UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WISE PLC,
Petitioner,

v.

INTERCURRENCY SOFTWARE LLC,
Patent Owner.

Case No. IPR2025-01045
U.S. Patent No. 11,620,701 B1

DELCARATION OF MARC REID

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I, Marc Reid, declare as follows:

I. INTRODUCTION

1. I have been retained by Wise PLC ("Petitioner") in connection with the above-captioned inter partes review ("IPR") of Claims 1-16 of U.S. Patent No. 11, 620,701 (the "'701 Patent"), entitled "Platform for Trading Assets in Different Currencies" by named inventor Jacky Benmoha. I understand that the '701 Patent is assigned to Intercurrency Software LLC (the "Patent Owner"). I have been retained by Petitioner to provide technical review, analysis, insights, and opinions regarding the '701 Patent and the prior art references that support the basis of unpatentability set forth in the Petition for Inter Partes Review of the '701 Patent (the "Petition"). I have been asked to provide a declaration regarding my opinions on the validity of claims 1-16 of the '701 Patent.

2. This declaration sets forth the opinions I have formed in this IPR and provides the bases and reasons for those opinions. This declaration is based on information currently available to me. I declare that I have personal knowledge of the facts set forth in this declaration and, if called to testify as a witness, could and would do so competently.

3. eComp Consultants is being compensated at my standard hourly consulting rate in 2025 of $450 per hour for my work on this matter. This

compensation is in no way dependent upon my opinions or testimony, the outcome of this proceeding, or on the outcome of any related dispute between Petitioner and Patent Owner. I have no other interests in this proceeding or with Petitioner or Patent Owner. I reserve my right to offer additional opinions in other dispute venues.

II. MATERIALS CONSIDERED

4. The analysis that I provide in this Declaration is based on my education, research, experience, and professional judgment, as well as the documents I have considered, including the '701 Patent (EX1001) and its prosecution history (EX1002). I have reviewed and am familiar with the specification of the '701 Patent. I have reviewed and am familiar with the prosecution history of the '701 Patent.

5. In preparing this Declaration, I have also reviewed and am familiar with the following prior art used in the Petition and in my Declaration below:

Exhibit 1005 - U.S. Patent Application Publication No. 2002/0087454 to Bea Calo et al. ("*Calo*") was filed on January 24, 2001, and published on July 4, 2002. I understand from counsel for Petitioner that *Calo* qualifies as prior art under at least 35 U.S.C. §§ 102(a), 102(b), and 102(e).

Exhibit 1006 - U.S. Patent Application Publication No. 2006/0095361 to Michael G. Rude ("*Rude*") was filed on October 29, 2004, and published on

May 4, 2006. I understand from counsel for Petitioner that *Rude* qualifies as prior art under at least 35 U.S.C. §§ 102(a), 102(b), and 102(e).

Exhibit 1007 - U.S. Patent Application Publication No. 2004/0236664 to Lars-Ivar Sellberg et al. ("*Sellberg*") was filed on May 23, 2003, and published on November 25, 2004. I understand from counsel for Petitioner that *Sellberg* qualifies as prior art under at least 35 U.S.C. §§ 102(a), 102(b), and 102(e).

Exhibit 1008 - U.S. Patent Application Publication No. 2002/0023053 to Ronald Z. Szoc et al. ("*Szoc*") was filed on April 4, 2001, and published on February 21, 2002. I understand from counsel for Petitioner that *Szoc* qualifies as prior art under at least 35 U.S.C. §§ 102(a), 102(b), and 102(e).

Exhibit 1009 - U.S. Patent Application Publication No. 2004/0267655 to James P. Davidowitz et al. ("*Davidowitz*") was filed on July 7, 2003, and published on December 30, 2004. I understand from counsel for Petitioner that *Davidowitz* qualifies as prior art under at least 35 U.S.C. §§ 102(a), 102(b), and 102(e).

6. I have considered the following documents in my analysis below:

Exhibit No.[1]	Description
1001	U.S. Patent No. 11,620,701 to Jacky Benmoha ("the '701 Patent")
1002	Prosecution File History for the '701 Patent
1004	Original Complaint, *Intercurrency Software LLC v. Wise PLC*, 2:24-cv-00976 (E.D. Tex. Nov. 26, 2024), Dkt. 1
1005	U.S. Patent App. Pub. No. 2002/0087454 A1 to Bea Calo et al. ("*Calo*")
1006	U.S. Patent App. Pub. No. 2006/0095361 A1 to Michael G. Rude ("*Rude*")
1007	U.S. Patent App. Pub. No. 2004/0236664 A1 to Lars-Ivar Sellberg et al. ("*Sellberg*")
1008	U.S. Patent App. Pub. No. 2002/0023053 A1 to Ronald Z. Szoc et al. ("*Szoc*")
1009	U.S. Patent App. Pub. No. 2004/0267655 A1 to James P. Davidowitz et al. ("*Davidowitz*")
1010	Claim Listing of the '701 Patent
1011	*Askeladden L.L.C. v. Intercurrency Software LLC*, IPR2024-00378, Paper 15 (PTAB Nov. 26, 2024)
1012	*Askeladden L.L.C. v. Intercurrency Software LLC*, IPR2024-00378, Paper 12 (PTAB July 9, 2024)
1013	*Askeladden L.L.C. v. Intercurrency Software LLC*, IPR2024-00376, Paper 11 (PTAB July 15, 2024)
1014	*Askeladden L.L.C. v. Intercurrency Software LLC*, IPR2024-00375, Paper 12 (PTAB July 9, 2024)
1015	Patent Owner's Infringement Contentions
1016	Dagfinn Rime, *New Electronic Trading Systems in Foreign Exchange Markets*, New Economy Handbook, Chapter 21, pp. 469-504 (2003)
1017	Lawrence J. Gitman & Michael D. Joehnk, Fundamentals of Investing (5th ed. 1993)
1018	Peter Rosenstreich, *FOREX Revolution, An Insider's Guide to the Real World of Foreign Exchange Trading* 24-25 (1995). Library of Cong.: Cat. No. 2005921697

1019	Cornelius Luca, *Trading in the Global Currency Markets, An Insider's Guide to the Real World of Foreign Exchange Trading* (2005). Library of Cong.: ISBN 0-13-293424-8, HG3851.L83 1995.
1020	Traders Magazine, *OMS Solutions: The Buysides Key to the Trading Highway*, Editorial Staff, July 5, 2006

III. QUALIFICATIONS

7. I have over 30 years of experience in information technology consulting and financial management. I have been employed in IT management consulting and public accounting with several of the "Big 4" consulting firms. I have experience in multiple industries including financial services, healthcare, government, telecommunications, managed services, energy and utilities, and manufacturing. I have provided consulting services in information technology planning, design and implementation, ecommerce, systems development and configuration, IT strategy, and IT program and project management. My implementation experience includes

[1] Citations to patents are made by column and line cite; citations to patent publications are made by paragraph number; citations to Exhibit 1002 is made with reference to the Bates-stamped pagination; citations to other exhibits are made to the page number of the document itself.

financial transaction systems that include trading and investment, payment processing, and currency exchange and trading.

8. As a result of my experience, I have gained a detailed understanding of the technology that is the subject of this declaration. For example, my experience with financial transactions, securities and materials trading systems, and computer network architecture is relevant to the subject matter of the ’701 patent. Through my education, training, and experience in the financial services technology field, I am familiar with software development for trading currencies, order matching, order execution, market data, and related systems. As such, and as further described herein, I am qualified to provide opinions regarding the state of the art at the period of time of the invention, which I understand to be around the year 2007 timeframe, how one of ordinary skill in the art at that time would have interpreted and understood the ’701 patent, and how one of ordinary skill in the art at that time would have interpreted and understood the disclosure of prior art to the ’701 patent.

9. I am a Senior Consultant contracted with eComp Consultants. eComp Consultants provides professional consulting services relating to computer and technical matters in a wide range of industries including embedded internet systems, cellular telephony, and eCommerce and financial transactions. These consulting services are wide ranging, and include working with clients, such as Amazon.com,

Microsoft, GEICO, Verizon, and McGraw-Hill, on specific information technology projects, process improvement, project management, and other technology issues.

10. I attach a copy of my Curriculum Vitae describing further details on my education, experience, publications, relevant cases experience and other qualifications to render an expert opinion in this matter as Appendix A to my Declaration.

IV. LEGAL UNDERSTANDING

11. Although I am not an attorney, I have a general understanding of the applicable legal standards pertaining to the patentability issues presented in this proceeding. My understanding of legal principles as described in this section is based on communication of those principles to me by Petitioner's legal counsel. The analysis in this declaration is in accordance with the legal principles outlined below.

12. I understand that, in this inter partes review, Petitioner has the burden of proving that each challenged claim is unpatentable by a preponderance of the evidence.

A. My Understanding of Claim Construction

13. I have been informed by counsel that a purpose of claim construction is to determine what a person of ordinary skill in the art ("POSITA") would have understood the claim terms to mean. I understand that during an IPR proceeding,

claims are to be construed in light of the specification as would be read by a person of ordinary skill in the art at the time the application was filed. I understand that claim terms are given their ordinary and customary meaning as would be understood by a POSITA in the context of the entire disclosure. A claim term, however, will not receive its ordinary meaning if the patentee acted as his own lexicographer and clearly set forth a definition of the claim term in the specification. In this case, the claim term will receive the definition set forth in the patent.

14. I understand that the prosecution history can inform the meaning of the claim language by demonstrating how the inventors understood the invention and whether the inventors limited the invention in the course of prosecution, making the claim scope narrower than it otherwise would be. I understand that extrinsic evidence may also be consulted in construing the claim terms, such as dictionary definitions and expert testimony.

B. My Understanding of Obviousness

15. I understand that a patent claim is invalid if the claimed invention would have been obvious to a person of ordinary skill in the art at the time the application was filed. This means that even if all of the requirements of the claim cannot be found in a single prior art reference that would anticipate the claim, the claim can still be invalid.

16. I understand that to obtain a patent, a claimed invention must have, as of the priority date, been nonobvious in view of the prior art in the field. I understand that the following factors should be considered in analyzing obviousness: (1) the scope and content of the prior art; (2) the differences between the prior art and the claims; and (3) the level of ordinary skill in the pertinent art. I understand that an invention is obvious when the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious to a POSITA at the time the invention was made.

17. I understand that to prove that prior art or a combination of prior art renders a patent claim obvious, it is necessary to: (1) identify the particular references that, singly or in combination, render the patent obvious; (2) specifically identify which elements of the patent claim appear in each of the asserted references; and (3) explain how the prior art references could have been combined in order to create the inventions claimed in the asserted claim.

18. I understand that a showing of obviousness requires some articulated reasoning with a rational underpinning to support the combination of references. I understand that in consideration of the issue of obviousness it is important to consider whether a reason existed at the time that would have led a person of ordinary skill in the pertinent art to combine elements of the references in a way that

yields the claimed invention. I understand that a POSITA is assumed to have knowledge of all prior art references. I also understand that when considering the obviousness of a patent claim, one may consider whether a teaching, suggestion, or motivation to combine the references exists.

19. I understand that a POSITA can combine various prior art references based on the teachings of those prior art references, the general knowledge present in the art, or common sense. I understand that a motivation to combine the references may be implicit in the prior art, and there is no requirement that there be an actual or explicit teaching to combine two references. Thus, one may take into account the inferences and creative steps that a POSITA would employ to combine the known elements in the prior art in the manner claimed by the patent-at-issue. I understand that one should avoid "hindsight bias" and ex post reasoning in performing an obviousness analysis. This does not mean, however, that a POSITA for purposes of the obviousness inquiry does not have recourse to common sense.

20. I understand the following are examples of approaches and rationales that may be considered in determining whether a piece of prior art would and could have been combined with other prior art or with other information within the knowledge of a POSITA:

1) Combining prior art elements according to known methods to yield predictable results;

2) Simple substitution of one known element for another to obtain predictable results;

3) Use of a known technique to improve similar devices (methods, or products) in the same way;

4) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;

5) "Obvious to try"—choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;

6) A predictable variation of work in the same or a different field of endeavor, which a POSITA would be able to implement;

7) If, at the time of the alleged invention, there existed a known problem for which there was an obvious solution encompassed by the patent's claim;

8) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on technological incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art; and/or

9) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior-art reference or to combine prior-art reference teachings to arrive at the claimed invention.

21. I understand that even if a prima facie case of obviousness is established, the final determination of obviousness must also consider objective indicia of nonobviousness, which I understand are also referred to as "secondary considerations," if presented. I understand that these objective indicia can be important evidence as to whether a patent is obvious or nonobvious. Such secondary considerations include: (1) commercial success of products covered by the patent claims; (2) a long-felt but unsolved need for the invention; (3) failed attempts by others to make the invention; (4) copying of the invention by others in the field; (5) unexpected results achieved by the invention as compared to the closest prior art; (6) praise of the invention by the infringer or others in the field; (7) the taking of licenses under the patent by others; (8) expressions of surprise by experts and those skilled in the art at the making of the invention; and (9) the patentee proceeded contrary to the accepted wisdom of the prior art. I further understand that secondary considerations evidence is only relevant if the offering party establishes a connection, or nexus, between the evidence and the claimed invention.

C. Level of Ordinary Skill in the Art

22. I understand that an assessment of the claims of the ’701 Patent should be undertaken from the perspective of a POSITA as of the earliest claimed priority date. I understand that a POSITA is presumed to be aware of all pertinent art, thinks along conventional wisdom in the art, and is a person of ordinary creativity—not an automaton.

23. I understand that to determine the appropriate level of a POSITA, the following factors may be considered: (1) the types of problems encountered by those working in the field and prior art solutions thereto; (2) the sophistication of the technology in question, and the rapidity with which innovations occur in the field; (3) the educational level of active workers in the field; and (4) the educational level of the inventor.

V. BACKGROUND OF THE TECHNOLOGY

24. I reviewed the patent claims and compared them to the prior art. In doing so, I applied the plain and ordinary meaning of the words of the claims as would be understood by the skilled person.

25. In my opinion, and as explained in further detail below, the claims of the ’701 patent, viewed as a whole, do not identify anything new or significantly different from what was already known to individuals of ordinary skill in the field

in the early 2000's, and certainly prior to the priority date of the '701 patent, April 18, 2007.

26. In the following sections, I provide a brief overview of the state of art in electronic trading of assets and currencies. The overview is based on my knowledge and experience and on the references considered, which are listed in Materials Considered Section, which confirmed my understanding of the asset and currency trading field before April 18, 2007. I may cite to certain documents that published after April 18, 2007, but describe the state of the art prior to April 18, 2007. These documents also confirm my understanding, based on my experience in the field, of the state of the art prior to April 18, 2007.

A. Background of Currency Trading

27. Currencies have been used to facilitate trade in goods and services for thousands of years. Early forms of currency included valuable objects such as cacao beans as well as objects configured to denote denominations, such as coins. EX1018, 25. Early currencies were generally confined to small sovereign areas such as those controlled by kings, emperors or tribal leaders. Currency trading became necessary to facilitate trade between different sovereign groups which used differing currencies. Currency trading is very old and has occurred for almost as long as currencies have existed. EX1018, 24. Currency trading markets can be traced back

to the ancient Middle East, where money changers initiated the exchange of coins. EX1019, 8.

28. In modern times, the primary participants in the foreign exchange market have been dealers (banks), customers who use currency for purchases or speculation (traders), and intermediaries (brokers and various computer systems). EX1016, 473. Dealers, also known as market makers, provide liquidity to the market by quoting prices for currency pairs and buying and selling currencies to earn the "spread" (*i.e.*, the difference between prices "bid" by buyers and "asked" by sellers), *See* EX1016, 476-77. Dealers continuously and competitively set and published prices in the market. These prices fluctuated frequently as a result of many factors.

29. As computer technology evolved during the second half of the twentieth century, electronic systems were developed to support or automate previously manual functions of the currency trading market. Using commercially available technology, dealers set and advertised their quotes (*i.e.*, buy and sell prices for various currency pairs or other assets), and customers or other dealers either agreed to trade at the quoted prices or proposed different ones. Early electronic trading systems provided price quotes on rudimentary market data terminals. Improving technology allowed for the development of electronic marketplaces with

online negotiation and automated trade execution available globally and around the clock. EX1016, 479.

30. For example, the Reuters Market Data Service (RMDS) and other data vendors (*e.g.*, Bloomberg) introduced electronic platforms in the 1980's which allowed dealers to continuously update and advertise their price quote information in real-time. EX1016, 479. In the 1990's, electronic trading systems developed further, offering improved trading capabilities such as providing quote data while simultaneously facilitating the trades themselves. Some systems introduced during this period provided prices set by other trading venues thus operating as a "crossing network." EX1016, 496. Other systems acted as market makers themselves (determining their own prices and serving as a counter party to trades) allowing for price discovery between parties (*e.g.*, by receiving limit orders from customers setting their own price). EX1016, 496.

31. Several standard order types were available to facilitate different types of trade requests. These order types were common in many other types of markets (*e.g.*, equities), and their operation in the foreign exchange market was not materially different from their operation in any other asset market. A broker receiving any of these order types would typically determine whether the order could be filled based on other outstanding orders; if so, the trade was made, and if not, the order would be

maintained by the broker until it could be filled or until it expired. An example of a common type of trade order is the limit order, which allows traders to request a purchase or sale at their own price, often referred to as the "limit price." EX1016, 470; EX1017, 45–46.

32. The first instances of electronic trading involved simple electronic order submission and execution systems. In the 1970s, the NASDAQ (National Association of Securities Dealers Automated Quotations) became the first electronic stock market, using a computerized system to display and execute trades.

33. With the advent of computers and electronic trading platforms, financial institutions gained the ability to process and display real-time exchange rate information more efficiently. Computer networks enabled traders to access and react to market data in a matter of seconds.

34. In the 1980s and 1990s, alternative trading systems (ATSs) emerged as electronic trading platforms that operated alongside traditional exchanges. They matched buyers and sellers outside of traditional exchanges. Examples include Instinet (founded in 1969), which pioneered electronic trading for institutional investors, and Island ECN (founded in 1996). Electronic Communication Networks (ECNs) became popular in the late 1990s and early 2000s. EX1016, 495–496. These platforms connected buyers and sellers directly, allowing for more transparent and

efficient trading. Examples include Archipelago (ArcaEx) and Island ECN. ECNs played a significant role in the shift toward electronic trading.

35. The widespread adoption of the internet in the late 20th century further accelerated the availability of real-time financial data to a broader audience. Online trading platforms and financial websites began offering real-time exchange rate information for assets including equities and currencies. Throughout the early 2000s, trading platforms and systems continued to evolve. Exchanges like NASDAQ and the New York Stock Exchange introduced electronic trading offerings alongside traditional trading floors. Electronic trading extended to various asset classes, including equities, options, and futures.

36. The foreign exchange (FOREX) market also saw a move toward electronic trading. The Continuous Linked Settlement (CLS) system, launched in 2002, aimed to reduce settlement risk in the global FX market. Electronic currency trading platforms like EBS (Electronic Broking Services) and Reuters Dealing emerged as major players. EX1016, 472, 484–486.

37. During the mid-2000s, various electronic trading platforms, order management systems (OMS), and execution management systems (EMS) were already in use by market participants. Prior to 2007, the market was flooded with systems that allowed traders to receive real-time data and execute orders on multiple

exchanges simultaneously. EX1020. By 2005, OMS's had automated nearly every aspect of the trading process including trading domestic and international equities, futures, and foreign exchange. *Id.*

38. Thus, at the time of the invention, there were many fully integrated trading systems providing real-time access to trading data from multiple sources, including brokers, exchanges, ATS's, ECNs, FOREX, and other trading systems.

VI. THE '701 Patent

A. Priority Date

39. The application that ultimately issued as the '701 Patent was filed on September 19, 2022, and issued on April 4, 2023. EX 1001, Cover. I understand that the '701 Patent claims priority through a series of continuation applications to U.S. Patent Application No. 11/736,583, filed on April 18, 2007. *Id.* For the purpose of this Declaration, I have been asked to assume that April 18, 2007 is the earliest possible priority date.

B. Overview of the '701 Patent

40. The '701 Patent, titled "Platform for Trading Assets in Different Currencies," relates to "systems and methods for providing a consolidated trading platform allowing traders to trade various assets in a preferred currency regardless where and in what currency the asset is typically traded." EX1001, 1:7-12. The '701 Patent proposes a "three-tier architecture" comprising: (1) a brokerage, (2) a market

exchange where securities/assets are traded, and (3) a currency exchange where one currency is converted to another at prevailing rates. *Id.*, Abstract, Figs. 2A–2B, 2:7-28. According to the '701 Patent, this architecture provides "a consolidated trading platform" in which "the brokerage presents all prices, market data, P&L estimates, and transaction results or settlements in a preferred currency, in conjunction with the market exchange and the currency exchange." *Id.*, 2:29–38. Figure 2A below illustrates an example system configuration. *Id.*, 3:62-64.

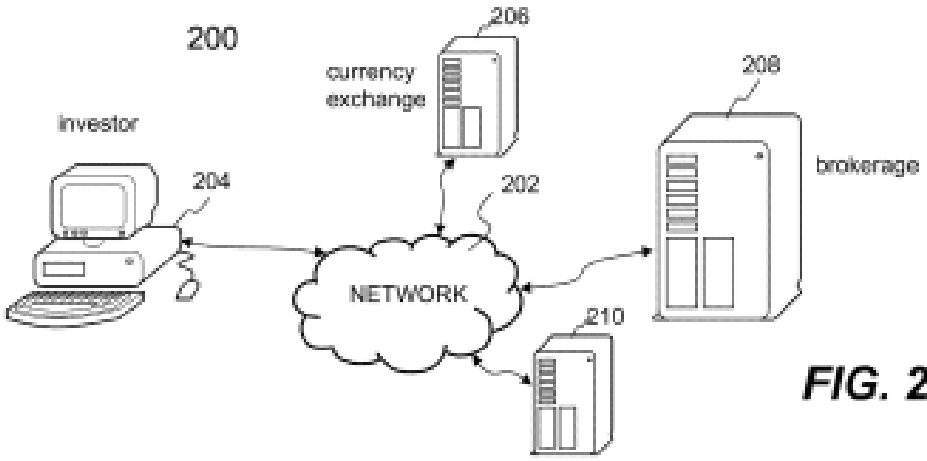


FIG. 2A

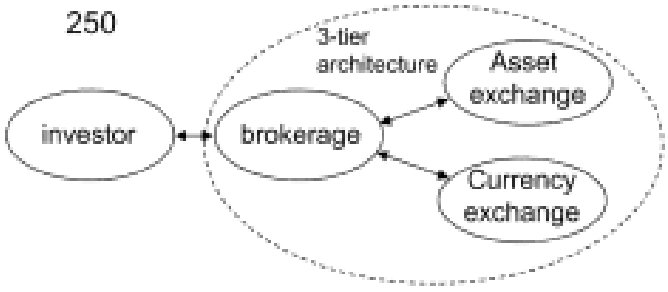


FIG. 2B

41. The system configuration in Figure 2A includes network 202 (*e.g.*, the Internet), with client machine 204 accessible by traders. *Id.*, 4:44–49. Network 202

also connects servers 206, 208, and 210: server 206 provides currency exchange rates, server 208 facilitates transactions for the trader, and server 210 represents the asset or market exchange. *Id.*, 4:66–5:6. These three elements "communicat[e] over a network" to provide "all transactions in a local currency" through "real-time transactional level currency conversion." *Id.*, 5:21–27. Figure 3 shows the process of conducting a transaction in a chosen currency other than a market currency:

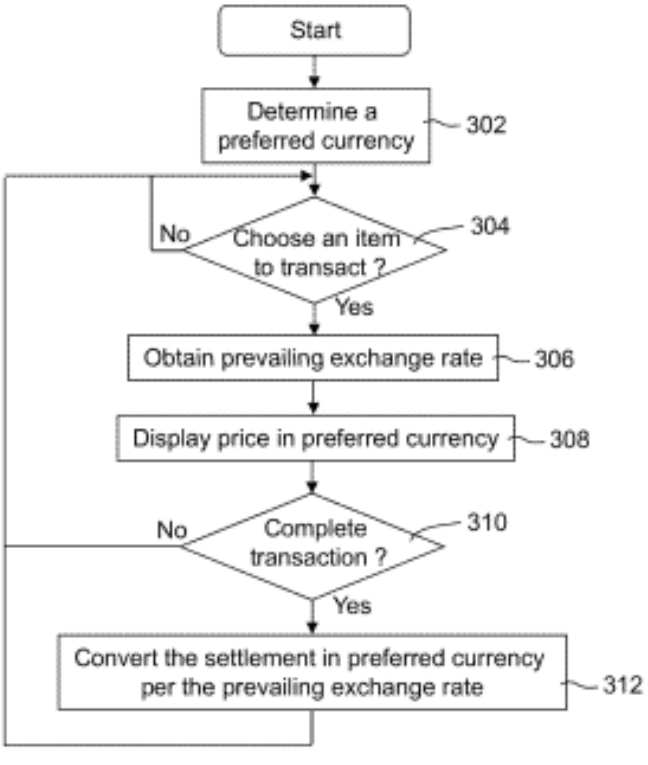


FIG. 3

Id., Fig.3, 4:1–3.

42. At step 302, the process determines the preferred currency chosen by the trader (*e.g.*, Yen, RMB, EURO). *Id.*, 5:33–38. Once selected, "all subsequent transactions [and market data] are presented in the chosen currency with the prevailing exchange rate provided by an exchange agent." *Id.*, 5:40–43. At step 304, the process checks if a transaction item (*e.g.*, stock) is chosen. *Id.*, 5:44–46. Then, at step 306, "a prevailing exchange rate is obtained [] from a currency exchange." *Id.*, 5:48–49. The item's costs are displayed in the trader's chosen currency at step 308. *Id.*, 5:54–56. At step 310, the trader decides whether to buy or sell the item. *Id.*, 5:62–63. If the trader proceeds, the transaction is settled in the preferred currency at step 312. *Id.*, 5:67–6:3.

