

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
SHERMAN DIVISION**

COMMUNICATION INTERFACE
TECHNOLOGIES, LLC,

Plaintiff.

v.

CAPITAL ONE FINANCIAL
CORPORATION

Defendant.

Civil Action No. _____

JURY TRIAL DEMANDED

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Communication Interface Technologies, LLC (“CIT” or “Plaintiff”), for its Complaint against Defendant Capital One Financial Corporation, (referred to herein as “Capital One” or “Defendant”), alleges the following:

NATURE OF THE ACTION

1. This is an action for patent infringement arising under the patent laws of the United States, 35 U.S.C. § 1 *et seq.*

THE PARTIES

2. Plaintiff CIT is a Limited Liability Company organized under the laws of the State of Delaware with a place of business at 3107 Boardwalk, Atlantic City, NJ 08401.

3. Upon information and belief, Capital One is a corporation organized and existing under the laws of the State of Delaware, with a place of business at 1680 Capital One Drive McLean, VA 22102, and can be served through its registered agent, Corporation Service Company, 251 Little Falls Drive Wilmington, DE 19808. Upon information and belief, Capital One sells, offers to sell, and/or uses products and services throughout the United States,

including in this judicial district, and introduces products and services into the stream of commerce that incorporate infringing technology knowing they would be sold in this judicial district and elsewhere in the United States.

JURISDICTION AND VENUE

4. This is an action for patent infringement arising under the patent laws of the United States, Title 35 of the United States Code.

5. This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

6. Venue is proper in this judicial district under 28 U.S.C. §1400(b). On information and belief Capital One has committed acts of infringement in this District and has a regular and established place of business within this District.

7. This Court has personal jurisdiction over Defendant, because Defendant has sufficient minimum contacts within the State of Texas and this District, pursuant to due process and/or the State of Texas Long Arm Statute, Tex. Civ. Prac. & Rem. Code § 17.042 because Defendant purposefully availed itself of the privileges of conducting business in the State of Texas and in this District, because Defendant regularly conducts and solicits business within the State of Texas and within this District, and because Plaintiff's causes of action arise directly from Defendant's business contacts and other activities in the State of Texas and this District. Venue is also proper in this district because Capital One has a regular and established place of business in this district. Capital One has several bank branches, a corporate office, and other established places of business in this judicial district. For example, Capital One has a corporate office located at 7933 Preston Rd, Plano, TX 75024. *See, e.g.,*

<https://www.capitalone.com/about/corporate-information/corporate-offices/> (last visited Apr. 12, 2020); <https://www.capitalonecareers.com/office-locations-plano> (last visited Apr. 12, 2020).

BACKGROUND

The Invention

8. Eric Morgan Dowling and Mark Nicholas Anastasi are the inventors of U.S. Patent Nos. 6,574,239 (“the ’239 Patent”), 8,266,296 (“the ’296 Patent”), and 8,291,010 (“the ’010 Patent”). A true and correct copy of the ’239 Patent is attached as Exhibit 1. A true and correct copy of the ’296 Patent is attached as Exhibit 2. A true and correct copy of the ’010 Patent is attached as Exhibit 3.

9. The ’239 Patent, the ’296 Patent, and the ’010 Patent resulted from the pioneering efforts of Dr. Dowling and Mr. Anastasi (hereinafter “the Inventors”) in the late 1990s, in the area of quickly-resumed client-server communication sessions. These efforts resulted in the development of methods and apparatuses for virtual connection of a remote unit to a server and methods and apparatuses for application-layer evaluation of communications received by a mobile device.

10. At the time of these pioneering efforts, the most widely implemented technology that was in use involved client-server communication sessions that could be instantiated and torn down. If communications between client and server were needed again, the widely implemented technology would simply instantiate a brand new session between the same client and server. Secure Sockets Layer (SSL) is an example of the earlier technology. Unlike Transport Layer Security (TLS), SSL did not allow session reactivation, and instead required a new session to be negotiated from scratch after an older session was deactivated (torn down).

