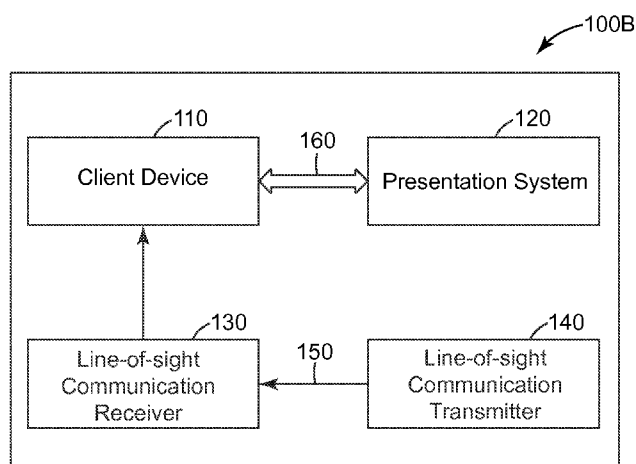




- (51) **International Patent Classification:**
H04L 5/20 (2006.01)
- (21) **International Application Number:**
PCT/US2013/055181
- (22) **International Filing Date:**
15 August 2013 (15.08.2013)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
61/693,457 27 August 2012 (27.08.2012) US
- (71) **Applicant:** 3M INNOVATIVE PROPERTIES COMPANY [US/US]; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US).
- (72) **Inventors; and**
- (71) **Applicants :** PARKER, Douglas S. [US/US]; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US). RODRIGUEZ, Ernesto M. Jr. [US/US]; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US). SCHARDT, Craig R. [US/US]; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US). JESME, Ronald D. [US/US]; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US).
- (74) **Agents:** HUANG, X. Christina, et al.; 3M Center Office of Intellectual Property Counsel, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US).
- (81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) **Title:** SYSTEMS AND METHODS FOR PRESENTATION REQUEST AND DELIVERY**Fig. 1B**

(57) **Abstract:** A presentation request and delivery system includes a client device and a presentation system. In some cases, the client device is configured to send a request for at least part of the presentation being presented on the presentation system, where the request includes an audience identification. In some other cases, the client device is configured to obtain a device identification of a presentation device via a line-of-sight communication interface and send a request for at least part of the presentation, where the request may include an audience identification and at least part of the device identification. Upon receiving the request, the presentation system will verify whether the request is authorized using the audience identification and deliver the at least part of the presentation requested if the request is authorized.

**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*

SYSTEMS AND METHODS FOR PRESENTATION REQUEST AND DELIVERY**Technical Field**

The present disclosure is related to systems and methods to request presentation and to deliver the presentation in response to the request.

Summary

In one embodiment, a presentation request and delivery system includes a presentation system configured to present a presentation at a physical location; and a client device configured to send a request for at least part of the presentation while the presentation is presented on the presentation system via a network connection. The request includes an audience identification and temporal information of the presentation. The presentation system is configured to receive the request via the network connection and verify whether the request is authorized using the audience identification. The presentation system is further configured to deliver the at least part of the presentation to the audience if the request is authorized.

In another embodiment, a presentation request and delivery system includes a presentation system, a light-of-sight communication transmitter, a line-of-sight communication receiver, and a client device. The presentation system includes a presentation device having a device identification and configured to present a presentation, and a presentation server communicatively coupled to the presentation device and configured to store the presentation. The line-of-sight communication transmitter is configured to transmit a device identification of the presentation device via a line-of-sight communication interface. The line-of-sight communication receiver is configured to receive the device identification of the presentation device. The client device is communicatively coupled to the line-of-sight communication receiver and configured to obtain the device identification of the presentation device from the line-of-sight communication receiver. The client device is further configured to establish a network connection with the presentation system and send a request for at least part of the presentation via the network connection. The request includes an audience identification and at least part of the device identification of the presentation device. The presentation system is configured to receive the request via the network connection and verify whether the request is authorized using the audience identification. The presentation system is further configured to provide the at least part of the presentation to the audience if the request is authorized.

In yet another embodiment, a method of automatic presentation request and delivery includes the steps of: receiving, via a line-of-sight communication receiver communicatively coupled to a client device, a device identification of a presentation device; establishing a wireless communication between the presentation device and a client device using the device
5 identification of the presentation device; transmitting, via the client device, a request for at least part of presentation being presented on the presentation device, the request comprises an audience identification; automatically verifying, via a presentation server, whether the request is authorized using the audience identification; and delivering, via the presentation server, the at least part of presentation to the client device if the request is authorized.

10

Brief Description of the Drawings

The accompanying drawings are incorporated in and constitute a part of this specification and, together with the description, explain the advantages and principles of the invention. In the drawings,

15

Figure 1A provides an exemplary block diagram for a presentation request and delivery system;

Figure 1B illustrates another exemplary block diagram for a presentation request and delivery system;

20

Figures 2A and 2B are exemplary system diagrams for presentation request and delivery systems;

Figure 3A illustrates a scenario of presentation request and delivery system(s) in two adjacent meeting rooms;

Figure 3B is an illustration of an exemplary signal propagation diagram of presentation request and delivery system(s) in two adjacent meeting rooms; and

25

Figures 4A and 4B are exemplary logical flowcharts of presentation request and delivery systems.

Detailed Description

30

During a presentation, an audience may find the presentation interesting and would like to request a copy of the presentation. In some cases, the audience may capture the presentation via a camera or request to the presenter orally or electronically after the presentation. This will require a few actions of the audience to obtain the presentation. Embodiments of the present

disclosure are directed to systems and methods that allow an audience to send a request for presentation via a client device, and then the request can be processed and the presentation can be automatically delivered to the audience by a presentation system. The request for presentation can include the temporal information regarding when the presentation being seen
5 and/or heard and an audience identification that can be used to verify whether the request is authorized. A presentation system is a system that can present audio and/or visual content, provide storage space for presentation, and provide other services. A presentation system typically includes a presentation device and an optional presentation server. Some embodiments of the present disclosure are directed to systems include an additional line-of-sight
10 communication interface to provide device identification of a presentation device to client devices within a room. The device identification can be used to allocate the presentation and/or implement additional security mechanism (i.e., secure connection, pass code, etc.).

As used herein, a line-of-sight communication refers to a wireless communication between a transmitter and a receiver that is predominantly constrained to a limited space. In
15 some cases, the transmitter and receiver antennas can be in visual contact with one another (i.e., there is an unobstructed, straight-line path between the transmitter antenna and the receiver antenna). Despite the title, line-of-sight communications are not limited to communications between a transmitter antenna and a receiver antenna having a visually unobstructed straight-line path. In some cases, line-of-sight communication signals (i.e., electromagnetic or acoustic
20 wave) can be greatly attenuated and/or reflected by intervening construction materials such that the communication is generally limited to a room where the signal is originated. In such cases, because the communication signals can be reflected one or more times within a room boundary, there is no need to have an unobstructed straight-line path between a transmitter aperture and receiver aperture. In some other cases, the line-of-sight communication signals may have a rapid
25 rate of attenuation versus distance traveled. Line-of-sight communication interfaces may be, for example, communications via visible, infrared or ultraviolet light, or air transported acoustic waves including sound and ultrasound, near field communication (NFC), electrical waves, and the like.

Line-of-sight communication established by longer-wavelength light (i.e., infrared, etc.)
30 may have an advantage because it does not penetrate most construction materials such as wall, door, ceiling and floor, and it is constrained to a room. It is at least partially reflected by most building materials and room contents so it can be propagated to otherwise obstructed portions of

a room. It can be controlled to be directional so it can be used to selecting a specific display among multiple displays in a room. Further, it is not visible so it is unobtrusive to audiences. Line-of-sight communication established by a sound emission may have several advantages: it is constrained by building materials; it does not require a straight-line path; it can be at least
5 partially reflected by building materials and it can penetrate clothing so it can propagate to otherwise obstructed portions of a room; and if ultrasonic acoustic emission is used, it is not audible so it is unobtrusive to audiences.

