

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DEFI EDUCATION FUND

Petitioner

v.

TRUE RETURN SYSTEMS, LLC

Patent Owner

Case IPR2023-01388

U.S. Patent No. 10,025,797

PATENT OWNER'S PRELIMINARY RESPONSE

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Patent Trial and Appeal Board
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True Return Systems LLC (“Patent Owner” or “True Return”) respectfully submits this Preliminary Response to the petition of the DeFi Education Fund (the “Petition” and “Petitioner” respectively) seeking *inter partes* review of U.S. Patent No. 10,025,797 (the “’797 Patent” or “’797”).

I. INTRODUCTION

Petitioner has challenged the validity of claims 1-20 of U.S. Patent No. 10,025,797 (the “’797 Patent”). Patent Owner opposes institution.

The Petition has not established a reasonable likelihood that the asserted references render any of claims 1-20 unpatentable. The asserted references taken separately or in combination, as presented in the Grounds, do not teach or disclose all limitations of any challenged claim. In particular, the Petition consistently overlooks the ‘797 Patent’s material departures from the 2008 Satoshi Nakamoto Paper titled “Bitcoin: A Peer-to-Peer Electronic Cash System.” EX1011. The Board should therefore deny institution for failure to present a likelihood that the Petitioner will prevail on any Ground.

As demonstrated below, the Petition has failed to make the required showing of a reasonable likelihood of success on all challenged claims of the ‘797 Patent, and the Petition’s art, taken separately or in combinations generally teaches away from or affirmatively precludes limitations and elements of the challenged claims.

II. ARGUMENT

The Board should deny institution because the Petition fails to show a reasonable likelihood that Petitioner can prevail on any claim. The Petition presents two Grounds, namely that: (1) claims 1-20 are invalid under 35 U.S.C. § 103 over Zinder and (2) claims 1-20 are invalid under 35 U.S.C. § 103 over Zinder in view of Toll and Zhang. As discussed below, none of the prior art cited by Petitioner (alone or in combination) discloses, teaches, or suggests a storage configuration, storage operation, and storage classification range and method or system that supports the Petition. Further, core Petitioner art citations (including Zinder, which is central to the Grounds) teach away.

A. Background

1. The State of the Art

Many experts consider the 2008 publication of the paper “Bitcoin: A Peer-to-Peer Electronic Cash System” under the pseudo-anonymous name Satoshi Nakamoto (EX1011) the first scalable and reliable format for a peer-to-peer distributed computer ledger. Nakamoto teaches or describes a particular form of orthodoxy based on full disintermediation (i.e., we don’t want to rely on bankers) and no centralization (i.e., we don’t want to rely on centralized books and records). Nakamoto’s paper has generally served as a bible for inventors since its publication,

and the decentralized finance (“DeFi”) community believes every invention needs to either conform or pretend to conform with Nakamoto’s orthodoxy.

Zinder (EX1004) for example, feigns Nakamoto orthodoxy, which in this case, leads to dizzying duplication of data and system bloat. In contrast to Nakamoto, the ‘797 Patent is affirmatively based on a full range of centralizations, including full centralization (i.e., we can rely on a single source point) to full distribution (i.e., Nakamoto’s Bitcoin design in its most ideal implementation). In addition to other shortcomings, the Petitioner fails to identify this departure of the ‘797 Patent in any of its analyses.

As detailed below, the petition also misstates and mischaracterizes other core elements of the state of the art including the treatment of “providing blockchains with access to external or exogenous data” (*See* including EX1003, ¶ 36 and Petition, pp.5-6), “time-sequenced electronically published data streams” (*See* including EX1003, ¶ 43), and “at least one descriptive differential” (*See* including Petition, p.65).

2. The ‘797 Patent

The ‘797 Patent, titled, “Method and System for Separating Storage and Process of a Computerized Ledger for Improved Function,” is generally directed to systems and methods that improve distributed ledger technology by addressing

computational, time, storage, and security constraints inherent in distributed ledgers (such as blockchains). EX1016, ¶¶ 22-23. The general approach of the '797 Patent is to separate certain processing and storage functions from a base distributed computerized ledger (such as a blockchain) but link such separated processing and storage to the base distributed computerized ledger. *Id.* The '797 Patent issued on July 18, 2018. *Id.*, ¶ 22.

The '797 Patent was, in part, a response to the actual state of the art, which was incomplete, narrow, and failing.

The technology underlying the '797 Patent was developed by Jack Fonss, True Return's sole owner. Much of the work of True Return, including the '797 patent, is directed at core solutions to achieve novel and particular outcomes in large-scale data environments. For instance, the invention and results of the '797 Patent include merging the pooled processing and fungibility of a distributed blockchain with bespoke capabilities and outcomes that achieve novel particularity. *See* EX1001, p. 13, Cols. 5-6.

The '797 Patent invention is generally directed at the architecture, components, instructions, and operations of computer system operating environments with mixed format or hybrid storage devices including the types of distributed computer ledgers (DCL) used in recently developed cryptocurrency

protocols. The invention includes the system of devices, components, and instructions to move certain functionality and storage off a DCL while simultaneously allowing a DCL to utilize exogenous data to update transaction records. Among other benefits, the components and devices of a differentials processing/storage system links a DCL to exogenous data while keeping and implementing certain computing-intense processes and storage-intensive data separate so that a DCL is not burdened with such, altering the operation of computer system components including increased transaction throughput and reduced storage overhead. *See* including EX1016, ¶ 27.

The three independent claims, recite components, instructions and operations comprising among other things: (1) at least one of a centralized storage device or a decentralized storage device linked to at least one value source from a group consisting of at least one time-sequenced electronically published data stream and a list of descriptive differentials, generally referred to as the parallel storage of differentials layer (a non-limiting summary of a “PSDL”), (2) at least one transaction ledger record containing electronic transactions records on at least one of a distributed network of independent computers or a decentralized network of computers writing or appending electronic transaction records (a non-limited summary of a “DCL”) , and (3) the time-sequenced values or strings are accessed,

captured, stored, and processed with the PSDL and operationally linked to the transaction records of the DCL imputing the accessed, processed and stored differentials to DCL transaction records for purposes including appending and recording records to the DCL (collectively, the “’797 Elements”).

3. Petitioner's Art Fails to Support Its Claims of State of the Art

The Petitioner relies on the non-patent and patent art presented under Petition headings “Blockchain Storage Challenges,” “Blockchain External Data Challenges,” and “Summary of Fonss and the Cited Art.” Considered separately or in combinations, the Petitioner's art teaches away or affirmatively precludes the claims and specification of the ‘797 Patent.

a. Blockchain Storage Challenges

The ‘797 Patent is based on and requires a specific architecture of storage components, specific instructions, specific separations, the storage of specific elements, and specific linked operations. Relating to storage classifications, the ‘797 Patent identifies and defines (i) centralized, (ii) decentralized, and (iii) distributed consistent with convention. *See* including EX1001, p. 18, Col. 18, and FIGS. 15-17.

