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Maintain the Web services in IPv6-IPv4 by Dual Stack Mechanism

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ABSTRACT: The use of the Internet started in the nineties currently has coquery all the human fields of the lifehuman, vegetal, animal,until now objects concerning the Internet of the objects.Thus far we do not have a global idea of what will become the Internet in the twenty five next years.
The life of the Internet and these services commonly called "Web" depends on protocol IP. The space of addressing of protocol Internet (IP), such as we know it, cannot allow to address more than 4, 3 billion machines, which pushed Internet Engineering Task Force (IETF) to start to work on a new model of the IP since 1996, which could accommodate a greater number of networks and computers, of which the name is IPv6 (Internet Protocol version 6).Today, we know a remarkable penury of addresses "IPv4" and that is risk to slow down the evolution of the Web.The new protocol "IPv6" is already operational although its deployment is progressive and will take a little time.Up to now, of many computers, routers, Web applications and Web sites function in IPv4.Thus, the Dual Stack mechanism would bethe beginningfor to configure in the same node two protocols IPv4 and IPv6. We thus simulated this mechanism by Cisco Packet Tracer 6.1.

KEYWORDS: IPv4, IPv6, Web, Dual Stack, Internet, IP, Protocol, Object, Addressing, Routage, TCP/IP, 32bits, 64bits, and penury.

I. INTRODUCTION

The numerical revolution disseminates an undeniable rise for this last decade. This revolution is due to the great success which knew the Internet which is the giant of all networks facilitating the distant access everywhere and real time, well beyond the most optimistic forecasts made as of the phase of its design.

The data-processing network in its design is made up not only of equipment such as machines, modems, routers, Switch… but as of the communications protocols to succeed to the main objective of the network that to share information and the resources between machines in sight of the correct operation of the whole of the services functioning within the network.

The Internet and the Web revolutionized the data-processing infrastructure of the companies.Protocol IP and its principal incarnation the Web, facilitate the installation of application to lower cost.Technologies Web are available and offer new assets to the current Internet.Technologies Web applies as well in the new applications of @IP under development invade the Web, the connection of various terminals:telephone, game console, apparatus electric household appliances, station of télévision… in addition to the computers **[1, 2, 3].**

On the Internet, each equipment has a single ID card:an address IP (Internet Protocol). This IP permit to identify the terminal in order to be able to exchange data.The most current analogy is that of a portable telephone number, everyone with a single number in order to be able to be joined directly; in the same way for the agents of a company, each agent is seen allotted one and only one number by the national institute of safety social(INSS) for its registration.IP Protocol, called IPv4, was created to be able to generate approximately 4 billion single identifiers. Currently one estimates at 12 billion the number of terminals connected on the fabric **[4].**

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The exponential growth of the request for IP addresses (single numbers ensuring the identification and the localization of the equipment networks) made to Internet a victim of its own success**[3,5,6].**Nevertheless, which are truths stakes which this problem of exhaustion of IPv4 addresses locks up, which still seems to surprise in certain mediums at the point to create a climate of imbalance there?Since the majority of companies still use IPv4 and that the transition from IPv4 towards IPv6 is done in a progressive way, which mechanism planned to cohabit the two protocols for a good continuity of services Web on Internet? For, there will not be aD-day for a brutal change towards IPv6.Before knowknowing how to make, askingat first of all the following questions:what is necessary it to make?By which and where exactly?.And at last, that brings it of special this new IPv6 protocol within an Intranet?

Initially for our micro-computers it would be necessary to think of update the operating system and the network applications used, in order to make them compatible with IPv6.For the majority of and operating systems traditional network the application, there is almost nothing any more to make, the recent versions manage IPv6 correctly [**7**, **3**].The 32 bits which IPv4 offers would be insufficient to provide in the future a total address to each peripheral network.let us imagine the fast growth of mobile telephones Smartphones, tablettes and others, the sophisticated cars, the network of the sensors which advances atunbridled pace, the Internet of the objects about which one speaks today (watches, bracelet, thermostats, electric bulbs, connected cars…, *etc*) thus Web 4.0 evoked by some as the intelligent Web which would still require IP and a permanent mobile connection for its deployment.The originators would adopt a new protocol called IPv6 (Internet Protocol version 6) having 128 bits, 4 times more in length with a quantity 2^{96} times more significant than IPv4 of today [**5,8,9**].IPv6 would support billion computers with a safety increased thus the data processing at real time, IPv6 would reduce the size of the tables of routing while being compatible with IPv4, would allow a future evolution of the Web, IPv6 would add many optional functionalities of IPv4.

