

CHECKINS FOR SERVICES FROM A MESSENGER CHATBOT

FIELD OF THE DISCLOSURE

[0001] The present invention relates generally to a messenger chatbot check-in platform implemented with serverless computing architecture. The check-in platform receives requests by a user, or intents, to find services and dynamically responds without maintaining a fixed amount of computational resources. The present specification further discloses application management and dynamic databases using the demand generation platform implemented with serverless computing architecture.

BACKGROUND

[0002] Traditionally, salon services are booked specifically with a particular salon with which a user is already familiar and that may or may not have online selection and booking abilities. In many cases, appointments are made by calling the particular salon and requesting an appointment time. Some salons have limited online selection and booking abilities; but, each salon maintains its own bookings, so the user must already know which salon she wishes to visit. Once the user knows which salon the user wants to visit, the user can visit that salon's website, which may or may not have online selection and booking abilities. If the salon does have such abilities, the ability is limited to picking a predefined stylist and/or time for an appointment. If the salon does not have such abilities, the user must call the salon. Currently, there does not exist a tool for finding a salon and making an appointment. Therefore, improvements are desirable.

[0003] In addition, traditionally a server is a static set of machines with fixed amount of processors and machine readable memories. With fixed amounts of processors and memories, such a static server has fixed capacities of processing power and memory resources. The fixed capacities are problematic for application developers as well as data centers. Demand for computational resources of an application varies from time to time. For example, when the application was freshly launched to the public, demand for the application may be low. The fixed capacity of the static server may be much greater than the demand, causing waste of capital, time,

and human resource to maintain the server. However, after the application is on the market for a period of time, the demand for the application may grow and overwhelm the capacity of the static server, potentially causing jamming or crashing of the server. As such, the traditional static server architecture inevitably mismatches supply and demand, providing either too much or not enough computational resources.

SUMMARY

[0004] The embodiments herein disclose chatbot check-in platforms implemented with serverless computing architecture and application management methods. The platform analyzes a chatbot request of a user to find a particular service and presents options to the user for such service. The serverless architecture responds to demand dynamically. The serverless architecture is automatically scalable to match the change of demand, providing no mismatch between demand and supply of computational resources.

[0005] This disclosure uses a salon application that uses a chatbot check-in platform, as an example of an application management. It is noted that the computational architecture disclosed is not limited to a salon application. Other software applications such as finding a car, a house, a restaurant, a nail shop, a movie, a hotel, a service, or the like can all be similarly managed by the chatbot platform.

[0005a] In an aspect, the present disclosure provides a chatbox check-in platform for checking for salon services through a salon application, comprising: a salon application associated with a messenger chatbot, wherein the salon application is configured for a user to make a request for an appointment for a salon service via the messenger chatbot; an application assistant comprising a first booking engine, a salon location finder and an intent analyzer, wherein the application assistant is in communication with the salon application for finding a salon nearby the user, the intent analyzer is configured to decipher the user's request to find a salon matching the user's request; a first salon services API in communication with the intent analyzer for finding at least one matching salon for the user's request and wherein the intent analyzer is in communication with the salon location finder which is configured to find a location of a salon matched by the first salon services API and return to the intent analyzer one or more candidate salons and the intent analyzer is configured to

communicate with the first booking engine; a gateway API located on a serverless backend system and in communication with the first booking engine, wherein the gateway API is configured to control data throttling to handle the user's request and to create a cache having a defined size, data structure and forward and backward linkings for the request and time-to-live of data; and a second booking engine in communication with the gateway API, wherein the second booking engine is located on the serverless backend system responding to the request and is configured to communicate with a dynamic database configured to provision resources only when requested for storing the salon service and time.

[0006] A chatbot check-in platform includes a salon application associated with a messenger chatbot, wherein a user requests via voice an appointment for a salon service. The platform includes a location service in communication with the salon application for finding a salon nearby a user; a salon services API in communication with the salon application for finding a requested salon service and time for appointment for the salon; and a database interface responding to a request for making an appointment with the salon.

