Experiment: Implementation of Network through OPNET Network Simulator.

Software: OPNET 14.5 /17.5

Apparatus:

Personal Computer / Laptop

OPNET 14.5 /17.5

Introduction:

OPNET stood for Optimized Network Engineering Tools. OPNET Network simulator is a tool to simulate the behavior and performance of any type of network. The main difference Opnet Network Simulator comparing to other simulators lies in its power and versatility.

Procedure:

1. Start OPNET Modeler 14.5 ⇒ Choose New from the File menu.

2. Select Project and click OK ⇒Name the project <your initials>\_SN, and the scenario Simple Network ⇒ Click OK.

3. In the Startup Wizard: Initial Topology dialog box, make sure that Create Empty Scenario is selected ⇒ Click Next ⇒ Choose World ⇒ Click Next twice ⇒Click OK.

1. Create a new Project.
2. Initialize the Network
3. Application and profile Configuration
4. Developing Traffic.
5. Collect Statics.

TASK:

Perform the above mentioned steps in detail through OPNET Network Simulator & record the results.

After performing this experiment the students will understand how a network will be implemented through an OPNET Network Simulator.

**Implementation of Network through OPNET**

**Objective:**

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**Procedure:**

1. Start **OPNET Modeler 14.5** ⇒ Choose **New** from the **File** menu.
2. Select **Project** and click **OK** ⇒**Name** the project **<your initials>\_SN**, and the scenario **Simple** **Network** ⇒Click **OK**.
3. In the **Startup Wizard: Initial Topology dialog box**, make sure that **Create Empty Scenario** is selected ⇒ Click **Next** ⇒ Choose **World** ⇒ **Click Next twice** ⇒**Click OK**.

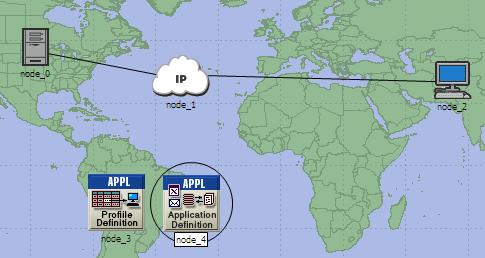
**Initialize the Network:**

1. The **Object Palette** dialog box should be now on the top of your project space. Make sure that the **internet\_toolbox** is selected from the pull-down menu on the object palette.
2. Add to the project workspace the following objects from the palette: **Application Config, Profile**

**Config, PPP\_Server, PPP\_wkstn, IP32\_Cloud.**

1. Connect **PPP\_Server** and **PPP\_wkstn** via **ip32\_Cloud** using **PPP\_DS3 cable.**

a. To add an object from a palette, click its icon in the object palette ⇒ Move your mouse to the workspace ⇒ Left-click to place the object. Right-click when finished. The workspace should contain the following three objects:



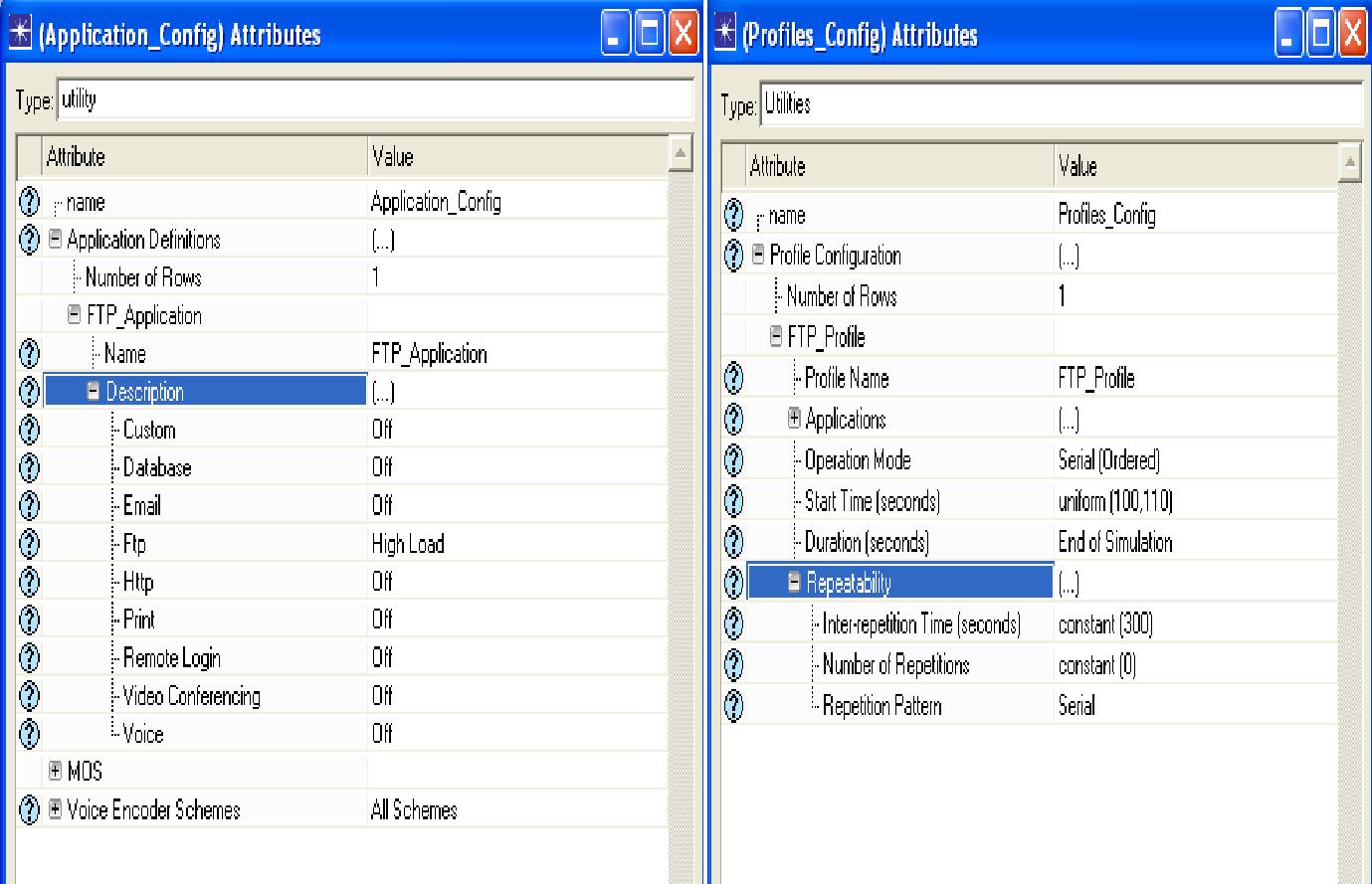
**Application and Profile Configuration:**

1. Right-click on the **Application Config node** ⇒ **Edit Attributes** ⇒Change the **name** attribute to

**Applications\_Config.** Click on the tab in front of **Application Definitions** and select **Edit** ⇒Rows⇒1.

Under the **Name** ⇒ **FTP\_Application,** under the description select **Edit** ⇒ **FTP** ⇒ **High Load.** Press **OK** three times.

2. Right-click on the **Profile Config node** ⇒ **Edit Attributes** ⇒ Change the **name** attribute to **Profiles\_Config.** Click on the tab in front of **Profile Configuration** and select **Edit**. Under the ProfileName ⇒ **FTP\_Profile,** Under **Applications** select **Edit** ⇒ **Name** ⇒ **FTP\_Application.** Click **OK** three times.



**Deploying Traffic:**

To deploy the configured profile to the network, follow the following procedure.

1. **Protocol** ⇒ **Applications** ⇒**Deploy Defined Applications**.
2. Select all mobile nodes and transfer to sources under your profile.
3. Select the server and transfer to server under application: **FTP\_Application.**
4. Click Apply and then OK to complete the deployment.

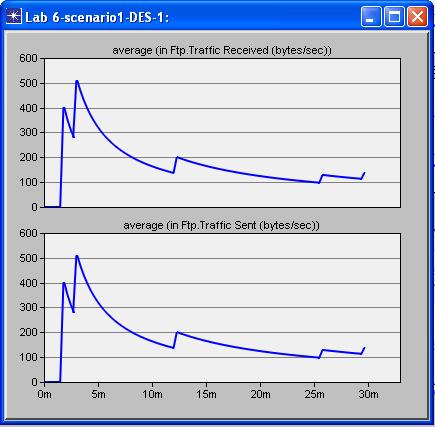
**Collect Statistics:**

The following procedure should be followed to collect global statistics for all the nodes.

1. Click **DES** ⇒ **Choose individual statistics**.
2. Expand **global statistics** and choose **FTP** ⇒ **Traffic Received (Bytes/S) and Traffic Sent**

**(Bytes/S).**

3. Click OK and save



**Lab Task:**

*Perform the above mentioned steps in OPNET and attach the output*

**Conclusion:**

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