Synchronized Playback in RAMS
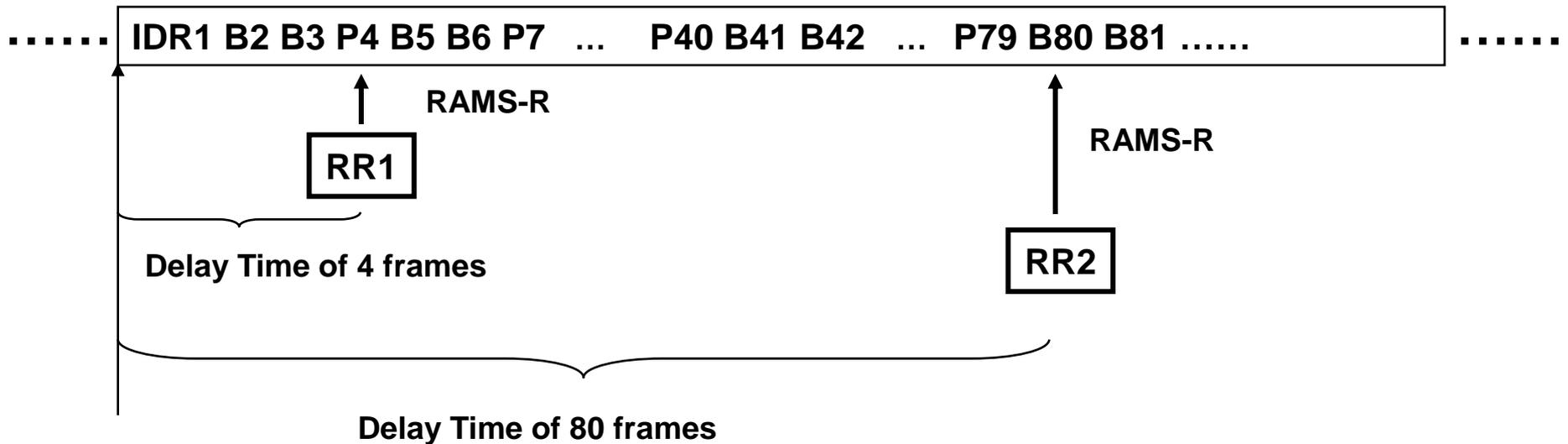
draft-yang-avt-rtp-synced-playback-00

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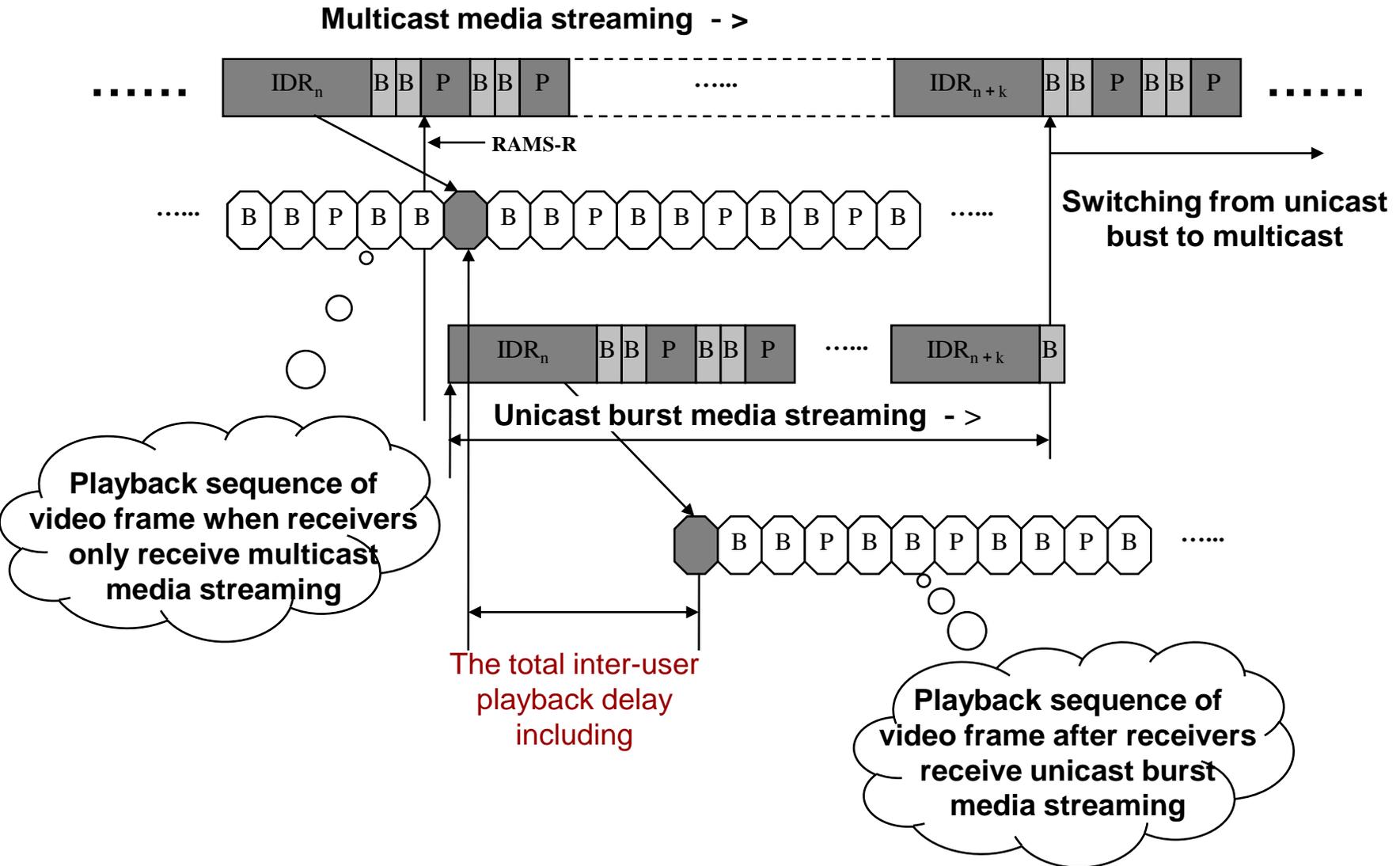Ye-Kui Wang, Huawei Technologies, yekuiwang@huawei.com

The issue induced by RAMS:
Increasing inter-user playback delay

Media   streaming ⟶

IDR1 B2 B3 P4 B5 B6 P7   ...   P40 B41 B42   ...   P79 B80 B81 ......

