Service Driven Approach towards Future Internet

Bhisham Sonkar
Department of IT & Computer Applications
Dr. C. V. Raman University
Kota, Bilaspur (C.G.) INDIA

Devendra Chaphekar
Department of IT & Computer Applications
Dr. C. V. Raman University
Kota, Bilaspur (C.G.) INDIA

Anurag Seetha
Dr. C. V. Raman University
Kota, Bilaspur (C.G.) INDIA

ABSTRACT
Having recognized the Internet functional and architectural properties as well as its design principles the query becomes whether the Future Internet shall be built between the “evolutionary approach” and the “clean slate approach”. Some assumption that it is not capable to resolve the challenges facing today’s Internet without rethinking the basic assumptions and design decisions underlying its current architecture. In this article we first give an overview of the challenges that a future Internet has to address and then discuss service centric approaches for finding potential solutions, as well as clean slate design. When we put into practice a service-oriented architecture via web services technologies, we generate a new approach of building Future Internet. Therefore we have projected Service driven network architecture within this architecture different virtual network connection that assures a given request will be obtainable to the consumer. Service-oriented architecture (SOA) based approach allows new interactive services have high Quality of Service (QoS) necessities to the network the parameters are Jitter, delay, packet loss and efficiently accessible bandwidth. The current Internet architecture cannot support these QoS requirements on a worldwide scale. In order to provide QoS on a wide-reaching level, the future Internet recommend virtual networks as data delivery services that may guarantee all the wants of associate degree application or service. We have a propensity to additionally perform a mensuations study to gauge a mensuration approach , that classifies the QoS of a network association among routers supported active measurements.

Keywords
Service oriented architecture (SOA), Virtualization, Future Internet, QoS.

1. INTRODUCTION
There are few technological success stories as dramatic as that of the Internet. Originally designed to link together a small group of researchers, the Internet is now used by many millions of people. However, multimedia application with their novel traffic characteristic and service requirements, pose an interesting challenge to the technical foundation of the Internet. [1]

The Internet has developed into the core communication environment not only for commercial relations but also for social and human interaction. In and of itself the internet plays an important role within the ability of humans to speak however at a similar time opens new difficult issues. Indeed, because the current internet grows on the far side its original expectations (resulting from associate degree increasing demand for performance, convenience, dependableness and quality of services) and on the far side its original style objectives, it more and more reaches a number of elementary technological limits and is compact by operational limitations obligatory by its design.

1.1 Trends & Motivation
Twenty years ago no one would have envisaged the net because it is these days furthermore as its numerous applications.Some exceptional cases may be made public like i) the net, that processes one hundred billion clicks per day and offers fifty five trillion links between websites, ii) the exchange of two million of emails per second and iii) instance messengers with one million instant messages per second. Also, there's a growing penetration of net property in terms of geographical size. Additionally, the internet traffic is anticipated to grow (see Figure 1) compared to 2015 [2]. The key purpose from this attitude is whether or not the utilization of the internet as a typical communication infrastructure for computing systems, early assessment (see Figure 1) shows that almost all of the traffic increase would be generated by the generalization of the exchange of digital media content over the Internet. ‘‘Patterns in Network Architecture: A Return to Fundamentals’’[3]. The book characterizes the underlying motivations and reasoning behind the key technologies of the internet. It conjointly describes intimately however factors apart from technical ones affected the form of this internet design.

