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Canadian Intellectual Property Office

CA 3070860 C 2023/10/17

(11)(21) 3 070 860

(12) BREVET CANADIEN
CANADIAN PATENT

(13) C

(86) Date de dépôt PCT/PCT Filing Date: 2017/08/02
(87) Date publication PCT/PCT Publication Date: 2019/02/07
(45) Date de délivrance/Issue Date: 2023/10/17
(85) Entrée phase nationale/National Entry: 2020/01/22
(86) N° demande PCT/PCT Application No.: US 2017/045156
(87) N° publication PCT/PCT Publication No.: 2019/027458

(51) Cl.Int./Int.Cl. *H04N 7/14* (2006.01)

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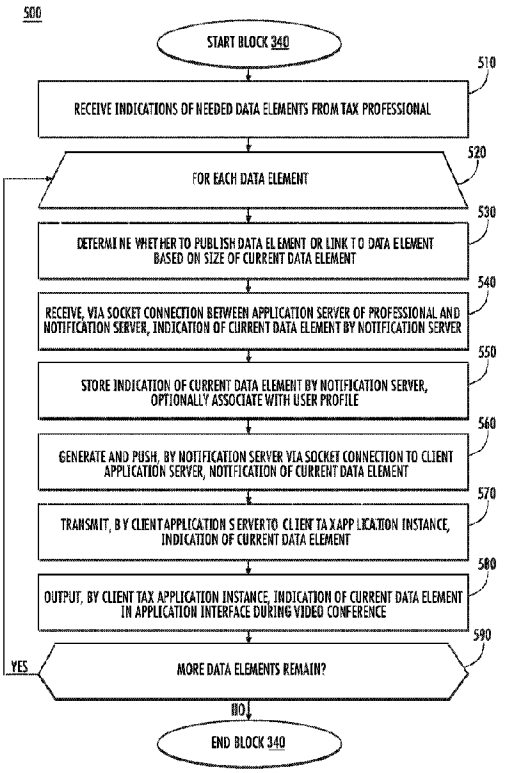
(54) Titre : INTEGRATION DE DOCUMENTS PERSONNALISES EN TEMPS REEL DANS UNE SESSION DE VIDEOCONFERENCE

(54) Title: INTEGRATING REAL-TIME PERSONALIZED DOCUMENTS INTO A VIDEO CONFERENCE SESSION



(57) Abrégé/Abstract:
Systems, methods, and computer readable media which perform an operation comprising establishing a video conference between a first application instance and a second application instance, and during the video conference: receiving, by an application server from the first application instance, an indication of a first data element required to prepare a tax return, storing, by a notification server, the indication of the first data element, and publishing, by a notification server, the indication of the first data element to the second application instance, wherein the second application instance is configured to output the indication of the data element for display.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
07 February 2019 (07.02.2019)

WIPO | PCT

(10) International Publication Number
WO 2019/027458 A1

(51) International Patent Classification:
H04N 7/14 (2006.01)

(21) International Application Number:
PCT/US2017/045156

(22) International Filing Date:
02 August 2017 (02.08.2017)

(25) Filing Language: English

(26) Publication Language: English

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(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, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, 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, ST, 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).

Published:
— *with international search report (Art. 21(3))*

(54) Title: INTEGRATING REAL-TIME PERSONALIZED DOCUMENTS INTO A VIDEO CONFERENCE SESSION

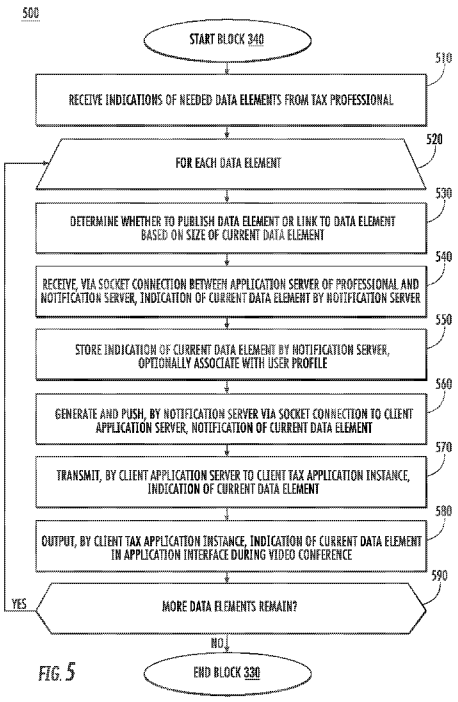

FIG. 5

(57) Abstract: Systems, methods, and computer readable media which perform an operation comprising establishing a video conference between a first application instance and a second application instance, and during the video conference: receiving, by an application server from the first application instance, an indication of a first data element required to prepare a tax return, storing, by a notification server, the indication of the first data element, and publishing, by a notification server, the indication of the first data element to the second application instance, wherein the second application instance is configured to output the indication of the data element for display.

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INTEGRATING REAL-TIME PERSONALIZED DOCUMENTS INTO A VIDEO CONFERENCE SESSION

BACKGROUND

Field

[0001] Embodiments of the present invention generally relate to video conferencing, and more specifically, to integrating real-time, personalized documents into a video conference session.

Description of the Related Art

[0002] Often, users engage in video conferencing sessions with professionals, such as accountants, attorneys, and financial advisors. In many cases, a professional requires additional information (such as documentation) from the users so that the professional may provide different services to the users. One object of the video conferencing session is for the professional to identify the necessary additional information. However, the video conferencing session imparts limitations on such scenarios. For example, the video conference often occupies an entire screen, making it difficult to create and share lists of necessary information. Instead, the professional often prepares such a list outside of the video conference session, and emails the list to the user after the video conference session. However, such a scenario leads to questions, missed information, and incomplete or incomprehensive lists.

SUMMARY

[0003] In one embodiment, a method comprises establishing a video conference between a first application instance and a second application instance, and during the video conference: receiving, by an application server from the first application instance, an indication of a first data element required to prepare a tax return, storing, by a notification server, the indication of the first data element, and publishing, by a notification server, the indication of the first data element to the second application instance, wherein the second application instance is configured to output the indication of the data element for display.

[0004] In another embodiment, a system comprises a processor and a memory containing a program which when executed by the processor performs an operation comprising establishing a video conference between a first application instance and a second application instance, and during the video conference: receiving, by an application server from the first application instance, an indication of a first data element required to prepare a tax return, storing, by a notification server, the indication of the first data element, and publishing, by a notification server, the indication of the first data element to the second application instance, wherein the second application instance is configured to output the indication of the data element for display.

[0005] In another embodiment, a non-transitory computer readable medium stores instructions, which, when executed by a processor, performs an operation comprising establishing a video conference between a first application instance and a second application instance, and during the video conference: receiving, by an application server from the first application instance, an indication of a first data element required to prepare a tax return, storing, by a notification server, the indication of the first data element, and publishing, by a notification server, the indication of the first data element to the second application instance, wherein the second application instance is configured to output the indication of the data element for display.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] So that the manner in which the above recited features of the present disclosure can be understood in detail, a more particular description of the disclosure, briefly summarized above, may be had by reference to embodiments, some of which are illustrated in the appended drawings. It is to be noted, however, that the appended drawings illustrate only exemplary embodiments and are therefore not to be considered limiting of its scope, may admit to other equally effective embodiments.

[0007] Figure 1 illustrates an example system for integrating real-time personalized documents into a video conference session, according to one embodiment.

[0008] Figures 2A-2C illustrate example graphical user interfaces for integrating real-time personalized documents into a video conference session, according to various embodiments.

[0009] Figure 3 is a flow chart illustrating a method to integrate real-time personalized documents into a video conference session, according to one embodiment.

[0010] Figure 4 is a flow chart illustrating a method to establish a video conference session, according to one embodiment.

[0011] Figure 5 is a flow chart illustrating a method to generate a list of real-time personalized documents, according to one embodiment.

[0012] Figure 6 is a block diagram illustrating a system configured to integrate real-time personalized documents into a video conference session, according to one embodiment.

[0013] To facilitate understanding, identical reference numerals have been used, where possible, to designate identical elements that are common to the figures. It is contemplated that elements and features of one embodiment may be beneficially incorporated in other embodiments without further recitation.

DETAILED DESCRIPTION

[0014] Embodiments disclosed herein provide techniques to integrate real-time, personalized documents in video conferencing sessions. Generally, one or more client users may participate in a networked video conferencing session with a professional user via respective instances of a common application. During the video conference, embodiments disclosed herein provide graphical user interfaces (GUIs) that allow the professional user to generate indications of required documentation (or other data). A notification server orchestrates the receipt of the generated indications from the professional user, and the transmission of the generated indications to the client user (e.g., in real-time as they are generated by the professional user). Furthermore, embodiments disclosed herein provide GUIs to allow the client user to view the indications in real-time.

[0015] Figure 1 illustrates an example system 100 for integrating real-time personalized documents into a video conference session, according to one embodiment. As shown, the system 100 includes a client system 101, one or more servers 102_{1-N}, and a professional system 103. The client system 101 and professional system 103 are representative of any type of physical or virtual computing system, such as a laptop, desktop, tablet, and/or mobile device. As shown, the client system 101 and the professional system 103 include respective instances of a tax application 104, namely instances 104A and 104C. The tax application 104 is generally configured to facilitate preparation of a tax return for one or more users. As shown, the instances of the tax application 104A,C include a video conferencing interface 111 and data stores of client data 112. The video conferencing interface 111 allows users of the client system 101 and professional system 103 to engage in a real-time audio/video conference. For example, a user of the client system 101 may initiate a video conference with a tax professional. The user may be paired with an available tax professional, e.g., a user of the professional system 103, and a video conference is established.

