IPv6 Research

University of Mauritius

in collaboration with

Data Communications Ltd.

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o **Summary:**

o Data Transfer in IPv4 and IPv6.

o Comparative study of routing algorithms in IPv6 and IPv4.

o Tunnelling Algorithms for IPv6 in Linux.

Data Transfer in IPv4 and IPv6

o **Objective:**

  o Comparing latency during file transfer in IPv4 and IPv6.

o **Rational:**

  o the IPv6 header is bigger than the IPv4 header.

  o Optional headers may increase computation time in routers.

  o Implications:

    o higher header to data ratio.

    o consequences in 3rd world and developing countries with poor bandwidth.

Data Transfer in IPv4 and IPv6

o **Methodology:**

- o measuring bandwidth in IPv4 and IPv6 networks under different conditions.
- o Predicting bandwidth during the transition period.

o **Expected Outcomes:**

- o Recommend whether MRT will be able to deploy IPv6 over High End antennas.

Data Transfer in IPv4 and IPv6

o **Team:**

 o UoM – Computer Science and Engineering Dept.

  o Dr. O.Moonian, Mr. B.Durgahee, Mr. P.Grosset, Mr. S.Pudaruth, Mr. A.Chutoo.

 o Mauritius Radio Telescope (MRT).

  o Dr. G.Beehary.

 o Data Communications Ltd.

  o Mr. R. Ramsurrun, Mr. K. Reddy.

Comparative study of routing algorithms in IPv6 and IPv4

o **Objective:**

- o Study limitations of existing routing protocols with respect to increasing IPv6 deployment.

o **Rational:**

- o increased address space.
- o the number of entries in the routing tables will increase tremendously.
- o looking up the addresses in tables will need to be improved.
- o (NAT will be minimized in v6, so even more nodes with a larger address space).

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Comparative study of routing algorithms in IPv6 and IPv4

o **Methodology:**

- o Perform simulations with current IPv4/v6 status.

- o Increase v6 loads to find threshold when increase in v6 will result in high latency at router levels.

- o Propose solutions to existing routing algorithms.

o **Expected Outcome:**

- o Define ratio of v4/v6 when latencies at routers become substantial.

- o Find working solutions to efficient routing in v6.

Comparative study of routing algorithms in IPv6 and IPv4

o **Team:**

   o Computer Science and Engineering.

      o A.Chutoo, P.Bhoyroo, S.Aumeer, V.Dayal.

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Tunnelling Algorithms in Linux for Ipv6

o **Objective:**

  o Comparison of performance of the different tunnelling schemes, under Linux, for varying network loads and varying data traffic types.

o Rational

- o During the transition period IPv6 and IPv4 network will need to coexist.

- o Communication between IPv6 host will need to travel through IPv4 network segments.

- o Tunnelling will be required for this purpose.

- o Comparison of existing tunnelling algorithms under different traffic types and traffic loads will help identify the best scheme to be used under a given traffic condition.

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Tunnelling Algorithms in Linux for Ipv6

o **Methodology**

    o Measurements of parameters such as latency, bandwidth and packet loss rate achievable on a LAN using the different tunnelling technologies and with varying traffics loads and types.

    o Measurements of the above will be performed for WAN using a network simulator.

    o IPV6 QoS support abilities will be used and the effect of the different tunnelling schemes on QoS support will be studied.

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Tunnelling Algorithms in Linux for Ipv6

o **Expected Outcome**

  o Comparison tables and graphs of the different tunnelling schemes, based on different parameters, under varying network scenarios.

o **Team:**

  o Mr. O.Moonian, Mr. P.K.Jeeanah.

Thank You.