CHAPTER 7

CONCLUSION AND FUTURE WORK

7.1 CONCLUSION

Secure and scalable routing architecture called SSIR model for future Internet is presented. The clients are provided with the potential to decide inter domain level routes which achieves end to end performance and reliability. Initially, the design of NIRA using IRDM (In-Time Route Discovery Mechanism), an inter-domain routing system based on the users entering time for routing the packets that practically supports user choice is presented. The objective of NIRA with IRDM allow user with the choice for routing the packet without running a global link-state routing protocol.

In-Time Route Discovery Mechanism efficiently processed the total number of user demands of route passage and destination point during different instances. In addition, the process of IRDM was designed in such a way that application was based on users’ entering time into the network; furthermore the route is identified for transmission of packets. In order to identify the route, IRDM allows a user to discover amongst the best route using proactive routing mode.

Proactive routing mode maintains the predefined routing architecture. Subsequently, the predefined route structure is maintained at different routing points such as switches, routers, hub, etc and it transmits the routing information to the user. In order to reduce the packet loss drastically, the predefined routing structure has been maintained for each and every
routing point. Due to the changes occurred in network topology and the high demand of users for corresponding route passage results in route failures in due course of time.

The deployment of In-Time Route Discovery Mechanism (Reactive routing IRDM) overcomes the route failures. IRDM uses the reactive routing mode which is one of the best methods for selecting the route path. Reactive routing mode in IRDM establishes the routes on-demand and also helps to establish communication with a node without route path. Reactive routing IRDM finds a feasible route path if one exists in the network though there may be more than one practical route path accessible in the network.

In reactive routing IRDM, secondary ad hoc routes are evaluated using reactive routing mode. IRDM using reactive routing is provided as an inter-domain routing system based on users' entering time for routing the packets using primary and secondary route. In case of any route failure occurs in primary route, the reactive routing IRDM uses secondary route for data transmission. It discovers the reasonable route path, based on the bandwidth rate and delay, minimum hop count, and delivery ratio. A feasible route path is chosen using one of the four mentioned parameters or by using a combination based on the priorities.

Finally, a secured and scalable routing architecture called SSIR is provided to enhance the security factor and scalability for the internet users present in the network, using inter-domain routing architecture. SSIR enhances the security aspect and scalability of inter-domain routing architecture with four explicates namely sectors, client provider network separation, identifiers, and routing capability. SSIR distinguishes two types of sectors, namely internationally routable sectors and close by routable sectors. In SSIR, source host attains the authorization in priori and in order to provide
the network more scalable and more efficient in sustaining mobility, relics in SSIR are further introduced in the network.

A widespread evaluation is carried out to access the performance of the secure and scalable routing architecture by making thorough analysis of security, routing overhead and scalability. When the number of users increased, SSIR method had evolved higher success rate than when compared to other methods with the same number of users resulting in higher scalability and security. An evaluation concluded that the SSIR was 10-15% higher in security and scalability, a higher routing overhead of 50-70% when compared to the existing new Internet routing architecture (NIRA) and with reactive routing using IRDM and new Internet routing architecture (NIRA) by availing In-Time Routing Discovery Mechanism (IRDM).

7.2 FUTURE WORK

Secure and scalable inter-domain routing architecture analyzed the plan challenges and addressed those challenges. They also analyzed SSIR’s benefits and presented some numerical results to show SSIR’s feasibility. With its uniquely integrated features, SSIR is the first architecture that influences the strengths of the existing ideas while avoiding their weaknesses. So it forms a solid base for further research and experiments on future Internet.

SSIR alternatively employs sectors in the association layer for establishing nodes in the network topology sustaining efficient mobility and multi-homing. A more detailed discussion of architecture to search for new paths and the evaluation of the overall network stability are required. In addition to further extend the evaluation and implementation of the SSIR, future work can investigate on increasing the confederacy of the secure and scalable inter-domain routing architecture mechanisms.
As a further extension of SSIR work, researchers can plan to learn the node splitting by using multi-path routing techniques in order improve route stability for critical applications such as multimedia applications. They also need to examine and reduce congestion by load balancing of future internet. And also, the investigation of mappings based on different input values and their combinations, as well as the application of those techniques in network environment is challenging subjects for future studies.