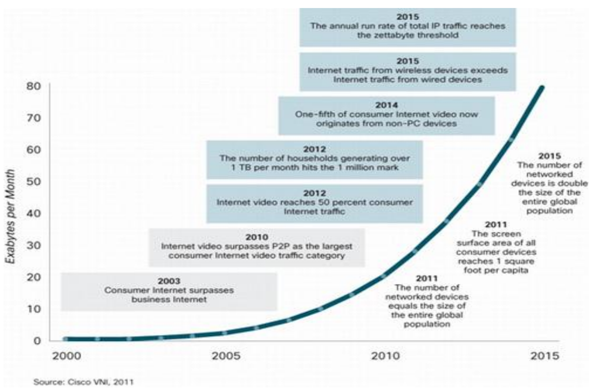

Fig. 1: Global Internet Traffic Growth (Source Cisco VNI 2011)

1.1.1 Generic definition of term Internet Architecture
The Internet is by definition a meta-network, a constantly changing collection of thousands of individual networks intercommunicating with a common protocol. The Internet's architecture is described in its name, a short from of the compound word "inter-networking"[4]. Today’s Internet was designed in the 1970s for purposes quite unlike today's heterogeneous application needs and user expectations. Though the Internet infrastructure has evolved with changing

applications, its basic architecture has to date gradually evolved. This basic architecture was not created to function as a global critical infrastructure, and it has a number of basic boundaries in terms of consistency, safety, scalability, mobility, quality of service.

1.1.2 Current Internet design goals and principles

Why it is difficult to address the above challenges within the current Internet architecture we need to briefly review how the current Internet works.

The design **goals** [5] essential the current Internet architecture in order of importance are: (0) to connect existing networks, (1) survivability, (2) to support multiple types of services, (3) to accommodate a variety of physical networks, (4) to allow distributed management, (5) to be cost effective, (6) to allow host attachment with a low level of effort and, (7) to allow resource accountability.

To achieve the Internet design objectives, the following design principles have been used in the current Internet: (a) layering, (b) packet switching, (c) a network of collaborating networks, (d) Intelligent end-systems end-to-end argument. (e) Simplicity Principle.

We appraisal how these design principles enable today's Internet to accomplish the majority of the design goals laid out above.

1.1.3 Several Trajectories of "Patching" The Internet Technology

Unfortunately, if we tend to compare the initial list of internet design goals with today's challenges. Whereas plenty of labor is current to feature security to every individual protocol utilized in the internet, e. g., IPsec, DNSSEC, this has not resulted in a very secure internet (design principle a). Adding quality to the internet design is additionally though, because the current internet naming system is predicated on the host address, usually the IP address (design principle d). To attain quantifiability of routing, the internet uses associate degree address hierarchy, that imposes a structure on the host addresses that relates to its location inside the internet (design principles b and c). Network management is associate degree unresolved drawback (design principle b). whereas we tend to perceive quite well a way to forward packets quickly within the "forwarding plane", we tend to still don't perceive a way to started the "control plane" in such a fashion that the network operates NetFlow is associate degree open however proprietary network protocol developed by Cisco Systems for aggregation IP traffic info. Reliably, is definitely manageable, debugable, and still scales well. whereas mechanisms for providing Quality of Service (QoS) inside the net, the interaction issues between the network layers (design principle a) are still unresolved and therefore the management of such services, as well as configuration, policy setup, charging, inter-provider setups, etc. remains open (design principles b and c). All topics, security, mobility, network management, and QoS, spanthe full network stack. the internet has {progressively increasingly more associate degreed additional} become an infrastructure more advanced to control. This complexness results from numerous tightly coupled layer violations to purportedly optimize network and system resource consumption, the proliferation of assorted sub-layers. There is, tightly coupled and profaned Current internet design, however, a growing accord among the scientific and technical community that this methodology of "patching" the net technology won't be ready to sustain its continued growth and address it at a suitable price and speed.

1.2 Scope of the work

Internet under technical, economical and social conditions, the grouping of these mechanisms have appreciably compact the prospective for incremental evolution of the Internet architecture. This defeat of flexibility is already being felt as the number of Internet nodes grows another order of magnitude. Indeed, the Internet these days size and scope make the deployment of new network technologies difficult while experiencing growing demand in terms of connectivity and capacity [6].

