

Principles of Communications Networks

Homework assignment 2

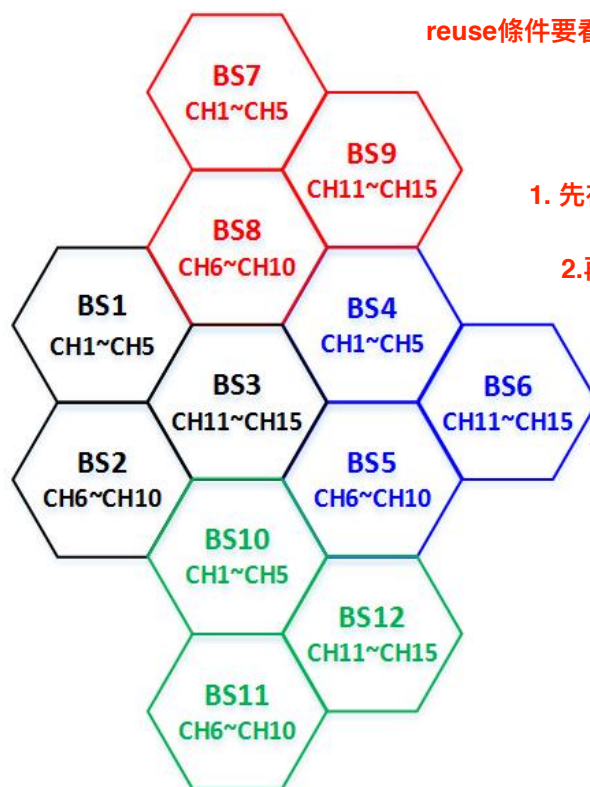
Due date: 2017/5/19

不考慮burst arrival

- [20%] Please write a channel request generator. The arrival rate of the channel request follows Poisson distribution with mean 0.5. In addition, please show the inter-arrival time distribution of these channel requests is Exponential distribution. [Hint: you can plot the pdf of the inter-arrival time]
- [80%] Considering the cell planning in the figure below. The cluster size is 3 (cells with the same color are in a cluster); the cell radius and the frequency reuse distance are 100 m and 300 m, respectively. In addition, each cell is allocated 5 traffic channels, while the channels may be lent to neighboring cells when needed. We assume that the arrival process and service time of calls in each cells follow the Poisson distribution and Exponential distribution, respectively. We define $\lambda = 1/\text{min}$ and $\mu = 0.2/\text{min}$. As for cell i , the mean arrival rate λ_i and mean service rate μ_i are $[(i \bmod 4) + 1] \times \lambda$ and $[(i \bmod 4) + 1] \times \mu$, respectively. The simulation time is 100 min.
 - Without channel borrowing scheme, what the average blocking probability of the cellular system?
 - When a cell can borrow channels from its richest neighboring cell (must return the borrowed channel when one nominal channel becomes free), what the average blocking probability? What's the average time consumption to borrow a channel?

瞭解一下借通道的限制

reuse條件要看好



1. 先在reuse distance內找可以借的channel
e.g. BS1篩選出 CH1~5以外
2. 再從上面的裡面挑出richest的那個BS

service time在跑時要reallocation