R Notebook

Importando librerias

```
library(ggplot2)
```

Cargando los datos resumen

```
# Cargando los datos resumen
iperf_summ.df <-read.csv("iperf_summ.csv", header=TRUE, sep = ';')
ping_summ.df <-read.csv("ping_summ.csv", header=TRUE, sep = ';')
```

Tabla resumen de cada replica para iperf

Imprimiendo los datos resumen de cada uno de los experimentos realizados:

```
# Informacion iperf
print(iperf_summ.df)
```

```
##         trat rep interval transfer   BW
## 1 ryu-normal   2 0.0-10.0    115.0 96.5
## 2 ryu-normal   1 0.0-10.0    115.0 96.5
## 3 ryu-ataque   1 0.0-10.0     63.4 53.0
## 4 ryu-ataque   2 0.0-10.0     74.6 62.5
```

```
# Resumen
summary(iperf_summ.df)
```

```
##          trat        rep          interval    transfer           BW
##  ryu-ataque:2   Min.   :1.0   0.0-10.0:4   Min.   : 63.4   Min.   :53.00
##  ryu-normal:2   1st Qu.:1.0                1st Qu.: 71.8   1st Qu.:60.12
##                 Median :1.5                Median : 94.8   Median :79.50
##                 Mean   :1.5                Mean   : 92.0   Mean   :77.12
##                 3rd Qu.:2.0                3rd Qu.:115.0   3rd Qu.:96.50
##                 Max.   :2.0                Max.   :115.0   Max.   :96.50
```

```
ryu_tratamientos_iperf <- levels(iperf_summ.df$trat)
ryu_normal_replicas_iperf <- subset(iperf_summ.df,trat=="ryu-normal")
ryu_ataque_replicas_iperf <- subset(iperf_summ.df,trat=="ryu-ataque")
```

Tratamiento ryu normal (metrica iperf)

```
print(ryu_normal_replicas_iperf)
```

```
##         trat rep interval transfer   BW
## 1 ryu-normal   2 0.0-10.0      115 96.5
## 2 ryu-normal   1 0.0-10.0      115 96.5
```

Tratamiento ryu ataque (metrica iperf)

```
print(ryu_ataque_replicas_iperf)
```

```
##         trat rep interval transfer   BW
## 3 ryu-ataque   1 0.0-10.0     63.4 53.0
## 4 ryu-ataque   2 0.0-10.0     74.6 62.5
```

Tabla resumen de cada replica para ping

```
# Informacion ping
print(ping_summ.df)
```

```
##         trat rep p_tx p_rx p_loss time rtt_min rtt_avg rtt_max rtt_mdev
## 1 ryu-ataque   1    4    4      0 3041   0.027   1.493   5.827    2.502
## 2 ryu-ataque   2    4    4      0 3051   0.027   2.889  11.404    4.916
## 3 ryu-normal   2    4    4      0 3060   0.017   0.021   0.025    0.005
## 4 ryu-normal   1    4    4      0 3069   0.024   0.026   0.033    0.007
```

```
# Resumen
summary(ping_summ.df)
```

```
##          trat        rep           p_tx        p_rx       p_loss
##  ryu-ataque:2   Min.   :1.0   Min.   :4   Min.   :4   Min.   :0
##  ryu-normal:2   1st Qu.:1.0   1st Qu.:4   1st Qu.:4   1st Qu.:0
##                 Median :1.5   Median :4   Median :4   Median :0
##                 Mean   :1.5   Mean   :4   Mean   :4   Mean   :0
##                 3rd Qu.:2.0   3rd Qu.:4   3rd Qu.:4   3rd Qu.:0
##                 Max.   :2.0   Max.   :4   Max.   :4   Max.   :0
##       time         rtt_min           rtt_avg           rtt_max
##  Min.   :3041   Min.   :0.01700   Min.   :0.02100   Min.   : 0.025
##  1st Qu.:3048   1st Qu.:0.02225   1st Qu.:0.02475   1st Qu.: 0.031
##  Median :3056   Median :0.02550   Median :0.75950   Median : 2.930
##  Mean   :3055   Mean   :0.02375   Mean   :1.10725   Mean   : 4.322
##  3rd Qu.:3062   3rd Qu.:0.02700   3rd Qu.:1.84200   3rd Qu.: 7.221
##  Max.   :3069   Max.   :0.02700   Max.   :2.88900   Max.   :11.404
##     rtt_mdev
##  Min.   :0.0050
##  1st Qu.:0.0065
##  Median :1.2545
##  Mean   :1.8575
##  3rd Qu.:3.1055
##  Max.   :4.9160
```

```
ryu_normal_replicas_ping <- subset(ping_summ.df,trat=="ryu-normal")
ryu_ataque_replicas_ping <- subset(ping_summ.df,trat=="ryu-ataque")
```

