**IN THE UNITED STATES DISTRICT COURT**
**FOR THE DISTRICT OF DELAWARE**

| | |
|---|---|
| NOVASPARKS, INC.,<br><br>*Plaintiff,*<br><br>v.<br><br>EXEGY INC.,<br><br>*Defendant.* | Civil Action No. _____<br><br>**JURY TRIAL DEMANDED** |

## COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff NovaSparks, Inc. ("NovaSparks" or "Plaintiff") brings this Complaint for patent infringement against Exegy Incorporated ("Exegy" or "Defendant") and alleges as follows:

## THE PARTIES

1. NovaSparks is a corporation organized under the laws of Massachusetts, having its principal place of business at 225 W 35th Street, Suite 1204, New York, New York 10001.

2. On information and belief, Defendant Exegy Inc. is a Delaware corporation having its principal place of business at 349 Marshall Ave., Suite 100, St. Louis, MO 63119.

## JURISDICTION AND VENUE

3. This action arises under the patent laws of the United States, Title 35 of the United States Code. Accordingly, this Court has exclusive subject matter jurisdiction over this action under 28 U.S.C. §§ 1331 and 1338(a).

4. This Court has personal jurisdiction over Defendant. On information and belief, personal jurisdiction exists over Exegy because it is a corporation organized and existing under the laws of Delaware, with its registered agent at 251 Little Falls Dr., Wilmington, DE 19808.

5. Venue is proper in this district as to Exegy under 28 U.S.C. §§ 1391 and 1400(b)

because it is a corporation organized and existing under the laws of Delaware and resides in Delaware for purposes of venue under 28 U.S.C. § 1400(b).

## THE ASSERTED PATENT

6. NovaSparks is the leader in FPGA-based high performance and ultra-low latency trading solutions for financial markets and has been awarded various patents, including U.S. Patent No. 9,904,931 (the "'931 patent" or the "Asserted Patent").

7. The '931 patent, entitled "FPGA matrix architecture," was duly and legally issued by the United States Patent and Trademark Office on February 27, 2018, to inventor Marc Battyani. The '931 patent issued from U.S. Patent Application No. 15/263,111. The patent application was filed on September 12, 2016. A copy of the '931 patent is attached hereto as Exhibit 1. NovaSparks is the owner and assignee of all substantial rights in the '931 patent.

8. The '931 patent claims priority to U.S. Patent Application No. 13/768,773, filed on February 15, 2013, to provisional application No. 61/612,668, filed on March 19, 2012, and to provisional application No. 61/599,856, filed on February 16, 2012. *See* Exhibit 1.

## FACTUAL BACKGROUND

### A. Background On The Technology

9. In trading markets, large volumes of data are fed to market participants in formats that vary based on the source of the data. Market data is bundled according to a variety of formats into packets and distributed at massive volumes. Designing systems that process this information in a coherent format at low latency provides significant advantages. Some approaches have sought to lower the latency associated with processing this information using conventional server-based systems. It is also possible to augment such systems with hardware acceleration, and the hardware acceleration components can be configured to assist in processing the data from the data feed.

10. Traditional approaches had limited effectiveness, typically because they were unable

to address the specific nature of market data feeds. Data bursts are common in many high-volume data feeds, including in particular market data feeds that deliver trading or market exchange data. Historically, market data feed rates have been increasing at an overwhelming rate, in some instances, exponentially.

11. NovaSparks invented a high-volume data feed handler that addresses problems with conventional approaches through the use of a matrix of field programmable gate array (FPGA) nodes. The matrix uses various FPGA nodes connected by high-bandwidth, low-latency connections to guarantee deterministic execution across the matrix. NovaSparks' invention facilitates processing data from a variety of market data sources and in various formats while maintaining low latency even during burst conditions.

12. For example, Figure 4 in the '931 patent shows an example of an FPGA matrix for processing and distributing market data from different market sources. The figure is reproduced below:

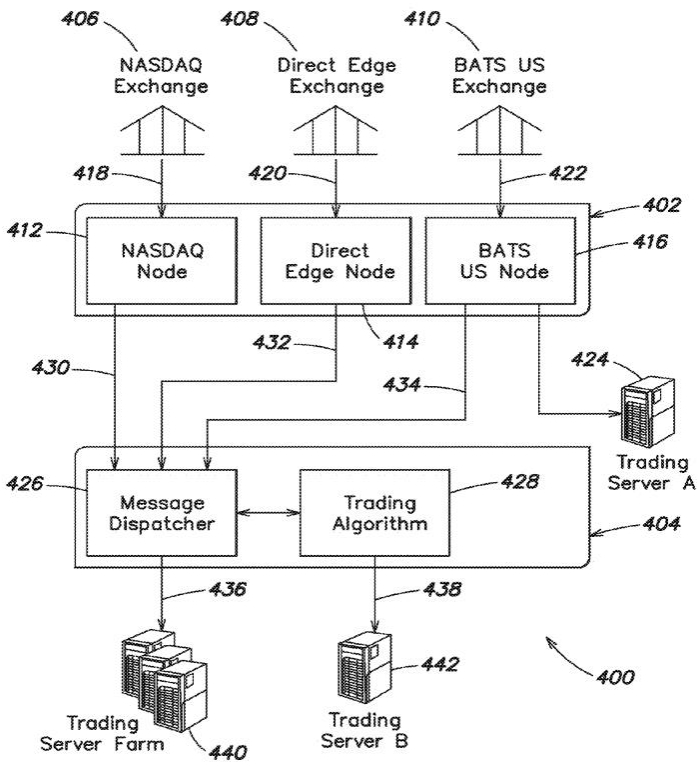



FIG. 4

13. The example illustrated in FIG. 4 shows a system that uses an FPGA matrix for processing and distributing market data to a number of downstream consumers. Appliances 402 and 404 in the figure each comprise a plurality of FPGA nodes—nodes in appliance 402 handle incoming market data feeds and process these feeds before delivering each to appliance 404 and the FPGA nodes therein. *See* Exhibit 1 at 11:61-12:32.

**B. Background On Exegy's Infringement**

14. Exegy infringes NovaSparks' inventions by making, using, selling, offering for sale, and/or importing a network appliance and components thereof that combines FPGA(s) with additional components and features.

15. More specifically, Exegy manufactures, uses, sells, offers for sale, and/or imports ticker plants, feed handlers, and algorithmic trading products, including for example ticker plants,

nxFeed feed handlers, and nxAccess engine (collectively, the "Accused Products"). Exegy's products are designed to be installed and operated together within the United States without authority, in a manner that constitutes infringement of one or more claims of the '931 patent.

16. The Accused Products include Exegy ticker plants, feed handlers, and algorithmic trading engines that are manufactured, used, sold, offered for sale, and/or imported within the United States including, without limitation, each and every model of Exegy's ticker plants (including the Exegy Ticker Plant described in Exegy's Product Sheet, see Exhibit 2), nxFeed feed handlers (see Exhibit 4, and described by product marketing material, available here: enyx.com/wp-content/uploads/2022/08/nxFeed_Brochure_V3.31-WEB.pdf), and nxAccess (described here: https://www.enyx.com/nxaccess/, see also Exhibit 7).

17. On information and belief, Exegy acquired Enyx and its associated products in May 2022 and operates as one company (Exegy Inc., described here: https://www.exegy.com/exegy-acquires-enyx/). *See* Exhibit 3; Exhibit 5.

18. On information and belief, Exegy's acquisition of Enyx resulted in a combined company that operates as Exegy Inc. (Defendant). Likewise, on information and belief, the acquisition expanded Exegy's products to include Enyx's FPGA-based trading products, including nxFeed feed handlers and nxAccess:

> Exegy Incorporated, a leading provider of front-office trading solutions differentiated by hardware acceleration, predictive analytics, and premium managed services, today announced it has acquired Enyx, a leading developer of FPGA-based, high-performance trading solutions. The transaction was supported by Marlin Equity Partners, a global investment firm with over $8.1 billion of capital commitments under management. Operating as Exegy Inc., the combined company is the only global firm offering a product suite that leverages low-latency field-programmable gate array (FPGA) technology at all stages of the trading lifecycle.
>
> The deal expands Exegy's suite of solutions to include Enyx's line of low-latency FPGA trading products, as well as adding an innovative platform for the speedy development of bespoke trading solutions. This strengthens Exegy's role as a vital partner for firms across the capital markets ecosystem – including those with the most demanding latency requirements.

*See* Exhibit 5 (emphasis added).

19. On information and belief, the accused products including for example nxFeed feed

handlers and nxAccess are designed to be installed and operated together as part of a ticker plant contained in an FPGA server in a manner that infringes claims of the '931 patent.

20. On information and belief, Exegy has made, used, sold, offered to sell, imported, installed, and/or have had installed Accused Products in Delaware.

**COUNT I**
(INFRINGEMENT OF U.S. PATENT NO. 9,904,931)

21. Plaintiff repeats and realleges paragraphs 1-20 as if fully set forth at length herein.

22. Exegy has infringed and continues to infringe one or more claims of the '931 patent in this judicial district and elsewhere in the United States.

23. Upon information and belief, Exegy makes, uses, sells, offers for sale, and/or imports into the United States the Accused Products.

24. Exegy directly infringes the '931 patent under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, by using the Accused Products in an infringing manner within the United States, including in installation, testing, and demonstrating the Accused Products.

25. For example, Exegy directly infringes at least claim 1 of the '931 patent, either literally or under the doctrine of equivalents. The asserted claim(s) of the '931 patent are valid, enforceable, and currently in full force and effect.