43. Figures 4 shows a further variant on the basic process. Figure 4 adds a limit order feature (406), allowing traders to specify a price at which they are willing to buy or sell.

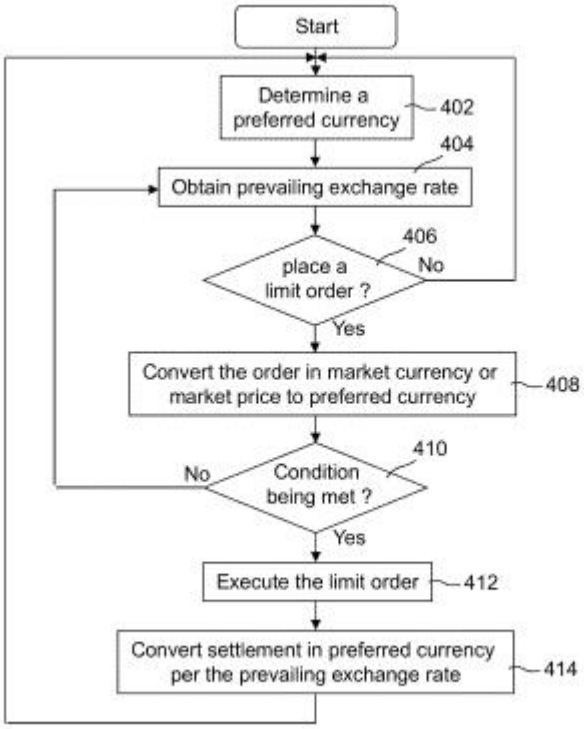


FIG. 4

EX1001, Fig. 4.

44. In this embodiment, if a limit order is placed, the system checks if the conditions (*e.g.*, stock price and exchange rate) are met. *Id.*, 6:56-63. If not, the process re-evaluates with updated exchange rates until the conditions are satisfied. *Id.* Once the limit order condition is met, the order is executed, and the settlement is converted into the preferred currency using the prevailing exchange rate. *Id.*, 6:64; 7:2. Processing of limit orders was well-known by 2007, as I discuss above in Paragraphs 30-31.

C. Level of Ordinary Skill in the Art

45. I have been asked to consider the level of ordinary skill in the field that someone would have had at the time the claimed invention was made. I considered several factors to determine the skill level of a POSITA of the ’701 Patent in April 2007, including the types of problems encountered in the art, the solutions to those problems, the pace of innovation in the field, and the sophistication of the technology.

46. Based on my knowledge and expertise and the prior art cited in the ’701 Patent, it is my opinion that a POSITA as of April 18, 2007, would have had a bachelor’s degree in computer science, accounting science, finance, or a related field and two years of experience with financial trading systems. A person with less or different education but more relevant practical experience, or vice versa, may also meet this standard.

D. The Challenged Claims (EX1010)

47. This declaration addresses Claims 1-16 of the ’701 Patent. Claims 1 and 8 are independent claims. Claims 2-7 depend, either directly or indirectly, from Claim 1. Claims 9-16 depend, either directly or indirectly, from Claim 8.

48. I have reproduced independent Claim 1 below.

1. A platform for trading an asset, the platform comprising:

a trading server, coupled to a client machine associated with a user, receiving an indicator of a first currency from the client machine,

wherein the trading server is configured to couple to at least one currency exchange server and at least one market exchange server,

the trading server is further configured to calculate costs and fees in the first currency to own or sell the asset being traded in a second currency, the costs and fees are caused to be displayed on a display device of the client machine and are dynamically changed in accordance with a first prevailing exchange rate between the first currency and the second currency, and even when a market value of the asset remains unchanged,

and wherein the trading server is configured to conduct a transaction of the asset by transporting a transaction request to the market exchange server upon receiving an order from the trader,

and reach a settlement based on a second prevailing exchange rate as soon as the transaction of the asset is performed in accordance with conditions set by the trader,

and wherein the second prevailing exchange rate is calculated from the at least one currency exchange server right before the transaction takes place,

executed costs and fees in the settlement per the second prevailing exchange rate are not identical to the displayed costs and fees with the first prevailing exchange before the transaction of the asset took place.

49. I address the claims further in my detailed analysis in Section VII below. Exhibit 1010 is a claim listing that enumerates each claim limitation. I will use bracketed notations (*e.g.*, 1[a], 1[b], etc.) to refer to individual limitations.

E. The Prosecution History (EX1002)

50. I have been advised that the examination process, or prosecution history, of the application that led to the ’701 patent may be relevant to my analysis of the patentability of the claims.

51. I have been advised that the Application that issued as the ’701 patent was filed on September 19, 2022, but was a continuation of U.S. Patent No. 11,449,930 (the “’930 Patent”), which was a continuation of U.S. Patent No. 10,776,863 (the “’863 Patent”), which was a continuation of U.S. Patent No. 10,062,107 (the “’107 Patent”). I have been advised that the prosecution of the ’701 patent did not include any prior art rejections, and that the examiner acknowledged

that the individual elements were known in the art. *See* EX1002, 12-14. The Examiner did not consider *Calo*, *Sellberg*, *Davidowitz*, or *Szoc*. *See* EX1002.

F. Claim Construction

52. I have been informed by counsel for Petitioner that the challenged claims of the '701 Patent are to be given their ordinary and customary meaning as understood by one of ordinary skill in the art at the time of the invention in light of the specification and the prosecution history pertaining to the patent. I also understand, however, that a claim term will not receive its ordinary meaning if the patentee acted as his own lexicographer and clearly set forth a definition of the claim term in the specification. In this case, the claim term will receive the definition set forth in the patent. I have followed these principles in my analysis set forth in this Declaration.

53. In order to construe the claims, I have reviewed the entirety of the '701 Patent along with the prosecution history of the '701 Patent. Having reviewed the '701 Patent, its prosecution history, and the claim language, in my opinion the applicant did not act as his own lexicographer and clearly set forth a definition of any claim term in the specification that is contrary to the plain and ordinary meaning of the claim language itself. It is my opinion that a POSITA would have understood each term of the challenged claims according to their plain and ordinary meaning as

understood by a POSITA. Below I provide some explanation regarding the plain and ordinary meaning certain terms would have to a POSITA.

54. **"Prevailing Exchange Rate**": Claims 1-4, 6, 8-9, 11-12, 14 and 16 recite "prevailing exchange rate." A POSITA would have understood the ordinary meaning of "prevailing exchange rate" to mean "a selected current rate." This is consistent with the usage in the '701 patent specification. *See* EX1001, 6:32-36 ("It may be noted that the exchange rate used may be based on the settlement date of the asset class, for instance, a 30-day oil contract may use the EUR/USD 30-day forward rate, whereas a US equity would use a EUR/USD spot next rate."). The only rates the specification describes using are a "forward" rate or a "spot" rate – in other words, a selected current exchange rate. *Id.* In IPR2024-00378 concerning the related '930 Patent, Patent Owner agreed that "prevailing exchange rate" means "a selected current exchange rate." *See* EX1011 at 4.

55. "**Prevailing Currency Exchange Rate**": Claims 2, 5, 10, and 13 recite "prevailing currency exchange rate." This rate is the same as the prevailing exchange rate but limited specifically to currencies. A POSITA would have understood the ordinary meaning of "prevailing currency exchange rate" to mean a selected current currency exchange rate (*e.g.*, a "spot" rate or a "forward" rate), both of which were well known in the art at the time of the invention. EX1001, 6:32-36 ("It may be noted

that the exchange rate used may be based on the settlement date of the asset class, for instance, a 30-day oil contract may use the EUR/USD 30-day forward rate, whereas a US equity would use a EUR/USD spot next rate."). In IPR2024-00378 concerning the related '930 Patent, Patent Owner agreed that "prevailing currency exchange rate" means a selected current currency exchange rate. *See* EX1011 at 4.

VII. APPLICATION OF THE PRIOR ART TO THE CHALLENGED CLAIMS

A. Summary of Unpatentability

56. I have reviewed and analyzed the prior art references and materials listed in Section II above. In my opinion, the challenged claims of the '701 Patent are rendered obvious based on the following prior art set forth below:

Basis No.	'701 Patent Claims	Basis for Challenge under 35 U.S.C. §103(a)
1	1, 3-4, 6-9, 11-12, and 14-16	Obvious under §103 based on *Calo*[2] in view of *Rude*[3] and *Sellberg*[4]
2	1, 3-4, 6-9, 11-12, and 14-16	Obvious under §103 based on *Calo* in view of *Rude* and *Szoc*[5]
3	2, 5, 10, and 13	Obvious under §103 based on *Calo*, *Rude*, and *Sellberg* in further view of *Davidowitz*[6]

B. Brief Summary of Prior Art

1. Overview of *Calo* (EX1005)

57. *Calo* discloses "a globalized trading network that permits trading of stocks and other securities and commodities across international boundaries." EX1005, [0003]. *Calo*'s trading methods "include accepting an electronic transaction order for the purchase or sale of a security, vetting the order" for

[2] U.S. Patent App. Pub. No. 2002/0087454 A1 ("*Calo*") (EX1005).

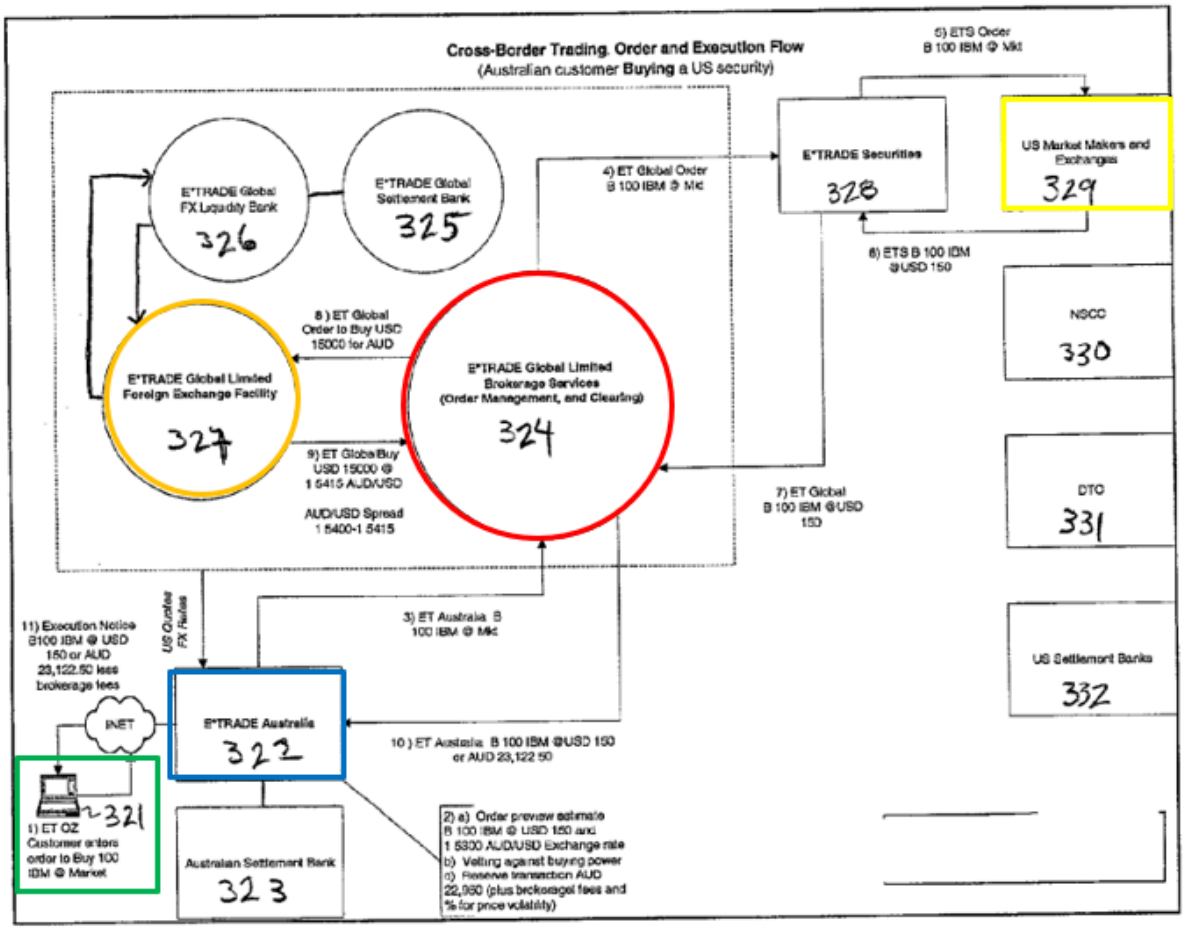
[3] U.S. Patent App. Pub. No. 2006/0095361 A1 ("*Rude*") (EX1006).

[4] U.S. Patent App. Pub. No. 2004/0236664 A1 ("*Sellberg*") (EX1007).

[5] U.S. Patent App. Pub. No. 2002/0023053 A1 ("*Szoc*") (EX1008).

[6] U.S. Patent App. Pub. No. 2004/0267655 A1 ("*Davidowitz*") (EX1009).

sufficiency of funds, "transmitting the transaction order to a global hub, purchasing or selling the security, and adjusting the customer account accordingly." *Id.*, [0009].



EX1005, Fig. 3A (annotated)

58. As shown in Figure 3, a cross-border trading order in *Calo*'s system originates with the customer (321) (annotated green square), is transmitted through the introducing affiliate (322) (annotated blue square) to the Global Brokerage

Service (324) (annotated red circle) and is then routed to both the U.S. Market Exchange (329) (annotated yellow square) for execution and the Foreign Exchange Facility (327) (annotated orange circle), prior to settlement. *Calo* discloses that prior to placing an order, the trader receives a preview price which is "a cost estimate based on the real-time quotes for the security . . . as well as a real-time conversion from the foreign exchange rates." EX1005, [0030]. Once the order is placed (step 301), a preview of the order is generated (step 302), reflecting "the current U.S. ask price, the Australian dollar (AUD) equivalent based on the current ask price for USD based on the USD principal amount," estimated commissions and fees, and a reserve buffer for exchange rate fluctuations. *Id.* The order is then routed and executed on the appropriate market exchange (*e.g.*, 100 U.S. shares of IBM stock on the NYSE). EX1005, [0030] at steps 303–306. *Calo* explains that "[p]referably immediately after the equity order is executed and reported," the Global Brokerage initiates a foreign exchange transaction to convert Australian dollars into U.S. dollars. *Id.*, step 307. At step 310, the Global Brokerage sends the user a trade confirmation that includes both the USD execution price and the "locked-in AUD value" of the trade, and commissions and fees. *Id.*, step 310.

59. *Calo* supports various order types, including limit orders, which guarantee execution at a specific price, requiring the system to align costs, including currency conversions, with trader-specified conditions. EX1005, [0070].

2. Overview of *Rude* (1006)

60. *Rude* discloses systems and methods for handling foreign securities trading transactions in a user's preferred currency. EX1006, [0002], [0029]. The disclosed system includes "order processing server 102 is also in communication with one or more currency (foreign exchange) markets 110, and one or more sources 112 of foreign exchange price quotations." *Id.*, [0021]. "[O]rder processing server 102 operates to receive from the price quotation sources 108, 112 data concerning market conditions," wherein "the data supplied by the source(s) 108 may include current price quotations for securities to be traded via the trading system 100." *Id.*, [0023]. According to *Rude*, "[t]he quotations may be provided in the local currencies of the various securities exchanges[.]" *Id.*

61. *Rude* explains that foreign securities trading transactions may be processed, so that price quotations from a foreign securities exchange are "automatically converted to a trader's operating currency and may be displayed by a trading system to the trader in the operating currency, rather than in the local currency in which the quotations are presented on the foreign securities exchange."

Id., [0019]. *Rude* further discloses that "[w]hen an order for a foreign securities trading transaction is placed by the trader, the order is sent by the trading system to the foreign securities exchange and is executed on the foreign securities exchange in the local currency of the foreign securities exchange." *Id.* According to *Rude*, "a net settlement amount is established for the transaction, reflecting the execution price and expenses such as settlement fees and commissions." *Id.*

62. Although *Rude* was considered during prosecution of the related '107 Patent, the Examiner mistakenly concluded it disclosed only an "average FOREX rate" rather than a prevailing exchange rate leading to the rejection being overcome. In fact, *Rude* discloses using either a forward or spot rate—*i.e.*, a prevailing exchange rate—contrary to the Examiner's understanding. See EX1006, [0054]-[0055].

3. Overview of *Sellberg* (1007)

63. *Sellberg* describes systems and methods for automatically generating an order in an instrument in a specified currency. EX1007, [0001]. As *Sellberg* explains, one issue in cross-currency trading is that the trader "does not have knowledge in advance of the exchange rate for such currency transaction." *Id.*, [0004]. To address this problem, *Sellberg* proposes modifying the trading system to accept orders in multiple currencies. *Id.*, [0005].

64. Accordingly, *Sellberg* discloses a trading platform that enables users to place orders in their preferred currency (*e.g.*, EUR) for financial instruments traded in another currency (*e.g.*, USD). EX1007, [0022]–[0023]. The system "repeatedly and automatically" receives updated exchange rates—*e.g.*, "several times a second"—from a market maker or currency market, ensuring the availability of real-time, guaranteed rates for transaction purposes. *Id.*, [0024]–[0025].

65. When a trader submits an order in a non-market currency, the system uses the most recent exchange rate available at the time of order receipt—preferably, "the last received updated exchange rate"—to calculate the transaction amount. EX1007, [0024], [0025]. This real-time exchange rate mechanism enables the system to perform the asset trade and the corresponding currency conversion simultaneously, ensuring accurate and timely settlement. *Id.*, [0025].

4. Overview of *Szoc* (1008)

66. *Szoc* discloses a "system and method for providing real-time foreign exchange rate quotes, cross-border payments, and other financial information and services to clients over the Internet." EX1008, [0005]. *Szoc* highlights the financial risk and uncertainty introduced by volatile foreign exchange rates, particularly in cross-border transactions. *Id.*, [0009]. To address this, *Szoc* teaches a system that provides real-time foreign exchange rate quotes via an interface that displays a list

of foreign exchange rates, retrieved from a quote server, relative to the client's selected native currency. *Id.*, [0083]. The system features a scrolling quote bar that allows clients to adjust the number of rates displayed, the display format, and their native currency. *Id.* The quote bar can display real-time, continuously updating exchange rates, or, alternatively, update the displayed rates in response to a client action—such as clicking on a quote link. *See* EX1008, Figs. 4A–4B, [0083].

67. Additionally, *Szoc* supports limit transactions in which clients specify a desired exchange rate, and the transaction executes only if that rate is reached. *Id.*, [0101]. If the specified rate is not met, the transaction may expire after a client-defined period. *Id.*

5. Overview of *Davidowitz* (1009)

68. *Davidowitz* discloses a system for pairs trading across multiple markets, including foreign markets, with automatic foreign exchange hedging to mitigate currency risk. EX1009, [0003], [0007]. A trader's workstation displays real-time market data, including security prices in foreign currencies, updated via a data feed providing exchange rates. EX1009, [0036], [0041]. A spread engine processes this data to initiate orders when market conditions meet predefined parameters, executing security trades and foreign exchange orders to hedge currency exposure

at transaction time. EX1009, [0031]. The client-server architecture supports automated trading and dynamic data updates. EX1009, [0008].

C. Basis No. 1: Claims 1, 3-4, 6-9, 11-12, and 14-16 would have been obvious over *Calo* in view of *Rude* and in further view of *Sellberg*.

69. Based on the following analysis, in my opinion Claims 1-16 of the '701 Patent would have been obvious to a POSITA based on *Calo* in view of *Rude* and in further view of *Sellberg*. For at least the reasons below, I conclude that a POSITA at the relevant time (April 18, 2007) would have understood the limitations of Claims 1-16 were expressly disclosed, taught, or suggested by *Calo* in view of *Rude* and in further view of *Sellberg* and it would have been obvious to combine them to arrive at the claimed invention.

1. Motivation to Combine

70. In my opinion a POSITA would have been motivated to combine *Calo* with *Rude* and *Sellberg* to arrive at the claimed invention and would have had a reasonable expectation of success in doing so.

71. As an initial matter, *Calo, Rude*, and *Sellberg* are analogous art to the '701 Patent. *Calo*, *Rude*, and *Sellberg* are directed to the same field of endeavor as the '701 Patent: automated financial trading systems that facilitate cross-border transactions involving different currencies. EX1001, 1:7-12 (confirming the invention of the '701 Patent relates to "providing a consolidated trading platform

allowing traders to trade various assets in a preferred currency regardless where and in what currency the asset is typically traded"). *Calo* discloses a global trading system that enables clients to trade foreign securities in their local currency, using a centralized hub-and-spoke architecture to coordinate order routing, execution, settlement, and currency exchange. EX1005, [0008], [0026]. *Rude* describes systems for automatically settling trades in a trader's preferred currency, using real-time exchange rates and automated currency conversions. EX1006, [0004], [0062]. *Sellberg* discloses methods, systems, and software enabling traders to place orders in a different currency than the instrument's native currency, with automated currency conversion handled within the trading environment. EX1007, [0005]-[0007]. Each of these systems focuses on electronic trading platforms that automate and manage transactions involving foreign currency exchange.

72. The references are also pertinent to problems the '701 Patent was trying to solve, including that, in current trading systems, "currency conversion is not at a transactional level." EX1001, 1:61-62. *Calo*, *Rude*, and *Sellberg* address practical challenges traders face when executing transactions involving different currencies, particularly the difficulty of managing currency differences during execution and settlement. EX1005, [0006]; EX1006, [0002]; EX1007, [0004]. Each recognizes that traders typically operate in a home or preferred currency that differs from the local

currency of the foreign exchange on which a given security is traded. EX1005, [0006]; EX1006, [0002]; EX1007, [0003]-[0004]. Absent an integrated foreign exchange mechanism, such cross-border transactions required manual coordination of foreign exchange conversions, resulting in delays, increased costs, and uncertainty regarding the final settlement amount. EX1005, [0006]; EX1006, [0002]-[0003]; EX1007, [0003]-[0004]; *see also* EX1019, 8. *Calo* addresses this problem by previewing the trade in the trader's local currency and executing a corresponding foreign exchange transaction "[p]referably immediately" after trade execution. EX1005, [0030]. *Rude* automatically initiates a foreign exchange order upon trade settlement to convert the net settlement amount into the user's operating currency. EX1006, [0005]. In both systems, the foreign exchange transaction is triggered as part of the same automated trading workflow, making trade execution and settlement functionally equivalent for initiating currency conversion. *Sellberg* allows users to place orders in any specified currency while maintaining a single order book, enabling seamless cross-currency transactions. EX1007, [0007]-[0009]. Thus, *Calo*, *Rude*, and *Sellberg* each aim to reduce friction in trading by automating the currency exchange process and providing a more transparent trading experience for traders dealing with multi-currency transactions.

73. It is my opinion that a POSITA would have been motivated to combine *Calo*'s trading system with *Rude*'s mechanism that allows a user to indicate the user's preferred currency. *Calo* teaches trading in the user's local (*i.e.*, "native") currency, including displaying "[a] price in the native currency" prior to a trade. EX1005, [0030]. *Calo* therefore suggests a mechanism for receiving an indicator of the user's local currency. A POSITA would have looked to *Rude* for implementation details to achieve that feature. *Rude*'s user interface, in cooperation with the order processing server, allows users to indicate a preferred currency for pricing and settlement. EX1006, [0058]. It is my opinion that a POSITA would have understood the benefits of allowing users to indicate their currency preference in *Calo*'s trading platform. EX1005, [0030]. Combining *Rude*'s currency indicator feature with *Calo*'s trading system would advantageously allow users to explicitly designate their preferred currency, aligning with *Calo*'s teachings of providing a preview price in a native currency and *Calo*'s goal of streamlining cross-border trading for users by ensuring predictable pricing in volatile cross-currency markets.

74. In my opinion a POSITA would have expected success in combining *Calo* and *Rude*. Both references use similar architectures—*Calo* with its Global Brokerage Service and *Rude* with its order processing server, both of which couple to user devices, securities exchanges, and currency markets. EX1005, [0026]-

[0027]; EX1006, [0022]-[0024], [0027]. It would have been within the skill of a POSITA to implement *Rude*'s feature enabling a user to indicate their preferred currency with *Calo*, such that *Calo*'s Global Brokerage Service receives an indication of the user's preferred (*e.g.*, native) currency, at least because such a feature had already successfully been implemented in the similar system of *Rude*. EX1006, [0058]. All that would be required is a straightforward modification to *Calo*'s system, which already discloses a user interacting with the system via a computer, to incorporate *Rude*'s functionality enabling a user to indicate the user's preferred currency, predictably resulting in the ability for a user to indicate the user's preferred currency in *Calo*'s system. EX1005, [0027] ("[C]ustomer advantageously accesses the system through an electronic connection, such as with a computer.").

