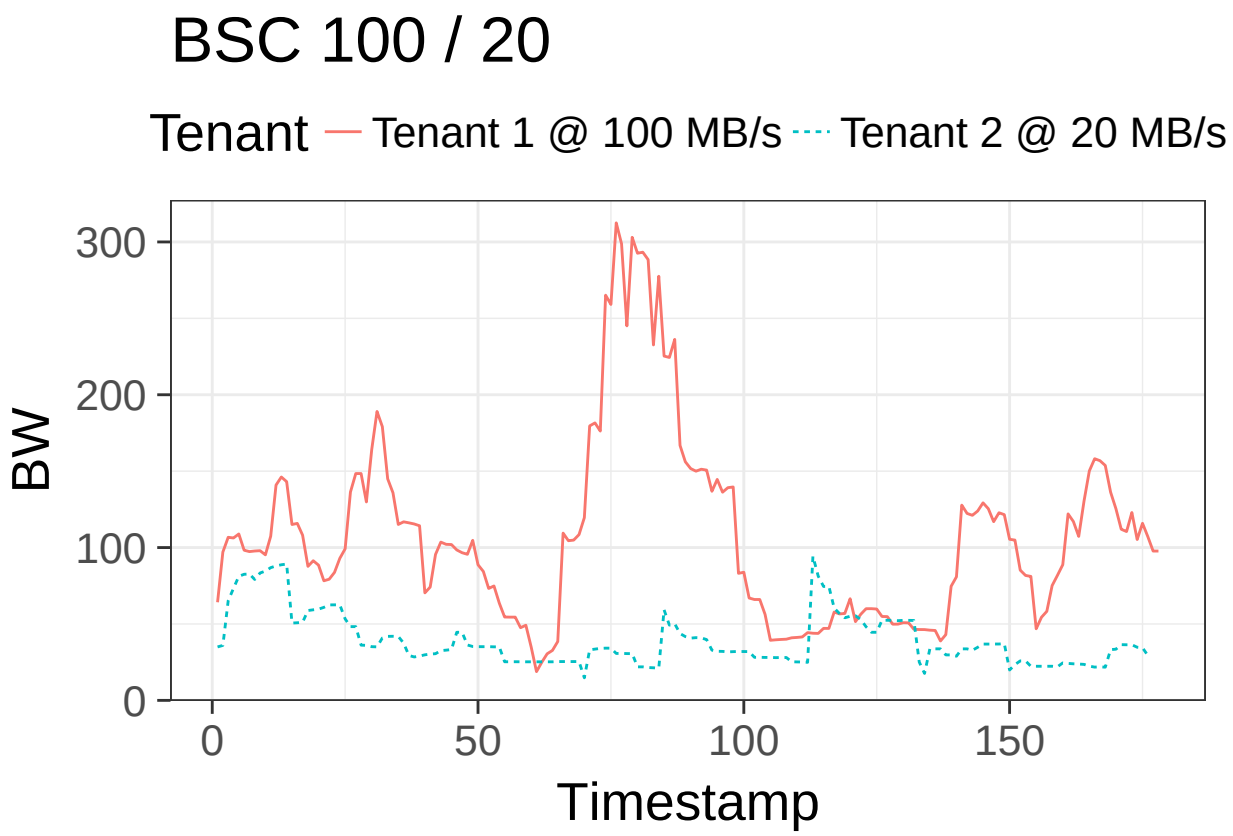
R Notebook

```
library(ggplot2)
library(reshape2)
library(doBy)
loadData <- function(FILE,desc,label1,label2)
{
d <- read.csv(FILE,header = FALSE)
if(label2 > label1)
{
  tmp <- label2
  label2 <- label1
  label1 <- tmp
  tmp <- d[1]
  d[1] <- d[2]
  d[2] <- tmp
}
d$TimeStamp <- 1:nrow(d)
names(d) <- c(paste("Tenant 1 @",label1,"MB/s"), paste("Tenant 2 @",label2,"MB/s"),"Timestamp")
d <- melt(d,id.vars=c("Timestamp"))
names(d) <- c("Timestamp","Tenant","BW")
d$desc <- desc
d$label1 <- label1
d$label2 <- label2
return (d)
}

loadData1 <- function(FILE,desc,label1)
{
d <- read.csv(FILE,header = FALSE)
d$TimeStamp <- 1:nrow(d)
names(d) <- c("Tenant 1", "Timestamp")
d <- melt(d,id.vars=c("Timestamp"))
names(d) <- c("Timestamp","Tenant","BW")
d$desc <- desc
return (d)
}

draw1 <- function(dades)
{
  ggplot(dades)+geom_line(aes(x=Timestamp,y=BW,colour=Tenant,linetype=Tenant))+theme_bw(base_size = 20)+
}
drawsmooth <- function(dades)
{
  ggplot(dades)+geom_smooth(aes(x=Timestamp,y=BW,colour=Tenant,linetype=Tenant), degree=0,
        span=0.05, se=FALSE)+theme_bw(base_size = 20)+labs(title=(dades$desc))+theme( legend.position =
}
draw2 <- function(dades)
{
  ggplot(dades)+geom_boxplot(aes(x=Tenant,y=BW))+theme_bw(base_size = 20)+labs(title=(dades$desc))
}
draw3 <- function(dades)
```

```
{
  ggplot(dades)+geom_violin(aes(x=Tenant,y=BW),draw_quantiles = c(0.5))+theme_bw(base_size = 20)+labs(t
}

draw4 <- function(dades)
{
  ggplot(dades,aes(colour=Tenant,x=BW,linetype=Tenant))+ stat_ecdf(geom = "step")+geom_vline(xintercept=
}
```

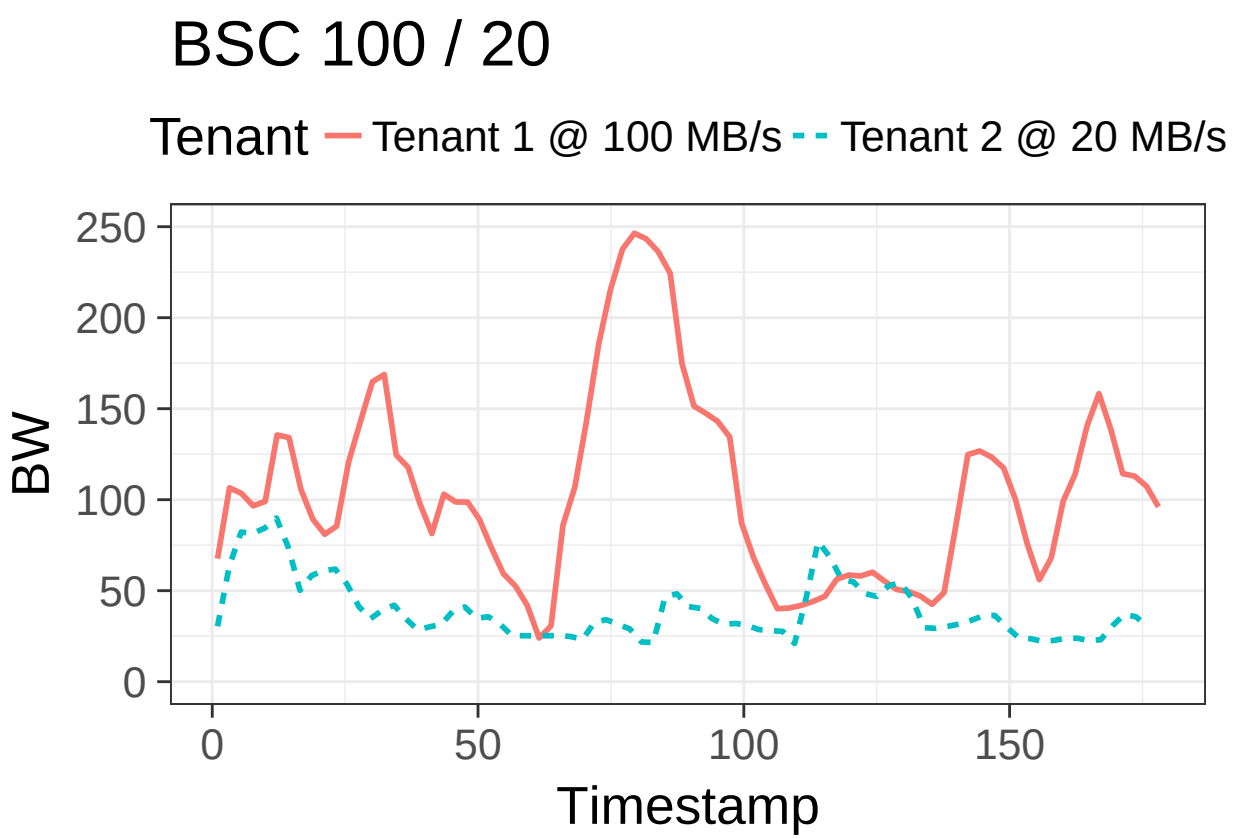
```
dades <- loadData("../log55/log55.csv","BSC 100 / 20",20,100)
draw1(dades)
```

```
## Warning: Removed 2 rows containing missing values (geom_path).
```




```
drawsmooth(dades)+scale_y_continuous(limits=c(0,250))
```

```
## Warning: Ignoring unknown parameters: degree

## `geom_smooth()` using method = 'loess'

## Warning: Removed 11 rows containing non-finite values (stat_smooth).

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 200

## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 200
```




```
pdf(file="BSCv2-100_20_Timeline.pdf",width = 7, height= 5)
drawsmooth(dades)+scale_y_continuous(limits=c(0,250))
```

```
## Warning: Ignoring unknown parameters: degree
```

```
## `geom_smooth()` using method = 'loess'
```

```
## Warning: Removed 11 rows containing non-finite values (stat_smooth).
```

```
## Warning: k-d tree limited by memory. ncmax= 200
```

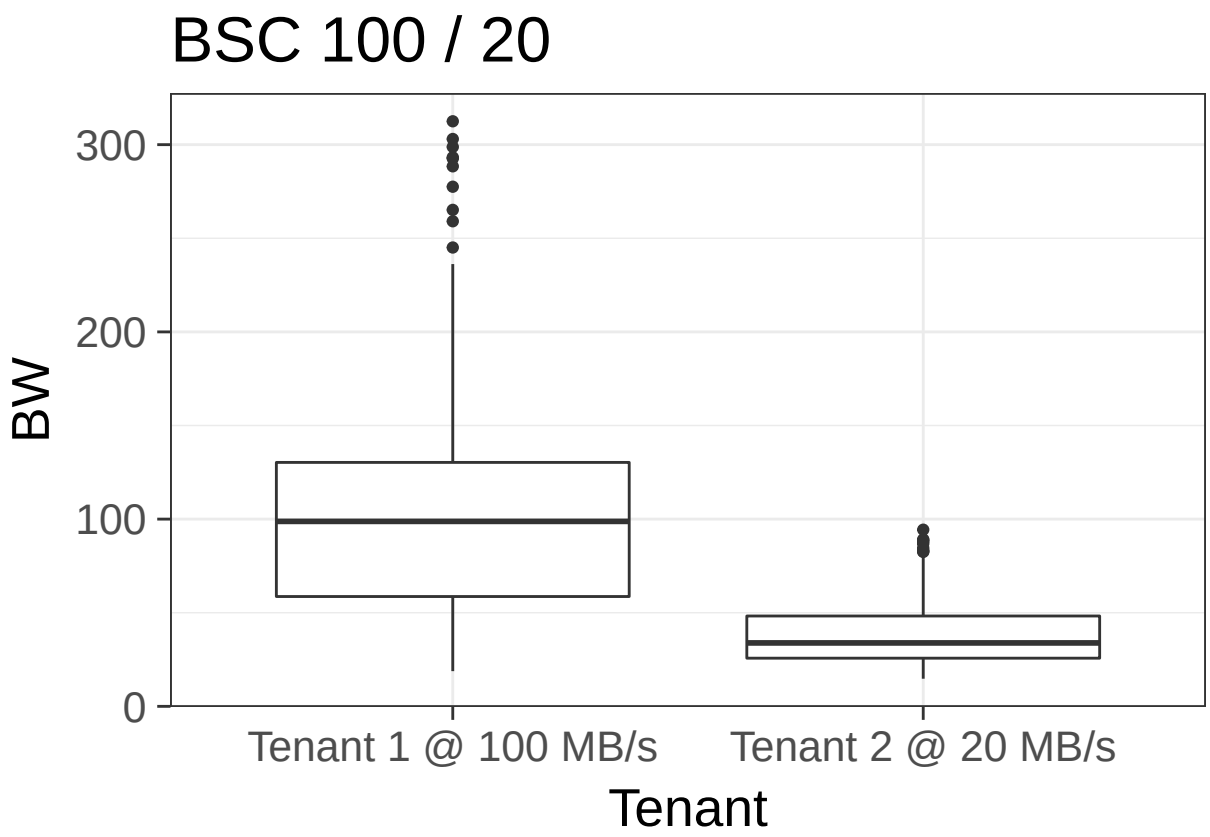
```
## Warning: k-d tree limited by memory. ncmax= 200
```

```
dev.off()
```

```
## pdf
##   2
```

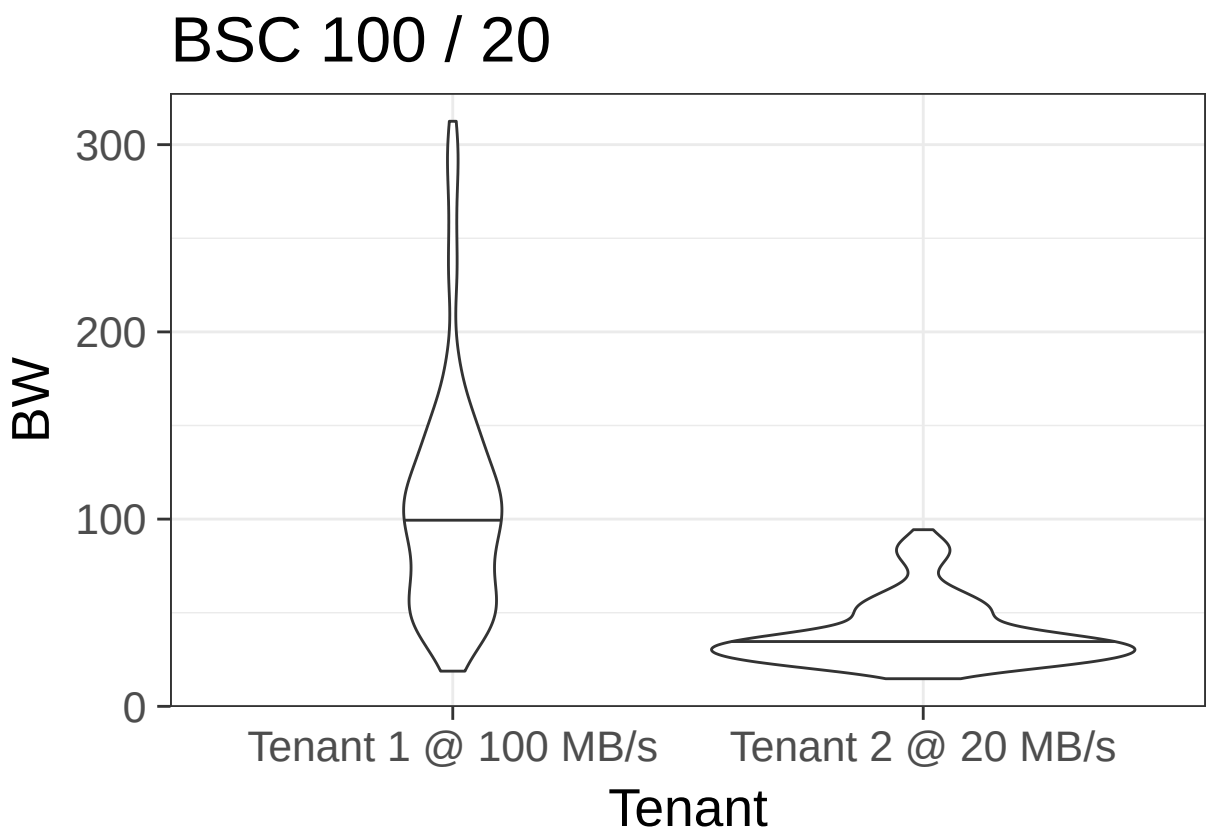
```
draw2(dades)
```

```
## Warning: Removed 2 rows containing non-finite values (stat_boxplot).
```