[0007] In another example, the present disclosure provides a method of using a chatbot check-in platform, the method including instructions, when executed by a processor, that cause the processor to execute actions comprising: receiving, by a first processor of a serverless backend system comprising a gateway API, a request received via input on a user interactive device associated with a messenger chatbot for booking an appointment for a service provided by a salon, wherein the first processor is a processor of a device, the device includes

machine readable memory accessible by the first processor; wherein when the gateway API receives the request, the gateway API is configured to access a cache configuration file from a dynamic database specific for the request, wherein the dynamic database is configured to store appointments using unstructured data to store cache configuration files; finding a salon and service, by the first processor in response to the request using a salon service API running on the serverless backend system; providing, by the first processor, a suggested booking for the salon and service via the associated messenger chatbot; and upon receiving, by the first processor, a confirmation from the user via the chatbot, sending a request to a second processor to book the salon and service through the gateway API that controls the amount of data and rate of data that can be send to the second processor to maintain efficiency; and booking the salon and service by the second processor, storing the booking in the dynamic database, and sending an update of available appointments to the first processor; wherein the first processor can respond to the request without communicating with the second processor until the confirmation is received.

[0008] The present invention relates generally to a chatbot check-in platform implemented with serverless computing architecture. The platform dynamically responds to service requests without maintaining a fixed amount of computational resources. The present specification further discloses application management using the platform implemented with serverless computing architecture. The platform's serverless database architecture has the benefit of being scalable to match the change of demand. A database center that operates this platform can dynamically allocate computational resources to any client/application whenever there is a need. The computational resources operated by the database center can be efficiently allocated to meet the demands. An application developer who uses the services provided by the database center, does not have to worry about the large amount of hardware investments. There is no need for the application developer to provision a piece of hardware. There is no need for the application developer to increase or decrease the amount of physical hardware to meet the change of the demand. The platform, serverless database is event driven.

[0009] The foregoing has outlined rather broadly the features and technical advantages of the present invention in order that the detailed description of the invention that follows may be better understood. Additional features and advantages of the invention will be described hereinafter that

form the subject of the claims of the invention. It should be appreciated by those skilled in the art that the concepts and specific embodiments disclosed may be readily utilized as a basis for modifying or designing other structures for carrying out the same purposes of the present invention. It should also be realized by those skilled in the art that such equivalent constructions do not depart from the spirit and scope of the invention as set forth in the appended claims. The novel features that are believed to be characteristic of the invention, both as to its organization and method of operation, together with further objects and advantages will be better understood from the following description when considered in connection with the accompanying figures. It is to be expressly understood, however, that each of the figures is provided for the purpose of

illustration and description only and is not intended as a definition of the limits of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] For a more complete understanding of the disclosed systems and methods, reference is now made to the following descriptions taken in conjunction with the accompanying drawings.

[0011] FIG. 1 shows a block diagram of a chatbot check-in platform including a salon application according to one embodiment of the disclosure.

[0012] FIG. 2 shows a method of a salon application that uses a chatbot check-in platform and serverless architecture as a backend structure according to one embodiment of the disclosure.

[0013] FIG. 3 shows a method of a chatbot check-in platform that uses a serverless architecture to handle a request from a salon application according to one embodiment of the disclosure.

[0014] FIG. 4 shows a method of using a chatbot to check-in with a salon that uses a serverless backend architecture, according to one example embodiment of the disclosure.

[0015] FIG. 5 shows a method of using a chatbot to cancel a check-in with a salon that uses a serverless backend architecture, according to one example embodiment of the disclosure.

[0016] FIG. 6 is a block diagram illustrating a computing system according to one embodiment of the disclosure.

