



A NETWORK BASED APPROACH FOR ROBUST UTILITY SUPERIMPOSED NETWORKS

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ABSTRACT:

The concept of overlay networks has been used extensively in telecommunication as well as data networks. In recent times content distribution networks as well as application layer multicast networks were used for multimedia streaming; as well as resilient overlay network make use of the overlay technique to make available better routing support. Researchers have effectively used overlay networks to resolve problems in different areas. We put forward the idea of service overlay network as an effectual means to address, end-to-end QoS, and to make easy the creation as well as deployment of value-added Internet services. The Service overlay network structural design moreover has a numeral of other significant advantages. Service overlay network have to provision sufficient bandwidth to hold up its end-to-end quality of service, sensitive services and get together traffic demands though minimizing bandwidth outlay with the intention that it can make enough revenue to get well its service exploitation outlay and stay cost-effective. Because of its service consciousness, a service overlay network can organize service specific provisioning, resource managing as well as QoS control mechanisms to optimize its functions for its services. Among numerous costs incurred in deployment of service level agreement, a leading recurring cost is price of bandwidth that a service level agreement have to pay for from fundamental network domains to sustain its services.

Keywords: *Overlay networks, Service level agreement, Traffic, Multimedia streaming, Distribution networks.*

1. INTRODUCTION:

The usage of overlay networks has been projected as an unusual solution that can potentially make available enviable flexibility as well as control of routing infrastructure. Overlay network provider's position numeral of particularly intended overlay nodes across Internet [4]. Traffic among end-systems is approved by and routed all the way through overlay networks as an alternative of native networks. One of the most significant issues in designing of a service overlay network is configuration of its overlay topology. Positioned among the native networks and eventual customers, an overlay topology constructed in favour of could considerably get better performance or diminish operation expenditure of whole scheme. As it is not easy to set up multi-lateral business connection connecting numerous domains, the employment of lengthwise services beyond best-effort connectivity that necessitate support from numerous network domains is still distant from realism [8]. Such problems have delayed the transformation of present Internet into a truthfully multi-service network communications with lengthwise quality of service support. Due to nature of their business relations, each system domain

is only concerned with network performance of its individual domain and accountable for providing service assurance for its clients [1]. We put forward the idea of service overlay network as an effectual means to address, end-to-end quality of service, and to make easy the creation as well as deployment of value-added Internet services. Service overlay network structural design not merely simples network quality of service management and makes it additionally scalable, however enables flexible formation and exploitation of new services. Service overlay network have to provision sufficient bandwidth to hold up its end-to-end quality of service -sensitive services and get together traffic demands though minimizing bandwidth outlay with the intention that it can make enough revenue to get well its service exploitation outlay and stay cost-effective [11]. The Service overlay network structural design moreover has a numeral of other significant advantages. It decouples services of application from network services, thus dropping difficulty of network service supervision and control, particularly in terms of quality of service management as well as control. The concept of service overlay network moreover set up a novel level of

traffic aggregation service aggregate in which underlying network domain can combined traffic based on service overlay network to which it belong and carry out traffic and quality of service control consequently based on service level agreement [3]. Because of its service consciousness, a service overlay network can organize service specific provisioning, resource managing as well as QoS control mechanisms to optimize its functions for its services.

2. METHODOLOGY:

The concept of overlay networks has been used extensively in telecommunication as well as data networks. We put forward the idea of service overlay network as an effectual means to address, end-to-end QoS, and to make easy the creation as well as deployment of value-added Internet services [14]. The service overlay network as shown in fig1 is pieced mutually by the use of service gateways which carry out service-specific data forwarding as well as control functions. The logical association among two service gateways is provided by fundamental network domain with convinced bandwidth and previous quality of service guarantees that are specified in a

bilateral service level agreement among service overlay network and network domain [9]. This architecture bypasses peering points between network domains, and hence stays away from potential performance exertions linked with them. Network architecture of a service overlay network relies on distinct business relations among the service overlay network, the fundamental network domains and users of the service overlay network to make available support for laterally quality of service. The service overlay network purchases bandwidth by convinced quality of service guarantees from individual network domain through bilateral service level agreement to put together a logical end-to-end service delivery communications on top of active data transport networks; through a service contract, users unswervingly pay a service overlay network provider for employing value-added services provided by service overlay network [7]. Two modes of bandwidth provisioning static as well as dynamic bandwidth provisioning are set up. The deployment of a The service overlay network purchases bandwidth through certain quality of service assurance from individual network province all the way through bilateral service level

agreement to construct a logical lengthwise service deliverance communications on top of active data transport network is a capital-intensive asset [2]. It is consequently very important to believe the price recovery concern for a service level agreement. Among numerous costs incurred in deployment of service level agreement, a leading recurring cost is price of bandwidth that a service level agreement have to pay for from fundamental network domains to sustain its services.