Petitioner art MedRec (EX1009), IPFS (EX1021), and Swarm (EX1024) are self-described as “distributed” storage solutions, and Petitioner art SIA (EX1022) and Storj (EX1023) are self-described as “decentralized” storage solutions; the

Petitioner's art does not teach, cover, or suggest the required '797 Patent storage range.

Petitioner's expert incorrectly states that "[t]he simple fact of the matter is that blockchain storage challenges were addressed prior to 2017 through new technologies (e.g., IPFS, Sia, Storj, Swarm, etc.) and implemented in numerous systems well in advance of the invention of Fonss." EX1003 ¶ 33.

'797 Patent claim 1 states:

"storing the at least one electronic parallel storage of the differences layer on at least one of a **[X] centralized** storage device controlled by the specialized computer system or a **[Y] decentralized** device...". EX1001, p.19, Claim 1. (emphasis and annotations added)

"storing the DCL containing the electronic transaction records on at least one of a **[Z] distributed** network...or a decentralized network...". *Id.*

'797 Patent, independent claim 19 states:

"store the at least one electronic parallel storage of the difference layer on at least one of a **[X] centralized** storage device...or a **[Y] decentralized** storage device for increasing functionality and utility of the DCL." EX. 1001, p.20, Claim 19. (emphasis and annotations added)

"store the DCL containing the electronic transaction records on at least one of a **[Z] distributed** network...or a decentralized network...". *Id.*

It should be noted that the '797 Patent operates over a full computing network and components range from "X" centralized, to "Z" distributed.

Petitioner's art addressed in the order of presentation in Petitioner's Declaration, beginning with "Blockchain Storage Challenges" (*See* Petition, pp. 3-5, and EX1003 ¶¶ 30-33):

MedRec (EX1009) explicitly disavows the required '797 storage and networking, MedRec stating: "*[w]ithout creating any centralized data repositories*" (EX1003, ¶ 31), emphasis added.

IPFS (EX1021) teaches away or discourages the required '797 storage and networking defining itself as a "peer-to-peer distributed file system" (*Id.*, p.1), and stating with respect to its Self-certified Files Systems (SFS) "All SFS instances share a global namespace where name allocation is cryptographic, *not gated by any centralized body.*" *Id.* p.2., emphasis added.

SIA (EX1022) teaches away or discourages the required '797 storage and networking defining itself as a "... a decentralized cloud storage platform" (*Id.* p.1), stating "*Instead of renting storage from a centralized provider*, peers on Sia rent storage from each other." *Id.*, emphasis added.

Storj (EX1023) discourages and precludes the required '797 storage and networking, defining itself as "A peer-to-peer cloud storage network" (*Id.* p.1), discrediting '797 storage and networking in its statement: "*A decentralized cloud storage network offers many advantages compared to datacenter-based cloud*

storage.” (*Id.*, p.2, emphasis added). Storj makes no provision of the storage classifications of the ‘797 Patent.

Swarm (EX1024) has no teaching, suggestions, or provisions for the required ‘797 storage and networking, simply stating “Swarm is a distributed storage platform” (*Id.* p.3).

Petitioner’s expert (state of the art) conclusion “The simple fact of the matter is that blockchain storage challenges were addressed prior to 2017 through new technologies (e.g., IPFS, Sia, Storj, Swarm, etc.) and implemented in numerous systems well in advance of the invention of Fonss” (EX1003 ¶ 33), is not supported by its own art, and none of the art, considered separately or in combination support the conclusion. Further, the Petitioner’s expert presents no motivation to combine, although the outcome would remain unchanged.

b. Blockchain External Data Challenges

To further establish state of the art, the Petitioner relies on what it defines as the “Blockchain External Data Challenges.” *See* including Petition, pp. 5-6, and EX1003, ¶¶ 34-36. Petitioner’s conclusion relating to a 2017 whitepaper titled “Chainlink: A Decentralized Oracle Network” (EX1020), is “[a]s with the storage challenges, the challenge of providing blockchains with access to external or

exogenous data was solved and well-established prior to the priority date of Fonss” (Petition, p.6, and EX1003, ¶ 36) is unsupported.

The 2017 Whitepaper (EX1020) describes unrelated early primitives of blockchain-related oracle processes. The 2017 Whitepaper lacks content relating to components or technical enablement. Rather than teaching storage, the paper departs from describing and teaching the use of consensus (i.e., validation of unspecified data by blockchain participants) and statistical methods to evaluate storing untrusted data (i.e., data sourced from “off” the blockchain, that will be fully distributed on the blockchain). The 2017 Whitepaper teaches away from the ’797 Patent, stating that centralized storage represents a point of failure. The 2017 Whitepaper states:

Existing oracles are *centralized* services. Any smart contract using such services has *a single point of failure*, making it no more secure than a traditional, centrally run digital agreement. In this paper we present *ChainLink, a decentralized oracle network*.

EX1020, p.1 (emphasis added).

Aside from teaching away from the ’797 services of storage and networking (See EX1001, including claim limitations of 1, 19 and the ’797 specification relating to “centralized” and “PSDL”), the 2017 Whitepaper is directed at a software system to evaluate information sources for cryptocurrency blockchains. A search of the paper for the words “store,” “stored,” and “storage” results in three unrelated hits,

and the only reference to storage relates to login credentials and an associated unspecified “scrape[d] data.” EX1020, ¶ 6.3. Neither the Petition nor Petitioner's expert express a motivation to combine, and the 2017 Whitepaper has no discussion enabling or otherwise on related storage.

c. Blockchains and Electronically Published Data Streams

At EX1003 ¶ 40-41 (and throughout the Petition, See including pp. 8, 24, 26) and relating to the discussion of published data streams, the Petitioner states that descriptive differentials are not required by the specification of the '797 claims, citing “descriptive differentials may be utilized with or without data stream differentials.” Id. The related claim language is tied to the rationale of the '797 Patent, its long-felt need, and its solution which is based on speed, computer system efficiency, and limited-footprint storage overhead which is not taught or suggested in Petitioner art.

As illustrated in the '797 Patent, where a ledger system operates over a closed-single-element variable environment, multiple identifying items are redundant and unnecessary and may be omitted for computer operating efficiency. Where a ledger system operates within a multi-element variable environment, other items are carried. While representing a small contribution to the Petition's shortcomings, Petitioner details no art, individually or in combination, which teaches or suggests

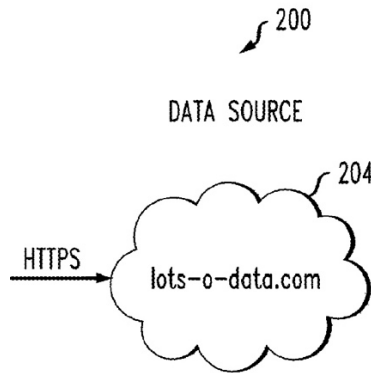
this enablement. *See* II(D)(4), “*Failure of Obviousness Rationale and Claims Recitations in Ground 2*” below.

