**МИНОБРНАУКИ РОССИИ**

**Санкт-Петербургский государственный**

**электротехнический университет**

**«ЛЭТИ» им. В.И. Ульянова (Ленина)**

**Кафедра МО ЭВМ**

отчет

**по лабораторной работе №2**

**по дисциплине «Сети и телекоммуникации»**

Тема: Настройка таблиц маршрутизации

|  |  |  |
| --- | --- | --- |
| Студент гр. 7383 |  | Левкович Д.В. |
| Преподаватель |  | Фирсов М.А. |

Санкт-Петербург

2019

**Цель работы.**

Изучение методов статической маршрутизации в IP-сетях; овладение управлением таблицами маршрутизации на узлах сетевого уровня.

**Задачи.**

1. Для всех узлов сети установить IP-адреса, маски подсетей и шлюзы по умолчанию, чтобы добиться успешного выполнения Echo-запроса ближайших соседей (находящихся в одной подсети).

2. Настроить таблицы маршрутизации на маршрутизаторах, чтобы добиться доставки пакетов от узла K1 к узлу K2 и обратно, от узла K2 к K3 и обратно, от узла K3 к K1 и обратно. Пакеты должны доходить до узлов кратчайшим путем.

3. Настроить таблицы маршрутизации на узлах K1, K2 и K3, чтобы обеспечить кратчайшую доставку пакетов между этими узлами, если это невозможно было обеспечить в п. 2.

**Ход работы.**

Вариант 10. Рассмотрим конфигурацию сети, приведенную на рис. 1. Файл со схемой сети: lab2\_var10.jfst. Сеть между узлами R3 и R4: 192.168.0.0. Сеть между узлами R4 и R5: 192.168.1.0. Компьютер PC1 имеет IP-адрес 10.0.0.5. Компьютер PC2 имеет IP-адрес 10.0.0.130. Компью­тер PC3 имеет IP-адрес 10.0.0.194. Обозначения в задании: K1 – PC1, K2 – PC2, K3 – PC3.

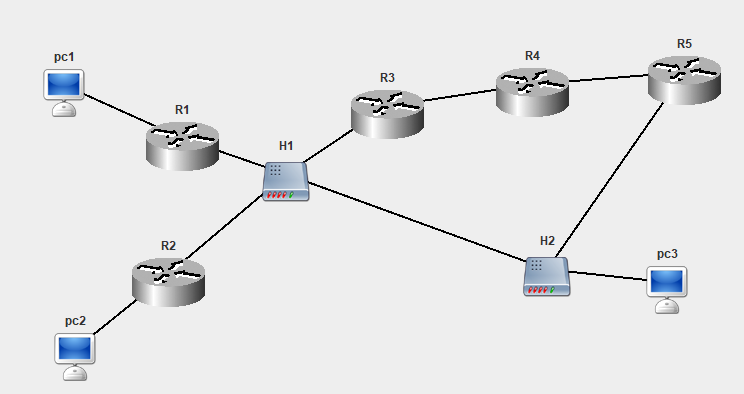


Рисунок 1 – Конфигурация сети

1. Для обеспечения корректной доставки Echo-запроса ближайших соседей были заданы IP-адреса, маски подсети и шлюзы по умолчанию для всех узлов сети. Результаты приведены в табл. 1.

Таблица 1. Настройки протокола TCP/IP для всех узлов сети

|  |  |  |  |
| --- | --- | --- | --- |
| Название | IP | Маска подсети | Шлюз по умолчанию |
| PC1 | 10.0.0.5 | 255.255.255.224 | 10.0.0.4 |
| PC2 | 10.0.0.130 | 255.255.255.224 | 10.0.0.129 |
| PC3 | 10.0.0.194 | 255.255.255.224 | 10.0.0.196 |
| R1 (eth0) | 10.0.0.4 | 255.255.255.224 | 10.0.0.195 |
| R1 (eth1) | 10.0.0.196 | 255.255.255.224 |
| R2 (eth0) | 10.0.0.129 | 255.255.255.224 | 10.0.0.196 |
| R2 (eth1) | 10.0.0.195 | 255.255.255.224 |
| R3 (eth0) | 192.168.0.1 | 255.255.255.0 | - |
| R3 (eth1) | 10.0.0.197 | 255.255.255.224 |
| R4 (eth0) | 192.168.0.2 | 255.255.255.0 | - |
| R4 (eth1) | 192.168.1.2 | 255.255.255.0 |
| R5 (eth0) | 192.168.1.1 | 255.255.255.0 | - |
| R5 (eth1) | 10.0.0.193 | 255.255.255.224 |

Таблица 2. Вывод программы после Echo-запроса с PC1 на PC3.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 17:37:55-913 | pc1 | Echo Request Packet | Network | Created Echo Request packet to 10.0.0.194 |
| 17:37:55-913 | pc1 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.4 |
| 17:37:55-913 | pc1 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 17:37:55-913 | pc1 | Ethernet Packet | Link | Sending packet from interface 8D:60:85:4F:99:9D |
| 17:37:55-914 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 83:AA:11:66:71:8B |
| 17:37:55-914 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:37:55-914 | R1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:37:55-925 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 4C:54:A1:A7:8D:9A |
| 17:37:55-925 | pc3 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:37:55-925 | pc3 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:37:55-925 | pc3 | Echo Reply Packet | Network | Created Echo Reply packet to 10.0.0.5 |
| 17:37:55-925 | pc3 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.196). |
| 17:37:55-925 | pc3 | Ethernet Packet | Link | Sending packet from interface 4C:54:A1:A7:8D:9A |
| 17:37:55-925 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface AB:9E:A0:BF:18:3D |
| 17:37:55-926 | R2 | Ethernet Packet | Link | Recieved and dropped packet at interface C2:91:21:8D:51:9B |
| 17:37:55-926 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 50:86:68:33:95:57 |
| 17:37:55-926 | R1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:37:55-926 | R1 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 17:37:55-926 | R1 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.5). |
| 17:37:55-926 | R1 | Ethernet Packet | Link | Sending packet from interface 83:AA:11:66:71:8B |
| 17:37:55-926 | pc1 | Ethernet Packet | Link | Recieved and accepted packet at interface 8D:60:85:4F:99:9D |
| 17:37:55-926 | pc1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:37:55-926 | pc1 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:37:55-926 | pc1 | Echo Reply Packet | Network | Echo reply packet received from 10.0.0.194 |