[0016] During the video conference, the parties may discuss the information needed for the professional to prepare a tax return for the client. The tax professional may then identify data elements necessary to prepare the tax return, such as income statements, receipts, and the like. As shown, the instance of the tax application 104C on the professional system 103 provides a generation interface 113 that allows the professional to enter indications of the necessary data elements. Once entered by the professional, the indications may be stored in the instance of the client data 112 on the professional system 103 (and/or on the servers 102_{1-N}). The instance of the tax application 104A on the client system 101 includes a client data interface 115 for viewing the indications of data elements entered by the tax professional.

[0017] As shown, the servers 102_{1-N} include a plurality of application servers 105_{1-N}, a plurality of notification servers 106_{1-N}, and a data store of client data 112. The servers 102, 105, and 106 are representative of physical and virtualized servers. The application servers 105_{1-N} execute instances of the tax application 104, namely instances 104B, which support the functionality (including video

conferencing) provided by the tax application 104. The notification servers 106_{1-N} are generally configured to receive indications of data elements entered by the professional via the generation interface 113, and store the indications in the client data cache 114. The notification servers 106_{1-N} may then generate push notifications of the data elements entered by the professional, and transmit the notifications to any subscribing application server 105_{1-N} and/or subscribing instances of the client data interface 115.

[0018] Generally, a given instance of the tax application 104 executing on the client system 101 and/or professional system 103 establishes a socket connection with an application server 105_{1-N} when the respective instance of the tax application 104 is launched. For example, the instance of the tax application 104A executing on the client system 101 may establish a socket with application server 105_1, while the instance of the tax application 104C executing on the professional system 103 may establish a socket connection with the application server 105_2. In other embodiments, the instances of the tax application 104A,C on the systems 101, 103 may establish socket connections with the same application server 105_N.

[0019] A user of the client system 101 may then use the video conferencing interface 111 to initiate a video conference with a professional (e.g., a user of the professional system 103). The instances of the tax application 104B on the application servers 105_{1-N} may then establish a connection to initiate the video conference between the client and the tax professional. Furthermore, a socket connection is established between the associated application servers 105_{1-N} and the notification servers 106_{1-N}. For example, the instances of the tax application 104B and/or the respective application servers $105_{1,2}$ may each establish a socket connection with the notification server 106_1. The client data interface 115 and/or the tax application 104A on the client system 101 may then subscribe to receive push notifications from the notification server 106_1. In at least one embodiment, the respective instance of the tax application 104B on the application server 105_1 subscribes to receive push notifications from the notification server 106_1, which then pushes applicable notifications to the client data interface 115. Therefore, in one embodiment, when the tax professional enters indications of needed data elements via the generation interface 113, the generation interface 113 transmits an indication

of the needed data element to the application server 105_2. The instance of the tax application 104B executing on the application server 105_2 then transmits an indication of the needed data element to the notification server 106_1, which stores the indication in the client data cache 114. In another embodiment, the instance of the tax application 104C on the professional system 103 transmits the indication directly to the notification server 106_1.

[0020] The notification server 106_1 then generates a push notification to all subscribing client data interfaces 115. Continuing with this example, the push notification is sent from the notification server 106_1 to the application server 105_1, where the instance of the tax application 104B transmits the push notification to the client data interface 115 on the client system 101. The client data interface 115 then outputs an indication of the push notification to the user, and optionally stores an indication of the needed data in the client data 112.

[0021] Figure 2A illustrates an example GUI 200 used by a professional user of the professional system 103, according to one embodiment. As shown, the GUI 200 includes a video 205 and an example generation interface 113. The video 205 depicts the video data of the user of the client system 101. The generation interface 113 allows the professional user to enter indications of needed data elements. As shown, the generation interface 113 includes a plurality of fields 210 corresponding to different types of tax forms. The generation interface 113 also includes a plurality of fields 211 allowing the tax professional to enter additional information related to the corresponding type of tax form 210 (e.g., the professional may indicate a particular employer from whom a particular type of tax form is needed). Therefore, as shown, the tax professional has entered two example W2 forms and an example form 1099-INT via the generation interface 113 of the GUI 200. As the tax professional enters each entry, an indication of the entry is transmitted to the corresponding application server 105_N, which then forwards the indication to the corresponding notification server 106_N. The indication may include metadata describing the required data element, such as the type of data element, and a source of the data element (e.g., a W2 from employer "example1"). The indication may further include a copy of the data element, or a template thereof (e.g., a blank W2 form, a W2 form pre-populated with some information describing the user, etc.).

The notification server 106_N may then store the indication in the client data cache 114. In some embodiments, the notification server 106_N stores a copy of the data element. However, if the size of the data element exceeds a threshold, the notification server 106_N may store a link to the data element in the cache 114, and store the actual data element at a different network location to minimize the size of the cache 114.

[0022] The notification server 106_N then generates a push notification describing the data element, which is transmitted to all subscribing client data interfaces 115. Figure 2B illustrates an example GUI 201 which includes a video 205 and an example client data interface 115, according to one embodiment. The video 205 is the video data from the tax professional using the professional system 103 in the video conference. As shown, the client data interface 115 includes a list of data elements that correspond to the data elements entered by the tax professional via the generation interface 113. Generally, the client data interface 115 displays new data elements in real-time, as they are added by the tax professional via the generation interface 113.

[0023] Figure 2C depicts a GUI 202 which includes a list 220 of data elements, according to one embodiment. In at least one embodiment, the GUI 202 is accessible to the user of the client device 101 outside of a video conferencing session (e.g., after a tax consultation via video conferencing has completed). As shown, the list 220 includes example data elements (e.g., tax forms, address information, user metadata) that the tax professional entered via the generation interface 113. As shown, the GUI 202 further includes elements 221 that allow the user to enter the corresponding information. For example, the user may upload a W2 document, enter address information, and the like, via the GUI elements 221. Once the user provides the necessary information, the information is stored in the client data 112 (e.g., on one or more of the client device 101, the servers 102_{1-N}, and/or the professional device 103). Furthermore, the user provides the necessary information, the GUIs 200-202 may be updated to reflect the user submission. For example, the professional may use the GUI 200 to view the information (e.g., forms, metadata, etc.) submitted by the user. In at least one embodiment, as the user provides the information, the application server 105_N and/or the notification server

106_N generates and sends a notification to the professional. For example, if a user uploads their W2 document, the application server 105_N and/or notification server 106_N may generate and send an email to the associated tax professional.

[0024] Figure 3 is a flow chart illustrating a method 300 to integrate real-time personalized documents into a video conference session, according to one embodiment. As shown, the method 300 begins at block 310, where an instance of the tax application 104A executing on the client device 101 establishes a socket connection with an application server 105_{1-N}. At block 320, the connected application server 105_{1-N} receives a request from the instance of the tax application 104A executing on the client device 101 to initiate a video conference with a tax professional. At block 330, described in greater detail with reference to Figure 4, a video conference session is established between the requesting user and a tax professional. At block 340, described in greater detail with reference to Figure 5, the tax professional generates a real-time list during the video conferencing session. The real-time list includes one or more required data elements necessary to allow the tax professional to prepare the requesting user's taxes. At block 350, the real-time list and associated objects are integrated into the video conference. For example, as the tax professional enters indications of the data elements via the GUI 200, the user of the client device 101 may view the indications of the data elements in real-time via the GUI 201. At block 360, the tax application 104A may optionally provide the list generated at block 350 to the user (e.g., via email and/or the GUI 202) after the video conference is completed.

[0025] Figure 4 is a flow chart illustrating a method 400 corresponding to block 330 to establish a video conference session, according to one embodiment. As shown, the method 400 begins at block 410, where an available tax professional is identified. Generally, the instances of the tax application 104B on the application servers 105_{1-N} maintain indications of tax professionals available for video conferences. The instances of the tax application 104B on the application servers 105_{1-N} may select an available tax professional based on any number of factors, such as an expertise of the tax professional matching a need or business requirement of the client, a favorability rating of the tax professional, an amount of time since the last video conference the tax professional participated in, and the like.

[0026] At block 420, a socket connection is established between the application servers 105_{1-N} connected to the instances of the tax application 104A,C executing on the client device 101 and the professional device 103 (e.g., the devices participating in the video conference). At block 430, a socket connection is established between a notification server 106_{1-N} and the application server 105_{1-N} to which the instance of the tax application 104C of the professional device 103 is connected. At block 440, a socket connection is established between a notification server 106_{1-N} and the application server 105_{1-N} to which the instance of the tax application 104A executing on the client device 101 is connected. At block 450, the application server 105_{1-N} to which the instance of the tax application 104A executing on the client device 101 is connected subscribes to push updates provided by the notification server 106_{1-N}. In at least one embodiment, the instance of the tax application 104A executing on the client device 101 subscribes to receive push updates from the notification server 106_{1-N}. At block 460, the video conference is established, and the parties may begin communicating via the video conference.