In EX1003 ¶ 43 (*See also* Petition, pp.29-30), Petitioner's expert claims that “time-sequenced electronically published data streams were notoriously well known in the prior art prior to the priority date of Fonss” (EX1003 ¶ 43). In support of this claim, Petitioner cites “Zhang” (EX1006, Pre-Grant Publication No 2017/0352027). The Zhang “example” is presented without explanation, and the Petitioner makes no argument for any motivation to combine, although based on the detail above, the conclusion would remain unchanged.

For completeness, Zhang, like the 2017 Whitepaper, makes no related reference to “sequence,” “sequenced,” or “sequential” data published, stored, or otherwise, and teaches only the publication of its own source code. Similarly, searches for “store,” “stored,” or “storage,” are unrelated, and “sequen” searches only find references to experimentation described in the Zhang specification related to tests on Intel Corporation's Secure Guard Extensions (“SGX”). *See* including Zhang (EX1006, ¶ 79).

Zhang does not teach or describe and is not directed at electronically published time sequenced data streams, including their stored use as in the '797 Patent. In contrast, Zhang generally simplifies its data reference for figures as “lots-o-

data.com,” indicating a high degree of non-specificity and lack of particularity in teaching or requirement. A partial copy of Zhang’s FIG.1 and FIG. 2A are replicated here. EX1006, FIG. 1 and FIG. 2A.



d. The ‘797 Patent Makes At Least One Material Departure from Nakamoto

Until very recently (e.g., late 2019), most publications, patents, whitepapers, and other publications related to computerized distributed ledgers (including the Petitioner’s art) is faithful or feigns faithfulness to the core principles of the 2008 Nakamoto Whitepaper (EX1011). Nakamoto arguably contributed to launching the Bitcoin revolution and its spinoffs. Prior to the ‘797 Patent effective date, practitioners in distributed ledgers generally measured their projects by their degree of adherence to the Nakamoto principles.

Nakamoto principle one is “trustless”; a perfect embodiment of a cryptographically secured blockchain, tended to by a sufficient number of “honest

nodes” (also known as validators), should permit peer to peer exchanges without the need for trust, identities, or other standards of care (the “Trustless Blockchain”). As a partial response to bank failures of the 2008 U.S. financial crisis, Nakamoto writes “What is needed is an electronic payment system based on cryptographic proof instead of trust.” (EX1011, p.1).

Nakamoto principle two is “disintermediated”; the trustless blockchain is not under the control of any single individual or identifiable groups, Nakamoto writing “The network is robust in its unstructured simplicity. Nodes work all at once with little coordination.” *Id.*, p.8. Nakamoto’s ideal network is self-sustaining, and consistent with its trustless properties, requires little coordination.

Principle three is “distributed” (and not centralized); where Nakamoto writes “They [the honest nodes] do not need to be identified, since messages are not routed to any particular place and only need to be delivered on a best effort basis.” *Id.*, p.8. Similarly, Zinder (EX1004) requires and states, “The availability of the records on the blockchain is also increased because of the distributed nature of the distributed blockchain computing system. Thus, the failure of one node (or the destruction of records in one location) will not result in loss of the digital provenance information. *Id.*, ¶ 9.

The '797 Patent affirmatively departs from the norms and conventions of its time, which are guided by Nakamoto, Zinder, Zhang, et al., and '797 is based on a combination of (i) infrastructure practicality, (ii) the definitiveness of data when “stakes are high,” and (iii) the pre-'797 illusion of distributed-decentralized systems. Because distributed ledger networks (such as blockchains) will necessarily operate on a cloud network powered and administered by a corporation like Amazon Web Services, Microsoft Azure, and Google Cloud, and because those cloud networks will rely on the traffic routing of internet backbones administered by Verizon, AT&T and others, inventing systems based on Nakamoto, Zinder and others claiming total decentralized independence from entities, states, regulators, laws and the like is misguided – a Defi cryptocurrency money laundering operation or cryptocurrency unregulated bank can, as practical matter, be switched off (at) at least one single point. Infrastructure practicalities make the benefit of adherence to fully decentralized or completely distributed operations undesirable in any real setting, trading off '797's speed, efficiency, and functionality for orthodoxy. Similarly, where values (numerical or otherwise, and particularly those not relating to simple blockchain transaction-record token or coin quantities) involve consequential outcomes, the answer will almost always come from one (or limited) place(s) introducing narrow points of failure regardless of the opinion of “honest

blockchainers” or the degree of identical copies held in a system (i.e., Zinder). Among other departures, the ‘797 Patent innovates its practical solution where contemporary developers assumed they needed to adhere to Nakamoto’s blockchain orthodoxies.

e. Nakamoto and a POSITA

As a computer network enabled peer-to-peer transaction method, Nakamoto avails itself to the timekeeping capabilities of the network and computer processing units (CPUs). Nakamoto uses the computer network time of “distributed timestamp server” (EX1011, p.1) to write hash encodings *to the blockchain* for provenance of transaction sequencing and to solve the “double spend problem,” Nakamoto writing: “The network timestamps transactions by hashing them into an ongoing chain of hash-based proof-of-work, forming a record that cannot be changed without redoing the proof-of-work.” *Id.* Nakamoto describes a type of distributed computer ledger (DCL) depicted in the ‘797 Patent, although ‘797 does not necessarily require alignment with Nakamoto in the DCL.

For the purposes of Petitioner’s art: (i) Nakamoto describes a single storage format of networked and fully distributed devices, (ii) Nakamoto only writes, appends, and stores its generated or accessed data to its DCL – there is affirmatively no separation of storage or any teachings of separation across storage type

classifications, (iii) time, sequencing, or sequenced data, as taught by Nakamoto is only in the blockchain environment and only stored on its single ledger format (collectively, “Nakamoto Time Sequencing”).

A POSITA would be discouraged from pursuing a separated and mixed storage format based on Nakamoto. Nakamoto teaches away from the ‘797 solution discrediting the required (non-distributed) centralized or decentralized components and operations of a PSDL which does not invoke the trust of pre-arranged blockchain validations, Nakamoto writing “. . . the main benefits are lost” (EX1011, p.1), “. . . suffers from the inherent weakness” (*Id.*), and “. . . the fate of the entire money system depends on the company” (*Id.*, p.2), relating to a non-distributed system which requires ‘797 methods and components. Nakamoto would have clearly discouraged a POSITA from solutions departing from its fully distributed arrangement.

f. Person of Ordinary Skill in the Art

Petitioner claims that a person having ordinary skill in the art (“POSITA”) would have “a computer science undergraduate degree and 2-4 years of experience with distributed system design or blockchain protocol design.” (Petition, pp. 27-28). “[A] computer science degree,” even when supplemented with unspecified experience in “distributed system design or blockchain protocol design” does not

necessarily convey skill or expertise, partially because many of the largest blockchain entities have demonstrated major technical flaws in their programming and technical operations; these entities include FTX, Celsius, BlockFi, MakerDAO, and Compound Protocol.

