R2-052995 Resource Allocation Options

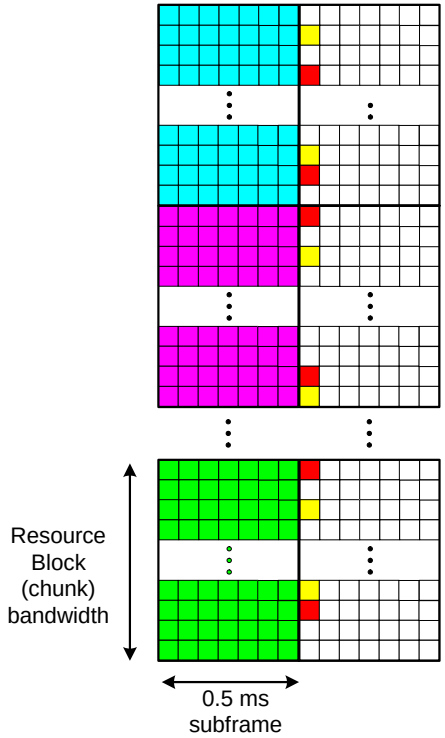
Agenda Item 17.3.2

Introduction

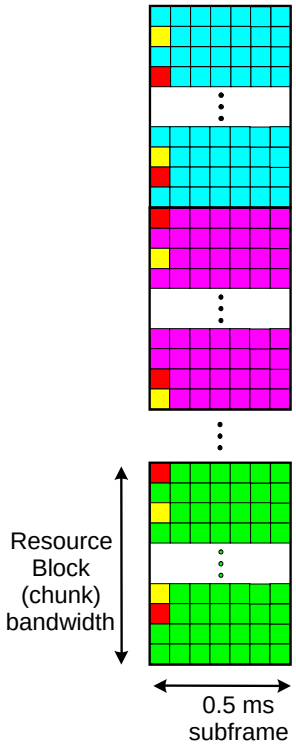
- **Resource in EUTRA – resource block identified in frequency domain as M consecutive sub-carriers**
- **Time domain – number of symbols**
- **Frequency Domain**
  - **Resource Block – some amount of contiguous bandwidth (e.g. multiple of 375 kHz)**
  - **Allocation can be either frequency selective or frequency non-selective**
    - Function of CQI feedback
- **Two primary methods for Allocation**
  - **Localized Allocation**
    - A contiguous allocation of bandwidth to one UE for frequency selective assignment
  - **Distribute Allocation**
    - A non-contiguous allocation of bandwidth to one UE for frequency non-selective assignments
- **Typical Allocation strategies**
  - **Voice traffic - frequency non-selective;**
  - **Interactive/background traffic - frequency selective**
- **Resource allocation – function of MAC**
  - **RAN2 should study different schemes and corresponding signaling options**
  - **Need sufficient flexibility to ensure optimal spectral usage and service quality**

Resource Allocations (1)

- **Option 1: Time multiplexing at the subframe level between localized and distributed allocations**
  - **Each subframe is purely localized or purely distributed**