DETAILED DESCRIPTION

[0017] In general, the present disclosure relates to a messenger chatbot check-in platform for checking for salon services through a salon application. The check-in platform analyzes the intent of a user to determine a user's desire for some service and then presents options to the user for choices based on the intent or request. For example, a user could type the word "haircut" into a messenger chatbot, for example Facebook Messenger. The chatbot then interfaces with a salon

application to start the booking process. If the salon application recognizes the user, for example, by prior use, the salon application can look-up the user and the user's preferences to quickly suggest a salon service. If the user is not recognized, the chatbot and converse with the users to determine additional information from the user. The salon applicaiton would then return to the user, for example, choices of salons nearby, stylists and/or open appointment times at the nearby salons. The user can then select the salon, the stylist and book a time with little effort.

[0018] FIG. 1 shows a block diagram of a chatbot check-in platform 100 using a serverless architecture (hereinafter the "platform") applying to a salon application according to one embodiment of the disclosure. The arrows in FIG. 1 mean bidirectional data connections between the referred two blocks. A "data connection" is an electronic connection that communicates electronic information, which may include digital and/or analog data. A data connection may be done through a wired connection, e.g., USB, Ethernet, local area network, etc. A data connection may be done through a wireless connection, e.g., IEEE 802.11x (WiFi), long term evolution (4G LTE), or the like. The data connection may be secured, e.g., encrypted, communication. The data connection may be unsecured, e.g., clear text, communication.

[0019] The platform 100 includes a messenger chatbot 102, a salon application 104, an application assistant 106, a serverless backend system 120 and a database 134. The messenger chatbot 102 can be any messenger chatbot through which the user interacts to express an interest or intent for a service. The user application 102 can be, for example, Facebook messenger. In one embodiment, a user uses the chatbot to express an interest, intent, or need for finding a salon. For example, the user could type "haircut".

[0020] There can be a plurality of salon applications 104 associated with each possible messenger chatbot 102 all connected to the same application assistant 106, which may include a webhook. For example, the salon application 104 can be a first application for Facebook, a second application for Google, a third for Apple OS, a fourth for Android, a fifth for Instagram, a sixth for WhatsApp, a seventh for Google search engine, etc. All of the above mentioned salon applications 104 may connect to the same application assistant 106. The interest, intent, or need for finding a salon is received by the salon application 104 from the messenger chatbot 102. The

salon application 104 may receive, for example, the identity of the user and the user's location. The identity of the user may come, for example, from an account name of the user for the social media 102. Using the above example, the salon application 104 receives the request "haircut" and the current location of the user.

[0021] The messenger chatbot 102 and the salon application 104 may be a single application, according to an example embodiment. For example, the salon application 104 could be a mobile application on a user's mobile device that the user interacts with to convey the user's interest or desire and with which the user gets back information regarding the user's interest or desire.

[0022] The salon application 104 communicates with the application assistant 106. The application assistant 106 can be a program running on a user device, e.g., computer, laptop, cell phone, that the messenger chatbot 102 also runs on. It could also be on a separate device. The application assistant 106 includes a salon location finder 108, an intent analyzer 110, a booking engine 116, a map application programming interface (API) 112, and a salon service API 114. In one example embodiment, the application assistant 106, salon application 104 and the messenger chatbot 102 could all be a single application, for example a salon application on a user's mobile device.

[0023] The intent analyzer 110 deciphers the interest, intent, or need of the user. The intent analyzer 100 communicates with a salon service API 114 to find the best matching salon(s) for the user's intent. The analysis may include key word analysis that may assist the understanding of what service(s) the user needs, e.g., haircut, hair dying, hairstyle design, makeup, nail services, etc. The intent analyzer 110 may also consider the location of the user and the potential salons. The intent analyzer 110 may further consider a profile of the user for finding a salon, e.g., an age, a gender, a current hair style, an ethnicity, etc. The intent analyzer 110 may also consider the date and time desired by the user, as well as the availability of a salon for that desired time and date. For example, the user that typed the word "haircut", probably intended to find a hair salon nearby the user for the purpose of exploring to make an appointment for a haircut. The intent analyzer 110 can also mine data from salons to recommend appointments to same stylist, same schedule

and same service(s) as previously booked in addition to seeking to sell additional services the user might be interested in.

