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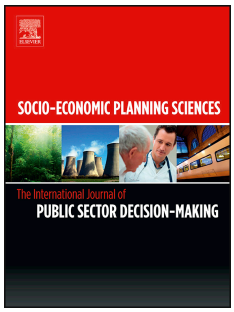

Why internet service provider and content provider do not collaborate via monitoring of digital piracy

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Why Internet Service Provider and Content Provider Do Not Collaborate via Monitoring of Digital Piracy

Jeonghoon Mo, Jungju Park, Nari Im, Jiwon Park, and Hansol Kim

Abstract

Internet service providers (ISPs) and content providers (CPs) have a symbiosis relationship in the Internet business ecosystem. In this paper, we investigate the possibility of and the conditions for their revenue sharing by means of on-line content piracy monitoring. CPs can benefit from the efforts of ISPs to monitor illegal content consumers, and can have the incentives to collaborate with ISPs. We suggest that if the quality degradation of a pirated content is low as in real world, there may not be a successful collaboration because CPs have little incentives to share their revenues with ISPs. We also investigated the impacts of ISP's piracy monitoring cost level, the value of contents, and CP's access fee per traffic on the possibility of their collaboration.

Index Terms

Internet service provider, content provider, revenue sharing, piracy

I. Introduction

We have witnessed and still expect revolutionary changes in network ecosystems. According to TechNavio, the global digital content market is expected to grow at a compound annual growth rate (CAGR) of 13.73% from 2015 to 2019, reaching 549 billion USD by 2019 [1], subsequently resulting in the rapid growth of Internet traffic. According to CISCO, global IP traffic has increased more than five-fold in the past five years, and the annual wireless traffic growth rate is expected to be 61% from 2013 to 2018 [4]. For Internet service providers (ISPs), more network infrastructure investment is needed to handle the increase in traffic. For example, according to a recent article, South Korean mobile carriers (SKT, KT, and LGU+) spent an average of 5.15 trillion won (5.01 billion USD), roughly 25% of their revenue, every year since 2011 to develop faster mobile networks (such as LTE) [6].

Researchers have studied the possibility of ISP content charges or CP profit/revenue sharing [12]–[21]. Kamiyama (2014) considered the feasibility of ISPs introducing content charges using a Stackelberg model, as CPs might switch to another ISP if their ISP introduces a content charge [12], [13]. Zhang *et al.* (2015), in considering content charges by ISPs, argue that the price elasticity of ISPs and of CPs is very important in determining the payoff of ISPs and CPs using a numerical study [14]. Park *et al.* investigated the collaboration

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