Patent Owner more clearly characterizes a POSITA, by replacing or supplementing the Petitioner's characterization with a person with an undergraduate or advanced degree, formal training in mathematics of markets and instruments, at least 4 years of programming experience at a leading international institution or leading public company, experience with real-time data systems in public or private markets, and a detailed and working knowledge of blockchains with at least 2-4 years of related experience. Patent Owner also reserves the right to more clearly characterize a POSITA as required.

B. Ground 1: Zinder Does Not Render Claims 1-20 Obvious

1. Overview of Zinder

Zinder is directed at creating a blockchain system environment which: (i) adds additional provenance to blockchain ledgers relating to public keys, private keys, and other identifiers, (ii) facilitates other measures of data privacy and secure ledger access, and (iii) stores additional data items for transactions that have been submitted to a blockchain. As described in its specification and figures, Zinder wraps around

or integrates within a blockchain transactional ledger, adding additional data items and additional processing at each blockchain node for transactions which have been submitted to the blockchain.

In addition to affirmatively precluding the required elements of the '797 Patent as detailed below, Zinder teaches away from the '797 Patent warning that a failure to adhere to Zinder's node duplication of data will subject a system to failures and data losses.

As detailed below, Zinder has at least three fatal flaws relating to the Petition; Zinder teaches away, Zinder affirmatively precludes the claims and specification of the '797 Patent, and Zinder does not teach or suggest obviousness separately or in combination.

From Zinder (EX1004):

The blockchain [FIG.] 618 is maintained, stored, and updated, by multiple different computer nodes that each operate to "mine" and thereby validate transactions submitted to the blockchain."

(**Zinder1**, EX1004, ¶ 43, emphasis added).

[Claimed,] An electronic resource tracking and storage computer system that is configured to communicate with a distributed blockchain computing system that includes multiple computing nodes, ***each computing node storing a copy of the blockchain of the distributed blockchain computing system, the electronic resource tracking and storage computer system . . .***"

(**Zinder2**, EX1004, Claim 1, p. 35).

A method of electronic resource tracking using an electronic resource tracking and storage computer system that is configured to communicate with a distributed blockchain computing system that includes multiple computing nodes, *each computing node storing a copy of* [Z1] the blockchain of the distributed blockchain computing system, [Z2] the electronic resource tracking and storage computer system storing (a) a plurality of blockchain participant identifiers that are each associated with at least one private key, each of the plurality of blockchain participant identifiers associated with a corresponding one of plural different participants, [Z3] (b) a resource repository that includes a plurality of blockchain resource identifiers that are each associated with at least one resource private key, and [Z4] (c) a transaction repository that includes a plurality of blockchain transaction identifiers **that correspond to blockchain transactions submitted to the distributed blockchain computing system**, the method comprising”

(**Zinder3**,” EX004, Claim 10, p. 36, emphasis and “Z[n]” legends added)/

An electronic resource tracking and storage computer system is provided that communicates with a distributed blockchain computing system that includes multiple computing nodes. The system includes a storage system, a transceiver, and a processing system. The storage system includes an [sic] resource repository and transaction repository that stores submitted blockchain transactions.”

(**“Zinder4**,” E1004, p. 1).

Other data that corresponds to the transaction may be added to ledger storage [FIG] 606 and linked to *the created* blockchain transaction.

(**Zinder5**,” EX1004 ¶ 87 – emphasis added).

2. Zinder teaches away and precludes the limitations and requirements of claim 1 and the specification.

Zinder teaches away from the '797 Patent stating, that an [un]distributed system will result in "failure" and "loss." Zinder states: "The availability of the records on the blockchain is also increased because of the distributed nature of the distributed blockchain computing system. Thus, *the failure of one node (or the destruction of records in one location) will not result in loss of the digital provenance information.*" EX1004, ¶ 9, emphasis added. The parallel storage of difference ledger of '797 as detailed in the specification and independent claims 1 and 19 include "on a least one of a *centralized storage device* controlled by the specialized computer system or a decentralized device." (EX1001, *See* including claim 1, emphasis added). Zinder clearly discourages a POSITA from considering or pursuing the '797 Patent limitations and solutions.

To summarize and for convenience, the '797 Patent claim 1 limitations are:

1A: "... the creating of at least one parallel storage layer ... linked to a DCL"

1B: "accessing and storing a value through the at least one electronic parallel storage ... from an electronically published data stream"

1C: "storing the DCL ... on at least one of a distributed ... or decentralized network"

1D: "storing [1A] on at least one centralized ... or decentralized storage device ..."

1E: “linking the transaction records of [1C] . . . to the records of [1A] . . .”

1F: “imputing at least one measured differential . . . to the transaction record of [1C].

a. Zinder Teaches Away and Requires Duplication of Storage at Every Node.

The ‘797 Patent specifies storage of “. . . the value from a group comprising of at least one time-sequenced electronically published data stream and at least one descriptive differential” (EX1001, Claim 1), “for separating storage and process of a computerized ledger for improved function.” *Id.*, p.11. The ‘797 Patent requires that this storage reside on “at least one of a centralized storage device . . . or a decentralized storage device” (*Id.*, including Claim 1) – by purpose, design, and requirement, ‘797 limitations include limited footprint data storage with only the minimum amount of devices. This narrowly tailored storage is central to the novel efficiency and functionality of ‘797 Patent.

Precluding the ‘797 Patent efficiency and functionally directed storage, Zinder teaches a duplicative and replicating storage scheme, storing all aspects of the system at every node of a ledger, stating:

Zinder1: “The blockchain [FIG.] 618 is maintained, stored, and updated, by multiple different computer nodes ”

Zinder2: “each computing node storing a copy of the blockchain of the distributed blockchain computing system, the electronic resource tracking and storage computer system”

Zinder 3, each computing node storing a copy of [Z1] the blockchain of the distributed blockchain computing system, [Z2] the electronic resource tracking and storage computer system storing (a) a plurality of blockchain participant identifiers that are each associated with at least one private key, each of the plurality of blockchain participant identifiers associated with a corresponding one of plural different participants, [Z3] (b) a resource repository that includes a plurality of blockchain resource identifiers that are each associated with at least one resource private key, and [Z4] (c) a transaction repository that includes a plurality of blockchain transaction identifier (annotated with Z[n] labels for clarity).