[0024] The intent analyzer 110 communicates with the salon location finder 108. The salon location finder finds a location of a salon matched by the salon service API 114. The API 114 could use graph QL to query the API itself. The salon location finder 108 communicates with a map API, e.g., Google maps, Bing maps, or the like. In one embodiment, the salon location finder 108 may find a plurality of salons within a certain distance from the user. In another embodiment, the salon location finder 108 may find a salon around a location designated by the user.

[0025] The salon location finder 108 returns one or more candidate salons back to the intent analyzer 110. The intent analyzer 110 communicates with the booking engine 116. The booking engine 116 includes functions of booking 140, confirming check-in 142, modifying booking 144, and canceling booking 146. The booking engine 116 may also just allow a user to place itself in line for a haircut called check-in 147. Preferably, the booking engine 116 includes a graphical user interface. The salon application 104 can then communicate back to the user application 102 for options for service, salon, time, stylist, etc. In the example of the search for the word “haircut” the salon application 104 would return a selection of salons back to the user for selection. The salon application 104 could also include a list of stylists and/or booking times. The salon application 104 could also recommend a particular stylist or booking time based on underlying data or preferences. The user can then select or confirm choices through the chatbot, for example by picking a salon, a service, a stylist and an appointment time.

[0026] The application assistant 106 communicates with the check-in platform interface 121 within the serverless backend system 120. The serverless backend system 120 has no physical servers and no instances running; therefore, the code has to be written entirely different than in a server based system. The check-in platform interface 121 includes a gateway API 122 and a booking engine API 124. The application assistant 106 communicates with the serverless backend system 120. More specifically, the booking engine 116 communicates with the gateway API 122. The gateway API 122 controls data throttling, e.g., defining the amount of megabytes per second and rate the serverless backend system is allowed to receive. When the gateway API 122 receives

a request to find a salon, it creates one or more caches to handle the request. The gateway API 122 defines the cache size, the data structure of the cache, forward or backward linkings of the cache, and/or time-to-live of data in the cache.

[0027] The gateway API 122 communicates with booking engine API 124. The booking engine API 124 includes functions to process: booking 126, confirming check-in 128, modifying booking 130, and cancelling booking 132. The booking engine API 124 communicates with the database 134 to store the records. Preferably, the database 134 is a dynamic database.

[0028] The database 134 does not keep a fixed amount of memory for the salon finding application 104. The database 134 provisions a space, e.g., a table, when requested by the application 104. For example, only when a user requests to make an appointment with a salon, the database 134 creates a table to record the relevant information, e.g., identity of the user, booking date/time, salon location, interested services, interested stylist, etc. Because the database 134 dynamically allocates resources when requested, no unused memory is allocated to the application. In addition, the database 134 uses unstructured data. When an appointment is fulfilled or canceled, the table may be canceled after a certain period of time (time-to-live) according to a data retention policy. Thus, the database 134 is freely scalable (scaling up or down) as the demand of the application changes.

[0029] The check-in platform interface 121 communicates with the salon service API 136. The salon service API may keep the updated information of all salons, e.g., the real-time availability of a salon, available service providers of a salon, specialties of a salon, etc.

[0030] FIG. 2 shows a method 200 of a salon application that uses a check-in platform and a serverless architecture as a backend system, according to one embodiment of the disclosure. The method 200 can be executed, for example, on the application assistant 106, wherein the application assistant is on the user device, e.g., cell phone, computer, tablet, etc. The method 200 includes 205 receiving, by a first processor, an indication of an intent of a user, wherein the processor is accessible by the application. The indication can be received from a messenger chatbot. For

example, the indication may be the word “haircut” typed into a messenger chatbot, for example Facebook messenger, running on a mobile phone or laptop.

[0031] The method 200 further includes 210 analyzing, by the first processor, the indication of the intent of the user and determining if the intent can be determined 215. In the above example, the analysis includes determining at least one of the following: a preferred hair style, a preferred service, a preferred price range, a preferred stylist/salon, a preferred franchise of salon, a preferred location of salon, a preferred time/date, a preferred amenity (e.g., parking), etc.