1.4 The Future Internet

The Future Internet ought to supply all users a safe, competent, trustworthy and consistent atmosphere. In turn, ought to permit open, dynamic and decentralized access to the network property service and data, furthermore as being climbable, versatile and adapt its performance to the user desires and context. The Future internet has become the most focus of many analysis and development initiatives everywhere in the planet, as well as initiatives within the EU[1], USA[2], China[3], Korea[4] and Japan[5]. However, despite the good interest within the Future Internet, no common definition of it's been adopted nonetheless. Still, considering that the long run internet can result from the evolution of today's internet, the long run internet may be outlined because the union and cooperation of the internet by and for individuals, internet of Content, internet of Services, and internet of Things, supported by associate degree increasing network infrastructure foundation.

[1]http://www.future-internet.eu., [2]http://www.nets-find.net., [3]http://www.cstnet.net.cn/english/cngi/cngi.htm., [4]http://fif.kr. [5]http://akari-project.nict.go.jp/eng/overview.htm.

1.4.1 The Future Internet Constitutes

Internet by and for People [7], Internet of content [8], Internet of services [9], Internet of things [10].

1.4.2 Challenges and Research Priorities

In general, the long run internet is setting vital challenges over the computing and networking environments, because it magnifies the options of the already difficulties in internet of these days. Service driven subject architecture framework will play a vital role to unravel some issue are: Service impact on the network, heterogeneity, mobility, multimedia support, and context and location awareness of service [11],[12].

1.4.3 Methods of Approach

There are 02 common strategies of approach which will be utilized once thinking forward. Having known the internet practical and architectural properties furthermore as its design principles the question becomes whether or not the long run of the internet shall be designed between the "evolutionary approach" or "incremental approach" and therefore the "clean slate approach" or "revolutionary approach" or "exploratory approach". Each approaches address a similar problematic and themes.

1.4 Objectives and Ambitions

The business usage of internet, heterogeneous environments, new communication abstraction challenges need consecutive generation internet to produce a broad vary of services that go way on the far side the easy store-and-forward paradigm of today's internet. Analysis efforts specializing in process new service design for the long run internet are driven by the subsequent requirements:

- how the design may be versatile and adaptation,
- how to avoid the ossification [13] of the internet, and
- how to map the user-level quality of service necessities, here are numerous different necessary parameters on that specification can judge like speed, delay, packet loss, and convenience, dependableness, versatile to pick out a service etc. The main goal is to modify Future internet service provisioning that meets QoS (for example, bandwidth, delay, and jitter) [14].

1.5 Outline

The aim of this work is to draw the attention of decision makers who actively drive the global definition of the Future Internet. **Section1** Identifying the appraisal, motivations and reasoning behind the key technologies of the current Internet and limitation of the current Internet, 04 key columns, and the technological challenges are also summarized and then explain the overall objectives and ambitions underlying the trend toward Future Internet.**Section-2** describes the clustered approach proposed by the different workgroups and presents new paradigm of architectural design described as ''clean slate design'' goes against the more traditional approach of incremental design. Service centric architectural studies related to Clean-slate solutions for virtualization and quality of service enabled network architecture, In **Section-3** Methodology, analysis and evaluation of system architecture & lesson learned from service oriented architecture. The notion of network virtualization & impact on service provisioning in the future internet and applying SOA principal in network virtualization environment define QoS parameters based on service environments. In **Section-4** proposed work & results describes service driven approach on network virtualization towards future internet as well as measuring quality of service parameters based on service environments. **Section-5** we analyze and conclude that these processes are necessary to enable Future Internet service provisioning in an adaptive manner, satisfying the specific QoS requirements required by users.

2. REVIEW OF LITERATURE

2.1 Current Efforts to Overcome Internet Network Architecture Shortcomings

Over the years, networking research has introduced newer protocols and newer architectural designs. However, as previously bring up, the Internet is its own worst opponent. It has not been possible to introduce any fundamental changes to its basic underlying architecture. Small and incremental changes solving the current problems have introduced scores of others. The opinionated view of incremental approaches has debatably stretched the current design to the maximum. The Internet needs to be redesigned for the present needs, while at the same time ensuring enough flexibility to adequately incorporate future necessities.