[0027] Figure 5 is a flow chart illustrating a method 500 corresponding to block 340 to generate a list of real-time personalized documents, according to one embodiment. As shown, the method 500 begins at block 510, where the instance of the tax application 104C executing on the professional device 103 receives indications of needed data elements from the tax professional. Generally, the tax professional enters the indications via the video conferencing interface 111 during the video conference. At block 520, a loop including blocks 530-590 is executed for each received indication. At block 530, the instance of the tax application 104C executing on the professional device 103 determines whether to publish the current data element or a link to the data element, based on the size of the current data element. Generally, to reduce the size of the client data cache 114, data elements having a size that exceeds a threshold are not stored in the client data cache 114. Instead, larger data elements are stored at a storage location in the cloud (e.g., on a server 102_{1-N}), and a uniform resource locator (URL) to the storage location is stored in the client data cache 114.

[0028] At block 540, the notification server 106_{1-N} receives an indication of the current data element via the socket connection between the notification server 106_{1-}

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$_N$ and the application server 105_{1-N} to which the instance of the tax application 104C of the professional device 103 is connected. At block 550, the notification server stores an indication of the current data element in the client data cache 114. Generally, the indication includes metadata describing the current data element, such as a type (e.g., tax form, personal metadata, income information, etc.), an associated party (e.g., the client, a spouse, a dependent, etc.), and the like. As previously indicated, if the size of the current data element does not exceed the threshold, the current data element is also stored in the client data cache 114. However, if the size of the current data element exceeds the threshold, the current data element is stored at a storage location in a server 102_{1-N} (e.g., in the client data 112), and a URL of the storage location is stored in the client data cache 114.

[0029] At block 560, the notification server 106_{1-N} generates a push notification for the current data element, and pushes the notification to any subscribed application servers 105_{1-N}. At block 570, the subscribing application servers 105_{1-N} transmit the received push notification to the instance of the tax application 104A executing on the client device 101. At block 580, the instance of the tax application 104A executing on the client device 101 outputs an indication of the current data element for display during the video conference. Doing so allows the client to view the information in real-time and during the video conference without having to switch screens or manually save the list of required data elements. At block 520, if more data elements remain, the method returns to block 520. Otherwise, the method 500 ends.

[0030] Figure 6 is a block diagram illustrating a system 600 configured to integrate real-time personalized documents into a video conference session, according to one embodiment. The networked system 600 includes a computer 602. The computer 602 may also be connected to other computers via a network 630. In general, the network 630 may be a telecommunications network and/or a wide area network (WAN). In a particular embodiment, the network 630 is the Internet.

[0031] The computer 602 generally includes a processor 604 which obtains instructions and data via a bus from a memory 606 and/or a storage 608. The computer 602 may also include one or more network interface devices 618, input

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devices 622, and output devices 624 connected to the bus. The computer 602 is generally under the control of an operating system (not shown). Examples of operating systems include the UNIX operating system, versions of the Microsoft Windows operating system, and distributions of the Linux operating system. (UNIX is a registered trademark of The Open Group in the United States and other countries. Microsoft and Windows are trademarks of Microsoft Corporation in the United States, other countries, or both. Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.) More generally, any operating system supporting the functions disclosed herein may be used. The processor 604 is a programmable logic device that performs instruction, logic, and mathematical processing, and may be representative of one or more CPUs. The network interface device 618 may be any type of network communications device allowing the computer 602 to communicate with other computers via the network 630.

[0032] The storage 608 is representative of hard-disk drives, solid state drives, flash memory devices, optical media and the like. Generally, the storage 608 stores application programs and data for use by the computer 602. In addition, the memory 606 and the storage 608 may be considered to include memory physically located elsewhere; for example, on another computer coupled to the computer 602 via the bus.

[0033] The input device 622 may be any device for providing input to the computer 602. For example, a keyboard and/or a mouse may be used. The input device 622 represents a wide variety of input devices, including keyboards, mice, controllers, and so on. Furthermore, the input device 622 may include a set of buttons, switches or other physical device mechanisms for controlling the computer 602. The output device 624 may include output devices such as monitors, touch screen displays, and so on.

[0034] As shown, the memory 606 contains the application servers $105_{1\text{-}N}$ and the notification servers $106_{1\text{-}N}$, each described in greater detail above. As shown, the storage 608 contains the client data 112, which stores user profile data. For example, the profile data stored in the client data 112 may include data elements identified by a tax professional as being necessary to prepare a tax return for the

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user. As described herein, the data elements may be identified during a video conference leveraging the video cameras 650 of the client system 101 and the professional system. Generally, the system 600 is configured to implement all systems, methods, and functionality described above with reference to Figures 1-5.

[0035] It may be noted that, descriptions of embodiments of the present disclosure are presented above for purposes of illustration, but embodiments of the present disclosure are not intended to be limited to any of the disclosed embodiments. Many modifications and variations will be apparent to those of ordinary skill in the art without departing from the scope and spirit of the described embodiments. The terminology used herein was chosen to best explain the principles of the embodiments, the practical application or technical improvement over technologies found in the marketplace, or to enable others of ordinary skill in the art to understand the embodiments disclosed herein.

[0036] In the preceding, reference is made to embodiments presented in this disclosure. However, the scope of the present disclosure is not limited to specific described embodiments. Instead, any combination of the recitd features and elements, whether related to different embodiments or not, is contemplated to implement and practice contemplated embodiments. Furthermore, although embodiments disclosed herein may achieve advantages over other possible solutions or over the prior art, whether or not a particular advantage is achieved by a given embodiment is not limiting of the scope of the present disclosure. Thus, the recited aspects, features, embodiments and advantages are merely illustrative and are not considered elements or limitations of the appended claims except where explicitly recited in a claim(s). Likewise, reference to “the invention” shall not be construed as a generalization of any inventive subject matter disclosed herein and shall not be considered to be an element or limitation of the appended claims except where explicitly recited in a claim(s).

[0037] Aspects of the present disclosure may take the form of an entirely hardware embodiment, an entirely software embodiment (including firmware, resident software, micro-code, etc.) or an embodiment combining software and hardware aspects that may all generally be referred to herein as a “component,” “circuit,” “module” or “system.” Furthermore, aspects of the present disclosure may

take the form of a computer program product embodied in one or more computer readable medium(s) having computer readable program code embodied thereon.

[0038] Any combination of one or more computer readable medium(s) may be utilized. The computer readable medium may be a computer readable signal medium or a computer readable storage medium. A computer readable storage medium may be, for example, but not limited to, an electronic, magnetic, optical, electromagnetic, infrared, or semiconductor system, apparatus, or device, or any suitable combination of the foregoing. More specific examples a computer readable storage medium include: an electrical connection having one or more wires, a hard disk, a random access memory (RAM), a read-only memory (ROM), an erasable programmable read-only memory (EPROM or Flash memory), an optical fiber, a portable compact disc read-only memory (CD-ROM), an optical storage device, a magnetic storage device, or any suitable combination of the foregoing. In the current context, a computer readable storage medium may be any tangible medium that can contain, or store a program.

[0039] The flowcharts and block diagrams in the Figures illustrate the architecture, functionality and operation of possible implementations of systems, methods and computer program products according to various embodiments of the present invention. In this regard, each block in the flowchart or block diagrams may represent a module, segment or portion of code, which comprises one or more executable instructions for implementing the specified logical function(s). In some alternative implementations the functions noted in the block may occur out of the order noted in the figures. For example, two blocks shown in succession may, in fact, be executed substantially concurrently, or the blocks may sometimes be executed in the reverse order, depending upon the functionality involved. Each block of the block diagrams and/or flowchart illustrations, and combinations of blocks in the block diagrams and/or flowchart illustrations can be implemented by special-purpose hardware-based systems that perform the specified functions or acts, or combinations of special purpose hardware and computer instructions.

[0040] While the foregoing is directed to embodiments of the present disclosure, other and further embodiments of the disclosure may be devised without departing

from the basic scope thereof, and the scope thereof is determined by the claims that follow.

The embodiments of the present invention for which an exclusive property or privilege is claimed are defined as follows:

1. A method, comprising:

establishing a video conference between a first application instance and a second application instance; and

during the video conference:

receiving, by an application server from the first application instance, an indication of a first data element required to prepare a tax return;

storing, by a notification server, the indication of the first data element; and

publishing, by the notification server, the indication of the first data element to the second application instance,

wherein the second application instance is configured to output the indication of the first data element for display via a graphical user interface of the second application instance after the video conference is completed, and

the second application instance is further configured to display, via the graphical user interface, a user interface element associated with the indication of the first data element that allows the first data element to be input by a user.

2. The method of claim 1, further comprising:

establishing a first socket connection between the first application instance and the application server, wherein the application server receives the indication of the first data element from the first application instance via the first socket connection; and

establishing a second socket connection between the application server and the notification server, wherein the application server provides the received indication of the first data element to the notification server via the second socket connection.

3. The method of claim 2, wherein the application server comprises a plurality of virtual application servers, wherein the first and second socket connections are established with a first virtual application server of the plurality of virtual application servers, the method further comprising:

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establishing a third socket connection between the second application instance and a second virtual application server of the plurality of virtual application servers; and

establishing a fourth socket connection between the second virtual application server and the notification server.

4. The method of claim 3, further comprising:

subscribing the second application instance to receive push notifications from the notification server, wherein the notification server pushes the indication of the first data element to the second application instance via the second virtual application server and the third and fourth socket connections.

5. The method of any one of claims 1 to 4, wherein storing the indication of the first data element by the notification server associates the first data element with a user profile associated with the second application instance.

