МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ

НАЦІОНАЛЬНИЙ ТЕХНІЧНИЙ УНІВЕРСИТЕТ

«ХАРКІВСЬКИЙ ПОЛІТЕХНІЧНИЙ ІНСТИТУТ»

Кафедра «Програмна інженерія та інформаційні технології управління»

Звіт з лабораторної роботи №2

З предмету «Мережеві технології»

Виконав

Студент групи КН-36а

Рубан Ю.Д.

Перевірив:

Кондратов О.М.

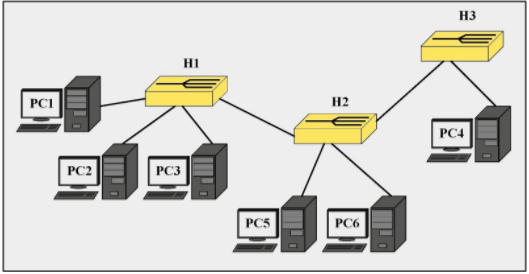
Харків

2017

**Тема:** Объединение удаленных узлов на основе концентраторов локальных вычислительных сетей

**Цели:** Лабораторная работа преследует цели закрепления теоретического материала по назначению и принципам функционирования концентраторов в структурированных локальных вычислительных сетях.

**Задачи:** Используя топологию сети, изображенную на рис.[11](https://docs.google.com/document/d/1YuZUhCSaK_EO0ZVDz6Fxw9HgFxk1KU8q2VoDt7TnD5A/edit#bookmark=id.32hioqz), необходимо создать проект виртуальной ЛВС, и расположив элементы проектируемой сети (удаленные рабочие станции и концентраторы), структурировать ее на основе 8 портовых концентраторов. На заключительном этапе произвести конфигурирование IP-адресов рабочих станций.



*Рисунок 11* Топология виртуальной сети 2

**Ход выполнения работы:**

1. Добавлено шесть узлов удаленных рабочих станций и три устройства **«Концентратор».** Объединены удаленные узлы и соответствующие порты концентраторов отрезками кабеля **«Патчкорд».**
2. Используя адреса из диапазона 1(192.168.2.0/24), назначен каждой рабочей станции соответствующий IP-адрес (ifconfig).
3. С помощью утилиты командной строки ping, проверена доступность всех удаленных узлов с рабочей станции *PC3.*
4. На отчете проекта выделить границы широковещательного домена и привести их объяснение.

XML – Дополнение

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<socketShape id="13" x="251" y="216" devId="5" />

<socketShape id="14" x="259" y="216" devId="6" />

<socketShape id="15" x="267" y="216" devId="7" />

<socketShape id="16" x="275" y="216" devId="8" />

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<port id="42" />

<port id="43" />

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<socketShape id="48" x="517" y="151" devId="40" />

<socketShape id="49" x="525" y="151" devId="41" />

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<socketShape id="51" x="541" y="151" devId="43" />

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<eth id="63" name="eth0" status="1" mac="0:0:0:0:3D:0" ip4="192.168.2.4" ip4bcast="192.168.2.255" ip4mask="255.255.255.0" bandwidth="0" />

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<eth id="105" name="eth0" status="1" mac="0:0:0:0:67:0" ip4="192.168.2.6" ip4bcast="192.168.2.255" ip4mask="255.255.255.0" bandwidth="0" />

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</routingTable>

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<eth id="111" name="eth0" status="1" mac="0:0:0:0:6D:0" ip4="192.168.2.3" ip4bcast="192.168.2.255" ip4mask="255.255.255.0" bandwidth="0" />

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</desktopShape>

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</routingTable>

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</desktopShape>

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</project>

HTML – Дополнение

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<head>

<META http-equiv="Content-Type" content="text/html; charset=UTF-8">

<title>NET-Simulator Project Report</title>

</head>

<body>

<h1>NET-Simulator Project Report</h1>

<strong>Project file:</strong> C:\Users\РґРёРјР°\Documents\lab2<br>

<strong>Author:</strong>

<br>

<strong>Description:</strong>

<br>

<strong>Project created at:</strong>

<br>

<strong>Report generated at:</strong> 2017-9-24 23:5:44<br>

<img alt="" src="lab2\_html.png"><br>

<h2>Hub</h2>

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<th width="20%" align="left">Name:</th><td>HUB 0</td>