26. Claim 1 of the '931 patent recites:

> 1. A network appliance for processing high volume market data feeds, the network appliance comprising:
>
> a matrix of at least three FPGA nodes wherein each FPGA node includes respective memory, and I/O
>
> wherein each of the at least three FPGA nodes includes at least two physical links, the at least two physical links each being connected to respective ones of the other nodes in the matrix each of the at least two physical links comprises a low latency high bandwidth connection;

at least a first circuit board housing one or more FPGA nodes of the matrix of FPGA nodes;

at least one additional external link connected to the matrix of FPGA nodes, wherein the external link is directly connected to one or more high volume real-time market data feeds, wherein the real-time market data feeds are characterized by data burst conditions and wherein at least one node in the matrix of FPGA nodes receives the one or more high-volume real-time market data feeds to extract raw market data for processing the raw market data over one of the at least two physical links to another FPGA node;

the another FPGA node configured to build in real-time one or more order books associated with a plurality of financial instruments and generate processed market data including updates of the one or more order books, order trades, and status for financial instruments from the raw market data; and

wherein at least one of three FPGA nodes includes at least one additional physical link and is configured to transmit messages to a plurality of trading servers over the at least one additional physical link, the transmitted messages including the processed market data for trade analysis and trade execution by one or more trading algorithms.

27. As one non-limiting example of said infringement, on information and belief, the Accused Products embody each and every element recited in claim 1 of the ’931 patent and Exegy infringes claim 1 of the ’931 patent by selling, offering to sell, and using the Accused Products, including for example when deploying a network appliance capable of algorithmic trading using nxAccess, with the appliance comprising nxFeed as part of a ticker plant within an FPGA server, as described below.

28. Exegy does and will make, use, offer to sell, sell, and/or import a network appliance for processing high volume market data feeds. For example, Exegy makes, sells, offers to sell, uses, and/or imports a network appliance capable of algorithmic trading that includes nxFeed feed handlers operating in conjunction with a ticker plant. *See, e.g.*, Exhibit 4. As depicted in Exegy’s marketing materials and on information and belief, nxFeed is offered for sale, sold, and used as part of a network appliance (e.g., an FPGA server), including as shown in the arrangement below:

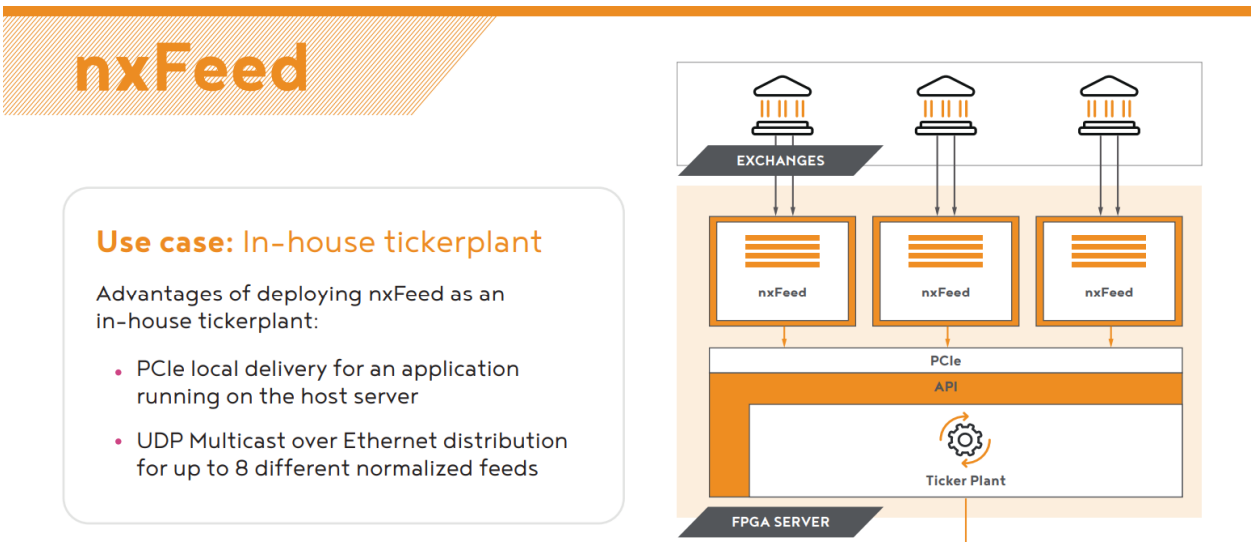


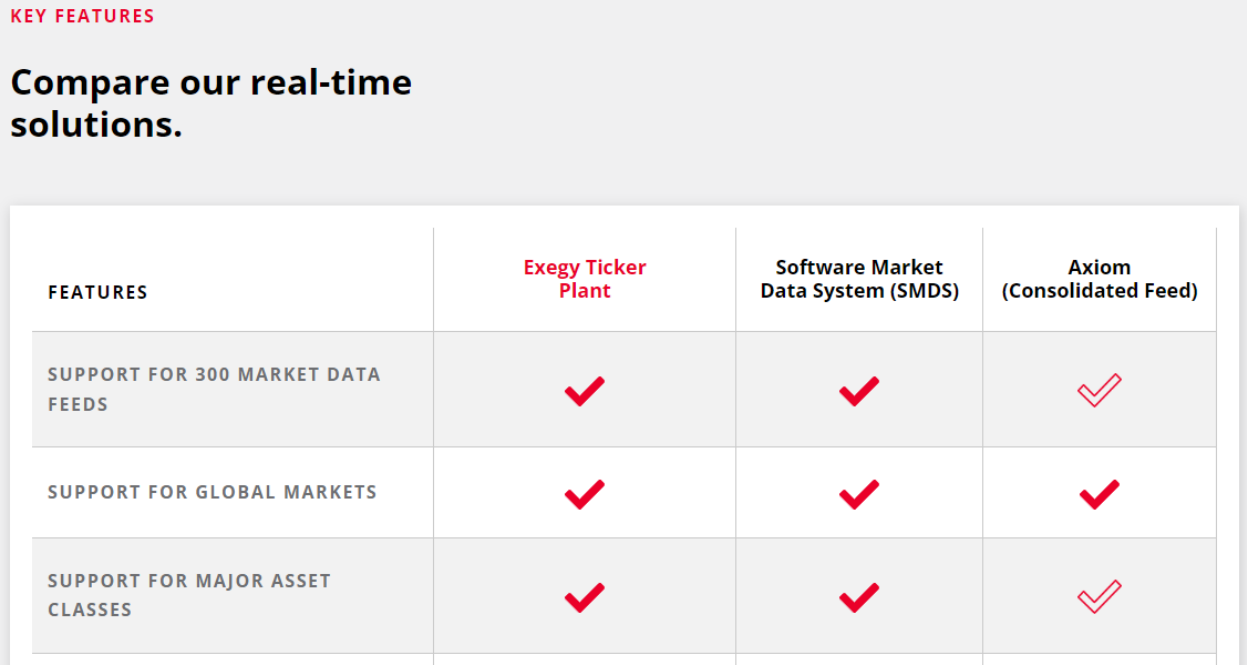

Exhibit 4 at 2.

29. The appliance depicted above is an Exegy network appliance for processing high volume market data feeds. As the figure above shows, the nxFeed feed handlers receive data from exchanges and the appliance ultimately distributes "up to 8 different normalized feeds." As another example, Exegy's marketing materials advertise an example of a ticker plant as an appliance that "can connect to direct data feeds:"

**Ticker Plant Deployment Options**

Exegy offers flexible deployment options that accommodate your needs and integrate with your existing infrastructure. The XTP can be installed on premises in your data center environment and can connect to direct data feeds using your existing connectivity or it can be deployed as a hosted solution.

*See* https://www.exegy.com/products/exegy-ticker-plant/. Exegy also identifies "support for 300 market data feeds" as the first feature in a list of "key features" advertised on its website:



KEY FEATURES

**Compare our real-time solutions.**

| FEATURES | Exegy Ticker Plant | Software Market Data System (SMDS) | Axiom (Consolidated Feed) |
|---|---|---|---|
| SUPPORT FOR 300 MARKET DATA FEEDS | ✓ | ✓ | ✓ |
| SUPPORT FOR GLOBAL MARKETS | ✓ | ✓ | ✓ |
| SUPPORT FOR MAJOR ASSET CLASSES | ✓ | ✓ | ✓ |

*See id.*

30. Further, Exegy does and will make, use, offer to sell, sell, and/or import a network appliance having a matrix of at least three FPGA nodes wherein each FPGA node includes respective memory, and I/O. For example, Exegy sells, offers to sell, and uses a network appliance that includes a ticker plant and nxFeed feed handlers. As depicted Exegy's marketing materials and on information and belief, a plurality of nxFeed feed handlers are offered for sale, sold, and used in Exegy's network appliance in conjunction with a ticker plant; for example, three nxFeed feed handlers and one ticker plant are depicted in the appliance illustrated below:

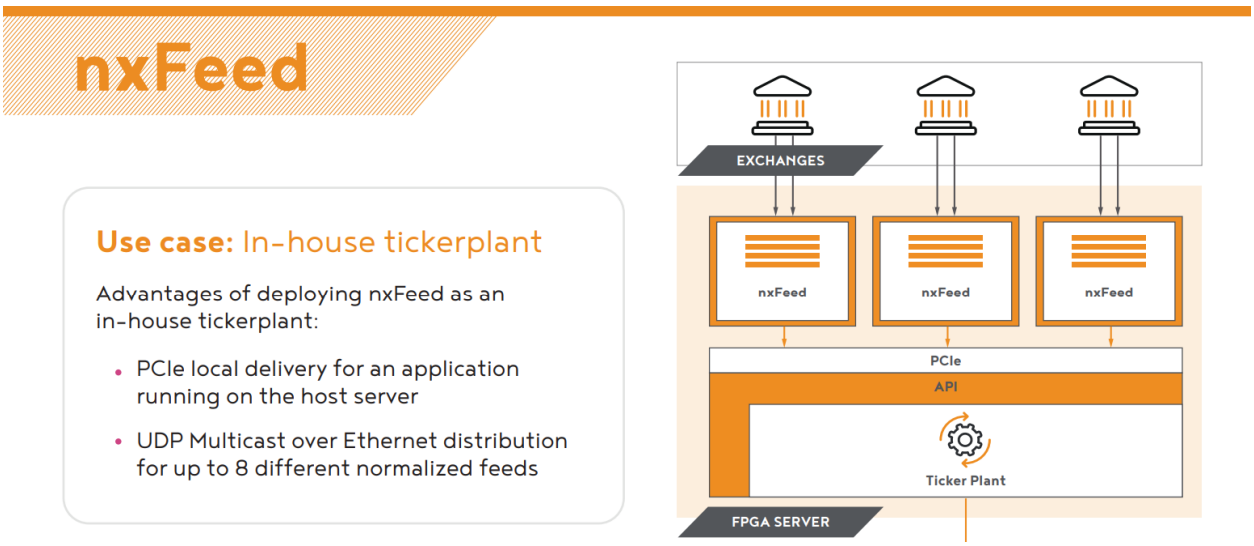



Exhibit 4 at 2.

31. On information and belief, each nxFeed feed handler comprises an FPGA and processes data feeds thereon:

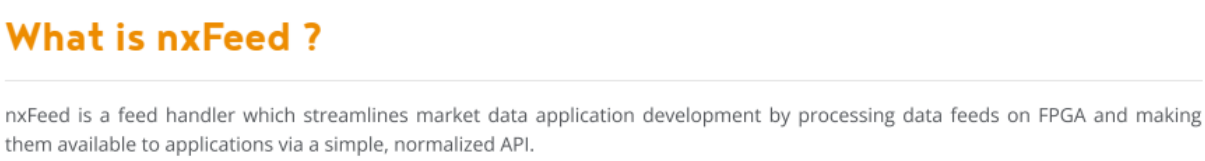



Exhibit 6 at 1. The network appliance depicted in Exhibit 4 and reproduced above uses at least three nxFeed feed handlers, each of which comprises multiple nodes individually as well as when viewed collectively, and thus comprises at least three FPGA nodes having respective memory and I/O.

32. On information and belief, the network appliance above also comprises a ticker plant which includes one or more additional FPGA nodes along with memory and I/O. For example, Exegy advertises its own ticker plant as an appliance that normalizes and distributes real-time market data using FPGA technology:

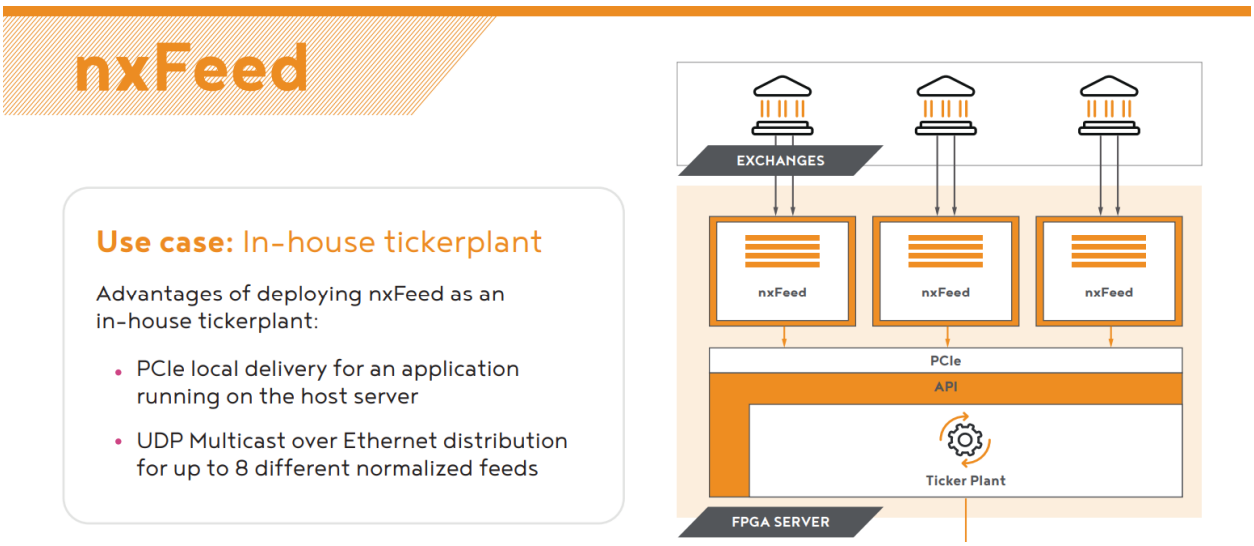
> The Exegy Ticker Plant is a purpose-built appliance that normalizes and distributes real-time market data to latency-sensitive trading applications. Patented Field-Programmable Gate Array (FPGA) technology allows Exegy appliances to operate faster and more efficiently than commodity servers running software. Real-time market data is delivered to your applications in a matter of microseconds, and your datacenter costs for space and power are reduced by a factor of ten or more.