6. The method of any one of claims 1 to 4, wherein the first data element comprises a document, the method further comprising, prior to storing the indication:

determining a type of the first data element; and

upon determining that a size of the first data element exceeds a threshold:

storing the first data element at a cloud storage location; and

generating a uniform resource locator (URL) for the cloud storage location,

wherein the indication stored by the notification server comprises the URL and the type of the first data element.

7. The method of claim 6, further comprising:

receiving, by the application server from the first application instance, an indication of a second data element required to prepare the tax return;

determining, by the notification server, that a size of the second data element does not exceed the threshold;

determining a type of the second data element;

storing, by the notification server, the second data element and an indication of the type of the second data element; and

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publishing, by the notification server, the indication of the second data element to the second application instance,

wherein the second application instance is configured to output the indication of the second data element for display.

8. A system, comprising:

a processor; and

a memory containing a program which when executed by the processor performs an operation comprising:

establishing a video conference between a first application instance and a second application instance; and

during the video conference:

receiving, by an application server from the first application instance, an indication of a first data element required to prepare a tax return;

storing, by a notification server, the indication of the first data element; and

publishing, by the notification server, the indication of the first data element to the second application instance,

wherein the second application instance is configured to output the indication of the first data element for display via a graphical user interface of the second application instance after the video conference is completed, and

the second application instance is further configured to display, via the graphical user interface, a user interface element associated with the indication of the first data element that allows the first data element to be input by a user.

9. The system of claim 8, the operation further comprising:

establishing a first socket connection between the first application instance and the application server, wherein the application server receives the indication of the first data element from the first application instance via the first socket connection; and

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establishing a second socket connection between the application server and the notification server, wherein the application server provides the received indication of the first data element to the notification server via the second socket connection.

10. The system of claim 9, wherein the application server comprises a plurality of virtual application servers, wherein the first and second socket connections are established with a first virtual application server of the plurality of virtual application servers, the operation further comprising:

establishing a third socket connection between the second application instance and a second virtual application server of the plurality of virtual application servers; and

establishing a fourth socket connection between the second virtual application server and the notification server.

11. The system of claim 10, the operation further comprising:

subscribing the second application instance to receive push notifications from the notification server, wherein the notification server pushes the indication of the first data element to the second application instance via the second virtual application server and the third and fourth socket connections.

12. The system of any one of claims 8 to 11, wherein storing the indication of the first data element by the notification server associates the first data element with a user profile associated with the second application instance.

13. The system of any one of claims 8 to 11, wherein the first data element comprises a document, the operation further comprising, prior to storing the indication:

determining a type of the first data element; and

upon determining that a size of the first data element exceeds a threshold:

storing the first data element at a cloud storage location; and

generating a uniform resource locator (URL) for the cloud storage location,

wherein the indication stored by the notification server comprises the URL and the type of the first data element.

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14. The system of claim 13, the operation further comprising:

receiving, by the application server from the first application instance, an indication of a second data element required to prepare the tax return;

determining, by the notification server, that a size of the second data element does not exceed the threshold;

determining a type of the second data element;

storing, by the notification server, the second data element and an indication of the type of the second data element; and

publishing, by the notification server, the indication of the second data element to the second application instance,

wherein the second application instance is configured to output the indication of the second data element for display.

15. A non-transitory computer readable medium storing instructions, which, when executed by a processor, causes the processor to perform an operation comprising:

establishing a video conference between a first application instance and a second application instance; and

during the video conference:

receiving, by an application server from the first application instance, an indication of a first data element required to prepare a tax return;

storing, by a notification server, the indication of the first data element; and

publishing, by the notification server, the indication of the first data element to the second application instance,

wherein the second application instance is configured to output the indication of the first data element for display via a graphical user interface of the second application instance after the video conference is completed, and

the second application instance is further configured to display, via the graphical user interface, a user interface element associated with the indication of the first data element that allows the first data element to be input by a user.

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16. The non-transitory computer readable medium of claim 15, the operation further comprising:

establishing a first socket connection between the first application instance and the application server, wherein the application server receives the indication of the first data element from the first application instance via the first socket connection; and

establishing a second socket connection between the application server and the notification server, wherein the application server provides the received indication of the first data element to the notification server via the second socket connection.

17. The non-transitory computer readable medium of claim 16, wherein the application server comprises a plurality of virtual application servers, wherein the first and second socket connections are established with a first virtual application server of the plurality of virtual application servers, the operation further comprising:

establishing a third socket connection between the second application instance and a second virtual application server of the plurality of virtual application servers; and

establishing a fourth socket connection between the second virtual application server and the notification server.

18. The non-transitory computer readable medium of claim 17, the operation further comprising:

subscribing the second application instance to receive push notifications from the notification server, wherein the notification server pushes the indication of the first data element to the second application instance via the second virtual application server and the third and fourth socket connections.

19. The non-transitory computer readable medium of any one of claims 15 to 18, wherein storing the indication of the first data element by the notification server associates the first data element with a user profile associated with the second application instance.

20. The non-transitory computer readable medium of any one of claims 15 to 18, wherein the first data element comprises a document, the operation further comprising, prior to storing the indication:

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determining a type of the first data element; and

upon determining that a size of the first data element exceeds a threshold:

storing the first data element at a cloud storage location; and

generating a uniform resource locator (URL) for the cloud storage location,

wherein the indication stored by the notification server comprises the URL and the type of the first data element.

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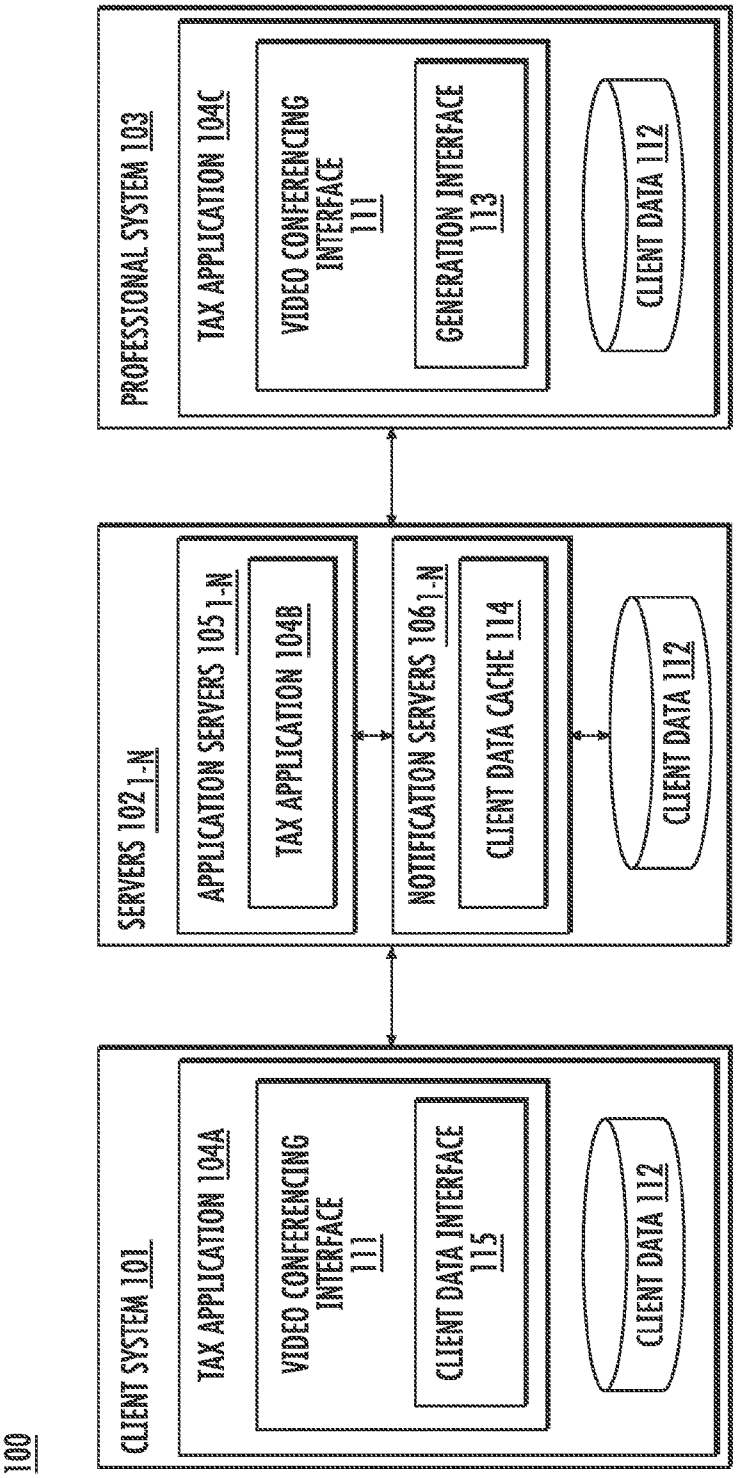
100
CLIENT SYSTEM 101
TAX APPLICATION 104A
VIDEO CONFERENCING INTERFACE 111
CLIENT DATA INTERFACE 115
CLIENT DATA 112
SERVERS 102 1-N
APPLICATION SERVERS 105 1-N
TAX APPLICATION 104B
NOTIFICATION SERVERS 106 1-N
CLIENT DATA CACHE 114
CLIENT DATA 112
PROFESSIONAL SYSTEM 103
TAX APPLICATION 104C
VIDEO CONFERENCING INTERFACE 111
GENERATION INTERFACE 113
CLIENT DATA 112

