

devices).

[0095] In various embodiments, functionality for implementing systems or methods of various embodiments may be distributed among any number of client and/or server components. For example, various software modules may be implemented for performing various functions in connection with the system of any particular aspect, and such modules may be variously implemented to run on server and/or client components.

[0096] The skilled person will be aware of a range of possible modifications of the various embodiments described above. Accordingly, the present invention is defined by the claims and their equivalents.

Additional Considerations

[0097] As used herein any reference to "one embodiment" or "an embodiment" means that a particular element, feature, structure, or characteristic described in connection with the embodiment is included in at least one embodiment. The appearances of the phrase "in one embodiment" in various places in the specification are not necessarily all referring to the same embodiment.

[0098] Some embodiments may be described using the expression "coupled" and "connected" along with their derivatives. For example, some embodiments may be described using the term "coupled" to indicate that two or more elements are in direct physical or electrical contact. The term "coupled," however, may also mean that two or more elements are not in direct contact with each other, but yet still co-operate or interact with each other. The embodiments are not limited in this context.

[0099] As used herein, the terms "comprises," "comprising," "includes," "including," "has," "having" or any other variation thereof, are intended to cover a non-exclusive inclusion. For example, a process, method, article, or apparatus that comprises a list of elements is not necessarily limited to only those elements but may include other elements not expressly listed or inherent to such process, method, article, or apparatus. Further, unless expressly stated to the contrary, "or" refers to an inclusive or and not to an exclusive or. For example, a condition A or B is satisfied by any one of the following: A is true (or present) and B is false (or not present), A is false (or not present) and B is true (or present), and both A and B are true (or present).

[0100] In addition, use of the "a" or "an" are employed to describe elements and components of the embodiments herein. This is done merely for convenience and to give a general sense of the invention. This description should be read to include one or at least one and the singular also includes the plural unless it is obvious that it is meant otherwise.

[0101] Upon reading this disclosure, those of skill in the art will appreciate still additional alternative structural and functional designs for a system and/or a process associated with the disclosed principles herein. Thus, while particular embodiments and applications have been illustrated and described, it is to be understood that the disclosed embodiments are not limited to the precise construction and com-

ponents disclosed herein. Various apparent modifications, changes and variations may be made in the arrangement, operation and details of the method and apparatus disclosed herein without departing from the spirit and scope defined in the appended claims.

What is claimed is:

1. A computing system for managing auxiliary media delivery during a pre-primary communication state of a communication session, the system comprising:

- at least one processor;
- memory storing instructions; and
- a session controller executable by the at least one processor and configured to:
 - establish or access, for a communication session, a session identifier and an associated session context comprising signaling context and/or security context;
 - determine that at least one endpoint associated with the session identifier is in a pre-primary communication state before initiation of a primary live communication phase;
 - obtain authorization information provided by a communication platform, the authorization information authorizing auxiliary media delivery within an interface associated with the communication session;
 - obtain rule data associated with the communication session, the at least one endpoint, or an entity associated with the communication session from a data store;
 - process the rule data and a state associated with the at least one endpoint to generate auxiliary media routing instructions;
 - retrieve a selected auxiliary media asset from the data store or from an external content source;
 - route and render the selected auxiliary media asset to the at least one endpoint within the established session context;
 - detect a transition of the at least one endpoint from the pre-primary communication state to the primary live communication phase;
 - modify, terminate, preserve, or record auxiliary media state within the established session context based on the transition; and
 - store auxiliary media delivery data and associated session data in the data store;
- wherein the authorization, routing, rendering, transition handling, auxiliary media state modification, and session-data storage operations are executed within the established session context; and
- wherein the session controller is configured to prevent creation of a new session context during execution of said operations.

2. The computing system of claim 1, wherein the session controller is configured to maintain the same session identifier from entry of the at least one endpoint into the pre-primary communication state through transition into the primary live communication phase.

3. The computing system of claim **1**, wherein the pre-primary communication state comprises a waiting-room state, lobby state, pre-join state, hold state, staging state, admission-pending state, or queue state.

4. The computing system of claim **1**, wherein the communication platform comprises a video conferencing system, audio conferencing system, contact center system, telehealth system, enterprise collaboration system, or real-time communication system.

5. The computing system of claim **1**, wherein the established session context comprises an existing Session Initiation Protocol dialog or an existing WebRTC PeerConnection state.

6. The computing system of claim **5**, wherein, when the communication session is a Session Initiation Protocol dialog, the session controller is configured to route or render the selected auxiliary media asset over a negotiated secure real-time transport path without creating a new Call-ID.

7. The computing system of claim **5**, wherein, when the communication session is a WebRTC PeerConnection, the session controller is configured to route or render the selected auxiliary media asset on the existing WebRTC PeerConnection without performing a new ICE handshake or a new DTLS handshake.