Таблица 3. Вывод программы после Echo-запроса с PC1 на PC2.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 17:41:41-346 | pc1 | Echo Request Packet | Network | Created Echo Request packet to 10.0.0.130 |
| 17:41:41-347 | pc1 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.4 |
| 17:41:41-347 | pc1 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 17:41:41-347 | pc1 | Ethernet Packet | Link | Sending packet from interface 8D:60:85:4F:99:9D |
| 17:41:41-347 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 83:AA:11:66:71:8B |
| 17:41:41-347 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:41:41-347 | R1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:41:41-347 | R1 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.5 |
| 17:41:41-347 | R1 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.5). |
| 17:41:41-347 | R1 | Ethernet Packet | Link | Sending packet from interface 83:AA:11:66:71:8B |
| 17:41:41-348 | pc1 | Ethernet Packet | Link | Recieved and accepted packet at interface 8D:60:85:4F:99:9D |
| 17:41:41-348 | pc1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:41:41-348 | pc1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:41:41-348 | pc1 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.4). |
| 17:41:41-348 | pc1 | Ethernet Packet | Link | Sending packet from interface 8D:60:85:4F:99:9D |
| 17:41:41-348 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 83:AA:11:66:71:8B |
| 17:41:41-348 | R1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:41:41-348 | R1 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 17:41:41-348 | R1 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.195 |
| 17:41:41-348 | R1 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 17:41:41-348 | R1 | Ethernet Packet | Link | Sending packet from interface 50:86:68:33:95:57 |
| 17:41:41-348 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 4C:54:A1:A7:8D:9A |
| 17:41:41-348 | pc3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:41:41-348 | R5 | Ethernet Packet | Link | Recieved and accepted packet at interface 21:79:13:66:80:8B |
| 17:41:41-348 | R5 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:41:41-348 | R3 | Ethernet Packet | Link | Recieved and accepted packet at interface AB:9E:A0:BF:18:3D |
| 17:41:41-348 | R3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:41:41-349 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface C2:91:21:8D:51:9B |
| 17:41:41-349 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:41:41-349 | R2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:41:41-349 | R2 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.196 |
| 17:41:41-349 | R2 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.196). |
| 17:41:41-349 | R2 | Ethernet Packet | Link | Sending packet from interface C2:91:21:8D:51:9B |
| 17:41:41-349 | pc3 | Ethernet Packet | Link | Recieved and dropped packet at interface 4C:54:A1:A7:8D:9A |
| 17:41:41-349 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 21:79:13:66:80:8B |
| 17:41:41-349 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface AB:9E:A0:BF:18:3D |
| 17:41:41-350 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 50:86:68:33:95:57 |
| 17:41:41-350 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:41:41-350 | R1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:41:41-350 | R1 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.195). |
| 17:41:41-350 | R1 | Ethernet Packet | Link | Sending packet from interface 50:86:68:33:95:57 |
| 17:41:41-350 | pc3 | Ethernet Packet | Link | Recieved and dropped packet at interface 4C:54:A1:A7:8D:9A |
| 17:41:41-350 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 21:79:13:66:80:8B |
| 17:41:41-350 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface AB:9E:A0:BF:18:3D |
| 17:41:41-350 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface C2:91:21:8D:51:9B |
| 17:41:41-350 | R2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:41:41-351 | R2 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 17:41:41-351 | R2 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.130 |
| 17:41:41-351 | R2 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 17:41:41-351 | R2 | Ethernet Packet | Link | Sending packet from interface 71:80:39:C1:99:4A |
| 17:41:41-351 | pc2 | Ethernet Packet | Link | Recieved and accepted packet at interface 39:7F:47:5C:C1:7D |
| 17:41:41-351 | pc2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:41:41-351 | pc2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:41:41-351 | pc2 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.129 |
| 17:41:41-351 | pc2 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.129). |
| 17:41:41-351 | pc2 | Ethernet Packet | Link | Sending packet from interface 39:7F:47:5C:C1:7D |
| 17:41:41-351 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface 71:80:39:C1:99:4A |
| 17:41:41-351 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:41:41-351 | R2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:41:41-351 | R2 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.130). |
| 17:41:41-351 | R2 | Ethernet Packet | Link | Sending packet from interface 71:80:39:C1:99:4A |
| 17:41:41-351 | pc2 | Ethernet Packet | Link | Recieved and accepted packet at interface 39:7F:47:5C:C1:7D |
| 17:41:41-352 | pc2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:41:41-352 | pc2 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:41:41-352 | pc2 | Echo Reply Packet | Network | Created Echo Reply packet to 10.0.0.5 |
| 17:41:41-352 | pc2 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.129). |
| 17:41:41-352 | pc2 | Ethernet Packet | Link | Sending packet from interface 39:7F:47:5C:C1:7D |
| 17:41:41-352 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface 71:80:39:C1:99:4A |
| 17:41:41-352 | R2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:41:41-352 | R2 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 17:41:41-352 | R2 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.196). |
| 17:41:41-352 | R2 | Ethernet Packet | Link | Sending packet from interface C2:91:21:8D:51:9B |
| 17:41:41-352 | pc3 | Ethernet Packet | Link | Recieved and dropped packet at interface 4C:54:A1:A7:8D:9A |
| 17:41:41-352 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 21:79:13:66:80:8B |
| 17:41:41-352 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface AB:9E:A0:BF:18:3D |
| 17:41:41-352 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 50:86:68:33:95:57 |
| 17:41:41-353 | R1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:41:41-353 | R1 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 17:41:41-353 | R1 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.5). |
| 17:41:41-353 | R1 | Ethernet Packet | Link | Sending packet from interface 83:AA:11:66:71:8B |
| 17:41:41-353 | pc1 | Ethernet Packet | Link | Recieved and accepted packet at interface 8D:60:85:4F:99:9D |
| 17:41:41-353 | pc1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:41:41-353 | pc1 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:41:41-353 | pc1 | Echo Reply Packet | Network | Echo reply packet received from 10.0.0.130 |

Таблица 3. Вывод программы после Echo-запроса с PC2 на PC3.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 17:43:17-643 | pc2 | Echo Request Packet | Network | Created Echo Request packet to 10.0.0.194 |
| 17:43:17-643 | pc2 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.129). |
| 17:43:17-643 | pc2 | Ethernet Packet | Link | Sending packet from interface 39:7F:47:5C:C1:7D |
| 17:43:17-643 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface 71:80:39:C1:99:4A |
| 17:43:17-643 | R2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:43:17-643 | R2 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 17:43:17-643 | R2 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.194 |
| 17:43:17-644 | R2 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 17:43:17-644 | R2 | Ethernet Packet | Link | Sending packet from interface C2:91:21:8D:51:9B |
| 17:43:17-644 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 4C:54:A1:A7:8D:9A |
| 17:43:17-644 | pc3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:43:17-644 | pc3 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:43:17-644 | pc3 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.195 |
| 17:43:17-644 | pc3 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.195). |
| 17:43:17-644 | pc3 | Ethernet Packet | Link | Sending packet from interface 4C:54:A1:A7:8D:9A |
| 17:43:17-644 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface AB:9E:A0:BF:18:3D |
| 17:43:17-644 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface C2:91:21:8D:51:9B |
| 17:43:17-644 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:43:17-644 | R2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:43:17-644 | R1 | Ethernet Packet | Link | Recieved and dropped packet at interface 50:86:68:33:95:57 |
| 17:43:17-644 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 21:79:13:66:80:8B |
| 17:43:17-644 | R5 | Ethernet Packet | Link | Recieved and accepted packet at interface 21:79:13:66:80:8B |
| 17:43:17-644 | R5 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:43:17-644 | R3 | Ethernet Packet | Link | Recieved and accepted packet at interface AB:9E:A0:BF:18:3D |
| 17:43:17-644 | R3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:43:17-644 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 50:86:68:33:95:57 |
| 17:43:17-645 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:43:17-645 | R2 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.194). |
| 17:43:17-645 | R2 | Ethernet Packet | Link | Sending packet from interface C2:91:21:8D:51:9B |
| 17:43:17-645 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 4C:54:A1:A7:8D:9A |
| 17:43:17-645 | pc3 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:43:17-645 | pc3 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:43:17-645 | pc3 | Echo Reply Packet | Network | Created Echo Reply packet to 10.0.0.130 |
| 17:43:17-645 | pc3 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.196 |
| 17:43:17-645 | pc3 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 17:43:17-645 | pc3 | Ethernet Packet | Link | Sending packet from interface 4C:54:A1:A7:8D:9A |
| 17:43:17-645 | R3 | Ethernet Packet | Link | Recieved and accepted packet at interface AB:9E:A0:BF:18:3D |
| 17:43:17-645 | R3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:43:17-645 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface C2:91:21:8D:51:9B |
| 17:43:17-645 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:43:17-645 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 50:86:68:33:95:57 |
| 17:43:17-645 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:43:17-646 | R1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:43:17-646 | R1 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.194 |
| 17:43:17-646 | R1 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.194). |
| 17:43:17-646 | R1 | Ethernet Packet | Link | Sending packet from interface 50:86:68:33:95:57 |
| 17:43:17-646 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 4C:54:A1:A7:8D:9A |
| 17:43:17-646 | pc3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:43:17-646 | pc3 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:43:17-646 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 21:79:13:66:80:8B |
| 17:43:17-646 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface AB:9E:A0:BF:18:3D |
| 17:43:17-646 | R2 | Ethernet Packet | Link | Recieved and dropped packet at interface C2:91:21:8D:51:9B |
| 17:43:17-646 | R5 | Ethernet Packet | Link | Recieved and accepted packet at interface 21:79:13:66:80:8B |
| 17:43:17-646 | R5 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:43:17-646 | pc3 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.196). |
| 17:43:17-646 | pc3 | Ethernet Packet | Link | Sending packet from interface 4C:54:A1:A7:8D:9A |
| 17:43:17-646 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface AB:9E:A0:BF:18:3D |
| 17:43:17-647 | R2 | Ethernet Packet | Link | Recieved and dropped packet at interface C2:91:21:8D:51:9B |
| 17:43:17-647 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 50:86:68:33:95:57 |
| 17:43:17-647 | R1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:43:17-647 | R1 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 17:43:17-647 | R1 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.195). |
| 17:43:17-647 | R1 | Ethernet Packet | Link | Sending packet from interface 50:86:68:33:95:57 |
| 17:43:17-647 | pc3 | Ethernet Packet | Link | Recieved and dropped packet at interface 4C:54:A1:A7:8D:9A |
| 17:43:17-647 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 21:79:13:66:80:8B |
| 17:43:17-647 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface AB:9E:A0:BF:18:3D |
| 17:43:17-647 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface C2:91:21:8D:51:9B |
| 17:43:17-647 | R2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:43:17-647 | R2 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 17:43:17-647 | R2 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.130). |
| 17:43:17-647 | R2 | Ethernet Packet | Link | Sending packet from interface 71:80:39:C1:99:4A |
| 17:43:17-647 | pc2 | Ethernet Packet | Link | Recieved and accepted packet at interface 39:7F:47:5C:C1:7D |
| 17:43:17-647 | pc2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:43:17-647 | pc2 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:43:17-647 | pc2 | Echo Reply Packet | Network | Echo reply packet received from 10.0.0.194 |