FIG. 1

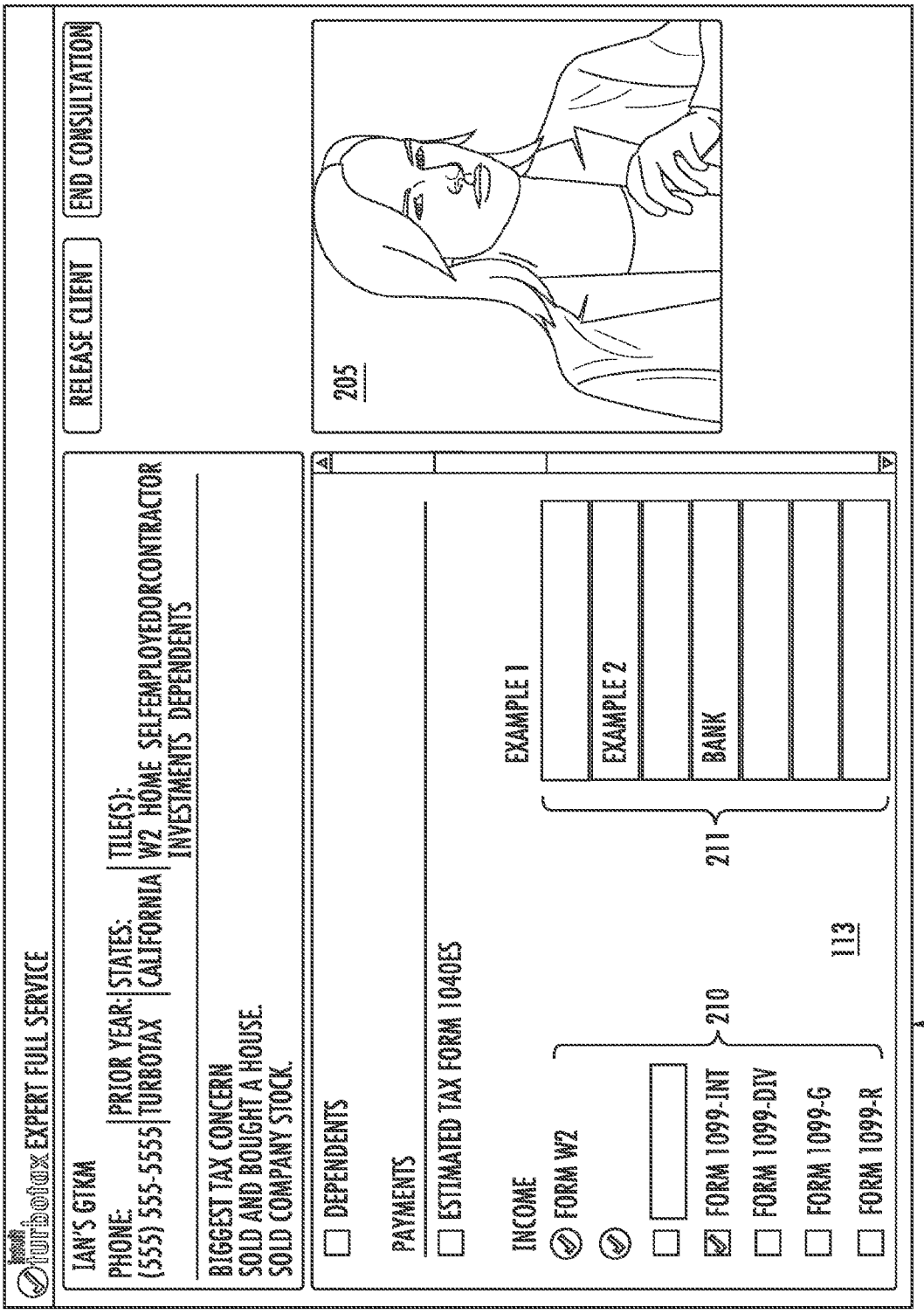
TurboTax EXPERT FULL SERVICE
IAN'S GTKM
PHONE: (555) 555-5555
PRIOR YEAR: TURBOTAX
STATES: CALIFORNIA
TILE(S): W2 HOME SELFEMPLOYEDORCONTRACTOR INVESTMENTS DEPENDENTS
BIGGEST TAX CONCERN
SOLD AND BOUGHT A HOUSE.
SOLD COMPANY STOCK.
RELEASE CLIENT
END CONSULTATION
205
DEPENDENTS
PAYMENTS
ESTIMATED TAX FORM 1040ES
INCOME
FORM W2
FORM 1099-INT
FORM 1099-DIV
FORM 1099-G
FORM 1099-R
210
211
113
EXAMPLE 1
EXAMPLE 2
BANK
200

FIG. 2A

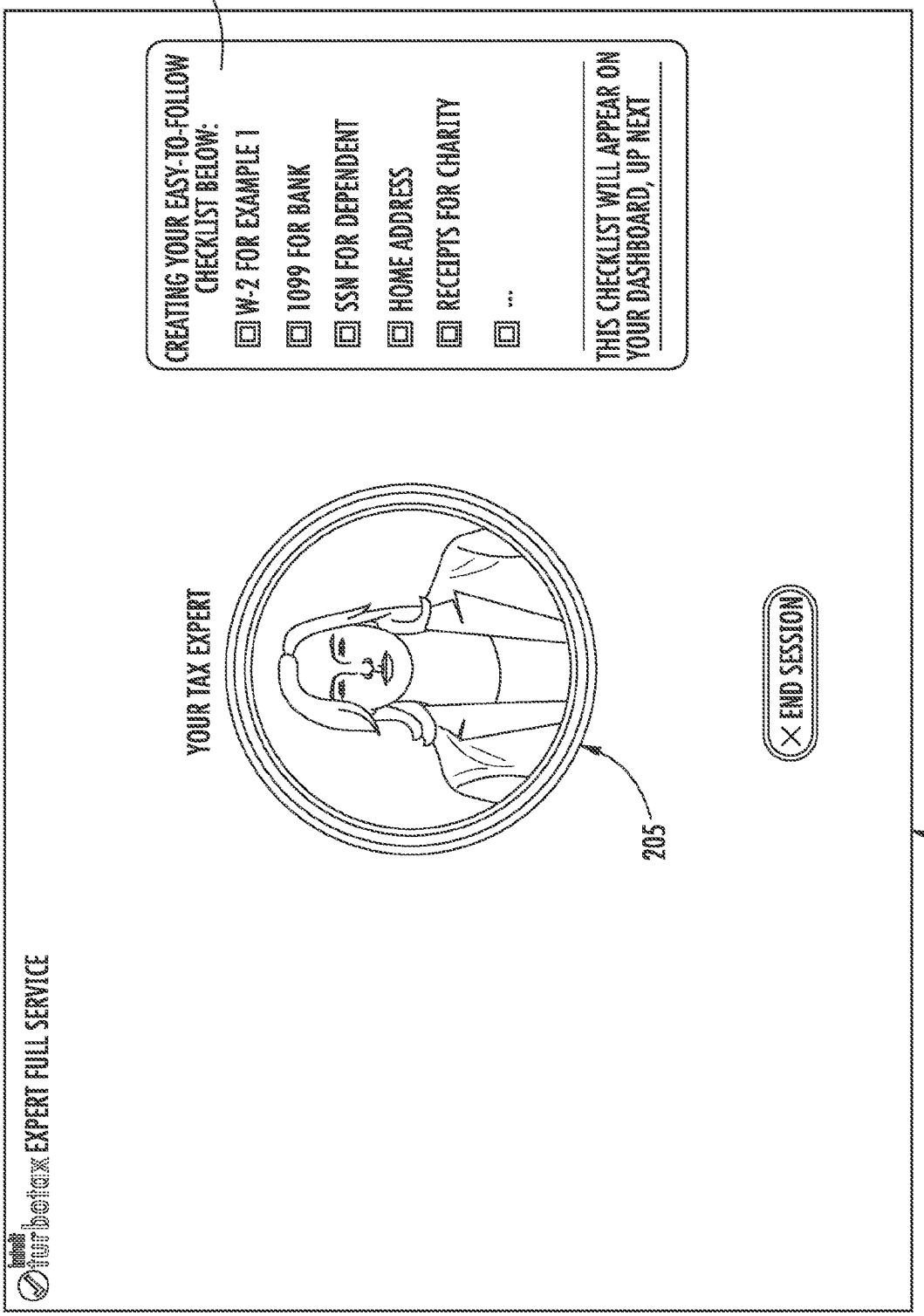
115
CREATING YOUR EASY-TO-FOLLOW CHECKLIST BELOW:
W-2 FOR EXAMPLE 1
1099 FOR BANK
SSN FOR DEPENDENT
HOME ADDRESS
RECEIPTS FOR CHARITY
...
THIS CHECKLIST WILL APPEAR ON YOUR DASHBOARD, UP NEXT
YOUR TAX EXPERT
205
END SESSION
turbotax EXPERT FULL SERVICE
201