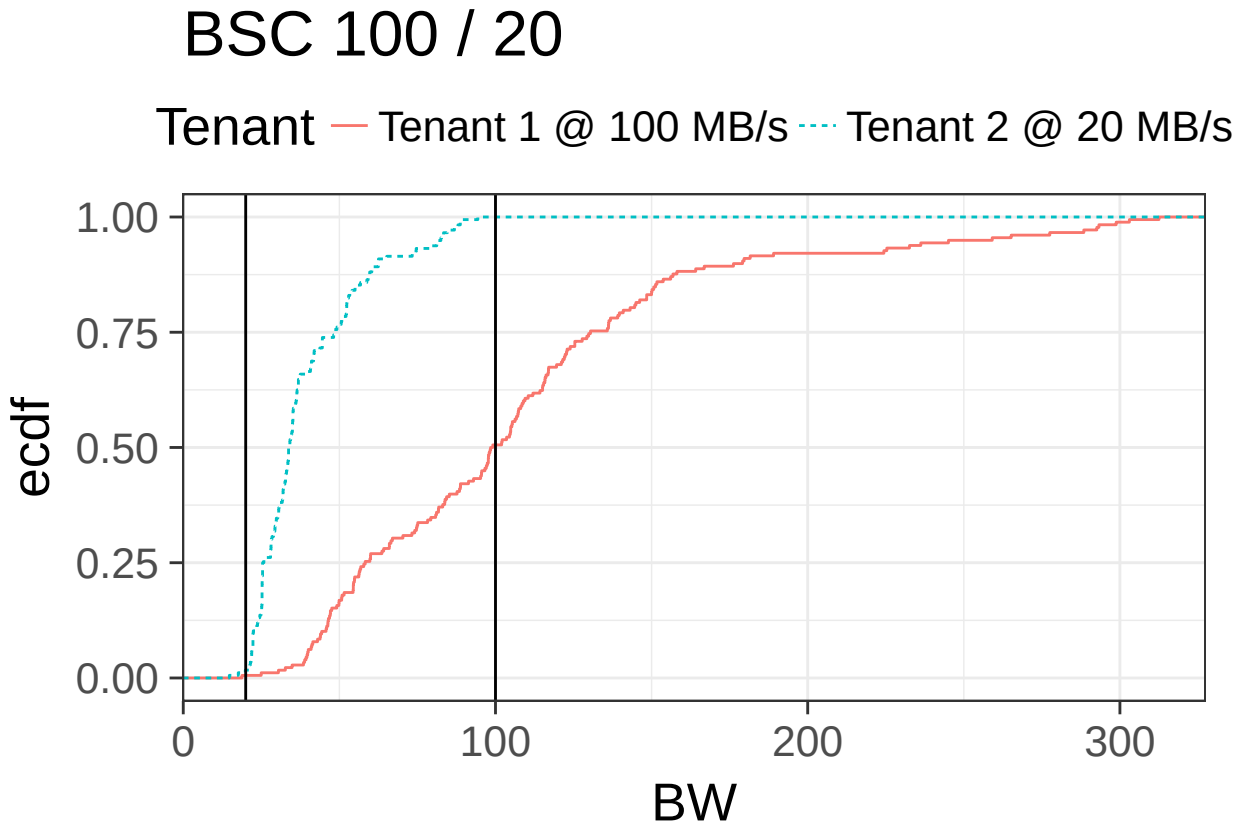

```
draw3(dades)
```

```
## Warning: Removed 2 rows containing non-finite values (stat_ydensity).
```




```
draw4(dades)
```

```
## Warning: Removed 2 rows containing non-finite values (stat_ecdf).
```




```
pdf(file="BSCv2-100_20_ECDF.pdf",width = 7, height= 5)
draw4(dades)+scale_x_continuous(limits=c(0,250))
```

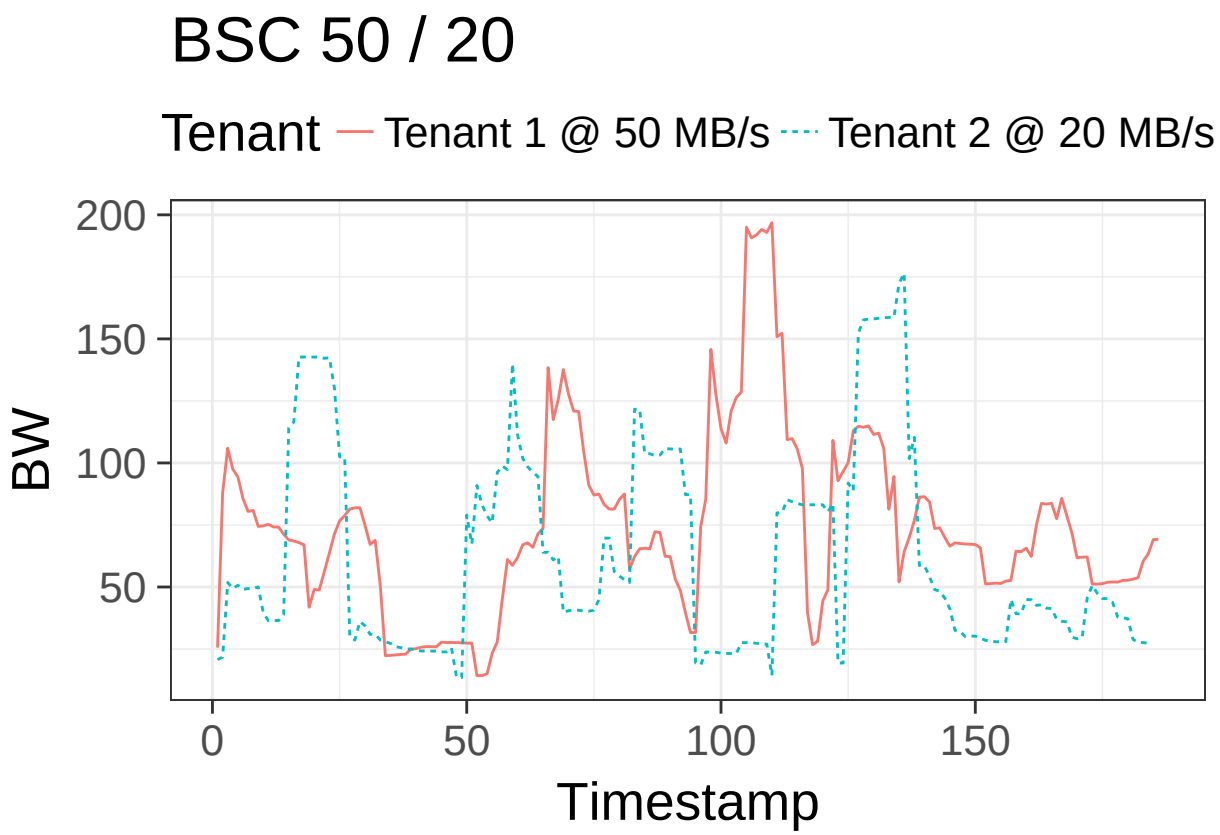
```
## Warning: Removed 11 rows containing non-finite values (stat_ecdf).
```

```
dev.off()
```

```
## pdf
##   2
```

```
dades <- loadData("../log58/log58.csv","BSC 50 / 20",20,50)
draw1(dades)
```

```
## Warning: Removed 2 rows containing missing values (geom_path).
```




```
drawsmooth(dades)+scale_y_continuous(limits=c(0,100))
```

```
## Warning: Ignoring unknown parameters: degree
```

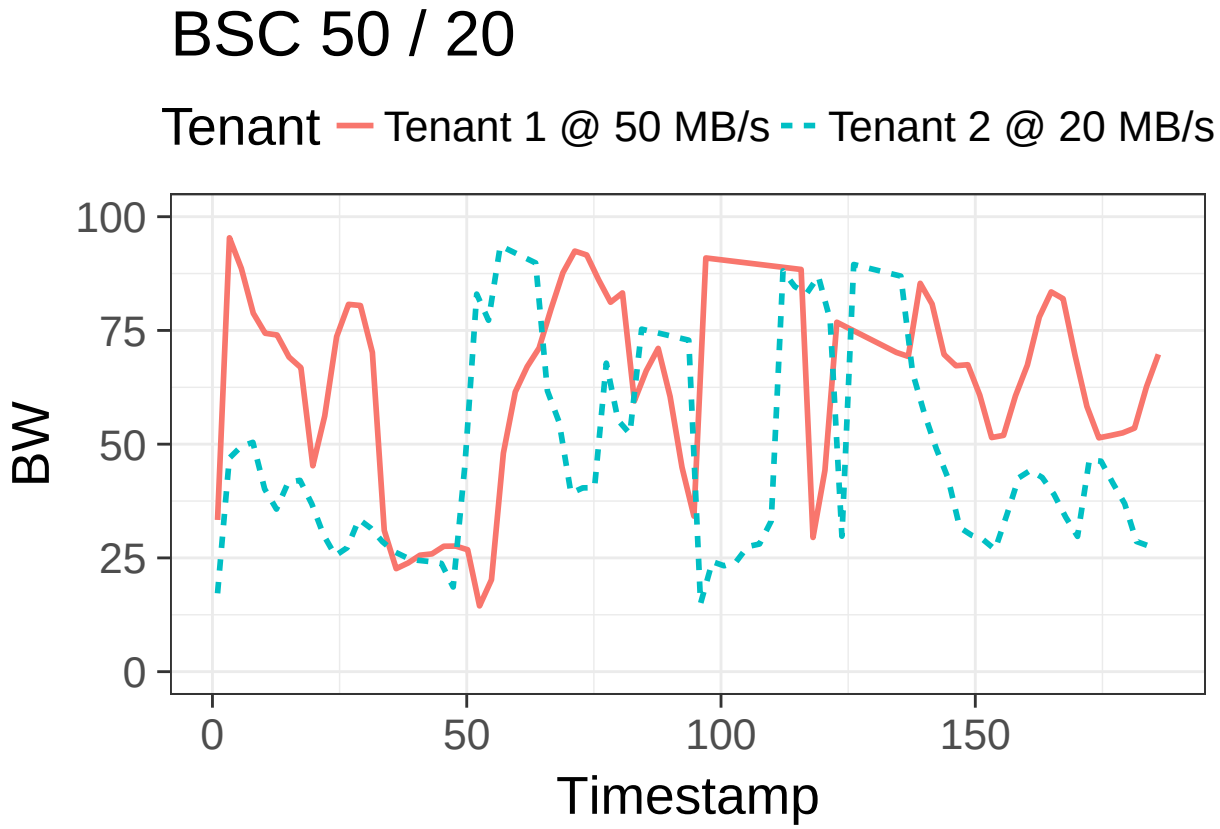
```
## `geom_smooth()` using method = 'loess'
```

```
## Warning: Removed 75 rows containing non-finite values (stat_smooth).
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 200
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 200
```

```
## Warning: Removed 19 rows containing missing values (geom_smooth).
```




```
pdf(file="BSCv2-50_20_Timeline.pdf",width = 7, height= 5)
drawsmooth(dades)+scale_y_continuous(limits=c(0,100))
```

```
## Warning: Ignoring unknown parameters: degree
```

```
## `geom_smooth()` using method = 'loess'
```

```
## Warning: Removed 75 rows containing non-finite values (stat_smooth).
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 200
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 200
```

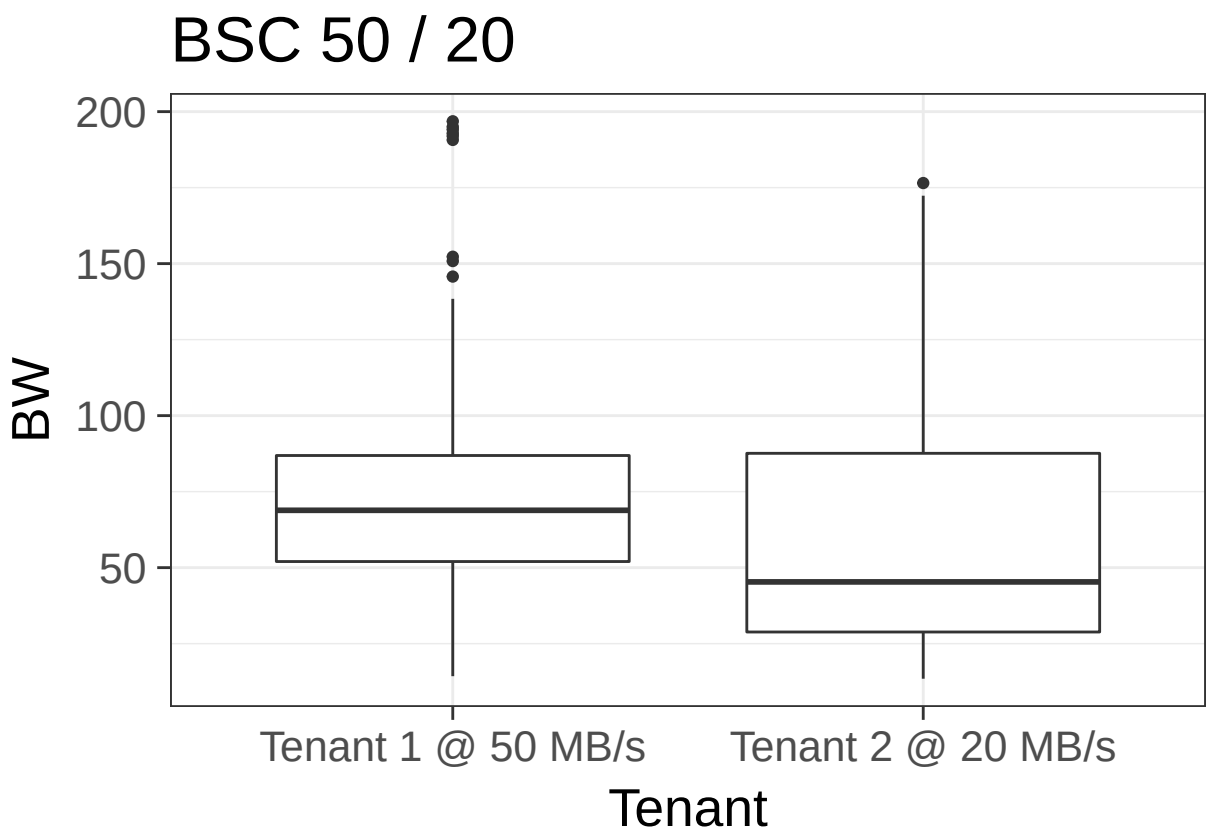
```
## Warning: Removed 19 rows containing missing values (geom_smooth).
```

```
dev.off()
```

```
## pdf
##   2
```