Not only does Zinder preclude centralized or decentralized, but it also teaches and requires replication at every node, and because the Zinder system data is replicated-and-stored at every node with a full copy of the systems data and other elements, it precludes the ‘797 Patent limitations and specification. Illustrative, for the Bitcoin blockchain alone, the number of nodes has been estimated to range between 10,000 and 100,000—each requiring a copy under Zinder.

b. Zinder Teaches Away and Requires Collocation of All Data Items at Nodes Precluding Separation

Zinder requires that all data including the original blockchain transaction records in addition to all other items added for provenance, recordkeeping and other purposes are affirmatively all located at every node. *See including* Zinder1, Zinder2, and Zinder3.

c. Zinder Teaches Away and Requires Data Population from Already Submitted Blockchain Transactions

Zinder teaches away from the '797 Patent. Further, a limitation of the '797 Patent is to alter DCL-blockchain records in response to the PSDL differentials—data differentials “go to” and “impact” (EX1001, *See including* claims 12, 13, 15) the DCL-blockchain (*See including* EX1001, Claims 1, 7, and 19). Zinder reverses this sequence for operation, purpose and rationale, teaching and requiring that data from *already submitted, posted, or validated transactions* on its blockchains are historically stored for recordkeeping, bookkeeping, provenance, and other historical purposes. Zinder teaches and requires that additional detail data relating to transaction records is based on transactions already recorded in core opposition to the '797 Patent. Examples from Zinder include:

The storage system includes an [sic] resource repository and transaction repository that ***stores submitted blockchain transactions.***”

(Zinder4 – emphasis added)

Other data that corresponds to the transaction may be added to ledger storage [FIG] 606 and linked to *the created blockchain transaction*.

(Zinder5 – emphasis added).

The ‘797 Patent PSDL specifies storage including “. . . the value from a group comprising of at least one time-sequenced electronically published data stream and at least one descriptive differential” (EX1001, Claim1). Among other requirements, ‘797 Patent’s independent claim 1 requires that differentials are directed to (and for the purpose of) directly altering DCL transaction records: “imputing at least one measured differential . . . to the electronic transaction record of the DCL” (*Id.*), and further elaborated in the specification, for purposes including “transform[ing] the nature of units within a base DCL, or to strategically discriminate within the units . . . units become representative of other items . . . [and] can be further discriminated by time” *Id.*, p.18.

Zinder both teaches away and precludes the ‘797 Patent limitations and specification. As further elaborated below, a POSITA, understanding that blockchain transactions are immutable, would be discouraged from pursuing the ‘797 solution based on Zinder.

d. Zinder Reverses The Direction of Operations for Unrelated Purpose and Rationale

The '797 Patent teaches and requires “. . . time-sequenced electronically published data stream . . .” (EX1001, Claim 1) items are stored and “input[ed] . . . to the electronic record transaction record of the DCL . . .” *Id.* That is, transactional records on the DCL-blockchain are altered in response to processing and storage of differentials, but Zinder flips the direction, order, and the purpose, making the differentials writing contingent upon an already submitted (and presumably immutable) blockchain transaction record—Zinder's additional data cannot alter the corresponding already submitted blockchain transaction.

In the '797 Patent, a change in PSDL differentials changes the DCL, but in Zinder, a change in its additional items necessary is merely recorded because the blockchain transaction has already been submitted—and blockchain records, consistent with common POSITA knowledge, are immutable. Zinder has clearly made the non-blockchain items including Zinder3's Z2 through Z4 reflective of a blockchain transaction, rather than, as in the '797 Patent, making the blockchain record contingent or subject to the non-blockchain items.

e. Zinder's “Zinder3” Time Sequencing Z2-Z4 Teaches and is Directed to Recordkeeping Only

In clear contrast, Zinder's only related time reference additional data is directed at memorialization: “[f]or every signature that was executed (e.g., the contract name, the signer, timestamp, and additional metadata associated with the

electronic signature), 9) data associated with the funds transfer (e.g., account information, the token associated with the transaction, the timestamp, a transaction ID for the funds transfer procedure, or the like).” EX1004, ¶ 127. Zinder further precludes a processing (affirmative) use of time, stating “the transaction storage is updated with information that makes up the blockchain transaction and some information that was not included as part of the blockchain transaction.” (EX1004, p.1) – *that is the blockchain recordation has already occurred.*

Because the DCL in the ‘797 Patent and the blockchain transaction record in Zinder are both immutable (in this regard, both consistent with Nakamoto (EX1011)), Zinder’s requirement that its data items are taken from transactions submitted to the blockchain (*see* including Zinder4 and Zinder5), “time-sequenced” in Zinder can serve no purpose in “imputing at least one measured differential” at any point a transaction record is recorded.

3. Claim 1 Recitations

Claim 1, 1A, requires “the creating of at least one parallel storage layer . . . linked to a DCL,” and Zinder teaches away, duplicates storage, and collocates storage as detailed in 2(a), “Zinder teaches away and requires duplication of storage at every node, and 2(b), “Zinder teaches away and requires collocation of all data

items at nodes,” departing from the light-footprint, separate and nonduplicative storage of ‘797.

Claim 1, 1B, requires “accessing and storing a value through the at least one electronic parallel storage . . . from an electronically published data stream,” Zinder teaches away and teaches and limits data usage for historical recordkeeping purposes and collocated storage as detailed in 2(c), “Zinder teaches away and requires data population from already submitted blockchain transactions,” and 2(d) “Zinder reverses the direction of operations for unrelated purposes.”

Claim 1, 1C, requires “storing the DCL . . . on at least one of a distributed . . . or decentralized network,” and Zinder teaches away, duplicates storage, and collocates storage as detailed in 2(a), “Zinder teaches away and requires duplication of storage at every node, and 2(b), “Zinder teaches away and requires collocation of all data items at nodes.”

Claim 1, 1D, requires “storing [1A] on at least one centralized . . . or decentralized storage device . . .,” and Zinder teaches away, duplicates storage, and collocates storage as detailed in 2(a), “Zinder teaches away and requires duplication of storage at every node, and 2(b), “Zinder teaches away and requires collocation of all data items at nodes,” departing from the light-footprint, separate and nonduplicative storage of ‘797.

Claim 1, 1E, requires “linking the transaction records of [1C] . . . to the records of [1A] . . .” and Zinder teaches away and Zinder teaches and requires collocating storage of historical data, collected and stored in an opposite operation and rationale from ‘797 as detailed in 2(b) “Zinder teaches away and requires collocation of all data items at nodes,” 2(d) “Zinder reverses the direction of operations for unrelated purposes” and 2(e) “Zinder’s Zinder3 time sequencing Z2-Z4 is for recordkeeping only.”