FIG. 2B

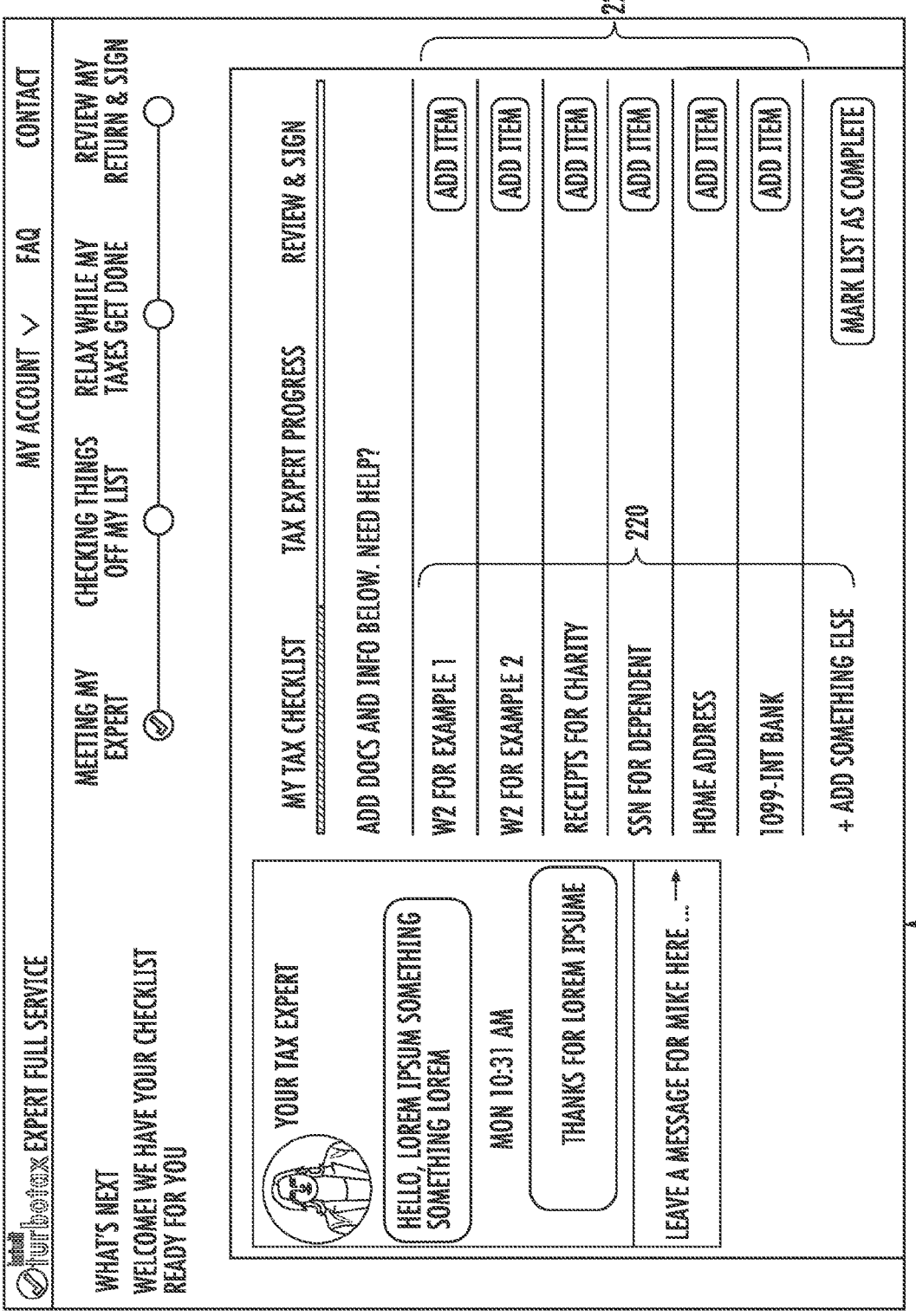
TurboTax EXPERT FULL SERVICE
MY ACCOUNT
FAQ
CONTACT
WHAT'S NEXT
WELCOME! WE HAVE YOUR CHECKLIST READY FOR YOU
MEETING MY EXPERT
CHECKING THINGS OFF MY LIST
RELAX WHILE MY TAXES GET DONE
REVIEW MY RETURN & SIGN
YOUR TAX EXPERT
HELLO, LOREM IPSUM SOMETHING SOMETHING LOREM
MON 10:31 AM
THANKS FOR LOREM IPSUME
LEAVE A MESSAGE FOR MIKE HERE ...
MY TAX CHECKLIST
TAX EXPERT PROGRESS
REVIEW & SIGN
ADD DOCS AND INFO BELOW. NEED HELP?
W2 FOR EXAMPLE 1
W2 FOR EXAMPLE 2
RECEIPTS FOR CHARITY
SSN FOR DEPENDENT
HOME ADDRESS
1099-INT BANK
+ ADD SOMETHING ELSE
ADD ITEM
MARK LIST AS COMPLETE
220
221
202

FIG. 2C

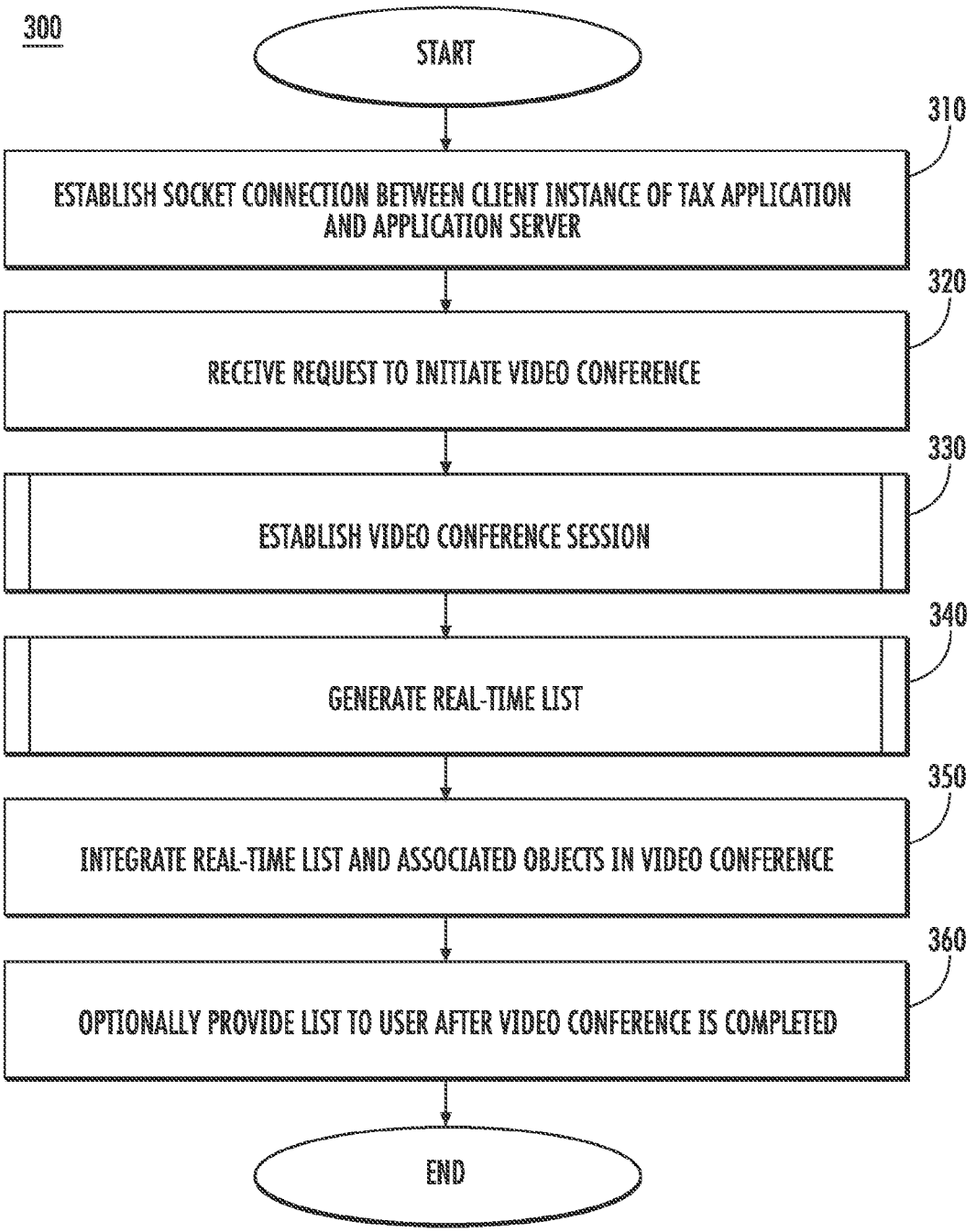
300
START
310
ESTABLISH SOCKET CONNECTION BETWEEN CLIENT INSTANCE OF TAX APPLICATION AND APPLICATION SERVER
320
RECEIVE REQUEST TO INITIATE VIDEO CONFERENCE
330
ESTABLISH VIDEO CONFERENCE SESSION
340
GENERATE REAL-TIME LIST
350
INTEGRATE REAL-TIME LIST AND ASSOCIATED OBJECTS IN VIDEO CONFERENCE
360
OPTIONALLY PROVIDE LIST TO USER AFTER VIDEO CONFERENCE IS COMPLETED
END