3. AN OVERVIEW OF ASSUMPTIONS CONCERNING SERVICE OVERLAY NETWORKS:

Researchers have effectively used overlay networks to resolve problems in different areas. Traffic among end-systems is approved by and routed all the way through overlay networks as an alternative of native networks [15]. Service overlay network structural design not merely simples network quality of service management and makes it additionally scalable, however enables flexible formation and exploitation of new ser-vices. It decouples services of application from network services, thus dropping difficulty of network service supervision and control, particularly in terms of quality of service management as well as

control. Network domains are nowadays concerned mainly with provisioning of services of data transport with connected bandwidth managing, as well as QoS assurance on a much coarser granularity [12]. Today's Internet communications supports mainly best-effort connectivity service. The Internet consists of a gathering of network domains. Traffic from one user to an additional user typically traverses multiple domains; network domains go into a variety of bilateral business relations for traffic exchange to attain comprehensive connectivity. Service level agreement representation makes simpler supposition on the quality of service [5]. Two modes of bandwidth provisioning static as well as dynamic bandwidth provisioning are set up. A traffic demand representation and a few notations regarding service revenue as well as bandwidth cost for formulating the bandwidth provisioning difficulty. In recent times content distribution networks as well as application layer multicast networks were used for multimedia streaming; as well as resilient overlay network make use of the overlay technique to make available better routing support [10]. We increase analytical models to learning difficulty of Service overlay network bandwidth provisioning and

examine the impact of a variety of factors on Service overlay network bandwidth provisioning [6]. Pipe service level agreement representation as an instance to show how Service overlay network bandwidth provisioning difficulty is defined. The analyses and elucidation can be adapted to hose service level agreement representation, which due to space restraint. The overlay method has attracted a lot of concentration from industries as a means to transport diverse quality of service-sensitive services over Internet [13]. The service overlay system is merely a generalization of these ideas.

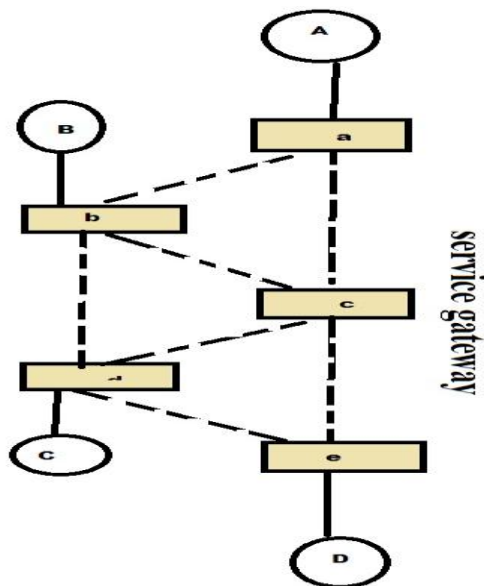


Fig1 : An overview of Service overlay network

4. CONCLUSION:

The usage of overlay networks has been projected as an unusual solution that can potentially make available enviable flexibility as well as control of routing infrastructure. The concept of service overlay network moreover set up a novel level of traffic aggregation service aggregate in which underlying network domain can combined traffic based on service overlay network to which it belong and carry out traffic and quality of service control consequently based on SLA. Network domains are nowadays concerned mainly with provisioning of services of data transport with connected bandwidth managing, as well as QoS assurance on a much coarser granularity. One of the most significant issues in designing of a service overlay network is configuration of its overlay topology. The service overlay network is pieced mutually by the use of service gateways which carry out service-specific data forwarding as well as control functions. We put forward the idea of service overlay network as an effectual means to address, end-to-end QoS, and to make easy the creation as well as deployment of value-added Internet services. As it is not easy to set up multi-

lateral business connection connecting numerous domains, the employment of lengthwise services beyond best-effort connectivity that necessitate support from numerous network domains is still distant from realism. Due to nature of their business relations, each system domain is only concerned with network performance of its individual domain and accountable for providing service assurance for its clients. The service overlay network purchases bandwidth by convinced quality of service guarantees from individual network domain through bilateral service level agreement to put together a logical end-to-end service delivery communications on top of active data transport network.

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