can interact with the applications. For example, a tourist may ask for the nearest three restaurants to be reported continuously while travelling in a city, so that he or she may choose to go to one at any time. As the answers may change over time, the continuous nature of the applications poses new challenges on methods to process the queries efficiently.

We look at a few key strategies to process spatio-temporal queries in a streaming fashion such as incremental and shared computation, safe regions, and time-constraint processing. We illustrate these strategies through the algorithms to several important types of continuous spatio-temporal queries.