Exhibit 2 at 1. On information and belief, each ticker plant comprises multiple nodes and in the example of Exegy's ticker plant there are more than three additional nodes because they are deployed in redundant pairs:

> Exegy Ticker Plant appliances are deployed in redundant pairs with automatic failover. Exegy utilizes a secure, global infrastructure to remotely monitor and manage Exegy appliances in co-location, proximity, and corporate datacenters.

Exhibit 2 at 2.

33. Further, Exegy does and will make, use, offer to sell, sell, and/or import a network appliance wherein each of the at least three FPGA nodes includes at least two physical links, the at least two physical links each being connected to respective ones of the other nodes in the matrix, with each of the at least two physical links comprising a low latency high bandwidth connection and with the appliance having at least a first circuit board housing one or more FPGA nodes of the matrix of FPGA nodes. For example, on information and belief, each nxFeed feed handler is connected internally via low latency high bandwidth physical connections, and via peripheral component interconnect express (PCIe) bus within an FPGA server to other nodes including nodes in other nxFeed feed handler and a ticker plant:




*See* Exhibit 4 at 2; *see also* Exhibit 2 at 2.

34. On information and belief, the internal and PCIe connection(s) are low latency high bandwidth connections, and the network appliance includes many internal connections within each nxFeed feed handler as well as physical connections for interconnecting the nxFeed feed handlers and ticker plants.

35. On information and belief, Exegy's network appliance has at least one circuit board housing its FPGA nodes within its matrix of FPGA nodes. For instance, on information and belief, each nxFeed feed handler is deployed on a NIC that comprises a circuit board:

## What is nxFeed ?

nxFeed is a feed handler which streamlines market data application development by processing data feeds on FPGA and making them available to applications via a simple, normalized API.

Designed to complement trading applications or in-house ticker plant development, nxFeed will arbitrate, decode, normalize and build order books on a plug-n-play, FPGA-based NIC — significantly reducing application processing resources and overall latency. This allows developers to focus on what they do best – build core business logic.

Exhibit 6 at 1.

36. Further, Exegy does and will make, use, offer to sell, sell, and/or import a network appliance having at least one additional external link connected to the matrix of FPGA nodes, wherein

the external link is directly connected to one or more high volume real-time market data feeds, wherein the real-time market data feeds are characterized by data burst conditions and wherein at least one node in the matrix of FPGA nodes receives the one or more high-volume real-time market data feeds to extract raw market data for processing the raw market data over one of the at least two physical links to another FPGA node. For example, on information and belief, each nxFeed feed handler appliance has at least one additional external link to real-time market data feeds (e.g., exchanges) that are characterized by data burst conditions. Each of these links is connected to the matrix of FPGA nodes, as shown in Exhibit 4 at 2 above. For example, each nxFeed feed handler is directly connected to external high volume real-time market data feeds, which are real-time market data feeds characterized by data burst conditions.

37. On information and belief, each nxFeed feed handler has a node within the matrix of FPGA nodes to receive the one or more high-volume real-time market data feeds and extract raw market data for processing the raw market data over one of the at least two physical links to another FPGA node, including nodes within the same nxFeed feed handler, to a ticker plant within the matrix, and to nodes in other nxFeed feed handlers within the matrix. For example, nxFeed nodes receive and extract raw market data from market data feeds for processing the raw market data over physical links internally to other FPGA nodes to facilitate internal data distribution, which on information and belief includes processing market data feeds to other nxFeed nodes for purposes including decoding, normalization, arbitration, book building, and data distribution.

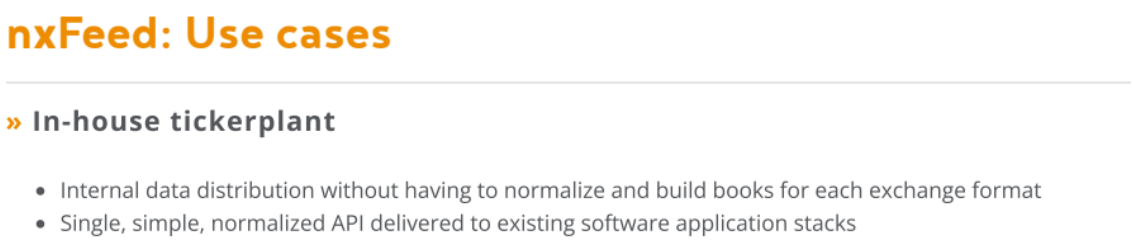


Exhibit 6 at 2; *see also* Exhibit 6 at 1,

38. Further, Exegy does and will make, use, offer to sell, sell, and/or import a network appliance having another FPGA node configured to build in real-time one or more order books associated with a plurality of financial instruments and generate processed market data including updates of the one or more order books, order trades, and status for financial instruments from the raw market data. For example, on information and belief, nodes within each nxFeed feed handler in Exegy's network appliance receive data over physical links from their respective high-volume real-time market data feed receiving nodes discussed in the preceding paragraph. These nxFeed nodes then arbitrate, decode, normalize and build order books, i.e., nodes in each feed handler build order books in real-time for financial instruments of interest and generates processed market data, which on information and belief includes updating order books, order trades and instrument status:

## What is nxFeed ?

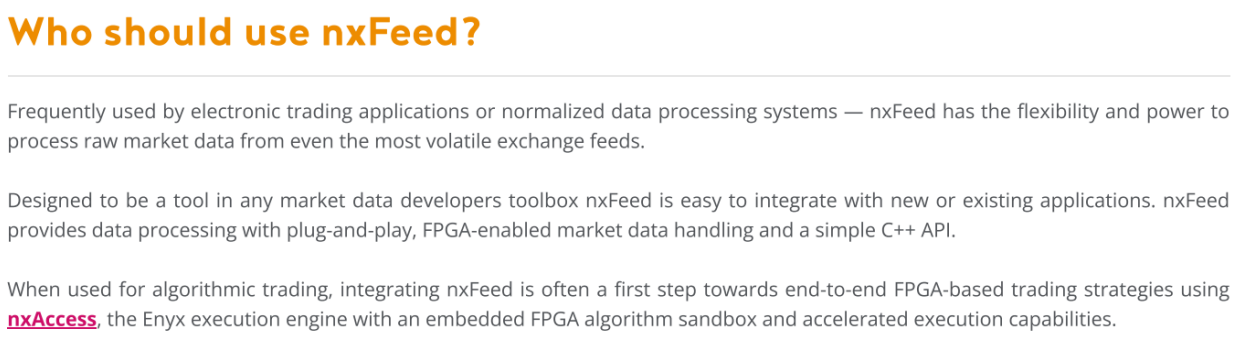
nxFeed is a feed handler which streamlines market data application development by processing data feeds on FPGA and making them available to applications via a simple, normalized API.

Designed to complement trading applications or in-house ticker plant development, nxFeed will arbitrate, decode, normalize and build order books on a plug-n-play, FPGA-based NIC — significantly reducing application processing resources and overall latency. This allows developers to focus on what they do best – build core business logic.

Exhibit 6 at 1; *see also id.* at 1 ("nxFeed will arbitrate, decode, normalize and build order books"); *id.* at 2 ("Internal data distribution without having to normalize and build books for each exchange format").

39. Further, Exegy does and will make, use, offer to sell, sell, and/or import a network appliance wherein at least one FPGA node includes at least one additional physical link and is configured to transmit messages to a plurality of trading servers over the at least one additional physical link, the transmitted messages including the processed market data for trade analysis and trade execution by one or more trading algorithms. For example, Exegy's network appliance is designed to

be used for algorithmic trading whereby integrating nxFeed feed handlers is a first step towards FPGA-based trading using nxAccess (further described here: https://www.enyx.com/nxaccess/):



## Who should use nxFeed?

Frequently used by electronic trading applications or normalized data processing systems — nxFeed has the flexibility and power to process raw market data from even the most volatile exchange feeds.

Designed to be a tool in any market data developers toolbox nxFeed is easy to integrate with new or existing applications. nxFeed provides data processing with plug-and-play, FPGA-enabled market data handling and a simple C++ API.

When used for algorithmic trading, integrating nxFeed is often a first step towards end-to-end FPGA-based trading strategies using **nxAccess**, the Enyx execution engine with an embedded FPGA algorithm sandbox and accelerated execution capabilities.

Exhibit 6 at 1.

40. On information and belief, nxAccess is a trading engine that is connected to at least one FPGA node via at least one physical link within Exegy's network appliance and configured to execute a trading algorithm by receiving messages that include processed market data transmitted by the nxFeed feed handlers and/or ticker plant to an nxAccess engine over the at least one additional physical link, where nxAccess is configured to analyze and execute trades in accordance with its trading algorithm.

41. Thus, on information and belief, Exegy makes, sells, offers to sell, and uses an FPGA server appliance, including for example an appliance comprising nxFeed feed handlers, a ticker plant, and nxAccess infringes at least claim 1 of the '931 patent.

42. The full extent of Exegy's infringement is not presently known to Plaintiff. On information and belief, Exegy has made, used, sold, offered for sale, and/or imported products having different names and configurations, including under the Enyx, Vela, and/or Exegy brand names, the use of which infringes the '931 patent in a similar manner. Plaintiff makes this preliminary identification of infringing products and infringed claims without the benefit of discovery or claim construction in this action, and expressly reserves the right to augment, supplement, and revise its

identification based on additional information obtained through discovery or otherwise.

43. Exegy has had notice of and has been aware of the ’931 patent and its infringement of the ’931 patent since at least the filing of this Complaint.