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<tr>

<th width="20%" align="left">Description:</th><td>&nbsp;</td>

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<h2>Hub</h2>

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<tr>

<th width="20%" align="left">Name:</th><td>HUB 1</td>

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<th width="20%" align="left">Description:</th><td>&nbsp;</td>

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<h2>Hub</h2>

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<tr>

<th width="20%" align="left">Name:</th><td>HUB 2</td>

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<tr>

<th width="20%" align="left">Description:</th><td>&nbsp;</td>

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<tr>

<th width="20%" align="left">Name:</th><td>Desktop 3</td>

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<th width="20%" align="left">Description:</th><td>&nbsp;</td>

</tr>

</table>

<h3>Interfaces:</h3>

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<tr>

<th>Name</th><th>Status</th><th>IP Address</th><th>Netmask</th><th>Broadcast</th>

</tr>

<tr>

<td>eth0</td><td>UP</td><td>192.168.2.5</td><td>255.255.255.0</td><td>192.168.2.255</td>

</tr>

</table>

<h3>Routing table:</h3>

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<tr>

<th>Target</th><th>Netmask</th><th>Gateway</th><th>Metric</th><th>Interface</th>

</tr>

<tr>

<td>192.168.2.0</td><td>255.255.255.0</td><td>\*</td><td align="right">1</td><td>eth0</td>

</tr>

</table>

<h2>Desktop</h2>

<table cellpadding="1" cellspacing="0" border="1" width="600">

<tr>

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<tr>

<th width="20%" align="left">Description:</th><td>&nbsp;</td>

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<h3>Interfaces:</h3>

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<tr>

<th>Name</th><th>Status</th><th>IP Address</th><th>Netmask</th><th>Broadcast</th>

</tr>

<tr>

<td>eth0</td><td>UP</td><td>192.168.2.4</td><td>255.255.255.0</td><td>192.168.2.255</td>

</tr>

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<h3>Routing table:</h3>

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<tr>

<th>Target</th><th>Netmask</th><th>Gateway</th><th>Metric</th><th>Interface</th>

</tr>

<tr>

<td>192.168.2.0</td><td>255.255.255.0</td><td>\*</td><td align="right">1</td><td>eth0</td>

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<tr>

<th>Name</th><th>Status</th><th>IP Address</th><th>Netmask</th><th>Broadcast</th>

</tr>

<tr>

<td>eth0</td><td>UP</td><td>192.168.2.6</td><td>255.255.255.0</td><td>192.168.2.255</td>

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</table>

<h3>Routing table:</h3>

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<tr>

<th>Target</th><th>Netmask</th><th>Gateway</th><th>Metric</th><th>Interface</th>

</tr>

<tr>

<td>192.168.2.0</td><td>255.255.255.0</td><td>\*</td><td align="right">1</td><td>eth0</td>

</tr>

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<tr>

<th>Name</th><th>Status</th><th>IP Address</th><th>Netmask</th><th>Broadcast</th>

</tr>

<tr>

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<tr>

<th>Target</th><th>Netmask</th><th>Gateway</th><th>Metric</th><th>Interface</th>

</tr>

<tr>

<td>192.168.2.0</td><td>255.255.255.0</td><td>\*</td><td align="right">1</td><td>eth0</td>

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<tr>

<th>Name</th><th>Status</th><th>IP Address</th><th>Netmask</th><th>Broadcast</th>

</tr>

<tr>

<td>eth0</td><td>UP</td><td>192.168.2.2</td><td>255.255.255.0</td><td>192.168.2.255</td>

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</table>

<h3>Routing table:</h3>

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<tr>

<th>Target</th><th>Netmask</th><th>Gateway</th><th>Metric</th><th>Interface</th>

</tr>

<tr>

<td>192.168.2.0</td><td>255.255.255.0</td><td>\*</td><td align="right">1</td><td>eth0</td>

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<tr>

<th>Name</th><th>Status</th><th>IP Address</th><th>Netmask</th><th>Broadcast</th>

</tr>

<tr>

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<h3>Routing table:</h3>

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<tr>

<th>Target</th><th>Netmask</th><th>Gateway</th><th>Metric</th><th>Interface</th>

</tr>

<tr>

<td>192.168.2.0</td><td>255.255.255.0</td><td>\*</td><td align="right">1</td><td>eth0</td>

</tr>

</table>

</body>

</html>

**Выводы:** В данной лабораторной работе я закрепил теоретический материал по использованию концентраторов в компьютерных сетях.