2.1.1 A New Paradigm of Architectural Design

A new paradigm of architectural design described as ''clean slate design'' goes against the more traditional approach of incremental design. The theme of ''clean-slate design'' is to design the system from scratch without being restrained by the existing system, providing a chance to have an unbiased look at the problem liberty. However, the degree of the current Internet forbids any changes, and it is extremely difficult to convince the stake-holders to believe in a clean-slate design and adopt it.

The National Science Foundation (NSF) was among the first to announce a GENI (Global Environment for Networking Innovations) [15] program for developing an infrastructure for developing and testing futuristic networking ideas developed as part of its FIND (Future Internet Design) [16] program. The NSF effort was followed by the FIRE (Future Internet Research and Experimentation) [17] program which support numerous next generation networking projects under the 7th Framework Program of the European Union, the AKARI program [18] in Japan, and several other similarly specialized programs in China, Australia, Korea, and other parts of the world.

2.2.2 Service centric architectural frameworks

FIND projects on service architecture are relatively more technical or detailed, meaning that they try to make the service implementation easier and more flexible, though through different ways: (1) Service- Centric End-to-End Abstractions for Network Architecture [19] : put application function to the routers (service-centric abstraction), (2) SILO [20]: divide into flexible services and methods across the whole networks, and support cross-layer, and (3) NetServ [21] : self-virtualized in lower layers, put service to IP layer. In comparison, the EU FP7 projects are more concerned about the relationship among different interested parties and how to setup the service agreement and achieve the service integration from business level to infrastructure level.(4) SLA@SOI [22]: empowering the Service Economy with SLA-aware Infrastructures.(5) SOA4All [23] : Service-Oriented Architectures for All.(6) Internet 3.0 [24] : a multi-tier diversified architecture for the next generation Internet based on object abstraction.

2.2 Architectural studies related to Clean-slate solutions for virtualization

The huge investments in the deployed infrastructure base of today's networks add to this ossification by preventing newer paradigms of networking from being tested and deployed. Virtualization seems to be the only possible solution to break this current impasse [13].

Network virtualization has attracted extensive research interest from both academia and industry. Virtualization was first employed in the Internet as an approach to developing virtual test beds for new network architecture and protocols, for paradigm in the PlanetLab [13] and GENI [25] projects. Then the role of virtualization in the Internet has evolved from a research method to a fundamental attribute of the internetworking paradigm [26]. CABO proposed in [27] is new Internet architecture that decouples network service providers and infrastructure providers to support virtual networks over a shared physical substrate. 4WARD is a large EU FP7 project in which network virtualization is employed as a key technology to allow virtual networks to operate in parallel in future Internet [28]. FEDERICA is another FP7 project with a core objective to create a Europe-wide infrastructure of network resources that can be sliced to provide a virtual Internet environment [29]. The concept of network virtualization is also employed in the AGAVE project for developing an open end-to-end Internet service provisioning solution [30]. The line of research on Software Defined Network (SDN), for example the OpenFlow protocol that is currently under active study, also follows the virtualization principle by separating network control from the data plane [31]. More relevant works on network virtualization can be found in the survey [32].

2.2.1 Service-Oriented Network Virtualization

Service-oriented network virtualization has become an active research area that attracts extensive interest. In UCLPv2 (User Controlled Light Path), a Canadian research project for enabling user control and management of optical network infrastructure, Web service technologies were employed to expose resources in optical network infrastructure as services [33]. The framework of network infrastructure service developed in UCLPv2 then evolved into a number of different projects, Ether for developing Ethernet and MPLS infrastructure services, and MANTICORE for supporting logical IP network as services [34]. In [35] the authors designed a transport stratum according to the SOA paradigm in order to expose transport functionalities as services to the service stratum in NGN. Service-oriented network virtualization architecture was developed in [36], which consists of physical infrastructure layer, virtual network layer, and service network layer from bottom to top. Analytical modeling and analysis techniques for evaluating end-to-end QoS in service-oriented network virtualization have also been developed in [37] and [38]. Service-oriented network virtualization has also been adopted by industry in various networking equipment and solution developments. For example, the Service-Oriented Network Architecture (SONA) [39] developed by Cisco provides a framework for implementing the infrastructure-as-a-service strategy in the networking domain.

