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(Research Paper)

Migration of Internet Mobility

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1.0 Introduction

Nowadays, the Internet Technology is rapidly developed. From the point to point internet device develop until now already come out the new technology, which is mobile internet. With widely use of this technology, people can online anywhere, anytime and give people a very convenient environment and a flexibility technology. Other then that, internet mobility got some new features that are good for us and also given the better internet connection network.

With the development of internet mobility, this technology can give people a lot good advantages, such as the connection scheme to the end-user and device and the combination of the network protocol, it will help us to support more different internet protocol and mobility device. And this called migrate of mobility. It will help us use the internet technology more widely and flexibility and usefully.

With the different of internet protocol which is the internet IP, IPV6 and IPV4. These two IP protocols can migrate with each other. They can over their infrastructure with each other, then given the supported service and functions. This can see that the features of this technology among good for us and help technology widely develop.

And also, with the end to end point connection devices, the migration also can support and let the internet connection device can support the basic mobility and also improve the weakness of the TCP connection protocol and make the mobile IP easy to use or widely used. Not only this, with latest wireless devices, the support of the mobility also very important which can support them to become migrate internet. So, we can see that the new feature of this internet migrate giving us a good advantages which can help us in the intangible format from internet, and also it can help us by using this kind of technology using wireless device and also can fulfill ours' need of using internet and mobility technology.

On research paper objectives, here will discuss the important of migration, and also with some architecture and problem or solution that it have.

2.0 TCP Migrate Connection

Migration of internet mobility, it was appears that will help the network or usage of the mobile become easier, widely, faster and effectively. At here, internet mobility, his internet protocol format is not same with the old style which is using another protocol to connect with the world wide internet, such as TCP connection. Beside that, with this internet protocol the migrate layer which is show in the session layer that combine task with other OSI layer. [1]The goal of TCP connection migration is that communication endpoint can renegotiate the network attachment point for any ongoing TCP connection. This means the internet user can change the IP address bound to a TCP connection in a controlled method of the internet devices or the protocol.

With the support of migration, the connection of internet will be locating the mobile services, not only preserving the communication. With mobility, the migration function will let the communication device disconnecting gracefully, and also hibernating efficiently. And it can also reconnect quickly. That mean migrate can do the mechanism for managing the internet connection in the application session and handling the connection problem at here.

With the mobile internet IP that was fixed internet host and application was unmodified, but only the end host or underlying IP substrate will change. This solution show has no changes to the internet protocol, such as TCP connection, migration will perform at here. For example, A mobile host can start a establish connection by sending a synchronized segment or with the token to the fixed connection, and resynchronized the connection with new end point, but it can recognized the previous connection by using the token to search on the previous internet, and it won't interrupted the new connection. The fixed host connection and the mobile connection will agree migration of the initializes connection is permitted. Then the connection will continues until disconnect in the mobile end or the stop using of the user.

Beside the TCP connection migration, but found the problem at here, because the TCP connection is connection-oriented reliable protocol, infrastructure. Although the mobility internet given the flexibility of the services but they still have the lack of the performance degradation problem, and also with the architecture of the mobility devices and the architecture of the network still is the problem for the mobility, and it will affect the internet mobility and also the migration of internet technology. On the service of migration connection, the host address of the network will not have any changes. And also won't change any infrastructure of the network layer. By the modification of the migrate connection, the connection will check on the source IP, source port and also with the Token while the mobile sending the segment to the connection of migration. Beside that the problem of the TCP migration is the issue of the application that use in the network migrate that will be unaware and need modification.

[8]With the security problem of the TCP connection, the IP sec has not found any wide-spread deployment, and with the mechanism of the security, Elliptic Curve Diffie-Hellman key exchange, that was the migrate security option that will provide the protection to the connection token of the TCP connection and also protect the security issues of the internet connection. [2]The security of dynamic DNS updates is resting on the strength of the digital signature scheme that is used to authenticate mobile hosts. That mean the mobile host also have the security option to protect the connection. Another security problem is the hijack of the internet connection. It because of the attacker can attack the connection and make the connection not secure. So, on the security issue still need increased vulnerability to hijacking to protect the connection, with the (ECDH) key exchange the security problem can be reduced.

So, we can see that the two problem of the TCP connection, that was the network architecture and security problem which has been stated at above.

