

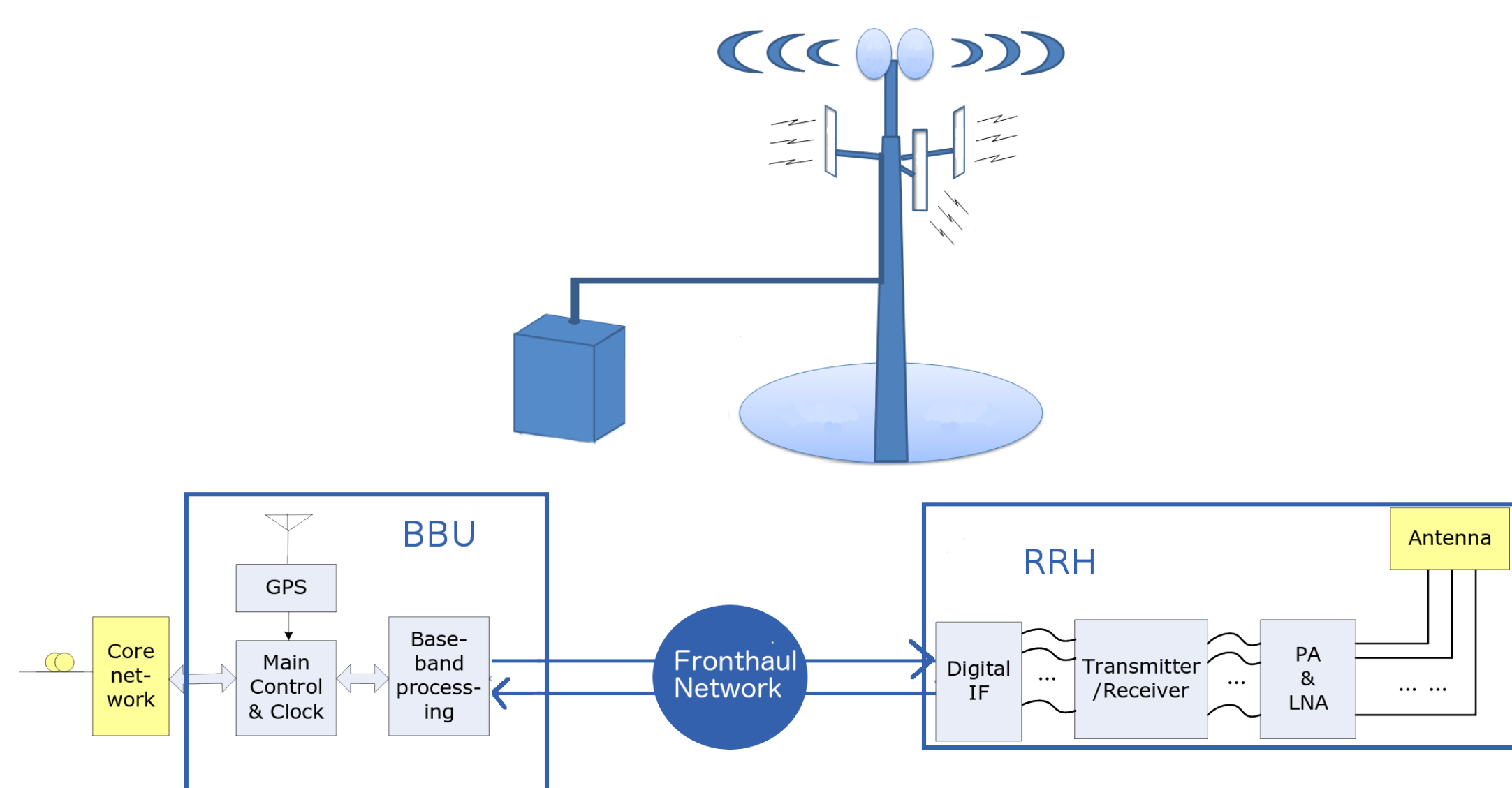
Deterministic contention management for low latency Cloud RAN over an optical ring