2.2.2 Quality of Service enabled network architectural approaches

QoS enabled networks have been studied for quite a while now. Thus, several options for guaranteeing QoS for network connections have been implemented in the traditional IP architecture and for future networks not relying on IP anymore. One of the most straight forward approaches is IntServ [40]. Using IntServ each data flow, which needs QoS guarantees has to provide a description of the traffic that will be sent using a bucket model. Unfortunately, this algorithm does not scale with increasing network size and can only be used in very small networks. A more practical approach to QoS assured connection using traffic prioritization is DiffServ [41]. Using DiffServ, a router analyses traversing packets. QoS can not be guaranteed on network paths traversing more than one administrative domain.

In [20] an architecture called SILO is proposed open to integrate features like security and may use techniques to improve the performance even if deployed in hardware.

In [42], network architecture is proposed, which completely renounce the layered approach of network design and proposes a non-layered paradigm, which is called role-based design. As this proposal is not compatible with the current network hardware, it would need an absolute change of technology or virtual networks in order to be set up.

In [13] describe a way how to test those new approaches in a virtualized network test bed. It is considered how the current internet architecture can be tricked in order to get real traffic into this test bed and that it is a problem to achieve absolute QoS in a virtualized system. After effectively testing a new technology, the authors also discuss the problem. As an outcome they postulate the need of a coherent framework in which all the new ideas can be integrated.

2.3 Discussion

In this section, several proposals on designing next generation service architectures are discussed. Some key design goals for the next generation service architecture include flexibility and adaptability, avoiding the ossification of the current Internet and facilitating mapping of user-level service requirements onto the lower infrastructure layers.

Then, we take a look at the next generation research on ‘‘Future Internet Infrastructure Design for Experimentation’’ Virtualization provides isolation and sharing of substrate experimental resources.

In addition to the above, Internet 3.0, while clean-slate, is also looking at the transition issues to ensure that there will be a path from today’s Internet to the Future Internet. NSF has realized the need for a coherent architecture to solve many related issues and has recently announced a new program that will encourage combining many separate solutions into complete architectural proposals, which use TCP/IP protocol, will be able to be used for future Internet architectures that have yet to be developed.

Layered architecture is tightly coupled from each other if any change is perform in one layer then there must be vary in the closest layer. So they propose a new architecture after realizing these problems of layered architecture which is a loosely coupled architecture. We think about the problem and put forward an architectural framework as an abstraction of a network service based on the service oriented architecture approach. We also discuss how to integrate QoS guarantees for different parts of one consecutive network connection and investigate one possible option to measure the QoS provided by such a service.

3. RESEARCH METHODOLOGY

The quality of the final system can be seen as the summation of the quality achieved at the various stages of the system development life-cycle. While it is easy to observe that the lack of quality at any of the stage can adversely affect the final system quality. A need of excellence (in quantitative terms) at the architectural stage with regards to accommodating such attributes cannot be corrected at later on, but by revisiting the architectural stage again. Knowledgeable narrations area unit out there in [43].

The question we need to address is ‘whether it is possible to design an architecture with appropriate or enough quality attributes at design stage (present) to accommodate inclusion of future attributes’. This consistently points us to ‘plug and play’ architecture for architectural components.