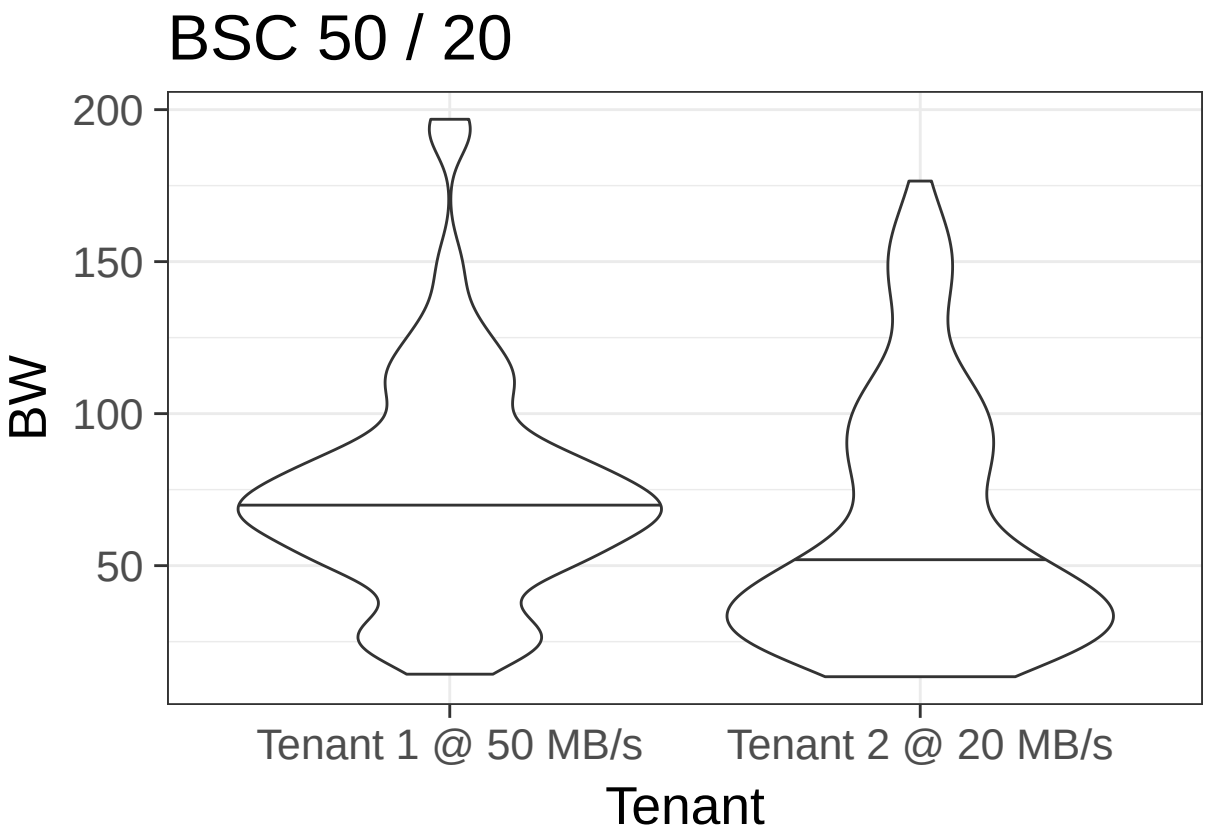
```
draw2(dades)
```

```
## Warning: Removed 2 rows containing non-finite values (stat_boxplot).
```



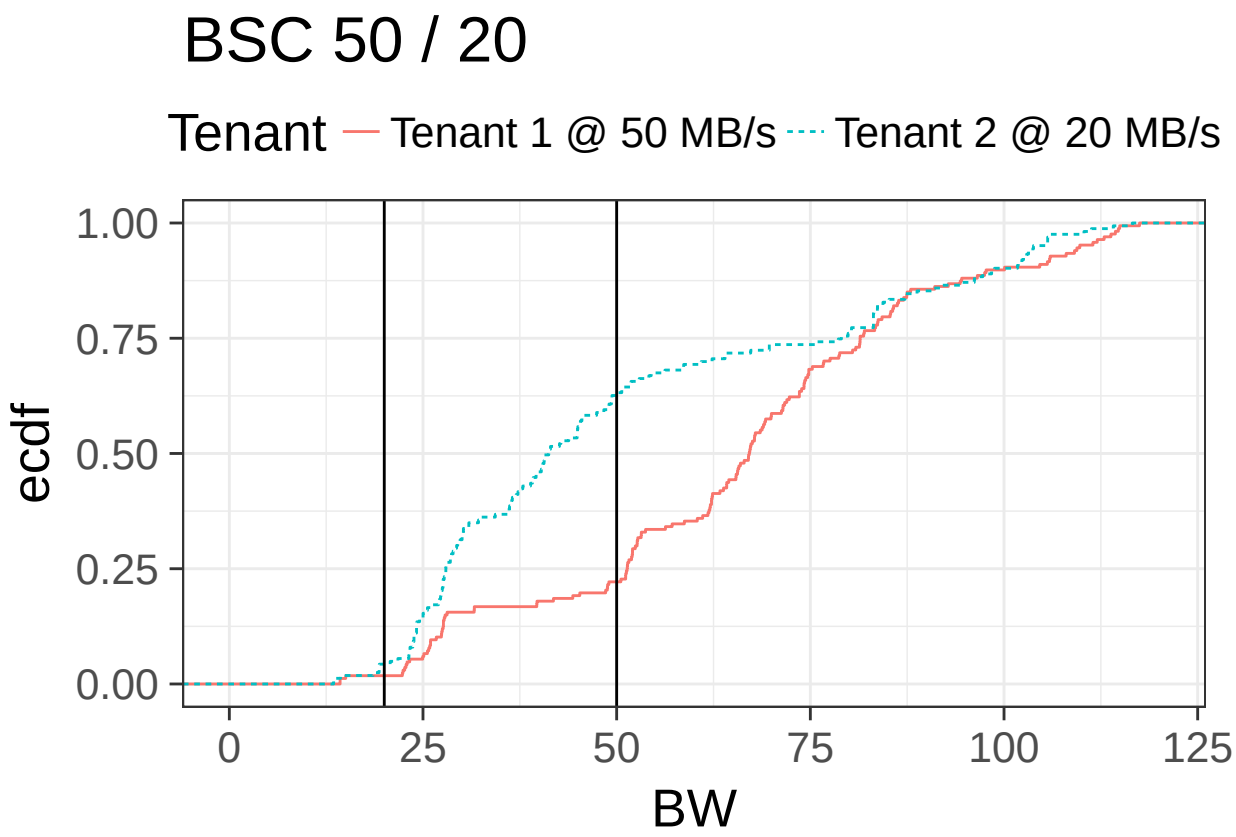

```
draw3(dades)
```

```
## Warning: Removed 2 rows containing non-finite values (stat_ydensity).
```




```
draw4(dades)+scale_x_continuous(limits=c(0,120))
```

```
## Warning: Removed 42 rows containing non-finite values (stat_ecdf).
```




```
pdf(file="BSCv2-50_20_ECDF.pdf",width = 7, height= 5)
draw4(dades)+scale_x_continuous(limits=c(0,120))
```

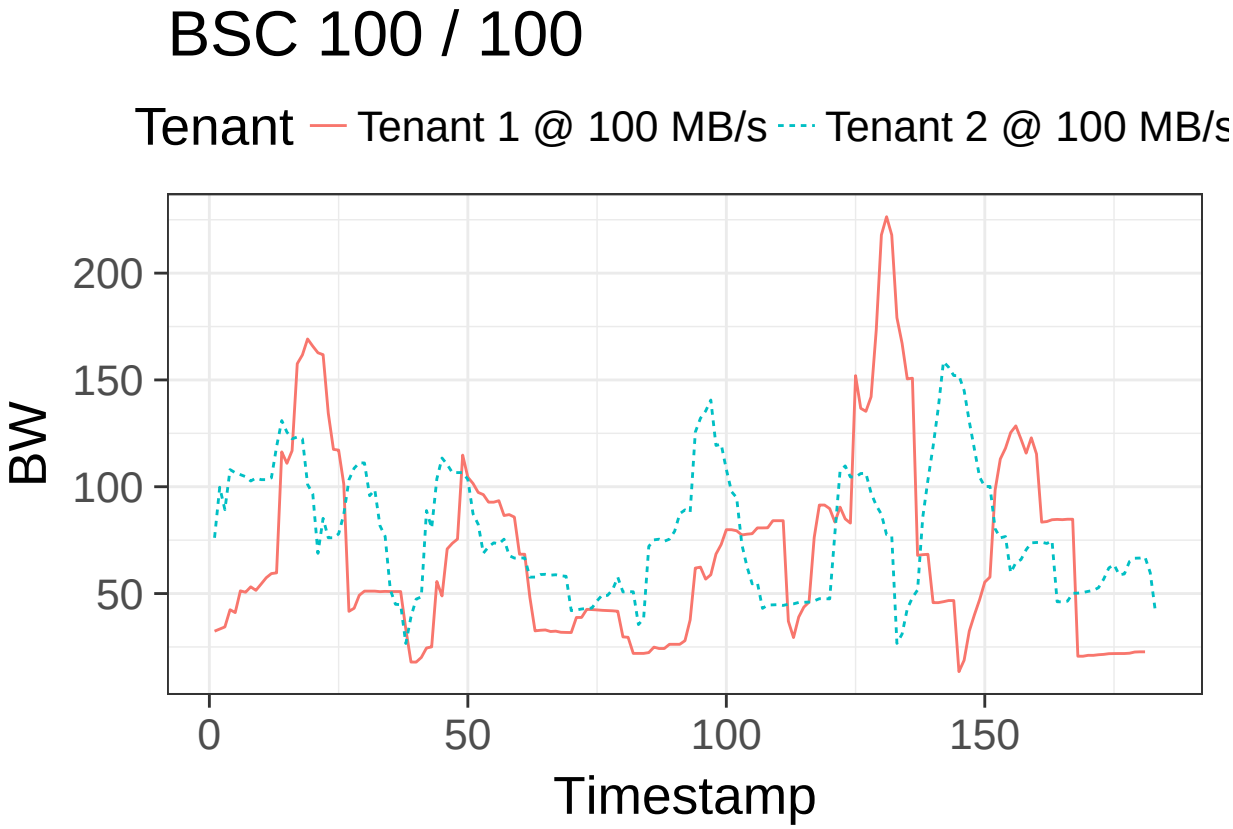
```
## Warning: Removed 42 rows containing non-finite values (stat_ecdf).
```

```
dev.off()
```

```
## pdf
##   2
```

```
dades <- loadData("../log57/log57.csv","BSC 100 / 100",100,100)
draw1(dades)
```

```
## Warning: Removed 2 rows containing missing values (geom_path).
```




```
drawsmooth(dades)+scale_y_continuous(limits=c(0,100))
```

```
## Warning: Ignoring unknown parameters: degree
```

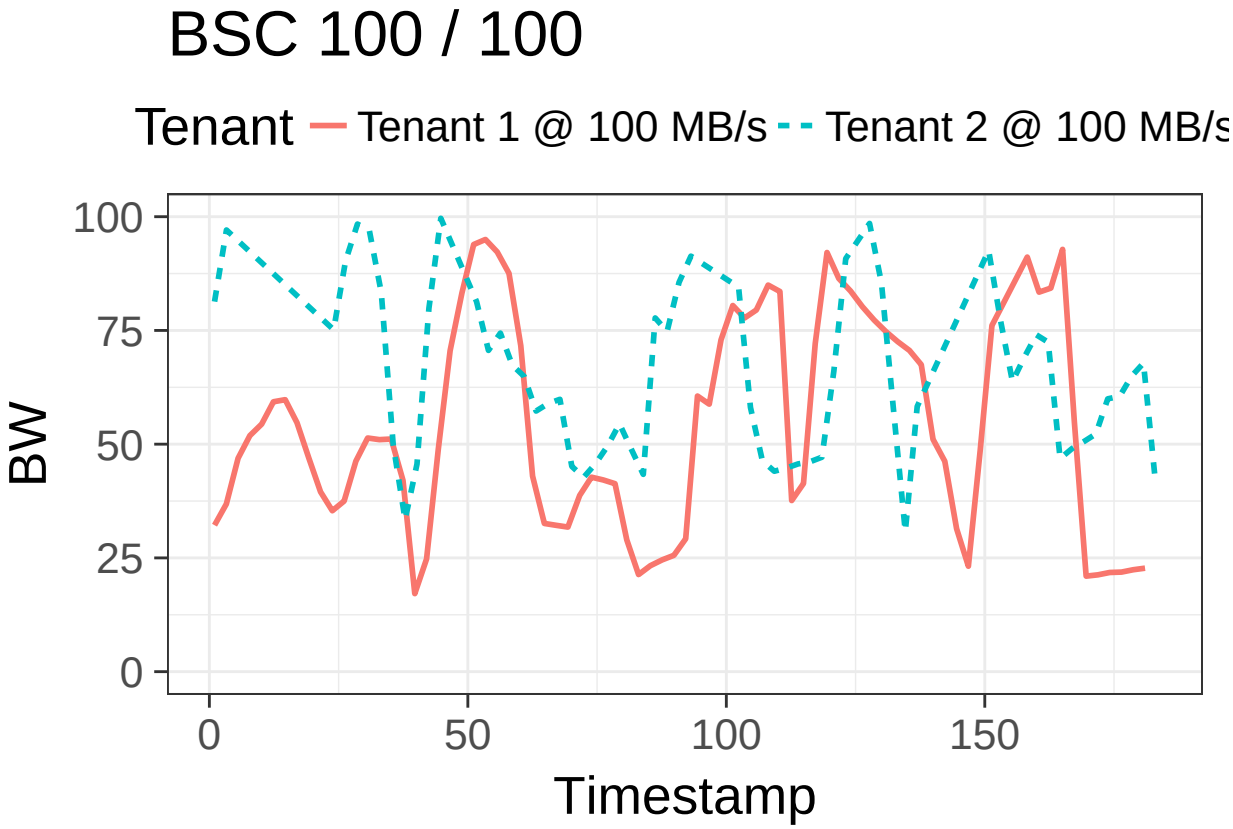
```
## `geom_smooth()` using method = 'loess'
```

```
## Warning: Removed 91 rows containing non-finite values (stat_smooth).
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 200
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 200
```

```
## Warning: Removed 20 rows containing missing values (geom_smooth).
```




```
pdf(file="BSCv2-100_100_Timeline.pdf",width = 7, height= 5)
drawsmooth(dades)+scale_y_continuous(limits=c(0,100))
```

```
## Warning: Ignoring unknown parameters: degree
```

```
## `geom_smooth()` using method = 'loess'
```

```
## Warning: Removed 91 rows containing non-finite values (stat_smooth).
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 200
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 200
```

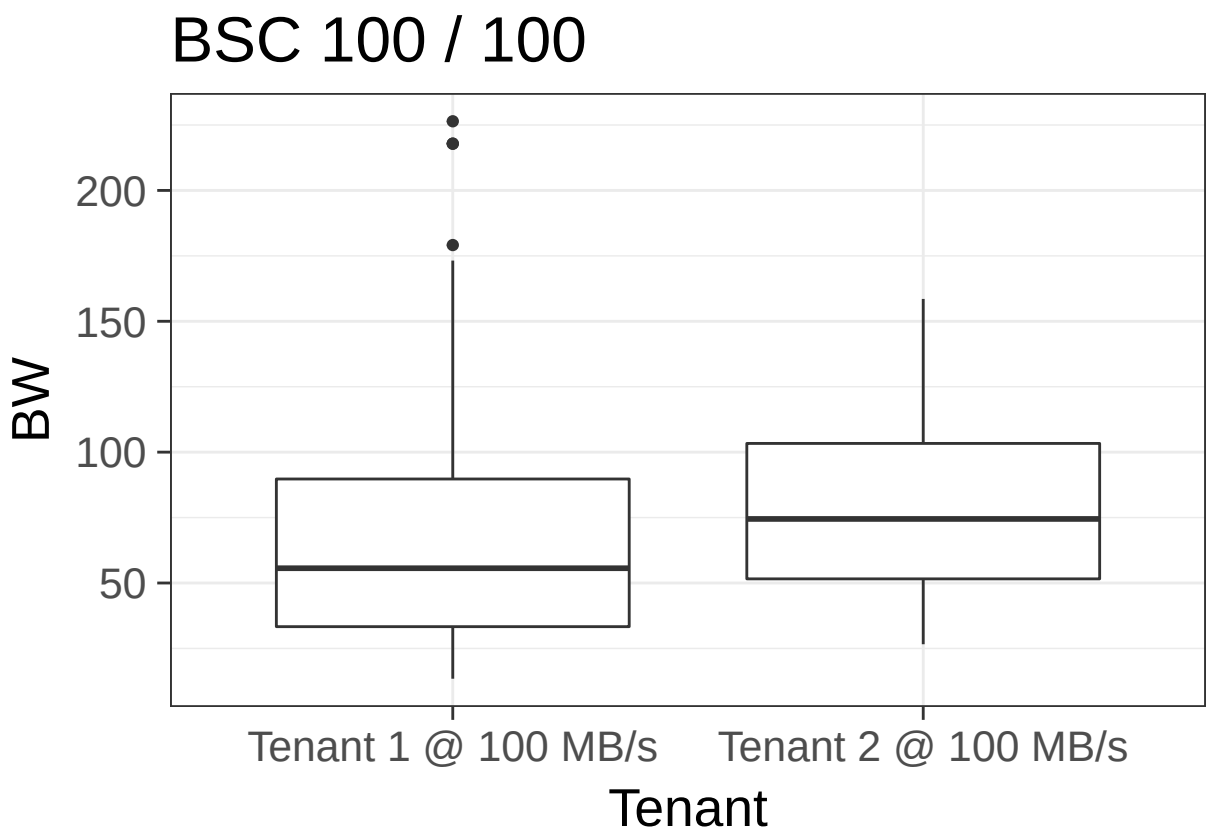
```
## Warning: Removed 20 rows containing missing values (geom_smooth).
```

```
dev.off()
```

```
## pdf
##   2
```

