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Performance evaluation of best route and broadcast strategy for NDN producer's mobility (Article) (Open Access)

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Abstract

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Named Data Networking is a novel concept mainly for the future Internet infrastructure that is centered on routable named data. The NDN infrastructure comprises of a new constituent known as the strategy layer. The layer give access for automatic selection of network routes by considering network pre-conditions such as delay in Interest messages forwarding via a producer. However, expressing appropriate pre-condition in selecting the best possible routes to forward Interest messages remains a challenging factor in NDN, because various parameters and conditions opposes one another when selecting best routes. Besides, it is possible for data in NDN to be retrieved from several sources. Yet, so far preceding research on forwarding strategy techniques that can calculate, from which route accurate NDN data contents content are realized does not regard a network attacker trying to transmit invalid data contents containing same name as accurate data. Therefore, this paper evaluate performance of forwarding strategy using analytical and simulation, and that can be compatible to related network applications such as voice. In analytical, we exploit the use of distribution function for consistency. These are the Probability Density Function (PDF) and Cumulative Distribution Function (CDF). In simulation, each application require its own form of forwarding policy using best route and broadcast. These were exploited to evaluate the total delay in a given interval from 10 through 50 seconds for five times. Similarly in our evaluation , a largescale ring topology was use in the simulation consisting of 30 nodes and 48 links. Link bandwidth is configured as 1Mbps. Numbers of content consumer/producer starts from 1 to 18 so as to achieve our simulations. Both consumers and producers were randomly selected in term of unique content request on the access network. ndnSIM 2.1 is used in simulating the scenarios for several time intervals. Performance results presents best route policy carries significant delay when compared with broadcast policy. Also, in our result, Delay metric is half the value obtained during analytical and simulation processes for NDN producer's best route and broadcast using CDF, as compared to the value realized in our benchmark paper for NDN consumer. © BEIESP.

SciVal Topic Prominence

Topic: Internet | Network architecture | Information-centric networking

Prominence percentile: 99.210

Author keywords

Bandwidth | Best route | Broadcast | Consumer | Delay | NdnSIM | Nodes | Producer | Topology

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