3.1 System Architecture Analysis and Evaluation

The architecture development process need to follow some standard Development Life Cycle (DLC) process for modifiability and to clarify the rationality behind decisions made. Systems Development Life Cycle (SDLC) contains the (al least) the subsequent steps Fig. 3.1 [43, 44]:

1. Initiation/Planning

   (a) Understanding the business case/need and constraints

   (b) Understanding the requirements

2. Architecture Design

   (a) Creating/selecting the architecture

(b) Detailed design of the architecture

(c) Analysing, evaluating and documenting the architecture

3. Implementation

(a) Put into system based on the architecture

4. Testing

(a) Ensuring that the performance conforms to the architecture

5. Deployment

6. Maintenance

Large distributed enterprises built middleware to support transactions and interconnect their systems across domains. The concept of Service Oriented Architecture (SOA) [45] was adopted to enable a standardized and open way for Future Internet. We need a similar standard and structure to be applied to future diverse communication networks in order to interconnect business borders and executive domains.

Virtualization is another approach to alleviate the heterogeneity. The abstraction of capabilities as services with generic interfaces helps facilitate virtualizing underlying capabilities across domain boundaries, without the need for applications to be concerned about the platforms on which they might execute.

3.2 Towards a Service Oriented Approach

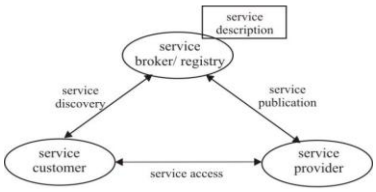

Fig 2: Basic Architecture

The Service-Oriented Architecture (SOA) is system architecture. The SOA is described as “an architecture within which all functions are defined as independent services with invokable interfaces that can be called in defined sequences to form commercial processes”. Services in SOA are self-governing and reusable computing mechanism that can cooperate with other services through pre-defined standard interfaces. Basically the SOA enables virtualization of various computing resources in form of services and provides a flexible interaction mechanism among services [46], Services may be described, published, discovered, orchestrated, and programmed through typical interfaces and messaging protocols.

Evan as SOA can be realized by various technologies; currently Web services offer the main approach to implementing SOA. Figure 2 offers the key elements with the interaction among them for a Web service-based SOA implementation. A service provider publishes a service description at a service registry.

3.3 Lesson Learned from SOA

A key aspect of SOA is the “loose-coupling” interactions among heterogeneous systems in the architecture, including service providers, service consumers, and the service negotiator and registry. “Loose-coupling” means entities can efficiently interrelate with each other while keep themselves self-regulating. It is this characteristic makes the SOA a especially effective architecture for coordinating heterogeneous systems to support various application requirements, which is effectively the similar challenge faced by the Future Internet. Therefore, applying the SOA principles in the field of networking provides a promising approach to constructing the Future Internet [47].

3.4 The Notion of Network Virtualization and Its Impact on Service Provisioning

Network virtualization is a possible solution that uses a single physical infrastructure that is logically shared among multiple virtual networks [13], [48].This network model presents flexibility to the Internet ossification by separating the network architecture functionalities into the subsequent entities [49] : Network Infrastructure (NI), Virtual Networks (VN), End Users

3.4.1 Impact on Network Service Provisioning in The Future Internet.

Network virtualization will carry a remarkable impact on network service provisioning in the future Internet. The most excellent attempt Internet today is mostly a commodity service that gives network service provider’s limited opportunities to distinguish themselves from competitors. Network virtualization offers a rich atmosphere for innovations that can encourage the development and deployment of a wide variety of new Internet services. Network virtualization enables only a service provider to acquire control over the entire end to end service delivery pathway across physical networks that may fit in to different self-governing systems of the Internet, which will significantly make easy end to end QoS provisioning.

3.5 Applying SOA principal in Network Virtualization Atmospheres

Applying SOA in network virtualization makes loose-coupling a key feature of both interaction and collaboration among heterogeneous network infrastructure. Therefore, such a network virtualization model inherits the advantage of SOA that enables flexible relationship across heterogeneous systems for providing services that meet miscellaneous application necessities [47].

