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CIPT study proposes a novel technique for IP transit cost reduction

A new study proposes a novel technique for cost reduction in the internet protocol (IP) transit market called “CIPT”, which may generate significant savings for Internet service providers.

Internet service providers (ISPs) rise to the challenge of providing universal connectivity to an ever-growing number of Internet users, coupled with a rising demand for quality of service, speed and reliability with innovative ways of reducing the costs of increasing IP traffic. A new study proposes a novel technique for cost reduction in the IP transit market called “CIPT”, which may generate significant savings for ISPs.

The study "CIPT: Using Tuangou to Reduce IP Transit Costs" was presented at the 7th International Conference on emerging Networking EXperiments and Technologies (ACM CoNEXT) in December 2011, held in Tokyo, Japan. It was carried out by Rade Stanojevi?, Ignacio de Castro and Sergey Gorinsky, all of whom are researchers affiliated to the Madrid-based Institute IMDEA Networks.

According to this research, the Internet is composed of thousands of ISPs (Internet Service Providers) linked in a more or less hierarchical manner to support universal connectivity of universal connectivity comes at the price of IP (Internet Protocol) transit: typically, a smaller ISP pays a larger provider for the traffic transited in both directions of the link between the two ISPs. In spite of the steady decay of IP transit prices (per unit of bandwidth), IP transit costs grow, since the traffic volume growth outpaces the decay of the per-unit prices. Not surprisingly, the discontent of the ISPs with the high transit costs has yielded notable innovations such as peering, content distribution networks, multicast, and peer-to-peer localization.

The CIPT study proposed a novel technique for IP transit cost reduction in which the IP transit is purchased in groups. The authors have examined the potential gains of such team buying and show that significant savings can be expected for the team members.

Analyses were performed using real-world traffic data from over 250 ISPs and IP transit prices from several transit providers. The data obtained suggests savings in such group buying teams in the range of 8% to 60%, depending on the factors involved.

The study identified that the two critical properties that enable gains in group buying of IP transit (the sub-additive pricing and 95th percentile billing) are ubiquitous in the IP transit market, and

have existed from the early days of commercial Internet. What's more, the question of how long IP pricing retains these properties remains open. As an illustrative example, in the entertainment industry (cinema, sports, etc.), which has offered group discounts for decades, group-discounted tickets still do not manage to constitute a significant proportion of revenues. Although IP transit is different from the entertainment industry in many ways, the paper concludes that it is reasonable to expect a similar outcome for CIPT. Therefore, CIPT coalitions will not dominate the IP transit market nor change the transit pricing structure. However, if buying coalitions become very common or large, their emergence can lead to a modified pricing structure and other new strategic behavior on the Internet.

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Some keywords that define us: 5G, Big Data, blockchains and distributed ledgers, cloud computing, content delivery networks, data analytics, energy-efficient networks, fog and edge computing, indoor positioning, Internet of Things (IoT), machine learning, millimeter-wave communication, mobile computing, network economics, network measurements, network security, networked systems, network protocols and algorithms, network virtualization (software defined networks – SDN and network function virtualization – NFV), privacy, social networks, underwater networks, vehicular networks, wireless networks and more…

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