[0032] The method 200 includes 220 determining a salon, by the first processor, at least in part, based on the intent analyzed, a location of a person and/or a location of the salon. When finding the salon at 215, other factors mentioned can also be considered, e.g., a preferred hair style, a preferred service, a preferred price range, a preferred stylist/salon, a preferred franchise of salon, a preferred location of salon, a preferred time/date, a preferred amenity (e.g., parking), etc.

[0033] The method 200 includes 220 receiving, by the first processor, a request to make a reservation for the salon. The request is made by the user. In one embodiment, when the application detected an intent of the user, the application may proactively prompt the user a message in the chatbot to solicit a request. In other embodiments, the user proactively sends the request. The method 200 includes 230 processing, by the first processor, the request, for example booking a reservation, using a serverless cloud service. In one embodiment, the serverless cloud service can be part of the serverless database management system. This serverless system may be 120 shown in FIG. 1.

[0034] FIG. 3 shows a method 300 of a check-in platform, serverless database handling a request from a salon finding application according to one embodiment of the disclosure. The check-in platform, serverless database in method 300 can be 120 shown in FIG. 1. In one embodiment, the method 200 is an application program running on a user device, and method 300 is a program running at the backend database 120.

[0035] The method 300 includes 305 receiving, by a second processor of a serverless cloud service system, a request to make an appointment with a salon. The request includes a time, an

identity of a client, an identity of a salon, and/or an identity of a stylist. The request is made by a first processor, e.g., a processor of a user device, to the second processor, e.g., a processor of a database. In another embodiment, the salon at 305 is a salon that matches the user's needs the best.

[0036] The method 300 includes 310 throttling, by the second processor, a traffic for processing the request. In one embodiment, the throttling of the traffic includes controlling the amount of megabytes of data allowed per second single direction and/or both directions. In one embodiment, the traffic throttling is done by gateway API 122.

[0037] The method 300 includes 315 structuring, by the second processor, a cache for the request, wherein the structuring includes sizing a cache, linking caches, defining data retention policy for the cache, or the like. In one embodiment, 315 is executed by the gateway API 122. In one embodiment, when the gateway API 122 receives a request, the gateway API 122 accesses a cache configuration file from the dynamic database 134. The cache configuration file includes at least one of the following information: a size of the cache, forward and/or backward linking of cache, data retention policy for the cache, data structure of the cache.

[0038] The method 300 includes 320 pulling, by the second processor, a configuration file specific for the request from a dynamic database. In one embodiment, the configuration file at 320 may be the cache configuration file as described in 315. In another embodiment, the configuration file can be a configuration file of a table for storing salon appointment information.

[0039] The method 300 includes 325 creating, by the second processor, a table in the dynamic database. In one embodiment, the table is specific for storing salon appointment information. The table for storing salon appointment information includes at least one of the following: an identity of the user, a service item (e.g., haircut, hairstyling, hair coloring, manicure, etc.), a price or price range, an identity of a stylist/salon, an identity of a franchise of salon, a location of salon, a time/date for the appointment, a preferred amenity (e.g., parking), etc.

[0040] The method 300 includes 330 computing and storing, by the second processor, parameters for the request in the table. In one embodiment, the parameters of the table at 330 are

global variables such that inquiries for write/read/search/modify within the database at the global level reveals the parameters (e.g., salon appointment related data).

[0041] The method 300 includes 335 returning, by the second processor, a content of the table to the first processor. The content may include the information related to the reservation, e.g., an identity of the user, a service item (e.g., haircut, hairstyling, hair coloring, manicure, etc.), a price or price range, an identity of a stylist/salon, an identity of a franchise of salon, a location of salon, a time/date for the appointment, a preferred amenity (e.g., parking), etc. After receiving the content of the table, the user may further modify, confirm, or cancel the appointment.