3.6 Quality of Service (QoS) Parameters based on Service Environments

The fundamental idea to focus all existent and new services delivered to the final user in a unique network is a giant challenge. The Quality of Service (QoS) idiom refers as "a defined gauge of performance in a data communication system". QoS important parameters and their measurements are based on well-defined character of the applications considered. The major QoS parameters that forces in the services are the following: • delay: • delay variation (jitter): • information loss [50].

4. PROPOSED WORK & RESULTS

4.1Service driven architectural approach

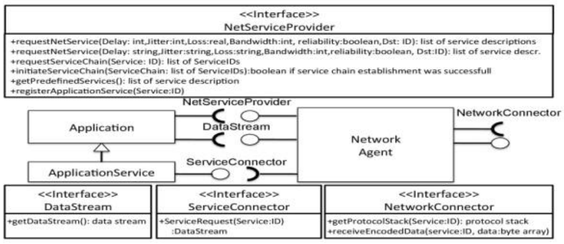

Fig 3: Architectural Approach

Virtualization of the network can be seen as a mode to build networks that cover the basic network topology. Other than it can do greatly added in order to get better the network service and open offered architectures for future technologies. In order to totally separate all kind of network services from the application logic, we recommend the above architecture. We use the SOA approach and characterize the complete network communication of the data as a service, which can be modified to the needs of the application. The execution of this service is wholly up to the network. This releases the service developer from the required to take care of things that can occur in the network but the network side is free to transfer the data in any appropriate technique, which facilitates the alternative of using an previously known protocol stack like TCP/IP or to move the data over any further protocol.

4.2 Appraising QoS

In observe, the system frequently does not accurately behave like conventional from theory. This is mostly the case for systems that apply virtualization and where numerous virtual systems are run on the similar hardware and interact with each other. As clarified in [13] absolute QoS is therefore hard to maintain, also comparative QoS might be attainable. Hence, for a SOA at the bottom of QoS over virtual networks it is essential to apply features, which can gauge the current QoS of a network service.

There are various options, which can be considered for measuring the QoS of a network service. A probable method is a passive measurement, which means that at some point of the network data is composed and analyzed. Adjacent to this, active measurements, which initiate traffic to investigate the network, are a slightly easy method to approximation the QoS of a network service at the moment of the measurement. Every QoS parameters can be enumerated by a suitable active measurement, i.e. delay, jitter, packet loss and bandwidth,

4.2.1 Configuring IP SLAs Operations

This subdivision describes how to utilize Cisco IOS IP Service Level Agreements (SLAs) on the switch. Cisco IP SLAs is a element of Cisco IOS software that permits Cisco consumers to investigate IP service levels for IP applications and services by using active traffic monitoring—the generation of traffic in an incessant, consistent, and predictable way for measuring network performance. IP SLAs can perform network assessments, verify QoS, ease the use of new services, and assist with network troubleshooting [51].

4.2.2 NetEm

NetEm is an improvement of the Linux traffic control facilities that allow to add delay, packet loss, duplication and more other features to packets leaving from a selected network interface. NetEm is built using the existing QoS and differentiated Services (diffserv) facilities in the Linux kernel [52].

4.2.3 Quantifying QoS with Cisco IP SLA Tests

In subsequent we spotlight on an active measurement, which can be done among two routers. The benefit is that a network provider does not have to set up extraordinary measurement hardware. We inspected the measurement quality of the Cisco IP SLA UPD Jitter Test. The IP SLA framework, which was previously known as response time reporter (RTR), However, we used a default alternative, which drives out 1050 packets of size 215 bytes with a intersect time of 21 ms. in order to confirm the quality of the Cisco IP SLA UDP Jitter test we established a NetEM network emulator among two routers.

In sort to evaluate the results of the router measurement with the exact values produced by the network emulation, we establish a wire tap on together with the network emulator and dumped all packets exchanged between the routers. The measurements are fully derived by a control PC machine, which (a) Initiates tests on the router with EXPECT scripts, (b) Assembles test results using SNMP, (b) Adjusts the network emulator in excess of ssh, (b) Managed the PCs discarding data and (e) Make available a stratum 2 NTP clock for the complete test bed.