To solve the problems evoked from this progressive installation of IPv6, mechanisms of transition was imagined, and some are still in the course of test.The "Dual Stack"would allow in a first place which a node(computer, Router) works at the same time in IPv4 and IPv6.

This protocol brings the auto configuration, mobility, multicast diffusion with increased safety (Authentication and confidentiality) thus, an optimal connection for the VoIP**[10**, **11]**.In this article, we will evoke the evolution of the Web initially, would come the stakes and prospects on IPv4 and IPv6, finally, the simulation of the mechanism "Dual Stack" which is adequate for the transition from IPv6, thus, to make profited with our services Web and our Intranet the few innovations which bring this protocol of new IPv6 generation.[**9, 12].**

II. EVOLUTION OF THE WEB

Web 2.0

Taking account of the technological development, the researchers excavated emergence in the Web so as to create the interactivity between computers in a dynamic way and to fight against the weakness of the static Web called 1.0.The term "2.0" developed by allusion in the sphere of Web2.Web 2.0 became inescapable to in the Internet of today and tomorrow.But for understanding Web 2.0 well, it is initially necessary to draw aside certain conceived ideas:Web 2.0 is not only technology:although composed of many technological developments such as participative architecture, the free software, the rich interfaces, the programming language such as Php, Ajax, Java, Javascript, Asp etc **[13,14,15,16].**TheWeb 2.0 does not rest only on technological bases;Web 2.0 is not a revolution:it is not a question of a brutal passage of version 1.x to 2.0, but rather of a change of specimen and a progressive evolution towards new models of businesses participative and collaborative**[17].**In the Web 2.0 the net surfer is an actor and provides his own contents through social networks like (Facebook, MySpace, Twiter, badoo Instagram…), of the blogs, the shared contents [**9, 18].**The Web becomes a gigantic encyclopaedia, an enormous library, an immense bookshop and a medium of most complete [**13].**

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Web 3.0

In 2001, Tim Berner lee, had a vision of the new Web where the machines between them share data;by there a new term goes to appear, that of the semantic Web differently called Web 3.0. Its name, so that its creator quickly became aware of it since little time later, it proposed the name of "*Web of the data*".It is about Framework making it possible to structure and connect information present on Internet using metadata [19].The semantic Web is based on ontologies which are a modeling of knowledge [**20, 21, 22, 23, 24].**

Web 4.0

The Web seen in the future, is that the Internet is present everywhere; it is what is called as of now the cloud or "*cloud computing* " or "*data processing of cloud* " This last would propose solutions and services available on the "cloud" **[9].**

The Web of the objects

The Web will be accessible on the objects from all days.There will be 26 billion objects connected from here to 2020.Objects of any nature:telephone, computer, clock radio, television, car, refrigerator, sensors of circulation placed along the motorways, etc [**9**].The computer will hold in a pocket.The mobile telephone will become then, for example, an object all in one: mouse, telephone, remote control and scanner to be able to enter and interact in these environments click. The Internet of the objects forms integral part of the Internet of the future and can be defined like an infrastructure of network total and dynamic based on protocols of communication interoperable like the case of IP where the objects real (*Real Physique World*) and virtual(*Virtual Cyber world*) have an identity or an address IP which by the means of intelligent interfaces nation(Digit World**) [25, 24].**

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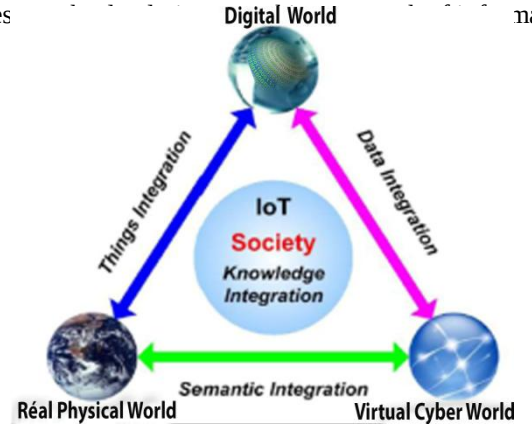

Figure 1: Triangle of the Internet Object: TIOT

Web Services

The World Wide Web (www, or Web) usually called the fabric is one of the principal services of Internet, a great instrumental system of communication of Internet.To say more, it is a great system hypermedia of access to information in various forms:textual, sound, images (JPEG, PNG) or animated (GIF), graphs available on Internet and on which one navigate thanks to a navigator or ferreter such as:Internet explorer, Netscape, Opera, Mozilla Firefox, Safari etc [**26,27].**