Rooms typically have generally opaque walls, ceilings and floors that generally prohibit escape or entrance of various forms of light. In some cases, rooms, especially meeting rooms
10 and classrooms, typically have walls, ceiling and floors that greatly attenuate sound that might otherwise enter or leave the room. It is desirable to prevent an event held in one room from disturbing an event held in a nearby room, and to preserve privacy. Communications based on magnetic fields (such as near field communication (NFC)) or electric fields alone (as opposed to a balance of electromagnetic fields such as in propagating electromagnetic waves) may also be
15 used as line-of-sight communication methods to limit the range of communication because of the rapid rate of attenuation versus distance traveled. It is noted that some room structures do not provide significant attenuation to communication modes based on magnetic fields or electric fields alone. A line-of-sight communication link may be established by, for example, sonic transmitter and receiver, light transmitter and receiver, near field communication devices, and/or
20 the like. In one specific example, a line-of-sight communication link may be established by an ultrasonic or infrared transmitter and receiver.

A presentation device can be any device having display or projecting capability. For example, a presentation device can be a projector, a display, a mobile computer screen, a mobile phone screen, or the like. In some configurations, a presentation device may include a processor
25 and a memory for storing and/or decoding presentation. In some other configurations, a presentation device may be communicatively coupled to a presentation server that can store and/or decode presentation. Two devices can be communicatively coupled via any wired and/or wireless connection schemes. A memory can include non-transitory computer readable medium, transitory computer readable medium, or a combination thereof. A client device can be any
30 device capable of sending a request for presentation via network connection (i.e., wired connection, wireless connection, etc.). A client device can be, for example, a computer, a smart phone, a portable computing device, or the like. In some embodiments, a client device may

receive a device identification of a presentation device in a same room via a line-of-sight communication link. A room can be any partitioned space. A room is not necessarily a total enclosed space partitioned by walls and doors. A room, for example, may be a cubicle area. In an exemplary embodiment, a line-of-sight communication transmitter is configured to broadcast
5 a device identification of a presentation device in a room. The line-of-sight communication transmitter may be associated with the presentation device to the extent that the device identification of the presentation device is known to the transmitter. In some implementations, the line-of-sight communication transmitter may be coupled to the presentation device via a wired or wireless connection. In some other implementations, the line-of-sight communication
10 transmitter may be a separate device that is not coupled to the presentation device via any means. In yet other implementations, the line-of-sight communication transmitter may be an integrated part of the presentation device.

A client device may receive the device identification of the presentation device via a line-of-sight communication receiver that is communicatively coupled to the client device. In some
15 configurations, the line-of-sight communication receiver may be an integrated part of the client device. In some other configurations, the line-of-sight communication receiver may be a standalone device connected to the client device. The device identification may be any data or information that can identify the presentation device. For example, the device identification may include an IP (i.e., internet protocol) address, a room number, an assigned device number, a
20 cellular phone number, a satellite network identification, or the like. The device identification may include security related data for wireless connection, for example, a pass code. The device identification may be a combination of multiple pieces of data, for example, a combination of a device number and a pass code to allow secured connection.

In some embodiments, the client device can include the device identification in a request
25 for presentation to specify which presentation or part of the presentation is requested. In some other embodiments, the client device can use information contained in the device identification of the presentation device to establish wired or wireless connection with the presentation system. For example, the device identification of the presentation device may contain a login pass code or encryption key. After a network connection is established between the client device and the
30 presentation system, the client device is configured to transmit request for presentation to the presentation system via the network connection. In some cases, using the line-of-sight communication interface, an encryption key or other security measures may be transmitted

within a room. In such cases, a secured connection can be established between the client device and the presentation system and the communication of request and delivery of the presentation or other information may utilize such secured connection. The network connection may be any wired or wireless connection. The network connection may be any short-range or long range communication interface. The short-range communication interfaces may be, for example, local area network (LAN), interfaces conforming to a known communications standard, such as Bluetooth standard, IEEE 802 standards (e.g., IEEE 802.11), a ZigBee or similar specification, such as those based on the IEEE 802.15.4 standard, or other public or proprietary wireless protocol. The long-range communication interfaces may be, for example, wide area network (WAN), cellular network interfaces, satellite communication interfaces, or the like.

Figure 1A provides an exemplary block diagram for a presentation request and delivery system **100**. In some embodiments, the system **100** can include a client device **110** and a presentation system **120**, which are communicating via a network connection **160**. The network connection **160** can include wired and wireless communication. The presentation system **120** is configured to present a presentation at a physical location, for example, in a meeting room, an auditorium, a classroom, or the like. The client device **110** can be controlled by an audience and transmit a request for at least part of the presentation while it is presented by the presentation system **120**. In some embodiments, the request can include an audience identification of the audience and the temporal information of the presentation (i.e., the local time of the start of the presentation, the session number of the presentation regarding to an agenda, the time when the presentation is viewed and/or listened to, etc.). For example, an audience sitting in a meeting room finds the presentation is interesting, and then he or she uses a client device to send a request for the presentation along with his or her identification as a meeting attendee.

The presentation system **120** is configured to receive the request via the network connection and verify whether the request is authorized using the audience identification. For example, the presentation system **120** can verify whether the audience is a registered meeting attendee. As another example, the presentation system **120** can verify whether the audience is authorized to receive the requested content (i.e., the at least part of the presentation). If the request is authorized, the presentation system **120** is configured to deliver the at least part of the presentation to the audience. In some implementations, the presentation system **120** is further configured to provide the at least part of the presentation to the audience before the presentation ends.

A presentation can include a presentation file, a video file, a picture file, an audio file, a CAD file, a data file, or a combination thereof. In some cases, a request for presentation can include information on specific file format, and the presentation system may convert the at least part of the presentation into the specific file format before delivering the at least part of the presentation to the audience. For example, the presentation system receives a request for a presentation specifying portable document format (PDF) and then converts the presentation originally in, for example, PowerPoint format, into a file in PDF format before delivers the presentation. The presentation system **120** can deliver presentation content via a download link, an attachment of an email, a drop box, automatically pushed into the memory of the client device **110**, or other communication channels.

Figure 1B illustrates another exemplary block diagram for a presentation request and delivery system **100B**. In one embodiment, the presentation request and delivery system **100B** includes a client device **110**, a presentation system **120**, a line-of-sight communication receiver **130**, and a line-of-sight communication transmitter **140**. The line-of-sight communication receiver **130** can be communicatively coupled to the client device **110**. The line-of-sight communication transmitter **140** can be associated with the presentation system **120**. In some cases, the line-of-sight communication transmitter **140** is integrated into the presentation system **120**. In some other cases, the line-of-sight communication transmitter **140** is a standalone device that maintains device identification or other information related to a presentation device and is capable to transmit this information via a line-of-sight communication interface. The line-of-sight communication transmitter **140** is configured to transmit signal via a line-of-sight communication interface. The line-of-sight communication receiver **130** is configured to receive signal via a line-of-sight communication interface. A line-of-sight communication connection **150** can be established between the transmitter **140** and the receiver **130**. In some embodiments, a device identification of a presentation device in the presentation system **120** can be transmitted via the transmitter **140** and received by the receiver **130**. In some cases, the client device **110** may use the device identification to establish a network connection **160** with the presentation system **120**. In some other cases, the client device **110** may use at least part of the device identification to compose a request for presentation. In such cases, the device identification can be used to specify the presentation being requested.

In an exemplary embodiment, the line-of-sight communication transmitter **140** may also transmit one or more encryption keys via the line-of-sight communication interface. The

encryption keys may be used to encrypt and decrypt presentation transmitted via the network connection **160**. In some embodiments, data to facilitate the setup or update network connection **160**, for example, a periodic checking signal, between the client device **110** and the presentation system **120** may be communicated via the line-of-sight communication connection **150**. In some implementations, the line-of-sight communication transmitter **140** is further configured to transmit a pass code via the line-of-sight communication interface and the line-of-sight communication receiver **130** is further configured to receive the pass code and provide the pass code to the client device **110**. In such implementations, the client device **110** can be configured to use the pass code to establish the network connection with the presentation system **120**. Further, in some embodiments, other data related to the configuration of the presentation system **120** may be sent to the client device **110** via the line-of-sight communication connection **150**.