44. In addition, since at least the above-mentioned date when Exegy was on notice of its infringement, Exegy has actively induced and continues to induce others to infringe one or more of the claims of the ’931 patent in violation of 35 U.S.C. § 271(b), as described below.

45. On information and belief, Exegy knowingly and intentionally induces users of one or more of the Accused Products to directly infringe one or more claims of the ’931 patent by advertising, encouraging, instructing, and aiding one or more persons in the United States, including but not limited to end users, distributors, and installers to use the Accused Products in a manner that infringes the ’931 patent.

46. For example, Exegy induces infringement by providing the Accused Products, contracting for the distribution of the Accused Products, by marketing the Accused Products, and by creating and/or distributing user manuals, web pages, marketing materials, and/or similar materials with instructions on using the Accused Products in an infringing manner. The use of the Accused Products in accordance with Exegy’s instructions results in infringement of the asserted claims of the ’931 patent.

47. On information and belief, the Accused Products are designed in such a way that when they are used for their intended purpose, the user infringes the ’931 patent. Exegy knows and intends that its distributors, installers, and/or end users that purchase the Accused Products will use those products for their intended purpose.

48. On information and belief, Exegy was aware of the infringement of the ’931 patent or acted with willful blindness as to its existence at least as a result of the filing of this Complaint.

49. Moreover, by continuing to make, use, sell, offer to sell, and/or import the Accused Products after Exegy first had notice of NovaSparks' allegations of infringement, Exegy has indirectly infringed and continues to indirectly infringe by contributing to the infringement of one or more claims of the '931 patent pursuant to 35 U.S.C. § 271(c), as described below.

50. On information and belief, Exegy has contributorily infringed, and continues to contributorily infringe, the asserted claims by offering to sell, selling, and importing into the United States the Accused Products that embody the claimed network appliance, knowing that the Accused Products are especially made for use in infringing the '931 patent, and are not staple articles of commerce suitable for a substantial non-infringing use. In particular, the Accused Products are network appliances including feed handlers and a ticker plant that need to be set-up by Exegy's distributor and/or user in accordance with specific directions from Exegy in order to be operable for their intended purpose. The Accused Products contain components, including FPGA nodes, that specifically implement the claimed network appliance and are especially built to do so. On information and belief, Exegy has performed and continues to affirmatively act with knowledge of the '931 patent and with the intent, or willful blindness, that they cause the direct infringement of the '931 patent.

51. On information and belief, NovaSparks has suffered and continues to suffer damages as a result of Exegy's infringement of the '931 patent in an amount to be determined at trial.

52. Exegy's infringement of the '931 patent is causing irreparable harm for which NovaSparks has no adequate remedy at law unless Exegy is enjoined by this Court. Under 35 U.S.C. § 283, NovaSparks is entitled to a permanent injunction against further infringement of the '931 patent.

53. NovaSparks does not have an adequate remedy at law.

54. On information and belief, Exegy's infringement is willful and deliberate, entitling NovaSparks to increased damages under 35 U.S.C. § 284 and to attorneys' fees and costs incurred in

prosecuting this action under 35 U.S.C. § 285.

## JURY DEMAND

Plaintiff hereby requests a trial by jury pursuant to Rule 38 of the Federal Rules of Civil Procedure.

## PRAYER FOR RELIEF

Plaintiff respectfully requests that the Court find in its favor and against Exegy and that the Court grant Plaintiff the following relief:

a. A judgment that Exegy has directly infringed the Asserted Patent as alleged herein;

b. A judgment that Exegy has indirectly infringed the Asserted Patent as alleged herein;

c. A permanent injunction against Exegy and its affiliates, subsidiaries, assignees, employees, agents or anyone acting in privity or concert with them from infringing the Asserted Patent, including enjoining the making, offering to sell, selling, using, or importing into the United States products claimed in any of the claims of the Asserted Patent; using or performing methods claimed in any of the claims of the Asserted Patent; inducing others to use and perform methods that infringe any claim of the Asserted Patent; or contributing to others using and performing methods that infringe any claim of the Asserted Patent, until the expiration of the Asserted Patent.

d. A judgment for an accounting of all damages, past and future, including lost profits, sustained by Plaintiff as a result of the acts of infringement by Exegy;

e. A judgment and order requiring Exegy to pay Plaintiff damages under 35 U.S.C. § 284, including up to treble damages as provided by 35 U.S.C. § 284, and any royalties determined to be appropriate;

f. A judgment and order requiring Exegy to pay Plaintiff pre-judgment and post-judgment interest on the damages awarded;

g. A judgment and order finding this to be an exceptional case and requiring Exegy to pay the costs of this action (including all disbursements) and attorneys' fees as provided by 35 U.S.C. § 285; and

h. Such other and further relief as the Court deems just and equitable.

Dated: January 3, 2023

Respectfully submitted,

*/s/ Benjamin Schladweiler*

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