75. It is my opinion that a POSITA would also have been motivated to combine *Sellberg*'s exchange rate timing mechanism and display teachings with *Calo* (as modified by *Rude*). *Calo* discloses executing a foreign exchange transaction "[p]referably immediately" after trade execution without expressly stating when the rate used is calculated. EX1005, [0030]. *Calo*, however, recognizes the problem of exchange rate volatility (*e.g.*, by creating a reserve to account for potential currency fluctuations). *Id.*, [0030], [0070]. This volatility is one problem *Sellberg* addresses. *Sellberg* teaches a mechanism where the applied exchange rate is the "last received"

rate before the transaction occurs, ensuring that the conversion reflects the most current market conditions at the time of execution. EX1007, [0024], [0025]. *Sellberg* further discloses that "the trader may continuously follow the updated exchange rates," highlighting that updated rates are not only received in real time, but also are continuously displayed to the user. EX1007, [0031]. A POSITA would have understood that this feature would give traders the most accurate information at the time of trade, thereby increasing transparency in volatile trading markets. Thus, in the context of the combination, *Sellberg* contributes a timing mechanism for applying the most current exchange rate "at or just before execution" of a trade, which aligns with *Calo*'s and *Rude*'s objectives of minimizing volatility and improving pricing transparency and user control. EX1007, [0022]. A POSITA would have been motivated to combine *Sellberg*'s exchange rate timing mechanism continuous rate display with *Calo*'s system to advantageously minimize exposure to rate fluctuations, improve transparency and accuracy in cross-currency pricing, and reduce the need for reserve buffers in *Calo*'s trading platform.

76. It is my opinion that a POSITA would have expected success in combining *Calo, Rude,* and *Sellberg* due to their similar architectures and aligned goals of facilitating automated, cross-border financial transactions. Each system is implemented on computer-based trading platforms designed to interoperate with

existing infrastructure. EX1005, [0027], [0051]; EX1006, [0030], [0037]; EX1007, [0011], [0022]. *Sellberg* explicitly states that its approach is "easy to implement in existing trading systems[,]" further supporting its compatibility with *Calo* and *Rude*. EX1007, [0010]. *Sellberg* discloses that the system periodically receives updated exchange rates (*e.g.*, "from several times a second down to once an hour") from a market maker or currency market, ensuring the availability of real-time, guaranteed rates for transaction purposes. EX1007, [0024]–[0025]. A POSITA would have understood that combining this functionality with an existing trading system like *Calo*'s, which already receives "real-time conversion" rates, would function predictably and be technically feasible, as both rely on components that retrieve and process external data feeds in real time. EX1005, [0030].

2. Independent Claim 1

(i) 1[p]: A platform for trading an asset, the platform comprising:

77. To the extent the preamble is limiting, in my opinion the *Calo-Rude-Sellberg* combination discloses "[a] platform for trading an asset, the platform comprising."

78. *Calo* discloses "a computerized system for trading securities and commodities[,]" including assets such as "stocks, options, mutual funds, and fixed

income instruments[,]" that is organized in a "hub-and-spoke arrangement." EX1005, [0007]-[0008], Abstract.

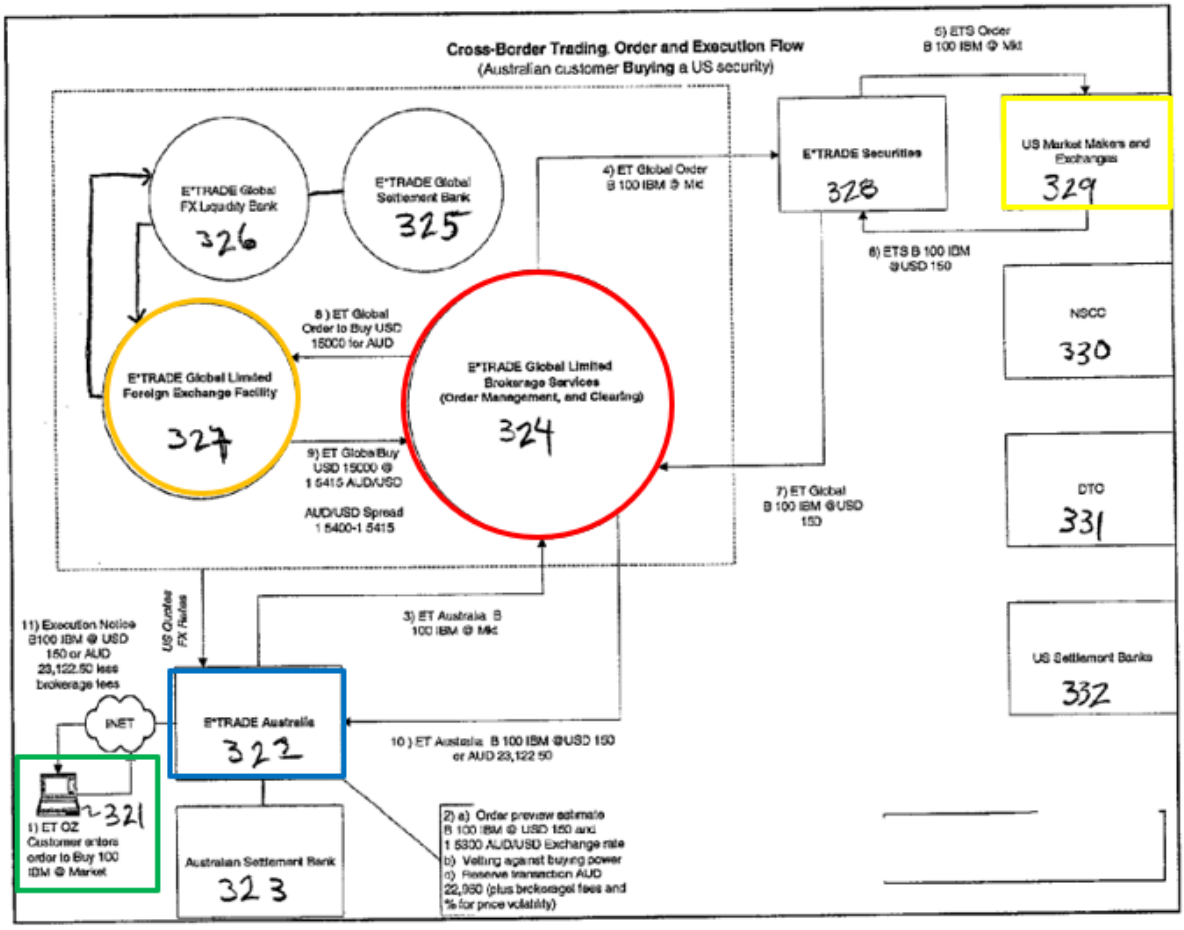
79. *Calo*'s system includes various computerized systems, including introducing affiliates that handle "customer accounts" and "transaction orders[,]" executing affiliates that execute "trades in a local stock exchange[,]" and a global hub (a central computerized system) that "rout[es] orders" and manages "foreign exchange transactions." EX1005, Abstract, [0008], [0012]. *Calo* discloses that "all of these entities can be integrated into a single computer system platform." EX1005, [0051]. *Calo*'s networked system of computerized components to facilitate trading discloses a platform for trading an asset as claimed. EX1001, 1:7-12, 2:19-23.

(ii) 1[a]: a trading server, coupled to a client machine associated with a user, receiving an indicator of a first currency from the client machine,

80. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious "a trading server, coupled to a client machine associated with a user, receiving an indicator of a first currency from the client machine."

81. *Calo* discloses an "E*Trade Global Brokerage Service 324," which connects to both the "introducing affiliate" and the "executing affiliate." EX1005, [0029]. As demonstrated in Figure 3A below, *Calo*'s centralized Global Brokerage Service (annotated red circle) is also coupled to a "Foreign Exchange Facility 327"

(annotated orange circle) and "U.S. Market Markers and Exchanges 329" (annotated yellow square).



EX1005, Fig. 3A (annotated).

82. As shown in Figure 3A, *Calo* discloses a cross-border trading order that originates with the customer (321) (annotated green square), is transmitted through the introducing affiliate (322) (annotated blue square) to the Global Brokerage Service (324) and is then routed to both the U.S. Market Exchange (329) for

execution and the Foreign Exchange Facility (327), prior to settlement. *Id.* It is my opinion that a POSITA would have understood *Calo*'s Global Brokerage System to disclose or at least render obvious the recited "trading server" because it is responsible for routing an order between (1) a client machine; (2) a currency exchange; and (3) a market exchange. This interpretation is consistent with the '701 Patent's description of the trading server "represent[ing] a brokerage" and as being configured to "facilitate a transaction decided by a trader." *See* EX1005, [0029]; EX1001, 5:3–4; *see also* EX1017, 34.

83. *Calo*'s platform is "implemented [] on a system of computers or electronics with associated hardware," which in my opinion discloses or at least renders obvious the use of a server to a POSITA. EX1005, [0028], [0052]. *Calo* also discloses in Figures 9 and 10 multiple uses of servers for both web and application purposes in the securities (U.S. Market Exchange) and foreign currency (Foreign Exchange or FX Facility) exchanges, as well as the Global Brokerage Service (trading server). For example, *Calo* explicitly discloses the use of Global FX Facility "Price servers and Margin Server" in Figure 10. A POSITA would have understood that servers would be used to perform the processing and storage functions described in the various "systems" referenced in *Calo*. This would include providing web services, as well as the applications that undergird all of the processing performed

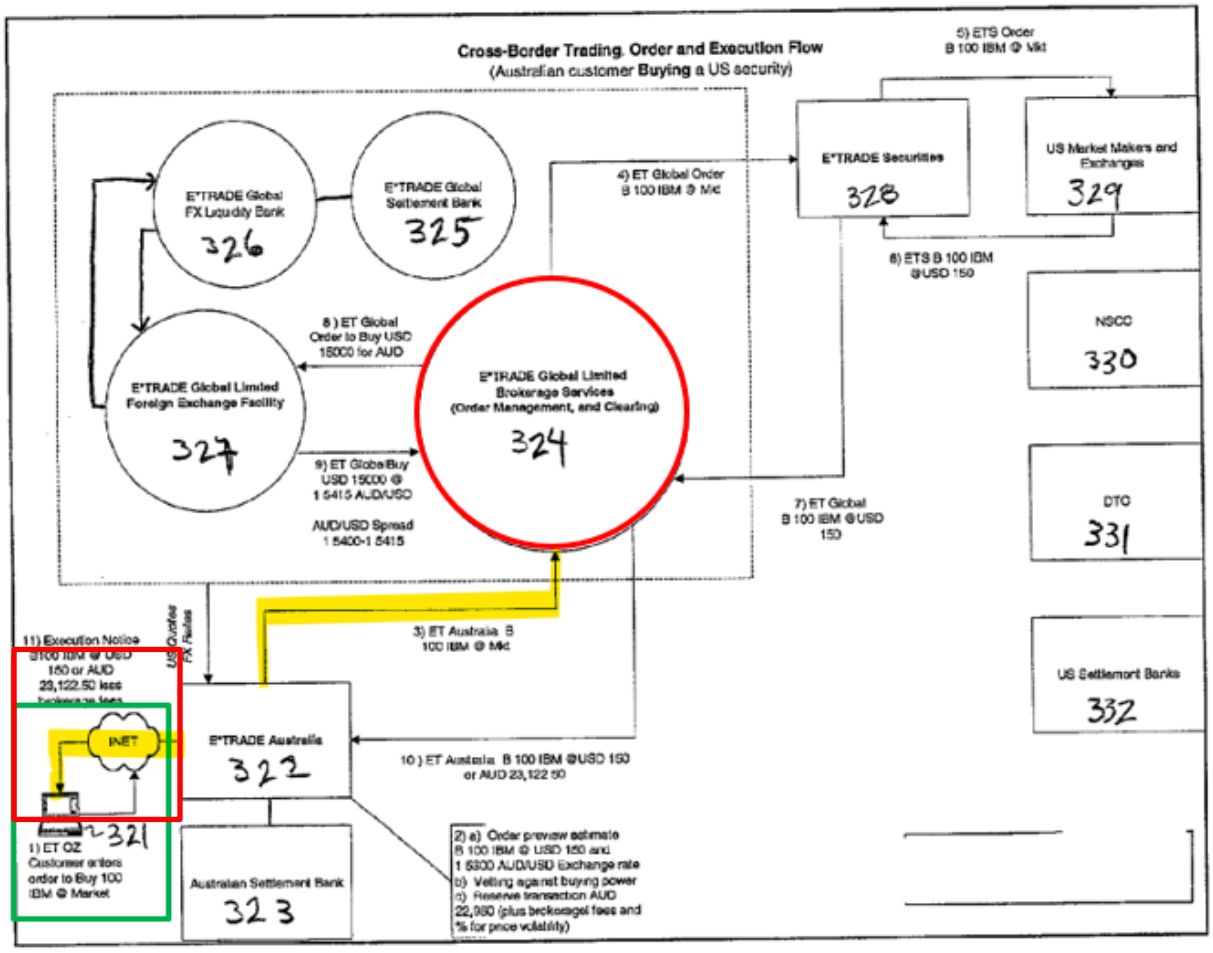
in each business system. Indeed, *Calo* discloses conducting transactions over the Internet and using "Web Server[s]" in its platform. *Id.*

84. To the extent *Calo* does not expressly describe the Global Brokerage Service as a "server," it is my opinion that it would have been obvious to a POSITA to implement Global Brokerage Service 324 as a "server." EX1017, 34; EX1019, 6. The use of servers was conventional and well known in the art and given *Calo*'s description of Global Brokerage Service as a centralized "hub" in the hub and spoke architecture that facilitates processing requests for trades received from client devices associated with users, it is my opinion that it would have been obvious to a POSITA to implement Global Brokerage Service with a server, particularly in view of *Rude*'s disclosure. EX1005, [0008].

85. *Rude* discloses an "order processing server 102" that performs substantially the same functionality as *Calo*'s Global Brokerage Service. EX1006, [0022]-[0023]; EX1005, [0029]. Thus, it is my opinion that it would have been obvious to implement *Calo*'s Global Brokerage Service with a "server" in view of *Rude* and the background knowledge of a POSITA.

86. *Calo*'s Global Brokerage Service is coupled to a client machine associated with a user. *Calo* discloses that a "customer [can] advantageously access[]

the system through an electronic connection, such as with a computer[,]" which discloses the claimed "client machine associated with the user." EX1005, [0027].



EX1005, Fig. 3A (annotated).

87. As shown in Figure 3, the "customer 321" (annotated green square) connects to the Global Brokerage Service 324 (annotated red circle) through the Australian introducing affiliate 322. EX1005, [0029]. It is my opinion that a

POSITA would have understood that *Calo* discloses a client machine associated with the user (*i.e.*, a computer) that is electronically coupled to a trading server (*i.e.*, the Global Brokerage Service).

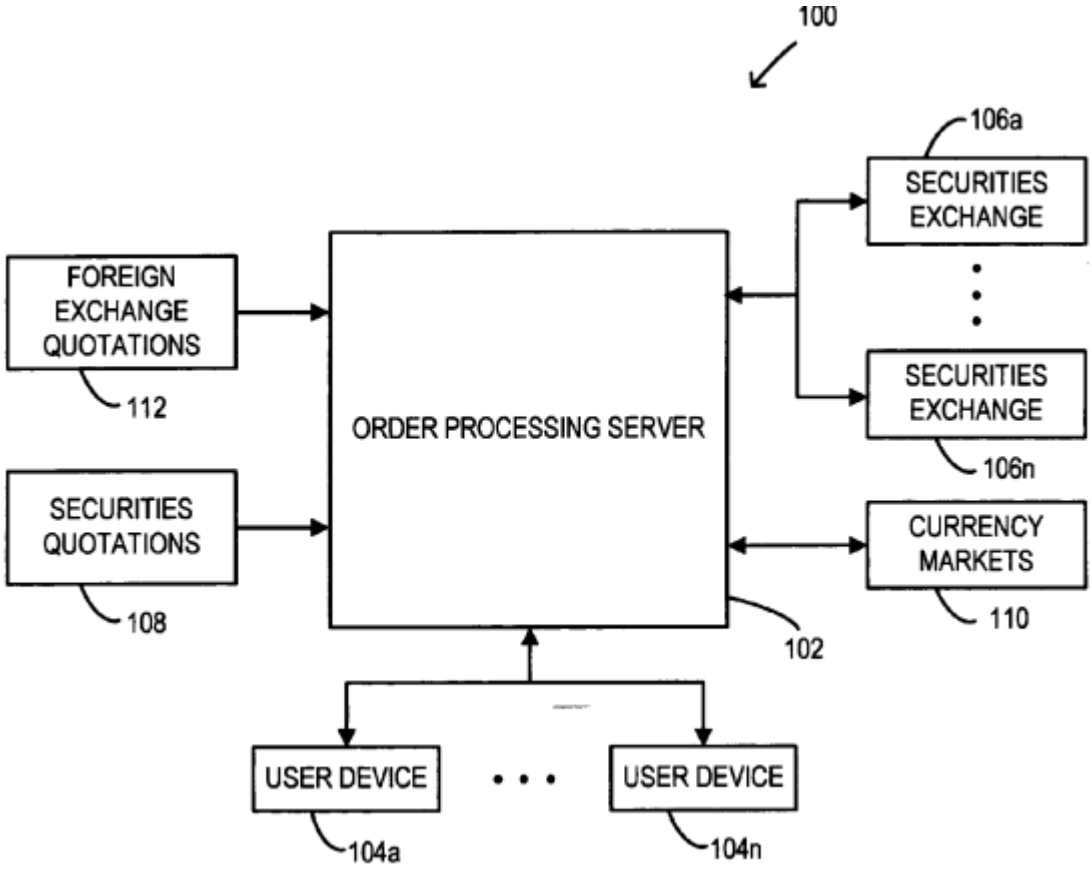
88. *Calo* provides preview prices, disclosing that while orders are normally placed "based on the currency of the target market in which the security trades[, a] price in the native currency may also be provided." EX1005, [0030]. Because the price is displayed in the user's native currency, and the "estimated prices are computed automatically through, by, or with information obtained from" Global Brokerage Service, it is my opinion that a POSITA would have understood that the trading server receives an indication of the user's native currency (*e.g.*, from the client device) to enable the proper currency conversion and pricing display. EX1005, [0030]; *see also* EX1017, 34; EX1019, 6.

89. Moreover, *Rude* expressly discloses receiving an indicator of a first currency (*e.g.*, a user's preferred currency) from a client machine. *Rude* discloses that "the user interface of the user device 104, in cooperation with the order processing server 102, may . . . permit the user to select in advance for his or her operation of the user device options as to whether foreign securities quotations are to be provided in an operating currency designated by the user or in the local currencies in which the foreign securities trade." EX1006, [0058]. It is my opinion

that a POSITA would have been motivated to combine *Rude* and *Calo* with an expectation of success as I discussed above in the motivation to combine section. *See* § VII.C.1.

90. Limitation 1[a] recites "a trading server, coupled to a client machine" and in my opinion does not exclude intermediaries between the client machine and the trading server. In any event, it would have been obvious to couple *Calo's* client machine to the Global Brokerage Service without an intermediary. As an initial matter, the arrangement is one of a finite number of identified, predictable solutions (coupling with or without an intermediary). Moreover, it is my opinion that such an arrangement would have been obvious in view of *Rude*.

91. *Rude*'s order processing server 102 "function[s] as a host computer for the user devices 104 and may operate to receive and execute securities and foreign exchange trading orders on behalf of users of the user devices 104." EX1006, [0022]. As shown in Figure 1, reproduced below, *Rude*'s user device(s) are directly connected to *Rude*'s order processing server (*i.e.*, trading server), without an intermediary.

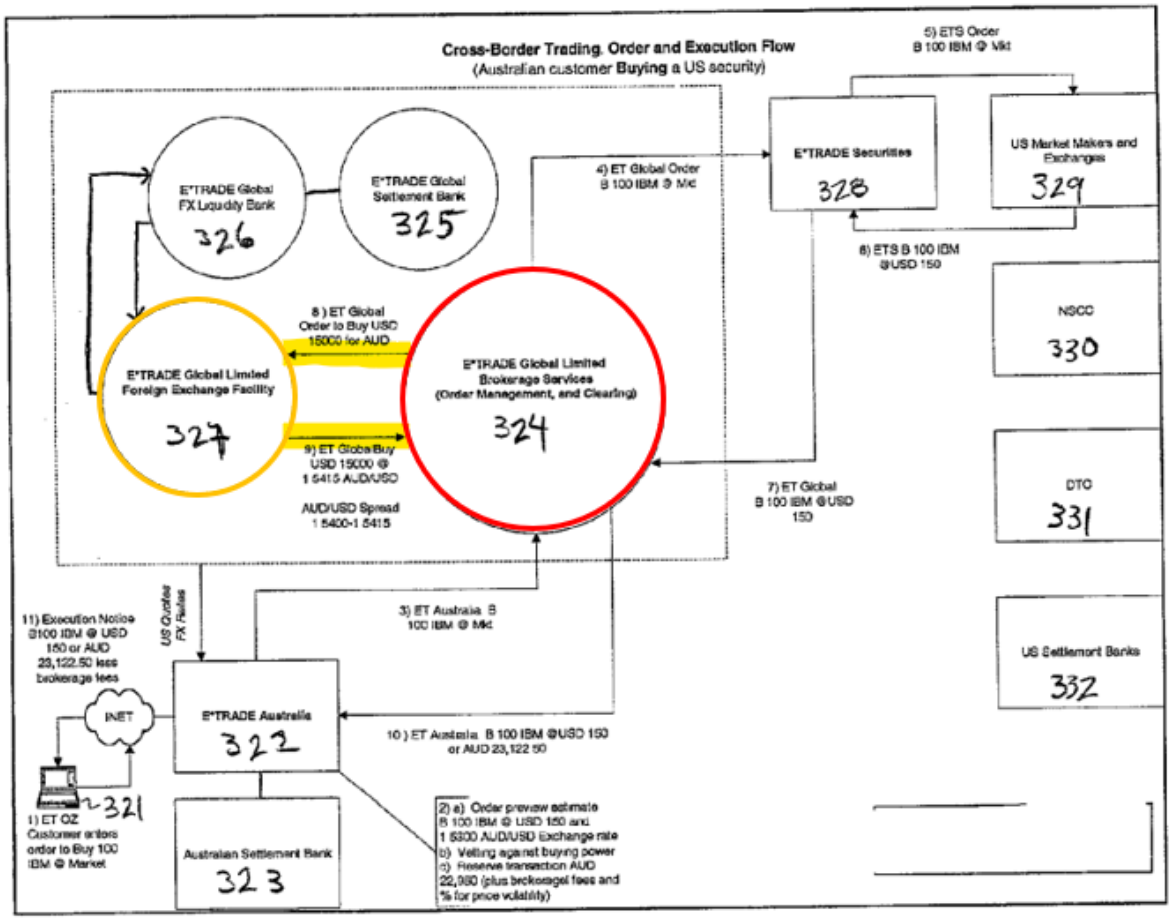


EX1006, Fig. 1.

(iii) 1[b]: wherein the trading server is configured to couple to at least one currency exchange server and at least one market exchange server,

92. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious "wherein the trading server is configured to couple to at least one currency exchange server and at least one market exchange server."

93. *Calo* discloses a trading architecture similar to the '701 Patent:

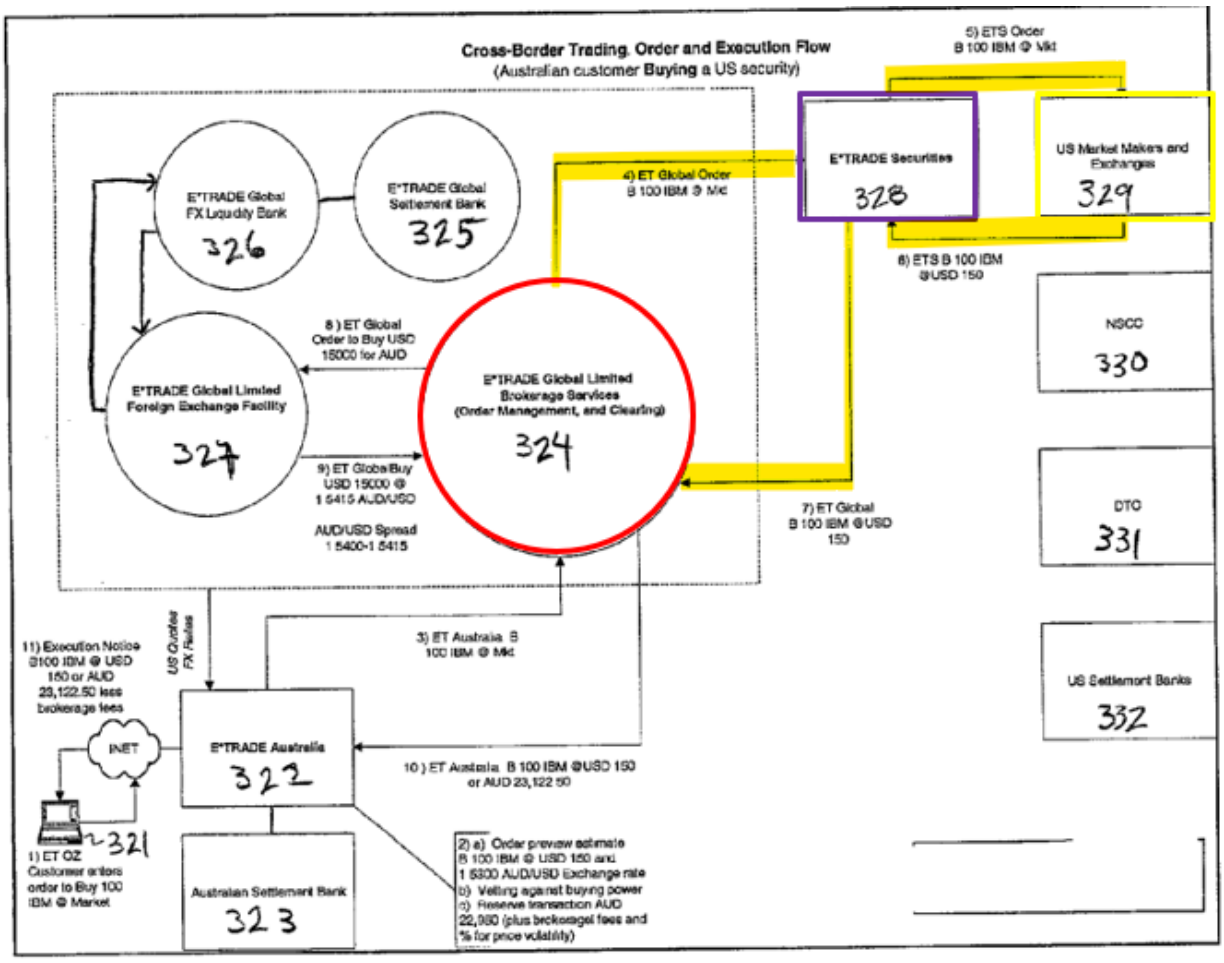


EX1005, Fig 3A (annotated).