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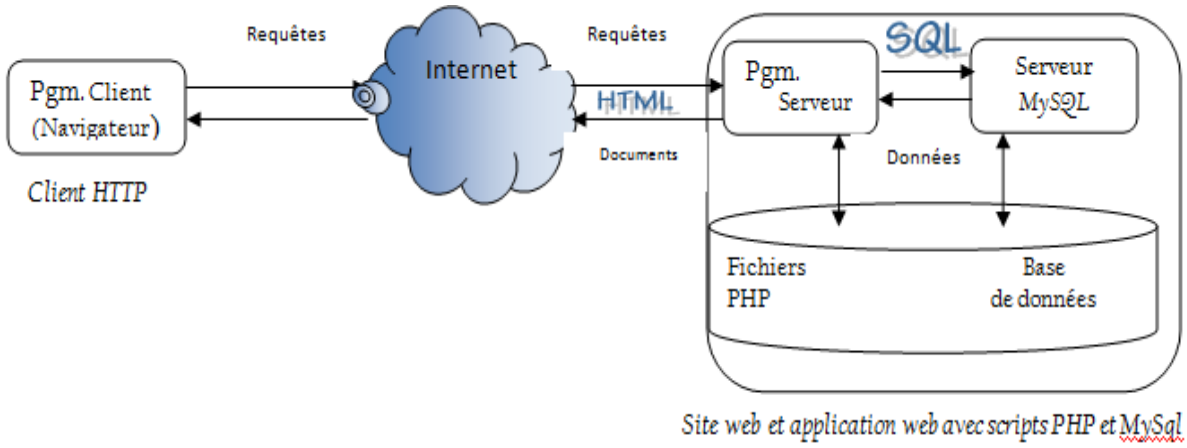

Figure 2: Architecture of the web Application(client/server). Source:Rigaux, 2008

The Internet is first of all formidable platforms of communication based on technology to transfer the information one to another. This exchange is achieved in one of the many services of the Internet:electronic mail, publication of documents, images, films and sounds on the Web, forums of discussion, message instantaneous shares software, etc [**14, 28**].

III. THE ARCHITECTURE OF PROTOCOL TCP/IP

The acronym TCP/IP which means "transfer control Protocol/Internet Protocol" is the whole of way and means to communicate in a network by knowing the address of each machine [**29**]. In a parallel direction we can take the case of the Institute supérieur Pédagogique (ISP) (Teaching College of Mbanza–Ngungu) and the KongoUniversity(UK) which must cooperate.The communication between the General manager of the ISP and the rector of the UK. Can be made several manners:either by telephone, by knowing the telephone number of the one and the other, by electronic mail by communicating e-mail, or by correspondence or by invitation by knowing the addresses. The means of communication are thus of TCP and the telephone numbers, e-mail and address are IP. The IP is thus single and only one for each computer like the primary key of a class in the data bases.

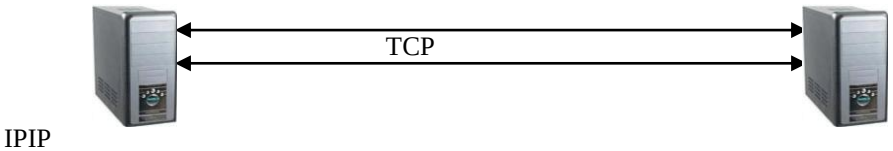

Figure 3: TCP/IP Illustration

The model TCP/IP which is at the base of Internet networks thus corresponds to a succession of protocols of various levels or layer taking part in the realization of a communication via a data-processing network **[30,14].**

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List 1:TCP/IP models of description: layers, Ports and Protocols

layer	Roll	Port	Protocols
Physical	Integrate the services of the layers physical and connection of OSI model, has in load the communication with the physical interface in order to transmit or to recover the packages of data which to him are transmitted at the high layer		Etherneten LAN, X25 en WAN, PPP Ethernet ATM,FDDI, Token Ring
Internet	Corresponding to the network layer of OSI model, deals with the routing, with good destination, of the packages of data independently from to each other, that is to say thus of their routing through the various nodes compared to the traffic and the network congestion	**1**	ICMP ARP RARP, IP,TCP/IP OSPF ,EIGRP
Transport	Gère le fractionnement et le réassemblage en paquets du flux de données à transmettre.	**6** **17**	TCP, UDP
Application	Similar to the homonymous layer of OSI model, corresponds to the various applications using the services networks to communicate through a network.	**80** **443** **80** **21-** **20** **22** **443** **23**	DNS, SMTP, HTTP, FTP, SSH HTTPS DHCP