FIG. 3

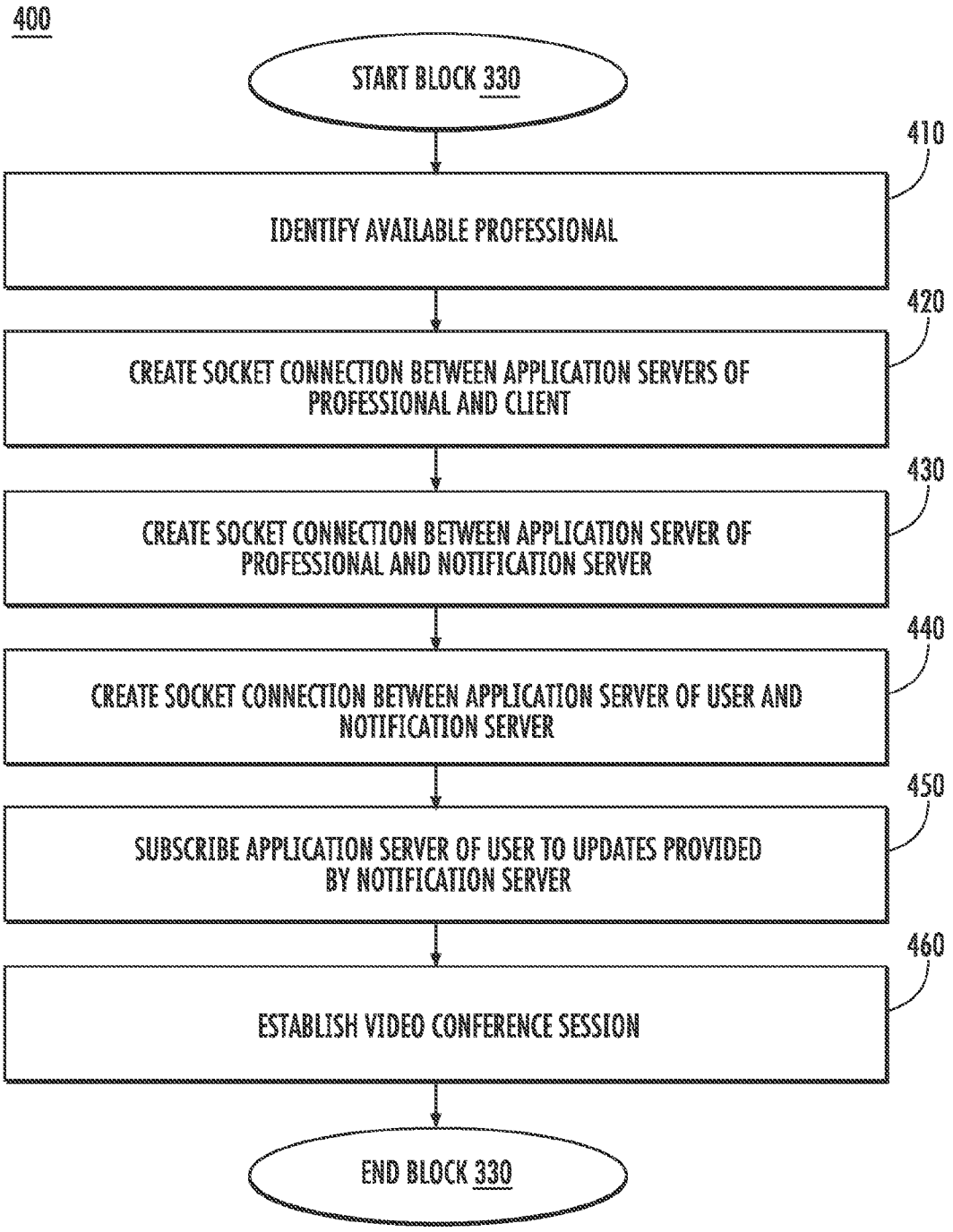
400
START BLOCK 330
410
IDENTIFY AVAILABLE PROFESSIONAL
420
CREATE SOCKET CONNECTION BETWEEN APPLICATION SERVERS OF PROFESSIONAL AND CLIENT
430
CREATE SOCKET CONNECTION BETWEEN APPLICATION SERVER OF PROFESSIONAL AND NOTIFICATION SERVER
440
CREATE SOCKET CONNECTION BETWEEN APPLICATION SERVER OF USER AND NOTIFICATION SERVER
450
SUBSCRIBE APPLICATION SERVER OF USER TO UPDATES PROVIDED BY NOTIFICATION SERVER
460
ESTABLISH VIDEO CONFERENCE SESSION
END BLOCK 330

FIG. 4

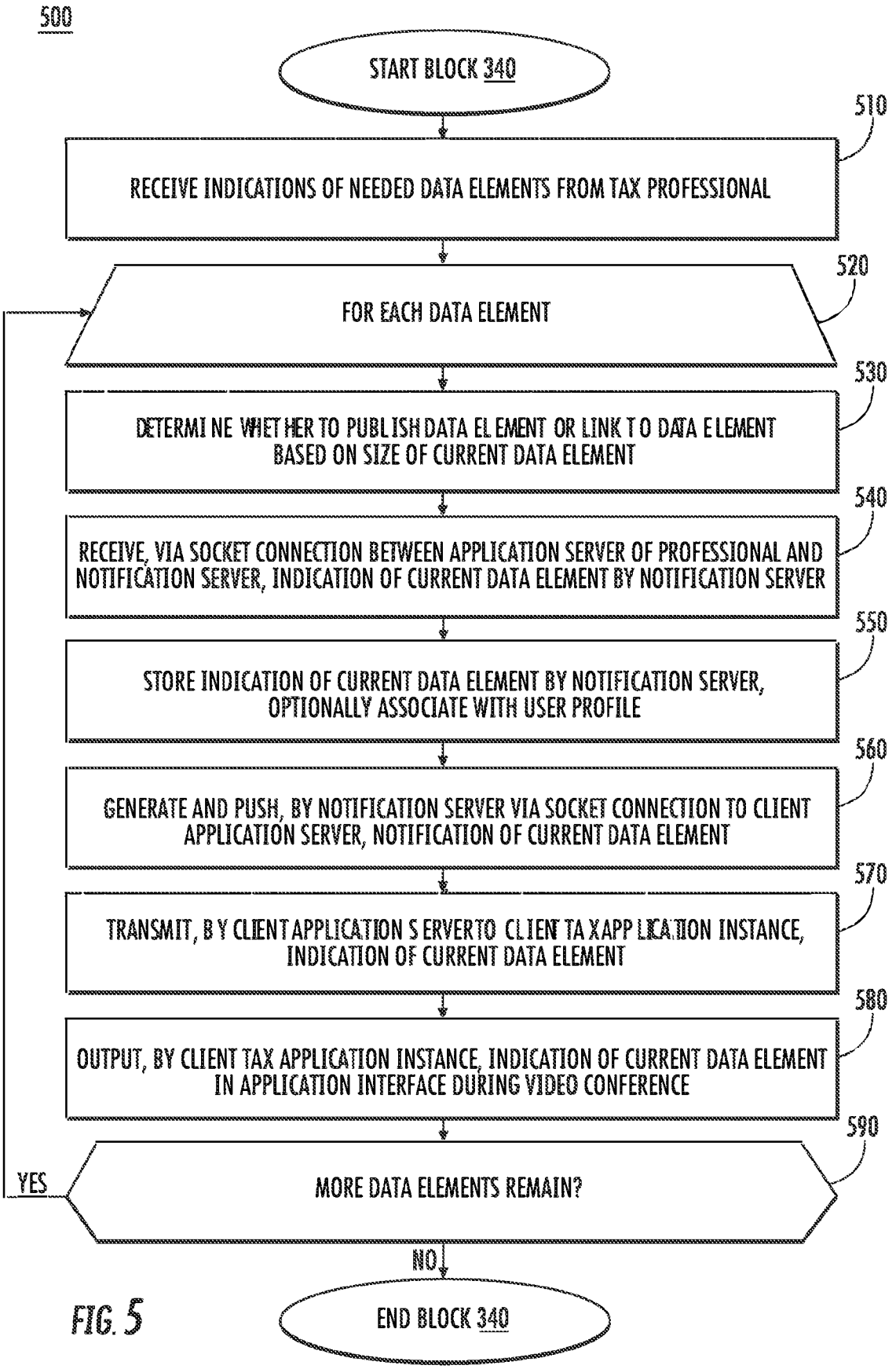
500
START BLOCK 340
510
RECEIVE INDICATIONS OF NEEDED DATA ELEMENTS FROM TAX PROFESSIONAL
520
FOR EACH DATA ELEMENT
530
DETERMINE WHETHER TO PUBLISH DATA ELEMENT OR LINK TO DATA ELEMENT BASED ON SIZE OF CURRENT DATA ELEMENT
540
RECEIVE, VIA SOCKET CONNECTION BETWEEN APPLICATION SERVER OF PROFESSIONAL AND NOTIFICATION SERVER, INDICATION OF CURRENT DATA ELEMENT BY NOTIFICATION SERVER
550
STORE INDICATION OF CURRENT DATA ELEMENT BY NOTIFICATION SERVER, OPTIONALLY ASSOCIATE WITH USER PROFILE
560
GENERATE AND PUSH, BY NOTIFICATION SERVER VIA SOCKET CONNECTION TO CLIENT APPLICATION SERVER, NOTIFICATION OF CURRENT DATA ELEMENT
570
TRANSMIT, BY CLIENT APPLICATION SERVER TO CLIENT TAX APPLICATION INSTANCE, INDICATION OF CURRENT DATA ELEMENT
580
OUTPUT, BY CLIENT TAX APPLICATION INSTANCE, INDICATION OF CURRENT DATA ELEMENT IN APPLICATION INTERFACE DURING VIDEO CONFERENCE
590
MORE DATA ELEMENTS REMAIN?
YES
NO
END BLOCK 340