Таблица 5. Вывод программы после Echo-запроса с PC2 на PC1.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 17:45:14-579 | pc2 | Echo Request Packet | Network | Created Echo Request packet to 10.0.0.5 |
| 17:45:14-579 | pc2 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.129 |
| 17:45:14-579 | pc2 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 17:45:14-579 | pc2 | Ethernet Packet | Link | Sending packet from interface 39:7F:47:5C:C1:7D |
| 17:45:14-579 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface 71:80:39:C1:99:4A |
| 17:45:14-579 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:14-579 | R2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:45:14-579 | R2 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.130 |
| 17:45:14-580 | R2 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.130). |
| 17:45:14-580 | R2 | Ethernet Packet | Link | Sending packet from interface 71:80:39:C1:99:4A |
| 17:45:14-580 | pc2 | Ethernet Packet | Link | Recieved and accepted packet at interface 39:7F:47:5C:C1:7D |
| 17:45:14-580 | pc2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:14-580 | pc2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:45:14-580 | pc2 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.129). |
| 17:45:14-580 | pc2 | Ethernet Packet | Link | Sending packet from interface 39:7F:47:5C:C1:7D |
| 17:45:14-580 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface 71:80:39:C1:99:4A |
| 17:45:14-580 | R2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:14-580 | R2 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 17:45:14-580 | R2 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.196 |
| 17:45:14-580 | R2 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 17:45:14-580 | R2 | Ethernet Packet | Link | Sending packet from interface C2:91:21:8D:51:9B |
| 17:45:14-580 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 4C:54:A1:A7:8D:9A |
| 17:45:14-580 | pc3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:14-580 | R5 | Ethernet Packet | Link | Recieved and accepted packet at interface 21:79:13:66:80:8B |
| 17:45:14-580 | R5 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:14-580 | R3 | Ethernet Packet | Link | Recieved and accepted packet at interface AB:9E:A0:BF:18:3D |
| 17:45:14-580 | R3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:14-580 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 50:86:68:33:95:57 |
| 17:45:14-580 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:14-580 | R1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:45:14-581 | R1 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.195 |
| 17:45:14-581 | R1 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.195). |
| 17:45:14-581 | R1 | Ethernet Packet | Link | Sending packet from interface 50:86:68:33:95:57 |
| 17:45:14-581 | pc3 | Ethernet Packet | Link | Recieved and dropped packet at interface 4C:54:A1:A7:8D:9A |
| 17:45:14-581 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 21:79:13:66:80:8B |
| 17:45:14-581 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface AB:9E:A0:BF:18:3D |
| 17:45:14-581 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface C2:91:21:8D:51:9B |
| 17:45:14-581 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:14-581 | R2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:45:14-581 | R2 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.196). |
| 17:45:14-581 | R2 | Ethernet Packet | Link | Sending packet from interface C2:91:21:8D:51:9B |
| 17:45:14-581 | pc3 | Ethernet Packet | Link | Recieved and dropped packet at interface 4C:54:A1:A7:8D:9A |
| 17:45:14-581 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 21:79:13:66:80:8B |
| 17:45:14-581 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface AB:9E:A0:BF:18:3D |
| 17:45:14-581 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 50:86:68:33:95:57 |
| 17:45:14-581 | R1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:14-581 | R1 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 17:45:14-581 | R1 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.5 |
| 17:45:14-581 | R1 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 17:45:14-581 | R1 | Ethernet Packet | Link | Sending packet from interface 83:AA:11:66:71:8B |
| 17:45:14-581 | pc1 | Ethernet Packet | Link | Recieved and accepted packet at interface 8D:60:85:4F:99:9D |
| 17:45:14-581 | pc1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:14-582 | pc1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:45:14-582 | pc1 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.4 |
| 17:45:14-582 | pc1 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.4). |
| 17:45:14-582 | pc1 | Ethernet Packet | Link | Sending packet from interface 8D:60:85:4F:99:9D |
| 17:45:14-582 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 83:AA:11:66:71:8B |
| 17:45:14-582 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:14-582 | R1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:45:14-582 | R1 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.5). |
| 17:45:14-582 | R1 | Ethernet Packet | Link | Sending packet from interface 83:AA:11:66:71:8B |
| 17:45:14-582 | pc1 | Ethernet Packet | Link | Recieved and accepted packet at interface 8D:60:85:4F:99:9D |
| 17:45:14-582 | pc1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:14-582 | pc1 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:45:14-582 | pc1 | Echo Reply Packet | Network | Created Echo Reply packet to 10.0.0.130 |
| 17:45:14-582 | pc1 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.4). |
| 17:45:14-582 | pc1 | Ethernet Packet | Link | Sending packet from interface 8D:60:85:4F:99:9D |
| 17:45:14-582 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 83:AA:11:66:71:8B |
| 17:45:14-582 | R1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:14-582 | R1 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 17:45:14-583 | R1 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.195). |
| 17:45:14-583 | R1 | Ethernet Packet | Link | Sending packet from interface 50:86:68:33:95:57 |
| 17:45:14-583 | pc3 | Ethernet Packet | Link | Recieved and dropped packet at interface 4C:54:A1:A7:8D:9A |
| 17:45:14-583 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 21:79:13:66:80:8B |
| 17:45:14-583 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface AB:9E:A0:BF:18:3D |
| 17:45:14-583 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface C2:91:21:8D:51:9B |
| 17:45:14-583 | R2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:14-583 | R2 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 17:45:14-583 | R2 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.130). |
| 17:45:14-583 | R2 | Ethernet Packet | Link | Sending packet from interface 71:80:39:C1:99:4A |
| 17:45:14-583 | pc2 | Ethernet Packet | Link | Recieved and accepted packet at interface 39:7F:47:5C:C1:7D |
| 17:45:14-583 | pc2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:14-583 | pc2 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:45:14-583 | pc2 | Echo Reply Packet | Network | Echo reply packet received from 10.0.0.5 |