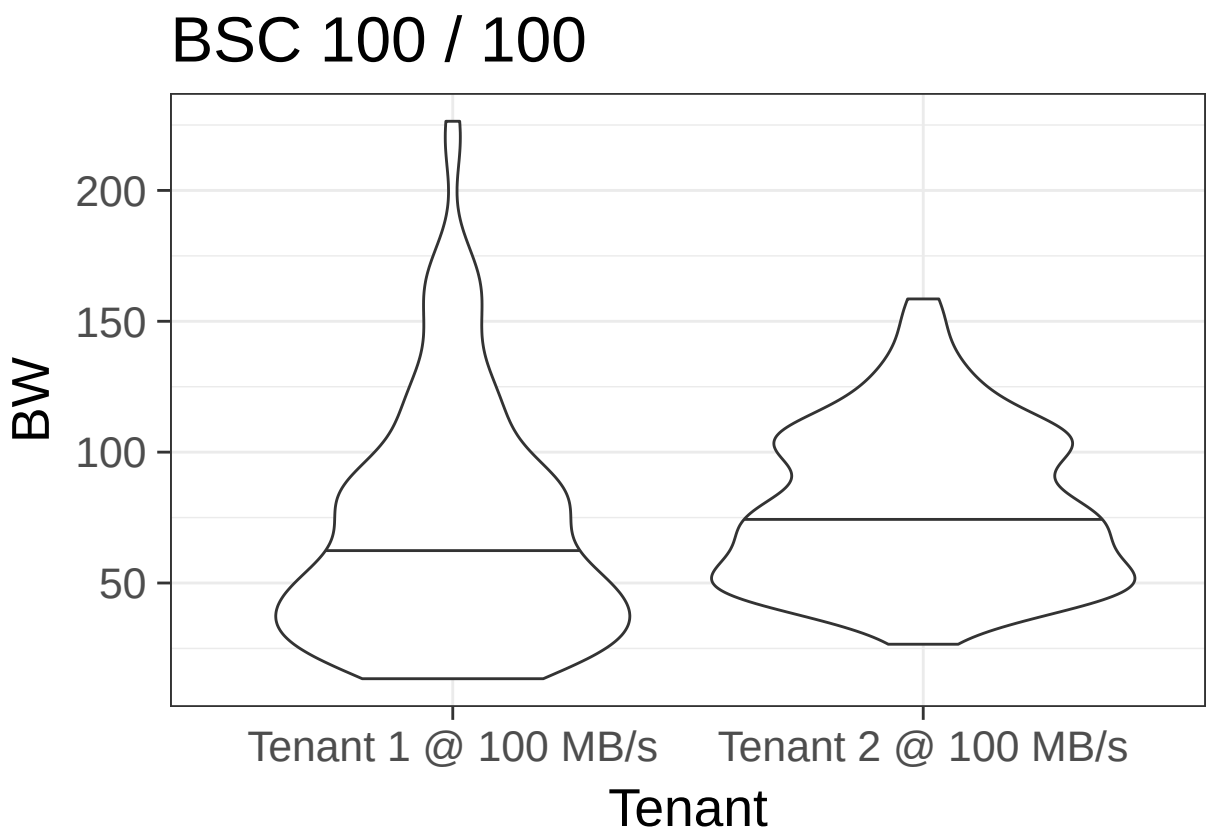
```
draw2(dades)
```

```
## Warning: Removed 2 rows containing non-finite values (stat_boxplot).
```



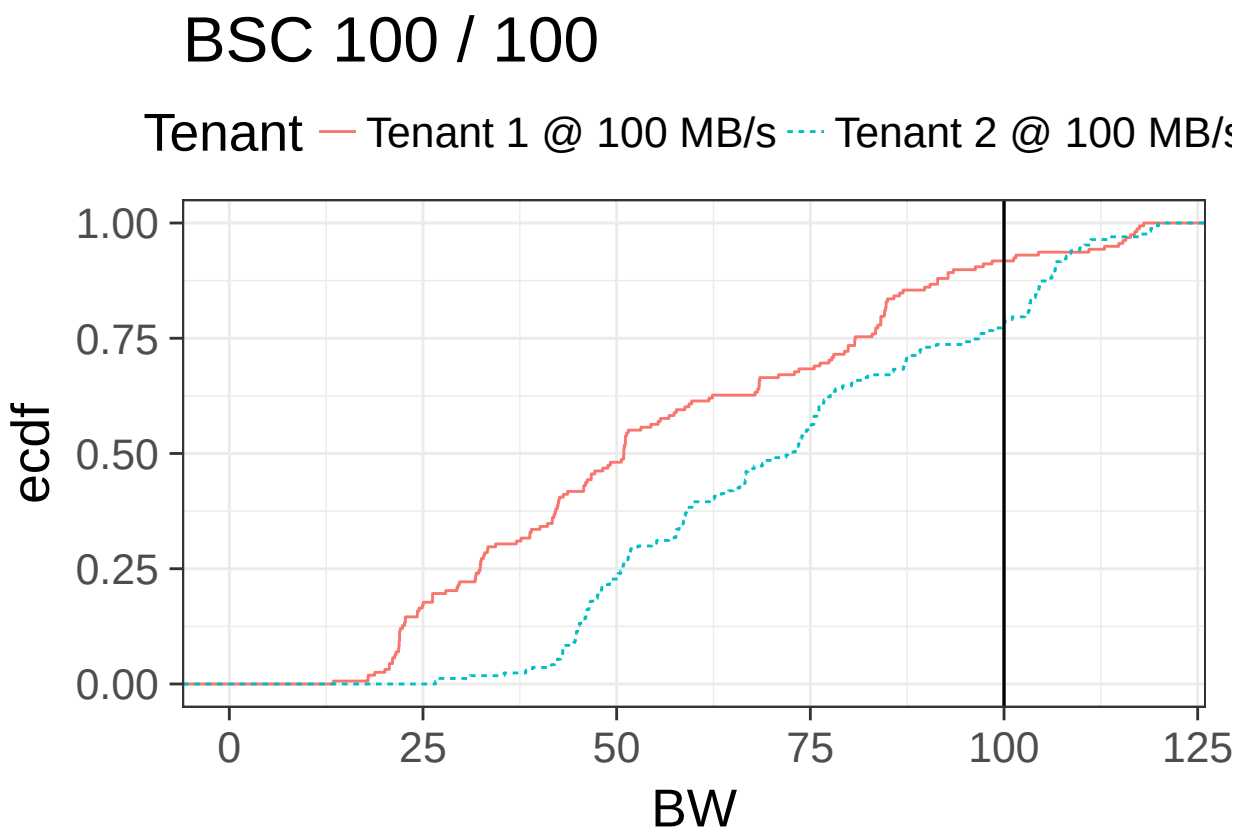

```
draw3(dades)
```

```
## Warning: Removed 2 rows containing non-finite values (stat_ydensity).
```




```
draw4(dades)+scale_x_continuous(limits=c(0,120))
```

```
## Warning: Removed 41 rows containing non-finite values (stat_ecdf).
```




```
pdf(file="BSCv2-100_100_ECDF.pdf",width = 7, height= 5)
draw4(dades)+scale_x_continuous(limits=c(0,120))
```

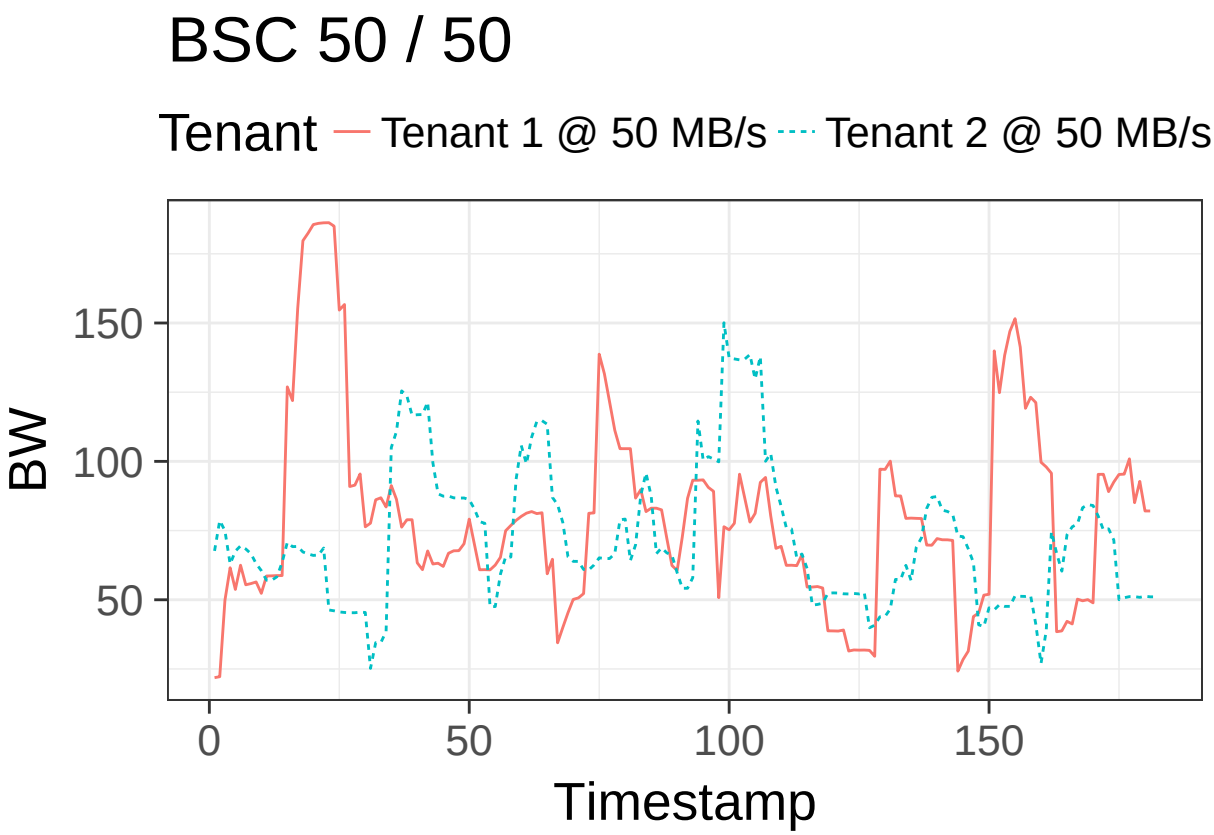
```
## Warning: Removed 41 rows containing non-finite values (stat_ecdf).
```

```
dev.off()
```

```
## pdf
##   2
```

```
dades <- loadData("../log56/log56.csv","BSC 50 / 50",50,50)
draw1(dades)
```

```
## Warning: Removed 1 rows containing missing values (geom_path).
```




```
drawsmooth(dades)+scale_y_continuous(limits=c(0,250))
```

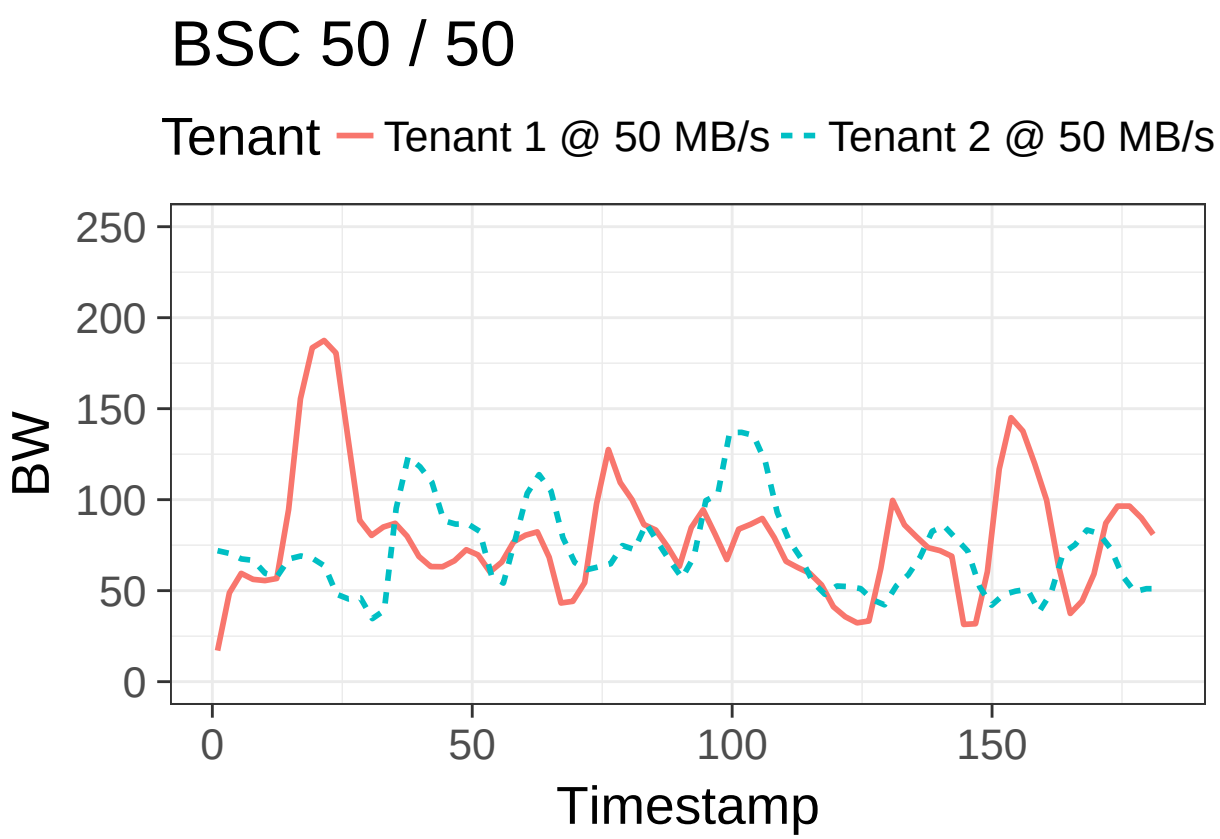
```
## Warning: Ignoring unknown parameters: degree
```

```
## `geom_smooth()` using method = 'loess'
```

```
## Warning: Removed 1 rows containing non-finite values (stat_smooth).
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 200
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 200
```




```
pdf(file="BSCv2-50_50_Timeline.pdf",width = 7, height= 5)
drawsmooth(dades)+scale_y_continuous(limits=c(0,250))
```

```
## Warning: Ignoring unknown parameters: degree
```

```
## `geom_smooth()` using method = 'loess'
```

```
## Warning: Removed 1 rows containing non-finite values (stat_smooth).
```

```
## Warning: k-d tree limited by memory. ncmax= 200
```