[0042] FIG. 4 shows a method 400 of a check-in platform that uses a serverless architecture as a backend system, according to one example embodiment of the disclosure. The method 400 can be executed by a first processor, for example, within the salon application 104 of Figure 1. The method 400 begins at start 402. The method 400 includes 405 receiving, by a first processor, a request by a user to book an appointment, wherein the processor is accessible by the salon application 104. The request can be received by a messenger chatbot, such as the messenger chatbot 102 of Figure 1. For example, a user may type the words “haircut with shampoo and hair color too.” The chatbot 102 would communicate that request along with a user identification to the salon application 104.

[0043] The method 400 further includes 407 determining, by the first processor, if the user has previously checked-in with the chatbot by using the user identification. If it is determined by the first processor that the user has, the salon application 104, via the first processor, can 408 look up previous bookings, preferences and salons for the user and communicate with the salon services API to find available bookings matching the criteria. The salon application 104 then submits a response back to the chatbot 102, for example, “Sure, the first available is an 11am haircut at Supercuts at the hub. Would you like to check-in?” The method 400 includes 410 determining, by the first processor, how the user responds. If the user responds “Yes”, then the salon application 104 can book the appointment through the salon services API 108 and send a message back to the user confirming check-in 412, “Ok David, you’re checked in for 11am the hub Supercuts location”.

The method ends at 420. Referring back to 410, if the user responds “No”, then the method 400 ends at 414.

[0044] Referring back to 410, if the user indicates a request for a different location, the salon application 104 can communicate with both the location services 118 and the salon services API 108 to find alternative available salons 416 and send a response back to the user via the chatbot, “I found a few hair salons near you. The first one is Supercuts at the hub which is 0.4 miles away. Does this location work for you?”. The method includes 418 determining, by the first processor, a user response. If the user responds “No”, the method 400 loops back to find alternative salons nearby at 416. The salon application 104 then prompts the user “Sure, the next is Supercuts on mission St. which is 1.2 miles away. Does this location work for you?”. If the user responds “No”, then the method 400 circles back again back to 416.

[0045] Referring back to 418, if the user responds “Yes”, then the salon application 104 prompts 421 the user, “OK, what’s your preferred time?”. In this example, the user responds “between 11 to 11:30am” and is received 422 by the salon application 104. The method 400 includes 424 determining, by the first processor, if the user identification is known. In this example, the user identification is known, and the method 400 continues as previously described.

[0046] Referring back to 410, if the user indicates a request for a different time, the salon application 104 communicates with the salon services API 108 to find alternative times and asks the user 421 via the chatbot 102, “OK, what’s your preferred time?” and processing continues as previously described.

[0047] Referring back to 407, if it is determined, by the first processor, that the user has not previously checked-in using the chatbot, the salon application 104 returns to the user and prompts 426, “Sure, what’s your current location? You can tell me or use a companion app to send your location.” In order to the user the latter, native permissions would be requested. The result of either returns a 428 response from the user of a location, such as “Liberty Street, Fremont of 94538”. The salon application 104 uses the salon services API 108 to find available services and

the location service application 118 to find salons within a certain distance of the user. Processing continues as previously described.

[0048] Referring back to 424, if the user identification is not known, then the salon application 104 prompts 430 the user, “Sure, I need some information about you before I check you in. Please provide your phone number with area code, in case Supercuts need to call you about your check-in. In this example, the user 432 responds “425 334 3739”. The method continues at 434 to determine, by the first processor if the user’s name has been found. If not, the salon application 104 prompts 436 the user its name. The user responds 438 “David New!” and processing continues as previously described. Referring back to 434, if the user’s name has been found, then processing continues as previously described.

[0049] FIG. 5 shows a method 500 for cancelling an appointment with a check-in platform. The method 500 begins at a start 505. At 507, the chatbot 102 receives a request to cancel an appointment: “Hi, can you cancel my check-in at the hub Supercuts location?”. The chatbot 102 communicates the request along with the user identification to the salon application 104. At 509, the salon application 104 communicates with the salon services API 108 to look up the appointment. The salon application 104 communicates back to the chatbot 102 and prompts the user at 511: “Sure, do you want to cancel your 11am check-in for a haircut?”. The method 500 continues at 513 with determining, by the first processor, if the user agrees to cancel. If the user responds “No”, the salon application 104 responds “ok” and processing ends at 515. If the user responds “Yes”, the salon application 104 cancels the appointment at 517 through the salon services API 108 and sends a response to the user “Sure. Check-in is cancelled.” And processing ends at 515.