Claim 1, 1F requires “imputing at least one measured differential . . . to the transaction record of [1C],” and Zinder teaches away and Zinder teaches everything in an opposing rationale and solution as detailed in 2(c) “Zinder teaches away and requires data population from already submitted blockchain transactions,” 2(d) “Zinder reverses the direction of operations for unrelated purposes,” and 2(e) “Zinder’s Zinder3 time sequencing Z2-Z4 is for recordkeeping only.”

Zinder and the ‘797 Patent seek entirely independent and unrelated purposes and rationales; Zinder is directed to “secure provenance” (EX1004, ¶ 2), (which is demonstrated in Zinder system’s affirmative bloat of data duplication, data collocation, and recordkeeping) and for any POSITA, a rationale of duplicative provenance is the opposite of the purpose of speed and reduced transmissions of the ‘797 Patent’s highly focused and light-footprint data architecture. *See including* ‘797

Patent (EX1001), Col. 12 at 50, and Col. 14 at 58. Also, as described above, Zinder affirmatively teaches away from the '797 Patent, attributing "failure" and "loss" to '797's solution.

Zinder would have directed any POSITA away from the '797 limitations and solution, and that Zinder is the basis for Petitioner's ground 1 and ground 2, alone, fatally flaw the Petition.

C. Zinder Does Not Render Claims 2 Through 20 Obvious

Dependent claim 2 requires the elements of independent claim 1, and further requires separation of storage. Zinder teaches away, and duplicates storage, and collocates storage as detailed in 2(a), "Zinder teaches away and requires duplication of storage at every node," and 2(b), "Zinder teaches away and requires collocation of all data items at nodes."

Both dependent claims 3 and 4 require the elements of independent claim 1, and further specify and require the altering of transactional values or operative entitlements of transaction records which Zinder precludes as detailed in 2(d), "Zinder reverses the direction of operations for unrelated purposes" and 2(e) "Zinder's Zinder3 time sequencing Z2-Z4 is for recordkeeping only" in clear opposition to '797.

Dependent claim 5 requires the elements of independent claim 1, and application of time-sequenced electronically published data stream, and Zinder opposes as detailed in both 2(a), “Zinder teaches away and requires duplication of storage at every node,” and 2(e) “Zinder’s Zinder3 time sequencing Z2-Z4 is for recordkeeping only” in clear opposition to ‘797.

Dependent claim 6 requires the elements of independent claim 1, and “modular[ity]” and “independent” storage where Zinder precludes as detailed in 2(a), “Zinder teaches away and requires duplication of storage at every node, and 2(b), “Zinder teaches away and requires collocation of all data items at nodes.”

To summarize and for convenience, the ‘797 Patent independent claim 7, requires:

7A: “a system having a memory device”

7B: “a processor connected to the memory device”

7B1: “create a least one [PSDL] linked to a . . . DCL”

7B2: “access a value . . . at least one time-sequenced”

7B3: “store at least one . . . time sequenced data stream . . . on the at least one [PSDL]

7B4: “align and link . . . PSDL . . . to the electronic transaction record of the DCL”

7B5: “impute at least one measured differential . . . to the . . . DCL”

Claim 7 is generally directed to a system claim whose elements and requirements are analogous to those of claim 1.

Claim 7, 7B1, is analogous to ‘797 Patent Method Claim 1-1A (as identified above), and Zinder teaches away, duplicates data, and collocates data as detailed in 2(a) and 2(b) regarding Claim 1-1A.

Claim 7, 7B2, is analogous to ‘797 Patent Method Claim 1-1B (as identified above, except for a storage element) and Zinder’s teaching and rationale for time sequenced data is in the wrong direction and purpose and for contrary use as detailed in 2(d) and 2(e).

Claim 7 Subpart 7B3 is analogous to ‘797 Patent Method Claim 1-1D (as identified above) and Zinder teaches away and requires duplicative and collated storage as detailed in 2(a)-duplication and 2(b)-collocation.

Claim 7 Subpart 7B4 is analogous to ‘797 Patent Method Claim 1-1E (as identified above) and Zinder teaches away and contradicts as detailed in 2(b)-collocation rather than separation, 2(d) where data is processed and stored for an opposing purpose, and 2(e) where time sequencing is for recordkeeping only.

Claim 7 Subpart 7B5 is analogous to ‘797 Patent Method Claim 1-1F (as identified above) and Zinder teaches away and Zinder teaches its data operations and

storage in the opposite direction and for unrelated purposes as detailed in 2(c), “Zinder teaches away and requires data population from already submitted blockchain transactions” and 2(d), “Zinder reverses the direction of operations for unrelated purposes.”

Claims 8 through 11 require the elements of independent claim 7, and further require the separation of storage. Zinder teaches away, teaches duplicating storage, and collocates storage as detailed in 2(a) and 2(b) above.

Claims 12, 13, 15, and 18 require the elements (including) of independent claim 7, and further require “. . . the DCL is impacted by a [PSDL],” “. . . impact is done from each of the [PSDL]” and “wherein impact is done from the . . . (PSDL)” and “. . . the DCL is impacted by the differences layer,” and Zinder by its purpose, rationale and teaching opposes dependent claims 12, 13, 15, and 18 as detailed in 2(d), “Zinder reverses the direction of operations for unrelated purposes” and 2(e) “Zinder’s Zinder3 time sequencing Z2-Z4 is for recordkeeping only” in clear opposition to the ‘797 Patent. Further clarifying that, any POSITA would regard any already submitted blockchain transactions as immutable and not subject to the “impact” required in Claims including 7, 12, 13, 15, and 18.

Claims 14 and 16 require the elements of independent claim 7, and further require “. . . the (PSDL) has a time sequenced entry” and “. . . each time-sequenced

entry is independent in the PSDL,” and further subject to the requirements of Claim 15 (for dependent claim 16) “. . . each time-sequenced entry is independent or dependent in the PSDL,” and Zinder clearly opposes in rationale and purpose, maintaining “time” for recordkeeping, and further requiring that time sequencing is contingent on already submitted (and immutable) blockchain transactions, as detailed in including both 2(d), “Zinder reverses the direction of operations for unrelated purposes,” and 2(e), “Zinder’s Zinder3 time sequencing Z2-Z4 is for recordkeeping only.”

Claim 17 requires the elements of independent claim 7, and further requires “the difference layer is stored apart from the electronic transaction record of the DCL, where Zinder, in order to achieve its ‘797-unrelated purpose of provenance, duplicates all additional data items and collocates everything at every node as detailed in 2(a) “Zinder teaches away and requires duplication of storage at every node,” and 2(b), “Zinder teaches away and requires collocation of all data items at nodes.”

Independent claim 19 is a software claim that is generally analogous to independent claims 1 and 7. While Zinder does teach the use of software, the application preamble, specification (including figures) and claims are directed toward a completely different purpose and problem, where Zinder is based on a

rationale which is antithetical to the purpose and solution of the '797 Patent; Zinder teaches collocation and high replication of data for provenance, and Zinder criticizes and discredits the '797 solution of low and limited footprint storage – *See* including EX1004, ¶ 9). Relating to claims 19 and 20, the Petitioner attempts to gain some alignment through the repetition of the words “descriptive,” “differentials,” and “values,” which are clearly a part of almost every data or computer system in existence (*See including*, Petition, p. 64), and none support an obviousness assertion.