In some implementations, the client device **110** may include a network transceiver. In some other implementations, a network transceiver, for example, a wireless transceiver, may be a separate device that is coupled to the client device **110**. Similarly, a network transceiver may be an integrated part of the presentation system **120**, or may be a separate device that is coupled to the presentation system **120**. In some embodiments, the client device **110** may use the data received via the line-of-sight communication interface to establish a wireless connection with the presentation system **120**. In some configurations, the line-of-sight communication interface **150** between the line-of-sight communication receiver **130** and the line-of-sight communication transmitter **140** may be bi-directional. In such configurations, both the receiver **130** and the transmitter **140** may transmit and receive data via a line-of-sight communication interface. In some cases, the client device **110** may control the set-up and configuration of the presentation system **120** via either the network connection **160** or the line-of-sight communication connection **150**.

In some embodiments, the presentation system **120** includes a single presentation device, which can provide presentations to audiences at a physical location and process requests for presentations. In some other embodiments, the presentation system **120** includes a presentation device and a presentation server communicatively coupled to the presentation device, where the presentation device can provide presentations to audience and the presentation server can store presentations and process requests for presentations. In yet other embodiments, the presentation system **120** can include a plurality of presentation devices dispersed in one or more locations and

a presentation server, where the presentation devices can provide presentations to audiences and the presentation server can store presentations and process requests for presentations.

Figure 2A is an exemplary system diagram for a presentation request and delivery system **200**. In one embodiment, the presentation request and delivery system **200** may include a presentation system **210** and a client device unit **220**. In some cases, the presentation system **210** and the client device unit **220** are within a room **290**. In some embodiments, the presentation system **210** may include a presentation device **214**, an optional presentation server **212**, a network transceiver **230**, and a line-of-sight communication emitter **240** that is also referred to as a line-of-sight communication transmitter herein. The presentation server **212** provides content storage or a temporary memory space for presentation content passing. The presentation server **212** can include data storage medium, such as non-transitory data storage medium, transitory data storage medium, or a combination of both. In some embodiments, as illustrated in Figure 2A, the client device unit **220** may include a client device **270**, a line-of-sight communication receiver **260**, and a network transceiver **280**. In some other embodiments, any of the three components in the client device unit **220** can be a standalone device or part of a device. For example, a client device **270** can include the network transceiver **280**. A line-of-sight communication connection **265**, also referred to as a line-of-sight communication interface or a line-of-sight communication link herein, may be established between the line-of-sight communication emitter **240** and the line-of-sight communication receiver **260**. Device identification or other data that may aid in setting up network connection and/or requesting presentations from the presentation system **210** can be propagated via the line-of-sight communication connection **265**.

A network connection **295** between the network transceiver **230** coupled to the presentation system **210** and the network transceiver **280** coupled to the client device unit **220** may be established using the device identification or other data. In some embodiments, the client device **270** may send a request for presentation to the presentation system **210**, where the request typically includes temporal information of the presentation (i.e. a particular time, a particular meeting session, etc.) and audience identification. In some cases, the request may also include at least part of the device identification to specify which presentation is requested. For example, the request can be "Device ID 1, Meeting session 1, audience ID 1". As another example, the request can be "Device ID 1, Now, audience ID 1". The presentation system **210** receives the request for presentations, identify the presentation requested, and determine whether

the request is authorized using the audience identification. If the request is authorized, the presentation requested can be made available to the audience via various means. For example, the network transceiver **230** can be configured to transmit the presentation via the network connection **295**. As another example, the presentation requested can be available for the audience to download at a specified link provided by the presentation system **210**. The presentation may be of any form, for example, visual content, audio content, a combination of visual and audio content, or the like. The presentation format may be raw digitized image or audio data, compressed (either lossy compression or lossless compression) image or audio data, or data file formats such as portable document format, and compressed video formats, or the like. The presentation delivered may be in a form specified in the request for the presentation.

In some embodiments, the presentation device **214** has a device identification associated and the line-of-sight communication emitter **240** is configured to transmit the device identification of the presentation device via the line-of-sight communication connection **265**. Then the line-of-sight communication receiver **260** is configured to receive the device identification of the presentation device **214**. The client device **270** is communicatively coupled to the line-of-sight communication receiver **260** and configured to obtain the device identification of the presentation device **214** from the line-of-sight communication receiver **260**. The client device **270** is further configured to establish a network connection with the presentation system and send a request for at least part of the presentation via the network connection, where the request can include an audience identification of an audience. The presentation system **210** is configured to receive the request and verify whether the request is authorized using the audience identification. The presentation system **210** is further configured to deliver the at least part of the presentation to the audience if the request is authorized. The line-of-sight communication transmission can be established by a light emission, a sonic emission, a near field communication, or a combination thereof. In some implementations, the line-of-sight communication emitter **240** can be an integrated part of the presentation device **214**. In some other implementations, the line-of-sight communication receiver **260** can be an integrated part of the client device **270**. In some cases, the presentation device **214** and the presentation server **212** are hosted on a same computing device. In some other cases, the presentation server **212** is not physically located in the room **290** but located at a remote location.

The network transceiver **230** may be a standalone device that is communicatively coupled to the presentation system **210B**, as illustrated in Figure 2B. Referring to Figure 2B, an exemplary presentation request and delivery system **200B** may include a presentation system **210B**, a client device **220B**, a line-of-sight communication emitter **240**, a line-of-sight communication receiver **260**, a network transceiver **230** coupled to the presentation system **210B**, and a network transceiver **280** coupled to the client device **220B**. In some implementations, the network transceiver **230** may be in a different room from the room where the presentation system **210B** or the presentation device **214**, is located. In some configurations, the network transceiver **230** may be coupled to more than one presentation devices. The network transceiver **230** may be coupled to the presentation system **210B** by any type of data connections, for example, a dedicated data link, a local area network (LAN) link, or the like. In some implementations, the line-of-sight communication emitter **240** may also be a standalone device. The line-of-sight communication emitter **240** may be associated with the presentation system **210B** where the device identification or other data related to the presentation system **210B** is provided to the line-of-sight communication emitter **240** and then transmitted by the line-of-sight communication emitter **240**. In some implementations, the line-of-sight communication emitter **240** may not be coupled to the presentation system **210B** physically.

In some embodiments, the network transceiver **280** may be a standalone device coupled to the client device **220B**, as illustrated in Figure 2B. In some configurations, the network transceiver **280** may be coupled to more than one client devices. The network transceiver **280** may be coupled to the client device **220B** by any type of data connections, for example, a dedicated data link, a local area network (LAN) link, or the like. In some other configurations, the network transceiver is an integrated part of the client device **220B**. In some implementations, the line-of-sight communication receiver **260** may also be a standalone device coupled to the client device **220B**. The line-of-sight communication receiver **260** may be coupled to the client device **220B** by any type of data connections, for example, a dedicated data link, a local area network (LAN) link, or the like. In an exemplary embodiment, the line-of-sight communication receiver **260** may receive the device identification and/or other data related to the presentation system **210B** via the line-of-sight communication interface **265** and provide the received data to the client device **220B**. The client device **220B** may use the received data to instruct the network transceiver **280** to establish a network connection **295** with the network transceiver **230**. In some implementations, for example, when the network transceiver **230** is

coupled to a plurality of presentation devices, the device identification may include a combination of the network transceiver **230**'s network address and the identification of the presentation device **214**.

In some cases, the network connection **295** may be a secured connection. Security related data, for example, the type of security and encryption keys, pass code to connect to the presentation system, may also be transmitted via the line-of-sight communication interface **265**. In some configurations, the line-of-sight communication emitter **240**, the presentation device **214**, the client device **220B**, and the line-of-sight communication receiver **260** are located in the room, but the presentation server **212**, the network transceiver **230**, and the network transceiver **280** can be located remotely in a different room or rooms. The client device **220B** can obtain the device identification of the presentation system **210B** via the coupled line-of-sight communication receiver **260**. After an association with the presentation system **210B** is established, the client device **220B** may transmit request via the coupled network transceiver **280** to the presentation system **210B**.