Таблица 5. Вывод программы после Echo-запроса с PC3 на PC1.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 17:45:58-682 | pc3 | Echo Request Packet | Network | Created Echo Request packet to 10.0.0.5 |
| 17:45:58-682 | pc3 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.196 |
| 17:45:58-682 | pc3 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 17:45:58-682 | pc3 | Ethernet Packet | Link | Sending packet from interface 4C:54:A1:A7:8D:9A |
| 17:45:58-682 | R3 | Ethernet Packet | Link | Recieved and accepted packet at interface AB:9E:A0:BF:18:3D |
| 17:45:58-682 | R3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:58-682 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface C2:91:21:8D:51:9B |
| 17:45:58-682 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:58-682 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 50:86:68:33:95:57 |
| 17:45:58-682 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:58-682 | R1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:45:58-682 | R1 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.194 |
| 17:45:58-682 | R1 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.194). |
| 17:45:58-682 | R1 | Ethernet Packet | Link | Sending packet from interface 50:86:68:33:95:57 |
| 17:45:58-682 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 4C:54:A1:A7:8D:9A |
| 17:45:58-682 | pc3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:58-682 | pc3 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:45:58-683 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 21:79:13:66:80:8B |
| 17:45:58-683 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface AB:9E:A0:BF:18:3D |
| 17:45:58-683 | R2 | Ethernet Packet | Link | Recieved and dropped packet at interface C2:91:21:8D:51:9B |
| 17:45:58-683 | R5 | Ethernet Packet | Link | Recieved and accepted packet at interface 21:79:13:66:80:8B |
| 17:45:58-683 | R5 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:58-683 | pc3 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.196). |
| 17:45:58-683 | pc3 | Ethernet Packet | Link | Sending packet from interface 4C:54:A1:A7:8D:9A |
| 17:45:58-683 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface AB:9E:A0:BF:18:3D |
| 17:45:58-683 | R2 | Ethernet Packet | Link | Recieved and dropped packet at interface C2:91:21:8D:51:9B |
| 17:45:58-683 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 50:86:68:33:95:57 |
| 17:45:58-683 | R1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:58-683 | R1 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 17:45:58-683 | R1 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.5). |
| 17:45:58-683 | R1 | Ethernet Packet | Link | Sending packet from interface 83:AA:11:66:71:8B |
| 17:45:58-683 | pc1 | Ethernet Packet | Link | Recieved and accepted packet at interface 8D:60:85:4F:99:9D |
| 17:45:58-683 | pc1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:58-683 | pc1 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:45:58-683 | pc1 | Echo Reply Packet | Network | Created Echo Reply packet to 10.0.0.194 |
| 17:45:58-683 | pc1 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.4). |
| 17:45:58-683 | pc1 | Ethernet Packet | Link | Sending packet from interface 8D:60:85:4F:99:9D |
| 17:45:58-683 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 83:AA:11:66:71:8B |
| 17:45:58-683 | R1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:58-683 | R1 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 17:45:58-683 | R1 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.194). |
| 17:45:58-683 | R1 | Ethernet Packet | Link | Sending packet from interface 50:86:68:33:95:57 |
| 17:45:58-683 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 4C:54:A1:A7:8D:9A |
| 17:45:58-683 | pc3 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:45:58-684 | pc3 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:45:58-684 | pc3 | Echo Reply Packet | Network | Echo reply packet received from 10.0.0.5 |

Таблица 5. Вывод программы после Echo-запроса с PC3 на PC2.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 17:47:17-896 | pc3 | Echo Request Packet | Network | Created Echo Request packet to 10.0.0.130 |
| 17:47:17-896 | pc3 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.196). |
| 17:47:17-896 | pc3 | Ethernet Packet | Link | Sending packet from interface 4C:54:A1:A7:8D:9A |
| 17:47:17-896 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface AB:9E:A0:BF:18:3D |
| 17:47:17-896 | R2 | Ethernet Packet | Link | Recieved and dropped packet at interface C2:91:21:8D:51:9B |
| 17:47:17-897 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 50:86:68:33:95:57 |
| 17:47:17-897 | R1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:47:17-897 | R1 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 17:47:17-897 | R1 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.195 |
| 17:47:17-897 | R1 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 17:47:17-897 | R1 | Ethernet Packet | Link | Sending packet from interface 50:86:68:33:95:57 |
| 17:47:17-897 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 4C:54:A1:A7:8D:9A |
| 17:47:17-897 | pc3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:47:17-897 | R5 | Ethernet Packet | Link | Recieved and accepted packet at interface 21:79:13:66:80:8B |
| 17:47:17-897 | R5 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:47:17-897 | R3 | Ethernet Packet | Link | Recieved and accepted packet at interface AB:9E:A0:BF:18:3D |
| 17:47:17-897 | R3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:47:17-897 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface C2:91:21:8D:51:9B |
| 17:47:17-897 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:47:17-897 | R2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:47:17-897 | R2 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.196 |
| 17:47:17-897 | R2 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.196). |
| 17:47:17-897 | R2 | Ethernet Packet | Link | Sending packet from interface C2:91:21:8D:51:9B |
| 17:47:17-897 | pc3 | Ethernet Packet | Link | Recieved and dropped packet at interface 4C:54:A1:A7:8D:9A |
| 17:47:17-897 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 21:79:13:66:80:8B |
| 17:47:17-897 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface AB:9E:A0:BF:18:3D |
| 17:47:17-897 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 50:86:68:33:95:57 |
| 17:47:17-897 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:47:17-897 | R1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:47:17-897 | R1 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.195). |
| 17:47:17-897 | R1 | Ethernet Packet | Link | Sending packet from interface 50:86:68:33:95:57 |
| 17:47:17-897 | pc3 | Ethernet Packet | Link | Recieved and dropped packet at interface 4C:54:A1:A7:8D:9A |
| 17:47:17-897 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 21:79:13:66:80:8B |
| 17:47:17-897 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface AB:9E:A0:BF:18:3D |
| 17:47:17-898 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface C2:91:21:8D:51:9B |
| 17:47:17-898 | R2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:47:17-898 | R2 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 17:47:17-898 | R2 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.130 |
| 17:47:17-898 | R2 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 17:47:17-898 | R2 | Ethernet Packet | Link | Sending packet from interface 71:80:39:C1:99:4A |
| 17:47:17-898 | pc2 | Ethernet Packet | Link | Recieved and accepted packet at interface 39:7F:47:5C:C1:7D |
| 17:47:17-898 | pc2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:47:17-898 | pc2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:47:17-898 | pc2 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.129 |
| 17:47:17-898 | pc2 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.129). |
| 17:47:17-898 | pc2 | Ethernet Packet | Link | Sending packet from interface 39:7F:47:5C:C1:7D |
| 17:47:17-898 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface 71:80:39:C1:99:4A |
| 17:47:17-898 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:47:17-898 | R2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:47:17-898 | R2 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.130). |
| 17:47:17-898 | R2 | Ethernet Packet | Link | Sending packet from interface 71:80:39:C1:99:4A |
| 17:47:17-898 | pc2 | Ethernet Packet | Link | Recieved and accepted packet at interface 39:7F:47:5C:C1:7D |
| 17:47:17-898 | pc2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:47:17-898 | pc2 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:47:17-898 | pc2 | Echo Reply Packet | Network | Created Echo Reply packet to 10.0.0.194 |
| 17:47:17-898 | pc2 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.129). |
| 17:47:17-898 | pc2 | Ethernet Packet | Link | Sending packet from interface 39:7F:47:5C:C1:7D |
| 17:47:17-898 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface 71:80:39:C1:99:4A |
| 17:47:17-898 | R2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:47:17-898 | R2 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 17:47:17-898 | R2 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.194 |
| 17:47:17-898 | R2 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 17:47:17-898 | R2 | Ethernet Packet | Link | Sending packet from interface C2:91:21:8D:51:9B |
| 17:47:17-898 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 4C:54:A1:A7:8D:9A |
| 17:47:17-898 | pc3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:47:17-898 | pc3 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:47:17-899 | pc3 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.195 |
| 17:47:17-899 | pc3 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.195). |
| 17:47:17-899 | pc3 | Ethernet Packet | Link | Sending packet from interface 4C:54:A1:A7:8D:9A |
| 17:47:17-899 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface AB:9E:A0:BF:18:3D |
| 17:47:17-899 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface C2:91:21:8D:51:9B |
| 17:47:17-899 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:47:17-899 | R2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:47:17-899 | R1 | Ethernet Packet | Link | Recieved and dropped packet at interface 50:86:68:33:95:57 |
| 17:47:17-899 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 21:79:13:66:80:8B |
| 17:47:17-899 | R5 | Ethernet Packet | Link | Recieved and accepted packet at interface 21:79:13:66:80:8B |
| 17:47:17-899 | R5 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:47:17-899 | R3 | Ethernet Packet | Link | Recieved and accepted packet at interface AB:9E:A0:BF:18:3D |
| 17:47:17-899 | R3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:47:17-899 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 50:86:68:33:95:57 |
| 17:47:17-899 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:47:17-899 | R2 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.194). |
| 17:47:17-899 | R2 | Ethernet Packet | Link | Sending packet from interface C2:91:21:8D:51:9B |
| 17:47:17-899 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 4C:54:A1:A7:8D:9A |
| 17:47:17-899 | pc3 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 17:47:17-899 | pc3 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 17:47:17-899 | pc3 | Echo Reply Packet | Network | Echo reply packet received from 10.0.0.130 |