2.1 Connection Migration and Resumption

[4]In formal way to explain the word of migrate in computing explanation is, migrate is allows legacy applications to adapt to today's highly-mobile environment, and provides mobile-aware applications with a robust set of system primitives for disconnectivity support, resource conservation, and rapid re-instantiation of network connections in this mechanism.

[3]Once a connection has been targeted for movement and a new server has been selected to be the new end point, the client application should seamlessly continue without noticeable disruption or incorrect behavior. This mean it would not continue with the old addressing, just come out with new point of the network by the end point. And this mechanism just wants the new connection that has resume or synchronized and restart to the new server. There are different ways of doing this: one is a mechanism integrated with the application where the clients and servers implement a protocol that allows the server to inform the client that its communicating peer will change to a new one. Then, the client application can terminate the connections to the current server and initiate them to the new one, and retrieve the portions of the stream starting from where the previous server left off. An alternate approach, which works enables and advocates, is an application-independent mechanism by using a secure, transport-layer connection migration mechanism. The advantage of this method is that existing applications can benefit from this without modification, while new ones do not each need to incorporate their own mechanisms to achieve these results, and also will no changes any layer at there.

2.2 Mobile Internet

With the Mobility of fundamental problems that show as below, and it can mean the features of the migration.

1. [5] **Locating the mobile host or service:** End-point must be located and mapped to an addressable destination.
2. **Preserving communication:** Communication should be robust across changes in the network location of the end points.
3. **Disconnecting gracefully:** Communicating applications should be able to rapidly discern when a disconnection at either end.
4. **Hibernating efficiently:** If a communicating host is unavailable for a significant period of time, the system should suspend communications, and appropriately reallocate resources.
5. **Reconnecting quickly:** Communication should detect the resumption of network connectivity in a timely manner.

3.0 Migrate Approach

Migration approach to mobility, which related with application naming services and informed transport protocols to provide robust, low-overhead communication between application end points. In the session layer protocol that handles both changes in network attachment point and disconnection in a seamlessly.

And migrate of the internet mobility also approaching the internet network's protocol, and trying migrating the network with mobility and also to reduce the naming problem and the limited of uses of the internet protocol and the addressing problem of the internet.

Mobile IP was optimized for macro-level mobility and relatively slows moving hosts need protocols for environments where mobile hosts migrate frequently and rapidly (for fast/seamless handoff)

[6] With the development of the mobility IP, Internet Protocol Collaborative Mobility (IPCM) is a user mobility mechanism that operates completely above the session layer and does not burden the network layer with tracking and location of mobile users. The IPCM specific approach targets the collaboration of currently available commercial off-the-shelf (COTS) software and hardware, guided by intelligent agents, providing required mobility functionality above the session layers.

[7] With Mobile IP, it will visit user's original IP address with any devices. Within routers serving the new group it will summarize address resolution, and resulting in negative effects on routing scalability. By re-address the users; the original IP addressing is removed, and is allowing the network layer to use summarization techniques unmodified, specifically unburdening the network layer from resolving complete IP addresses. Because the Mobile IP's device generates packets using its original address as the source address, the ingress filters of the routers serving its new group and refuse to transmit its packets as part of a standard technique to combat distributed denial of service attacks. IPCM avoids this issue because the mobile user is re-homed and uses native IP addresses for the new group. And also it will let the new group of internet protocol easy to use in the migration process.

[9] Demonstration system addressing uses IPv4, which was our current internet protocol version 4. The mobile IP is using IPv6. IPv6 is a viable choice as IPCM is independent of address structure and also is the high range of bit of structure, this IPv6 is the version can use mobility internet and also use for migrate in internet or other combine network protocol; however, ease of integration is the driving factor for using IPv4.

Why now the internet technology using the IPv6? The solution is because the current IPv4, is now developed a long time ago, around thirty years. The development of this historical protocol; because of the limited of the use of the internet address become a problem. And also we need enhance the addressing of internet; we just can expand or develop the current IP protocol by using the migration of internet. By using this technology, new IP addresses which will be the IPv6 that can use the mechanism of migrate to integrate with IPv4 and IPv6. And also can expand the services of the

IPv6 to the IPv4 and also can settle the limitation of the range of the uses of protocol of IPv4. With the design structure of the IPv6, the range of bits is larger than the current IPv4, and also the IPv6 is a new ways to using the mechanism of migrate and also using it for the internet migrate and also with others devices, such as mobility devices examples is cellular phone or mobile phone and also with other devices that can combine or merge their network protocol with the internet protocol, IPv6.