Figure 3A illustrates a scenario with two adjacent meeting rooms, each having a presentation request and delivery system. A presentation request and delivery system **300** resides in the meeting room **305** and a presentation request and delivery system **301** resides in the meeting room **315**. The presentation devices shown in Figure 3A, as an exemplary embodiment, are projectors with projection screens. In each meeting room, there is a projector and a projection screen, with dotted lines **320** showing the visible image being projected from a projector onto a corresponding projection screen. The client device may be a mobile device, as illustrated in Figure 3A. The thin one-way arrows **340** depict line-of-sight communication signal propagating from the line-of-sight communication transmitters in various direction around the room in which it is mounted. A majority of the line-of-sight communication signal, which could be emitted by the projector or by a separate device inside the room, does not propagate beyond the room in which it originates. The wide two-way arrows **330** depict wireless communications, which do propagate through the walls of the room enabling communications with devices beyond the walls of the room in which the devices reside. As an example, the presentation request and delivery system **300** in the meeting room **305** includes a projector **350**, a projection screen **355**, and a mobile device **360**. The presentation request and delivery system **301** in meeting room **315** includes a projector **365**, a projection screen **370**, and a mobile device **375**. Note that, in this exemplary embodiment, the mobile device **360** in the Meeting Room **305** is

closer to the projector **365** in a different Meeting Room **315** than it is to the projector **350** in the same meeting room **305**. The mobile device **360** potentially provides a stronger wireless connection to the projector **365** in a different meeting room **315** than the projector **350** in the same meeting room **305**.

5 In an exemplary embodiment, a line-of-sight communication transmitter associated with a presentation device periodically transmits an infrared (IR) signal containing a unique identification (ID) number (i.e., device identification) and an encryption key. When a client device (i.e., mobile device, laptop, phone, etc.) enters the room where the presentation device resides, the IR signal is received by the client device via a coupled IR receiver. The client
10 device may initiate a wireless transmission to the projector, with data encrypted using the encryption key supplied via the IR transmission. This wireless transmission could also contain the unique ID number provided by the line-of-sight communication transmitters via the IR communication links. This process can automatically create a communication link that can subsequently be used to securely request presentation content from the proper projector via the
15 wireless link. If the wireless communication to the presentation device is not encrypted with the proper encryption key, or does not include the proper unique ID number, the presentation device can ignore this communication. In some cases, if the request sent from the client device does not include the proper ID number, the request may be ignored. This can also provide a security measure to evaluate whether a presentation request is authorized.

20 In some embodiments, the components illustrated in Figure 3A can be a single presentation request and delivery system covering the two meeting rooms **305** and **315**. In some cases, the system can include an additional presentation server that will process requests for presentations. In such embodiments, the requests for presentations may include the device identifications that can be used to identify which presentation(s) is requested.

25 In some embodiments, multiple client devices within a single room could be connected to the presentation device in that room. In some cases, the presentation supplied by a first client device to a presentation device could be shared via the presentation device with a second client device connected to the same presentation device. In an exemplary embodiment, a first client device is configured to establish a first wireless connection with the presentation device. A
30 second client device is also configured to establish a second wireless connection with the first presentation device. In some cases, the presentation device is configured to transmit content transmitted from the first client device to the second client device. In some configurations, the

second client device may capture content being projected by the first content device via the presentation device.

In some implementations, the wireless transceiver coupled to the presentation device could function as a wireless hub to which other devices connect in a peer-to-peer fashion. In some other implementations, the wireless transceiver coupled to the presentation device could function as a wireless client that is connected to a hub or router. In such implementations, the line-of-sight communication signal may provide instructions and a key to allow the client device to connect to the hub or router and to address the correct projector. If there are more than one client devices in the room, each client device may establish a unique and secured communication path to the presentation device. This allows multiple presentation devices in difference rooms to connect to a single wireless router within a building infrastructure housing all of the rooms. Such implementations also allow the client device and the presentation device to also have access to the internet.

Figure 3B is an illustration of an exemplary signal propagation diagram of presentation request and delivery system(s) in two adjacent meeting rooms. For example, wireless communications, illustrated as lines **310**, can generally propagate through office structures, with slight impedance by walls, ceilings, floors, etc. Line-of-sight communications, illustrated as lines **312** and **314** are generally restricted to a room, for example, by the room's walls, ceiling, floor, etc. The construction material may reflect or absorb line-of-sight communication signals. In an exemplary embodiment as illustrated in Figure 3B, the line-of-sight communication coverage in the meeting room **305**, as indicated by sloping up lines **312**, is shown to be confined to the meeting room **305**. The line-of-sight communication coverage of the meeting room **315**, as indicated by sloping down lines **314**, is shown to be confined to the meeting room **315**, while the wireless coverage permeates all the spaces shown.

Figure 4A is an exemplary logical flowchart of a presentation request and delivery system. First, the presentation system provides a presentation to audience at a physical location (step **410**). Next, the client device sends a request for presentation including an audience identification (step **420**). Optionally, the request for presentation can also include temporal information when the presentation is provided and/or device identification indicating which presentation device has provided the presentation. The presentation system verifies whether the request is authorized (step **430**), using the audience identification. In some cases, the presentation system may verify whether the request is authorized using both the audience

identification and the device identification. If the request is authorized, the presentation system provides the presentation to the audience (step **440**).

Figure 4B is another exemplary logical flowchart of a presentation request and delivery system. First, the presentation system provides a presentation to audience at a physical location (step **410B**). Next, a line-of-sight communication transceiver sends out the device identification of the presentation device (step **415B**). A network connection is established between the presentation system and the client device (step **420B**). The network connection can be wired or wireless connection. In some cases, the client device can use information included in the device identification to establish the network connection with the presentation system. The client device sends a request for presentation including an audience identification (step **425B**). Optionally, the request for presentation can also include temporal information when the presentation is provided and/or device identification indicating which presentation device has provided the presentation. The presentation system verifies whether the request is authorized (step **430B**), using the audience identification. In some cases, the presentation system may verify whether the request is authorized using both the audience identification and the device identification. If the request is authorized, the presentation system provides the presentation to the audience (step **440B**).

In some embodiments, a wireless connection between a client device and a presentation device can be disconnected if the line-of-sight communication receiver coupled to the client device loses connection with the line-of-sight communication transmitter. This could be useful, for example, to automatically disconnect a client device from a presentation device in the event that the client device is removed from the room containing the presentation device as a security measure.

One way to accomplish this is to have the line-of-sight communication receiver periodically seek a signal from the line-of-sight transmitter. If the signal is not detected, the client device can disconnect from the wireless connection. In some implementations, if the device identification of the presentation device is not continued to be detected on a periodic basis, then after some time intervals, the network connection between the client device and the presentation system can be abandoned. In some other implementations, the line-of-sight communication transmitter can periodically update an encryption key required to maintain wireless connection, thus the wireless communication is disconnected if a client device is no longer receiving the current encryption key. The period for verifying that the client device is

still in the room can be chosen based on the expected use of the implementation. The period can be, for example, 1 hour or less, 30 minutes or less, 10 minutes or less, 5 minutes or less, 2 minutes or less, or 1 minute or less.

In another exemplary embodiment, the presentation device is a projection device that projects the image onto a projection screen. The line-of-sight communication transmitter projects a signal such as an IR signal onto the projection screen. This line-of-sight communication signal is reflected by the projection screen. A user may then point a line-of-sight communication receiver toward the screen of interest in order to initiate the process for establishing communication between the client device and the projection device associated with that projection screen.

Exemplary Embodiments

1. An presentation request and delivery system, comprising:
a presentation system configured to present a presentation at a physical location; and
a client device configured to send a request for at least part of the presentation while the presentation is presented on the presentation system via a network connection, the request comprising an audience identification and temporal information of the presentation,
wherein the presentation system is configured to receive the request via the network connection and verify whether the request is authorized using the audience identification,
wherein the presentation system is further configured to deliver the at least part of the presentation to the audience if the request is authorized.
2. The system of embodiment 1, wherein the presentation comprises a presentation file, a video file, a picture file, an audio file, a computer-aided design (CAD) file, a data file, or a combination thereof.
3. The system of embodiment 1 or 2, wherein the presentation system is further configured to deliver the at least part of the presentation to the audience before the presentation ends.
4. The system of any one of the embodiments 1 to 3, wherein the request further comprises specific file format information, and wherein the presentation system is further configured to

convert the at least part of the presentation into the specific file format before delivering the at least part of the presentation to the audience.

5. The system of any one of the embodiments 1 to 4, wherein the presentation system is configured to deliver the at least part of the presentation via a download link, an attachment of an email, a drop box, or automatically pushed into the memory of the client device.