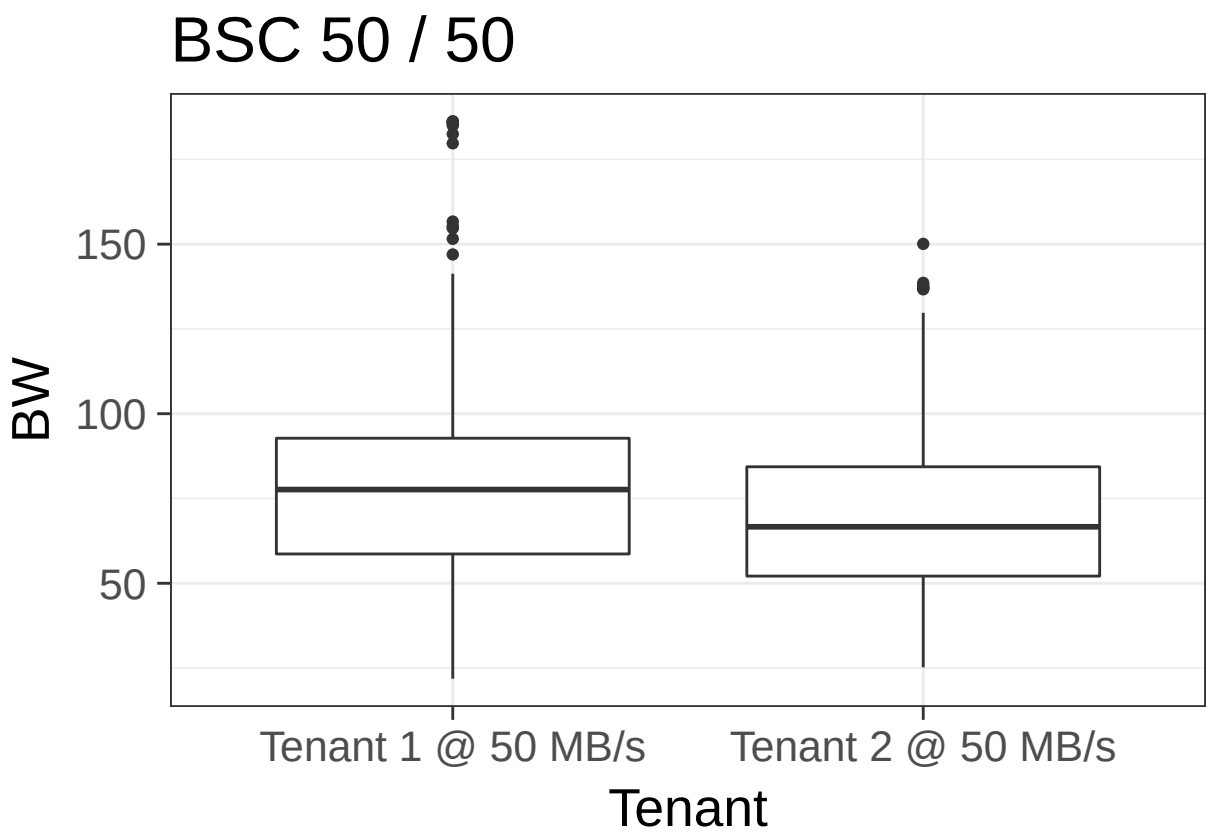
```
## Warning: k-d tree limited by memory. ncmax= 200
```

```
dev.off()
```

```
## pdf
##   2
```

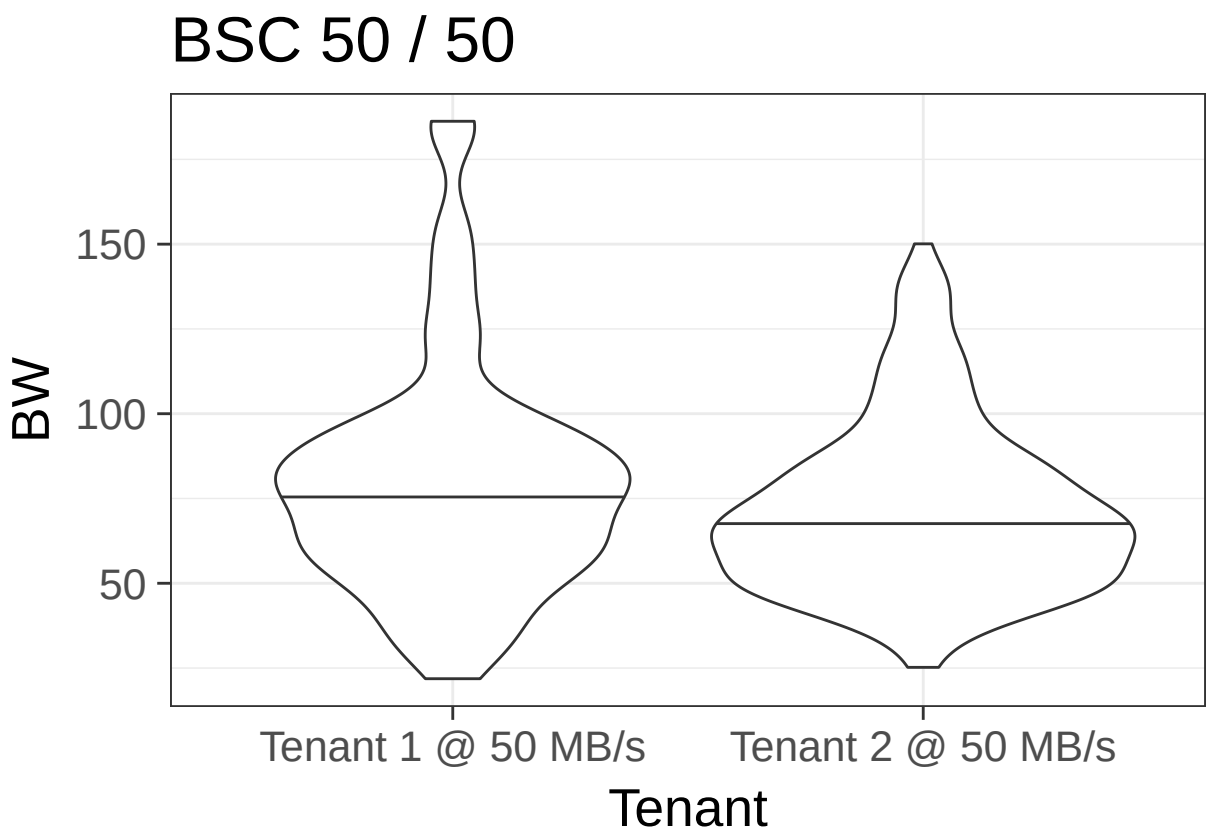
```
draw2(dades)
```

```
## Warning: Removed 1 rows containing non-finite values (stat_boxplot).
```



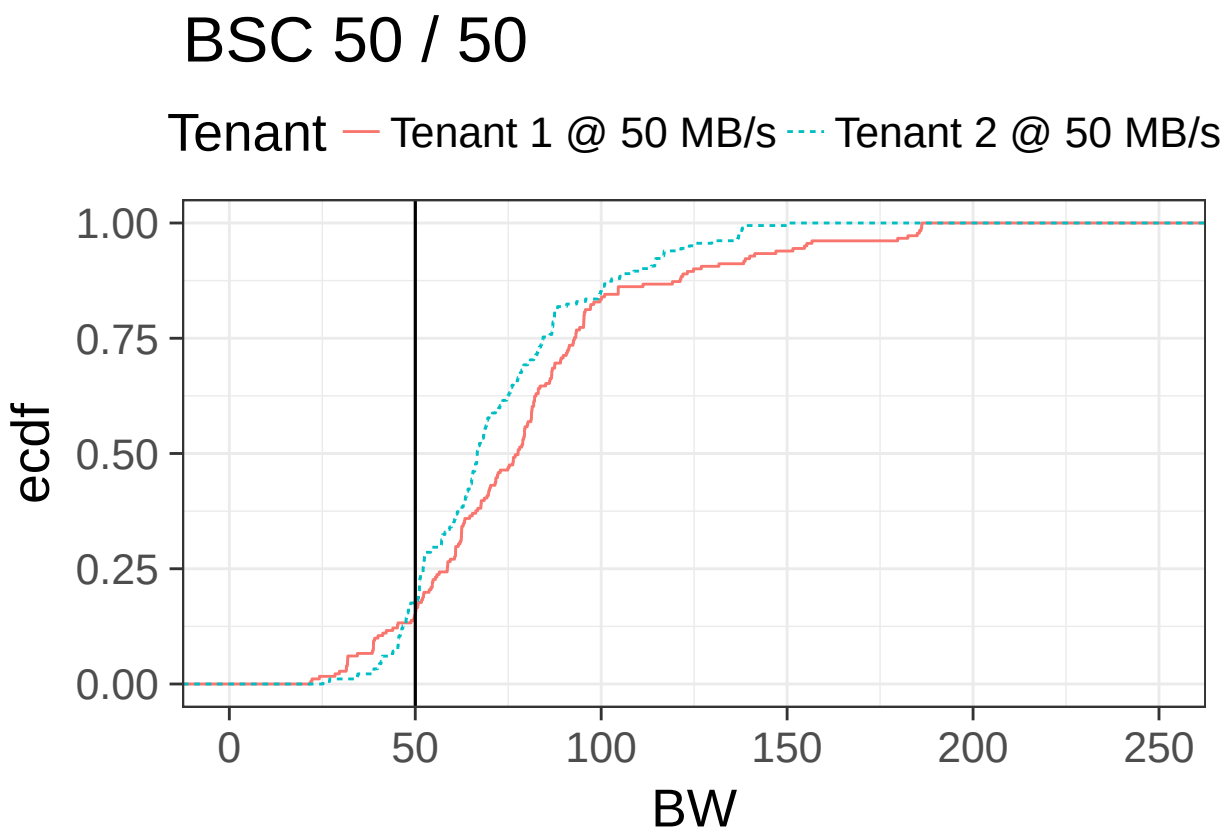

```
draw3(dades)
```

```
## Warning: Removed 1 rows containing non-finite values (stat_ydensity).
```




```
draw4(dades)+scale_x_continuous(limits=c(0,250))
```

```
## Warning: Removed 1 rows containing non-finite values (stat_ecdf).
```




```
pdf(file="BSCv2-50_50_ECDF.pdf",width = 7, height= 5)
draw4(dades)+scale_x_continuous(limits=c(0,250))
```

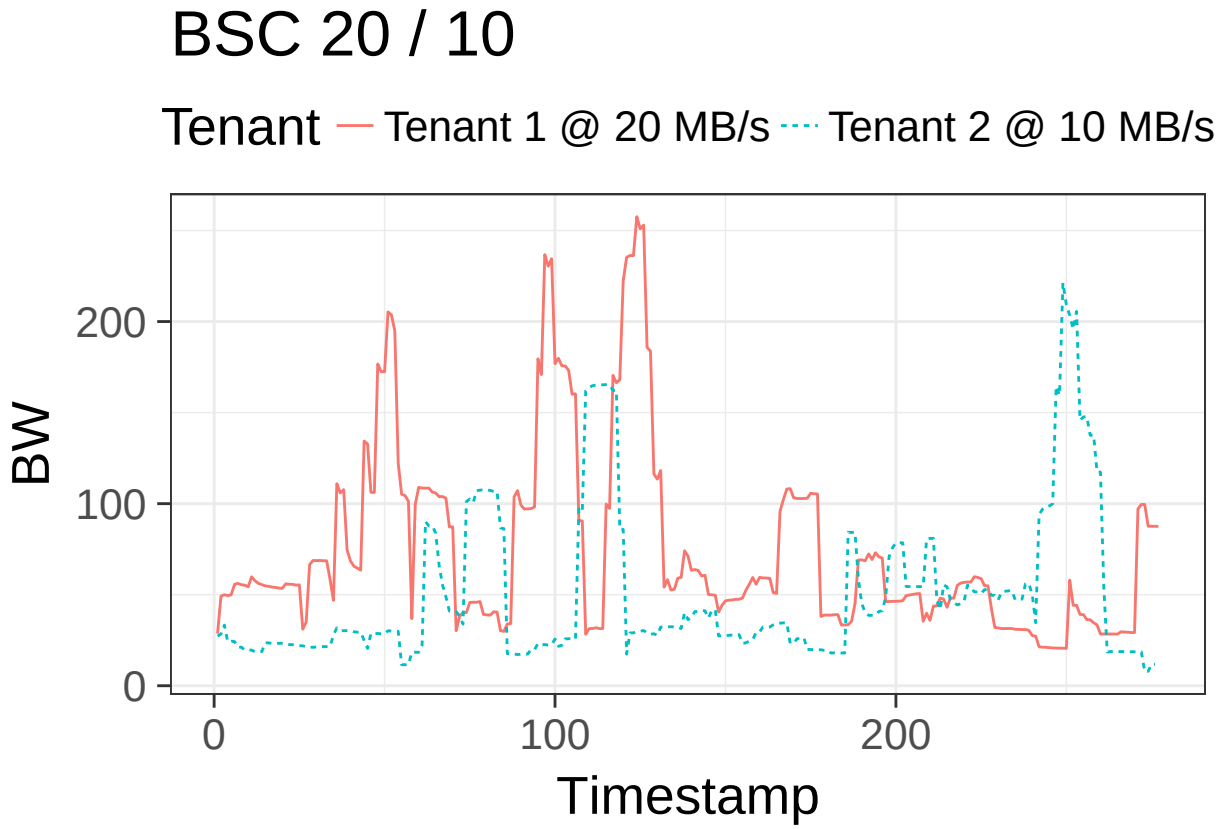
```
## Warning: Removed 1 rows containing non-finite values (stat_ecdf).
```

```
dev.off()
```

```
## pdf
##   2
```

```
dades <- loadData("../log59/log59.csv","BSC 20 / 10",10,20)
draw1(dades)
```

```
## Warning: Removed 1 rows containing missing values (geom_path).
```




```
drawsmooth(dades)+scale_y_continuous(limits=c(0,250))
```

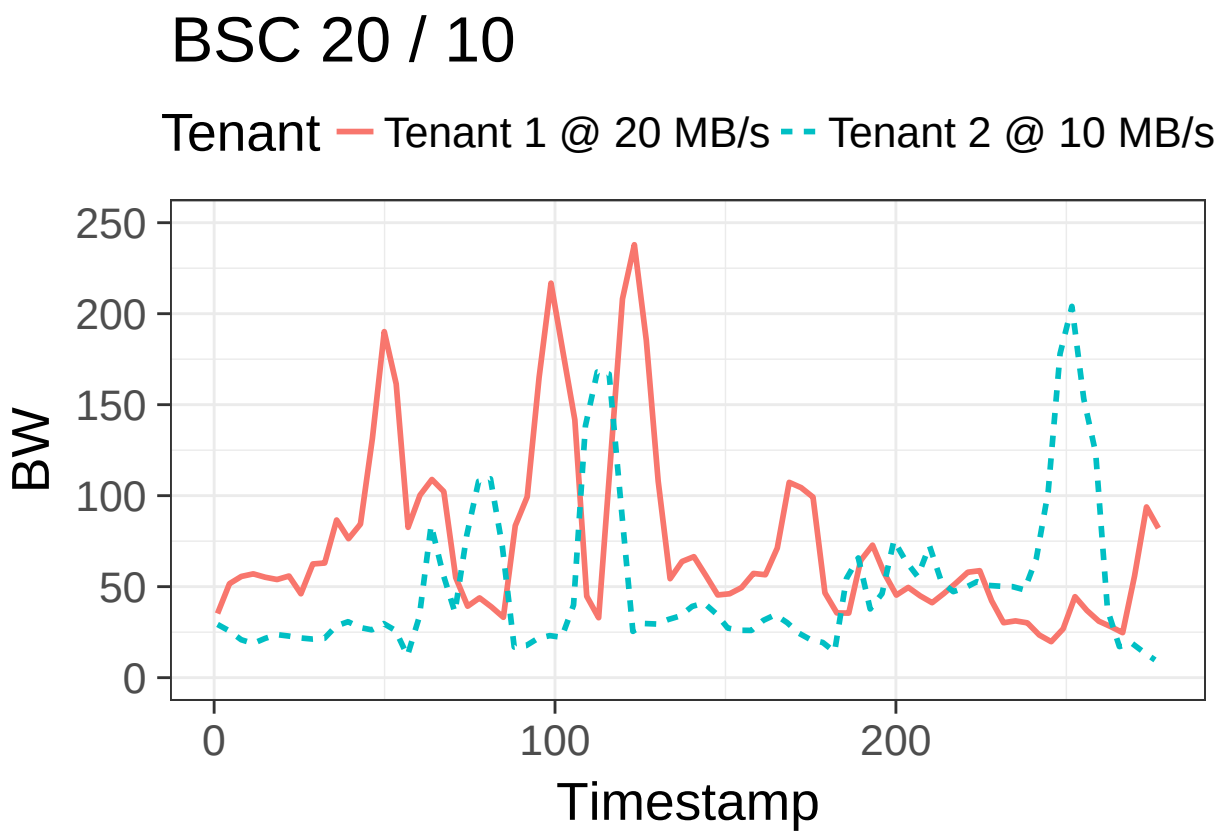
```
## Warning: Ignoring unknown parameters: degree
```

```
## `geom_smooth()` using method = 'loess'
```

```
## Warning: Removed 4 rows containing non-finite values (stat_smooth).
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 274
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 276
```




```
pdf(file="BSCv2-20_10_Timeline.pdf",width = 7, height= 5)
drawsmooth(dades)+scale_y_continuous(limits=c(0,250))
```

```
## Warning: Ignoring unknown parameters: degree
```

```
## `geom_smooth()` using method = 'loess'
```

```
## Warning: Removed 4 rows containing non-finite values (stat_smooth).
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 274
```