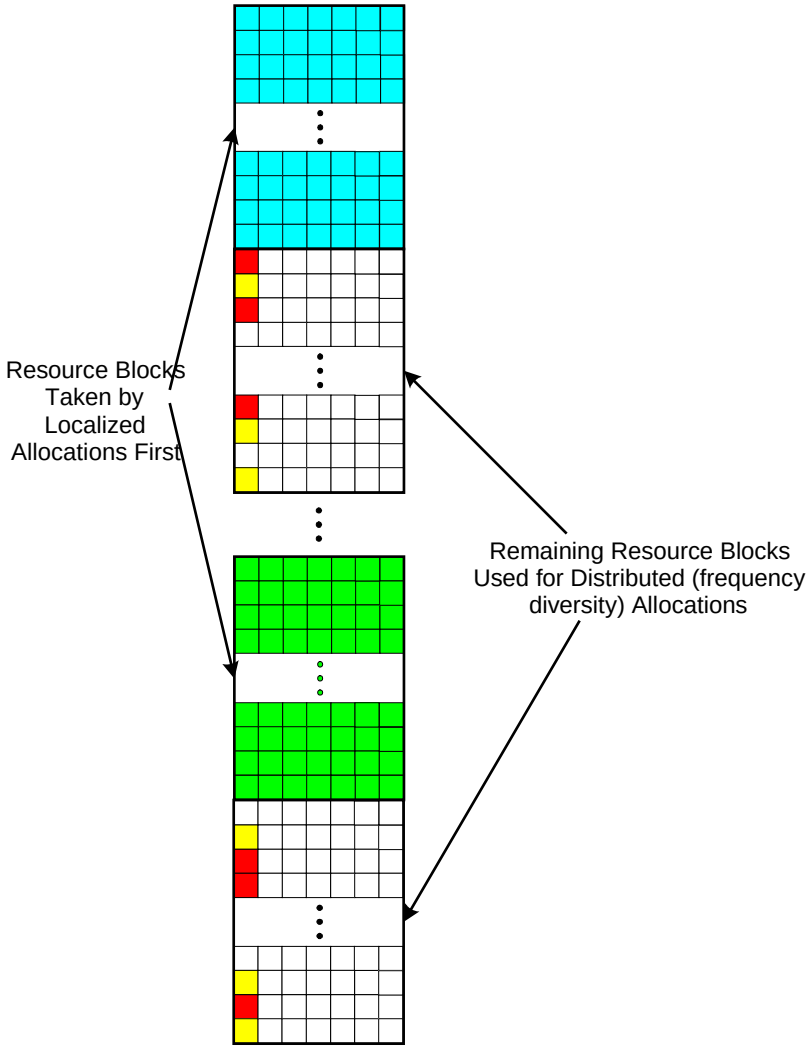


- **Option 2: Distributed allocations are made first, then localized allocations use the remaining symbols in the subframe**
  - **Distributed & localized multiplexed within Resource Block**
  - **Permits optimal assignment of resources to meet both frequency selective and frequency non-selective needs**



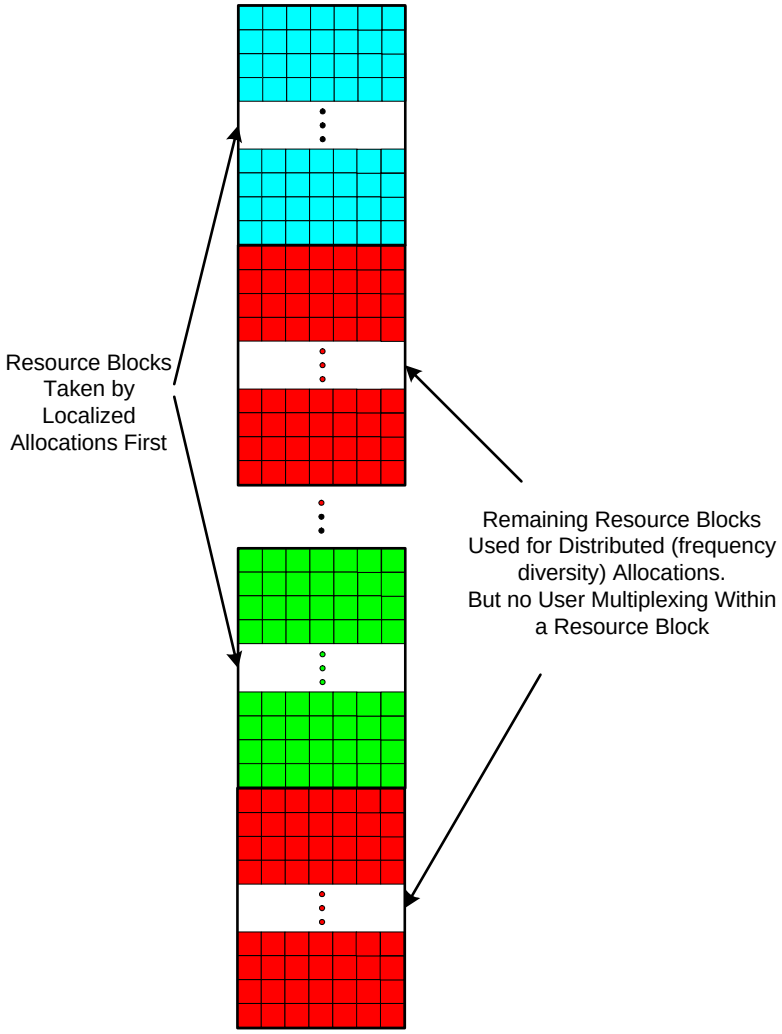
Resource Allocations (2)

- **Option 3: Localized allocations are made first, then the remaining Resource Blocks are used for distributed allocations**
  - **Frequency multiplexing between localized and distributed allocations at the Resource Block level**



Resource Allocations (3)

- **Option 4: Localized allocations are made first, then the remaining Resource Blocks are used for distributed allocations.**
  - **Difference from option 3: No user multiplexing within a Resource Block used for a distributed allocation**
  - **Has the most limited frequency diversity for small packets**



Summary

- **All of these options are of interest for further investigation**
- **Ideally would like to enable**
  - **Flexibility**
  - **Optimal resource utilization for both frequency selective and frequency non-selective applications**
  - **High level of frequency diversity for the distributed users**
- **Other considerations:**
  - **For localized allocations, do we need to consider user multiplexing within a Resource Block?**
    - Not needed if minimum packet size would fill a Resource Block
    - Needed if minimum packet size would not fill a Resource Block
    - Not needed if multiplexing distributed and localized allocations within Resource Block