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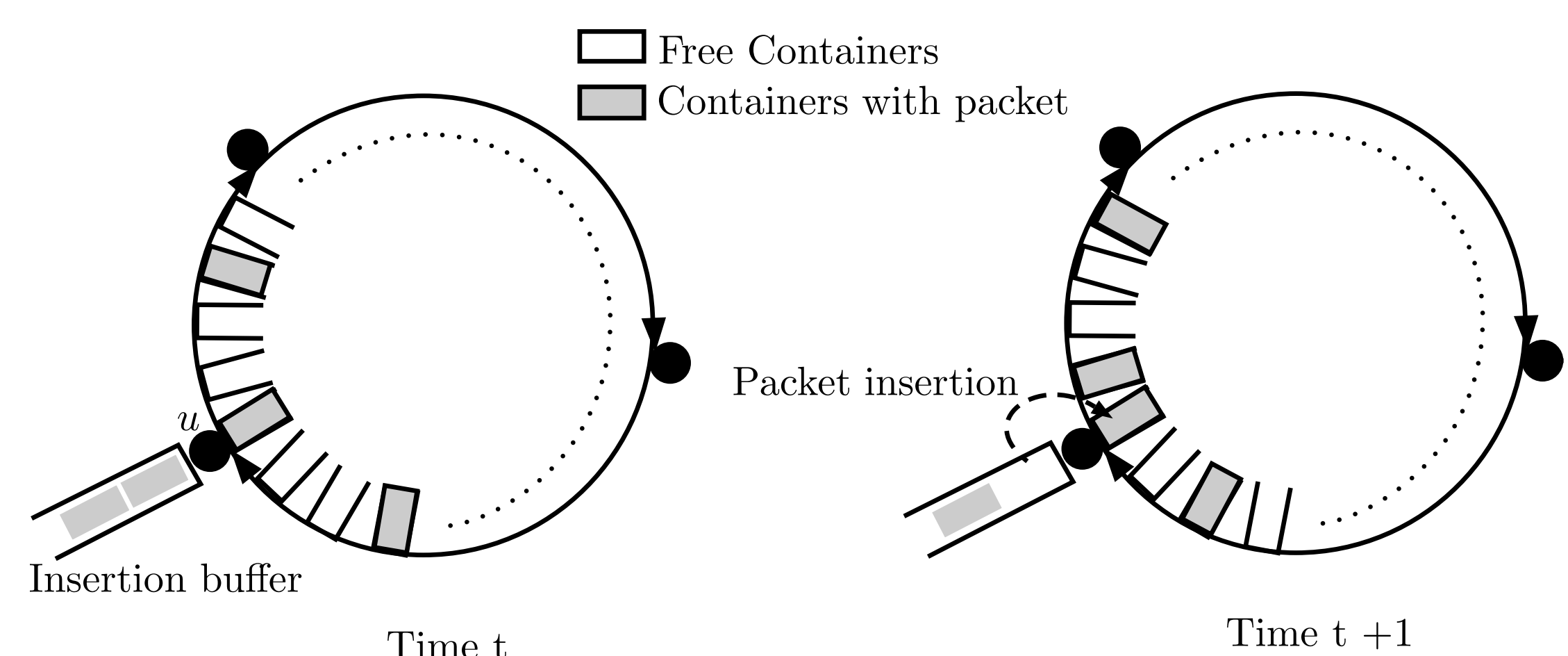
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Cloud RAN context