8. The computing system of claim **1**, wherein the authorization information comprises an access credential, application programming interface token, OAuth token, mutual Transport Layer Security validation result, webhook authorization, session-bound permission object, or time-limited credential.

9. The computing system of claim **1**, wherein the authorization information is retrieved from a video conferencing system and authorizes delivery of third-party content through a waiting-room graphical interface of the video conferencing system.

10. The computing system of claim **1**, wherein the selected auxiliary media asset comprises an advertisement, informational video, compliance notice, instructional media, emergency notice, or consent prompt.

11. The computing system of claim **1**, wherein the rule data comprises one or more delivery conditions selected from event metadata, participant metadata, endpoint identity, endpoint classification, device capability, network condition, expected wait time, organizer identity, jurisdictional attribute, or content classification.

12. The computing system of claim **1**, wherein the selected auxiliary media asset is rendered as a full-frame display, overlay, picture-in-picture element, auxiliary media track, multiplexed media stream, or client-rendered streaming resource.

13. The computing system of claim **1**, wherein the session controller is configured to selectively route the selected auxiliary media asset only to endpoints that remain in the pre-primary communication state.

14. The computing system of claim **1**, wherein the session controller is configured to terminate delivery of the selected auxiliary media asset automatically upon admission of the at least one endpoint to the primary live communication phase.

15. The computing system of claim **1**, wherein the session controller is configured to modify delivery of the selected auxiliary media asset upon admission of the at least one endpoint to the primary live communication phase by converting the selected auxiliary media asset to an overlay, caption, transcript, muted stream, secondary track, stored session artifact, or audit record.

16. The computing system of claim **1**, wherein the session controller is configured to maintain continuity of identity, policy, authorization, security, routing, rendering, transition handling, and audit state between the pre-primary communication state and the primary live communication phase.

17. The computing system of claim **1**, wherein the session controller is configured to generate a structured record from the auxiliary media delivery data and the associated session data and to transmit, or cause transmission of, the structured record by an application programming interface or webhook to a customer relationship management system, helpdesk system, advertising system, compliance system, or audit system.

18. The computing system of claim **1**, wherein a change in endpoint state, admission state, auxiliary media permission state, track selection, rendering mode, delivery rule, content selection state, security state, or authorization state is applied as a modification within the established session context and without creating a replacement session context.

19. The computing system of claim **1**, wherein the communication session is operable across at least two conferencing architectures selected from WebRTC, Session Initiation Protocol, selective forwarding unit architecture, multipoint control unit architecture, and hybrid selective forwarding unit/edge-offload architecture, while maintaining a common session-state model for auxiliary media delivery during the pre-primary communication state.

20. A method for managing auxiliary media delivery during a pre-primary communication state of a communication session, the method comprising:

- establishing or accessing, for a communication session, a session identifier and an associated session context comprising signaling context and/or security context;
- determining that at least one endpoint associated with the session identifier is in a pre-primary communication state before initiation of a primary live communication phase;
- obtaining authorization information provided by a communication platform, the authorization information authorizing auxiliary media delivery within an interface associated with the communication session;
- obtaining rule data associated with the communication session, the at least one endpoint, or an entity associated with the communication session;
- processing the rule data and a state associated with the at least one endpoint to generate auxiliary media routing instructions;
- retrieving a selected auxiliary media asset;

routing and rendering the selected auxiliary media asset to the at least one endpoint within the established session context;
detecting a transition of the at least one endpoint from the pre-primary communication state to the primary live communication phase;
modifying, terminating, preserving, or recording auxiliary media state within the established session context based on the transition; and
storing auxiliary media delivery data and associated session data;
wherein the authorization, routing, rendering, transition handling, auxiliary media state modification, and session-data storage operations are executed within the established session context; and
wherein no new session context is created during execution of said operations.

21. A computing system for authorized third-party media delivery through a video conferencing waiting-room interface, the system comprising:
at least one processor;
memory storing instructions; and
a content delivery injection server executable by the at least one processor and configured to:
receive, from a video conferencing system, authorization information comprising an access credential or application programming interface token authorizing delivery of third-party content

video conferencing system;
determine that an endpoint associated with a video conferencing session is in a waiting-room state before admission to a primary live video conference;
select a pre-recorded media asset for delivery to the endpoint based on rule data associated with the video conferencing session;
cause the pre-recorded media asset to be rendered through the waiting-room graphical interface while the endpoint remains in the waiting-room state;
detect admission of the endpoint from the waiting-room state into the primary live video conference; and
terminate, modify, or record delivery state of the pre-recorded media asset based on the admission;
wherein the delivery of the pre-recorded media asset occurs within an established session context associated with the video conferencing session, without creating a parallel media session for the pre-recorded media asset and without renegotiating a security context or transport context associated with the video conferencing session.

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