6. The system of any one of the embodiments 1 to 5, wherein the network connection comprises a wireless connection.

7. The system of any one of the embodiments 1 to 6, wherein the presentation system comprises a presentation device configured to present the presentation and a presentation server configured to store the presentation.

8. The system of embodiment 7, further comprising:
a line-of-sight communication transmitter configured to transmit the device identification of the presentation device via a line-of-sight communication interface;
a line-of-sight communication receiver configured to receive the device identification of the presentation device,

wherein the client device is communicatively coupled to the line-of-sight communication receiver and is further configured to obtain the device identification of the presentation device from the line-of-sight communication receiver, and

wherein the request further comprises at least part of the device identification of the presentation device.

9. The system of embodiment 8, wherein the line-of-sight communication interface is established by a light emission, a sonic emission, or a near field communication.

10. The system of embodiment 8, wherein the client device is further configured to establish the network connection with the presentation system using the device identification of the presentation device.

11. The system of embodiment 8, wherein the line-of-sight communication transmitter is further configured to transmit an encryption key via the line-of-sight communication interface and further wherein data transmitted via the network connection is encrypted with the encryption key.

5

12. The system of embodiment 8,
wherein the line-of-sight communication transmitter is further configured to transmit a pass code via the line-of-sight transmission,
wherein the line-of-sight communication receiver is further configured to receive the pass
code, and
wherein the client device is further configured to use the pass code to establish the network connection with the presentation system.

10

13. The system of embodiment 8, wherein the line-of-sight communication transmitter is an integrated part of the presentation device.

15

14. A presentation request and delivery system, comprising:
a presentation system comprising:

a presentation device having a device identification and configured to present a presentation;

20

a presentation server communicatively coupled to the presentation device and configured to store the presentation;

a line-of-sight communication transmitter configured to transmit a device identification of the presentation device via a line-of-sight communication interface;

25

a line-of-sight communication receiver configured to receive the device identification of the presentation device; and

a client device communicatively coupled to the line-of-sight communication receiver and configured to obtain the device identification of the presentation device from the line-of-sight communication receiver, the client device is further configured to establish a network connection with the presentation system and send a request for at least part of the presentation via the network connection, the request comprising an audience identification and at least part of the device identification of the presentation device,

30

wherein the presentation system is configured to receive the request via the network connection and verify whether the request is authorized using the audience identification,

wherein the presentation system is further configured to provide the at least part of the presentation to the audience if the request is authorized.

5

15. The system of embodiment 14, wherein the line-of-sight communication interface is established by a light emission, a sonic emission, or a near field communication.

10

16. The system of embodiment 14 or 15, wherein the client device is further configured to establish the network connection with the presentation system using at least part of the device identification of the presentation device.

15

17. The system of any one of the embodiments 14 to 16, wherein the line-of-sight communication transmitter is further configured to transmit an encryption key via the line-of-sight transmission and wherein data transmitted via the network connection is encrypted with the encryption key.

20

18. The system of any one of the embodiments 14 to 17, wherein the request further comprises temporal information regarding when the presentation is presented on the presentation device.

25

19. The system of any one of the embodiments 14 to 18,
wherein the line-of-sight communication transmitter is further configured to transmit a pass code via the line-of-sight transmission,
wherein the line-of-sight communication receiver is further configured to receive the pass code, and
wherein the content request device is further configured to use the pass code to establish the network connection with the presentation system.

30

20. The system of any one of the embodiments 14 to 19, wherein the line-of-sight communication transmitter is an integrated part of the presentation device.

21. The system of any one of the embodiments 14 to 20, wherein the presentation device and the presentation server are hosted on a same computing device.

22. A method of automatic presentation request and delivery, comprising:

5 receiving, via a line-of-sight communication receiver communicatively coupled to a client device, a device identification of a presentation device;

establishing a wireless communication between the presentation device and a client device using the device identification of the presentation device;

10 transmitting, via the client device, a request for at least part of presentation being presented on the presentation device, the request comprises an audience identification;

automatically verifying, via a presentation server, whether the request is authorized using the audience identification; and

15 delivering, via the presentation server, the at least part of presentation to the client device if the request is authorized.

23. The method of embodiment 22, wherein the request further comprises temporal information regarding when the presentation is presented.

20 24. The method of embodiment 22, wherein the request further comprises at least part of the device identification of the presentation device.

25 The present invention should not be considered limited to the particular examples and embodiments described above, as such embodiments are described in detail to facilitate explanation of various aspects of the invention. Rather the present invention should be understood to cover all aspects of the invention, including various modifications, equivalent processes, and alternative devices falling within the spirit and scope of the invention as defined by the appended claims.

What is claimed is:

1. An presentation request and delivery system, comprising:

a presentation system configured to present a presentation at a physical location; and

5 a client device configured to send a request for at least part of the presentation while the presentation is presented on the presentation system via a network connection, the request comprising an audience identification and temporal information of the presentation,

wherein the presentation system is configured to receive the request via the network connection and verify whether the request is authorized using the audience identification,

10 wherein the presentation system is further configured to deliver the at least part of the presentation to the audience if the request is authorized.

2. The system of claim 1, wherein the presentation comprises a presentation file, a video file, a picture file, an audio file, a computer-aided design (CAD) file, a data file, or a
15 combination thereof.

3. The system of claim 1, wherein the presentation system is further configured to deliver the at least part of the presentation to the audience before the presentation ends.

20 4. The system of claim 1, wherein the request further comprises specific file format information, and wherein the presentation system is further configured to convert the at least part of the presentation into the specific file format before delivering the at least part of the presentation to the audience.

25 5. The system of claim 1, wherein the presentation system is configured to deliver the at least part of the presentation via a download link, an attachment of an email, a drop box, or automatically pushed into the memory of the client device.

6. The system of claim 1, wherein the network connection comprises a wireless connection.

7. The system of claim 1, wherein the presentation system comprises a presentation device configured to present the presentation and a presentation server configured to store the presentation.

5 8. The system of claim 7, further comprising:

a line-of-sight communication transmitter configured to transmit the device identification of the presentation device via a line-of-sight communication interface;

a line-of-sight communication receiver configured to receive the device identification of the presentation device,

10 wherein the client device is communicatively coupled to the line-of-sight communication receiver and is further configured to obtain the device identification of the presentation device from the line-of-sight communication receiver, and

wherein the request further comprises at least part of the device identification of the presentation device.

15 9. The system of claim 8, wherein the line-of-sight communication interface is established by a light emission, a sonic emission, or a near field communication.

10. The system of claim 8, wherein the client device is further configured to establish the network connection with the presentation system using the device identification of the presentation device.

11. The system of claim 8, wherein the line-of-sight communication transmitter is further configured to transmit an encryption key via the line-of-sight communication interface and further wherein data transmitted via the network connection is encrypted with the encryption key.

12. The system of claim 8,

wherein the line-of-sight communication transmitter is further configured to transmit a pass code via the line-of-sight transmission,

wherein the line-of-sight communication receiver is further configured to receive the pass code, and

wherein the client device is further configured to use the pass code to establish the network connection with the presentation system.

13. The system of claim 8, wherein the line-of-sight communication transmitter is an integrated part of the presentation device.

14. A presentation request and delivery system, comprising:
a presentation system comprising:

a presentation device having a device identification and configured to present a presentation;

a presentation server communicatively coupled to the presentation device and configured to store the presentation;

a line-of-sight communication transmitter configured to transmit a device identification of the presentation device via a line-of-sight communication interface;

a line-of-sight communication receiver configured to receive the device identification of the presentation device; and

a client device communicatively coupled to the line-of-sight communication receiver and configured to obtain the device identification of the presentation device from the line-of-sight communication receiver, the client device is further configured to establish a network connection with the presentation system and send a request for at least part of the presentation via the network connection, the request comprising an audience identification and at least part of the device identification of the presentation device,

wherein the presentation system is configured to receive the request via the network connection and verify whether the request is authorized using the audience identification,

wherein the presentation system is further configured to provide the at least part of the presentation to the audience if the request is authorized.

15. The system of claim 14, wherein the line-of-sight communication interface is established by a light emission, a sonic emission, or a near field communication.

16. The system of claim 14, wherein the client device is further configured to establish the network connection with the presentation system using at least part of the device identification of the presentation device.

5 17. The system of claim 14, wherein the line-of-sight communication transmitter is further configured to transmit an encryption key via the line-of-sight transmission and wherein data transmitted via the network connection is encrypted with the encryption key.