Tratamiento ryu normal (metrica ping)

```
print(ryu_normal_replicas_ping)
```

```
##         trat rep p_tx p_rx p_loss time rtt_min rtt_avg rtt_max rtt_mdev
## 3 ryu-normal   2    4    4      0 3060   0.017   0.021   0.025    0.005
```

```
## 4 ryu-normal   1    4    4      0 3069   0.024   0.026   0.033    0.007
```

Tratamiento ryu ataque (metrica iperf)

```
print(ryu_ataque_replicas_ping)
```

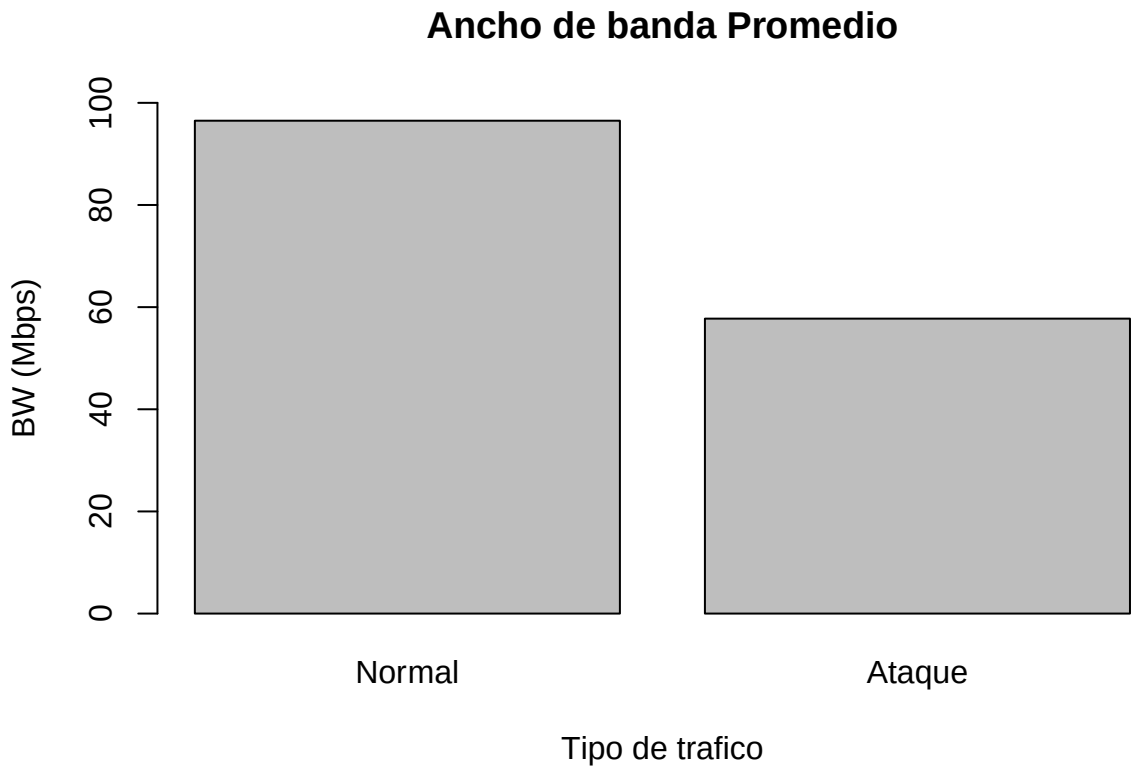
```
##         trat rep p_tx p_rx p_loss time rtt_min rtt_avg rtt_max rtt_mdev
## 1 ryu-ataque   1    4    4      0 3041   0.027   1.493   5.827    2.502
## 2 ryu-ataque   2    4    4      0 3051   0.027   2.889  11.404    4.916
```

Grafica de barras para el ancho de banda (BW)

```
BW_normal_avg <- mean(ryu_normal_replicas_iperf$BW)
BW_ataque_avg <- mean(ryu_ataque_replicas_iperf$BW)
```

A continuación se muestra el grafico de barras para el ancho de banda:

```
barplot(c(BW_normal_avg,BW_ataque_avg ), main="Ancho de banda Promedio",
        xlab="Tipo de trafico", ylim = c(0,100),
        ylab="BW (Mbps)", names.arg=c("Normal","Ataque"))
```



Referencias

Los siguientes enlaces pueden ser de mucha utilidad: 1. Producing Simple Graphs with R 2Graphical Parameters 3. How Big is Your Graph? An R Cheat Sheet 4. R Bar Plot