VIRTUAL MOBILITY AND REAL-TIME INFORMATION AVAILABILITY: HYBRID ONLINE STRATEGIES FOR NETWORK TRAFFIC MANAGEMENT

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ABSTRACT

Developments in wireless telecommunications and the mobile Internet create significant challenges and opportunities for transportation system planning and operation. Availability of real-time information to system operators (control entities), as well as the ability to provide information in real time to users, are both critical elements underlying new classes of emerging approaches to transportation system management. Following conceptual discussion of issues and approaches, the presentation addresses current directions in the development of robust online dynamic traffic assignment (DTA) procedures to support advanced network traffic management through the provision of real-time route guidance information to users. A hybrid DTA (HDTA) approach is described, consisting of a hierarchical routing decision process that provides careful interplay between a centralized predictive DTA model (CDTA) and a decentralized reactive DTA (DDTA) capability. Numerical results are also presented, highlighting the benefits of the strategies.