Further, with respect to independent claim 19, and the specific recitations 19e, and 19f addressed by the Petitioner, 19e is in opposition by rationale, purpose, components, and instruction with Zinder as detailed in 2(a) and 2(b), respectively “Zinder teaches away and requires duplication of storage at every node,” and “Zinder teaches away and requires collocation of all data items at nodes,” and 19f is in opposition by rationale, purpose, components and instruction with at least 2(c) and 2(d), respectively “Zinder teaches away and requires data population from already submitted blockchain transactions,” and “Zinder reverses the direction of operations for unrelated purposes.”

Claim 20 requires the elements of independent claim 19, and further requires “the difference layer is stored apart from the . . . DCL” in opposition to Zinder’s

rationale and purposes of duplicating and collocating data as detailed in 2(a) and 2(b).

D. Ground 2: Zinder Does Not Render Claims 1-20 Obvious in View of Toll and Zhang

1. An Overview of Toll

Toll (EX1005) is directed at the use of a blockchain environment to transmit messages to and from blockchains, where the instructions for operating a traditional securities clearing business (or a stock exchange) are relayed or bounced through a blockchain environment for memorialization, safekeeping, and safe processing of the messages and (self-loaded) instructions. Toll's examples, self-described purpose, and rationale include using the blockchain as a traditional database by aggregating and matching orders for intermediate recordkeeping, triggering an operation within a system of a securities clearing business or a stock exchange through a blockchain relay, and using the blockchain as more convenient system of messaging and order lookup because blockchain access may require fewer credentials and fewer access steps that the securities clearing system.

Toll is nicely written, but it comes from an era where blockchain inventions were largely solutions in search of a problem. The solution in Toll is like putting a blockchain environment between an email user and Gmail, essentially arguing that

replicating the email content on multiple system types (including an immutable blockchain) has some delayed execution and preferred storage benefit.

Toll describes using a blockchain as a message relay database, where received messages are fed into blockchain storage to associate that received message with the particular keys of a stored account, where following the association of the message with the account, a blockchain transaction kicks off or triggers an action on the clearing house or stock exchange.

Toll is directed at an entirely different problem and conflicts in its teaching and suggestion based on its purpose and solution, describing the inventive use of a blockchain as a gateway to memorialize administrator instructions fed to a stock exchange. Toll touts the benefits of being able to access data from the blockchain rather than other access points “Such an approach may alleviate costly replication processes because the blockchain is the central or golden record for the trades and positions . . . they [system users] may end up bypassing the traditional proprietary gateways and protocols used in other types of clearing house computer system implementations.” EX1005 ¶ 54.

Fatal to Toll in the Petition is the condition Toll’s “messages,” “trades,” “orders” or other additional data are required to be stored *on* a blockchain and then retrieved *from* a blockchain – directionally and purposefully opposed to the ‘797’s

use of the non-blockchain PSDL for storage to “help” a distributed ledger such as a blockchain, and not the other way around. Toll teaches divergent storage, timing, sequencing, operation, and components use – the blockchain is used as storage to assist a clearing house (Toll), instead of a PSDL is used for storage to assist a blockchain (‘797).

In addition to any precluding any notion of ‘797’s PSDL, and reversing the direction of data and operation, Toll’s messages-instructions and its time or any record sequencing aspects are an endogenous tautology which is not instructive or supportive to the Petition. Toll simply records whatever (stock exchange) instructions the administrators feed it, whenever they feed it, in whatever order they feed it. At best, Toll also fails in the same manner as Zinder in 2(b), 2(d), and 2(e).

Lastly, with respect to data, there’s no notion of “exogenous” or “published data,” particularly with respect to “time” or “sequencing,” and items in the Toll environment are endogenous and self-populating, consistent with the operation of such a stock exchange or clearing house.

2. An Overview of Zhang.

Zhang (EX1006) is self-described as “a trusted bridge configured for at least temporary coupling between one or more data sources,” and an examination of Zhang indicates that: (i) unspecified data is “bridged” and verified for “trust,” but

without contemplation and without regard to any time sequenced or serial differentials with respect to additional data, and more fatally, (ii) Zhang teaches no provision for differentials or the storage or operation thereof, and Zhang limits its related storage functionality to its software, including: “The memory [of the Trusted Bridge] 122 stores software program code.” EX1006, ¶ 50. The Petitioner misinterprets Zhang, because Zhang is directed at “hardware implemented bridges which maintain privacy and security,” and not the time-sequenced differential claimed by the Petitioner.

The relevance of Zhang largely hangs on the Petitioner's claim 1 analysis relating to descriptors, but Zhang teaches no such data specificity and no storage. Zhang differs in purpose and rationale from the '797 Patent, neither teaching nor suggesting the departures of the '797 Patent. Zhang is directed at authentication (i.e., *Is this data reliable?*, *Is this data source reliable?*, and *How can participants in a blockchain environment validate non-transactional data?*). Zhang states in its background: “It is difficult in conventional systems to provide adequate authentication of the data inputs from these and other data sources. Similar data authentication issues can arise in non - blockchain data consumption contexts.” EX1006, ¶ 4.

Zhang makes no related reference to “store,” “stored,” or “storage,” or “sequence,” “sequenced,” or “sequential”; store searches are unrelated, and “sequen” find experimentation described in the Zhang specification related to Intel Corporation’s Secure Guard Extensions (“SGX”). See including Zhang (EXXX, ¶ 79).

3. Art Summary

For the following table “teaching away” is consistent with MPEP § 2413 and its examples, where teaching away is not a preference, but must include statements, positions or teachings which criticize, discredit, discourage, or state that the combination or application is undesirable. The table includes Petitioner’s art for ground 2, Nakamoto, and Chainlink.

Art	Teaches Away	Precludes ‘797	Unrelated Rationale Re ‘797
Zinder	EX1004, ¶ 9	EX1004, claim 1, claim 10, “Zinder4”	“Zinder4”
Toll			EX1005, ¶¶ 17-35
Zhang		EX1006, ¶¶ 50,51,268	EX1006, Abstract, ¶¶ 107,135,166
Nakamoto	EX1011, p.1	EX1011, p.1	EX1011, p.1
Chainlink	EX1020, p.1		EX1020, p.1

4. Failure of “Obvious Rationale” and Claim Recitations in Ground 2.

Across Ground 1 and Ground 2, the Petitioner fails to address or identify any art directed at its own analysis of the partial claim 1 (including claim 1, 1-B or 1b) language which states “ . . . the value from a group comprising of at least one time-sequenced electronically published data stream and at least one descriptive differential” This claim language is tied to the rationale of the ‘797 Patent, its long-felt need, and its solution which is based on speed, computer system efficiency, and limited-footprint storage overhead.