94. *Calo* Global Brokerage Service (annotated red circle) corresponds to the claimed trading server and is configured to couple to "a Foreign Exchange Facility 327" (annotated orange circle) which "provides indicative foreign exchange rates" and interfaces with an FX liquidity bank 326 to execute currency conversions. EX1005, [0027], [0061], Fig. 3A. It is my opinion that a POSITA would have understood *Calo*'s "Foreign Exchange Facility" to disclose or at least renders

obvious the claimed "currency exchange server," because it supplies exchange rates used to execute transactions, consistent with the '701 Patent's description of a currency exchange server. EX1001, 3:5-8 (describing receiving rates from the currency exchange server and using them to execute a trade).

95. Additionally, *Calo* discloses that the Global Brokerage Service (annotated red circle) connects to "U.S. Market Makers and Exchanges 329" (annotated yellow square) through the executing affiliate 328 (annotated purple circle), which interfaces with market exchanges such as "the Hong Kong Exchange [and] the London Stock Exchange" to place orders. EX1005, [0025], [0029], Fig. 3A (annotated below).

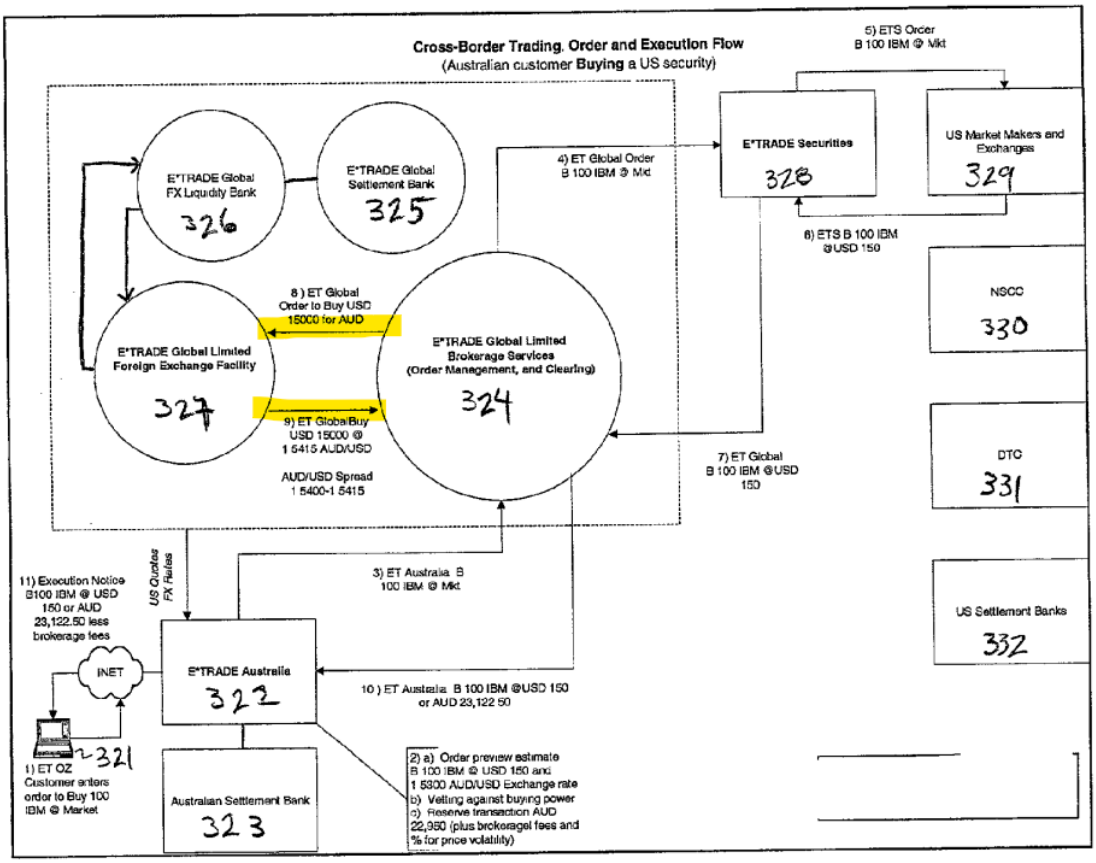


96. In *Calo*'s transaction flow, an Australian customer places an order to buy U.S. stocks, which is routed through the Global Brokerage Service to a U.S. executing affiliate, which places the order on a U.S. exchange like the NYSE. EX1005, [0030], Fig. 3B, Step 305. It is my opinion that a POSITA would have understood that these exchanges correspond to the claimed "market exchange server." *See* EX1001, 5:4–6 ("The server 210 represents an asset or market exchange (*e.g.*, NYSE) where an asset is caused to change hands."); *see also* EX1017, 27-29.

Thus, *Calo*'s Global Brokerage Service is configured to couple both to a currency exchange server (*e.g.*, Foreign Exchange Facility) and to market exchange servers (*e.g.*, NYSE).

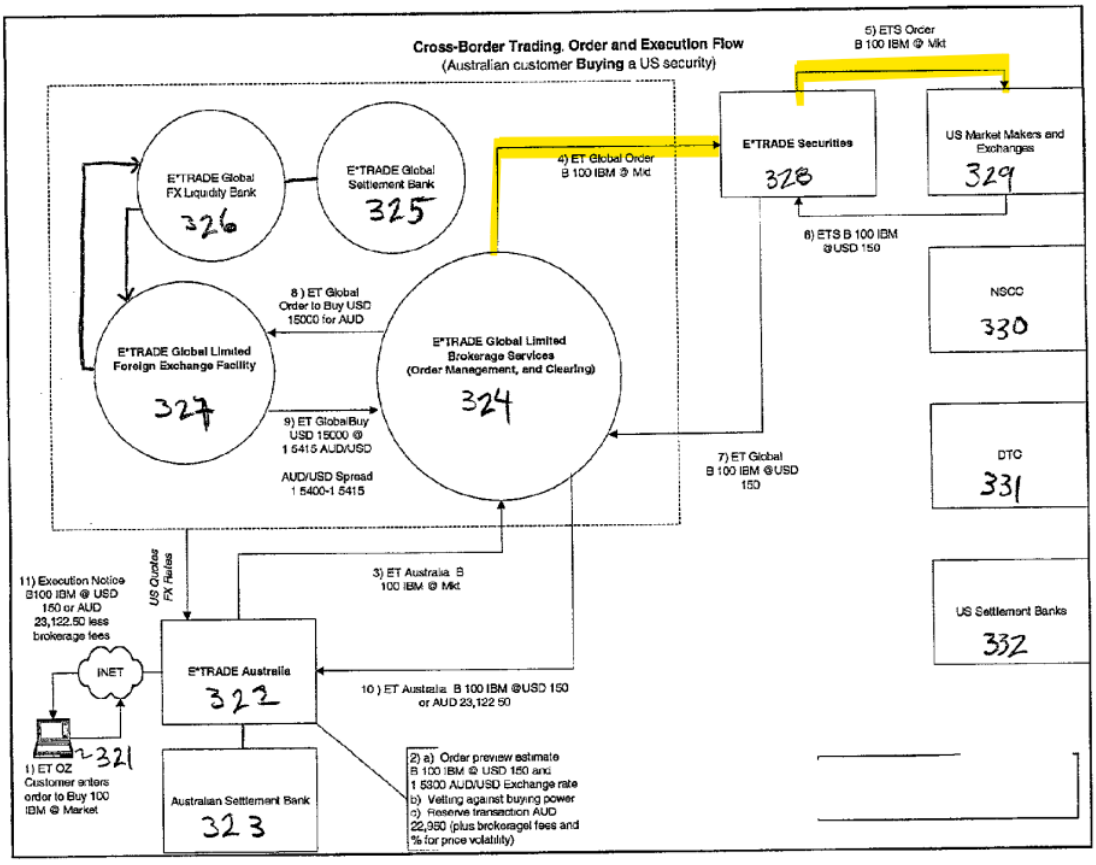
97. To the extent *Calo* does not expressly describe the Foreign Exchange Facility and the U.S. Market Makers and Exchanges as "server[s]," it is my opinion that a POSITA would have found it obvious to implement them using servers because *Calo* contemplates its system "being implemented [] on a system of computers or electronics with associated hardware" and further mentions using "Web Server[s]" to support its system. EX1005, [0028], [0052].

98. For example, the Global Brokerage Service is configured to couple to other entities through electronic connections, as *Calo* describes orders being "transmitted electronically," evidencing a networked infrastructure. EX1005, [0008], [0051], Claims 31, 44. As evidenced in Figure 3A below, it is my opinion that a POSITA would have further understood that the Foreign Exchange Facility is electronically and functionally coupled to the trading server over a network, as exchange rates are "distributed throughout the global network and to the end user," using real-time data communication between the exchange rate source and the trading infrastructure. EX1005, [0061], Fig. 3A.



EX1005, Fig. 3A (annotating the connection between the Foreign Exchange Facility and the Brokerage Service).

99. Similarly, once an order is placed, "E*TRADE Australia transmits the order" to the Brokerage Service which then "transmits the order to E*TRADE Securities (ETS), the U.S. local affiliate [and] places an order with an exchange member such as a U.S. market maker in a U.S. exchange." EX1005, [0030].



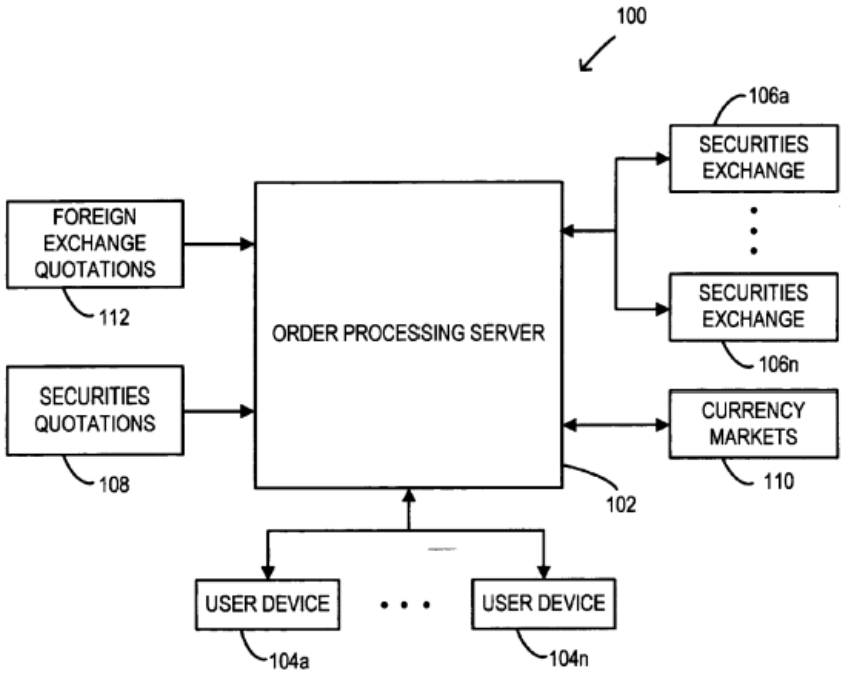
EX1005, Fig. 3A (annotating the connection between the Brokerage Service and Market Exchange).

100. Limitation 1[b] merely recites that the trading server be "configured to couple to at least one currency exchange server and at least one market exchange server" and does not preclude intermediaries (*e.g.*, *Calo*'s E*TRADE Securities 328). Regardless, it would have been obvious to couple *Calo*'s GBS to the Foreign Exchange Facility and U.S. Market Makers and Exchanges without intermediaries. As I discussed above for 1[a], the arrangement is one of a finite number of identified,

predictable solutions (coupling with or without an intermediary). *See* Section VII.C.2(ii). Second, it is my opinion that such an arrangement would have been obvious in view of *Rude*. *Id.*

101. *Rude* discloses a "trading system 100 [which] includes a number of different components which cooperatively operate to process foreign securities trading orders and related foreign exchange transactions." EX1006, [0020]. *Rude* discloses that "order processing server 102 is [] in communication with one or more currency (foreign exchange) markets 110, and one or more sources 112 of foreign exchange price quotations." EX1006, [0021]. *Rude* also discloses that "order processing server 102 [is] in communication with . . . a plurality of securities exchanges 106, and a source or sources 108 of current securities price quotations." EX1006, [0021].

102. As shown in Figure 1, reproduced below, *Rude*'s order processing server 102 (*i.e.*, trading server) is coupled to a currency market 110 (*i.e.*, currency exchange server) and to securities exchanges 106 (*i.e.*, market exchange server) without an intermediary.



EX1006, Fig. 1.

103. As discussed for limitation 1[a], *Calo*'s system is "implemented primarily on a system of computers or electronics with associated hardware" and further uses servers (*e.g.*, "Web Server[s]") in its platform, which discloses or renders obvious servers. EX1005, [0028], [0052]; *supra* §VII.A.2(ii). To the extent *Calo* is found not to expressly disclose that the Foreign Exchange Facility and market exchanges are servers, it would have been obvious to implement them as servers in *Calo*'s "system of computers or electronics with associated hardware" for

the reasons that I have discussed above for the trading server. EX1005, [0025]; *see* Section VII.C.2(ii); *see also* EX1017, 6-9.

(iv) 1[c]: the trading server is further configured to calculate costs and fees in the first currency to own or sell the asset being traded in a second currency,

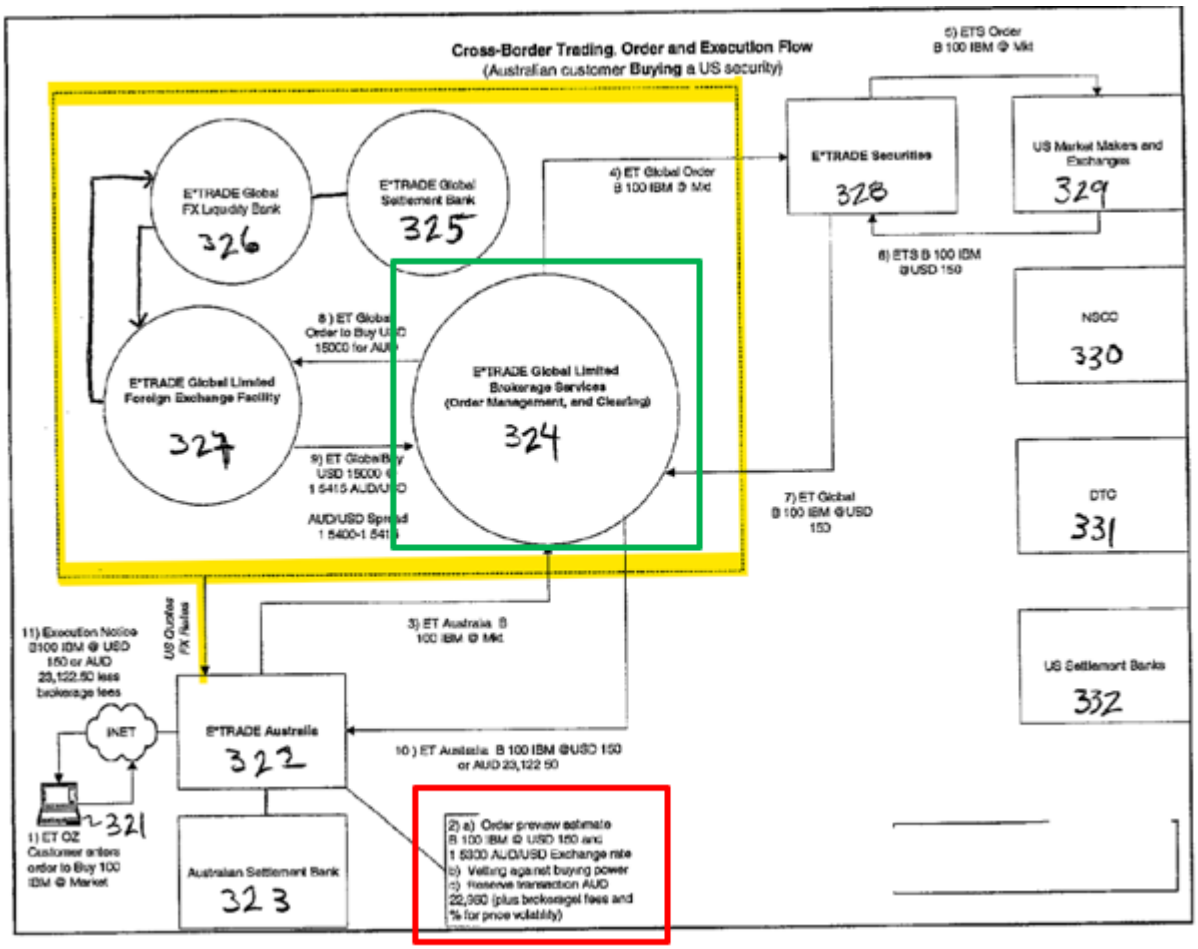
104. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious "the trading server is further configured to calculate costs and fees in the first currency to own or sell the asset being traded in a second currency."

105. *Calo* describes that, prior to executing a trade ("such as to buy or sell a security"), an Australian customer receives "a preview price on a real-time basis for a U.S. equity (such as an individual stock or mutual fund share)." EX1005, [0030]. While "[a] customer normally is expected to place orders based on the currency of the target market in which the security trades" (*i.e.*, USD), *Calo* also discloses providing "[a] price in the native currency" (*i.e.*, Australian Dollars (AUD)). EX1005, [0030].

106. Once the customer places an order based on these cost estimates, but before the trade is executed, *Calo*'s system provides a preview of the order. EX1005, [0030]. This second preview reflects multiple components, including "the current U.S. ask price, the Australian dollar (AUD) equivalent based on the current ask price for USD based on the US principal amount, [and] the estimated commissions and

fees for a cross-border trade." EX1005, [0030], Fig. 3A. *Calo* also teaches calculating and displaying costs and fees before an order is placed by providing a customer "a preview of the order" that includes the principal amount in USD based on the current US bid price, the AUD equivalent, and "estimated commissions and fees" based upon which a customer decides whether to place an order. EX1005, [0038].

107. As demonstrated in Figure 3A, *Calo* discloses that "[i]n any case, the estimated prices are computed automatically through, by, or with information obtained through" the Global Brokerage Service. *Id.*



EX1005, Fig. 3 (showing that the order preview (annotated red) is based off "U.S. Quotes and FX Rates" derived at least in part from the Brokerage Service (*i.e.*, trading server) (annotated green)).

108. Based on these disclosures in *Calo*, it is my opinion that a POSITA would have understood that *Calo*'s Global Brokerage Service (*i.e.*, trading server) calculates the relevant costs and fees in the user's native currency, which corresponds to the claimed "first" currency (*e.g.*, AUD) for a trade involving an asset

priced in a "second" currency (*e.g.*, USD) to generate the preview prices. It is my opinion that a POSITA would have understood that this includes not only foreign exchange conversions, but also integrating commissions and fees into the native currency view. EX1005, [0030], [0038].

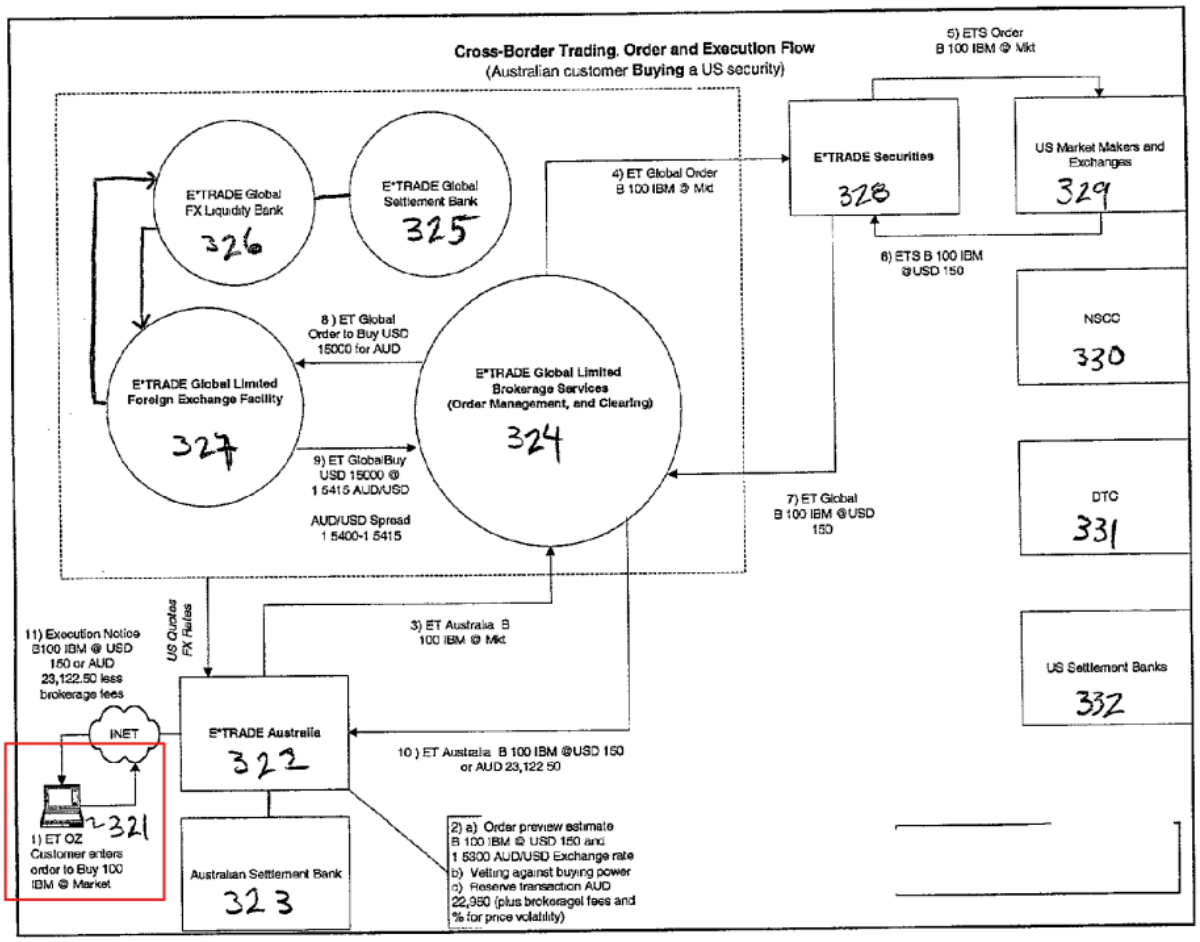
109. Additionally, and alternatively, it would have been obvious to calculate costs and fees in the first currency in view of *Rude*, which discloses that its "order processing server" (a trading server) "determines a net settlement amount for the transaction, ***which may reflect settlement fees, commissions, etc.*** as well as the amount payable for or realized from the transaction."[7] EX1006, [0053]. Like *Calo*, *Rude*'s system displays the net settlement "in the user's operating currency (instead of the local currency in which the security trades)." *Id.*, [0056]. Thus, the proposed *Calo-Rude-Sellberg* combination discloses or at least renders obvious a trading server configured to calculate costs and fees in the first currency to own or sell the asset being traded in a second currency as recited in limitation 1[c].

[7] All emphases are added unless otherwise noted.

(v) 1[d]: the costs and fees are caused to be displayed on a display device of the client machine and are dynamically changed in accordance with a first prevailing exchange rate between the first currency and the second currency, and even when a market value of the asset remains unchanged,

110. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious that "the costs and fees are caused to be displayed on a display device of the client machine and are dynamically changed in accordance with a first prevailing exchange rate between the first currency and the second currency, and even when a market value of the asset remains unchanged."

111. *Calo* discloses that a "customer advantageously accesses the system through an electronic connection, such as with a computer." EX1005, [0027]. The customer's computer, annotated in Figure 3A below, includes a "display device" (*e.g.*, the computer's monitor).



EX1005, Fig. 3A (annotated).

112. Figure 3B illustrates a cross-border trading and execution flow (*e.g.*, for an Australian customer buying a U.S. security). EX1005, [0029].

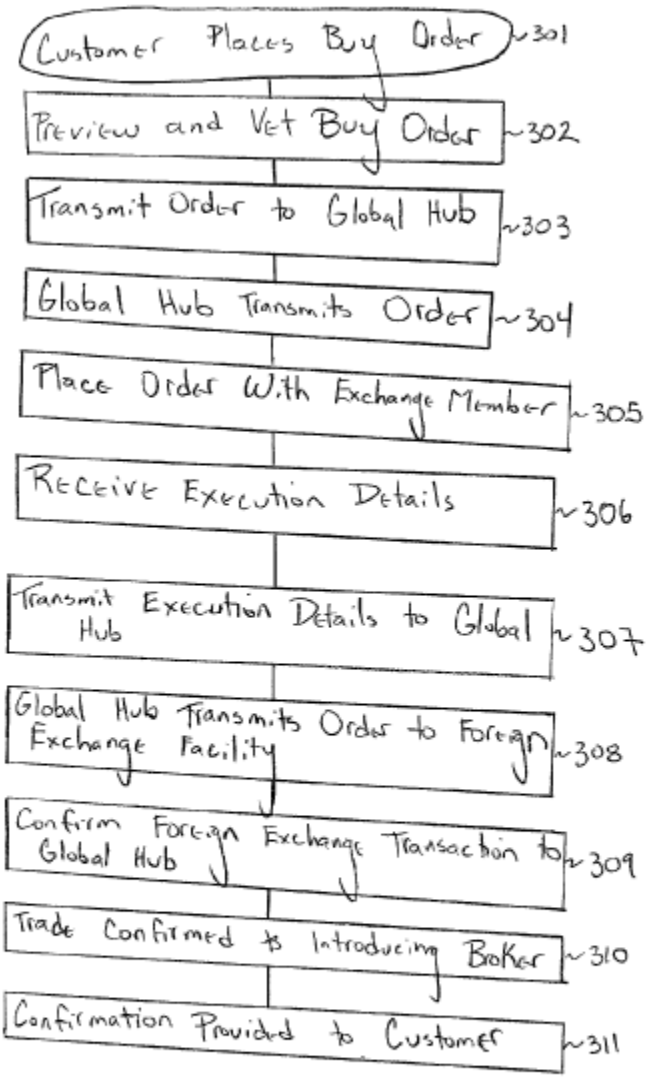


FIGURE 3B

EX1005, Fig. 3B.

