Edge Caching,
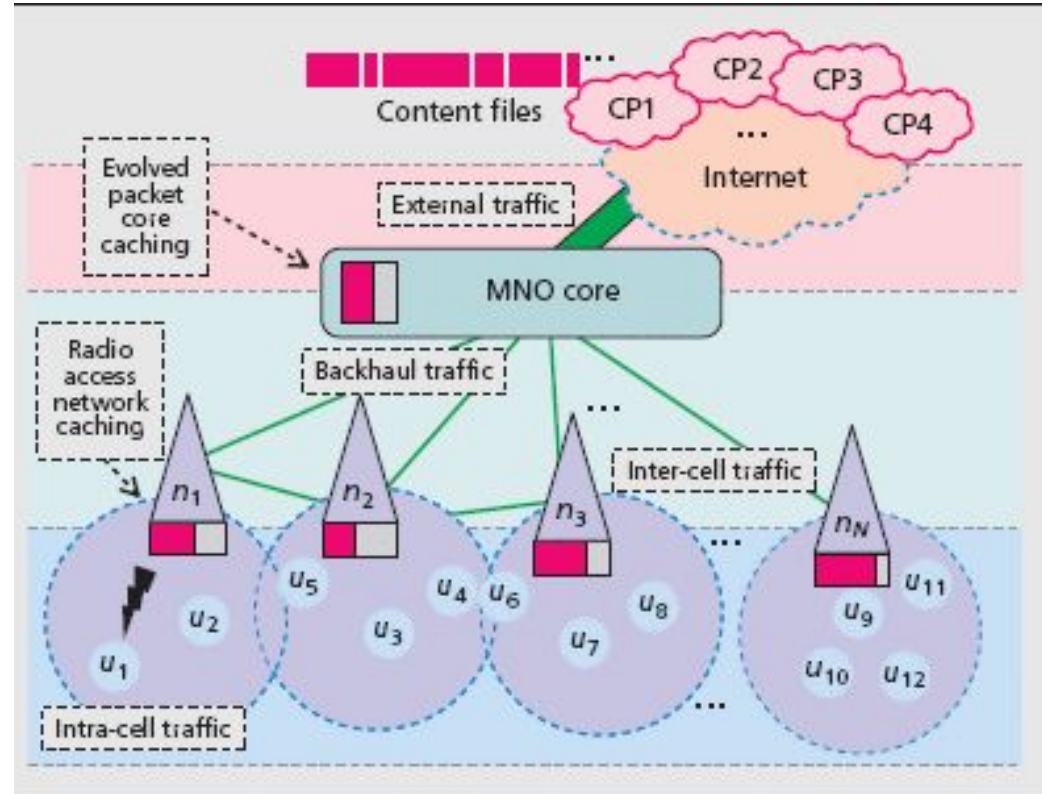
With slight modifications on an existing model.

Model discussed by "Cache in the Air:Exploiting Content Caching and Delivery Techniques for 5G Systems"

Sight modification:

To implement *Redundancy Elimination* in caching, as said in "Cache in the air: exploiting content caching and delivery techniques for 5G systems" page 4. This would help removing duplicate transmissions.

It involves deploying *2 middle boxes*:

```
        ISP                      MBC
         |                        |
   Middle box 1             Middle box 2
         |                        |
        MBC                   RAN(SBC)
```

I have some metrics based on which I can calculate the efficiency of the design

- Satisfied requests : *"Satisfied"*

- Requests routed to MBC and ISP: should be minimized.

- Hit Rate

- Delay in retrieving user requested content

- Backhaul Load

These metrics depend on some parameters:

- Cache storage capacity: assumed same for all RAN, which is less than that of MBC.

- Content Transmission capacity: for a more realistic approach.

- User demand heterogeneity.

The caching and routing policy should achieve these objectives:

-   Maximizing the *satisfied* user requests

-   Decreasing the delay time in content transmission.

-   Decreasing the inter-ISP traffic (traffic between internet and various MBCs).