At EX1003 ¶ 40-41 and within the Petition (*See* including pp. 8, 24, 26, 65-66), the Petitioner states that descriptive differentials are not required by the specification of the claims, citing “descriptive differentials may be utilized with or without data stream differentials” in support of its art. *Id.* While an examination of the ‘797 Patent specification illustrates these enablements, the Petitioner fails to find art which suggests or teaches the related single-element variable condition or problem, much less a combined solution covering both single element and multiple element variability of ‘797. As covered in the ‘797 Patent, where a transactional ledger or blockchain environment operates within a closed single-element variable environment, a descriptive differential is redundant and unnecessary and may be omitted for computer operating efficiency. These instances are covered in the ‘797

Patent specification, '797 stating: "A cryptocurrency operating on a network has extremely limited data demands; coins are identical and fungible . . . all units or interests on the DCL network are identical and fungible and require no stored or process descriptors" ("*Singularly Variable*"). EX1001, p.14, Cols. 7-8. Similarly, where descriptors operate in a Singularly Variable environment is described by '797 as "The remote and linked, storage of descriptive items can be used to transform the nature of units within a base DCL or to strategically discriminate within the units for specialized remote processing or handling; units become representative of other items such as an industrial good, a commodity, or an airline ticket" EX1001, p.18, Cols. 15-16. The Petitioner's art is based on multi-variable problems, the Petitioner does not identify any of the required Singularly Variable conditions in support of its distinction, Zinder and Toll are directed at mixed arrays of stored trade details or trade messaging or instructions (*See* including Zinder3 above), and Zhang is directed at non-specified multivariate validations based on sources of data and "the" data – Zhang not trusting a source. Zinder, Toll and Zhang appear to adhere to Nakamoto orthodoxy and the '797 Patent does not.

Petitioner's ground 2 is based on Zinder in the view of Toll and Zhang.

Claim 1, Recitation 1a: The Petition fails because Zinder teaches away and none of Zinder, Toll or Zhang, separately or in combination teach or suggest the

“parallel storage of a differences layer” relating to any of storage, data, or the differences. Zinder teaches collocated and duplicative storage (II(B)(2)(b) and II(B)(2)(a) respectively), Toll uses only a blockchain for self-storage (no teaching or notion of PSDL), and Zhang has no storage teaching except for non-specific software code storage. Arguably only Toll has “link” or linkages relating its own messaging, but the system and method of this linking is the wrong way around and for entirely different purposes, where the blockchain (not a PSDL) is the additional storage, and where the “links” are a tautology of one’s own endogenous messaging system.

Claim 1, Recitation 1b: The Petition fails on its art and its own distinction of “one without the other” where none of its art, separately or in combination, suggests or teaches Petitioner’s identified mixed variate situation, Zinder teaches away, and none of Zinder, Toll or Zhang, separately or in combination teach or suggest the “accessing and storing” of “time sequenced electronic published datastream,” because Zinder teaches only post-transactional historical and provenance (accessing and storing), Toll stores only its own messages and instructions and does so only on a blockchain (for operation of its stock exchange or clearing house), and Zhang teaches no specificity of data streams (i.e. .”lots-o-data.com”) and is completely devoid of the data or datastream storage.

Claim 1, Recitation 1c-1e: The Petition fails because Zinder teaches away and teaches only replicating and collocated data, Zinder specifically precluding any possibility of a parallel device (e.g., PSDL), Zinder further discouraging and criticizing '797 storage warning of "failure" and "loss" (EX1004, ¶ 9). Toll teaches the storage of its own messages as and when it writes them, and it only writes them to a blockchain, which is completely counter to the '797 solution of taking data off the blockchain. Zhang teaches no storage other than software code, and its access is characterized by its "lots-o-data.com," indicating a high degree of non-specificity with respect to time or other items. EX1006, FIG.1 and FIG. 2A.

Claim 1, Recitation 1f: The Petition fails because Zinder teaches away and further fails based on II(B)(2)(d) and II(B)(2)(e), recording historical post-transaction trade particulars of already submitted blockchain transactions, making any type of "imputing" impossible because the blockchain records are immutable. Similarly, neither Toll nor Zhang teach or suggest any notion "impute," or "imputing," particularly as it relates to an exogenous or off-blockchain differentials or data. Toll is simply a tautology of writing its own messages on the blockchain when it writes them, and Zhang is completely devoid of any teaching of record imputation, instead directed at validating data from source to the blockchain without any teaching or notion of a PSDL.

Claims 2-6: The Petition fails because it relies on Ground 1, supplemented by Toll and Zhang, however, Toll teaches writing its own messages and trade executions to a blockchain for running a stock exchange or clearing house (i.e. no “published datastream elements”), and Zhang is directed at data validation, without teachings of its sourcing or storage, and Zhang has no teaching of anything relating to ‘797 required parallel storage.

Claim 7: The Petitioner fails, relying solely on Zinder in Ground 1, and in addition to teaching away, Zinder fails on II(B)(2)(a) through II(B)(2)(e) including its duplication of all data at all nodes, collocation of all items at all nodes, and data population based on already submitted blockchain transactions. The Petitioner omits any motivation to combine Toll, Zhang or other art.

Claims 8-18 and 20: Claims 8 through 18 require the elements of independent claim 7 (and other dependencies), and Claim 20 requires the elements of independent claim 19, and Petitioner fails in its reliance on ground 1 with the unspecified addition or contribution from Toll and Zhang, however none of Zinder, Toll or Zhang teach storage, separation of storage, differential impacting, and all three omit or preclude the range of storage classification required.

Claim 19: Petitioner fails on the same grounds as Ground 1, and Petitioner adds no additional argument or motivation to combine Toll, Zhang or other art.

III. CONCLUSION

The Petition does not establish a reasonable likelihood that any of the challenged claims are unpatentable. The Board should deny institution.

Respectfully submitted,

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Owner of U.S. Patent No. 10,025,797

Date: October 4, 2023

CERTIFICATION OF WORD COUNT

The undersigned hereby certifies that the portions of the above-captioned PATENT OWNER'S PRELIMINARY RESPONSE specified in 37 C.F.R. § 42.24 includes approximately 9,745 words and therefore complies with the 14,000-word limit set forth in 37 C.F.R. § 42.24. This count was performed using Microsoft Word 365.

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CERTIFICATION OF SERVICE

The undersigned hereby certifies that the foregoing PATENT OWNER'S PRELIMINARY RESPONSE was served on October 4, 2023 by filing documents through the Patent Trial and Appeal Case Tracking System (P-TACTS) and courtesy copies were also served via electronic mail on the following:

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