113. *Calo* discloses that, prior to placing an order (step 301), the customer receives "***a preview price on a real-time basis***" to buy or sell a U.S. equity. EX1005, [0030]. *Calo* discloses that "[a] price in the native currency may also be provided,

with this price being based on ***both*** the ***real-time*** quote for price on the U.S. equity, as well as a ***real-time*** conversion from the foreign exchange rates." *Id. Calo* further discloses a Foreign Exchange Facility that "provide[s] ***round-the-clock access to realtime currency exchange rates*** which can be distributed throughout the global network and to the end user to preview a securities trade . . . or simply as quotes." EX1005, [0061]. As discussed for limitation 1[c], *Calo* also teaches providing the customer with estimated commissions and fees before an order is placed. EX1005, [0038]. It is my opinion that a POSITA would have understood that the preview prices and fees provided to the user are displayed on the display device of the user's computer.

114. Because the preview prices and fees are provided on a "real-time basis" and are based on a "real-time" (*i.e.*, current) currency exchange rate from the Foreign Exchange Facility (which corresponds to a first selected current currency exchange rate), it is my opinion that a POSITA would have understood that *Calo*'s real-time preview prices and fees dynamically change in accordance with a first prevailing exchange rate between the first currency and the second currency. *See* EX1005, [0030]; EX1016, 476, 479-86, 496; EX1019, 6; EX1020. This is true even when a market value of the asset remains unchanged, because the preview price in the native currency is based on both the real-time quote for price on the U.S. equity and a ***real-***

time conversion from the foreign exchange rates. Thus, the preview prices and fees provided on a "real-time basis" would dynamically change based on changes in the foreign exchange rate even when the real-time quote for price on the U.S. equity stays the same. In other words, because *Calo*'s preview prices are also based on a real-time quote for the U.S. equity, it is my opinion that a POSITA would have understood that the preview prices and fees dynamically change even if the asset's market value remains constant (for example, due to changes in the first prevailing exchange rate).

115. Limitation 1[d] does not recite displaying the costs and fees separately. The only place the '701 Patent's specification uses the phrase "costs and fees" is in the context of displaying a "total cost including all the costs and fees." *See* EX1001, 6:37-39 ("The investor is able to view and make purchase or sale decisions based on the combined price, which contains both the asset price and the currency price."); *see also id.*, 5:54-59 ("various costs of [an] item are displayed . . . [which] include, but may not be limited to, a current market cost of the item to own or to sell, a transaction cost, and a total cost including all the costs and fees"). It is my opinion that a POSITA would have understood from *Calo*'s description of providing preview prices (separately in both local and native currencies) and previews of orders that *Calo* contemplates itemizing costs and fees for the benefit of the trader. EX1005,

[0030], [0038]. However, even if the prices were displayed as a total cost, this would still satisfy the claim limitation because a POSITA would have understood that both are included in the preview price shown to the user prior to placing the order. EX1005, [0030]. Thus, *Calo*'s disclosure related to its previews (*e.g.*, the real-time price in the native currency and associated fees) discloses "the costs and fees are caused to be displayed on a display device of the client machine and are dynamically changed in accordance with a first prevailing exchange rate between the first currency and the second currency, and even when a market value of the asset remains unchanged" as claimed in limitation 1[d].

116. Moreover, it is my opinion that it would have been obvious to a POSITA to itemize the costs and fees in displaying *Calo*'s preview price. *Calo* already distinguishes between the asset cost and affiliate fees (EX1005, [0030]), providing the underlying data needed for itemization. Furthermore, it would have been obvious to a POSITA to display fees with the preview price in the native currency and dynamically update the costs and fees based on changes in the foreign exchange rate and/or asset price. *Calo* already calculates "the estimated commissions and fees for a cross-border trade" to provide the order preview (which *Calo* teaches can be provided either before or after an order is placed. *Id.*, [0030], [0035]; *see also* EX1005, Fig. 3B. A POSITA would have been motivated, and

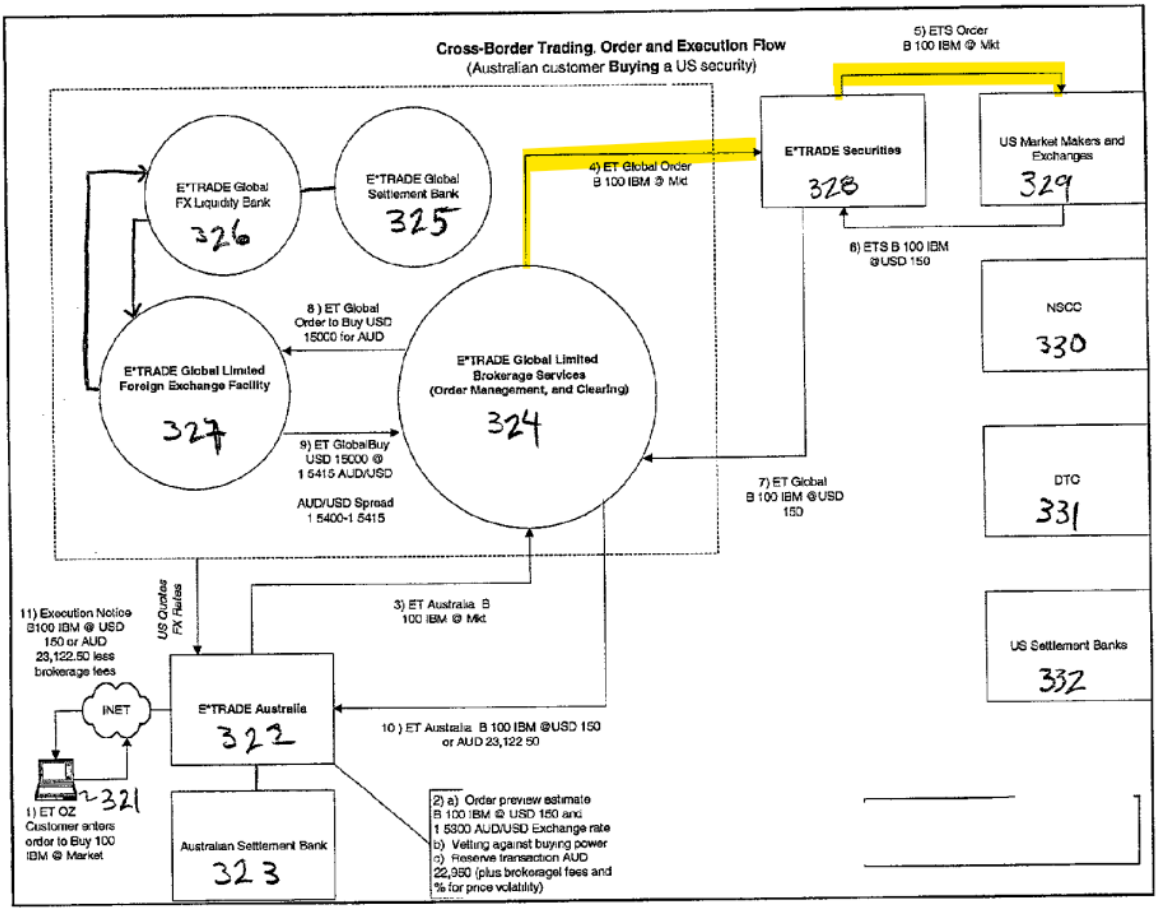
found it obvious, to display estimated commissions and fees with the preview price in the native currency provided to the customer before a buy order is placed. A POSITA would have had reason to preview the estimated commissions and fees given *Calo*'s recognition that this information influences investor's decisions to buy or sell assets. EX1005, [0006] (describing how commissions and costs of buying and selling stocks influences investor behavior); *see also id.*, [0061] (providing "round the clock access to realtime currency exchange rates" and distributing them "to the end user to preview a securities trade"). Doing so would have furthered *Calo*'s goal of offering a "real-time system" that increases transparency and reduces "risks from price movement for both the customer and the party executing the trade." *Id.*, [0028]. Displaying fees with the preview price in the native currency would have required only routine interface programming, and a POSITA would have had a reasonable expectation of success given that *Calo* already teaches calculating commissions and fees and displaying this information prior to placing an order. *Id.*, [0030], [0038].

(vi) 1[e]: and wherein the trading server is configured to conduct a transaction of the asset by transporting a transaction request to the market exchange server upon receiving an order from the trader,

117. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious "wherein the trading server is configured to conduct a transaction of the

asset by transporting a transaction request to the market exchange server upon receiving an order from the trader."

118. In response to receiving the trader's order (EX1005, Fig. 3B, step 301), *Calo* discloses that "[a]t step 304, E*TRADE Global [Brokerage Services] transmits the order to E*TRADE Securities (ETS), the U.S. local affiliate." EX1005, [0030], Fig. 3B. Then, "[a]t step 305, ETS places an order with an exchange member such as a U.S. market maker in a U.S. exchange, who then executes the trade" of the asset. *Id.*



EX1005, Fig. 3A (annotating the order route).

119. *Calo* discloses that the U.S. exchanges in this context may include "the New York stock exchange (NYSE), with others being the NASDAQ and the AMEX stock exchanges." EX1005, [0030]. It is my opinion that a POSITA would have understood from *Calo*'s disclosure that upon receiving an order from a trader, the Global Brokerage Service (trading server) conducts the transaction of the asset by transporting the transaction request to the appropriate market exchange server (*e.g.*, NYSE, NASDAQ, or AMEX) for execution. ETS functions purely as a pass-through intermediary and does not interfere with the GBS's role in transporting the transaction request or conducting the transaction.

(vii) 1[f]: and reach a settlement based on a second prevailing exchange rate as soon as the transaction of the asset is performed in accordance with conditions set by the trader,

120. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious "reach[ing] a settlement based on a second prevailing exchange rate as soon as the transaction of the asset is performed in accordance with conditions set by the trader."

121. *Calo* discloses that prior to placing an order, the trader receives a preview price which is "a cost estimate based on the real-time quotes for the security" that is presented "on a real-time basis for a U.S. equity" as well as a "[a]

price in the native currency . . . with this price being based on both the real-time quote for price on the U.S. equity, as well as a real-time conversion from the foreign exchange rates." EX1005, [0030]. Once the order is placed (step 301), a preview of the order is generated (step 302), reflecting "the current U.S. ask price, the Australian dollar (AUD) equivalent based on the current ask price for USD based on the USD principal amount," estimated commissions and fees, and a reserve buffer for exchange rate fluctuations. EX1005, [0030]. The order is then routed and executed on the appropriate market exchange (*e.g.*, 100 U.S. shares of IBM stock on the NYSE). EX1005, steps 303–306. *Calo* explains that "[p]referably immediately after the equity order is executed and reported," the Global Brokerage Service initiates a foreign exchange transaction to convert Australian dollars into U.S. dollars. EX1005, [0030], at step 307. At step 310, the Global Brokerage Service sends the user a trade confirmation that includes both the USD execution price and the "locked-in AUD value" of the trade. *Id.*

122. It is my opinion that a POSITA would have understood that this "locked-in AUD value" is the amount of Australian dollars required to settle the trade, calculated based on a prevailing exchange rate in effect at the time of the foreign exchange transaction. EX1005, [0030]. The locked-in value is the result of applying a prevailing exchange rate at settlement, which a POSITA would have

understood is different from the real-time rate used to provide the preview price in the native currency prior to placing the order (*e.g.*, due to fluctuations in the currency exchange rates). That prevailing rate used to determine the final locked-in AUD value corresponds to the claimed "second prevailing exchange rate." Because the foreign exchange transaction is executed "immediately after the equity order is executed," in my opinion *Calo* discloses or at least renders obvious reaching a settlement "as soon as the transaction of the asset is performed" as claimed.

123. *Calo* discloses or at least renders obvious performing the transaction in accordance with conditions set by the trader, because *Calo* discloses that customers place orders subject to conditions including a specific number of shares of a given stock (*e.g.*, "100 shares of IBM stock at the market price") and because customers place limit orders, which "guarantee[] that an equity will be bought or sold only at a specific price." EX1005, [0030], [0070]. This aligns with the '701 Patent's disclosure that "orders with conditions (*e.g.*, ***a limit order***, or a stop order) are only executed when the conditions are met with reference to the market price from the market exchange together with the currency exchange rate from the currency exchange." EX1001, 4:45-49. It is my opinion that a POSITA would have understood that when a customer places an order in one currency to trade an asset priced in another currency, limit order execution accounts for *both* the equity price

and the exchange rate because the effective cost to the customer in their local currency depends on the combination of the market price and the prevailing exchange rate. EX1016, 470; EX1017, 45-46. For example, *Calo* teaches one "means to reduce risk from limit orders is marking-to-the-market all open limit orders on a regular basis," which is a well-known practice of valuing assets or liabilities based on their current market value or exchange rates. EX1005, [0070]; *see also* EX1016, 470; EX1017, 45-46.

(viii) 1[g]: and wherein the second prevailing exchange rate is calculated from the at least one currency exchange server right before the transaction takes place,

124. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious "wherein the second prevailing exchange rate is calculated from the at least one currency exchange server right before the transaction takes place." As I discussed above for limitation 1[f], the *Calo-Rude-Sellberg* combination teaches a "locked-in AUD value" that a person of ordinary skill in the art would have understood is the result of applying a second prevailing exchange rate calculated right before the transaction takes place. *See* Section VII.C.(vii); EX1005, [0030].

125. *Calo* discloses that prior to placing an order, the customer receives a preview price that reflects "a cost estimate based on the real-time quotes for the security" including "a preview price on a real-time basis for a U.S. equity (such as

an individual stock or mutual fund share)" and a "price in the native currency" that is "based on both the real-time quote for price on the U.S. equity, as well as a real-time conversion from the foreign exchange rates." EX1005, [0030]. The preview price in the native currency reflects a first prevailing exchange rate used for cost estimation. Once the asset transaction takes place, the Global Brokerage Service initiates a foreign exchange transaction to convert Australian dollars into U.S. dollars. EX1005, [0030], at step 307. At step 310, the Global Brokerage sends the user a trade confirmation that includes both the USD execution price and the "locked-in AUD value" of the trade. *Id.*, [0030] at step 310. It is my opinion that a POSITA would have understood that this "locked-in AUD value" reflects the amount of Australian dollars required to settle the trade, calculated using an exchange rate in effect at the time of the foreign exchange transaction. Further, a POSITA would have understood the locked-in value is the result of applying a prevailing exchange rate calculated at or near the time of settlement, which is distinct from the earlier rate used to estimate the preview price. That prevailing rate used to determine the final locked-in AUD value corresponds to the claimed "second prevailing exchange rate."

126. The '701 Patent's specification does not describe any process for calculating the second prevailing rate from the at least one currency exchange server.

Rather, the ’701 Patent describes receiving or obtaining a rate from server data. EX1001, 3:30–34 (disclosing “receiving a prevailing currency exchange rate from the currency exchange server”). Similarly, *Calo*’s currency exchange rates are sourced from the Foreign Exchange Facility (*i.e.*, the currency exchange server). EX1005, [0061].[8] Accordingly, *Calo* discloses the second prevailing exchange rate is calculated from the at least one currency exchange server in the same manner as in the ’701 Patent.

127. Additionally, and alternatively, it is my opinion that it would have been obvious to a POSITA in view of *Sellberg* to configure *Calo*’s system to calculate the rate right before the transaction takes place in order to ensure rate accuracy and minimize customer exposure to currency fluctuations. *Calo* emphasizes real-time pricing and discloses that the AUD value is locked in “[p]referably immediately after

[8] *Calo*’s sourcing of exchange rates is consistent with the Patent Owner’s position that limitation 1[g] is met by using a rate provided by a currency exchange server, without requiring additional computation as reflected in its infringement contentions in the related district court litigation. *See* EX1015, 29. In this context, “calculating” the second prevailing exchange rate is no different from sourcing or securing a rate supplied.

the equity order is executed" (EX1005, [0030]). *Sellberg* describes an automated system that receives exchange rate updates "repeatedly and automatically" from a currency market—sometimes several times per second—and performs currency conversion using the "last received updated exchange rate" at the time of trade execution. EX1007, [0024], [0025], [0027]. It is my opinion that a POSITA would have understood that this rate, sourced from the currency market (currency exchange server), is calculated right before the transaction of the asset took place. EX1007, [0024]-[0025]. A POSITA would have been motivated to combine *Sellberg*'s teachings with *Calo*, and had an expectation of success, including to ensure that the most current exchange rate is used at the time of settlement, as I discussed in the motivation to combine section above. *See* VII.C.1.

(ix) 1[h]: executed costs and fees in the settlement per the second prevailing exchange rate are not identical to the displayed costs and fees with the first prevailing exchange before the transaction of the asset took place.

128. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious that the "executed costs and fees in the settlement per the second prevailing exchange rate are not identical to the displayed costs and fees with the first prevailing exchange before the transaction of the asset took place." As I discussed for limitations 1[d] and 1[f], the *Calo-Rude-Sellberg* combination renders obvious displaying costs and fees in the native currency before the order is placed, where the

displayed costs and fees are based on a real-time current currency exchange rate (first prevailing exchange rate). *See* Sections VII.C.2(v), VII.C.2(vii); EX1005, [0030]. The combination also teaches a "locked-in AUD value" that is the result of applying a second prevailing exchange rate calculated right before the transaction takes place. *Id.* Prior to executing a transaction, *Calo* discloses vetting "the estimated commissions and fees for a cross-border trade" and setting aside a reserve to "allow for fluctuations in both the US equity and USD/AUD currency market." *Id.*

129. As discussed for limitations 1[d] and 1[f], the *Calo-Rude-Sellberg* combination renders obvious displaying costs and fees in the native currency before the order is placed, where the displayed costs and fees are based on a real-time current currency exchange rate (first prevailing exchange rate). *See* Section VII.C.2(v) and VII.C.2(vii). The combination also teaches a "locked-in AUD value" that is the result of applying a second prevailing exchange rate calculated right before the transaction takes place. EX1005, [0030]; *see also* VII.C.2(v), VII.C.2(viii). Prior to executing a transaction, *Calo* discloses vetting "the estimated commissions and fees for a cross-border trade" and setting aside a reserve to "allow for fluctuations in both the US equity and USD/AUD currency market." *Id.*

130. It is my opinion that a POSITA would have understood that the exchange rate used to calculate the preview price in the native currency (first

prevailing exchange rate), and the locked-in rate used at settlement (second prevailing exchange rate) are not identical due to fluctuations in exchange rates, and that the cost of the asset may not be identical due to fluctuations in the equity market. EX1005, [0030], [0070] (describing "exchange rate volatility"). At the time of *Calo*'s publication, costs and fees would quite likely have varied in part as a percentage of the value of the securities and currency transactions. That is, fees, and in particular trading commissions, would have varied in proportion to the changes in the prices of both the securities and currencies. These would also not necessarily have moved in relationship to each other. As a result, the costs and fees for the securities trade could have increased, while the costs and fees for the currencies trade decreased, depending upon price movements. As a result, *Calo*'s executed costs and fees (*e.g.*, commissions and fees) in settlement would not be identical to the initial cost and fees provided as estimates before the transaction took place. EX1005, [0030], [0028]. This distinction is underscored by *Calo*'s real-time architecture and reserve mechanism, which are expressly designed to account for differences caused by exchange rate movement.

3. Claim 3: The platform as recited in claim 1, wherein the first prevailing exchange rate and the second prevailing exchange rate are different.

131. The *Calo-Rude-Sellberg* combination discloses "[t]he platform as recited in claim 1, wherein the first prevailing exchange rate and the second prevailing exchange rate are different."

132. *Calo* discloses a preview price in the native currency estimated prior to order placement (based on a first prevailing exchange rate) and a "locked-in AUD value" used to execute a foreign exchange order "immediately after the equity order is executed" (based on a second prevailing exchange rate). EX1005, [0030]; *see* VII.C.2(viii). It is my opinion that a POSITA would have understood that the two prevailing exchange rates—one used for estimation and the other for execution—would be different due to normal volatility in the currency markets. Indeed, *Calo* also explains that a reserve is maintained to "***allow for fluctuations in*** both the US equity and ***USD/AUD currency market***." EX1005, [0030]. The need for such a reserve reinforces that the preview exchange rate and the execution exchange rate differ, for example due to market volatility.

4. Claim 4: The platform as recited in claim 3, wherein the first prevailing exchange rate and the second prevailing exchange rate are automatically calculated in different times by the trading server from a network including the at least one currency exchange server.

133. The *Calo-Rude-Sellberg* combination discloses "[t]he platform as recited in claim 3, wherein the first prevailing exchange rate and the second

prevailing exchange rate are automatically calculated in different times by the trading server from a network including the at least one currency exchange server."

134. *Calo* discloses a preview cost estimate generated prior to order placement (based on a first prevailing exchange rate) and a "locked-in AUD value" used to execute a foreign exchange order "immediately after the equity order is executed" (based on a second prevailing exchange rate). EX1005, [0030]; *see* Section VII.C.2(viii). It is my opinion that a POSITA would have understood that the rate used for the estimated price is generated before the transaction, while the rate used for the "locked-in AUD value" is determined closer to when the equity order is executed, indicating that the first and second prevailing exchange rates are calculated at different times. EX1005, [0030].

135. *Calo* further explains that "the estimated prices are ***computed automatically***" by the Global Brokerage Service based on "both the real-time quote for price on the U.S. equity, as well as a ***real-time conversion from the foreign exchange rates***" provided by the Foreign Exchange Facility (currency exchange server) over *Calo*'s "global network." EX1005, [0030]. *Calo* also discloses that the Global Brokerage Service (*i.e.*, trading server) derives these exchange rates from a Foreign Exchange Facility (*i.e.*, currency exchange server) "which can be distributed throughout the global network and to the end user." EX1005, [0027],

[0061]. Accordingly, it is my opinion that a POSITA would have understood that *Calo*'s exchange rates are automatically calculated in different times by the trading server over *Calo*'s "global network." Additionally, *Sellberg* teaches receiving "an updated exchange rate" repeatedly and automatically (*e.g.*, "several times a second"). EX1007, [0024].

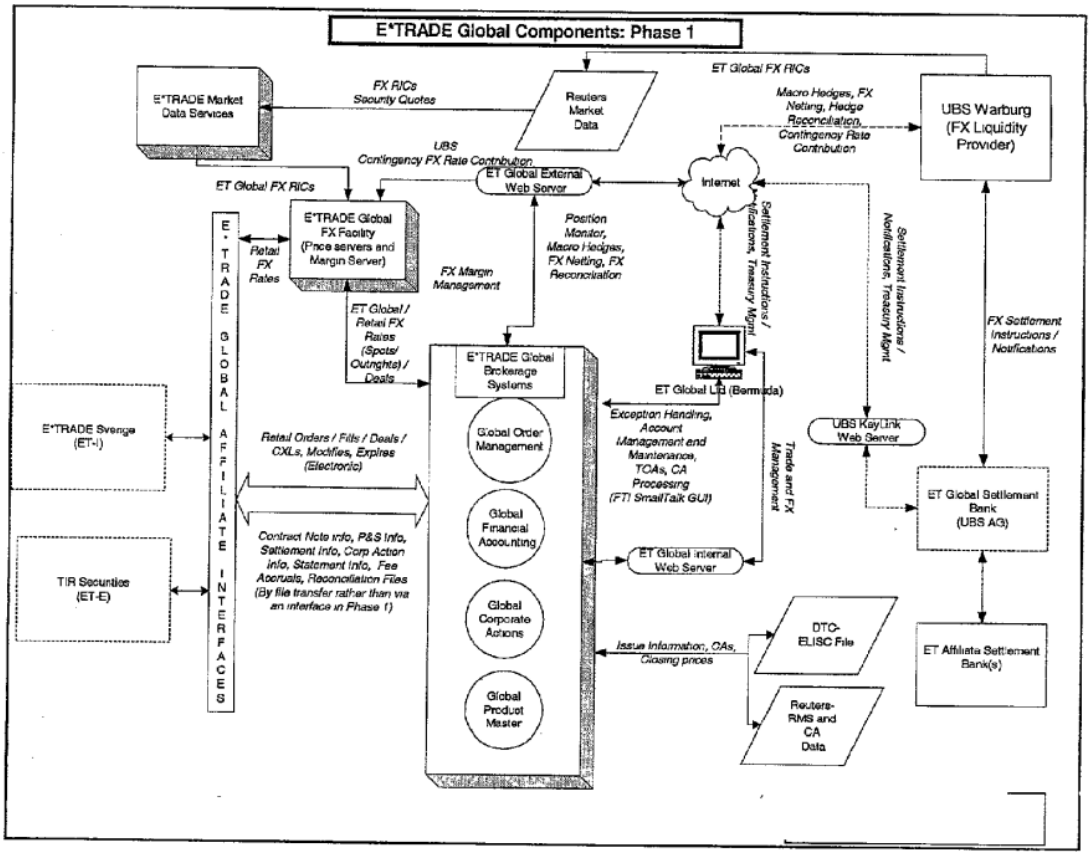
5. Claim 6

(i) 6[a]: The platform as recited in claim 1, wherein the trading server is caused to be coupled to the client machine, and configured to couple to the at least one currency exchange server and the at least one market exchange server via a network,

136. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious "[t]he platform as recited in claim 1, wherein the trading server is caused to be coupled to the client machine, and configured to couple to the at least one currency exchange server and the at least one market exchange server via a network."