1. Настроим таблицы маршрутизации для маршрутизаторов и компьютеров для обеспечения доставки пакетов кратчайшим образом. Для этого для маршрутизатора R1 добавим статическую запись на маршрутизатор R2 для сети 10.0.0.130/255.255.255.255 10.0.0.195. Для R2 на R1 сделаем аналогично 10.0.0.5/255.255.255.255 10.0.0.196. Результаты приведены в табл. 6-9.

Таблица 6 – Отправка Echo-запроса с PC1 на PC2.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 23:46:58-411 | pc1 | Echo Request Packet | Network | Created Echo Request packet to 10.0.0.130 |
| 23:46:58-412 | pc1 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.4 |
| 23:46:58-412 | pc1 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 23:46:58-412 | pc1 | Ethernet Packet | Link | Sending packet from interface C0:1A:6F:B7:A4:13 |
| 23:46:58-412 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 2C:9B:7B:3F:65:93 |
| 23:46:58-412 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:46:58-412 | R1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:46:58-412 | R1 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.5 |
| 23:46:58-412 | R1 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.5). |
| 23:46:58-412 | R1 | Ethernet Packet | Link | Sending packet from interface 2C:9B:7B:3F:65:93 |
| 23:46:58-412 | pc1 | Ethernet Packet | Link | Recieved and accepted packet at interface C0:1A:6F:B7:A4:13 |
| 23:46:58-412 | pc1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:46:58-412 | pc1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:46:58-412 | pc1 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.4). |
| 23:46:58-412 | pc1 | Ethernet Packet | Link | Sending packet from interface C0:1A:6F:B7:A4:13 |
| 23:46:58-412 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 2C:9B:7B:3F:65:93 |
| 23:46:58-412 | R1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:46:58-412 | R1 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 23:46:58-412 | R1 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.195 |
| 23:46:58-412 | R1 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 23:46:58-412 | R1 | Ethernet Packet | Link | Sending packet from interface 78:49:89:94:61:6B |
| 23:46:58-412 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 44:2E:86:37:A0:4F |
| 23:46:58-412 | pc3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:46:58-412 | R5 | Ethernet Packet | Link | Recieved and accepted packet at interface 39:31:1A:A8:5B:A5 |
| 23:46:58-412 | R5 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:46:58-412 | R3 | Ethernet Packet | Link | Recieved and accepted packet at interface BB:BA:5B:49:5E:C2 |
| 23:46:58-412 | R3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:46:58-412 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface B4:BF:A1:1D:A5:46 |
| 23:46:58-412 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:46:58-412 | R2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:46:58-412 | R2 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.196 |
| 23:46:58-412 | R2 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.196). |
| 23:46:58-412 | R2 | Ethernet Packet | Link | Sending packet from interface B4:BF:A1:1D:A5:46 |
| 23:46:58-412 | pc3 | Ethernet Packet | Link | Recieved and dropped packet at interface 44:2E:86:37:A0:4F |
| 23:46:58-412 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 39:31:1A:A8:5B:A5 |
| 23:46:58-412 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface BB:BA:5B:49:5E:C2 |
| 23:46:58-412 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 78:49:89:94:61:6B |
| 23:46:58-412 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:46:58-412 | R1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:46:58-412 | R1 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.195). |
| 23:46:58-412 | R1 | Ethernet Packet | Link | Sending packet from interface 78:49:89:94:61:6B |
| 23:46:58-412 | pc3 | Ethernet Packet | Link | Recieved and dropped packet at interface 44:2E:86:37:A0:4F |
| 23:46:58-412 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 39:31:1A:A8:5B:A5 |
| 23:46:58-412 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface BB:BA:5B:49:5E:C2 |
| 23:46:58-412 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface B4:BF:A1:1D:A5:46 |
| 23:46:58-412 | R2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:46:58-412 | R2 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 23:46:58-412 | R2 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.130 |
| 23:46:58-412 | R2 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 23:46:58-412 | R2 | Ethernet Packet | Link | Sending packet from interface 3D:16:97:47:20:3E |
| 23:46:58-412 | pc2 | Ethernet Packet | Link | Recieved and accepted packet at interface 7A:31:82:C1:98:A7 |
| 23:46:58-412 | pc2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:46:58-412 | pc2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:46:58-412 | pc2 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.129 |
| 23:46:58-412 | pc2 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.129). |
| 23:46:58-412 | pc2 | Ethernet Packet | Link | Sending packet from interface 7A:31:82:C1:98:A7 |
| 23:46:58-412 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface 3D:16:97:47:20:3E |
| 23:46:58-412 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:46:58-412 | R2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:46:58-412 | R2 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.130). |
| 23:46:58-412 | R2 | Ethernet Packet | Link | Sending packet from interface 3D:16:97:47:20:3E |
| 23:46:58-412 | pc2 | Ethernet Packet | Link | Recieved and accepted packet at interface 7A:31:82:C1:98:A7 |
| 23:46:58-412 | pc2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:46:58-412 | pc2 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:46:58-412 | pc2 | Echo Reply Packet | Network | Created Echo Reply packet to 10.0.0.5 |
| 23:46:58-412 | pc2 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.129). |
| 23:46:58-412 | pc2 | Ethernet Packet | Link | Sending packet from interface 7A:31:82:C1:98:A7 |
| 23:46:58-412 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface 3D:16:97:47:20:3E |
| 23:46:58-412 | R2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:46:58-412 | R2 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 23:46:58-412 | R2 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.196). |
| 23:46:58-412 | R2 | Ethernet Packet | Link | Sending packet from interface B4:BF:A1:1D:A5:46 |
| 23:46:58-412 | pc3 | Ethernet Packet | Link | Recieved and dropped packet at interface 44:2E:86:37:A0:4F |
| 23:46:58-412 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 39:31:1A:A8:5B:A5 |
| 23:46:58-412 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface BB:BA:5B:49:5E:C2 |
| 23:46:58-412 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 78:49:89:94:61:6B |
| 23:46:58-412 | R1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:46:58-412 | R1 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 23:46:58-412 | R1 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.5). |
| 23:46:58-412 | R1 | Ethernet Packet | Link | Sending packet from interface 2C:9B:7B:3F:65:93 |
| 23:46:58-412 | pc1 | Ethernet Packet | Link | Recieved and accepted packet at interface C0:1A:6F:B7:A4:13 |
| 23:46:58-412 | pc1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:46:58-412 | pc1 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:46:58-412 | pc1 | Echo Reply Packet | Network | Echo reply packet received from 10.0.0.130 |

