آية كريمة

بسم الله الرحمن الرحيم

الله تور السماوات والأرض مثلاً تورَ كما تورَ في عبادة النحلة في رجاحة الرجاحة كما تورَ دوَّارًا يدَّوَّار مع شجرة من شجرتين ثبتتَنَّ لا شرقية ولا غربية بلاد ربِّنَّا يرضي ولم نفسح نعمر عليه تورَ عجل تورَ عجل أعمر عليه يشاء ويضفر الله الأمثال للناس والله يكَ الله شيء عليل

صدَّيق الله العظيم

(النور، الآية 35)
الإهداء

إلى والدي هم علمي الحب والصبر ...
إلى والدي نبع الحنان ...
إلى زوجي العز ...
أبنائي ...
أخواني وأخواتي ...
لهم أهديي بخلي هذا ...
شكر وعرفان
الشكر أولاً لله عز وجل الذي بتعمته تتم الصالحات
وأخص بجزيل الشكر والعرفان إلى كل من أشع شمعة في دروب علمي وآلي من وقف إلى المنابر وأعطي من حصيلة فكره ليثير دربي
إلى الأساتذة الكرام في قسم هندسة الإلكترونيات بجامعة السودان
واخص بالشكر الدكتور:
محمد خسيمه
الذي تفضل بالإشراف على هذا البحث فجزاه الله كل الخير فله مني كل تقدير واحترام
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<td>AD</td>
<td>Administrative Distance</td>
</tr>
<tr>
<td>ARP</td>
<td>Address Resolution Protocol</td>
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<td>AS</td>
<td>Autonomous System</td>
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<tr>
<td>BGP</td>
<td>Border Gateway Protocol</td>
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<tr>
<td>DCE</td>
<td>Data Communication Equipment</td>
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<tr>
<td>DNS</td>
<td>Domain Name System</td>
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<td>DTE</td>
<td>Data Terminal Equipment</td>
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<tr>
<td>DV</td>
<td>Distance Vector</td>
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<td>EGP</td>
<td>Exterior Gateway Protocol</td>
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<td>EIGRP</td>
<td>Enhanced Interior Gateway Routing Protocol</td>
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<td>FTP</td>
<td>File Transfer Protocol</td>
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<td>HDLC</td>
<td>High-level Data Link Control</td>
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<td>HTTP</td>
<td>Hypertext Transfer Protocol</td>
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<tr>
<td>IANA</td>
<td>Internet Assigned Numbers Authority</td>
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<td>ICMP</td>
<td>Internet Control Message Protocol</td>
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<td>IDRP</td>
<td>Inter-Domain Routing Protocol</td>
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<td>IETF</td>
<td>Internet Engineers Task Force</td>
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<td>IGP</td>
<td>Interior Gateway Protocol</td>
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<td>IGRP</td>
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<td>IP</td>
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<td>IS-IS</td>
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<td>MAC</td>
<td>Media Access Control</td>
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<td>NIC</td>
<td>Network Interface Card</td>
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<td>OSI</td>
<td>Open System Interconnection</td>
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<td>Open Shortest Path First</td>
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<td>PPP</td>
<td>Point-to-Point Protocol</td>
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<td>PSTN</td>
<td>Public Switched Telephone Network</td>
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<td>RIP</td>
<td>Routing Information Protocol</td>
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<td>TCP</td>
<td>Transmission Control Protocol</td>
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<td>TCP/IP</td>
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<td>UDP</td>
<td>User Datagram Protocol</td>
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<td>VLSM</td>
<td>Variable-length Subnet Mask</td>
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<td>WAN</td>
<td>Wide Area Network</td>
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Abstract:

In a computer network, the transmission of data is based on the routing protocol which selects the best routes between any two nodes. Different types of routing protocols are applied to specific network environment. Three typical types of routing protocol are chosen as the simulation samples: RIP, OSPF and EIGRP. RIP (Routing Information Protocol) is one of the oldest routing protocols still in service. Hop count is the metric that RIP uses and the hop limit limits the network size that RIP can support. OSPF (Open Shortest Path First) is the most widely used IGP (Interior Gateway Protocol) large enterprise networks. OSPF is based on the Shortest Path First (SPF) algorithm which is used to calculate the shortest path to each node. EIGRP (Enhanced Interior Gateway Routing Protocol) is Cisco's proprietary routing protocol based on Diffusing Update Algorithm. EIGRP has the fastest router convergence among the three protocols we are testing.

More detailed description of these three routing protocols will be included later. We aim to analyze the performance of the three protocols such as their router convergence, convergence duration and end-to-end delay. In our project, we are going to use OPNET to simulate RIP, OSPF and EIGRP in order to compare their attributes and performance. According to the convergence we can find out which protocols are suitable for different sizes and types of network.