RAMS-R

RR1

RAMS-R

RR2

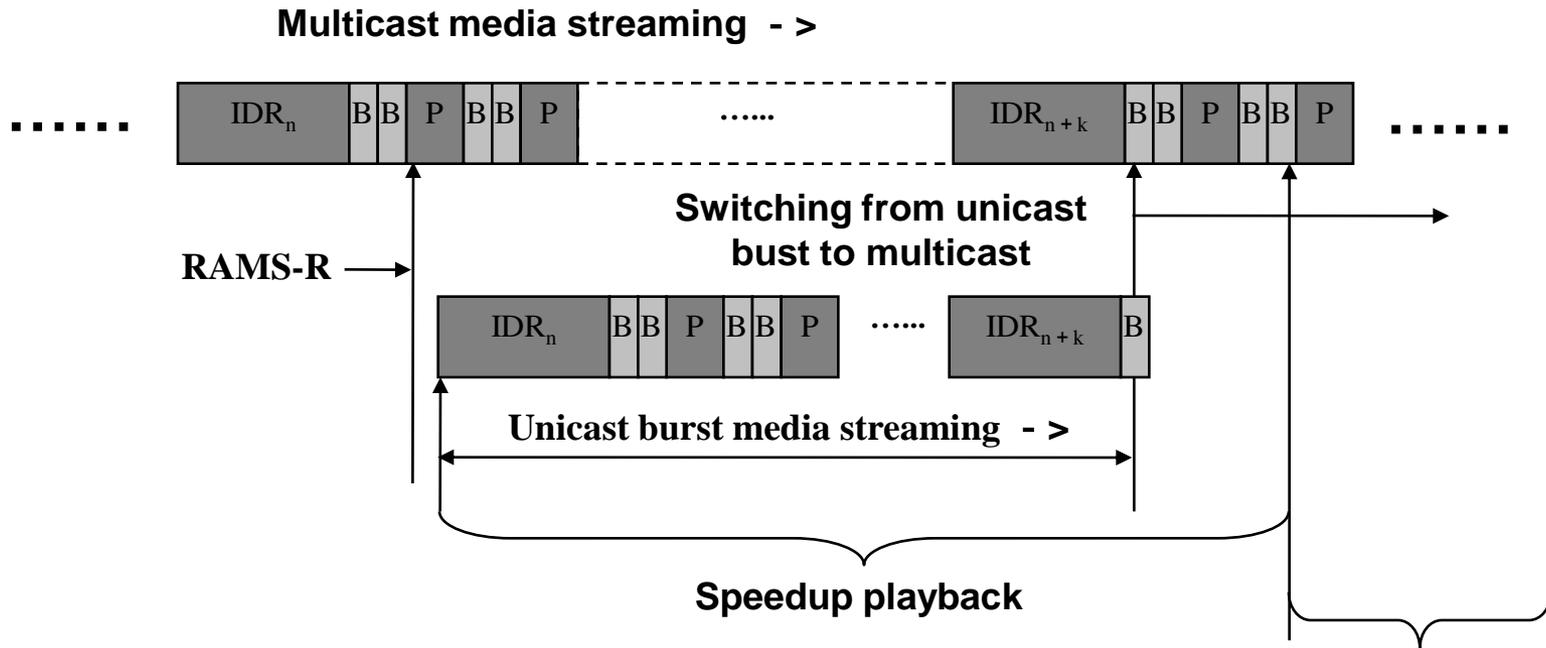**Delay Time of 4 frames**

Delay Time of 80 frames

**Different Receivers will have different delay due to the use
of Rapid Acquisition of Multicast RTP Session**

The total inter-user playback delay

Multicast media streaming - >

| IDR$_n$ | B | B | P | B | B | P | ...... | IDR$_{n+k}$ | B | B | P | B | B | P |

...... RAMS-R ......

B B P B B ⬡ B B P B B P B B P B ......

Switching from unicast bust to multicast

| IDR$_n$ | B | B | P | B | B | P | ...... | IDR$_{n+k}$ | B |

Unicast burst media streaming - >

⬡ B B P B B P B B P B ......

Playback sequence of video frame when receivers only receive multicast media streaming

The total inter-user playback delay including

Playback sequence of video frame after receivers receive unicast burst media streaming

Reducing the playback delay
----Speedup of media rendering

Multicast media streaming - >

Switching from unicast bust to multicast

RAMS-R

Unicast burst media streaming - >

Speedup playback

Original speed playback

RRs receive two additional information from RAMS-I:

- □ N - the playback delay reduction target in number of frame durations;
- □ V - recommended interval, in frames, between two continuous events for skipping of one frame.

The method of the speedup playback is that, after each V frames, one frame is skipped as if it was not present, and the presentation time of each remaining frame is shifted earlier by one frame duration, until totally N frames have been skipped.

Advantages of the proposal

- **Reduce inter-user playback delay**

- **Allow the use of long random access period length for improved compression efficiency when RAMS is in use**

Thank you

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