Таблица 7 – Отправка Echo-запроса с PC1 на PC3

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 23:48:50-291 | pc1 | Echo Request Packet | Network | Created Echo Request packet to 10.0.0.194 |
| 23:48:50-291 | pc1 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.4). |
| 23:48:50-292 | pc1 | Ethernet Packet | Link | Sending packet from interface C0:1A:6F:B7:A4:13 |
| 23:48:50-292 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 2C:9B:7B:3F:65:93 |
| 23:48:50-292 | R1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:48:50-292 | R1 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 23:48:50-292 | R1 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.194 |
| 23:48:50-292 | R1 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 23:48:50-292 | R1 | Ethernet Packet | Link | Sending packet from interface 78:49:89:94:61:6B |
| 23:48:50-292 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 44:2E:86:37:A0:4F |
| 23:48:50-292 | pc3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:48:50-292 | pc3 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:48:50-292 | pc3 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.196 |
| 23:48:50-292 | pc3 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.196). |
| 23:48:50-292 | pc3 | Ethernet Packet | Link | Sending packet from interface 44:2E:86:37:A0:4F |
| 23:48:50-292 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface BB:BA:5B:49:5E:C2 |
| 23:48:50-292 | R2 | Ethernet Packet | Link | Recieved and dropped packet at interface B4:BF:A1:1D:A5:46 |
| 23:48:50-292 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 78:49:89:94:61:6B |
| 23:48:50-292 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:48:50-292 | R1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:48:50-292 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 39:31:1A:A8:5B:A5 |
| 23:48:50-292 | R5 | Ethernet Packet | Link | Recieved and accepted packet at interface 39:31:1A:A8:5B:A5 |
| 23:48:50-292 | R5 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:48:50-292 | R3 | Ethernet Packet | Link | Recieved and accepted packet at interface BB:BA:5B:49:5E:C2 |
| 23:48:50-292 | R3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:48:50-292 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface B4:BF:A1:1D:A5:46 |
| 23:48:50-292 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:48:50-292 | R1 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.194). |
| 23:48:50-292 | R1 | Ethernet Packet | Link | Sending packet from interface 78:49:89:94:61:6B |
| 23:48:50-292 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 44:2E:86:37:A0:4F |
| 23:48:50-292 | pc3 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:48:50-292 | pc3 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:48:50-292 | pc3 | Echo Reply Packet | Network | Created Echo Reply packet to 10.0.0.5 |
| 23:48:50-292 | pc3 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.4 |
| 23:48:50-292 | pc3 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 23:48:50-292 | pc3 | Ethernet Packet | Link | Sending packet from interface 44:2E:86:37:A0:4F |
| 23:48:50-292 | R3 | Ethernet Packet | Link | Recieved and accepted packet at interface BB:BA:5B:49:5E:C2 |
| 23:48:50-292 | R3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:48:50-292 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface B4:BF:A1:1D:A5:46 |
| 23:48:50-292 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:48:50-292 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 78:49:89:94:61:6B |
| 23:48:50-292 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:48:50-292 | R1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:48:50-292 | R1 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.194 |
| 23:48:50-292 | R1 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.194). |
| 23:48:50-292 | R1 | Ethernet Packet | Link | Sending packet from interface 78:49:89:94:61:6B |
| 23:48:50-292 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 44:2E:86:37:A0:4F |
| 23:48:50-292 | pc3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:48:50-292 | pc3 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:48:50-292 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 39:31:1A:A8:5B:A5 |
| 23:48:50-292 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface BB:BA:5B:49:5E:C2 |
| 23:48:50-292 | R2 | Ethernet Packet | Link | Recieved and dropped packet at interface B4:BF:A1:1D:A5:46 |
| 23:48:50-292 | R5 | Ethernet Packet | Link | Recieved and accepted packet at interface 39:31:1A:A8:5B:A5 |
| 23:48:50-292 | R5 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:48:50-292 | pc3 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.4). |
| 23:48:50-292 | pc3 | Ethernet Packet | Link | Sending packet from interface 44:2E:86:37:A0:4F |
| 23:48:50-292 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface BB:BA:5B:49:5E:C2 |
| 23:48:50-292 | R2 | Ethernet Packet | Link | Recieved and dropped packet at interface B4:BF:A1:1D:A5:46 |
| 23:48:50-292 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 78:49:89:94:61:6B |
| 23:48:50-292 | R1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:48:50-292 | R1 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 23:48:50-292 | R1 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.5). |
| 23:48:50-292 | R1 | Ethernet Packet | Link | Sending packet from interface 2C:9B:7B:3F:65:93 |
| 23:48:50-292 | pc1 | Ethernet Packet | Link | Recieved and accepted packet at interface C0:1A:6F:B7:A4:13 |
| 23:48:50-292 | pc1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:48:50-292 | pc1 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:48:50-292 | pc1 | Echo Reply Packet | Network | Echo reply packet received from 10.0.0.194 |

Таблица 8 – Отправка Echo-запроса с PC2 на PC1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 23:50:05-476 | pc2 | Echo Request Packet | Network | Created Echo Request packet to 10.0.0.5 |
| 23:50:05-476 | pc2 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.129 |
| 23:50:05-476 | pc2 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 23:50:05-476 | pc2 | Ethernet Packet | Link | Sending packet from interface 7A:31:82:C1:98:A7 |
| 23:50:05-476 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface 3D:16:97:47:20:3E |
| 23:50:05-476 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:50:05-476 | R2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:50:05-476 | R2 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.130 |
| 23:50:05-476 | R2 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.130). |
| 23:50:05-476 | R2 | Ethernet Packet | Link | Sending packet from interface 3D:16:97:47:20:3E |
| 23:50:05-476 | pc2 | Ethernet Packet | Link | Recieved and accepted packet at interface 7A:31:82:C1:98:A7 |
| 23:50:05-476 | pc2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:50:05-476 | pc2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:50:05-476 | pc2 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.129). |
| 23:50:05-476 | pc2 | Ethernet Packet | Link | Sending packet from interface 7A:31:82:C1:98:A7 |
| 23:50:05-476 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface 3D:16:97:47:20:3E |
| 23:50:05-476 | R2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:50:05-476 | R2 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 23:50:05-476 | R2 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.196 |
| 23:50:05-476 | R2 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 23:50:05-476 | R2 | Ethernet Packet | Link | Sending packet from interface B4:BF:A1:1D:A5:46 |
| 23:50:05-476 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 44:2E:86:37:A0:4F |
| 23:50:05-476 | pc3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:50:05-476 | R5 | Ethernet Packet | Link | Recieved and accepted packet at interface 39:31:1A:A8:5B:A5 |
| 23:50:05-476 | R5 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:50:05-476 | R3 | Ethernet Packet | Link | Recieved and accepted packet at interface BB:BA:5B:49:5E:C2 |
| 23:50:05-476 | R3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:50:05-476 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 78:49:89:94:61:6B |
| 23:50:05-476 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:50:05-476 | R1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:50:05-476 | R1 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.195 |
| 23:50:05-476 | R1 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.195). |
| 23:50:05-476 | R1 | Ethernet Packet | Link | Sending packet from interface 78:49:89:94:61:6B |
| 23:50:05-476 | pc3 | Ethernet Packet | Link | Recieved and dropped packet at interface 44:2E:86:37:A0:4F |
| 23:50:05-476 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 39:31:1A:A8:5B:A5 |
| 23:50:05-476 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface BB:BA:5B:49:5E:C2 |
| 23:50:05-476 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface B4:BF:A1:1D:A5:46 |
| 23:50:05-476 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:50:05-476 | R2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:50:05-476 | R2 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.196). |
| 23:50:05-476 | R2 | Ethernet Packet | Link | Sending packet from interface B4:BF:A1:1D:A5:46 |
| 23:50:05-476 | pc3 | Ethernet Packet | Link | Recieved and dropped packet at interface 44:2E:86:37:A0:4F |
| 23:50:05-476 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 39:31:1A:A8:5B:A5 |
| 23:50:05-476 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface BB:BA:5B:49:5E:C2 |
| 23:50:05-476 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 78:49:89:94:61:6B |
| 23:50:05-476 | R1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:50:05-476 | R1 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 23:50:05-476 | R1 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.5 |
| 23:50:05-476 | R1 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 23:50:05-476 | R1 | Ethernet Packet | Link | Sending packet from interface 2C:9B:7B:3F:65:93 |
| 23:50:05-476 | pc1 | Ethernet Packet | Link | Recieved and accepted packet at interface C0:1A:6F:B7:A4:13 |
| 23:50:05-476 | pc1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:50:05-476 | pc1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:50:05-476 | pc1 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.4 |
| 23:50:05-476 | pc1 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.4). |
| 23:50:05-476 | pc1 | Ethernet Packet | Link | Sending packet from interface C0:1A:6F:B7:A4:13 |
| 23:50:05-476 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 2C:9B:7B:3F:65:93 |
| 23:50:05-476 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:50:05-476 | R1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:50:05-476 | R1 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.5). |
| 23:50:05-476 | R1 | Ethernet Packet | Link | Sending packet from interface 2C:9B:7B:3F:65:93 |
| 23:50:05-476 | pc1 | Ethernet Packet | Link | Recieved and accepted packet at interface C0:1A:6F:B7:A4:13 |
| 23:50:05-476 | pc1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:50:05-476 | pc1 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:50:05-476 | pc1 | Echo Reply Packet | Network | Created Echo Reply packet to 10.0.0.130 |
| 23:50:05-476 | pc1 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.4). |
| 23:50:05-476 | pc1 | Ethernet Packet | Link | Sending packet from interface C0:1A:6F:B7:A4:13 |
| 23:50:05-476 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 2C:9B:7B:3F:65:93 |
| 23:50:05-476 | R1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:50:05-476 | R1 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 23:50:05-476 | R1 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.195). |
| 23:50:05-476 | R1 | Ethernet Packet | Link | Sending packet from interface 78:49:89:94:61:6B |
| 23:50:05-476 | pc3 | Ethernet Packet | Link | Recieved and dropped packet at interface 44:2E:86:37:A0:4F |
| 23:50:05-476 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 39:31:1A:A8:5B:A5 |
| 23:50:05-476 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface BB:BA:5B:49:5E:C2 |
| 23:50:05-476 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface B4:BF:A1:1D:A5:46 |
| 23:50:05-477 | R2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:50:05-477 | R2 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 23:50:05-477 | R2 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.130). |
| 23:50:05-477 | R2 | Ethernet Packet | Link | Sending packet from interface 3D:16:97:47:20:3E |
| 23:50:05-477 | pc2 | Ethernet Packet | Link | Recieved and accepted packet at interface 7A:31:82:C1:98:A7 |
| 23:50:05-477 | pc2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:50:05-477 | pc2 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:50:05-477 | pc2 | Echo Reply Packet | Network | Echo reply packet received from 10.0.0.5 |