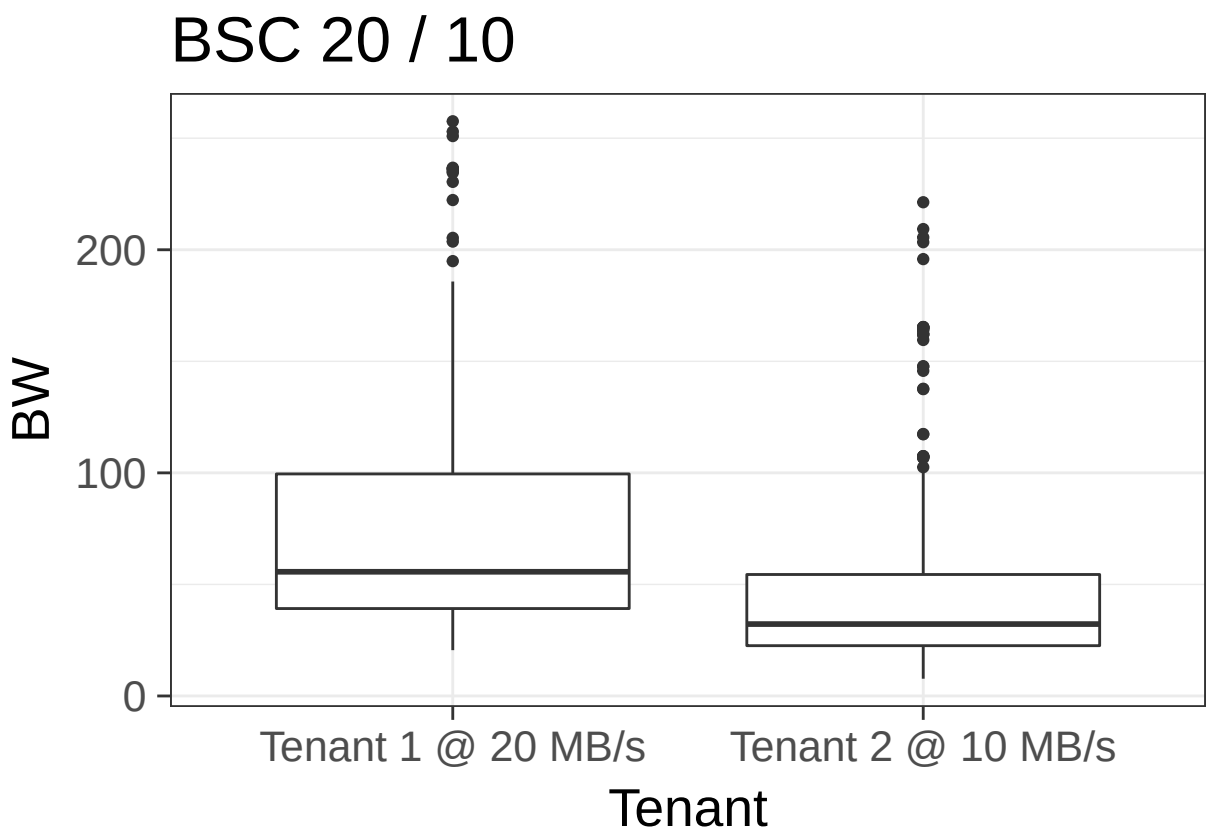
```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 276
```

```
dev.off()
```

```
## pdf
##   2
```

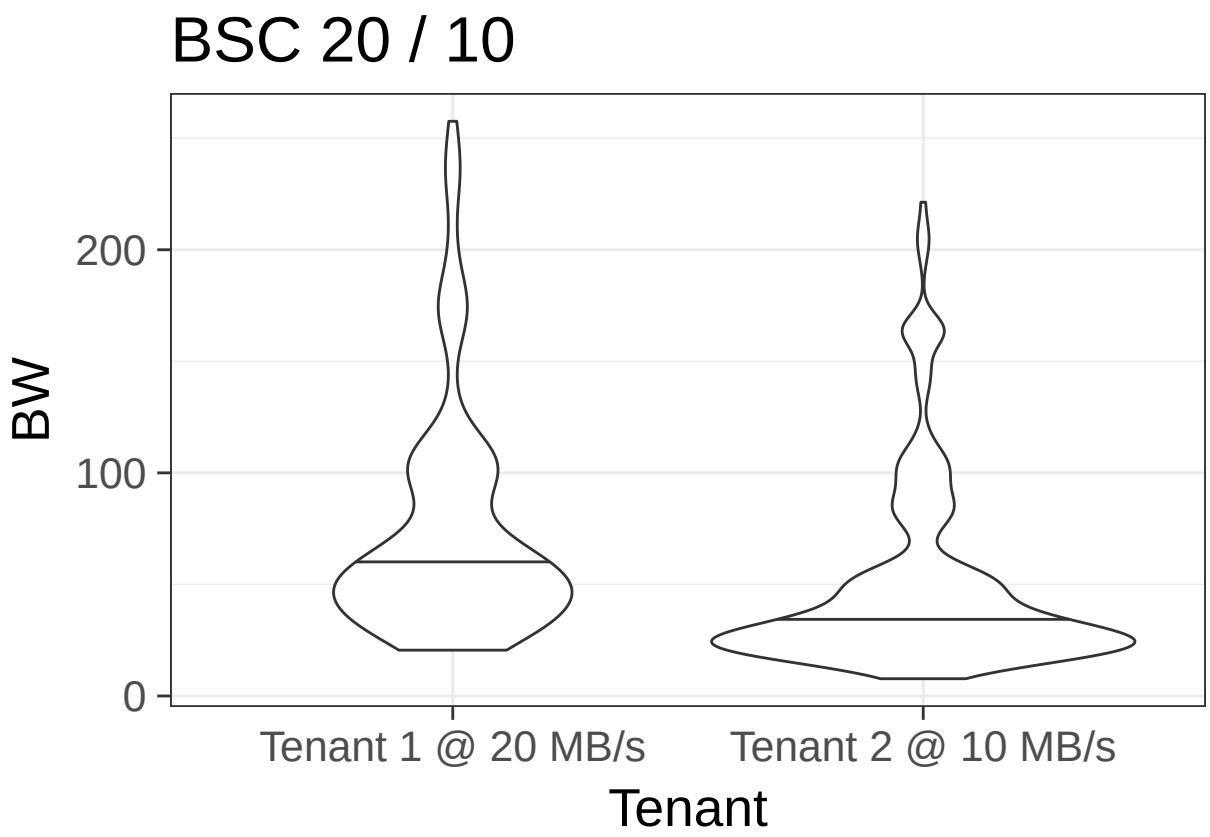
```
draw2(dades)
```

```
## Warning: Removed 1 rows containing non-finite values (stat_boxplot).
```



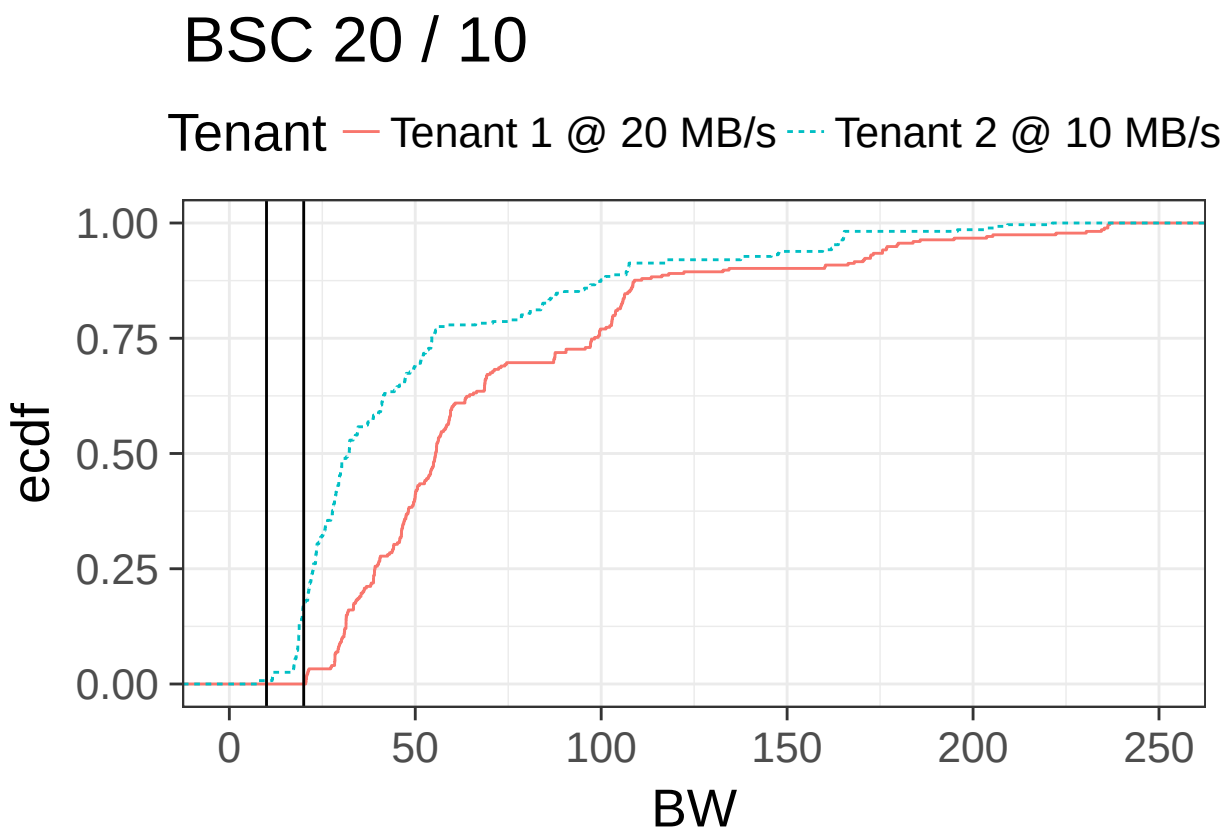

```
draw3(dades)
```

```
## Warning: Removed 1 rows containing non-finite values (stat_ydensity).
```




```
draw4(dades)+scale_x_continuous(limits=c(0,250))
```

```
## Warning: Removed 4 rows containing non-finite values (stat_ecdf).
```



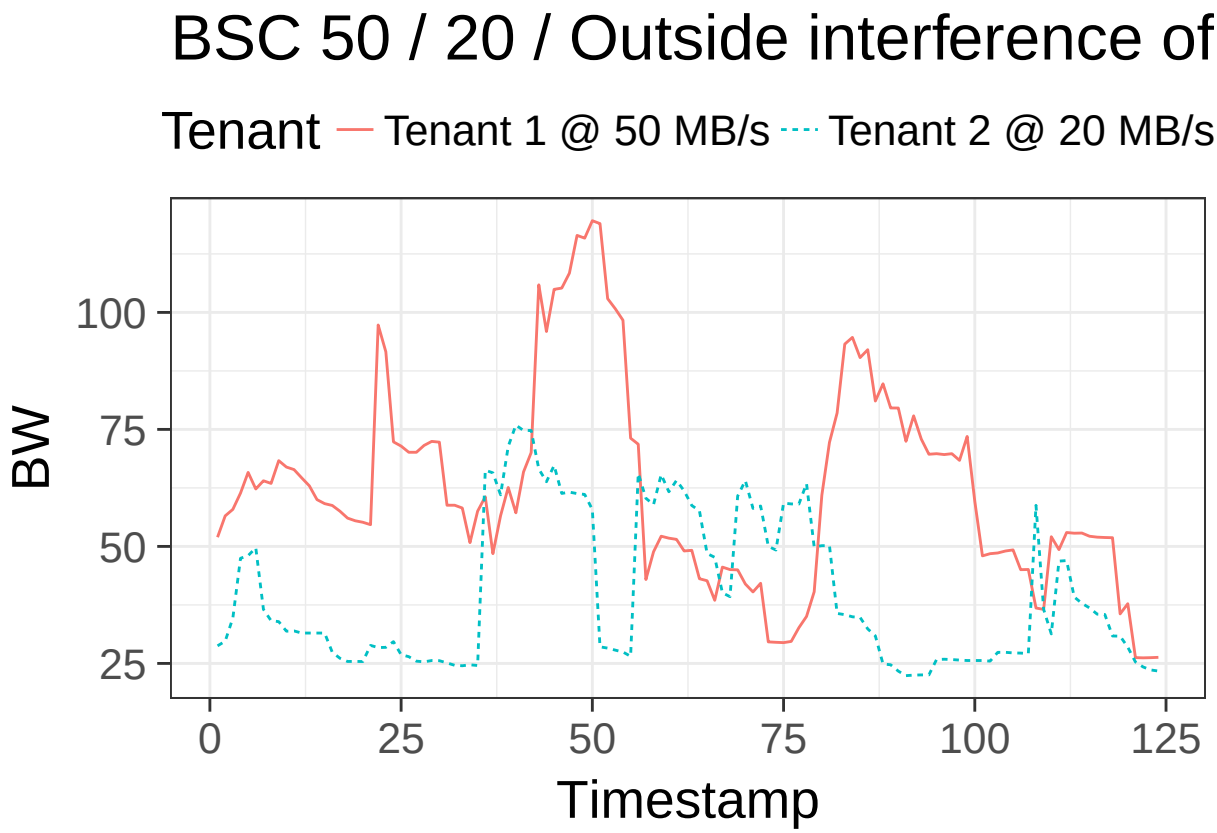

```
pdf(file="BSCv2-20_10_ECDF.pdf",width = 7, height= 5)
draw4(dades)+scale_x_continuous(limits=c(0,250))
```

```
## Warning: Removed 4 rows containing non-finite values (stat_ecdf).
```

```
dev.off()
```

```
## pdf
##   2
```

```
dades <- loadData("../log60/log60.csv","BSC 50 / 20 / Outside interference of 10 MB/s",20,50)
draw1(dades)
```