[0050] FIG. 6 is a block diagram illustrating a computing system 600 with which the architecture 100 and methods 200, 300, 400 and 500 can be implemented according to one embodiment of the disclosure. At least one central processing unit (“CPU”) 602 is coupled to a system bus 604. The CPU 602 may be a general purpose CPU or microprocessor, graphics processing unit (“GPU”), and/or microcontroller. The present embodiments are not restricted by the architecture of the CPU 602 so long as the CPU 602, whether directly or indirectly, supports

the operations as described herein. The CPU 602 may execute the various logical instructions according to the present embodiments.

[0051] The computing system 600 may also include random access memory (RAM) 608, which may be synchronous RAM (SRAM), dynamic RAM (DRAM), synchronous dynamic RAM (SDRAM), or the like. The computing system 600 may utilize RAM 608 to store the various data structures used by a software application. The computing system 600 may also include read only memory (ROM) 606 which may be PROM, EPROM, EEPROM, optical storage, or the like. The ROM may store configuration information for booting the computer system 600. The RAM 608 and the ROM 606 hold user and system data, and both the RAM 608 and the ROM 606 may be randomly accessed.

[0052] The computing system 600 may also include an I/O adapter 610, a communications adapter 614, a user interface adapter 616, and a display adapter 622. The I/O adapter 610 and/or the user interface adapter 616 may, in certain embodiments, enable a user to interact with the computing system 600. In a further embodiment, the display adapter 622 may display a graphical user interface (GUI) associated with a software or web-based application on a display device 624, such as a monitor or touch screen.

[0053] The I/O adapter 610 may couple one or more storage devices 612, such as one or more of a hard drive, a solid state storage device, a flash drive, a compact disc (CD) drive, a floppy disk drive, and a tape drive, to the computing system 600. According to one embodiment, the data storage 612 may be a separate server coupled to the computer system 600 through a network connection to the I/O adapter 610. The communications adapter 614 may be adapted to couple the computing system 600 to a network, which may be one or more of a LAN, WAN, and/or the Internet. The user interface adapter 616 couples user input devices, such as a keyboard 620, a pointing device 618, and/or a touch screen (not shown) to the computer system 600. The display adapter 622 may be driven by the CPU 602 to control the display on the display device 624. Any of the devices 602-622 may be physical and/or logical.

[0054] The applications of the present disclosure are not limited to the architecture of computing system 600. Rather the computing system 600 is provided as an example of one type of computing device that may be adapted to perform the functions. For example, any suitable processor-based device may be utilized including, without limitation, personal data assistants (PDAs), tablet computers, smartphones, computer game consoles, and multi-processor servers. Moreover, the systems and methods of the present disclosure may be implemented on application specific integrated circuits (ASIC), very large scale integrated (VLSI) circuits, or other circuitry. In fact, persons of ordinary skill in the art may utilize any number of suitable structures capable of executing logical operations according to the described embodiments. For example, the computer system 600 may be virtualized for access by multiple users and/or applications.

[0055] A “data connection” is an electronic connection that communicates electronic information, which may include digital and/or analog data. A data connection may be done through a wired connection, e.g., USB, Ethernet, local area network, etc. A data connection may be done through a wireless connection, e.g., IEEE 802.11x (WiFi), long term evolution (4G LTE), or the like. The data connection may be secured, e.g., encrypted, communication. The data connection may be unsecured, e.g., clear text, communication. In this specification, if not otherwise specified, the term “data connection” includes both secured and unsecured communications. When the communication is specified as “secured data connection,” it refers to encrypted communication, where any encryption/decryption methodology can be applied, including Stealth.