11. Creating a new session required the renegotiation of a set of session keys that included computation of new cryptographic keys. This process required significant start up times and computational resources. The invention encompassed by the patents-in-suit, instead of tearing down an old session and instantiating a new session, places the old session into an

inactive state, and then reactivates the old session to place it back into the active state using a much shorter renegotiation sequence that makes use of saved session parameters. The saved session parameters include pre-computed client-server encryption keys that are used to quickly and efficiently reactivate the inactive sessions. Some embodiments allow the session layer connection between the client and server devices to be reactivated without the need to create a new session by negotiating new session parameters and session keys. (See Exhibit 1 at Figs. 1A, 2, 3:45-63, 8:34-9:14, 9:54-60.) Other embodiments additionally or alternatively allow the application layer session to be reactivated without the need for the user to enter his/her user authentication credentials at the time of each session reactivation.

12. The Inventors first conceived of the inventions claimed in the '239 Patent, the '296 Patent, and the '010 Patent as a way to shorten the connection time of the dialup modems in use back in the 1990s. Each time a new dialup modem connection needed to be reestablished, there would be a several-second period (typically around 10-12 seconds) during which the user would hear audio modem tones and hissing sounds while the modems reconnected and negotiated a new data session. The virtual session inventions allowed the modems to reconnect by remembering the previously negotiated modem parameters, thereby greatly shortening this renegotiation time to being almost unnoticeable. (See Ex. 1 at 13:42-43, 17:50-58.)

13. While developing their invention, the inventors contemplated that virtual sessions would also be very useful in wireless applications (*see, e.g.*, Ex. 1 at Fig. 2, 9:32-35, 13:4-8) to allow a client-side remote unit to maintain a virtual presence with a remote server. The inventors taught that virtual sessions could be layered over wireless connections to allow remote units such as wireless Internet devices to be virtually connected to one or more server-side application programs running on one or more remote server systems without wasting wireless physical layer

resources to maintain the one or more session layer connections. (*See* Ex. 1 at 9:28-60.) The physical layer could be inactive, while the virtual session layer connections could be maintained without using wireless resources. (*See* Ex. 1 at 3:45-49, 8:56-58, 9:7-10.) When the client-side remote unit needed to communicate with the server, or when the server needed to send newly received information to the remote unit, the virtual session could be reactivated without the need to tediously set up and authenticate a new secure cryptographic session with the server. (*See* Ex. 1 at Fig. 1A, 9:53-60, 13:48-14:17.)

14. For example, the Inventors developed methods for controlling virtual sessions between a server-side program and a client-side application program. (*See* Ex. 1 at 14:32-43.) When the virtual session is not needed, it is placed into an inactive state (like a sleep state). (*See, e.g.*, Ex. 1 at 3:45-49, 10:6-11:22; Ex. 2 at 3:56-60.) In this state, no communication resources are used. (*See* Ex. 1 at 3:37-44, 17:36-45.) When a virtual session is needed again, for example when the server receives new information for the client-side application program, the server can, for example, send a message that causes the client-side application program to resume the virtual session with the server. (*See* Ex. 1 at 3:60-63.) This session resumption is accomplished using saved session parameters instead of going through the full session authentication and negotiation process, as was needed in the prior art. In modern day parlance, the client-side application program is typically called an “App.”

Advantage Over the Prior Art

15. The patented inventions disclosed in the '239 Patent, the '296 Patent, and the '010 Patent provide many advantages over the prior art, and in particular improved the operations of communications between remote units such as wireless computing and communications devices and remote servers. (*See* Ex. 1 at Figs. 1, 2; Ex. 2 at 3:48-4:39; Ex. 3 at 3:48-4:39.) One

advantage of the patented inventions is providing systems and methods to enable users such as remote workers or other types of users to stay connected to one or more central servers without the need to continuously remain connected via one or more physical channels. (*See, e.g.*, Ex. 1 at 3:37-40; Ex. 2 at 3:48-51; Ex. 3 at 3:48-51.) A central aspect of the inventions is the concept of fast reconnect. (*See, e.g.*, Ex. 1 at Abstract, 17:50-58; Ex. 2 at Abstract.) Users of remote devices can reconnect via a previously established communication session to a server-side application program, without the need to use the prior art's long and tedious session establishment procedures each time a reconnect is needed after a session has been deactivated. (*See* Ex. 1 at 12:49-53, 17:36-42.)