Distribution, Addressing, and IPv4 Penury

Distribution of address of IPv4

The IPv4 protocol, finalized into 1983 was addressed at a restricted community;thus, the addressing of IPv4 is envisaged on 32 bits, which makes it possible approximately to have a stock of 4.3 billion IP addresses. At that time and with the vision which the persons in charge had, namely a network intended for the soldiers and scientists (thus rather distant from what was going to become the Internet that we let us know today), stock appeared more than sufficient.From now on, this stock of IPv4 addresses is very started, and so nearly 47% of the addresses are not allotted (among the total stock of addresses), the geographical distribution in is very unequal.The allocated addresses intended to be used by a regional register of Internet or organizations pre-RIR(**Register Internet Regional)** represent the majority of stock and are intended primarily for the American zone at the expense of Asia which however has a significant potential of development(chine, India).It is also to note, that among the total of the allocated IPv4 addresses, 53% were it directly with organizations (American for the majority), Africa our continent does not even have more than two percent **[4, 3].**

Addressing IP

An IPv4 address consists of 32 bits numerical from 0 to 9, cut out in a number of networks and a number within this network.**[29, 30].**

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IPv4 addressing range [28, 31, 14]

Table2:IPv4 class address range and class hierarchy

Class	Mask	Network adress	Network numbers	PCnumbers	%
A	255.0.0.0	1.0.0.0 - 126.255.255.255	126	16777214	50
B	255.255.0.0	128.0.0.0 - 191.255.255.255	16384	65534	25
C	255.255.255.0	192.0.0.0 - 223.255.255.255	2097152	254	12.5
D	240.0.0.0	224.0.0.0 - 239.255.255.255	Sigle adress	Sigle adress	6.25
E	Not définite	240.0.0.0 - 255.255.255.255	Sigle adress	Sigle adress	6.25
Loopback			127.0.0.1/local host		

IPv4 Penury

Let us retain that in 2003, Geoff Huston, Chief Scientist of the Information center of Internet of Asie/Pacifique(APNIC) had made forecasts over the life expectancy of the space of IPv4addressing [**3**].The message which it addressed to its public in particular the RIR **(Regional Register Internet)** was as follows:"*if there would not be a large surprise, improvement of the model, numerical rebirth of China, and other powerfulworld …, the reserve of IPv4 address will still persist up to 2030 - 2037* ".At this time, community RIR was already in the management of the penury but this first warning at all did not worry this community to push it to adopt a new protocol "IPv6".Four years afterwards, therefore in 2007, Geoff Huston, teaches them again that exhaustion would take place well before 2030.The new forecasts thus gave 2010, 2012 and 2015 like years when IPv4 stock of the IANA, the organization which manages IP addresses on Internet and that of the RIR will be respectively exhausted.This second warning upset this last with a total agitation on board side RIR. *Hurry up*, "*it is necessary to do something; we all will suffer"* declared Randy Bush the head of community RIR **[**3**].**

We thus arrive at the saturation of IPv4.The few 4 billion addresses were already allotted and this resource is limited.As Tablen°2indicates it, the addresses of class A which represent 126 networks of 16.7 million the hosts.All the addresses of class A all are already exhausted.Addresses of class B: they represent 16368 networks of 65534 machines.They are the most widespread addresses among the industrialists and certain suppliers of access.They already almost all are used.Lastly, addresses of the class C: they represent 2 million networks of 254 machines.They are mainly for the small organizations, and, currently, they are distributed to the Internet Service Provider (ISP). These addresses are already exhausted[**32**].For that of the fast evolution of technologies Web and their applications, the appearance of new apparatuses connected on the Internet via an address IP or a URL became remarkable. IPv4, does not have any more one long guaranteed life because it enough address IP so that each apparatus has his.Two users can see themselves allotting the same address to the risk to see their activities on their computers, Smartphones or any other object considerably slowed down.