[0056] If implemented in firmware and/or software, the functions described above may be stored as one or more instructions or code on a computer-readable medium. Examples include non-volatile computer-readable media encoded with a data structure and computer-readable media encoded with a computer program. Computer-readable media includes physical computer storage media. A storage medium may be any available medium that can be accessed by a computer. By way of example, and not limitation, such computer-readable media can comprise RAM, ROM, EEPROM, CD-ROM or other optical disk storage, magnetic disk storage or other magnetic storage devices, or any other medium that can be used to store desired program code in the form of instructions or data structures and that can be accessed by a computer. Disk and disc includes

compact discs (CD), laser discs, optical discs, digital versatile discs (DVD), floppy disks and blue-ray discs. Generally, disks reproduce data magnetically, and discs reproduce data optically. Combinations of the above should also be included within the scope of computer-readable media.

[0057] In addition to storage on computer-readable medium, instructions and/or data may be provided as signals on transmission media included in a communication apparatus. For example, a communication apparatus may include a transceiver having signals indicative of instructions and data. The instructions and data are configured to cause one or more processors to implement the functions outlined in the claims.

[0058] Although the present disclosure and its advantages have been described in detail, it should be understood that various changes, substitutions and alterations can be made herein without departing from the spirit and scope of the disclosure as defined by the appended claims. Moreover, the scope of the present application is not intended to be limited to the particular embodiments of the process, machine, manufacture, composition of matter, means, methods and steps described in the specification. As one of ordinary skill in the art will readily appreciate from the present invention, disclosure, machines, manufacture, compositions of matter, means, methods, or steps, presently existing or later to be developed that perform substantially the same function or achieve substantially the same result as the corresponding embodiments described herein may be utilized according to the present disclosure. Accordingly, the appended claims are intended to include within their scope such processes, machines, manufacture, compositions of matter, means, methods, or steps.

CLAIMS

What is claimed is:

1. A chatbot check-in platform (100) for checking for salon services through a salon application, comprising:

a salon application (104) associated with a messenger chatbot (102), wherein the salon application is configured for a user to make a request for an appointment for a salon service via the messenger chatbot;

an application assistant (106) comprising a first booking engine (116), a salon location finder (108) and an intent analyzer (110), wherein the application assistant (106) is in communication with the salon application (104) for finding a salon nearby the user, the intent analyzer (110) is configured to decipher the user's request to find a salon matching the user's request;

a first salon services API (114) in communication with the intent analyzer (110) for finding at least one matching salon for the user's request and wherein the intent analyzer is in communication with the salon location finder (108) which is configured to find a location of a salon matched by the first salon services API (114) and return to the intent analyzer (110) one or more candidate salons and the intent analyzer (110) is configured to communicate with the first booking engine (116);

a gateway API (122), located on a serverless backend system (120) and in communication with the first booking engine (116), wherein the gateway API (122) is configured to control data throttling to handle the user's request and to create a cache having a defined size, data structure and forward and backward linkings for the request and time-to-live of data; and

a second booking engine (124) in communication with the gateway API (122), wherein the second booking engine (124) is located on the serverless backend system (120) responding to the request and is configured to communicate with a dynamic database (134) configured to provision resources only when requested for storing the salon service and time.

2. A chatbot check-in platform (100) for checking for salon services through a salon application according to claim 1, further comprising a pay service in communication with the salon application.
3. A chatbot check-in platform (100) for checking for salon services through a salon application according to claim 1, further comprising a demand generation platform in communication with the salon application.
4. A chatbot check-in platform (100) for checking for salon services through a salon application according to claim 1, wherein a second salon services API (136) in communication with the second booking engine keeps updated information of a plurality of salons including real-time availability, an available service provider and/or a specialty of a salon.
5. A chatbot check-in platform (100) for checking for salon services through a salon application according to claim 4, wherein the salon application resides on a user device.
6. A chatbot check-in platform (100) for checking for salon services through a salon application according to claim 1, wherein the salon application executes on the serverless backend system.
7. A chatbot check-in platform (100) for checking for salon services through a salon application according to claim 1, further comprising a map API (112) in communication with the salon application (104).