137. *Calo* in view of *Rude* discloses or at least renders obvious a trading server coupled to a client machine, at least one currency exchange server, and at least one market exchange server via a network. *See* Sections VII.C.2(ii), VII.C.2(iii).

138. *Calo* discloses said coupling over a network. *Calo* discloses implementing its "system of computers" on a network, such as on the "exemplary computer ***network***," as illustrated in Figure 10.



EX1005, Fig. 10, [0021], [0028]; *see also id.*, Fig. 2, [0003] ("a globalized trading network"), [0013].

(ii) 6[b]: the trading server is configured to further: calculate automatically the second prevailing exchange rate from the network to ensure that the transaction only happens when the conditions are met with the second prevailing exchange rate.

139. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious "the trading server is configured to further: calculate automatically the second prevailing exchange rate from the network to ensure that the transaction only happens when the conditions are met with the second prevailing exchange rate."

140. *Calo* discloses or at least renders obvious the trading server configured to calculate automatically the second prevailing exchange rate from the network. *See* Section VII.C.4. In my opinion, a POSITA would have understood that the "network including the at least one currency exchange server" recited in claim 4 is the same network referenced in claim 6[b], as both limitations involve the Global Brokerage Service (trading server) automatically calculating exchange rates using real-time foreign exchange data from a Foreign Exchange Facility "distributed throughout the global ***network***." EX1005, [0027], [0030], [0061]. *Calo* also discloses that the transaction is performed in accordance with conditions set by a trader (*e.g*, a limit order) as I discuss above. *See* Section VII.C.2(viii).

141. *Calo* further discloses that customers place limit orders, which "guarantee[] that an equity will be bought or sold only at a specific price," meaning the trading server evaluates whether the market price satisfies the specified conditions before executing the transaction. EX1005, [0070].

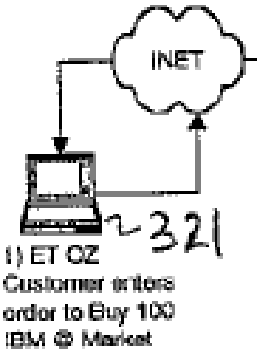
142. Given that *Calo*'s Global Brokerage Service relies on real-time, automatically computed pricing that includes current exchange rate data, and that execution is contingent on meeting predefined pricing conditions (*e.g.*, a limit order), it is my opinion that a POSITA would have understood that the trading server automatically calculates the second prevailing exchange rate from the network to ensure the transaction only happens when the conditions are met with the second prevailing exchange rate. *Sellberg* specifically teaches automatically calculating the exchange rate. EX1007, [0024] (describing "repeatedly and automatically" an updated exchange rate "up to several times a second").

6. Claim 7: The platform as recited in claim 1, wherein the client machine is a desktop, a laptop, a server computer, a handheld wireless device, or a mobile phone.

143. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious "[t]he platform as recited in claim 1, wherein the client machine is a desktop, a laptop, a server computer, a handheld wireless device, or a mobile phone."

144. *Calo* discloses that the trading platform is implemented on "***a system of computers or electronics*** with associated hardware." EX1005, [0028]. It also discloses that "the customer [may] advantageously access[] the system through an electronic connection, such as ***with a computer***." *Id.*, [0027]. It is my opinion that

this discloses or at least renders obvious the claimed desktop and laptop computer as shown in Figure 3A below.



EX1005, Fig. 3A (excerpted).

7. Claim 8

(i) 8[p]: A platform for trading an asset, the platform comprising:

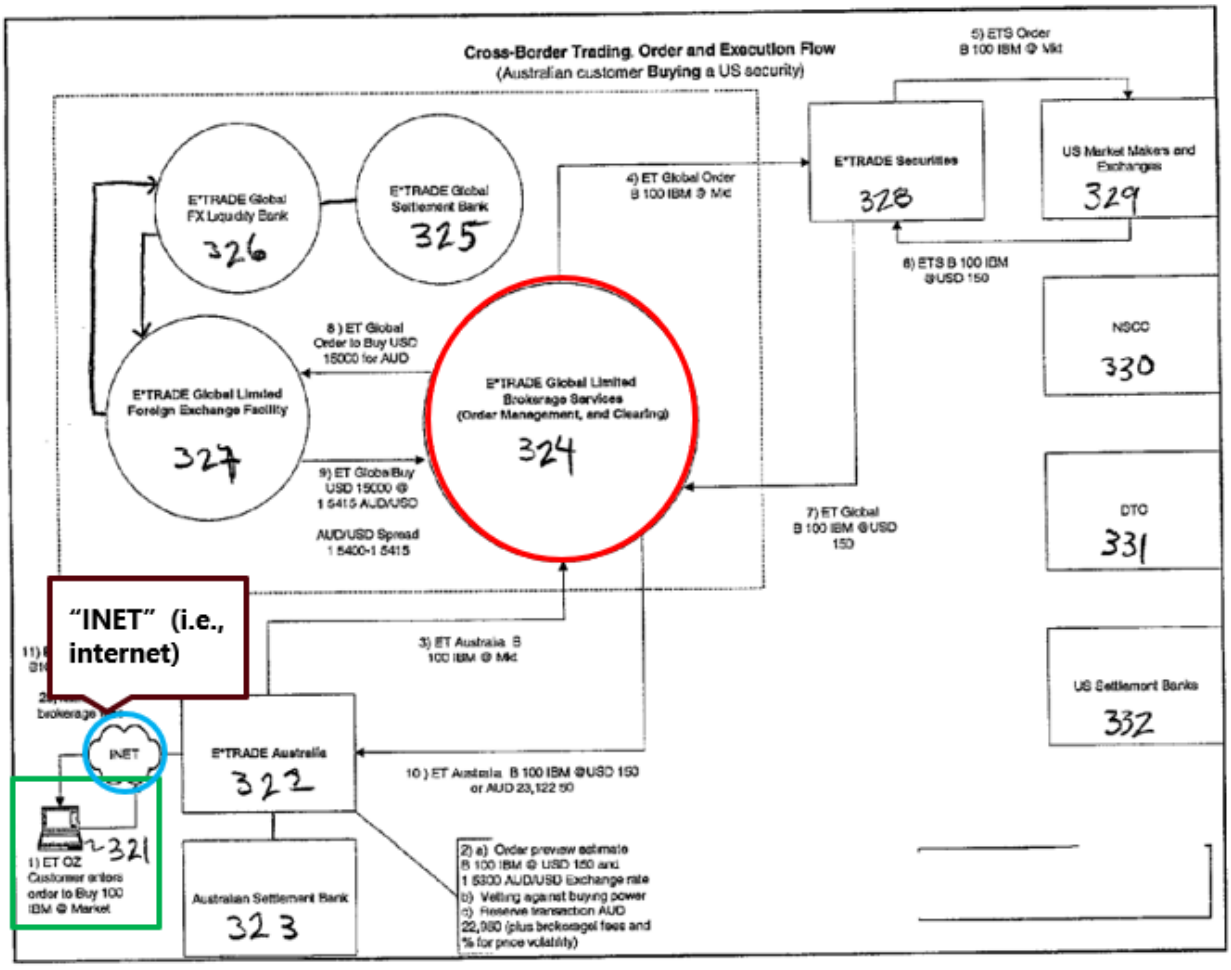
145. To the extent the preamble is limiting, in my opinion the *Calo-Rude-Sellberg* combination discloses "[a] platform for trading an asset." *See* Section VII.C.2(i).

(ii) 8[a]: a client machine associated with a user, coupled to a trading server via the Internet, executing a software product to send an indicator of a first currency to the trading server,

146. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious "a client machine associated with a user, coupled to a trading server via the Internet, executing a software product to send an indicator of a first currency to the trading server."

147. *Calo* in view of *Rude* discloses or at least renders obvious a trading server, coupled to a client machine associated with a user, receiving an indicator of first currency for the same reasons that I discussed above with respect to Claim 1. *See* Section VII.C.2(ii).

148. *Calo*'s client machine is coupled to the trading server via the Internet. As illustrated by Figure 3A below, *Calo* discloses that a client machine associated with a user (illustrated by laptop in annotated green square) couples to the Global Brokerage Service 324 (trading server, annotated red circle) via the internet (annotated blue circle).



EX1005, Fig. 3A (annotated).

149. *Calo* further discloses that customers may place orders "***over the internet***." EX1005, [0030]; *see also* EX1006, [0028] (*Rude*'s devices communicate over "the Internet"). *Calo* further discloses that all E*TRADE Global entities "can be integrated into a single computer system platform ***linked by common software***." EX1005, [0051].

150. Additionally, the combination teaches executing a software product to send an indicator of a first currency to the trading server. *Rude*'s functionality for sending an indicator of a first currency to the trading server is achieved by executing a software product. *See* EX1006, [0026], [0037], [0043].

(iii) 8[b]: wherein the trading server is configured to couple to at least one currency exchange server and at least one market exchange server and

151. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious "wherein the trading server is configured to couple to at least one currency exchange server and at least one market exchange server" for the same reasons that I discussed above with respect to Claim 1. *See* Section VII.C.2(iii).

(iv) 8[c]: configured to calculate costs and fees in the first currency to own or sell the asset being traded in second currency,

152. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious the trading server "configured to calculate costs and fees in the first currency to own or sell the asset being traded in second currency" for the same reasons that I discussed above with respect to Claim 1. *See* Section VII.C.2(iv).

(v) 8[d]: the client machine is caused to display the costs and fees on a display device thereof, the costs and fees being displayed are dynamically changed in accordance with a first prevailing exchange rate between the first currency and the second currency,

and even when the market value of the asset remains unchanged, and

153. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious "the client machine is caused to display the costs and fees on a display device thereof, the costs and fees being displayed are dynamically changed in accordance with a first prevailing exchange rate between the first currency and the second currency, and even when the market value of the asset remains unchanged" for the same reasons that I discussed above with respect to Claim 1. *See* Section VII.C.2(v).

(vi) 8[e]: wherein a transaction of the asset is conducted in the trading server in response to the market exchange server upon receiving an order from the client machine;

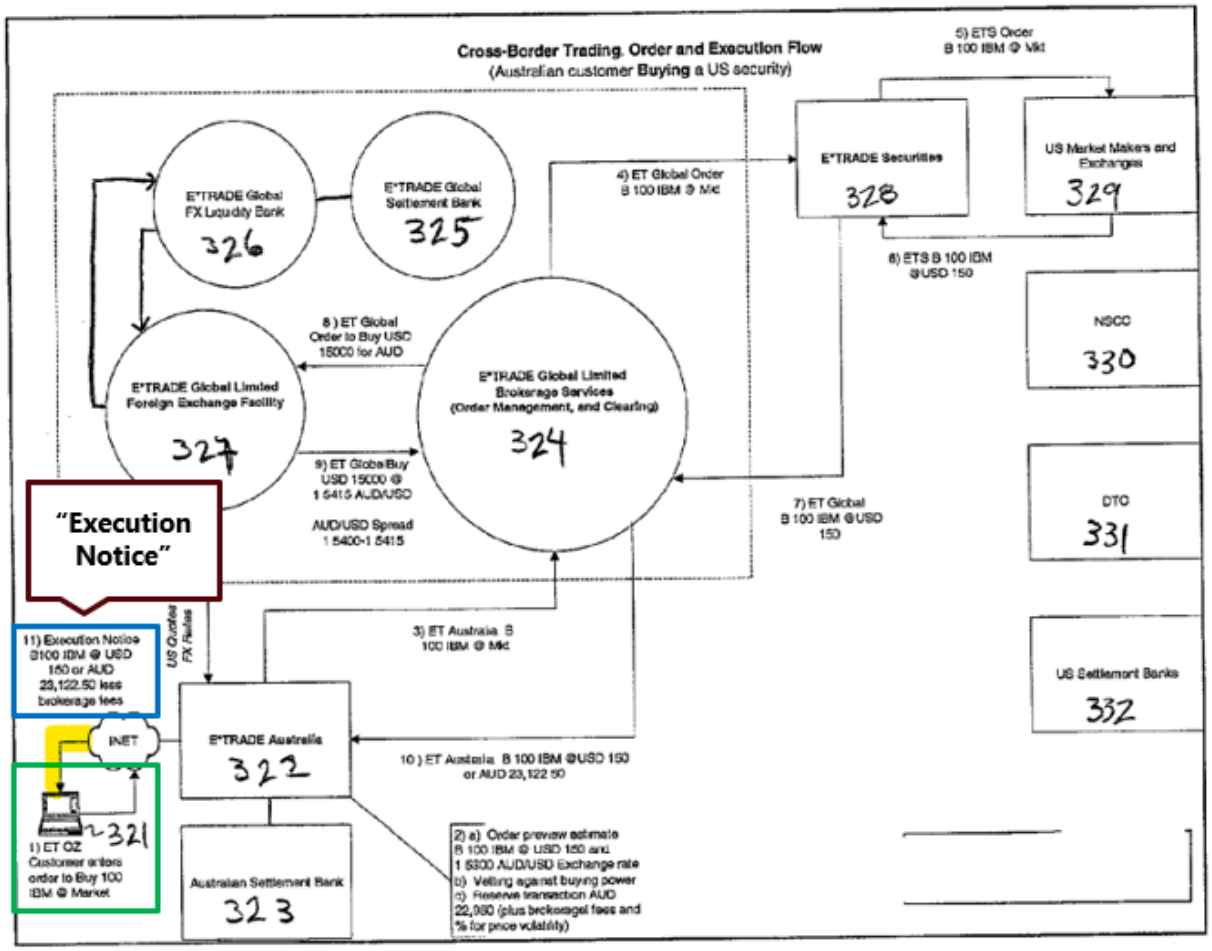
154. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious "wherein a transaction of the asset is conducted in the trading server in response to the market exchange server upon receiving an order from the client machine" for the same reasons that I discussed above with respect to Claim 1. *See* Section VII.C.2(vi).

(vii) 8[f]: the client machine receives a settlement based on a second prevailing exchange rate, wherein the second prevailing exchange rate is calculated by the trading server from the at least one currency exchange server right before the transaction takes place,

155. The *Calo-Rude-Sellberg* combination discloses "the client machine receives a settlement based on a second prevailing exchange rate, wherein the second prevailing exchange rate is calculated by the trading server from the at least one currency exchange server right before the transaction takes place."

156. The *Calo-Rude-Sellberg* combination discloses a second prevailing exchange rate, as I discussed above for Claim 1[f]. *See* Section VII.C.2(vii).

157. Additionally, *Calo* discloses that the client machine receives a settlement based on the second prevailing exchange rate. EX1005, [0030]. Specifically, *Calo*'s discloses that after a trade is executed using the prevailing rate used to determine the final "locked-in AUD value" (second prevailing exchange rate), the customer receives "***confirmation [] of the purchase***" which includes "commissions and fees." EX1005, [0030]. As illustrated by Figure 3A below, the client machine associated with a user (illustrated by laptop in annotated green square) receives a settlement ("Execution Notice," annotated in blue square).



EX1005, Fig. 3A (annotated).

(viii) 8[g]: executed costs and fees in the settlement per the second prevailing exchange rate are not identical to the displayed costs and fees with the first prevailing exchange before the transaction of the asset took place.

158. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious that the "executed costs and fees in the settlement per the second prevailing exchange rate are not identical to the displayed costs and fees with the first prevailing

exchange before the transaction of the asset took place" for the same reasons that I discussed above with respect to Claim 1. *See* Section VII.C.2(viii).

8. Claim 9: The platform as recited in claim 8, wherein the client machine is caused to keep displaying the costs and fees being dynamically updated in accordance with the first prevailing exchange rate updated constantly, even when the market value of the asset remains unchanged.

159. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious "[t]he platform as recited in claim 8, wherein the client machine is caused to keep displaying the costs and fees being dynamically updated in accordance with the first prevailing exchange rate updated constantly, even when the market value of the asset remains unchanged."

160. The *Calo-Rude-Sellberg* combination discloses the platform recited in claim 8. *See* Section VII.C.7. *Calo* discloses or at least renders obvious the costs and fees being dynamically updated in accordance with the first prevailing exchange rate, even when the market value of the asset remains unchanged. *See* Section VII.C.2(v).

161. Additionally, *Calo*'s Foreign Exchange Facility provides "round-the-clock access to realtime currency exchange rates which can be distributed . . . to the end user." EX1005, [0061]. It is my opinion that a POSITA would have understood this to mean that the prevailing exchange rate is constantly updated and displayed.

162. *Calo* also discloses or at least renders obvious that the client machine is caused to keep displaying the costs and fees for the reasons that I discuss above with respect to limitation 1[d]. *See* Section VII.C.2(v). *Calo* discloses that, prior to executing a trade (prior to step 301), the customer receives "a preview price on a ***real-time basis*** for a U.S. equity," which reflects "both the ***real-time quote*** for price on the U.S. equity, as well as a ***real-time conversion*** from the foreign exchange rates." EX1005, [0030]. *Calo* further discloses that "the estimated prices are computed automatically." *Id*. It is my opinion that a POSITA would have understood this to mean that the client machine keeps displaying the dynamically updated costs and fees being dynamically updated because the estimated prices previewed to the customer are "computed automatically" based on "real-time" data. EX1005, [0030]; *see also* EX1016, 476, 479-86, 496; EX1019, 6; EX1020.

163. Furthermore, in my opinion it would have been obvious to "keep displaying" the costs and fees being dynamically updated based on *Sellberg's* disclosure that "the trader may continuously follow the updated exchange rates." EX1007, [0031].

9. Claim 11: The platform as recited in claim 8, wherein the first prevailing exchange rate and the second prevailing exchange rate are different.

164. The *Calo-Rude-Sellberg* combination discloses "[t]he platform as recited in claim 8, wherein the first prevailing exchange rate and the second prevailing exchange rate are different" for the same reasons that I discussed above with respect to Claim 3. *See* Section VII.C.3.

10. Claim 12: The platform as recited in claim 11, wherein the first prevailing exchange rate and the second prevailing exchange rate are automatically calculated in the trading server in different times by the trading server from a network including the at least one currency exchange server.

165. The *Calo-Rude-Sellberg* combination discloses "[t]he platform as recited in claim 11, wherein the first prevailing exchange rate and the second prevailing exchange rate are automatically calculated in the trading server in different times by the trading server from a network including the at least one currency exchange server" for the same reasons that I discussed above with respect to Claim 4. *See* Section VII.C.4.

11. Claim 14

(i) 14[a]: The platform as recited in claim 8, wherein the client machine is coupled to the trading server, the at least one currency exchange server and the at least one market exchange server via a network, and causes the trading server to:

166. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious "[t]he platform as recited in claim 8, wherein the client machine is coupled to the trading server, the at least one currency exchange server and the at least one

market exchange server via a network, and causes the trading server to . . . " for the same reasons that I discussed above with respect to Claim 6[a]. *See* Section VII.C.5(i).

(ii) 14[b]: calculate automatically the second prevailing exchange rate from the network to ensure that the transaction only happens when the conditions are met with the second prevailing exchange rate.

167. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious causing the trading server to "calculate automatically the second prevailing exchange rate from the network to ensure that the transaction only happens when the conditions are met with the second prevailing exchange rate" for the same reasons that I discussed above with respect to Claim 6[b]. *See* Section VII.C.5(ii).

12. Claim 15: The platform as recited in claim 8, wherein the client machine is a desktop, a laptop, a server computer, a handheld wireless device, or a mobile phone.

168. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious "[t]he platform as recited in claim 8, wherein the client machine is a desktop, a laptop, a server computer, a handheld wireless device, or a mobile phone" for the same reasons that I discussed above with respect to Claim 7. *See* Section VII.C.6.

13. Claim 16: The platform as recited in claim 4, wherein the costs and fees displayed on the display device of the client machine are dynamically updated in time per the first prevailing exchange rate or the second prevailing exchange rate.

169. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious "[t]he platform as recited in claim 4, wherein the costs and fees displayed on the display device of the client machine are dynamically updated in time per the first prevailing exchange rate or the second prevailing exchange rate."

170. *Calo* discloses or at least renders obvious wherein the costs and fees displayed on the display device of the client machine are dynamically updated in time per the first prevailing exchange rate. *See* Sections VII.C.2(v), VII.C.8(v). *Calo*'s preview prices in the native currency are based on "real-time conversion from the foreign exchange rates." EX1005, [0030]. *Sellberg* further discloses receiving exchange rate updates "repeatedly and automatically" from a currency market to allow a trader to "continuously follow the updated exchange rates." EX1007, [0024], [0025], [0027], [0031]. It is my opinion that a POSITA would have understood that costs and fees fluctuate with changes in exchange rates. EX1005, [0069]. Thus, a POSITA would have understood that the preview prices and fees provided "on a real-time basis" before a user places an order "are dynamically updated in time per

the first prevailing exchange rate or the second prevailing exchange rate.[9] EX1005, [0028]; *See* Section VII.C.1.

D. Basis No. 2: Claims 1, 3-4, 6-9, 11-12, and 14-16 would have been obvious over *Calo* in view of *Rude* and in further view of *Szoc*.

1. Motivation to Combine

171. It is my opinion that a POSITA would have been motivated to combine *Calo* with *Rude* and *Szoc* to arrive at the claimed invention and would have had a reasonable expectation of success in doing so.

172. As I discussed above, *Calo* and *Rude* are directed to the same field of endeavor as the '701 Patent: automated financial trading systems that facilitating cross-border transactions. *See* Section VII.C.1. *Szoc* is similarly directed to automated financial trading systems to support cross-border transactions. *Szoc* discloses a system for "conducting transactions over a network," which specifically provides for "real-time foreign exchange rate quotes [and] cross-border payments."

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[9] *Sellberg*'s real-time or live feed to gather first and second prevailing exchange rates aligns with the Patent Owner's interpretation of a prevailing exchange rate as a live, continuously updated rate—meaning the system may apply a first, second, third prevailing rate, and so on—consistent with its infringement contentions in the related district court litigation. *See* EX1015 at 22, 32, 56, and 66.

EX1008, [0005]. Each system focuses on electronic platforms that automate and manage foreign currency exchange for seamless cross-border transactions.

173. As I discussed above, *Calo* and *Rude* both address the practical challenges of cross-border transactions, particularly the complexity of managing currency differences during execution and settlement. *See* Section VII.C.1. *Szoc* also is pertinent to the problems the '701 Patent was purportedly trying to solve. *Szoc* seeks to mitigate the "volatile nature of exchange rates" which "introduce financial risk and uncertainty," by providing "real-time foreign exchange rate quotes that may be relied upon by consumers for a predetermined period of time." EX1008, [0009], [0018]. All three references share the objective of reducing friction in cross-border transactions by enhancing transparency and control over currency exchange rates.

174. It is my opinion that a POSITA would have been motivated to combine *Calo* and *Rude* and would have had a reasonable expectation of success for the reasons that I discussed above. *See* Section VII.C.1. Additionally, a POSITA would have been motivated to modify the combined *Calo-Rude* system with *Szoc*'s teachings related to exchange rate timing for limit transactions and displaying real-time rates. While *Calo* uses a "locked-in" rate applied at settlement, it leaves open exactly when the corresponding exchange rate is calculated, and it acknowledges volatility risks by reserving buffers for rate fluctuations. EX1005, [0030]. *Szoc*

teaches limit transactions that execute only when a client-specified exchange rate is achieved, meaning the system evaluates real-time rates execution. EX1008, [0101].

175. *Szoc* further discloses a "scrolling quote bar" which "provides a scrolling list of the foreign exchange rates . . . displayed for various currencies with respect to the currently logged-in client's native currency." EX1008, [0083]. *Szoc*'s scrolling quote bar "may display realtime, constantly-changing rates," highlighting that updated rates are not only received in real time, but also are continuously displayed to the user. *Id.* A POSITA would have been motivated to combine these *Szoc* teachings with *Calo* to give traders the most accurate information at the time of trade, thereby increasing transparency in volatile trading markets, and to ensure that limit orders are executed only when the conditions specified by the trader are met. EX1018, 25.

176. Moreover, in my opinion a POSITA would have found it obvious to apply *Szoc*'s real-time display functionality to the costs and fees shown in *Calo*'s client interface. *Calo* discloses dynamically updating costs and fees based on a prevailing exchange rate, and *Szoc*'s teachings of continuously displaying real-time, fluctuating rates underscore the advantage of maintaining such information visibly and updated for the user. EX1005, [0030]; EX1008, [0083]. Given *Calo*'s concern for market volatility and exchange rate fluctuations, a POSITA would have

recognized the benefit of extending *Szoc*'s scrolling quote display mechanism to the costs and fees to enhance pricing transparency. *Id.*

177. A POSITA would have recognized that combining *Szoc*'s mechanism into *Calo*'s system predictably results in the exchange rate being determined right before execution (*e.g.*, to ensure that limit orders are carried out only when the trader's conditions are met). EX1008, [0018], [0049], [0101]. A POSITA would have been motivated to do so in order to minimize exposure to rate fluctuations and reduce the need for reserve buffers, which would improve accuracy and give users greater control in cross-currency trading. EX1008, [0009], [0018]. This modification aligns with the shared goal of optimizing automated foreign currency conversion in cross-border transactions.

