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| **Assignment #3**  **ELG 5383 – Survivable Optical Networks** |
| Winter 2015  Submitted To    Professor Hussein T. Mouftah  By  **Ferhan Jamal (100 953 487-Carleton University)** |

**Question**

Use WACOSOD simulation tool to compare and analyze the performance of

the Wavelength-Convertible (WC) Optical Switch Architectures ( Dedicated,

per node, per link, electronic, and half clear) in terms of the blocking probability

gain and cost gain in WDM wavelength-routed optical networks. Use WACOSOD

to find the best degree of wavelength conversion (X%) for both the NSF network

and the EON, under the First-fit Wavelength Assignment scheme with the

traffic sorted in the increasing order of traffic demands as well as with the

decreasing order of traffic demands.

**Answer:**

Following is the graph of the Blocking Probability with Number of Wavelengths:

Following is the graph of Gain Ratio:

The following table gives the best degree of Wavelength Conversion ( X% ) :

**Traffic Generation Model (Uniform)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Traffic Factors | NSF with RWA  Scheme1 | NSF with RWA  Scheme2 | EON with RWA Scheme1 | EON with RWA Scheme2 |
| 1.0 | 10% | 20% | 10% | 20% |
| 0.2 | 20% | 20% | 50% | 30% |
| 0.5 | 30% | 40% | 20% | 50% |
| 0.7 | 10% | 30% | 10% | 20% |
| 0.5 | 30% | 40% | 20% | 50% |

**Traffic Generation Model (Non Uniform)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Traffic Factors | NSF with RWA  Scheme1 | NSF with RWA  Scheme2 | EON with RWA Scheme1 | EON with RWA Scheme2 |
| 1.0 | 10% | 20% | 10% | 20% |
| 0.2 | 10% | 20% | 10% | 10% |
| 0.5 | 10% | 20% | 10% | 10% |
| 0.7 | 10% | 20% | 10% | 10% |
| 0.5 | 10% | 20% | 10% | 10% |