IPv6Stakes and characteristic

With each time that one connects a peripheral to Internet, the Internet Service Provider allots an address IP to him so that it can exchange with the other servers, computers, mobile telephones… connected to Internet.Now, protocol Internet used names IPv4 as evokes on the preceding pages (v4 = version 4, knowing that versions 1, 2 and 3 were never used and that the v5 never knew expand). Size's Point of view, performance, lifespan, safety, universality, the new generation protocol "IPv6", is larger largely by far than its predecessor "IPv4" which contains than 32 bits and made up that of a number.A IPv4 address is made up of 4 numbers ranging between 0 and 255.Each number is separated by a point such as 192.168.10.21.On the other hand, IPv6 is slightly more complex, it contains 128 bits and an address IP version 6 is made up of 8 blocks of 4 hexadecimal natures (between 0 and 9, and a and f) separated by 2 points:2c00 : bebe : 111 :dada :baba :0000 :dede :2e21[**10**,**11].**IPv6 new generation protocol increases the number of addresses available, that is to say 667 million billion IP addresses available by mm² of the area of the Earth.It succeeds IPv4 to satisfy the number growing of networks in the world and to solve the problem of penury of address IP [33**]**.

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IPv6 12 Innovations [32, 10, 6]

- An address IP contains 128 bits of 8 blocks of 4 hexadecimal natures;
- To support billion computers, while releasing itself from the inefficiency of the space of current IP addresses;
- To reduce the tables of routing;
- To simplify the protocol, to allow to the routers router more quickly,
- To give more attention to the type of service, and in particular to the services associated with the traffic real time;
- To facilitate diffusion multicast;
- To give the possibility to a computer of moving without changing its address IP, Allowing the protocol a future evolution, i.e. to pre-empt future uses asking of the evolved/moved functions, such as mobility, the multi-media etc;
- Simply possibility of the auto configuring a machine by combining its Mac address and by obtaining from a router the 80 bits missing to speak about the stateless and starting from a DHCP server to speak about state full;
- Bring an increased safety (Authentication and confidentiality);
- Optimized routing: with protocol OSPF and RIP.
- Facilitate the cohabitation with IPv4;
- Lastly, improvement of the applications and services Web:IPv6 does not split up the packages, IPv6 checks the integrity of the headings of packages at the higher level, of the headings of simpler packages thus IPv6 will be even more significant on the mobile Web, and the Internet of the objects.

Dual stack mechanism:Simulation by Cisco Packet to trace 6.1

Dual Stack Operation

Dual the stack is a mechanism in which a machine works at the same time in IPv4 and IPv6.Connections networks are done through pile of network layers.This solution is based on the cohabitation on the same chart network these two technologies of networks [11**, 34,35**].Dual stackoperate in manner that a node (computer or router) of network incorporates piles of the IPv4 protocol and IPv6 in parallel where the IPv4 applications use the IPv4 pile and the IPv6 applications use the pile IPv6**[36].**At the time of the sending of the packages, the address received starting from the high layer determines the suitable pile.Dual Stack configuration is a little complex because "nodes" can be configured with the IPv4 addresses and IPv6. Dual stacknodes employ the dynamic protocol of configuration of host centre DHCP which is the automatic protocol of attribution of the addresses to acquire the IPv4 addresses, and automatic configuration of IPv6 addresses starting from a router called “stateless” thus DHCPv6, to acquire dynamic the IPv6 addresses starting from a server commonly called “Stateful” [37].

Table 3: Dual Stack layer : IPv4 et IPv6. Source : Amoss & Minoli, 2008

IPv6 Applications	**IPv4**Applications
Socket API	
TCP/UDP v4	TCP/UDP v6
IPv4	IPv6
L2-Transport Layer	
L1 -Transport Layer	

Dual Stack mechanism: Simulation and configuration

In Dual Stack, the communications protocol is that, if the specified to the address is of IPv6 type, then the communication is done in IPv6. If the address is in IPv4, then the communication is done in IPv4.In the case of a double answer, it is the most optimal mechanism which will be selected.The guiding principle being that the application will privilege the IPv6 address at the place of IPv4 that is true only if is in the same network [**10].**

