

WebRTC use cases and requirements for real-time communication scenarios

**Lin Li
China Mobile MIGU
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the livestreaming multimedia ecosystem is experiencing robust growth, while also needs fulfill a broad range of user demands. Major tech companies in China are strategically involved in it.



Livestreaming e-commerce,
fundamental livestreaming
cloud services



Large-scale livestreaming
like sports events and music
concerts, metaverse
convention



Educational livestreaming,
livestreaming e-commerce,
next-gen Conferencing

“Cloud Box” :

- ❑ customized on-line private room for watching sports event, concert, etc., together with families and friends , which has been applied in the Tokyo Olympics, Beijing Winter Olympics and Qatar World Cup, and music concerts like the MIGU Music Awards
- ❑ the participants in “Cloud Box” can chat via video, voice and text with each other, while watching sports events, movies and TV together – meets the social needs of the guests.
- ❑ the audience in “Cloud Box” can watch the live broadcast and the interaction among the guests, but cannot participate the interaction.

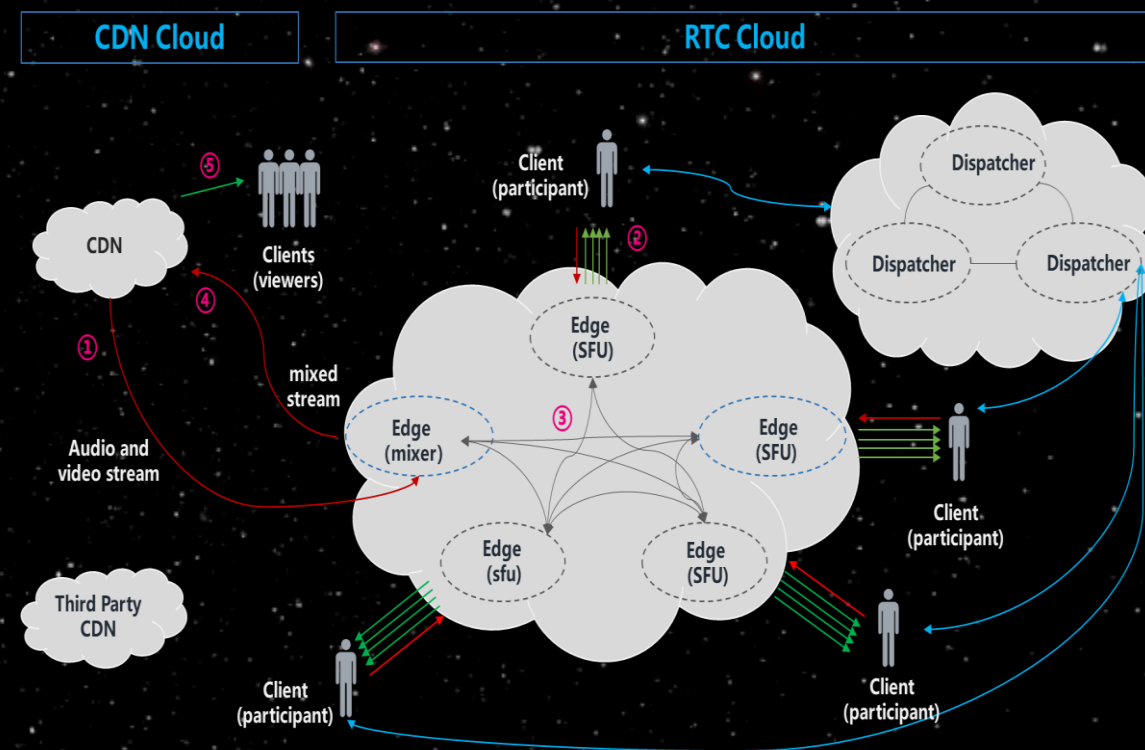


Real-time interactive Cloud Box for sports events, concert, movies, TV, etc.

Use case: Real-time interactive Cloud Box

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- ① The live and on-demand media streaming (sports events, movies, TV, etc.) are pushed from CDN via RTMP to the RTC edge node (mixer) which distributes them to the RTC cloud
- ② The clients of the participants in the cloud box, pull the live and on-demand media streaming from the RTC cloud, and push the real-time interaction media streaming captured via the microphone and camera to the RTC cloud
- ③ The real-time interaction media streaming pushed by the participants in the cloud box is distributed through the RTC cloud including the edge nodes (mixer) which are capable of media stream mixing and forwarding
- ④ The RTC edge nodes (mixer) mix the live and on-demand media streaming with real-time media streaming pushed by the participants and forwards to the CDN via RTMP
- ⑤ The clients of the viewers in the cloud box pull the mixed media streaming via RTMP, FLV, WebRTC, etc., from CDN



RTC and CDN cloud for real-time interactive Cloud Box

Real-time interaction with large scale audiences:

- ❑ Live streaming e-commerce, enabling interactive product showcases, direct audience engagement, and instant purchases.
- ❑ The anchor introduces the features of the products, demonstrates how to use, address customer inquiries, and offers exclusive deals or limited-time promotions via live streaming
- ❑ The participants(guests) can real-time interact with the anchor aiding the sale through video chat powered by WebRTC or text messages
- ❑ The customers watch the anchor live streaming and the interaction with the guests; interact with the anchor via text messages

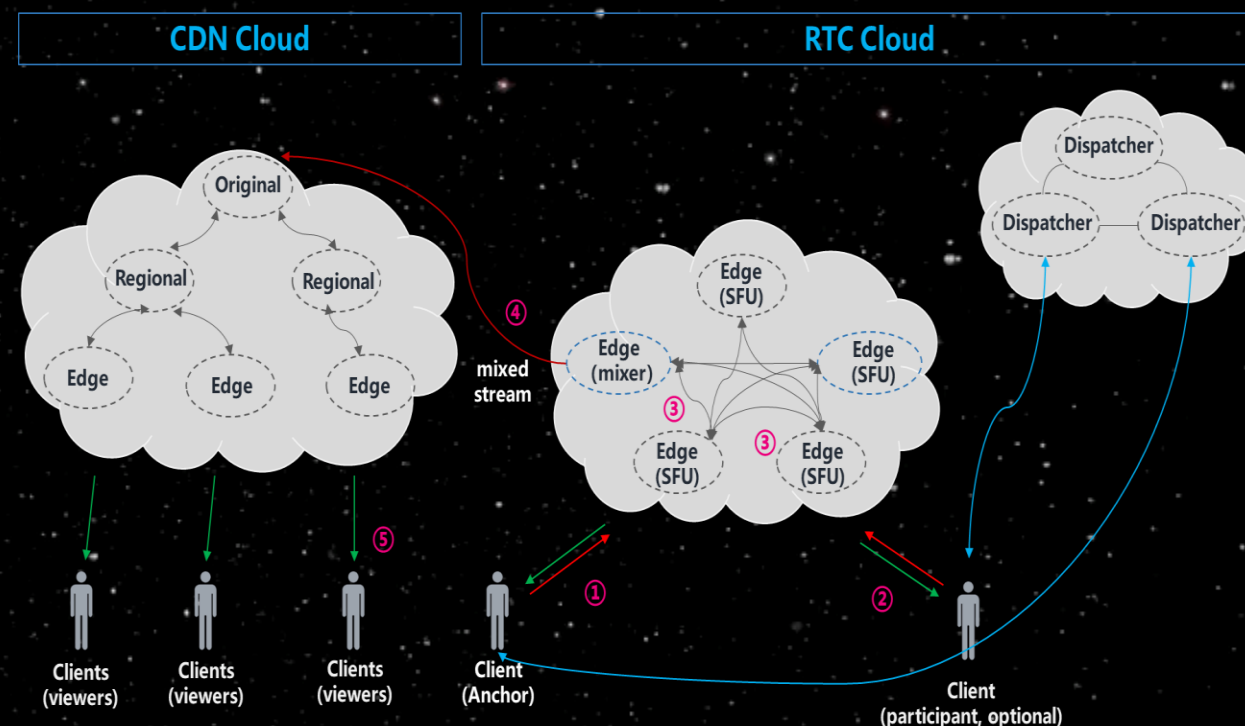


Real-time interactive live e-commerce

Use case: Real-time interactive live e-commerce

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- ① The anchor initiates live streaming via RTC client, demonstrate the products via the camera and push the media contents of product demonstration to the RTC edge nodes
- ② Sometimes a few participants(guests) invited to the live streaming can real-time interact on-line through the RTC network to assist product selling
- ③ The media streaming pushed by the anchor and participants is distributed through the RTC cloud including the edge nodes (mixer) which are capable of media stream mixing and forwarding
- ④ The RTC edge nodes (mixer) mix the live and on-demand media streaming with real-time media streaming pushed by the anchor and the participants, and forwards to the CDN via RTMP
- ⑤ The clients of the viewers pull the mixed media streaming via RTMP, FLV, WebRTC, etc., from the CDN



RTC and CDN cloud for real-time interactive live e-commerce

Immersive, real-time interactive platform:

- ❑ Built on the foundation of the technologies including audio-video interactive communication capabilities powered by WebRTC, 3D resources rendering, and AI-generated avatars, etc.
- ❑ Upgrade current traditional audio and video conferencing products to virtualize, gamify, and enhance interactivity for remote meetings, office, events, etc.
- ❑ The participants can create their own virtual characters, including cartoon and realistic styles
- ❑ With a variety of meeting rooms, the participants can choose the venue according to their own preferences