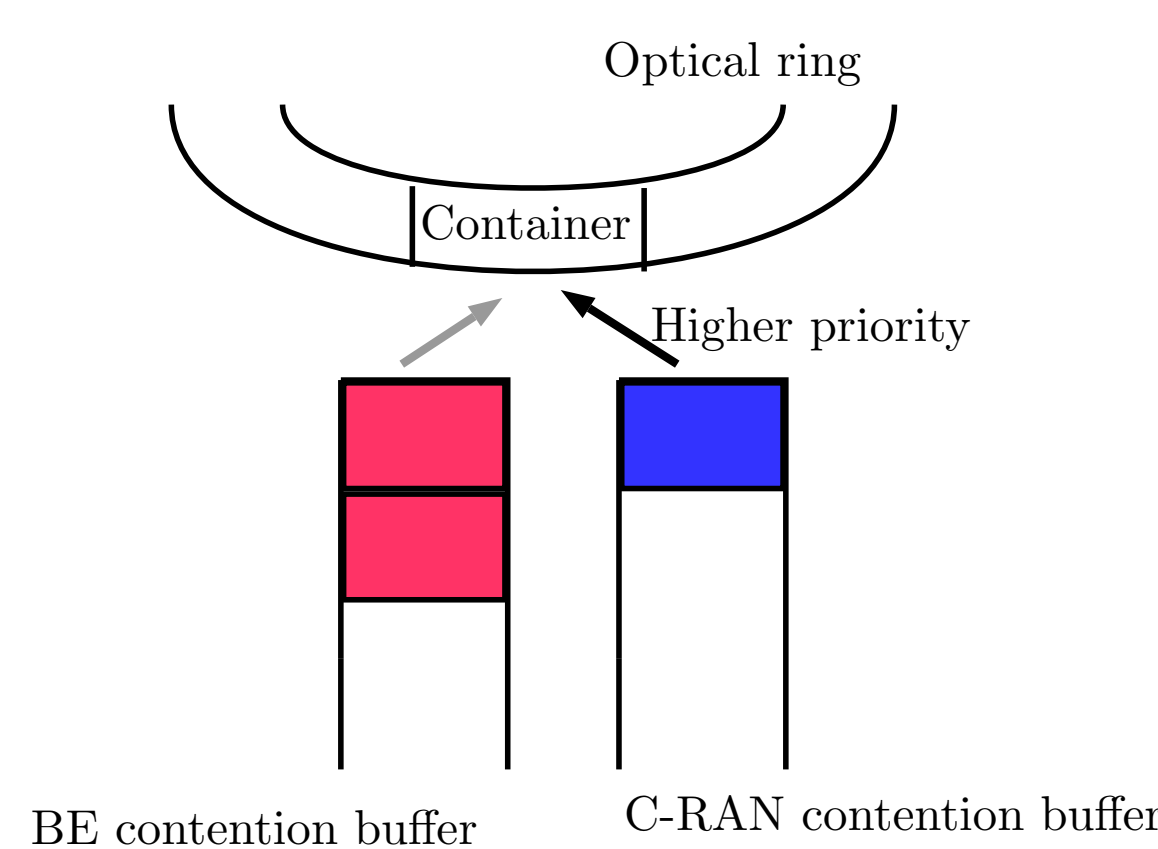
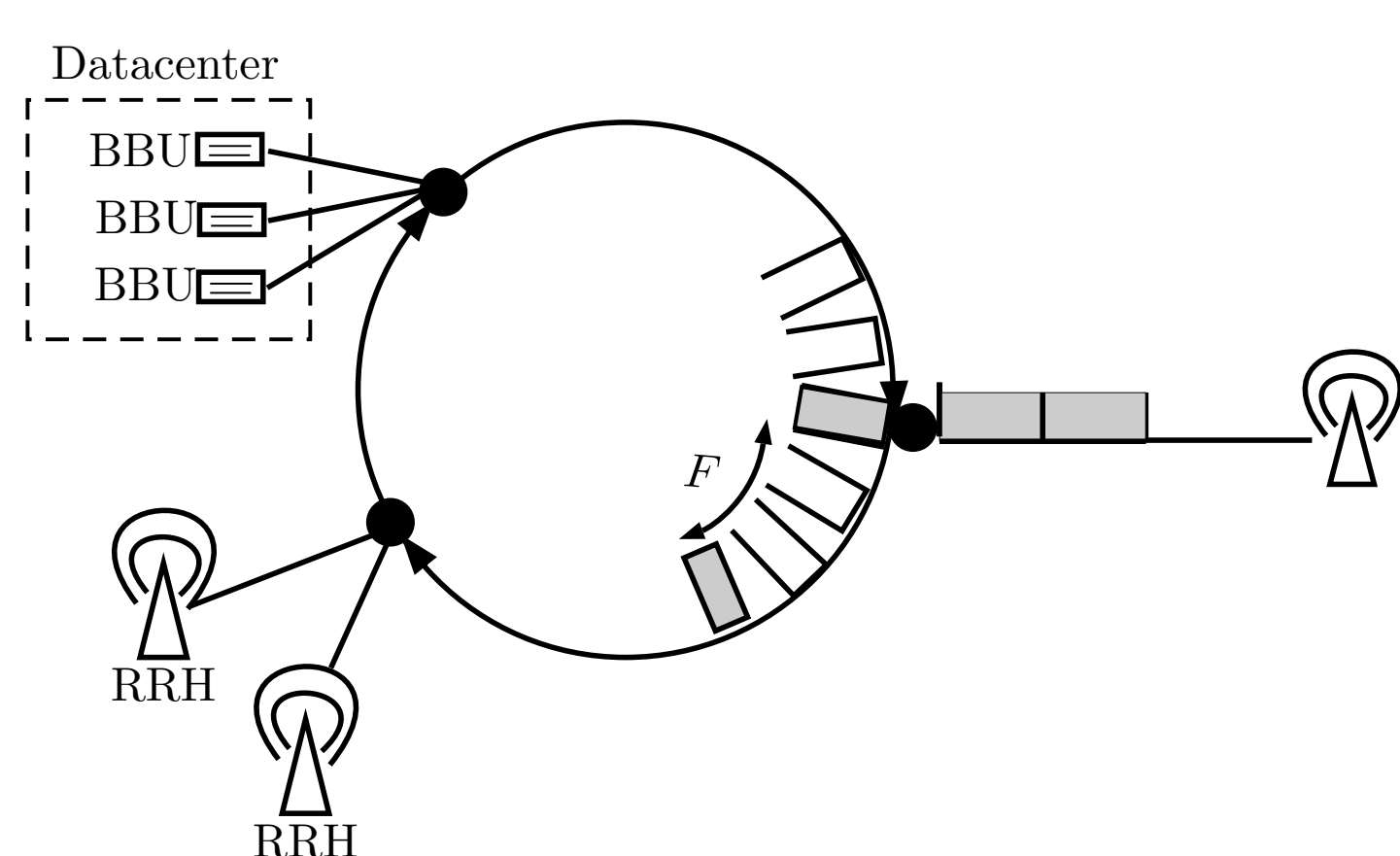
- The idea is to **centralize** all BBUs in a data-center.
- There is an **heavy and periodic** traffic between the RRH (radio antenna) and the BBU (computation unit).