10 18. The system of claim 14, wherein the request further comprises temporal information regarding when the presentation is presented on the presentation device.

19. The system of claim 14,

wherein the line-of-sight communication transmitter is further configured to transmit a pass code via the line-of-sight transmission,

15 wherein the line-of-sight communication receiver is further configured to receive the pass code, and

wherein the content request device is further configured to use the pass code to establish the network connection with the presentation system.

20 20. The system of claim 14, wherein the line-of-sight communication transmitter is an integrated part of the presentation device.

21. The system of claim 14, wherein the presentation device and the presentation server are hosted on a same computing device.

25 22. A method of automatic presentation request and delivery, comprising:

receiving, via a line-of-sight communication receiver communicatively coupled to a client device, a device identification of a presentation device;

30 establishing a wireless communication between the presentation device and a client device using the device identification of the presentation device;

transmitting, via the client device, a request for at least part of presentation being presented on the presentation device, the request comprises an audience identification;

automatically verifying, via a presentation server, whether the request is authorized using the audience identification; and

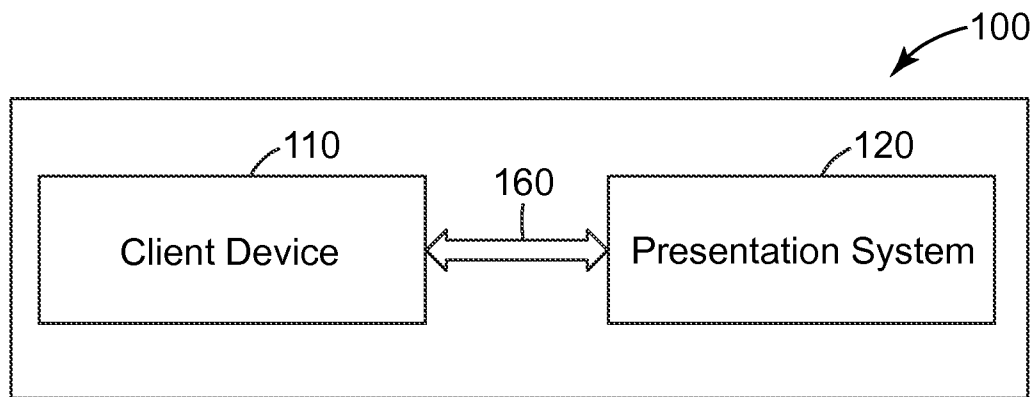
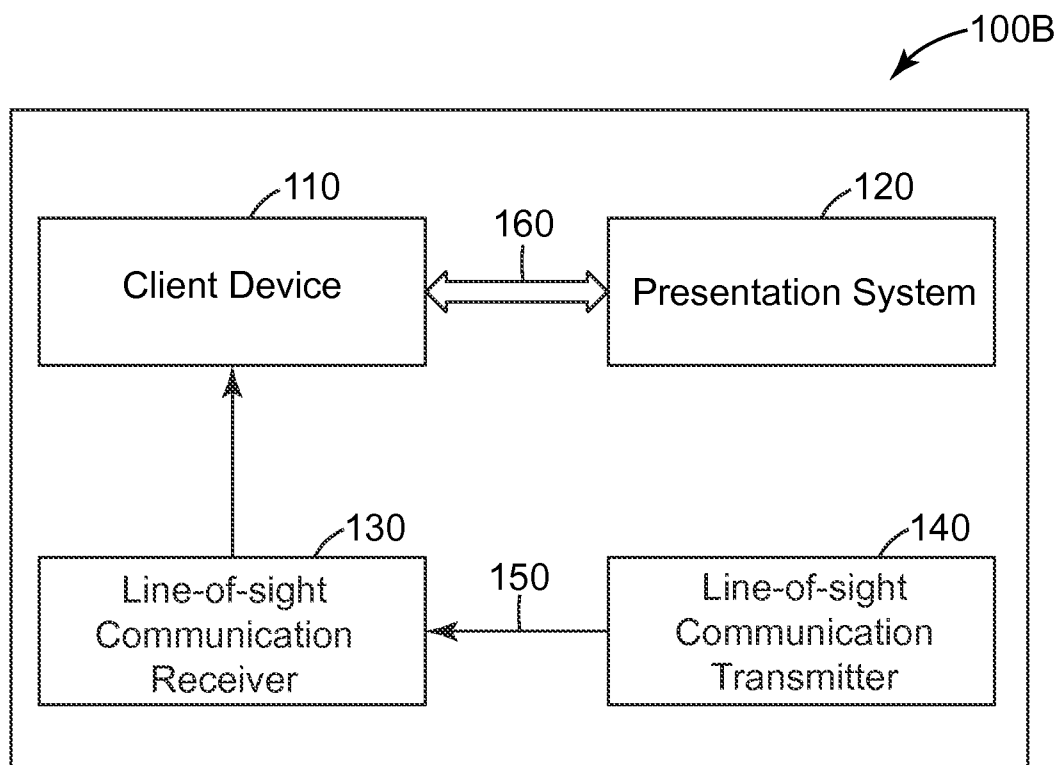
delivering, via the presentation server, the at least part of presentation to the client device if the request is authorized.