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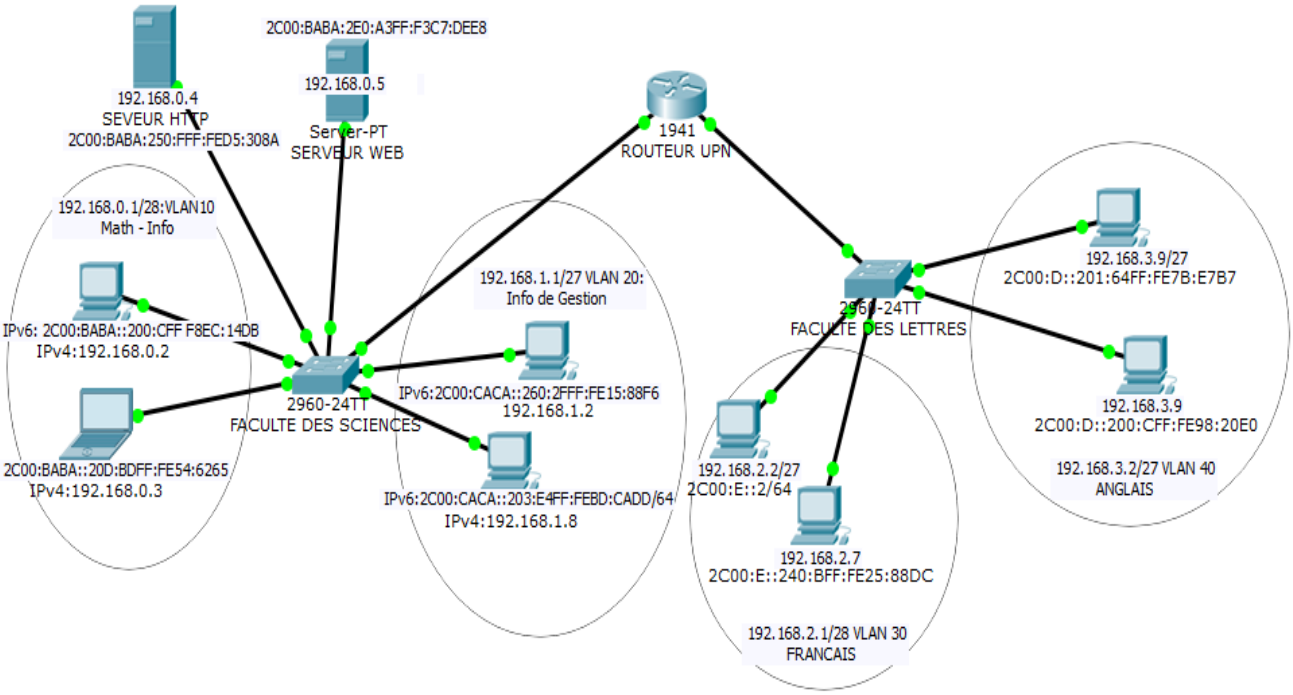
Logical topology

We simulated Dual Stack by Cisco packet to trace 6.1.We were interested to inter-connect the Faculty of Science and that of letters of Université Pédagogique Nationale (National Teaching University), Kinshasa, Démocratic Republic of the Congo.By choosing two departments for each one while creating of Vlans like Suits:

- Faculty of Science:**Departments:**
  -MathematicandInformatics(**Vlan10**)
  - Informatics ofmanagement(**Vlan20)**

- Faculty of Letters: **Departments:**
  -French(**Vlan30**)
  English(**Vlan40**)



Enter configuration commands, one per line. End with CNTL/Z.
S1(config)#hostname SCIENCES
SCIENCES(config)#vlan 010
SCIENCES(config-vlan)#name - Mathematic and Informatics
SCIENCES(config-vlan)#exit
SCIENCES(config)#vlan 020
SCIENCES(config-vlan)#name Informatics of management
SCIENCES(config-vlan)#exit
SCIENCES(config)#interface range fastEthernet 0/1-12
SCIENCES(config-if-range)#switchport mode access
SCIENCES(config-if-range)#switchport access vlan 010
SCIENCES(config-if-range)#exit
SCIENCES(config)#interface range fastEthernet 0/13-24
SCIENCES(config-if-range)#switchport mode access

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```
SCIENCES(config-if-range)#switchport access vlan 020
SCIENCES(config-if-range)#exit
SCIENCES(config)#interface fastEthernet 0/1
SCIENCES(config-if)#switchport mode trunk
SCIENCES(config-if)#switchport trunk allowed vlan all
SCIENCES(config-if)#exit

Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname FACULTY
FACULTE(config)#hostname UPN
UPN(config)#interface fastEthernet 0/0.010
UPN(config-subif)#encapsulation dot1Q 010
UPN(config-subif)#ip address 192.168.0.1 /255.255.255.0
UPN(config-subif)#ip address 2C00:BABA::/64 eui -64
UPN(config-subif)#exit
UPN(config)#interface fastEthernet 0/0.020
UPN(config-subif)#encapsulation dot1Q 020
UPN(config-subif)#ip address 192.168.1.1 255.255.255.0
UPN(config-subif)#ip address 2C00:CACA::/64 eui - 64
UPN(config-subif)#exit
UPN(config)#interface fastEthernet 0/0
UPN(config-if)#no shutdown
UPN(config-if)#exit
UPN(config)#interface fastEthernet 0/1.030
UPN(config-subif)#en
UPN(config-subif)#encapsulation do
UPN(config-subif)#encapsulation dot1Q 030
UPN(config-subif)#ip address 192.168.2.1 255.255.255.0
UPN(config-subif)#ip address 2C00:E::1/64
UPN(config-subif)#exit
UPN(config)#interface fastEthernet 0/1.040
UPN(config-subif)#encapsulation dot1Q 040
UPN(config-subif)#ip address 192.168.3.1 255.255.255.0
UPN(config-subif)#ip address 2C00:D::1/64  eui - 64
UPN(config-subif)#exit
```

IV. CONCLUSION

The futurology of Internet remains still dangerous, because its future is even more obscure than that of anything else.Who about the nineties could imagine that the 4.3 billion IPv4 addresses will be almost insufficient for the continuity of the correct operation of the Internet?Who provided that about the year 2000 there will be a phenomenal growth of the applications Web, sophisticated portable telephones, computers of mark… and who imagined that one day the Internet would be invaded by the objects of any kind starting from a IP to lead to the Internet of the objects?.In 1993, there were approximately nine hundred and thousand users and two hundred Web sites only in the world.Now, 22 years later, one quantifies more than two billion users and more than thirty billion Web sites.Humanity should attach a paramount importance to protocol IP because this last will thus remain the ideal password for the maintenance of the Internet and its evolution.The Web thus gives rise to of enormous progress with the Internet thanks to protocol IP.
The deployment of IPv6 will not be made in a day, even if the many advantageswhich it presents compared to its predecessor IPv4.Dual Stack will initially facilitate the cohabitation IPv4 and IPv6 on the same node (machines,

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routers, telephones…).The objective is not to transport IPv4 above IPv6 or vice versa but well to make a footbridge able to publish a IPv6 service in the IPv4 environment and to relocate the protocol.The large firms of the Internet, like the equipment suppliers Cisco, Google, Facebook and others, incite the companies and the private individuals to make the transition towards IPv6, showing that that will return the communication between the various apparatuses of a domestic network or more optimal professional.But the Internet until where…

REFERENCES

[1]. Freydrich J.,Misez sur les technologies Web, Le monde Informatique, Lille, 2003
[2].Bradner S. O. & Mankin A. ed : IPng, Internet Protocol Next Generation, Addison- Wesley (IPng Series), ISBN0201633957, Septembre 1995.
[3]. Afnic, IPv6,passeportpour l'Internetdu Futur, dossiers Thématique de l'Afnic, paris,2011/www.afnic.fr/actu/presse/liens-utiles.
[4]. Montagne R..,Bruno T.,SebastienV.,Poulbere V.,Les enjeux du déploiement du protocole IPV6,Rapport final édition DIGITIP,juin 2002.
[5]. Cizault Gisèle, IPv6:Théorie et pratique, édition G6 ,2011/http://livre.g6.asso.fr/
[6]. Blanchet Marc, Migrating to IPv6 A Practical: Guide to Implementing IPv6 in Mobile and Fixed Networks, Quebec, 2005.
[7]. Law, Y.-N., Lai, M.-C., Tan, W. L., & Lau, W. C, EmpiricalPerformance of IPv6 vs.IPv4 under a Dual-Stack Environment. Paper presented at the Communications, 2008ICC '08. IEEE International Conference on
