RESEARCH ARTICLE

A Framework for Tenant-Directed Route Control in Data Center Using BGP Protocol for Server Re Configuration Based On Load Analysis

Pavithra H.R[1]
[1]Department of Computer Science and Engineering, NHCE, Bangalore, India
[1] pavi.fnds@gmail.com

Mrs. Asha Rani Borah[2]
[2]Department of Computer Science and Engineering, NHCE, Bangalore, India
[2] asha.borah@gmail.com

Abstract: This paper introduce Routing as a Services (RaaS) to solve the route control customization problems. The problem has been confirmed to be unsafety, delay delivered services to landlard the border gateway protocol (BGP) are ineffective in solving it by exchanging the routine information. We presents the RaaS by introduce its components.

Key Words – Border Gateway Protocol, computer networks, RaaS, routing-asa-service.

I. INTRODUCTION

Data center is a major infrastructure for online service providers (OSPs),it provides always-on and active services to final-users. Typically consisting of thousands to hundreds servers so that data centers are perform to hold complex computations, high storage, and fast service delivery. In the data center the computational resources not used enormous so the resources are multiplexed between different tenants, here tenants nothing but clients of the data center resource so they can continuously achieve computations, store data, and provide services to end-users.

Routing-as-a-service to the tenant promotes one idea that tenants can programmatically reroute traffic for their services. For example, instead of a one server charging user traffic, a tenant can use 10 machines load-balance of incoming traffic. This framework that provides a programmatic environment for tenants to use routing as a service, while reducing the landlord's management effort, resulting in reduced personnel cost.

II. BACKGROUND RELATED

With the improvement of route control customization, the number of courses have established for that route control, for example, labor-intensive ticketing process where how the ticketing process are done for routing customization is, when tenant pass a request for routing customization or a ticket to a ticket distribution system also called landlord (network administrator) is assigned the ticket. After circular clarification between the tenant and landlord,

here the routing policies set by the landlord. If that policy is not satisfied again clarifications might be required with both tenant and landlord. Finally, when both the tenant and landlord are agree with the routing policy, the routing customization request is taken as fulfilled, and the ticket is mark resolved.

The following problems are common with this process are:
Tenants have limited control over routing
Dedicated human resource required
Manual work: slow

III.PROPOSED EVALUATION

Routing-as-a-service(RaaS)

A. Controller
The Controller can checks each incoming tenant request and reject when it is not satisfied with the policies set by the landlord. Once Controller guarantee the requests, it tells to tenants that the request was approved and notifies to the MultiSpeaker.

B. Multispeakers
The MultiSpeaker, upon receiving the tenants requests, interacts with routers via the routing protocol (BGP) to hange routing for their initial resources to the new resources. In RaaS, MultiSpeakers use Border Gateway Protocol (BGP) [6] to install tenants' routing requests. MultiSpeakers provide an API for the Controllers to relay approved tenant routing requests to the router.

C. Tenant application
Tenant application is the component implemented by tenants and executes their routing policies. Through the APIs provided by the Controller, tenants can choose how to control traffic to their services. In order for tenants to control routing to their services, RaaS requires each tenant to be assigned unique tenant IP address that are bound to the services and subsequently used for routing requests.

D. Border Gateway Protocol(BGP):

In the internet the routing protocol work will be done through the BGP. It used to pass the data or information from different host gateways to the Internet or collection of systems. BGP is a Path Vector Protocol (PVP), which access routes to different hosts by the networks and gateway routers and it will take decision to pass the routing services. BGP is a process of rearranging path message between with its personal <u>router</u> collection of systems in network. BGP use the Transmission Control Protocol for communication and pass updated router message only when system wants to change the routing, these updated router information are stored in routing table for every transaction between system and router. BGP is a ever green protocol compare to the (<u>EGP</u>), (<u>IGP</u>) and (<u>OSPF</u>) .

The RaaS prototype and present the results for two likely scenarios: *load balancing* and *workload migration*.

E. Load balancing:
Load balancing refers to a technique where the traffic is distributed evenly across multiple outgoing links. With load balancing enabled, the network increases its resilience against random link failures. Resilience against random link failures is an important feature because as failures occur closer to the core, the effect might become more severe. We demonstrate that RaaS can empower tenants to programmatically perform load balancing on their traffic by requesting additional links to their VIP

F. Workload Migration
Workload migration is the idea of moving traffic from one place to another. The traffic is directed toward one server Some time later the server is rendered unavailable by disconnecting its Ethernet cable. Then the traffic is restored onto another server.

Table I: comparative analysis of techniques to find route control customization

Algorithm Name	Remarks
Existing system Labour intensive ticketing process	1 Tenants have limited control over routing 2 Dedicated human resource required 3 Manual work: slow
Proposed Routing as a service	1 Allows for automated route control, 2 Use application programming interfaces 3 Allows tenants independent & safe route control, 4 Support route validation 5 Ensures better scalability, 6 Factor out policy control for system scalability 7 Eliminate per-ticket manual intervention for human scalability 8 Tolerates failures and planned maintenance.

IV. CONCLUSION

The Routing-as-a-Service framework, where the coupling between landlord and tenants are lessened. RaaS framework, the landlord only needs to understand the resource set of the tenants, and tenants can perform route customization independently of other tenants than existing system. For future investigation we plan to find out by the dynamic routing protocol the load balancing with number of servers and also migration, one more method high load will taken first server, the first server will take maximum load and rest will share to remaining servers.

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