N-GREEN optical ring



- Every μs each node can read/write in a new container of 100kb.
- The ring supports up to **10 nodes**.
- **Broadcast and select** policy on the ring.
- The nodes are electronic to optic interfaces.

Reducing the C-RAN traffic latency

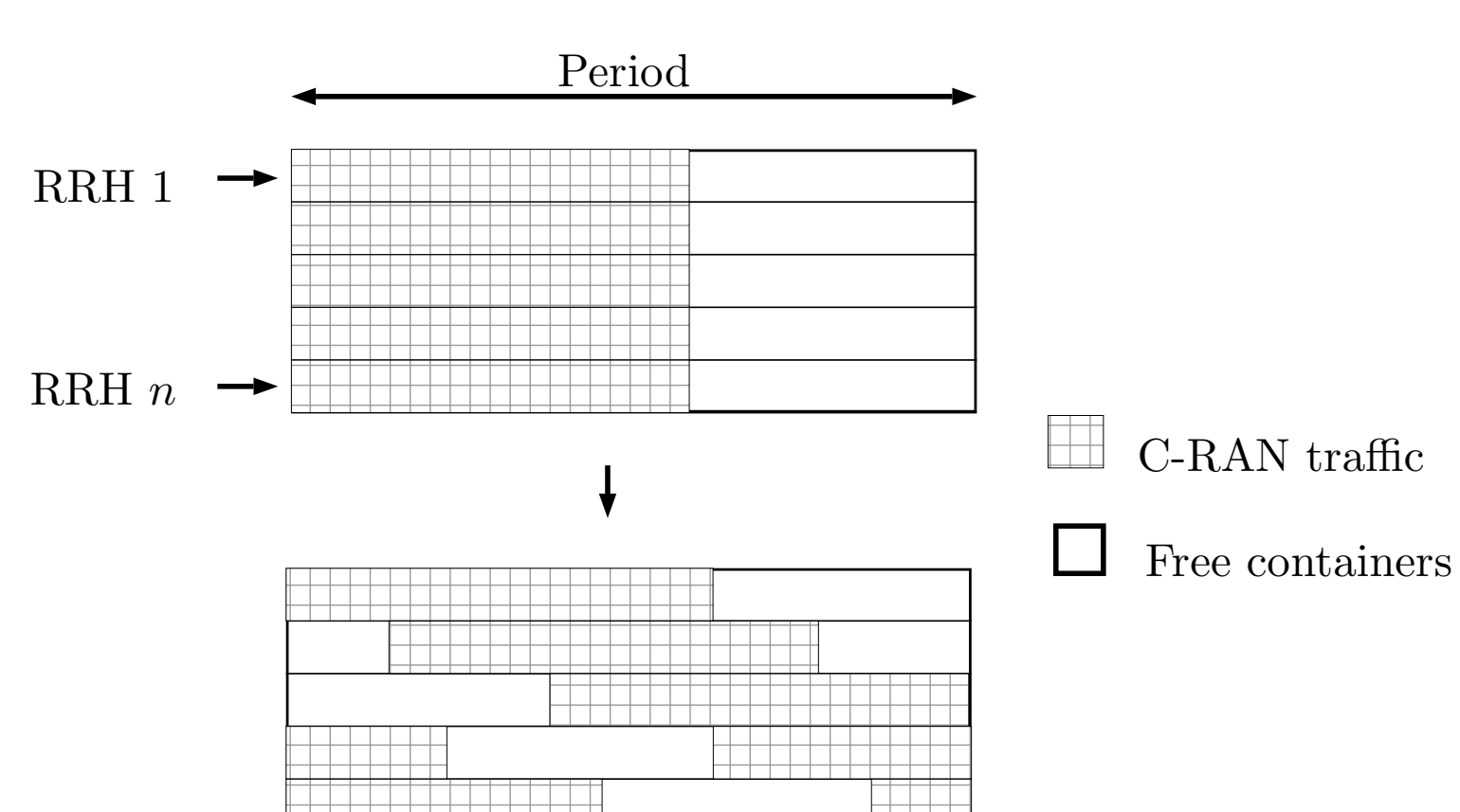


- Due to the interface, an antenna can emit at most once every 10 slots on the ring.
- Statistical multiplexing add latency to both C-RAN and best effort.

- Removing C-RAN's packets contention by **reserving** containers one round before using them.
- We **deterministically** fix the start of emission of each antenna in the period.

Deterministic scheduling

- The C-RAN traffic is scheduled in order to have **zero additional latency**, and to minimize the best effort traffic latency.
- We propose several way to **distribute the load** of C-RAN traffic over a period.



Results