-   Decreasing the intra-ISP traffic (traffic between RANs and their common MBC)

The last two demands are often contradicting, so an optimal tradeoff is required between them.
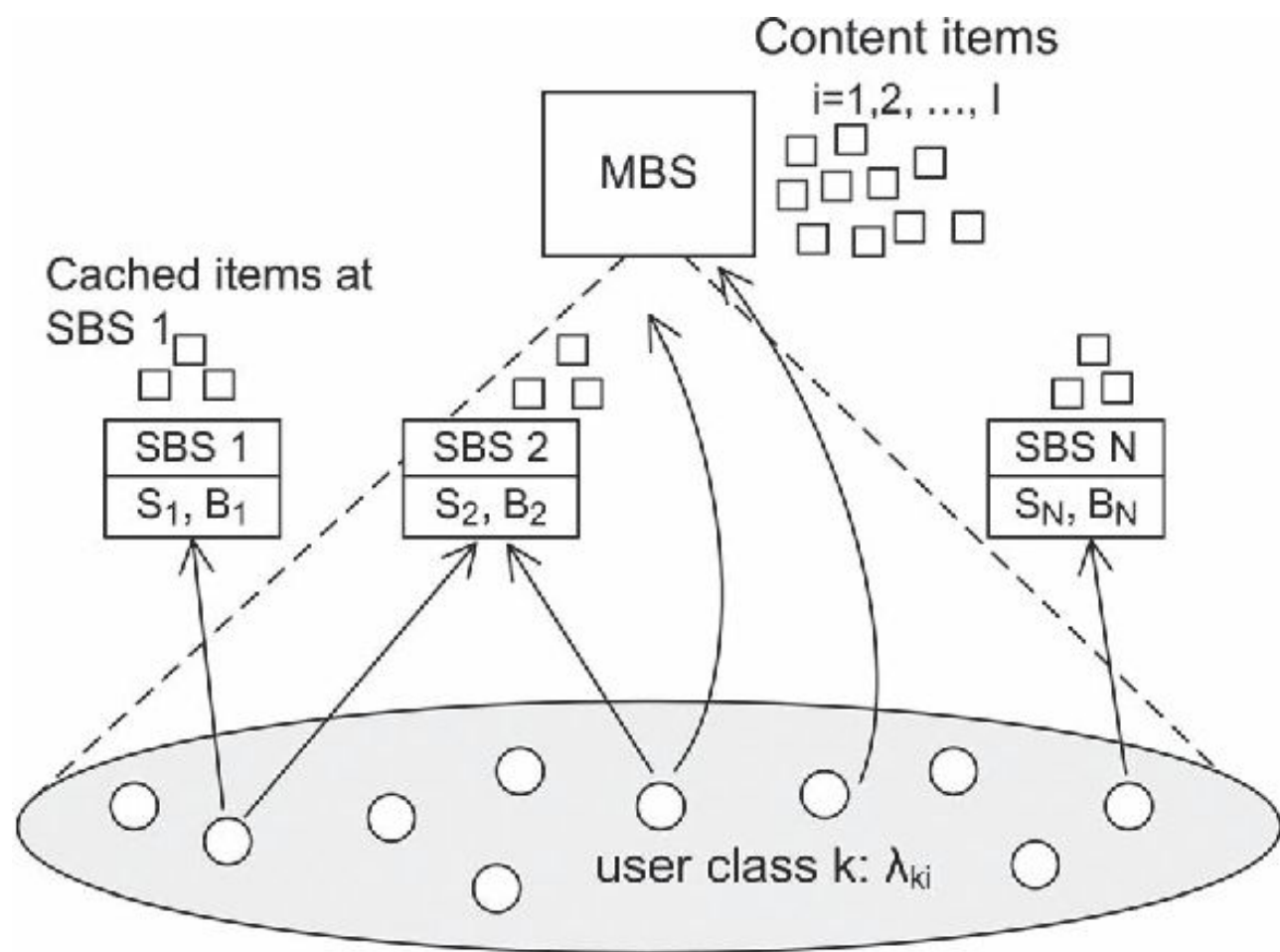
We need an optimal caching policy to satisfy these demands.

I would be running the model with:

- No cache
- Cache, but without an intelligent algorithm to handle the cached content and user requests.
- An optimal caching policy.