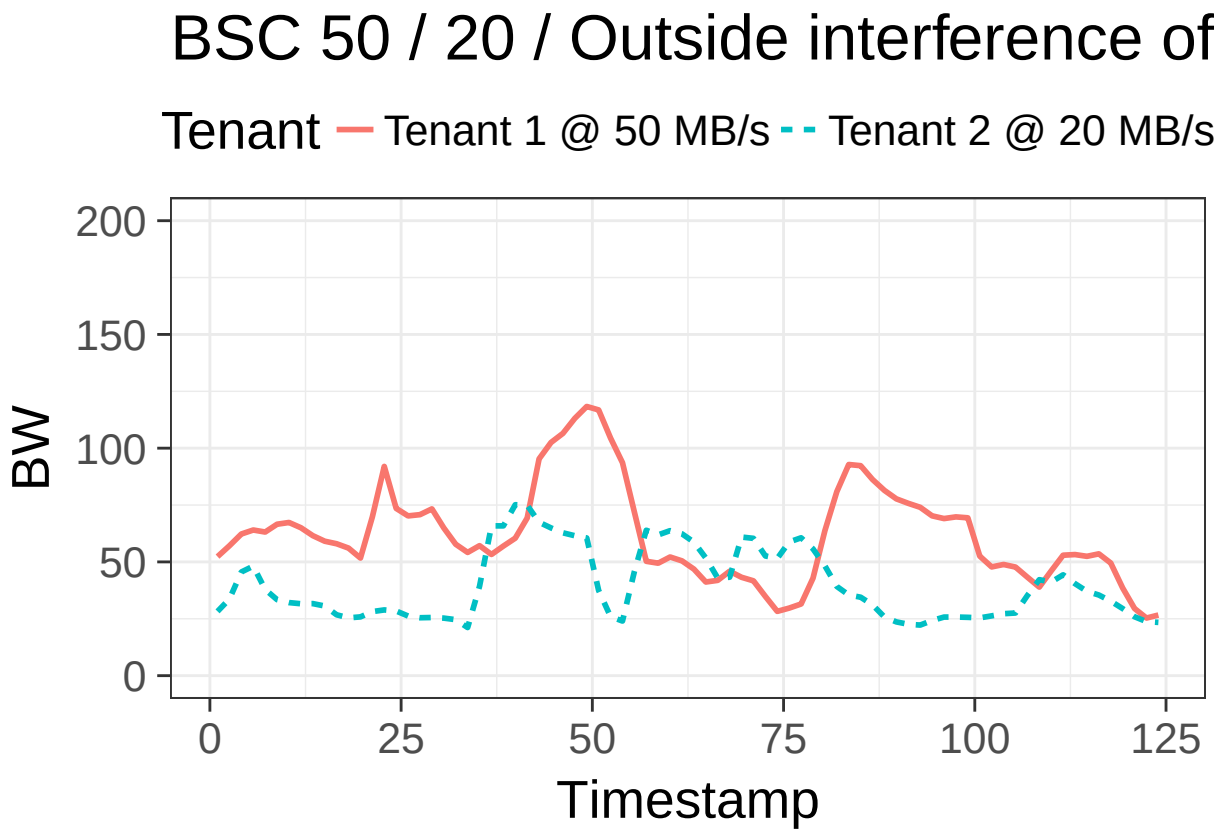

```
drawsmooth(dades)+scale_y_continuous(limits=c(0,200))
```

```
## Warning: Ignoring unknown parameters: degree
```

```
## `geom_smooth()` using method = 'loess'
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 200
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 200
```




```
pdf(file="BSCv2-50_20_10i_Timeline.pdf",width = 7, height= 5)
drawsmooth(dades)+scale_y_continuous(limits=c(0,200))
```

```
## Warning: Ignoring unknown parameters: degree
```

```
## `geom_smooth()` using method = 'loess'
```

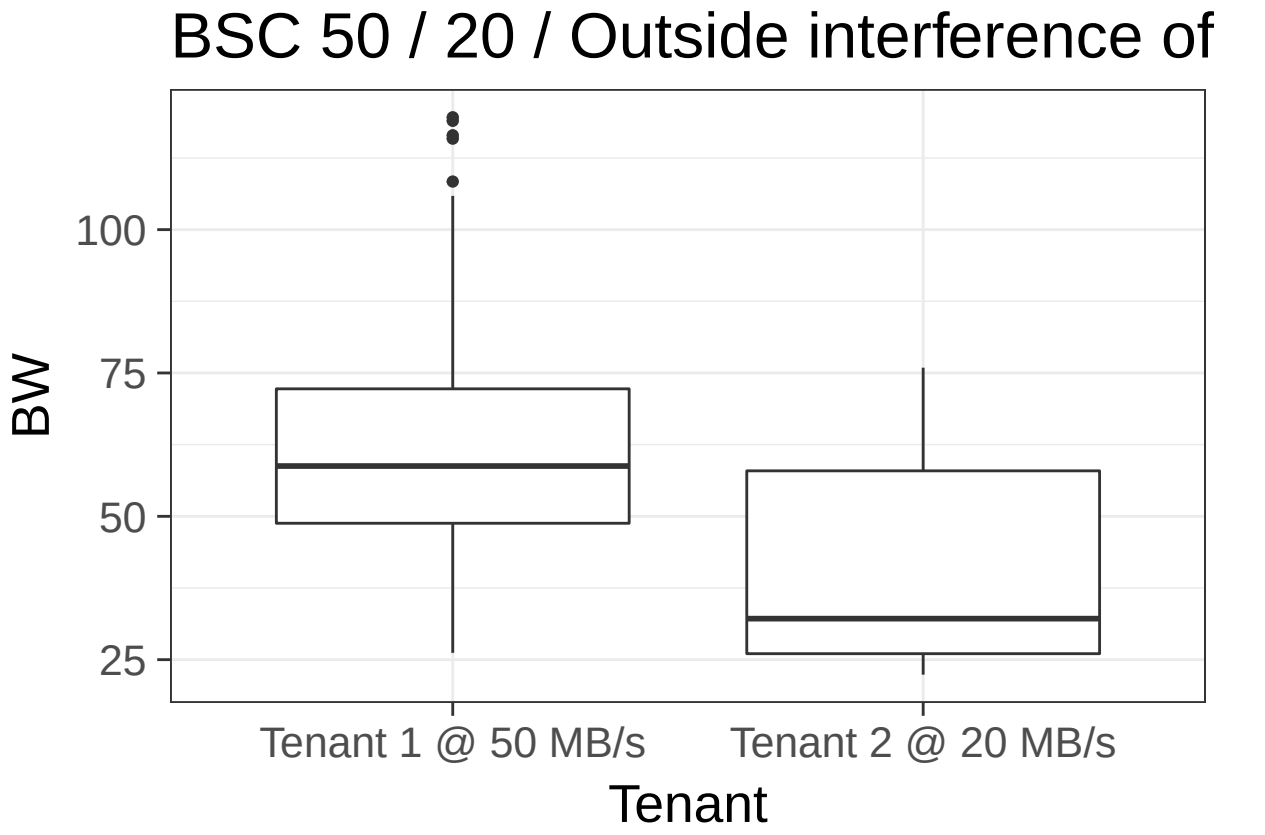
```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 200
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 200
```

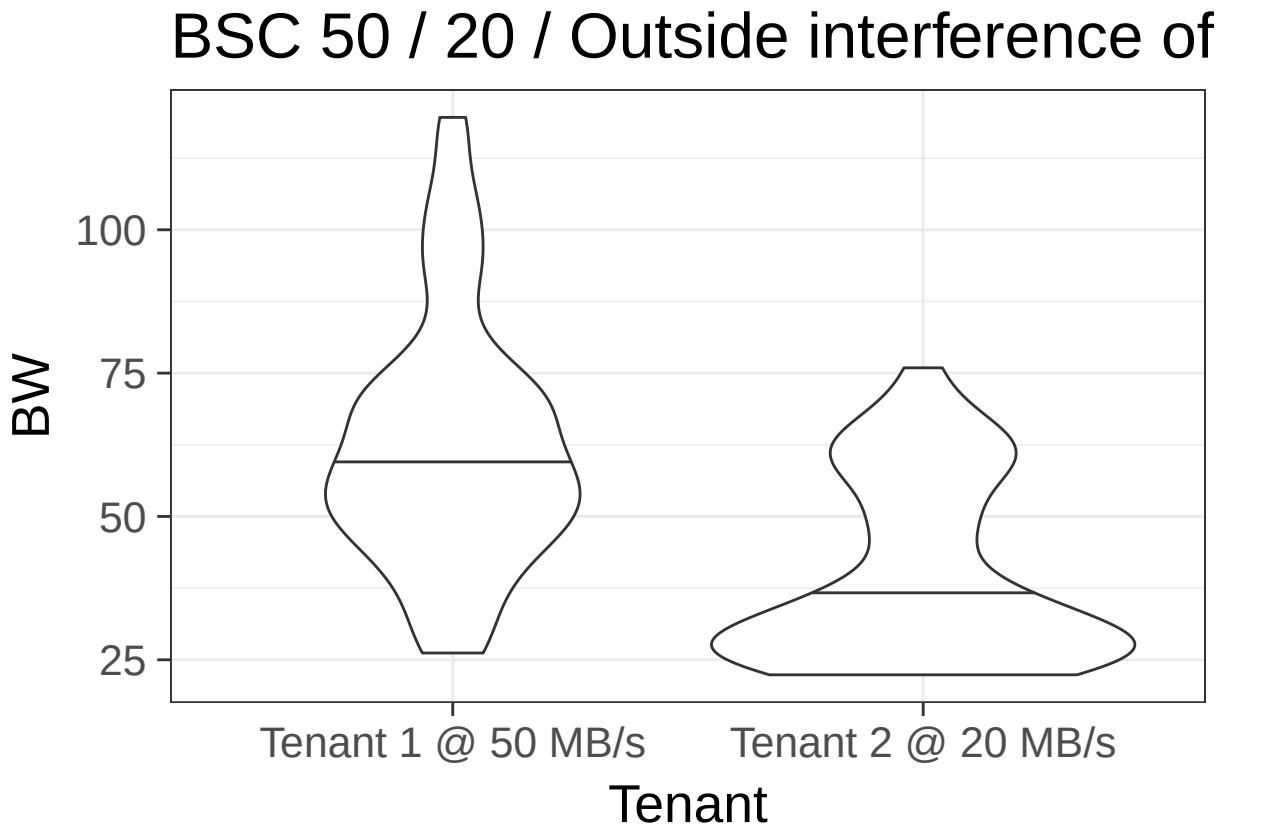
```
dev.off()
```

```
## pdf
##   2
```

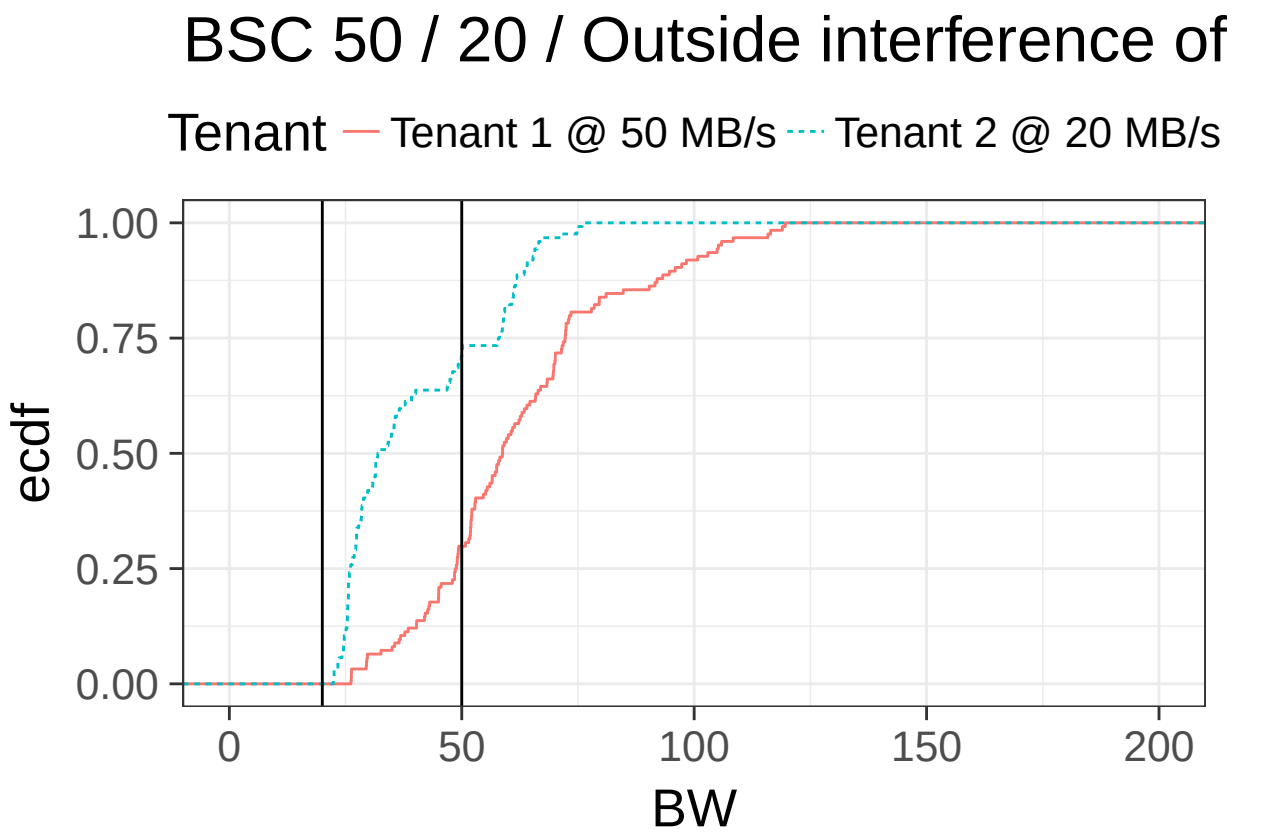
```
draw2(dades)
```


BSC 50 / 20 / Outside interference of
BW
100
75
50
25
Tenant 1 @ 50 MB/s
Tenant 2 @ 20 MB/s
Tenant

```
draw3(dades)
```


BSC 50 / 20 / Outside interference of
BW
100
75
50
25
Tenant 1 @ 50 MB/s
Tenant 2 @ 20 MB/s
Tenant

```
draw4(dades)+scale_x_continuous(limits=c(0,200))
```

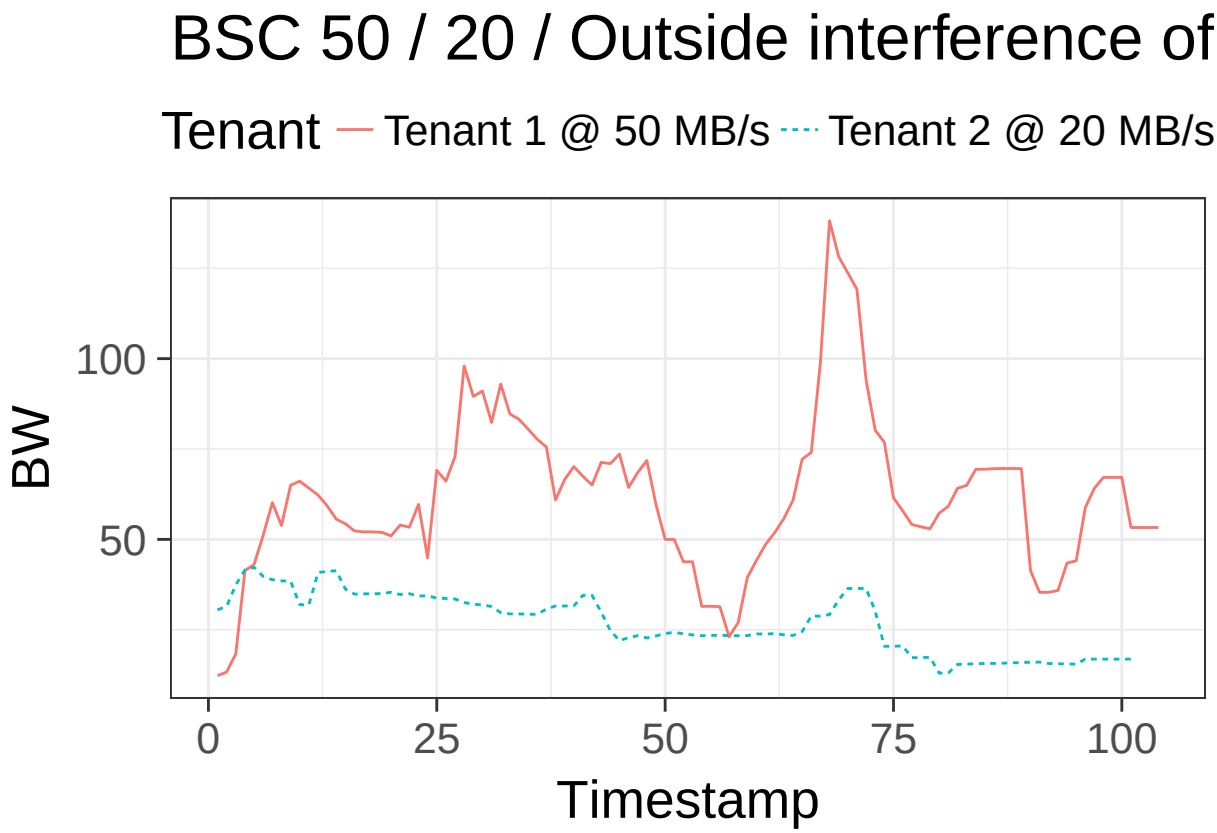



```
pdf(file="BSCv2-50_20_10i_ECDF.pdf",width = 7, height= 5)
draw4(dades)+scale_x_continuous(limits=c(0,200))
dev.off()
```

```
## pdf
##   2
```

```
dades <- loadData("../log61/log61.csv","BSC 50 / 20 / Outside interference of 20 MB/s",20,50)
draw1(dades)
```

```
## Warning: Removed 3 rows containing missing values (geom_path).
```




```
drawsmooth(dades)+scale_y_continuous(limits=c(0,150))
```