Таблица 9 – Отправка Echo-запроса с PC2 на PC3

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 23:51:32-255 | pc2 | Echo Request Packet | Network | Created Echo Request packet to 10.0.0.194 |
| 23:51:32-255 | pc2 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.129). |
| 23:51:32-255 | pc2 | Ethernet Packet | Link | Sending packet from interface 7A:31:82:C1:98:A7 |
| 23:51:32-255 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface 3D:16:97:47:20:3E |
| 23:51:32-255 | R2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:51:32-255 | R2 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 23:51:32-255 | R2 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.194 |
| 23:51:32-255 | R2 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 23:51:32-255 | R2 | Ethernet Packet | Link | Sending packet from interface B4:BF:A1:1D:A5:46 |
| 23:51:32-255 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 44:2E:86:37:A0:4F |
| 23:51:32-255 | pc3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:51:32-255 | pc3 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:51:32-255 | pc3 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.195 |
| 23:51:32-255 | pc3 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.195). |
| 23:51:32-255 | pc3 | Ethernet Packet | Link | Sending packet from interface 44:2E:86:37:A0:4F |
| 23:51:32-255 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface BB:BA:5B:49:5E:C2 |
| 23:51:32-255 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface B4:BF:A1:1D:A5:46 |
| 23:51:32-255 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:51:32-255 | R2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:51:32-255 | R1 | Ethernet Packet | Link | Recieved and dropped packet at interface 78:49:89:94:61:6B |
| 23:51:32-255 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 39:31:1A:A8:5B:A5 |
| 23:51:32-255 | R5 | Ethernet Packet | Link | Recieved and accepted packet at interface 39:31:1A:A8:5B:A5 |
| 23:51:32-255 | R5 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:51:32-255 | R3 | Ethernet Packet | Link | Recieved and accepted packet at interface BB:BA:5B:49:5E:C2 |
| 23:51:32-255 | R3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:51:32-255 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 78:49:89:94:61:6B |
| 23:51:32-255 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:51:32-255 | R2 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.194). |
| 23:51:32-255 | R2 | Ethernet Packet | Link | Sending packet from interface B4:BF:A1:1D:A5:46 |
| 23:51:32-255 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 44:2E:86:37:A0:4F |
| 23:51:32-255 | pc3 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:51:32-255 | pc3 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:51:32-256 | pc3 | Echo Reply Packet | Network | Created Echo Reply packet to 10.0.0.130 |
| 23:51:32-256 | pc3 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.195). |
| 23:51:32-256 | pc3 | Ethernet Packet | Link | Sending packet from interface 44:2E:86:37:A0:4F |
| 23:51:32-256 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface BB:BA:5B:49:5E:C2 |
| 23:51:32-256 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface B4:BF:A1:1D:A5:46 |
| 23:51:32-256 | R2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:51:32-256 | R2 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 23:51:32-256 | R2 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.130). |
| 23:51:32-256 | R2 | Ethernet Packet | Link | Sending packet from interface 3D:16:97:47:20:3E |
| 23:51:32-256 | pc2 | Ethernet Packet | Link | Recieved and accepted packet at interface 7A:31:82:C1:98:A7 |
| 23:51:32-256 | pc2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:51:32-256 | pc2 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:51:32-256 | pc2 | Echo Reply Packet | Network | Echo reply packet received from 10.0.0.194 |

1. Для обеспечения кратчайшего маршрута добавим записи для PC3 на R1 и R2 10.0.0.128/255.255.255.224 10.0.0.195 и 10.0.0.5/255.255.255.255 10.0.0.4.

