06 Where are hotspots of "2020" traffic ?

～Predict the traffic of future events based on the individual behavior～

Abstract

Because an increase of “future events” that are events not organized in the past like the 2020 Olympic and Paralympic is possible, communicating a large amount of “future events” traffic efficiently with appropriate quality is a challenge.

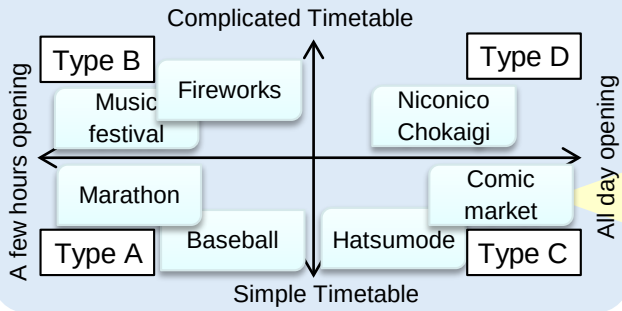
A conventional method of predicting a event traffic is for regularly-scheduled events. Thus, applying this method to future events is difficult.

We have studied a spatio-temporal traffic prediction based on models of event-specific communication behavior combined with human mobility. Furthermore, focusing on purposes of human behavior are aggregated by event types, we have developed an efficient traffic prediction technology by using multi-agent simulation.

STEP1:Constructing behavior models of a mobile user by analyzing past event data

A modeling human mobility and mobile communication is addressed based on past event data. Models consist of mobility patterns, application usage frequency, communication triggers of user, etc.

Event classification

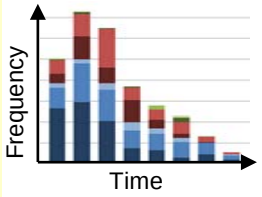


Behavior models of mobile user

Human mobility

- High-density area and Mobility pattern

Mobile communication

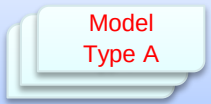


- Usage mobile app for each time, space, etc.

STEP2：Predicting a traffic of future event by behavior models of mobile user

A technology of predicting future-event traffic is developed by using multi-agent simulation consists of models built by STEP1 and parameters of environment based on open information of a future event.

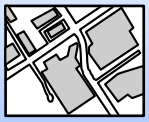
Internal parameter



- Mixing ratio of Models
- …

- Parameters of models constructed by STEP1

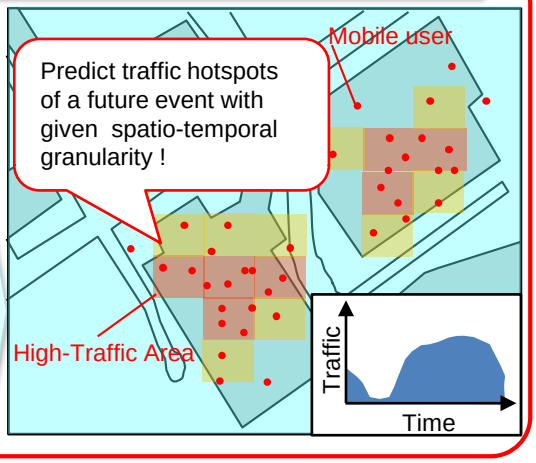
External parameter



- Number of user
- Performance of cell-phone
- Property of app.
- Geometry info.
- …

- Parameters of environment based on open information

Simulation



【Reference】

[1] H. Honda, Y. Takahashi, K. Ishibashi, “Proactive Network Control,” *NTT Technical Review,* Vol. 13, No. 9, 2015.

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