16. Another advantage offered by the patented inventions is to allow a remote unit to maintain a private/secured session layer connection to support communication between a client-side application program and a server-side application program over long periods of session inactivity. This may be achieved, for example, by computing cryptographic session parameters (*e.g.*, according to public key cryptography techniques) that can be used to quickly resume the session without the user needing to start a new authentication process from scratch. (*See* Ex. 1 at 3:2-5, 3:55-60, 4:22-25, 8:45-53, 10:2-15, 10:51-55, 10:57-62, 11:15-21, 14:32-33, 18:61-66, 20:40-43, 20:50-55, 21:49-55, 22:1-7; Figs. 6, 7.) This connection can be referred to as a sustained secure connection that persists, for example, when the user has turned off his or her user device or put it in airplane mode and then turned it back on again. In the prior art, the secure cryptographic session would need to be terminated under such conditions, and a new secure session between the client and the server would need to be established from scratch. The session layer connection can preferentially be used to support various different kinds of

application layer communications between the remote unit and the server-side application program. (See Ex. 1 at Figs. 1A, 2, 3:45-63, 8:34-9:14, 9:54-60.)

17. Another advantage offered by some embodiments of the patented inventions of the patents-in-suit is to allow a user using a remote unit to maintain a private/secured logon type session between a client-side application program and a server-side application program over longer periods of time, without the need for the user to repeatedly reenter his or her logon credentials such as user name and password. This is achieved by computing cryptographic session parameters (*e.g.*, according to public key cryptography techniques) that can be used to quickly resume the session without the user needing to start a new authentication process from scratch. (See Ex. 1 at 3:2-5, 3:55-60, 4:22-25, 8:45-53, 10:2-15, 10:51-55, 10:57-62, 11:15-21, 14:32-33, 18:61-66, 20:40-43, 20:50-55, 21-49-55, 22:1-7, Figs. 6, 7.) This can be referred to as a sustained secure connection that persists, for example, when the user has turned off his or her user device or put it in airplane mode and then turned it back on again. In the prior art, the secure cryptographic session would need to be terminated under such conditions, and a new secure session between the client and the server would need to be manually established in which the user would need to present his or her user credentials to establish a new session.

18. Another advantage offered by the patented inventions of the patents-in-suit is that the invention contemplated that the remote unit 100 of Fig. 1 and Fig. 2 of the '239 Patent would be able to wirelessly connect (207) (Ex. 1 at Fig. 2) to a plurality of different server-side application programs (220) (Ex. 1 at Fig. 2). (See also Ex. 1 at 7:21-25, 7:50-52, 14:62-64.) Typically, a smart phone device will have many different downloaded Apps, and each App will communicate with its own corresponding remote server-side application program. Furthermore, as disclosed in the '239 Patent (Ex. 1 at 7:41-44), each such connection between each App on the

remote unit and each different server-side application program could be connected by its own virtual session, using a separate set of saved session parameters including cryptographic session reauthentication parameters for fast/accelerated session reconnect. The prior art required all the different sessions to be tediously and manually established and torn down each time they were separately needed. (*See* Ex. 1 at 7:56-8:10, 17:50-54, 18:40-48, 19:57-60.)

19. Yet another advantage offered by various embodiments of the patented inventions of the patents-in-suit is that any given server-side application program can use a table to maintain multiple virtual sessions with a plurality of remote units using a database of pre-computed and prestored cryptographic session keys. (*See* Ex. 1 at 8:61-9:4, 10:57-59, 11:12-21.) That is, the server-side application program can manage a large number of secure cryptographic virtual sessions with a large number of different client-side wireless remote units that have downloaded the corresponding client-side App. (*See, e.g.*, Ex. 1 at Fig. 2, 9:61-10:13.) The prior art required these different sessions to be tediously and manually established and torn down each time they were separately needed.