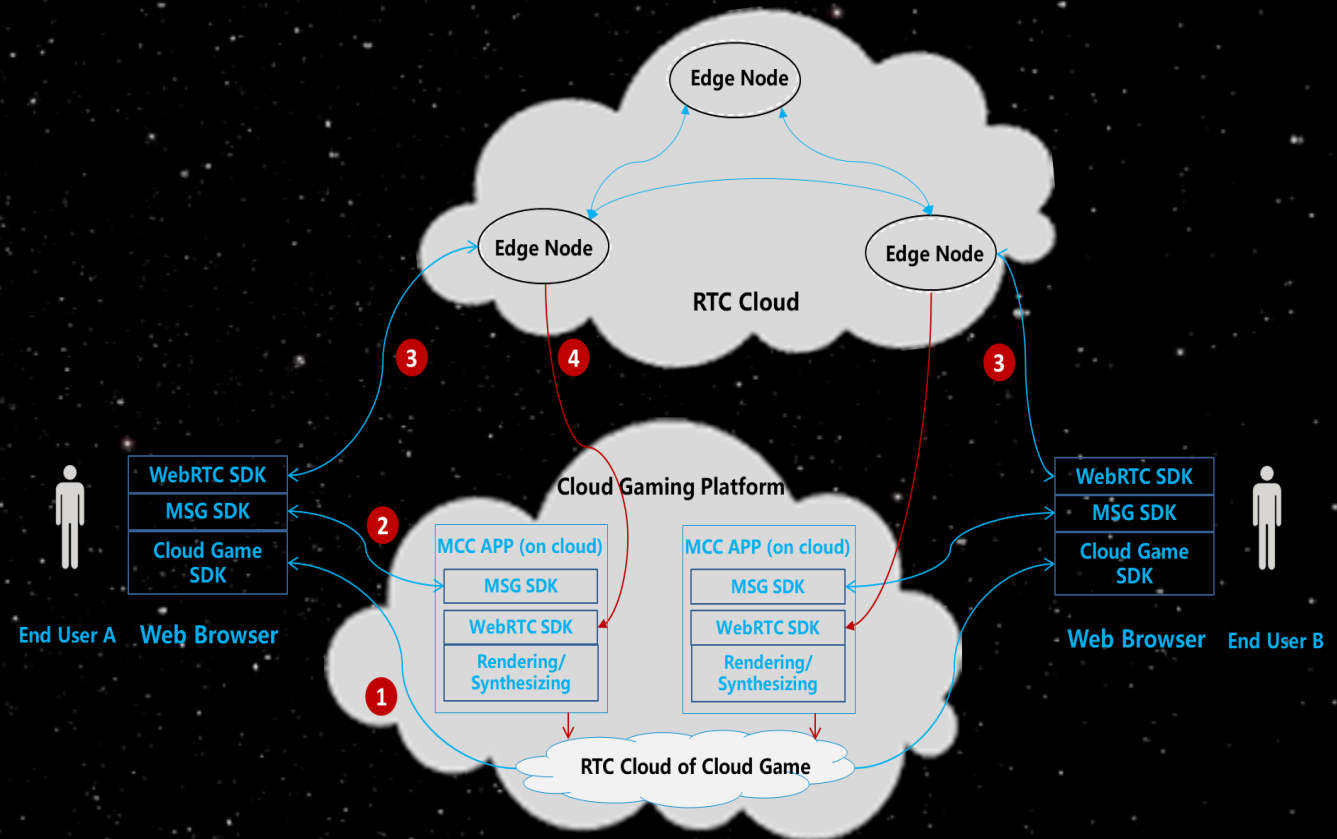


MIGU Metaverse Convention Center

Use case: Metaverse convention center (MCC)

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- ① The cloud game screen streaming is pushed to the Web browser through RTC cloud of cloud game.
- ② The browser of the user communicates control info through WebRTC DataChannel with the MCC application on the RTC cloud of cloud game. The control info includes heart-beating, user login, audio and video client-cloud coordination operation control, etc.
- ③ The audio and video media streaming of the user produced by the Web browser is pushed to RTC cloud via WebRTC SDK. And the audio streaming is pulled from RTC cloud to the Web client of the user.
- ④ The user video streaming is pulled from the RTC cloud by WebRTC SDK and rendered together with game screen. The rendered game streaming is pushed to RTC cloud of cloud game and pulled by Cloud Game SDK to the user.



RTC cloud for real-time interactive live e-commerce

Requirement relative to stats of frame freeze

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Requirement:

- An API is expected for setting the duration of frame freeze

Rational:

- TBD

Proposal:

- TBD

Requirement relative to audio transmission

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Requirement:

□ TBD

Rational:

□ TBD

Proposal:

□ TBD

Issue:

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Next step :

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