178. In my opinion, a POSITA would have had a reasonable expectation of success combining *Calo*, *Rude*, and *Szoc* due to their compatible architectures and aligned objectives, and the fact that *Szoc*'s techniques were already being applied in the similar system of *Szoc*. Each system operates within a computerized foreign transaction system, and each is implemented on any appropriate hardware and software. EX1005, [0027], [0051]; EX1006, [0030], [0037]; EX1008, [0034]. Specifically, *Szoc*'s quote bar, which provides real-time exchange rates to support conditional foreign currency transactions, is structurally and functionally compatible

with *Calo*'s use of real-time foreign exchange conversions in generating preview prices. EX1005, [0030]; EX1008, [0036]. A POSITA would have expected success incorporating *Szoc*'s quote bar functionality with *Calo* because *Calo* already disclosed foreign exchange-based pricing and limit order functionality. EX1005, [0070]. Moreover, both *Calo* and *Szoc* seek to streamline cross-border financial transactions by automating the use of currency exchange data, reinforcing their suitability for integration. Accordingly, it is my opinion that a POSITA would have reasonably expected the combined system to function predictably and effectively, without undue experimentation.

2. Independent Claim 1

(i) 1[p]: A platform for trading an asset, the platform comprising:

179. To the extent the preamble is limiting, in my opinion the *Calo-Rude-Szoc* combination discloses "[a] platform for trading an asset, the platform comprising" for the same reasons that I discussed above with respect to Basis No. 1. *See* Section VII.C.2(i).

(ii) 1[a]: a trading server, coupled to a client machine associated with a user, receiving an indicator of a first currency from the client machine,

180. The *Calo-Rude-Szoc* combination discloses or at least renders obvious "a trading server, coupled to a client machine associated with a user, receiving an

indicator of a first currency from the client machine" for the same reasons that I discussed above with respect to Basis No. 1. *See* Section VII.C.2(ii).

(iii) 1[b]: wherein the trading server is configured to couple to at least one currency exchange server and at least one market exchange server,

181. The *Calo-Rude-Szoc* combination discloses or at least renders obvious "wherein the trading server is configured to couple to at least one currency exchange server and at least one market exchange server" for the same reasons that I discussed above with respect to Basis No. 1. *See* Section VII.C.2(iii).

(iv) 1[c]: the trading server is further configured to calculate costs and fees in the first currency to own or sell the asset being traded in a second currency,

182. The *Calo-Rude-Szoc* combination discloses or at least renders obvious "wherein the trading server is configured to couple to at least one currency exchange server and at least one market exchange server" for the same reasons that I discussed above with respect to Basis No. 1. *See* Section VII.C.2(iv).

(v) 1[d]: the costs and fees are caused to be displayed on a display device of the client machine and are dynamically changed in accordance with a first prevailing exchange rate between the first currency and the second currency, and even when a market value of the asset remains unchanged,

183. The *Calo-Rude-Szoc* combination discloses or at least renders obvious "the costs and fees are caused to be displayed on a display device of the client

machine and are dynamically changed in accordance with a first prevailing exchange rate between the first currency and the second currency, and even when a market value of the asset remains unchanged" for the same reasons that I discussed above with respect to Basis No. 1. *See* Section VII.C.2(v).

(vi) 1[e]: and wherein the trading server is configured to conduct a transaction of the asset by transporting a transaction request to the market exchange server upon receiving an order from the trader,

184. The *Calo-Rude-Szoc* combination discloses or at least renders obvious "wherein the trading server is configured to conduct a transaction of the asset by transporting a transaction request to the market exchange server upon receiving an order from the trader" for the same reasons that I discussed above with respect to Basis No. 1. *See* Section VII.C.2(vi).

(vii) 1[f]: and reach a settlement based on a second prevailing exchange rate as soon as the transaction of the asset is performed in accordance with conditions set by the trader,

185. The *Calo-Rude-Szoc* combination discloses or at least renders obvious "reach[ing] a settlement based on a second prevailing exchange rate as soon as the transaction of the asset is performed in accordance with conditions set by the trader."

186. *Calo* discloses or at least renders obvious reaching a settlement based on a second prevailing exchange rate as soon as the transaction of the asset is

performed in accordance with conditions set by the trader for the same reasons discussed in Basis No. 1. *See* Section VII.C.2(vii).

187. *Szoc* provides additional implementation details regarding fulfilling limit orders. For "transactions that will execute ***only when and if a specific foreign exchange rate is available***," *Szoc* teaches that the client enters a "desired exchange rate," and the transaction executes only if that rate is achieved. EX1008, [0101]. It would have been obvious to a POSITA to combine *Szoc*'s teachings regarding limit transactions with *Calo* (as modified by *Rude*) so that the transaction of the asset is performed—and settlement is reached—as soon as the trader's specified conditions are met. EX1008, [0018], [0049], [0101]. Doing so would ensure that limit orders are executed only when the conditions specified by the trader are met, as I discussed above. *See* Section VII.D.1.

(viii) 1[g]: and wherein the second prevailing exchange rate is calculated from the at least one currency exchange server right before the transaction takes place,

188. The *Calo-Rude-Szoc* combination discloses or at least renders obvious "wherein the second prevailing exchange rate is calculated from the at least one currency exchange server right before the transaction takes place."

189. *Calo* discloses or at least renders obvious that the second prevailing exchange rate is calculated from the at least one currency exchange server for the

same reasons that I discussed above with respect to Basis No. 1. *See* Section VII.C.2(viii).

190. It is my opinion that it would have been obvious to calculate the second prevailing exchange rate "right before the transaction takes place" based on *Szoc*. Similar to *Calo*, *Szoc* discloses displaying "realtime, constantly-changing rates[.]" EX1008, [0083]. *Szoc* discloses a trading interface that displays a list of real-time foreign exchange rates for various currencies relative to the client's native currency. EX1008, [0016], [0081]. The system includes a scrolling quote bar that displays real-time, continuously updated exchange rates. *Id.*, [0083], Figs. 4A–4B. These rates are derived from a quote server (*i.e.*, currency exchange server). *Id.*, [0083]. *Szoc* further explains that "[w]hile the scrolling quote bar 430 may display realtime, constantly-changing rates, it is preferable that the displayed quoted rates are updated at a request of the client, such as by clicking on the quote link 422. Preferably, ***the results in the display thereafter*** remain constant for a period of time." EX1008, [0083]. Additionally, *Szoc* teaches that a client is also able to enter into "transactions that will execute ***only when and if a specific foreign exchange rate is available***." EX1008, [0101]. For such transactions, the client enters a "desired exchange rate," and the transaction executes only if that rate is achieved. *Id.* To do so, the system evaluates the exchange rate right before the transaction takes place. *Id. Szoc* further

discloses that if the specified rate is not met, the transaction may expire after a designated time period. *Id.* This expiration mechanism indicates that the system continuously evaluates exchange rates and determines whether execution criteria are satisfied right before the transaction occurs.

191. Accordingly, *Szoc* discloses calculating the second prevailing exchange rate from a currency exchange server right before the transaction takes place. It is my opinion that a POSITA would have been motivated to use *Szoc*'s approach for limit orders to ensure that the execution rate used for settlement is determined right before to the transaction based on a predefined value for the reasons that I discussed above in the motivation to combine section. *See* Section VII.D.1.

(ix) 1[h]: executed costs and fees in the settlement per the second prevailing exchange rate are not identical to the displayed costs and fees with the first prevailing exchange before the transaction of the asset took place.

192. The *Calo-Rude-Szoc* combination discloses or at least renders obvious the "executed costs and fees in the settlement per the second prevailing exchange rate are not identical to the displayed costs and fees with the first prevailing exchange before the transaction of the asset took place" for the same reasons that I discussed above with respect to Basis No. 1. *See* Section VII.C.2(ix).

3. Claims 3,4, 6, and 7

193. The *Calo-Rude-Szoc* combination discloses or at least renders obvious these claims for the same reasons that I discussed above with respect to Basis No. 1. *See* Sections VII.C.3-VII.C.6.

4. Claim 8

(i) 8[p]: A platform for trading an asset, the platform comprising:

194. To the extent the preamble is limiting, in my opinion the *Calo-Rude-Szoc* combination discloses "[a] platform for trading an asset, the platform comprising" for the same reasons that I discussed above with respect to Basis No. 2, Claim 1. *See* Section VII.D.2(i).

(ii) (8[a]: a client machine associated with a user, coupled to a trading server via the Internet, executing a software product to send an indicator of a first currency to the trading server,

195. The *Calo-Rude-Szoc* combination discloses or at least renders obvious "a client machine associated with a user, coupled to a trading server via the Internet, executing a software product to send an indicator of a first currency to the trading server" for the same reasons that I discussed above with respect to Basis No. 2, Claim 1. *See* Sections VIIC.2(ii), VII.D.2(ii).

(iii) (8[b]: wherein the trading server is configured to couple to at least one currency exchange server and at least one market exchange server and

196. The *Calo-Rude-Szoc* combination discloses or at least renders obvious "wherein the trading server is configured to couple to at least one currency exchange server and at least one market exchange server" for the same reasons that I discussed above with respect to Basis No. 2, Claim 1. *See* Sections VII.C.2(ii), VII.D.2(iii).

(iv) 8[c]: configured to calculate costs and fees in the first currency to own or sell the asset being traded in second currency,

197. The *Calo-Rude-Szoc* combination discloses or at least renders obvious the trading server "configured to calculate costs and fees in the first currency to own or sell the asset being traded in second currency" for the same reasons that I discussed above with respect to Basis No. 2, Claim 1. *See* Sections VII.C.2(iv), VII.D.2(iv).

(v) 8[d]: the client machine is caused to display the costs and fees on a display device thereof, the costs and fees being displayed are dynamically changed in accordance with a first prevailing exchange rate between the first currency and the second currency, and even when the market value of the asset remains unchanged, and

198. The *Calo-Rude-Szoc* combination discloses or at least renders obvious "the client machine is caused to display the costs and fees on a display device thereof, the costs and fees being displayed are dynamically changed in accordance

with a first prevailing exchange rate between the first currency and the second currency, and even when the market value of the asset remains unchanged" for the same reasons that I discussed above with respect to Basis No. 2, Claim 1. *See* Section VII.D.2(v).

(vi) 8[e]: wherein a transaction of the asset is conducted in the trading server in response to the market exchange server upon receiving an order from the client machine;

199. The *Calo-Rude-Szoc* combination discloses or at least renders obvious "wherein a transaction of the asset is conducted in the trading server in response to the market exchange server upon receiving an order from the client machine" for the same reasons that I discussed above with respect to Basis No. 2, Claim 1. *See* Section VII.D.2(vi).

(vii) 8[f]: the client machine receives a settlement based on a second prevailing exchange rate, wherein the second prevailing exchange rate is calculated by the trading server from the at least one currency exchange server right before the transaction takes place,

200. The *Calo-Rude-Szoc* combination discloses or at least renders obvious "the client machine receives a settlement based on a second prevailing exchange rate, wherein the second prevailing exchange rate is calculated by the trading server from the at least one currency exchange server right before the transaction takes

place" for the same reasons that I discussed above with respect to Basis No. 2, Claim 1. *See* Section VII.D.2(vii).

(viii) 8[g]: executed costs and fees in the settlement per the second prevailing exchange rate are not identical to the displayed costs and fees with the first prevailing exchange before the transaction of the asset took place.

201. The *Calo-Rude-Szoc* combination discloses or at least renders obvious that the "executed costs and fees in the settlement per the second prevailing exchange rate are not identical to the displayed costs and fees with the first prevailing exchange before the transaction of the asset took place" for the same reasons that I discussed above with respect to Basis No. 2, Claim 1. *See* Section VII.D.2(viii).

5. Claim 9: The platform as recited in claim 8, wherein the client machine is caused to keep displaying the costs and fees being dynamically updated in accordance with the first prevailing exchange rate updated constantly, even when the market value of the asset remains unchanged.

202. The *Calo-Rude-Szoc* combination discloses or at least renders obvious "[t]he platform as recited in claim 8, wherein the client machine is caused to keep displaying the costs and fees being dynamically updated in accordance with the first prevailing exchange rate updated constantly, even when the market value of the asset remains unchanged."

203. The *Calo-Rude-Sellberg* combination discloses the platform recited in claim 8 for the same reasons that I discussed above. *See* Section VII.D.4. *Calo*'s

client machine displays the costs and fees on a display device and the costs and fees displayed are dynamically updated in accordance with the first prevailing exchange rate, even when the market value of the asset remains unchanged for the same reasons that I discussed above. *See* Section VII.C.2(vii).

204. To the extent the "keep displaying" aspect of the claim requires more than displaying preview costs and fees "on a real-time basis," it would have been obvious to keep displaying the costs and fees in view of *Szoc*. *Szoc* discloses a "scrolling quote bar" which "provides a scrolling list of the foreign exchange rates . . . displayed for various currencies with respect to the currently logged-in client's native currency." EX1008, [0083]. *Szoc* also discloses that "the scrolling quote bar 430 may display realtime, constantly-changing rates." *Id.* In my opinion, it would have been obvious to a POSITA to apply *Szoc*'s display teaching to the costs and fees in *Calo* as both references disclose dynamic, real-time updates and desire to provide updated information to traders. EX1005, [0030]. Given *Calo*'s acknowledgment of the volatility in both the market value of the asset and exchange rates, a POSITA would have recognized the benefit in applying *Szoc*'s real-time display functionality to *Calo*'s costs and fees to enhance the presentation of information to traders. *Id.* A POSITA would have understood that costs and fees fluctuate with changes in exchange rates, and thus the client machine would be

caused to keep displaying those costs and fees dynamically updated in accordance with the first prevailing exchange rate—even when the market value of the asset remains unchanged. EX1005, [0069].

6. Claims 11, 12, 14, and 15

205. The *Calo-Rude-Szoc* combination discloses or at least renders obvious these claims for the same reasons that I discussed above with respect to with respect to Basis No. 1. *See* Sections VII.C.9-VII.C.12.

7. Claim 16: The platform as recited in claim 4, wherein the costs and fees displayed on the display device of the client machine are dynamically updated in time per the first prevailing exchange rate or the second prevailing exchange rate.

206. The *Calo-Rude-Szoc* combination discloses or at least renders obvious "[t]he platform as recited in claim 4, wherein the costs and fees displayed on the display device of the client machine are dynamically updated in time per the first prevailing exchange rate or the second prevailing exchange rate."

207. The *Calo-Rude-Szoc* combination discloses the platform as recited in claim 4 for the same reasons above. *See* Section VII.C.4. *Calo* discloses that the costs and fees displayed on the display device of the client machine are dynamically updated in time per the first prevailing exchange rate for the same reasons that I discussed above. *See* Section VII.C.2(v).

208. *Szoc* provides additional implementation details for displaying dynamically updated information. *Szoc* discloses a "scrolling quote bar" which "provides a scrolling list of the foreign exchange rates . . . displayed for various currencies with respect to the currently logged-in client's native currency." EX1008, [0083]. *Szoc* also discloses that "the scrolling quote bar 430 may display realtime, constantly-changing rates." *Id.* It is my opinion that a POSITA would have understood that because costs and fees fluctuate with changes in exchange rates, the same display interface would be advantageous to use to display pricing (*e.g.*, costs and fees) based on a first prevailing exchange rate (*e.g.*, a selected current rate at one moment), and then be dynamically updated to reflect second prevailing exchange rate (*e.g.*, a different selected current rate) shortly after.[10] Doing so would have been consistent with *Calo*'s goal of offering a "real-time system" that increases

[10] *Szoc*'s use of a real-time or live feed to gather first and second prevailing exchange rates aligns with the Patent Owner's interpretation of a prevailing exchange rate as a live, continuously updated rate—meaning the system may apply a first, second, third prevailing rate, and so on—consistent with its infringement contentions in the related district court litigation. *See* Patent Owners Infringement Contentions at 22, 32, 56, and 66.

transparency and reduces "risks from price movement for both the customer and the party executing the trade." EX1005, [0028]; *see also* EX1016, 479-86, 496; EX1020.

E. Basis No. 3: Claims 2, 5, 10, and 13 would have been obvious over *Calo*, *Rude*, and *Sellberg*, in further view of *Davidowitz*.

1. Motivation to Combine

209. It is my opinion that a POSITA would have been motivated to combine *Calo*, *Rude*, *Sellberg*, and *Davidowitz* to arrive at the claimed invention and would have had a reasonable expectation of success.

210. A POSITA would have been motivated to combine *Calo*, *Rude*, and *Sellberg* for the reasons that I discuss above. *See* Section VII.C.1. It is my opinion that a POSITA would have been motivated to combine *Davidowitz* with *Calo* (as modified by *Rude* and *Sellberg*). *Davidowitz* is analogous art to the '701 Patent. All four references operate in the same field of endeavor as the '701 Patent: automated financial systems for cross-border transactions. *See* Section VII.C.1 (discussing *Calo*, *Rude*, and *Sellberg*). *Davidowitz* likewise addresses this field by teaching pairs trading across international markets with real-time foreign exchange rate hedging

and dynamic cost displays. EX1009, [0003], [0061].[11] Each system automates currency exchange to facilitate cross-border trading.

211. Moreover, all four references address challenges in cross-border transactions, particularly currency differences, exchange rate volatility risks, and transparency in pricing. *See* Section VII.C.1 (discussing *Calo*, *Rude*, and *Sellberg*). *Davidowitz* is therefore pertinent to the problems the '701 Patent is trying to solve. *Davidowitz* monitors the relationships between securities denominated in different currencies and revalues securities in real time to a common currency. EX1009, [0003]. *Davidowitz* monitors the relationships between securities denominated in different currencies and revalues securities in real time to a common currency. EX1009, [0003]. Collectively, the references reflect a shared objective: to streamline and enhance the reliability of multi-currency transactions.

212. It is my opinion that a POSITA would have been motivated to combine *Davidowitz*'s real-time cost display functionality with *Calo* (as modified by *Rude* and *Sellberg*). *Calo* discloses that preview prices are generated based on real-time

[11] As explained by *Davidowitz*, "[p]airs trading is an investment strategy that, in its basic form, involves the purchase of one or more securities while simultaneously selling (or selling short) one or more other securities." EX1009, [0005].

exchange rates. EX1005, [0030]. *Davidowitz* discloses an automated system that can continuously monitor the various markets and automatically execute transactions based upon the realization of specific parameters chosen by the investor. EX1009, [0036], [0041]. *Davidowitz* expressly teaches the use of real-time foreign exchange data to continuously update and revalue asset costs, including display of those updated values to the user. *Id.* A POSITA would have recognized that combining *Davidowitz*'s more granular teachings regarding displaying updated asset prices with *Calo* would enhance *Calo*'s preview price feature—by providing more transparent and responsive cost updates as exchange rates fluctuate. EX1005, [0069]; EX1016, 476; EX1019, 6.

213. Moreover, *Sellberg* discloses "repeatedly" or periodically receiving updated exchange rates as often as "several times a second down to once an hour." EX1007, [0024]. It is my opinion that a POSITA would have been motivated to incorporate *Sellberg*'s periodic update mechanism into the *Calo* system (as modified by *Rude*) to ensure that exchange rates are consistently refreshed at regular intervals. When combined with *Davidowitz*'s teachings on updating and display of asset costs, this would enhance *Calo*'s preview pricing feature by ensuring that both exchange rates and asset valuations remain up-to-date in volatile markets. Such a combination

would improve pricing transparency and reduce the risk associated with fluctuating market conditions.

214. It is my opinion that a POSITA would have had a reasonable expectation of success in combining *Davidowitz*'s real-time cost display functionality, which could be readily implemented on the trading or market servers disclosed in *Calo*, *Rude*, and *Sellberg*, which already handle real-time data and order execution logic. This integration would have been a predictable improvement consistent with the shared goals of improving transparency and mitigating volatility in cross-border trading.

2. Claim 2

(i) 2[a]: The platform as recited in claim 1, wherein the trading server is configured to: monitor the conditions in conjunction with a prevailing exchange rate calculated from the at least one currency exchange server and the market exchange server; and

215. The *Calo-Rude-Sellberg-Davidowitz* combination discloses or at least renders obvious "[t]he platform as recited in claim 1, wherein the trading server is configured to: monitor the conditions in conjunction with a prevailing exchange rate calculated from the at least one currency exchange server and the market exchange server."

216. The *Calo-Rude-Sellberg* combination discloses or at least renders obvious the platform recited in claim 1 for the same reasons that 1 discussed above with respect to Basis No. 1, Claim 1. *See* Section VII.C.2. *Calo* discloses performing a transaction of the asset in accordance with conditions set by a trader (*e.g.*, a limit order) for the same reasons that I discussed above with respect to Basis No. 1, Claim 1[f]. *See* Section VII.C.2(vii).

217. Additionally, *Calo* discloses monitoring conditions in conjunction with a prevailing exchange rate calculated from the at least one currency exchange server and the market exchange server. *Calo* discloses that, prior to executing a trade (prior to step 301), the customer receives "a preview price on a real-time basis for a U.S. equity," based on "both the real-time quote for price on the U.S. equity, as well as a real-time conversion from the foreign exchange rates." EX1005, [0030]. The Global Brokerage Service (*i.e.*, trading server) receives global exchange rates via the Foreign Exchange Facility (*i.e.*, currency exchange server) and obtains equity market data from "the stock exchange 221 of the country from where the equities are being purchased" (*i.e.*, market exchange server). *Id.*, [0027], [0050].

218. It is my opinion that a POSITA would have understood that in order for *Calo*'s trading server to comply with limit orders, it would have monitored the limit order thresholds (conditions) in conjunction with prevailing exchange rates (from

the currency exchange server) and asset prices (from the market exchange server). EX1016, 470; EX1017, 45-46.

219. Moreover, *Davidowitz* discloses continuously monitoring updated market data, including equity prices and exchange rates, to determine whether trading conditions are met. EX1009, [0008], [0031], [0036]. It is my opinion that a POSITA would have been motivated to incorporate *Davidowitz*'s continuous monitoring into the *Calo-Rude-Sellberg* system to ensure terms of limit orders are met for the reasons that I discussed above in the motivation to combine section. *See* Section VII.E.1.

(ii) 2[b]: perform the transaction of the asset only when the conditions are met, wherein the conditions are periodically checked with respect to an updated market value of the asset and an updated prevailing currency exchange rate calculated from the at least one currency exchange server right before the transaction takes place.

220. The *Calo-Rude-Sellberg-Davidowitz* combination discloses or at least renders obvious "perform[ing] the transaction of the asset only when the conditions are met, wherein the conditions are periodically checked with respect to an updated market value of the asset and an updated prevailing currency exchange rate calculated from the at least one currency exchange server right before the transaction takes place."

221. *Calo* discloses performing a transaction of the asset in accordance with conditions set by a trader (*e.g.*, a limit order) for the same reasons that I discussed above with respect to Basis No. 1, Claim 1[f]. *See* Section VII.C.2(vii).

222. Additionally, *Calo* discloses that the conditions are periodically checked with respect to an updated market value of the asset and an updated prevailing currency exchange rate. It is my opinion that a POSITA would have understood that to execute a limit order the trading server would periodically check current market conditions because the order should only execute if and when the specified price condition is satisfied. EX1016, 470; EX1017, 45-46. This involves checking both the real-time (i) market value of the asset and (ii) the prevailing exchange rate. Since these values fluctuate, *Calo*'s trading server would periodically checks them to determine whether the conditions for the transaction are met. EX1005, [0069].

223. Moreover, *Davidowitz* discloses the need for an automated system that can monitor or "check" the various markets and automatically execute transactions based upon the realization of specific parameters chosen by the investor. EX1009, [0008].

224. It is my opinion that it would have been obvious to check the conditions periodically in view of *Sellberg*. *Sellberg* discloses receiving an updated exchange

rate periodically (*e.g.*, "from several times a second down to once an hour"). EX1007, [0024]. In the context of limit orders, a POSITA would have been motivated to periodically check for an updated market value of the asset with the same frequency as the exchange rate, because both fluctuate over time and the conditions are tied to both the market value and the exchange rate. By refreshing these values at regular intervals, the system can more accurately determine when trader-specified conditions (*e.g.*, limit orders) are met. EX1005, [0069]. This would ensure that transactions are executed based on current market conditions, thereby improving execution accuracy and reducing the risk of acting on stale data.

225. *Sellberg* discloses using a rate calculated from the at least one currency exchange server right before the transaction takes place, as I discussed above with respect to Basis No. 1, Claim 1[h]. *See* Section VII.C.2(viii).

3. Claim 5

(i) 5[a]: The platform as recited in claim 1, wherein the trading server is configured to: receive periodically an updated market value of the asset being traded from the market exchange server;

226. The *Calo-Rude-Sellberg-Davidowitz* combination discloses or at least renders obvious "[t]he platform as recited in claim 1, wherein the trading server is configured to: receive periodically an updated market value of the asset being traded from the market exchange server."

227. *Calo* discloses that, prior to executing a trade (prior to step 301), the customer receives "a preview price on a real-time basis for a U.S. equity," which is "***based on both the real-time quote for price on the U.S. equity***, as well as a real-time conversion from the foreign exchange rates." EX1005, [0030]. The Global Brokerage Service also connects to "the stock exchange 221 of the country from where the equities are being purchased" (*i.e.*, market exchange server). *Id.*, [0027]. The "real-time quote for price of the U.S. equity" reflects updated market value of the asset being traded, sourced from the relevant market exchange (*e.g.*, the U.S. stock market for U.S. equities). *Id.* Once the customer places an order based on these cost estimates, but before the trade is executed, *Calo*'s system provides a preview of the order that reflects "the current U.S. ask price, the Australian dollar (AUD) equivalent based on the current ask price for USD based on the US principal amount, [and] the estimated commissions and fees for a cross-border trade." *Id.* It is my opinion that a POSITA would have understood that, to generate and maintain real-time preview pricing before order placement and to preview the order prior to execution, the trading server periodically receives an updated market value of the asset from the market exchange server.

