

Eigrp Wide metric calculation:

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When interface < 1 GB

|                     |                      |
|---------------------|----------------------|
| EIGRP_BANDWIDTH     | 10,000,000           |
| EIGRP_DELAY_PICO    | 1,000,000            |
| EIGRP_INACCESSIBLE  | 0xFFFFFFFFFFFFFFFFLL |
| EIGRP_MAX_HOPS      | 100                  |
| EIGRP_CLASSIC_SCALE | 256                  |
| EIGRP_WIDE_SCALE    | 65536                |

$$\text{Max-Throughput} = K1 * \frac{(\text{EIGRP\_BANDWIDTH} * \text{EIGRP\_WIDE\_SCALE})}{\text{Interface Bandwidth (kbps)}}$$

$$= 1 * \frac{(10,000,000 * 65536)}{10000}$$

$$= 6,55,36,00,00,000 / 10000$$

$$= 6,55,36,000$$

Delay = 1000 + 1000 = 2000 x 10^6

$$\text{latency} = K3 * \frac{(\text{Delay in pico sec} * \text{Eigrp\_Wide\_scale})}{\text{EIGRP\_DELAY\_PICO}}$$

$$= 1 * \frac{(2,00,00,00,000 * 65536)}{1000000}$$

$$= 13,10,72,00,00,000 / 1000000$$

$$= 13,10,72,000$$

$$\text{Wide metric} = \text{Throughput} + \text{latency}$$

$$= 6,55,36,000 + 13,10,72,000$$

$$= 19,66,08,000 \text{ (64 bit wide metric)}$$

$$= 19,66,08,000 / 128$$

$$= 15,36,000$$

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When interface > 1 GB

|                     |                      |
|---------------------|----------------------|
| EIGRP_BANDWIDTH     | 10,000,000           |
| EIGRP_DELAY_PICO    | 1,000,000            |
| EIGRP_INACCESSIBLE  | 0xFFFFFFFFFFFFFFFFLL |
| EIGRP_MAX_HOPS      | 100                  |
| EIGRP_CLASSIC_SCALE | 256                  |
| EIGRP_WIDE_SCALE    | 65536                |

$$\text{Max-Throughput} = K1 * \frac{(\text{EIGRP\_BANDWIDTH} * \text{EIGRP\_WIDE\_SCALE})}{\text{Interface Bandwidth (kbps)}}$$

Lo0 = 8000000 Kbit/sec  
Po1 = 2000000 Kbit/sec

$$= 1 * \frac{(10,000,000 * 65536)}{2000000}$$

$$=3,27,680$$

latency for interfaces > 1GB

$$10^{13}/\text{interface BW}$$

$$10^{13}/8000000 + 10^{13}/2000000$$

$$12,50,000 + 50,00,000$$

Delay=62,50,000 in pico sec

$$(62,50,000 * 65536)/1000000$$

$$4,09,60,00,00,000/1000000$$

$$4,09,600$$

Wide metric=Throughput + latency

$$=3,27,680 + 4,09,600$$

Wide metric =7,37,280 (64 bit metric)

$$=737280/128$$

$$=5,760$$