

An Arrival Scheduling Model for Incorporating Collaborative Decision-Making Concepts into Time-Based Flow Management

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Abstract— This paper proposes a flight scheduling scheme – 2-opt-swap, which assigns controlled times of arrival (CTAs) for flights reaching the Freeze Horizon and allows certain slot swapping between different flights with the goal of reducing total controlled arrival delay cost over all carriers. The allowable swaps are predicated on models of carrier preferences following a Collaborative Decision-Making paradigm. Monte Carlo simulations were designed to prove the benefits of this new CTA scheduling scheme, compared to a baseline model of first-come-first-served discipline, which is currently used in Time-Based Flow Management.