[8]. Clapaud A., Dossier Internet des objets : la révolution technologique en marche,JDN Web & Tech DSI, 2012/Http:www.Journaldunet.com/
[9]. BruyèreSébastienCochard Isabelle B., Collé M.,Dornès P., Hardel Anne-S. etJoao. David, Le Web 3.0 : état des lieux et perspectives d'avenir, université de limoges,
2011.
[10].Archier J.P, IPV6 : Principe et mise en œuvre, édition eni, 2012.
[11]. Doyle BA , Kevin F,Into the future with IPv4 or IPv6,edition NUI Galway ,irland,2010
[12]. Brown S. Browne B. Chen N.,Fong Paul J., Harrell R.,Knipp E.,Saylors B.,Webber R., Parenti E.Jr. , Configuring : IPv6 for Cisco Ios, edition Syngress, Usa, 2002.
[13]. Lebert M., Les Mutations du livre à l'heure de l'Internet, Septembre, 2007/ http://www.etudes-françaises.net/dossier/mutations.html.
[14]. Lohier S.Présent D., Internet :services et réseaux , Dunod, paris 2004.
[15].Defrance J. C.,Premieres applications Web 2.0 avec Ajax et Php, Eyrolles, Paris,2008
[16].Porteneuve C., Bien développer pour le web 2.0 : Bonne pratiques Ajax , Eyrolle,2006.
[17]. Létourneau P., Lespérance L. ,Shabah Y., Gaudreault-P., Usage du Web 2.0 dans les organisations, CEFRIO, Quebec, 2011.
[18]. Liotard C., Web 1.0 - Web 2.0 - Web 3.0. ,L'atelier Informatique, paris ,2008.
[19]. Debard P.,Les technologies semantiques :Quel avenir pour l'entreprise ?Etat de lieux et apport fonctionnels,Osiatis, paris-nord 2011/Www.Osiatis.Com
[20]. Fensel D., Lausen H.,Polleres A. Bruijn J., Stollberg M., Roman D.,Domingue J.Enabling Semantic Web Services :TheWeb Service Modeling Ontology, Springer, berlin, 2007.
[21]. Monnin, A., Vers une Philosophie du Web Le Web comme devenir-artefact de la philosophie(entre URIs, Tags, Ontologie(s) et Ressources). PhD Thesis. Paris: Université Paris 1Panthéon-Sorbonne., 2013b
[22]. Livet, P., 2012. Web Ontologies as Renewal of Classical Philosophical Ontology. Metaphilosophy, 43(4), pp.396–404.
[23]. Berners T. Lee, J. Hendler, and O. Lassila. The Semantic Web. Scientific American,284(5):34–43, May 2001.
[24]. Berners-Lee, T., RFC 1630 - Universal Resource Identifiers in WWW: A Unifying Syntax for the Expression of Names and Addresses of Objects on theNetwork as used in the World-Wide Web, 1994. Available at:http://tools.ietf.org/html/rfc1630 Accessed July 1, 2009].
[25]. Benfattoum A., Analyse et perspectives d'avenir pour l'Internet des objets. édition CITC - EuraRFID LILLE, 2009/http://www.citc-eurarfid.com/
[26]. Rigaux. P, Pratique de MySQL et PHP Conception et réalisation de sites web dynamique, 4ème édition, Dunod, paris, 2003.
[26]. Ouzzani Mourad,Semantic web services for databases,Springer, new York, 2011
[27]. Montagnier,JL, Réseaux d'entreprise. Par la pratique, Eyrolles, 2004.
[28]. Tanenbaum A. ,Système d'exploitation, 3ème édition Pearson , Paris,2008 ;
[29]. Sportack, M. A. (2002). IP Addressing Fundamentals [Compiled HTML version]
Available from http://gigapedia.com/items/10186/ip-addressing-fundamentals
[30]. Pujolle,G.,Les réseaux, édition Eyrolles, 2008.
[31]. Cassier A.,Brune A.,Tchongue I. ,L'avenir d'Internet :Le protocole IPv6,2012
[32]. Doyle BA Kevin F.,Into the future with IPv4 or IPv6, edition NUI Galway, irland,2010.
[33]. Wegner J. D. & Rockwell Robert: IP Addressing and Subnetting, Including IPv6 ,Syngress Media, ISBN: 1-928-99401-6, 2000.
[34]. Bound J., L. Toutain, O. Medina, F. Dupont, A. Durand, H Afifi,: Dual Stack Transition Mechanism (DSTM), draft-ietf-ngtrans-dstm-07.txt, Internet Draft, Aout , 2002.
[35]. Huitema, C., Austein, R., Satapati, S. and R. van der Pol, Evaluation of IPv6 Transition Mechanisms for Unmanaged Networks', RFC 3904, September 2004.
[36]. Amoss,J.J.,&Minoli, D. ,Handbook of IPv4 to IPv6 transition, Methodologies For institutional and corporate networks, 2008.[PDF] Available from http://gigapedia.com /items:links?id=93890.
[37]. Nordmark, E., & Gilligan, R. Basic Transition Mechanisms for IPv6 HostsandRouters2005(RFC4213).Retrieved from IETF. Availablefrom http://tools.ietf.org/rfc//rfc4213.txt.