20. Yet another advantage offered by various embodiments of the patented inventions of the patents-in-suit is that the virtual session can be reactivated based on either the remote unit requesting data or the server sending data. (*See* Ex. 1 at Figs. 3, 7, 13:21-28, 13:48-54, 13:59-14:3.) The prior art did not provide any means to use fast virtual session reconnection techniques to make the client/server experience seamless over extended periods of usage. Instead, techniques like SSL would require new sessions to be set up and torn down over and over again.

21. Yet another advantage offered by various embodiments of the patented inventions of the patents-in-suit is the ability of the server-side application program to send an unsolicited

message to the client-side application running on the wireless remote unit to cause one or more virtual sessions to be reestablished. (*See* Ex. 1 at 3:61-63, 13:48-14:17, 24:61-64.) This message makes special use of saved cryptographic authentication parameters and information needed to identify the relevant client-side application program (App) that runs on the remote unit. (*See* Ex. 1 at Figs. 7, 8.) The specification not only describes specific exemplary embodiments that make use of caller ID type packets to send the outbound notification message, but the specification also describes many more general alternative embodiments directed toward wireless applications. (*See* Ex. 1 at 6:45-51, 13:65-14:17, 22:39-55, 22:64-23:6, 23:29-32, 23:39-64, 24:31-25:8, and 25:20-26.)

22. Because of these significant advantages that can be achieved through the use of various embodiments of the patented inventions, the '239 Patent, the '296 Patent, and the '010 Patent present significant commercial value for companies like Capital One. Indeed, Capital One coordinates its banking and other services using its mobile App, providing convenience and efficiency for its customers, enhancing the customer engagement and experience of its customers, and increasing the efficiency of its own operations, in addition to other benefits.

Prior Litigation

23. The '239 Patent was previously litigated in the Eastern District of Texas (2-04-CV-00108, 2-03-CV-00465) and in the Northern District of Texas (3-04-CV-00281). These cases settled before any claim construction hearings were conducted, although in one case a joint claim construction and prehearing statement was submitted by the parties. *See* Dkt. 130, *East Texas Technology Partners, L.P. v. Toshiba America, Inc., et al.*, No. 2:03-CV-465(TJW) (E.D.

Tex. Jan. 5, 2005).

COUNT I – INFRINGEMENT OF U.S. Patent No. 6,574,239

24. The allegations set forth in the foregoing paragraphs 1 through 23 are incorporated into this first claim for relief.

25. On June 3, 2003, the '239 Patent, entitled *Virtual Connection of a Remote Unit to a Server* was duly and legally issued by the United States Patent and Trademark Office.

26. Plaintiff is the assignee and owner of the right, title and interest in and to the '239 Patent, including the right to assert all causes of action arising under said patent and the right to any remedies for infringement of them.

27. As set forth above, the inventions of the '239 Patent resolve technical problems related to client-server computing architecture.

28. The claims of the '239 Patent do not merely recite the performance of some business practice known from the pre-Internet world along with the requirement to perform it on the Internet. Instead, the claims of the '239 Patent recite one or more inventive concepts that are rooted in computerized client-server computing architecture technology, and overcome problems specifically arising in the realm of computerized client-server computing architecture technologies.

29. As set forth above, the claims of the '239 Patent recite an invention that is not merely the routine or conventional use of computers. Instead, the invention makes use of specific client-server computer architecture functionalities. The '239 Patent claims thus specify how computing devices and remote servers are manipulated to yield a desired result.

30. The technology claimed in the '239 Patent does not preempt all ways of using client-server computing architectures or the use of all communication session technologies, or any other well-known or prior art technology.

31. Each claim of the '239 Patent recites a combination of elements sufficient to ensure that the claim in practice amounts to significantly more than a patent on an ineligible concept.