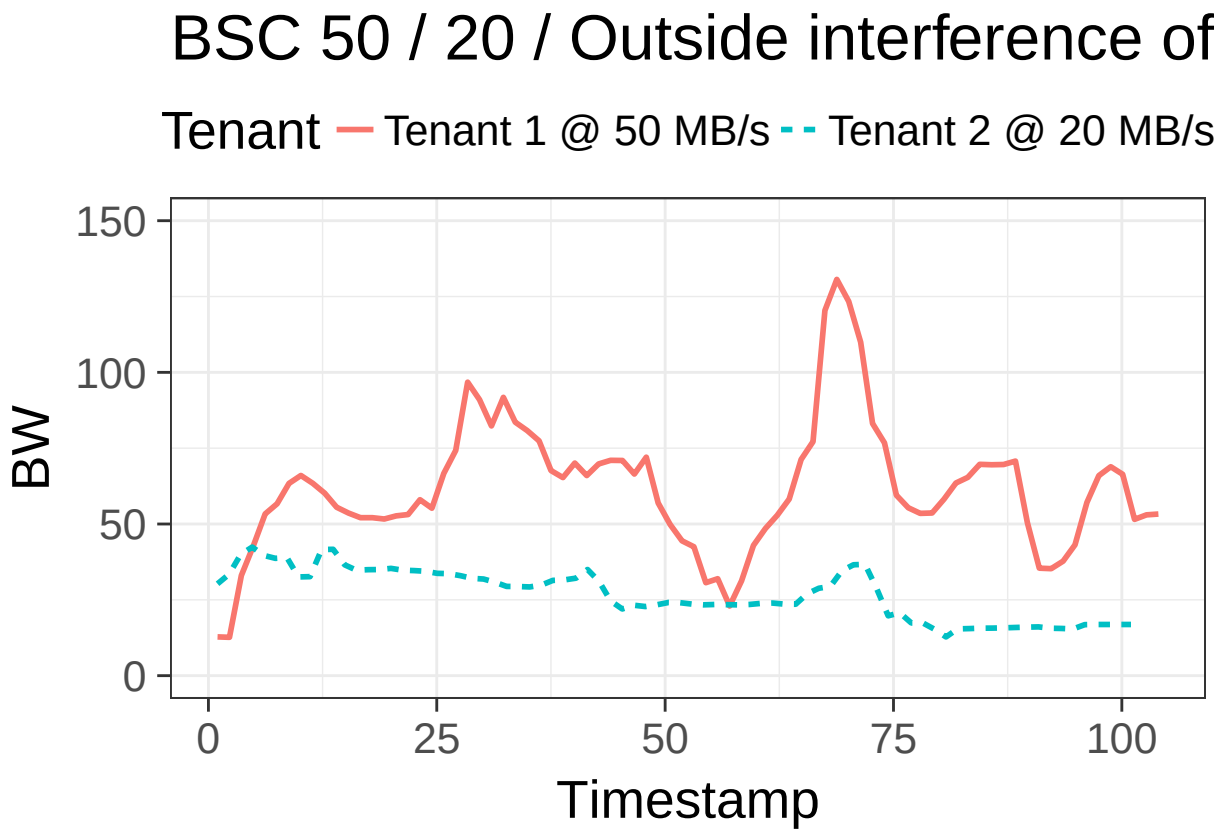
```
## Warning: Ignoring unknown parameters: degree
```

```
## `geom_smooth()` using method = 'loess'
```

```
## Warning: Removed 3 rows containing non-finite values (stat_smooth).
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 200
```

```
## Warning in simpleLoess(y, x, w, span, degree = degree, parametric =
## parametric, : k-d tree limited by memory. ncmax= 200
```




```
pdf(file="BSCv2-50_20_20i_Timeline.pdf",width = 7, height= 5)
drawsmooth(dades)+scale_y_continuous(limits=c(0,150))
```

```
## Warning: Ignoring unknown parameters: degree
```

```
## `geom_smooth()` using method = 'loess'
```

```
## Warning: Removed 3 rows containing non-finite values (stat_smooth).
```

```
## Warning: k-d tree limited by memory. ncmax= 200
```

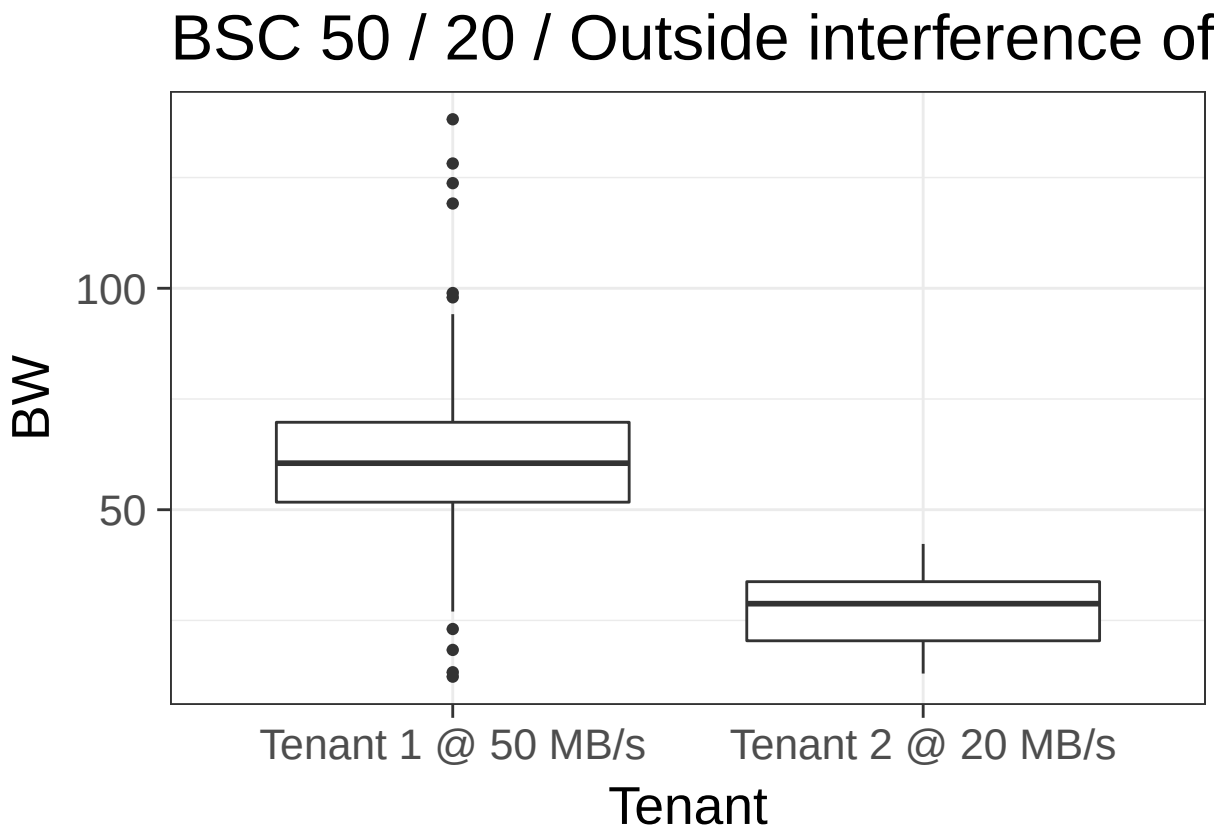
```
## Warning: k-d tree limited by memory. ncmax= 200
```

```
dev.off()
```

```
## pdf
##   2
```

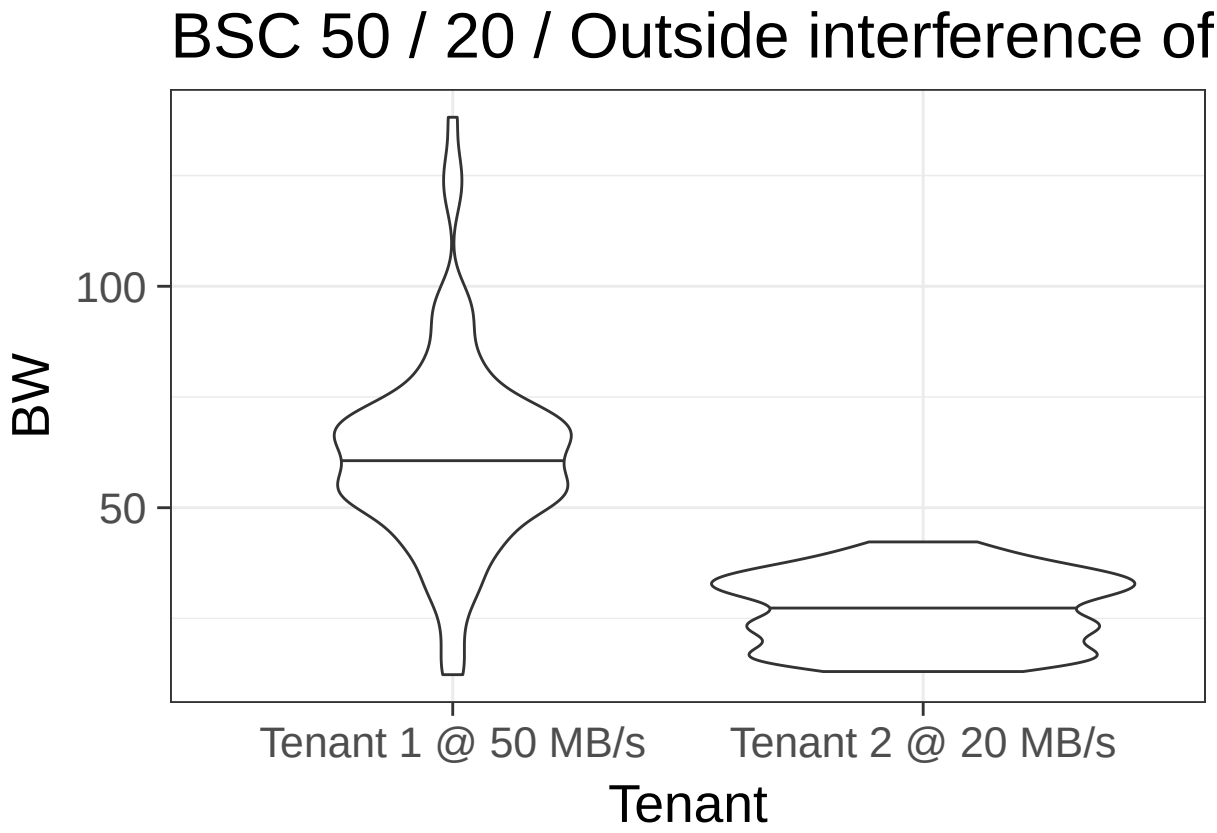
```
draw2(dades)
```

```
## Warning: Removed 3 rows containing non-finite values (stat_boxplot).
```



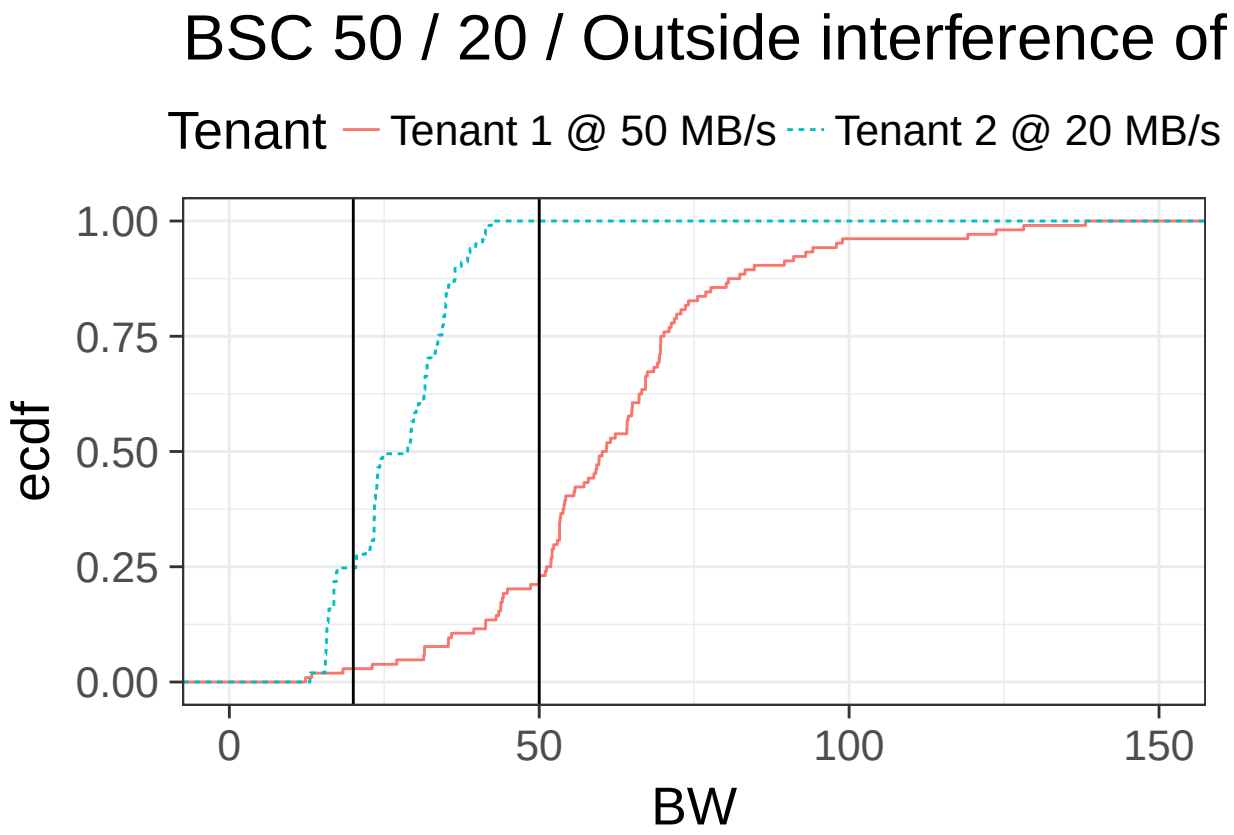

```
draw3(dades)
```

```
## Warning: Removed 3 rows containing non-finite values (stat_ydensity).
```




```
draw4(dades)+scale_x_continuous(limits=c(0,150))
```

```
## Warning: Removed 3 rows containing non-finite values (stat_ecdf).
```




```
pdf(file="BSCv2-50_20_20i_ECDF.pdf",width = 7, height= 5)
draw4(dades)+scale_x_continuous(limits=c(0,150))
```

```
## Warning: Removed 3 rows containing non-finite values (stat_ecdf).
```

```
dev.off()
```

```
## pdf
##   2
```