4.2.4 Results : Quality of Delay

For every measurement the IP SLA test reports the smallest, the mean and the maximal delay during the measurement. In Figure 4 we demonstrate the maximal error of the maximal delays reported by the test in complete values. It can be noticed that the results of the router do not overrate the maximal delay more than 5 ms in all tested cases. Thus, the IP SLA results have a high accuracy at estimating the network delay in each pathway.

4.2.5 Results : Quality of Jitter

In order to study the quality of the jitter results, Figure 5 shows the persuades of jitter correspondence to the error of jitter outcome of the IP SLA test for an average communication delay of 85 ms. we notice that the mean error raises for upper jitter values. But, the range is rather little and correlation of jitter does not affect the quality of the extent. Therefore, we may use the results of the UDP Jitter test to approximate QoS parameter in the network.

4.2.6 Results : Quality of Loss

Figure 6 envisages the maximum of packet loss deliberated for the period of our test with correlated packet loss. For a correlation of 85% and above, almost all measurements did not detect any packet loss. Therefore the mean values are also almost nothing. It is evident that even tests with thousand packets are not sufficient to differentiate between 1.4% or 0.4% packet loss.

This is accurate as for every test the result is binomially distributed with the similar parameters and therefore it is possible to sum them up. Furthermore, it is practical to design active tests in such a mode, that the quality of the other predictable QoS parameters is adequate, and to do again these measurements in order to revise these values more than time and to better estimate the mean loss for the period of a longer time span.

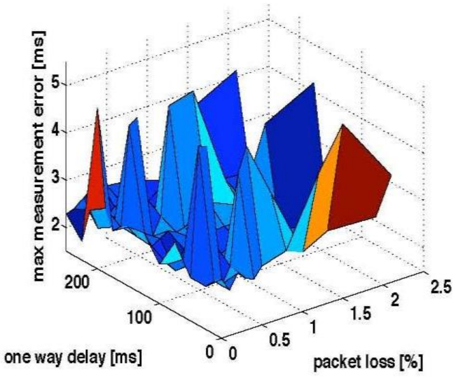

Fig. 4. Maximal error of the delay measurement

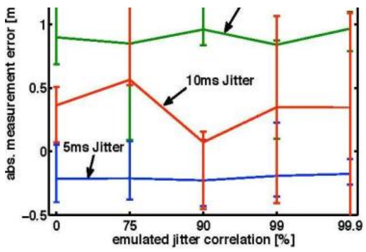

Fig. 5. Error in reported jitter

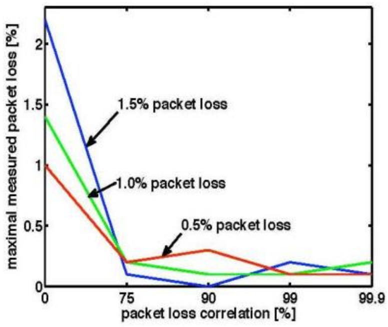

Fig. 6. Maximal measured loss

5. CONCLUSION & FUTURE WORK

We concluded that both approaches are desirable from an investigation perspective. Still, the need for mutual discusses between the various approaches and activities was also identified as essential in the process of bringing the current Internet towards to Future Networked Society.

In this work we have discuss all the issue in our solution. Internet will have different issues in the future; some of them has been discussed in this paper. Our architectural approach is able to handle the issues of the current internet architecture. Our planned architectural approach will keep up the performance of the network and offer a facility to user for selection and composition of finest services according to the necessities of application. The approach believes QoS as the network functionality the user is mainly attracted in and includes charging. We talk about options to measure the QoS and offered measurements exposing the quality of an accessible active measurement.

The basic subject of the Future Internet is to discover ways to remove difficulties. These contain the design ideas of new service, context aware services and facilitate technologies for building adaptive and reconfigurable applications.

6. ACKNOWLEDGMENTS

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