32. As of the date of this filing, there are more than 184 licensees to the '239 Patent.

33. Upon information and belief, Defendant has directly infringed, literally and/or under the doctrine of equivalents, at least claim 7 of the '239 patent by making, using, selling, offering to sell, importing and/or providing and causing to be used products, specifically one or more mobile device applications, which by way of example include the Capital One Mobile App, the Capital One CreditWise App, the Capital One T&Easy app, the Capital One Intellix Mobile app, and the Capital One Mobile app for Apple Watch (*see <https://apps.apple.com/us/developer/capital-one/id339644101>*, last visited on March 19, 2020) (the "Accused Instrumentalities"). Upon information and belief, the exemplary versions herein and previous versions of the Accused Instrumentalities distributed prior to expiration of the patents-in-suit operated materially in the same manner.

34. Upon information and belief, the Accused Instrumentalities perform a method in which wireless push notification messages are sent over TLS sessions, and the remote server and the client-side application establish a separate TLS connection for traditional client-server communications.

35. Attached hereto as Exhibit 4, and incorporated herein by reference, is a claim chart detailing how one or more of the Accused Instrumentalities infringe claim 7 of the '239 Patent.

36. The Accused Instrumentalities infringed claim 7 of the '239 Patent during the pendency of the '239 Patent.

37. Plaintiff has been harmed by Defendant's infringing activities.

COUNT II – INFRINGEMENT OF U.S. Patent No. 8,266,296

38. The allegations set forth in the foregoing paragraphs 1 through 37 are incorporated into this second claim for relief.

39. On September 11, 2012, the '296 Patent, entitled *Application-Layer Evaluation of Communications Received By a Mobile Device* was duly and legally issued by the United States Patent and Trademark Office.

40. Plaintiff is the assignee and owner of the right, title and interest in and to the '296 Patent, including the right to assert all causes of action arising under said patent and the right to any remedies for infringement of them.

41. As set forth above, the inventions of the '296 Patent resolve technical problems related to client-server computing architecture.

42. The claims of the '296 Patent do not merely recite the performance of some business practice known from the pre-Internet world along with the requirement to perform it on the Internet. Instead, the claims of the '296 Patent recite one or more inventive concepts that are rooted in computerized client-server computing architecture technology, and overcome problems specifically arising in the realm of computerized client-server computing architecture technologies.

43. The claims of the '296 Patent recite an invention that is not merely the routine or conventional use of computers. Instead, the invention makes use of specific client-server computer architecture functionalities. The '296 Patent claims thus specify how computing devices and remote servers are manipulated to yield a desired result.

44. The technology claimed in the '296 Patent does not preempt all ways of using client-server computing architectures or the use of all communication session technologies, or any other well-known or prior art technology.

45. Each claim of the '296 Patent recites a combination of elements sufficient to ensure that the claim in practice amounts to significantly more than a patent on an ineligible concept.

46. As of the date of this filing, there are more than 184 licensees to the '296 Patent.

47. Upon information and belief, Defendant has directly infringed, literally and/or under the doctrine of equivalents, at least claim 1 of the '296 Patent by making, using, selling, offering to sell, importing and/or providing and causing to be used products, specifically one or more mobile device applications, which by way of example include the Capital One Mobile App, the Capital One CreditWise App, the Capital One T&Easy app, the Capital One Intellix Mobile app, and the Capital One Mobile app for Apple Watch (*see* <https://apps.apple.com/us/developer/capital-one/id339644101>, last visited on March 19, 2020) (the "Accused Instrumentalities"). Upon information and belief, the exemplary versions herein and previous versions of the Accused Instrumentalities distributed prior to expiration of the patents-in-suit operated materially in the same manner.

48. Upon information and belief, the Accused Instrumentalities perform a method in which wireless push notification messages are sent over TLS sessions, and the remote server and

the client-side application establish a separate TLS connection for traditional client-server communications.

49. Attached hereto as Exhibit 5, and incorporated herein by reference, is a claim chart detailing how one or more of the Accused Instrumentalities infringe claim 1 of the '296 Patent.