Таблица 10 – Отправка Echo-запроса с PC3 на PC1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 23:52:25-007 | pc3 | Echo Request Packet | Network | Created Echo Request packet to 10.0.0.5 |
| 23:52:25-007 | pc3 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.4 |
| 23:52:25-007 | pc3 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 23:52:25-007 | pc3 | Ethernet Packet | Link | Sending packet from interface 44:2E:86:37:A0:4F |
| 23:52:25-007 | R3 | Ethernet Packet | Link | Recieved and accepted packet at interface BB:BA:5B:49:5E:C2 |
| 23:52:25-007 | R3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:52:25-007 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface B4:BF:A1:1D:A5:46 |
| 23:52:25-007 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:52:25-007 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 78:49:89:94:61:6B |
| 23:52:25-007 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:52:25-007 | R1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:52:25-007 | R1 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.194 |
| 23:52:25-007 | R1 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.194). |
| 23:52:25-007 | R1 | Ethernet Packet | Link | Sending packet from interface 78:49:89:94:61:6B |
| 23:52:25-007 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 44:2E:86:37:A0:4F |
| 23:52:25-007 | pc3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:52:25-007 | pc3 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:52:25-007 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 39:31:1A:A8:5B:A5 |
| 23:52:25-007 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface BB:BA:5B:49:5E:C2 |
| 23:52:25-007 | R2 | Ethernet Packet | Link | Recieved and dropped packet at interface B4:BF:A1:1D:A5:46 |
| 23:52:25-007 | R5 | Ethernet Packet | Link | Recieved and accepted packet at interface 39:31:1A:A8:5B:A5 |
| 23:52:25-007 | R5 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:52:25-007 | pc3 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.4). |
| 23:52:25-007 | pc3 | Ethernet Packet | Link | Sending packet from interface 44:2E:86:37:A0:4F |
| 23:52:25-007 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface BB:BA:5B:49:5E:C2 |
| 23:52:25-007 | R2 | Ethernet Packet | Link | Recieved and dropped packet at interface B4:BF:A1:1D:A5:46 |
| 23:52:25-007 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 78:49:89:94:61:6B |
| 23:52:25-007 | R1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:52:25-007 | R1 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 23:52:25-007 | R1 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.5 |
| 23:52:25-007 | R1 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 23:52:25-007 | R1 | Ethernet Packet | Link | Sending packet from interface 2C:9B:7B:3F:65:93 |
| 23:52:25-007 | pc1 | Ethernet Packet | Link | Recieved and accepted packet at interface C0:1A:6F:B7:A4:13 |
| 23:52:25-007 | pc1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:52:25-007 | pc1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:52:25-007 | pc1 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.4 |
| 23:52:25-007 | pc1 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.4). |
| 23:52:25-007 | pc1 | Ethernet Packet | Link | Sending packet from interface C0:1A:6F:B7:A4:13 |
| 23:52:25-007 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 2C:9B:7B:3F:65:93 |
| 23:52:25-007 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:52:25-007 | R1 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:52:25-007 | R1 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.5). |
| 23:52:25-007 | R1 | Ethernet Packet | Link | Sending packet from interface 2C:9B:7B:3F:65:93 |
| 23:52:25-007 | pc1 | Ethernet Packet | Link | Recieved and accepted packet at interface C0:1A:6F:B7:A4:13 |
| 23:52:25-007 | pc1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:52:25-007 | pc1 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:52:25-007 | pc1 | Echo Reply Packet | Network | Created Echo Reply packet to 10.0.0.194 |
| 23:52:25-007 | pc1 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.4). |
| 23:52:25-007 | pc1 | Ethernet Packet | Link | Sending packet from interface C0:1A:6F:B7:A4:13 |
| 23:52:25-007 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 2C:9B:7B:3F:65:93 |
| 23:52:25-007 | R1 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:52:25-007 | R1 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 23:52:25-007 | R1 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.194). |
| 23:52:25-007 | R1 | Ethernet Packet | Link | Sending packet from interface 78:49:89:94:61:6B |
| 23:52:25-007 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 44:2E:86:37:A0:4F |
| 23:52:25-007 | pc3 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:52:25-007 | pc3 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:52:25-007 | pc3 | Echo Reply Packet | Network | Echo reply packet received from 10.0.0.5 |

Таблица 11 – Отправка Echo-запроса с PC3 на PC2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 23:54:28-754 | pc3 | Echo Request Packet | Network | Created Echo Request packet to 10.0.0.130 |
| 23:54:28-754 | pc3 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.195 |
| 23:54:28-754 | pc3 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 23:54:28-754 | pc3 | Ethernet Packet | Link | Sending packet from interface 44:2E:86:37:A0:4F |
| 23:54:28-754 | R3 | Ethernet Packet | Link | Recieved and accepted packet at interface BB:BA:5B:49:5E:C2 |
| 23:54:28-754 | R3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:54:28-754 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface B4:BF:A1:1D:A5:46 |
| 23:54:28-754 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:54:28-754 | R2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:54:28-754 | R2 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.194 |
| 23:54:28-754 | R2 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.194). |
| 23:54:28-754 | R2 | Ethernet Packet | Link | Sending packet from interface B4:BF:A1:1D:A5:46 |
| 23:54:28-754 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 44:2E:86:37:A0:4F |
| 23:54:28-754 | pc3 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:54:28-754 | pc3 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:54:28-754 | R5 | Ethernet Packet | Link | Recieved and dropped packet at interface 39:31:1A:A8:5B:A5 |
| 23:54:28-754 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface BB:BA:5B:49:5E:C2 |
| 23:54:28-754 | R1 | Ethernet Packet | Link | Recieved and dropped packet at interface 78:49:89:94:61:6B |
| 23:54:28-754 | R1 | Ethernet Packet | Link | Recieved and accepted packet at interface 78:49:89:94:61:6B |
| 23:54:28-754 | R1 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:54:28-754 | R5 | Ethernet Packet | Link | Recieved and accepted packet at interface 39:31:1A:A8:5B:A5 |
| 23:54:28-754 | R5 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:54:28-754 | pc3 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.195). |
| 23:54:28-754 | pc3 | Ethernet Packet | Link | Sending packet from interface 44:2E:86:37:A0:4F |
| 23:54:28-754 | R3 | Ethernet Packet | Link | Recieved and dropped packet at interface BB:BA:5B:49:5E:C2 |
| 23:54:28-754 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface B4:BF:A1:1D:A5:46 |
| 23:54:28-754 | R2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:54:28-754 | R2 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 23:54:28-754 | R2 | ARP Discovery Packet | DataLink | Created ARP discovery packet to source MAC address for IP 10.0.0.130 |
| 23:54:28-754 | R2 | ARP\_packet | Network | Sending broadcast packet from ProtocolStack. |
| 23:54:28-754 | R2 | Ethernet Packet | Link | Sending packet from interface 3D:16:97:47:20:3E |
| 23:54:28-754 | pc2 | Ethernet Packet | Link | Recieved and accepted packet at interface 7A:31:82:C1:98:A7 |
| 23:54:28-754 | pc2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:54:28-754 | pc2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:54:28-754 | pc2 | ARP Response Packet | DataLink | Created ARP Response packet to 10.0.0.129 |
| 23:54:28-754 | pc2 | ARP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.129). |
| 23:54:28-754 | pc2 | Ethernet Packet | Link | Sending packet from interface 7A:31:82:C1:98:A7 |
| 23:54:28-754 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface 3D:16:97:47:20:3E |
| 23:54:28-754 | R2 | ARP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:54:28-754 | R2 | ARP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:54:28-754 | R2 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.130). |
| 23:54:28-754 | R2 | Ethernet Packet | Link | Sending packet from interface 3D:16:97:47:20:3E |
| 23:54:28-754 | pc2 | Ethernet Packet | Link | Recieved and accepted packet at interface 7A:31:82:C1:98:A7 |
| 23:54:28-754 | pc2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:54:28-754 | pc2 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:54:28-754 | pc2 | Echo Reply Packet | Network | Created Echo Reply packet to 10.0.0.194 |
| 23:54:28-754 | pc2 | ICMP\_packet | Network | Sending packet from ProtocolStack (to 10.0.0.129). |
| 23:54:28-754 | pc2 | Ethernet Packet | Link | Sending packet from interface 7A:31:82:C1:98:A7 |
| 23:54:28-754 | R2 | Ethernet Packet | Link | Recieved and accepted packet at interface 3D:16:97:47:20:3E |
| 23:54:28-754 | R2 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:54:28-754 | R2 | ICMP\_packet | Network | Packet Received: Network Layer Device is Routable forwarding packet. |
| 23:54:28-754 | R2 | ICMP\_packet | Network | Forwarding packet from ProtocolStack(to 10.0.0.194). |
| 23:54:28-754 | R2 | Ethernet Packet | Link | Sending packet from interface B4:BF:A1:1D:A5:46 |
| 23:54:28-754 | pc3 | Ethernet Packet | Link | Recieved and accepted packet at interface 44:2E:86:37:A0:4F |
| 23:54:28-754 | pc3 | ICMP\_packet | Network | ProtocolStack received packet from local Interface. |
| 23:54:28-754 | pc3 | ICMP\_packet | Network | Confirmed Packet is for this Network Layer Device. |
| 23:54:28-754 | pc3 | Echo Reply Packet | Network | Echo reply packet received from 10.0.0.130 |

Как видно из выводов программы, на все Echo-запросы пришли ответы, следовательно, сеть настроена верно и нет необходимости настраивать таблицы для маршрутизации.

**Выводы.**

В процессе выполнения данной лабораторной работы были изучены методы статической маршрутизации в IP-сетях и управление таблицами маршрутизации на узлах сетевого уровня.