FIG. 5

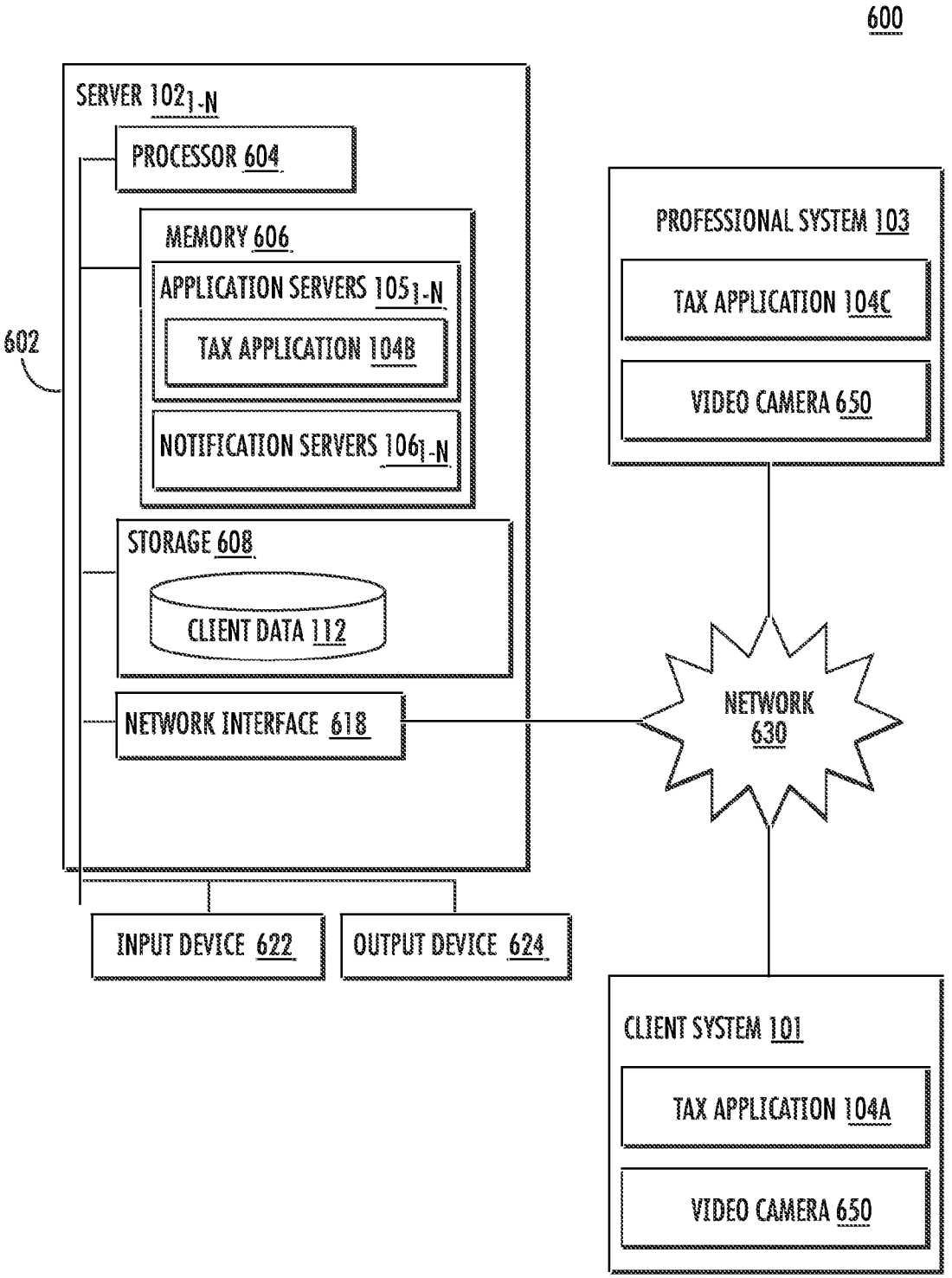

FIG. 6

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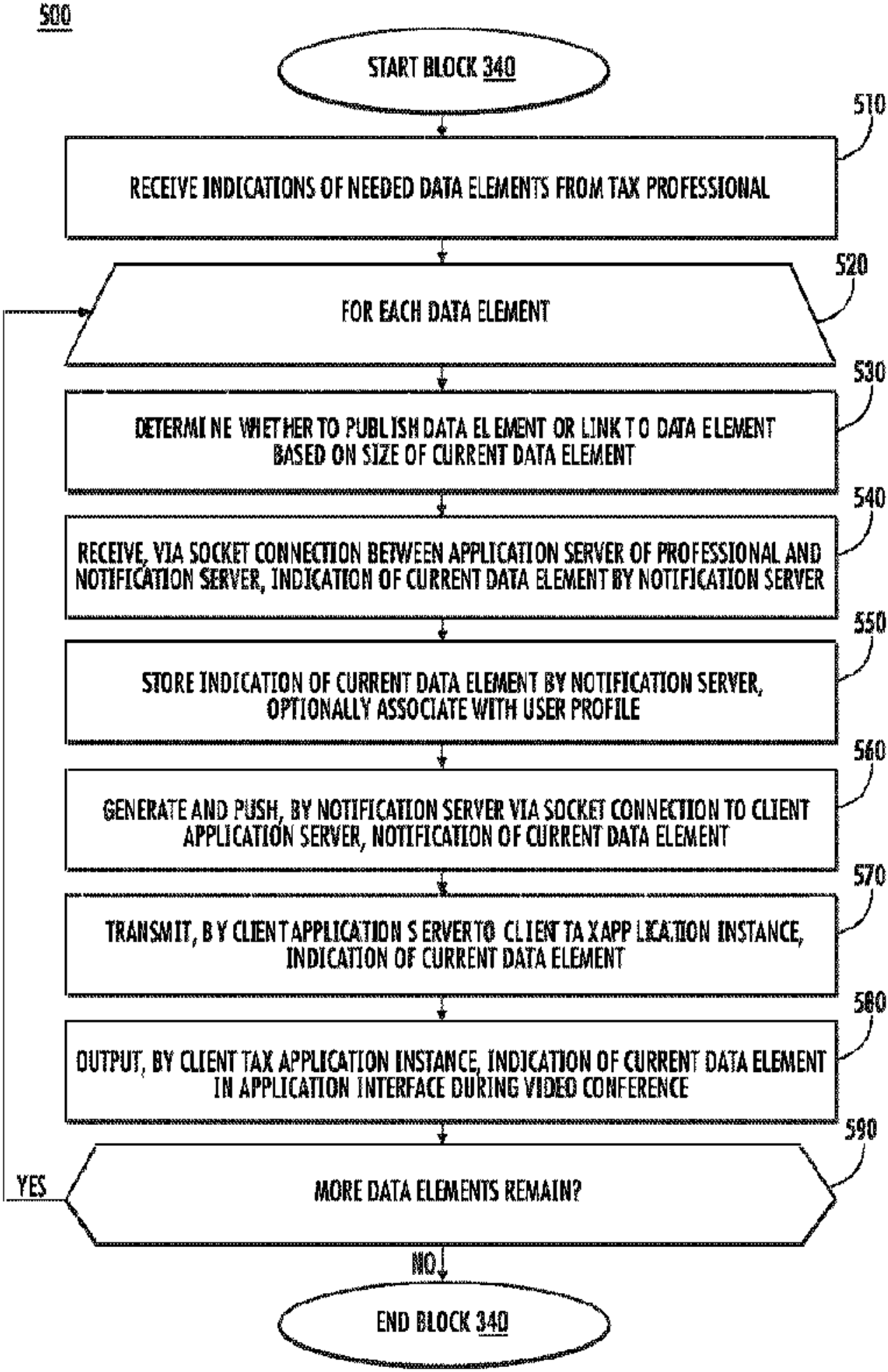
500
START BLOCK 340
510
RECEIVE INDICATIONS OF NEEDED DATA ELEMENTS FROM TAX PROFESSIONAL
520
FOR EACH DATA ELEMENT
530
DETERMINE WHETHER TO PUBLISH DATA ELEMENT OR LINK TO DATA ELEMENT BASED ON SIZE OF CURRENT DATA ELEMENT
540
RECEIVE, VIA SOCKET CONNECTION BETWEEN APPLICATION SERVER OF PROFESSIONAL AND NOTIFICATION SERVER, INDICATION OF CURRENT DATA ELEMENT BY NOTIFICATION SERVER
550
STORE INDICATION OF CURRENT DATA ELEMENT BY NOTIFICATION SERVER, OPTIONALLY ASSOCIATE WITH USER PROFILE
560
GENERATE AND PUSH, BY NOTIFICATION SERVER VIA SOCKET CONNECTION TO CLIENT APPLICATION SERVER, NOTIFICATION OF CURRENT DATA ELEMENT
570
TRANSMIT, BY CLIENT APPLICATION SERVER TO CLIENT TAX APPLICATION INSTANCE, INDICATION OF CURRENT DATA ELEMENT
580
OUTPUT, BY CLIENT TAX APPLICATION INSTANCE, INDICATION OF CURRENT DATA ELEMENT IN APPLICATION INTERFACE DURING VIDEO CONFERENCE
590
MORE DATA ELEMENTS REMAIN?
YES
NO
END BLOCK 340