50. The Accused Instrumentalities infringed claim 1 of the '296 Patent during the pendency of the '296 Patent.

51. Plaintiff has been harmed by Defendant's infringing activities.

COUNT III – INFRINGEMENT OF U.S. PATENT NO. 8,291,010

52. The allegations set forth in the foregoing paragraphs 1 through 51 are incorporated into this third claim for relief.

53. On October 16, 2012, the '010 Patent, entitled *Virtual Connection of a Remote Unit to a Server* was duly and legally issued by the United States Patent and Trademark Office.

54. Plaintiff is the assignee and owner of the right, title and interest in and to the '010 Patent, including the right to assert all causes of action arising under said patent and the right to any remedies for infringement of them.

55. As set forth above, the inventions of the '010 Patent resolve technical problems related to client-server computing architecture.

56. The claims of the '010 Patent do not merely recite the performance of some business practice known from the pre-Internet world along with the requirement to perform it on the Internet. Instead, the claims of the '010 Patent recite one or more inventive concepts that are rooted in computerized client-server computing architecture technology, and overcome problems specifically arising in the realm of computerized client-server computing architecture technologies.

57. The claims of the '010 Patent recite an invention that is not merely the routine or conventional use of computers. Instead, the invention makes use of specific client-server computer architecture functionalities. The '010 Patent claims thus specify how computing devices and remote servers are manipulated to yield a desired result.

58. The technology claimed in the '010 Patent does not preempt all ways of using client-server computing architectures or the use of all communication session technologies, or any other well-known or prior art technology.

59. Each claim of the '010 Patent recites a combination of elements sufficient to ensure that the claim in practice amounts to significantly more than a patent on an ineligible concept.

60. As of the date of this filing, there are more than 184 licensees to the '010 Patent.

61. Upon information and belief, Defendant has directly infringed, literally and/or under the doctrine of equivalents, at least claims 1 and 17 of the '010 Patent by making, using, selling, offering to sell, importing and/or providing and causing to be used products, specifically one or more mobile device applications, which by way of example include the Capital One Mobile App, the Capital One CreditWise App, the Capital One T&Easy app, the Capital One Intellix Mobile app, and the Capital One Mobile app for Apple Watch (*see* <https://apps.apple.com/us/developer/capital-one/id339644101>, last visited on March 19, 2020) (the "Accused Instrumentalities"). Upon information and belief, the exemplary versions herein and previous versions of the Accused Instrumentalities distributed prior to expiration of the patents-in-suit operated materially in the same manner.

62. Upon information and belief, the Accused Instrumentalities perform a method in which wireless push notification messages are sent over TLS sessions, and the remote server and

the client-side application establish a separate TLS connection for traditional client-server communications.

63. Attached hereto as Exhibit 6, and incorporated herein by reference, is a claim chart detailing how one or more of the Accused Instrumentalities infringe claim 1 of the '010 Patent.

64. Attached hereto as Exhibit 7, and incorporated herein by reference, is a claim chart detailing how one or more of the Accused Instrumentalities infringe claim 17 of the '010 Patent.

65. The Accused Instrumentalities infringed claims 1 and 17 of the '010 Patent during the pendency of the '010 Patent.

66. Plaintiff has been harmed by Defendant's infringing activities.

JURY DEMAND

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, Plaintiff demands a trial by jury on all issues triable as such.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff demands judgment for itself and against Defendant as follows:

- A. An adjudication that the Defendant has infringed the '239 Patent, the '296 Patent, and the '010 Patent;
- B. An award of damages to be paid by Defendant adequate to compensate Plaintiff for Defendant's past infringement of the '239 Patent, the '296 Patent, and the '010 Patent, including interest, costs, expenses and an accounting of all infringing acts including, but not limited to, those acts not presented at trial;
- C. A declaration that this case is exceptional under 35 U.S.C. § 285, and an award of Plaintiff's reasonable attorneys' fees; and

D. An award to Plaintiff of such further relief at law or in equity as the Court deems just and proper.

Dated: April 13, 2020

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COMMUNICATION INTERFACE

TECHNOLOGIES, LLC