5

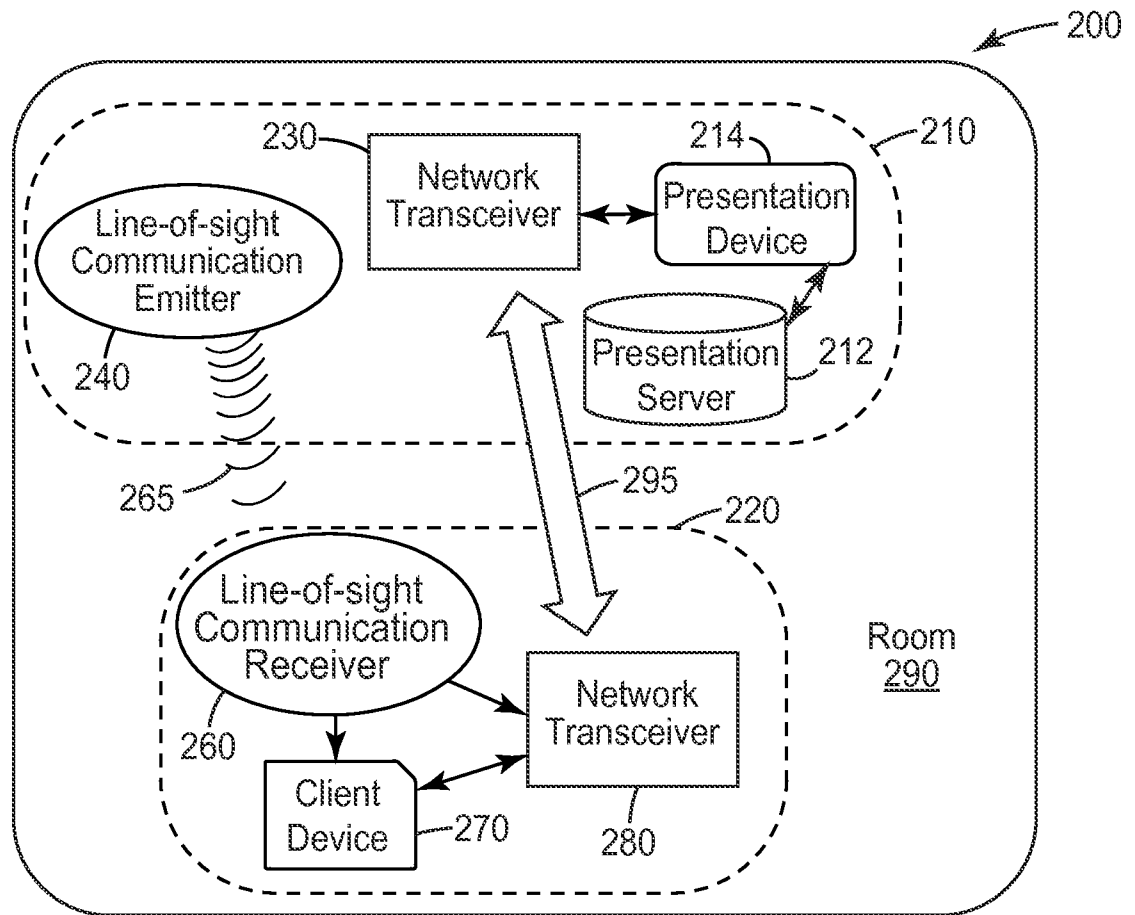
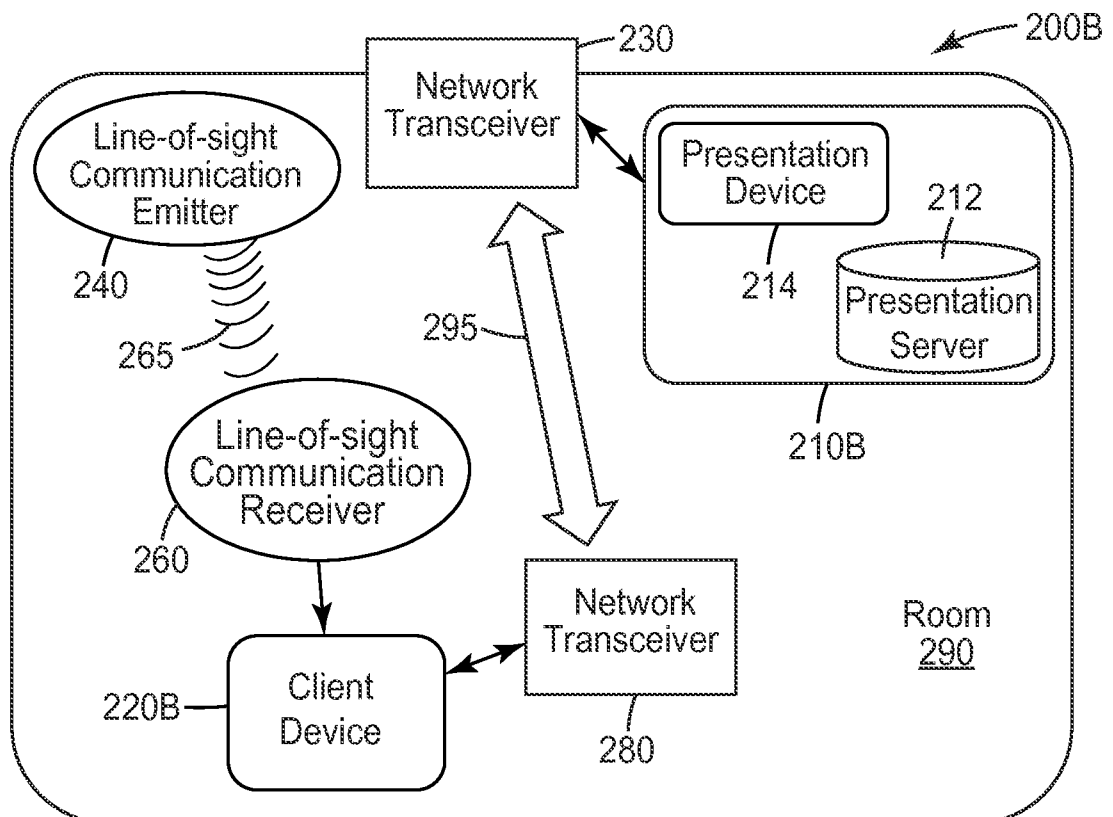
23. The method of claim 22, wherein the request further comprises temporal information regarding when the presentation is presented.

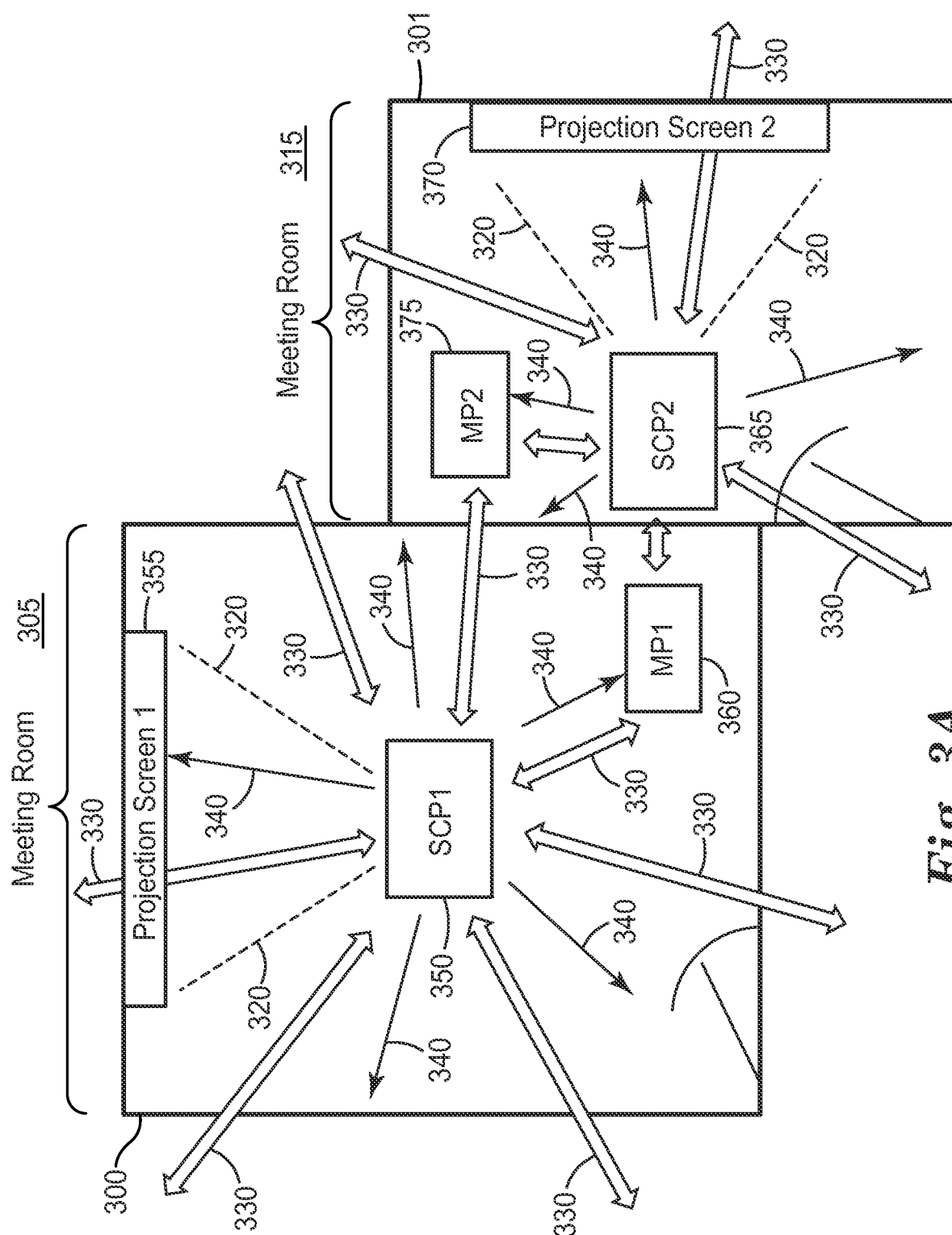
24. The method of claim 22, wherein the request further comprises at least part of the device
10 identification of the presentation device.