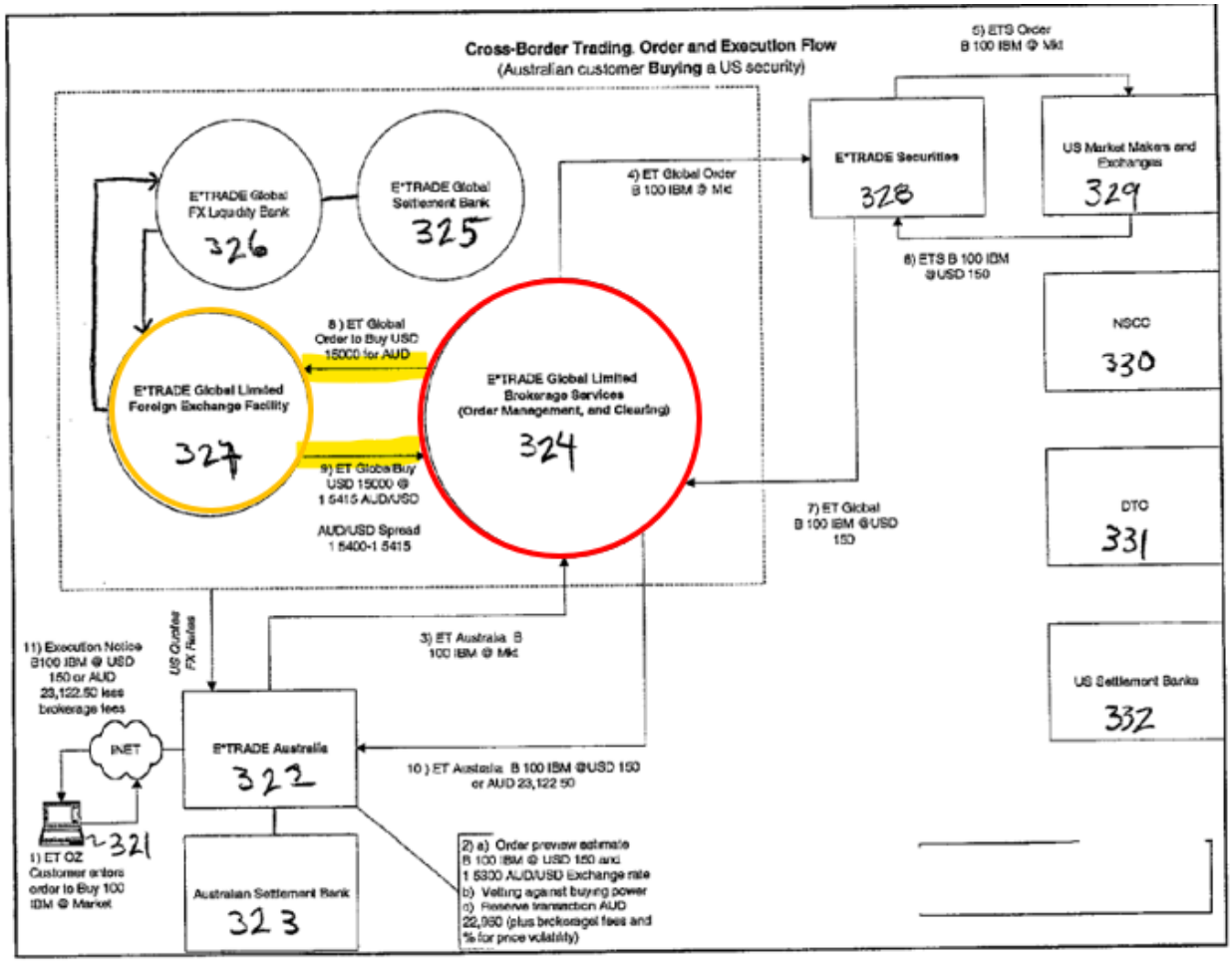
228. Moreover, *Sellberg* discloses "repeatedly" (periodically) receiving updated exchange rates as often as "several times a second down to once an hour."

EX1007, [0024]. It is my opinion that a POSITA would have been motivated to apply *Sellberg*'s periodic update mechanism to the market value of the asset for the reasons that I discussed above with respect to Basis No. 3, Claim 2[b]. *See* Section VII.E.2(ii).

(ii) 5[b]: receive periodically an updated prevailing currency exchange rate from the exchange server; and

229. The *Calo-Rude-Sellberg-Davidowitz* combination discloses or at least renders obvious "receiv[ing] periodically an updated prevailing currency exchange rate from the exchange server."

230. *Calo* discloses that, prior to executing a trade (prior to step 301), the customer receives "a preview price on a real-time basis for a U.S. equity," which is "***based on*** both the real-time quote for price on the U.S. equity, as well as a ***real-time conversion from the foreign exchange rates***." EX1005, [0030]. *Calo* further discloses that the Foreign Exchange Facility "provides indicative foreign exchange rates." *Id.*, [0027], [0061]. As illustrated by Figure 3A below, the Global Brokerage Service receives these exchange rates from the Foreign Exchange Facility:



EX1005, Fig. 3A (annotated).

231. Moreover, *Sellberg* discloses periodically receiving updated exchange rates as often as "several times a second down to once an hour." EX1007, [0024]. It is my opinion that a POSITA would have found it obvious to incorporate *Sellberg*'s periodic update mechanism into *Calo*'s system to ensure that the exchange rates used for pricing and execution remain current.

(iii) 5[c]: determine whether the conditions have been met together with the updated market value of the asset and the updated prevailing currency exchange rate.

232. The *Calo-Rude-Sellberg-Davidowitz* combination discloses or at least renders obvious "determin[ing] whether the conditions have been met together with the updated market value of the asset and the updated prevailing currency exchange rate."

233. *Calo* discloses performing a transaction of the asset in accordance with conditions set by a trader (*e.g.*, a limit order) for the same reasons that I discussed above with respect to Basis No. 1, Claim 1[f]. *See* Section VII.C.2(vii); EX1005, [0030].

234. It is my opinion that a POSITA would have understood that in order to evaluate whether such a limit order condition is met, the trading server determines whether the updated market value and the updated prevailing currency exchange rate together satisfy the specified threshold. EX1016, 470; EX1017, 45-46. Because *Calo*'s trading server uses both sources to present prices and execute trades, it determines whether conditions are met based on both updated values. EX1005, [0030].

235. *Davidowitz* further reinforces this understanding by disclosing an automated system that continuously monitors multiple market variables and

executes trades when specified investor parameters are satisfied. EX1009, [0008]. It is my opinion that a POSITA would have been motivated to incorporate this functionality into *Calo*'s system to improve automation and ensure timely execution based on combined market and currency conditions.

4. Claim 10

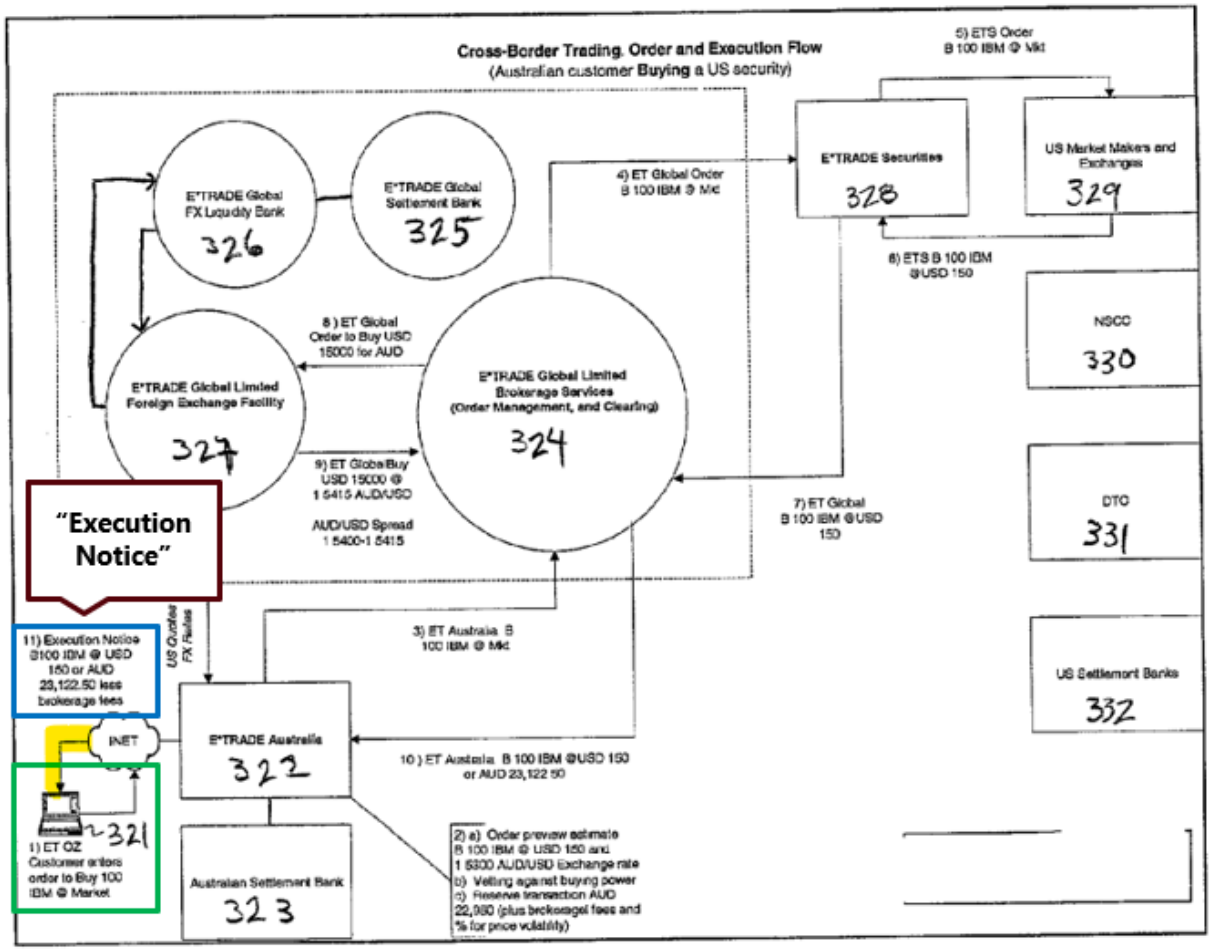
(i) 10[a]: The platform as recited in claim 8, wherein the client machine shows a settlement soon after the trading server is configured to perform the transaction of the asset only when the conditions are met,

236. The *Calo-Rude-Sellberg-Davidowitz* combination discloses or at least renders obvious "the platform as recited in claim 8, wherein the client machine shows a settlement soon after the trading server is configured to perform the transaction of the asset only when the conditions are met."

237. The *Calo-Rude-Sellberg* combination discloses the platform recited in claim 8 for the same reasons that I discussed above with respect to Basis No. 1, Claim 8. *See* Section VII.C.7. *Calo* also discloses performing a transaction of the asset in accordance with conditions set by a trader (*e.g.*, a limit order) for the same reasons that I discussed above with respect to Basis No. 1, Claim 1[f]. *See* Section VII.C.2(vii); EX1005, [0030].

238. Additionally, *Calo* discloses the client machine shows a settlement soon after the trading server is configured to perform the transaction. Once the

conditions are met and the trade is executed, *Calo* discloses that the trading server "gives confirmation to the customer of the purchase" as part of the trade execution process which includes "commissions and fees." EX1005, [0030]; *see* Section VII.C.2(ix). As illustrated by Figure 3A below, the client machine (illustrated by laptop in annotated green square) receives a settlement ("Execution Notice," annotated in blue square).



EX1005, Fig. 3A (annotated).

(ii) 10[b]: wherein the conditions are periodically checked in the trading server with respect to an updated market value of the asset and an updated prevailing currency exchange rate calculated from the at least one currency exchange server right before the transaction takes place.

239. The *Calo-Rude-Sellberg-Davidowitz* combination discloses or at least renders obvious "wherein the conditions are periodically checked in the trading server with respect to an updated market value of the asset and an updated prevailing currency exchange rate calculated from the at least one currency exchange server right before the transaction takes place" for the same reasons that I discussed above with respect to Basis No. 3, Claim 2[b]. *See* Section VII.E.2(ii).

5. Claim 13: The platform as recited in claim 8, wherein the client machine is configured to receive periodically an updated market value of the asset being traded from the market exchange server as a result of an updated prevailing currency exchange rate.

240. The *Calo-Rude-Sellberg-Davidowitz* combination discloses or at least renders obvious "the platform as recited in claim 8, wherein the client machine is configured to receive periodically an updated market value of the asset being traded from the market exchange server as a result of an updated prevailing currency exchange rate."

241. The *Calo-Rude-Sellberg* combination discloses the platform recited in claim 8. *See* Section VII.C.7. *Calo* in view of *Sellberg* discloses a trading server

configured to receive periodically an updated market value of the asset being traded from the market exchange server. *See* Section VII.E.3(i).

242. Additionally, *Calo* discloses that the client machine is configured to periodically receive this updated market value, because the user is shown a real-time preview price. Specifically, *Calo* discloses that, prior to executing a trade (prior to step 301), the customer receives "a preview price on a real-time basis for a U.S. equity." EX1005, [0030]. *Calo* discloses that the updated market value is a result of an updated prevailing currency exchange rate, because the real-time preview price which is computed "based on both the real-time quote for price on the U.S. equity, as well as a real-time conversion from the foreign exchange rates." EX1005, [0030]. Because the preview price is provided on a "real-time basis," a POSITA would have understood that it is periodically updated (*e.g.*, "several times a second down to once an hour" as taught by *Sellberg*). Additionally, once the customer places an order, the "preview of the order" is "based on the current U.S. ask price, the Australian dollar (AUD) equivalent based on the current ask price for USD based on the USD principal amount, the estimated commissions and fees for a cross-border trade." *Id.* It is my opinion that a POSITA would have understood that, between the display of the preview price and the preview of the order, the market value of the asset updates as a result of an updated exchange rate. This understanding is reinforced by *Calo*'s

explicit disclosure of a "reserve" to account for fluctuations in both the market value of the asset and the currency exchange rate. EX1005, [0030].

243. *Davidowitz* further discloses continuously monitoring exchange rates and updating trading information for a trader based on or "as a result of" changing market conditions. EX1009, [0007]-[0008]. It is my opinion that a POSITA would have recognized that combining *Davidowitz*'s more granular approach to updating market value of the asset would enhance *Calo*'s preview price feature—by providing more transparent and responsive cost updates as exchange rates fluctuate. EX1005, [0069]; EX1016, 476; EX1019, 6.

244. Since the AUD-equivalent value of a U.S. equity depends on both the U.S. equity price and the prevailing USD/AUD exchange rate, it is my opinion that a POSITA would have understood that any updates in the exchange rate results in an updated market value of the asset displayed to the customer. Because the system provides real-time quotes as a preview price to the user, a POSITA would have also understood that the client machine in *Calo*'s system periodically receives updated market value and currency exchange rate data.

VIII. SECONDARY CONSIDERATIONS

245. During the prosecution of the '701 Patent, the Applicant did not identify any evidence of secondary considerations of non-obviousness tied to the claimed

invention of the ’701 Patent. I understand from counsel for Petitioner that Patent Owner in the co-pending district court litigation has not yet identified any evidence with respect to secondary considerations for non-obviousness. I am not aware of any objective evidence of nonobviousness that relates to Claims 1-16 of the ’701 Patent.

246. Accordingly, there is no objective evidence of non-obviousness that might warrant a finding that Claims 1-16 of the ’701 Patent are patentable. To the extent the Patent Owner at a later date cites or provides any other evidence regarding secondary considerations, including any expert opinions, I reserve the right to supplement my analysis and opinions to address it.

IX. CONCLUSION

247. For at least the above-described reasons, in my opinion Claims 1-16 of the ’701 Patent would have been obvious to a POSITA based on the prior art references that I have cited and analyzed above.

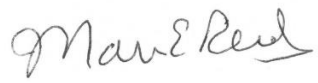
248. In signing this Declaration, I recognize that the Declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in the case and that cross-examination will take place within the United States. If cross-examination is required of me, I will appear for cross-examination within the United States during the time allotted for cross-examination.

249. I reserve the right to supplement my opinions in the future to respond to any arguments raised by Patent Owner and to consider any new information that becomes available to me.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 Title 18 of the United States Code.

Executed this 30 day of May 2025, in Tampa, Florida.

Respectfully submitted,



Marc Reid

ecomp CONSULTANTS
INFORMATION TECHNOLOGY & PATENT LITIGATION
TELECOMMUNICATIONS ▪ INTERNET ▪ EFORENSICS

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Marc Reid has over 30 years of experience in information technology consulting and financial management. Mr. Reid has been employed in IT management consulting and public accounting with several of the "Big 4" consulting firms. He has experience in multiple industries including financial services, healthcare, government, telecommunications, managed services, energy and utilities, and manufacturing. Mr. Reid has provided consulting services in information technology planning, design and implementation, ecommerce, systems development and configuration, IT strategy, and IT program and project management.

Mr. Reid is a Certified Public Accountant with Bachelor of Economics and Masters of Accounting Science degrees from the University of Illinois at Urbana-Champaign. Mr. Reid has been a testifying and consulting expert for multiple cases including patent infringement, damage calculation development, contract disputes, theft of trade secrets, and copyright infringement.

Professional Summary

Consulting and Financial Management	36 years	IT planning, design, development, configuration, and implementation including mobile data (cellular and private network), call center and contact management; electronic trading; payment processing including mobile applications; e-commerce and e-marketing; ERP (SAP, PeopleSoft and JD Edwards), SaaS and PaaS; GIS (Esri ArcGIS); EDI, mobile workforce management; CRM (Siebel, MS Dynamics and salesforce.com), IT Service Management (ServiceNow and BMC Remedy); IT audit and IV&V; software license management; business process transformation; and IT project and program management
Audit	3 years	Auditing experience in manufacturing, government, retail, financial services, and real estate.

Education, Licensure, and Certifications:

MAS – Master of Accounting Science	1986	University of Illinois Urbana - Champaign
BA – Bachelor of Arts, Economics	1983	University of Illinois Urbana – Champaign
Certified Public Accountant	1987	State of Florida
Chartered Global Management Accountant	2011	American Institute of CPAs
ITIL v3 2011 Foundations	2012	Loyalist Certification Services
Professional Scrum Master (PSM 1)	2018	Scrum.org
Certified Building Contractor (Florida-Inactive)	2003	State of Florida

Professional Experience:

2009 to Present **Senior Consultant**
eComp Consultants ***Tampa, FL***

Provide technology expert consulting for software development and implementation, eCommerce, internet, and large program and project management and litigation support for:

- Patent and copyright infringement litigation support including identifying prior art and validity/invalidity and infringement/non-infringement analyses
- Contract disputes and breach of contract
- Software licensing and license infringement
- Theft of trade secrets
- IT Audit
- Professional services disputes including project and program management and independent verification and validation
- Other intellectual property disputes
- Damage assessment
- Expert witness report development and testimony as required

2001 to Present **Managing Director**
VineStreet Financial LLC ***Tampa, FL***

Consulting to client companies in multiple industries. Services include assisting clients with information technology planning, design, development, configuration, and implementation; IT service management; program and project management; contract management; systems analysis; and IT strategy.

- Leading enterprise-wide ITSM solution and eCommerce payment processing platform implementation for a large government organization. Implementation also includes customer relationship and field service management to support utility and customer contact functions for the organization. Project includes a mapping component supported by Esri ArcGIS. Implementation also includes software asset management including license compliance. Project includes integrating the solution with independent systems such as GIS, work order management (WOM), and enterprise asset management (EAM) systems. Project also includes integrating the platform with an MS Azure cloud-based data warehouse as part of implementing enterprise performance management and supporting business intelligence tools.
- Led IT technology strategy project for a large Florida county government including developing a roadmap to transform the organization's technology architecture and implement cloud-based applications. Project included assessing enterprise data management strategy and use of business intelligence and enterprise performance management tools.
- Led a project to assist in contract negotiation for a ServiceNow implementation. Also developed implementation plan and justification for full ServiceNow IT Service Management (ITSM) implementation including process and organizational changes necessary for success.
- Consulted to a large managed services provider to implement a new enterprise cloud-based service management system. Project included working to improve the company's self-service provisioning capabilities and other customer service capabilities such as pay-per-use billing. Project also included establishing MS SPLA compliance procedures and license management processes.
- Consulted to a provider of medical equipment management services including improving operational processes and implementing an enterprise cloud-based service and asset management system. Project included significant customer contact center process and technology improvements, also including mobile field workforce management. Project also included software license management and compliance.
- Consulted to a healthcare provider to develop and implement an electronic health record system in support of multiple locations and business units. Project included evaluating existing records management processes and requirements for different jurisdictions and accrediting organizations.
- Consulted to companies establishing eCommerce websites including assisting in business model development as well as in negotiating license terms including

pricing and other terms and conditions. Consulted to companies hosting Microsoft applications about implementing SPLA compliance processes.
- Consulted to companies and government agencies in improving call center operations and supporting systems.
- Consulted to companies on projects to implement CRM systems including MS Dynamics and salesforce.com.
- Consulted to mobile payment processing development and implementation project and assisted in identifying application vendors and selecting solution.
- Served as Deputy Program Manager for a contract to provide the DoD with small form factor highly capable portable data centers for forward-deployed personnel.
- Provided IT service management consulting services to large Government organizations including the US Treasury and the US Department of Defense. Services include program and project management, IT service management process design and implementation (ITIL v3 2011), IT strategy services, enterprise performance management, organizational transition, configuration management, and information system assessment, design and implementation.
- Conducted Independent Verification and Validation reviews of several software development projects.
- Consulted to project to develop functional and technical requirements (including interfaces to legacy systems) for an ERP system for a large government agency. Project included developing the RFP and assisting in the vendor selection.
- Managed projects to develop document redaction and electronic filing requirements, perform software vendor selections and implement the selected software for a large Florida Clerk of Court. Project included assessing capabilities of existing IT infrastructure to support new applications as well as developing interfaces to the new case management system.
- Interim CFO for client in construction industry responsible for financial management, contract negotiations, estimate development and supervision, and related activities. Calculated damages for client in support of several construction-related litigations. Calculations included developing damages due to job costs incurred and lost profits, which included allocating costs among multiple jobs and defending the allocations.
- Led complete reorganization of a healthcare company including reengineering finance and performance management, contract management, human resources, and operations processes. Project included acquiring new CRM and workflow management technologies and managing their implementations.
- Led project for a consortium of large Japanese utilities to conduct a strategic review of the status of the utility industry in the U.S., identify current market leaders, and predict trends in the industry. The overall objective was to identify potential acquisition targets and their competitors.

1999 to 2001 **Senior Manager, Director**
Capgemini ***Tampa, FL***

Consulted to companies and government agencies as part of the global energy and utilities practice. Possess international experience in Western Europe.
- Led project to develop a new B2B ecommerce exchange for MRO supplies in the utility industry. Managed the implementation of software for connecting the suppliers and buyers to the exchange including incorporating appropriate EDI standards.
- Led project to implement Siebel CRM at large energy company. Project included vendor evaluation and schedule, and subsequent implementation.
- Managed a project to assist a utility in developing a business case and financial model for adding a fiber optic telecommunications network to its transmission and distribution networks. Analysis included simulations of multiple network configurations and financial modeling of various implementation scenarios.

- Led team that developed a global service offering for mergers and acquisition support and post-merger integration in the energy, utility and telecommunications industries. Experienced in post-merger integration of business processes and technologies.

1997 to 1999 **Senior Manager**
Accenture ***Tampa, FL***

Led consulting teams in the finance and performance management and process transformation disciplines.

- Managed project to implement SAP supply chain modules including ABAP development at a large Ohio manufacturer. Project included transforming supply chain processes to improve efficiency and significantly reduce materials acquisition and carrying costs.
- Led a project to implement ERP finance and accounting modules (PeopleSoft) for a $9 billion Illinois corporation. Project included managing interface development with certain legacy systems that remained after the implementation. Project included implementing an enterprise performance management process and supporting technology.

1994 to 1997 **Senior Manager**
Utility Partners, (1991 to 1993 with predecessor) ***Tampa, FL***

Led the workforce management and optimization consulting practice for this software developer and consulting services provider with responsibility for selling and delivering technology consulting services.

- Led project to improve customer service for a $1 billion corporation in the Southwestern U.S. through improved technologies and processes. Project included developing and implementing (in-house) sales force automation capabilities (including point-of-sale capabilities with laptops), and implementing mobile field workforce dispatch and management capabilities.
- Led several mobile field workforce management development, configuration and management projects. Projects included implementing wireless mobile scheduling, dispatch and as-built capture capabilities.

1993 to 1994 ***Manager***
1986 to 1989 ***PricewaterhouseCoopers*** ***Tampa, FL***

Provided consulting services to financial services companies and government agencies as part of the Business Process Transformation practice. Began career with the firm as an auditor for public and private companies, and government agencies.

- Directed project to reengineer credit card and travelers checks processing for a major division of one of the world's largest money center banks. Project included integrating disparate international processes and systems into a unified, global operation capable of greatly increased transaction volumes. Technology leveraged included CompuServe (including X25 EDI standards) for credit card processing.
- Consulted to a project to implement new dispatching system for an aviation services company to help manage MRO parts supply chain and improve cost data capture.

1989 to 1991 **Controller**
Pharmacy Management Services, Inc. ***Tampa, FL***

As Controller of this pharmacy benefits manager, directed all aspects of treasury, SEC reporting, accounting, billing and collections, funds investment, bank and lease financing, and supporting accounting systems. Led successful conversion from legacy accounting system to new JD Edwards application suite.