So, the over IPv4 to IPv6, is very important for migrate internet mobility, not only can enhance the range of use of the internet addressing.

For the enhancement of the new internet protocol, IPv6, this technology will help the limitation of the internet and also it will work on the future work, that will develop the internet protocol by using this protocol to communicate or support more internet addressing and also will helping the development of the internet with another technology, such as merge mobility devices with another devices and combination of another technology internet network.

With another migration problem is, with the complexity and confusion of internet protocol or the network is will affect the internet network structure and also will affect the lack of performance of the internet technology. With this new method of technology, it has help the internet develops and also makes our life more convenient with good technology and devices. The existing lack of the technology, also will fixed, because of the migration. The migrate can help the internet structure working more faster and also let the protocol combine with another network and merging the different technology and combine the other devices that can use it together. So, we can see that this technology is very good and can help us fixed a lot of the performance problem in different technology devices.

3.1 Mobile Network Migrate

With another use, [7] mobile IP can efficiently provide mobility support on a global scale, for instance migrations between LANs. We propose Cellular IP, a protocol that is optimized to support host mobility in a Cellular Wireless Access Network. Cellular IP shows great benefit in comparison to existing host mobility proposals for environments where mobile hosts migrate frequently. It can inter work with Mobile IP to support migrations between Cellular IP Access Networks. The primary design goals of Cellular IP are simplicity and scalability.

Although the usage of migrate is a bit complexity but the design goal is make the mobility network become scalability and also widely uses. Not only this, by the development of the network, the internet technology can be upgrade and become the new Internet Technology world by using the migrate of network that use in any ways, such as mobile internet, mobile phone and some of the mobility devices.

At here although the architecture of migrate network is more reliable, and scalability and also stable, but they still have a one issue which is the development cost of the network.

Although the development is still moving, and the design is fixed and problem can solve, but the cost of develop and maintenances still high. By develop a certain area it can say, fine. But based on the whole world and also is world wide that means it is not easy for control. So, although it is easy develop or changes, but cost will be high and also will affect the development of the architecture and the migrate network.

And another issue also is, although migrate of network is develop. But the problem is not the entire network devices that will support migrate at the same time, so if want to develop migrate of network, some of the engineer should be develop the mobility devices at the same time and also settle architecture of migrate network also.

4.0 Conclusion

With this research paper, I found that I have improve myself on searching technology news and also that have increasing the knowledge about with the latest technology and also clearly understanding about the development of the internet. And then, although this researches this research paper is not an easy task for me for finding the information. But luckily, internet web pages have lot information that I need and also some of the article also have gave me some idea to write this report of research paper. And also let me learning the architecture of the internet technology.

At here, I have learned about the internet technology and also understanding the development in our world and can see the development of the internet technology. With the development of this Internet Technology, the mobility network become widely use and also can use it anywhere and any time. Not only this, with the development of the migrate internet; the internet protocol and the address can say have been improve by the certain mechanism and the technique. And it can show that the technique it can use and also reliability while using it on the mobility internet.

Not only this, at here I also have knew that although the technique of the internet network have been development, and the address have success find out the improve ways to fix the problem, at here, I think it will a good news for the usage of the internet and also mean that technology of network have been developed, although the mechanism got a bit complexity while using it.

By the way after of development, the internet network will easy to use and when the development is success, the mobility network will easy to use, such as the mobile phone can easy access with the internet and the mobility internet network will support to the mobility devices task by using computer. Not only will this, by this mechanism, the network become widely, and also more of the development of network will give the advantage to the internet and the user.

With the development of the network can say still need some the people and some power to do, and also need a lot of knowledge and time to develop or improve the system of the migrate mechanism and the network architecture.

At here, I realize that the internet technology is become well and scalability and also it will have good development while have fixed all problem. And with the reliable and security is high internet network is a good reason for the development of the internet mobile network.

By the way, I also have learned a lot high technology networking and also have learned about the latest technology flow and the future of the network. And the future of the internet mobility network, I think it will be a new technology for us easy to use and widely, reliable and stability.

Finally, at here migrate of network will be fast develop, and can show that although migrate got a bit problem, but it can say it will be settled at another new day.

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