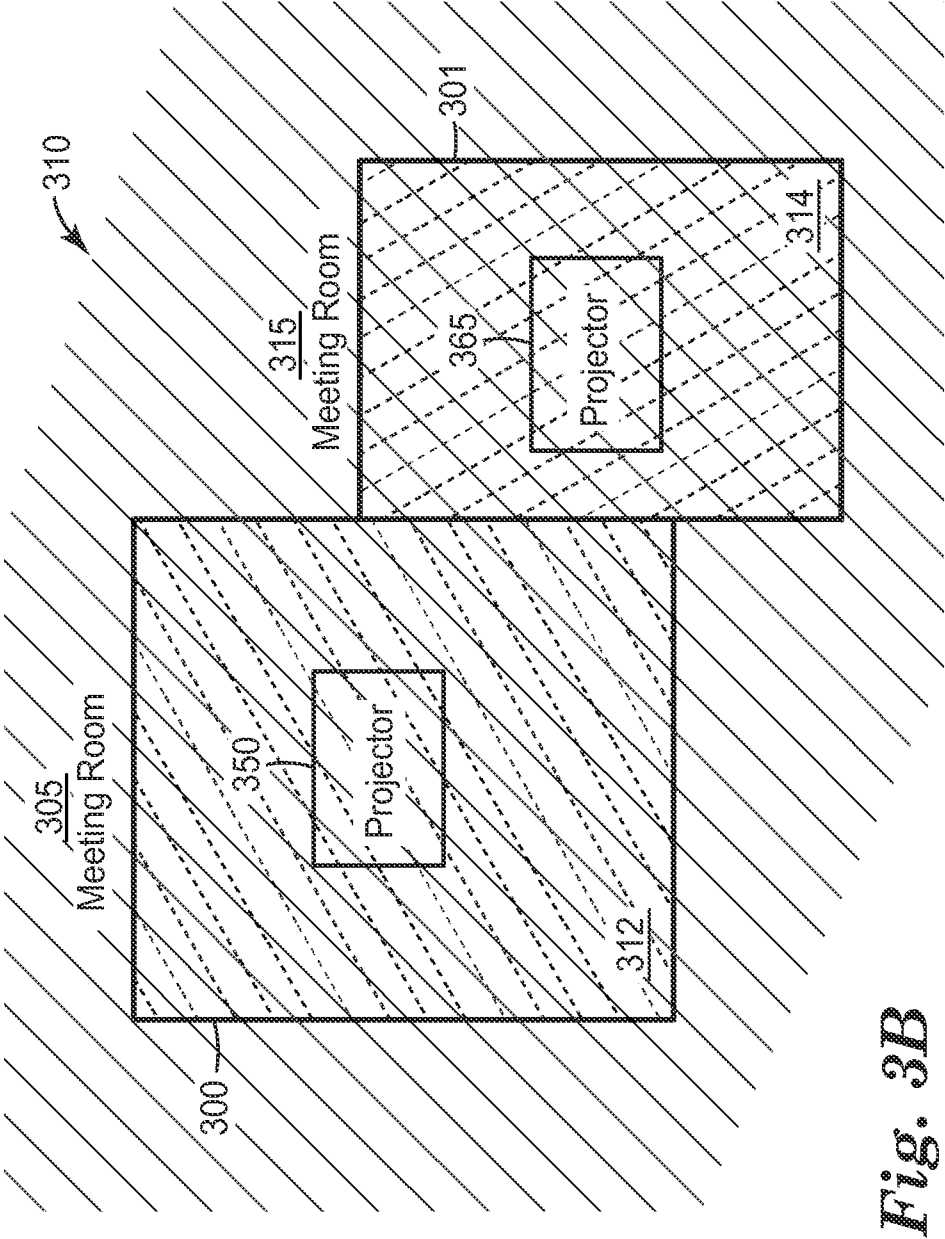
1/6

**Fig. 1A****Fig. 1B**

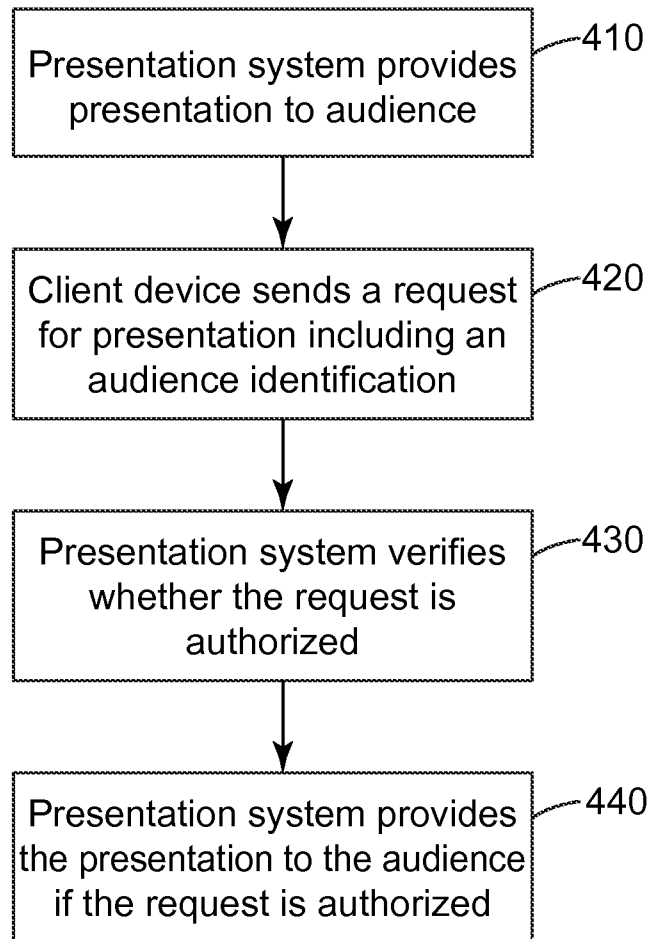
2/6

*Fig. 2A**Fig. 2B*

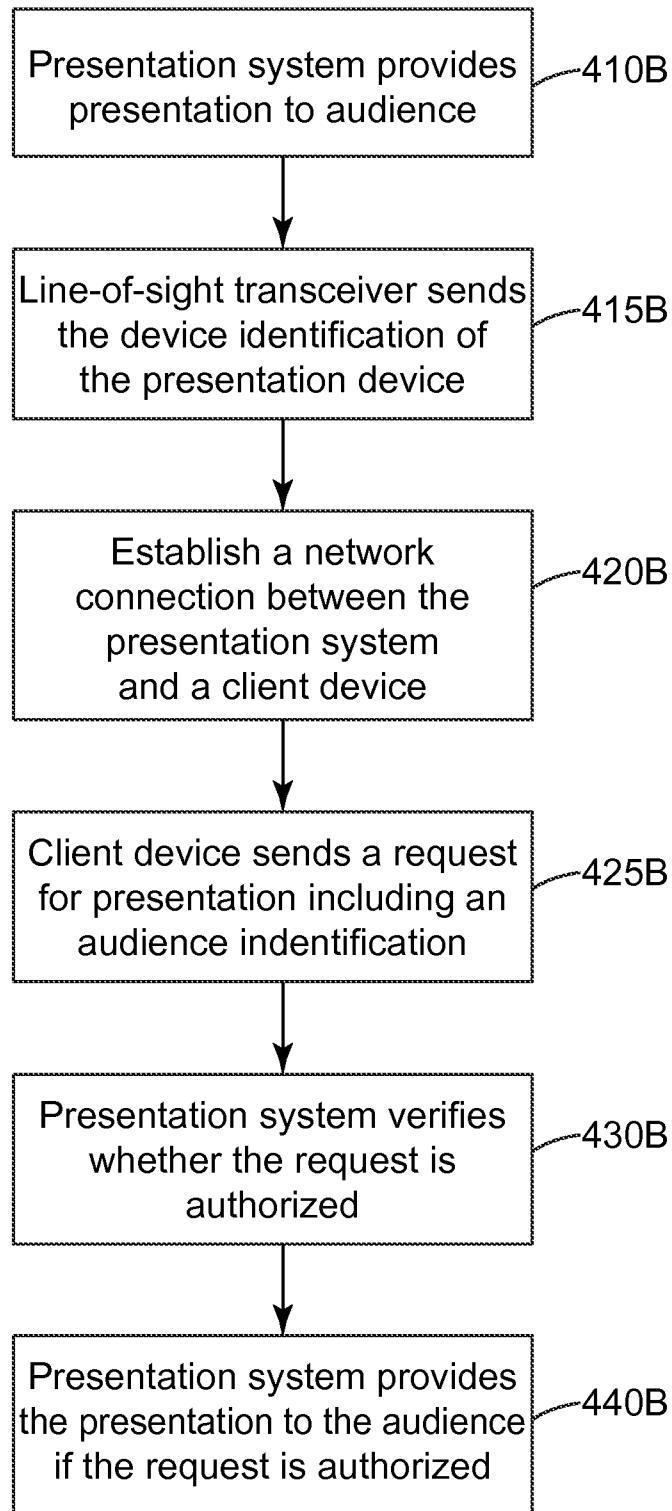
*Fig. 3A*



5/6

***Fig. 4A***

6/6

***Fig. 4B***