

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AMAZON.COM, INC. and AMAZON WEB SERVICES, INC.,
Petitioner

v.

SWARM TECHNOLOGY, LLC,
Patent Owner

IPR2023-00390
U.S. Patent No. 9,146,777 B2

**DECLARATION OF DR. BRENT NELSON IN SUPPORT OF
PATENT OWNER'S PRELIMINARY RESPONSE**

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I, Dr. Brent E. Nelson, hereby declare and state as follows:

I. Introduction and Qualifications

1. I have been retained on behalf of Swarm Technology LLC (“Swarm” or “Patent Owner”). I submit this Declaration in support of Patent Owner’s Preliminary Response (Paper 6) to the Petition (Paper 2) for *inter partes* review IPR2023-00390 of U.S. Patent 9,146,777 (“the ’777 Patent”) filed by Amazon.com, Inc. and Amazon Web Services, Inc. (“Amazon” or “Petitioner”).

2. A detailed record of my professional qualifications, including the academic and professional publications on which I am an author, is set forth in my curriculum vitae set forth in Exhibit 2002.

3. On June 30, 2022, I retired from my position as a Professor in the Department of Electrical and Computer Engineering at Brigham Young University, where my work focused on computer systems design and analysis, parallel processing systems, configurable computing systems, and related topics. Some exemplary professional experiences from my curriculum vitae include:

- From 1993 to 1997 and from 2012 to 2018, and particularly during the period including 2013, I held the position of Chair of the Department of Electrical and Computer Engineering at Brigham Young University.

- From 2003 to 2018, and particularly during the period including 2013, I held the position of Computer Engineering Program Head of the Department of Electrical and Computer Engineering at Brigham Young University.
- From 2008 to 2012, I was the Co-Director, National Science Foundation Center for High-performance Reconfigurable Computing (CHREC) and BYU CHREC Site Director.
- During the years leading up to 2013, I was involved in teaching and research in the area computer engineering and advanced digital system design. I was a member of the Association for Computing Machinery (ACM) and Institute of Electrical and Electronics Engineers (IEEE) and attended and presented at various conferences relating to computer engineering. I was regularly advising master's and Ph.D. students in the field of computer engineering. I was regularly reviewing papers for journal and conference publications in the field of computer engineering and computer design. All of the foregoing activities increased my familiarity with conventional multi-processing systems that existed in the years up to and including 2013.

4. The facts underlying the opinions and conclusions contained in this Declaration are the kind of facts that experts in the field of parallel multiprocessor computing systems would reasonably rely on in forming their opinions.

5. All of the subject matter addressed, and all of the statements made in this Declaration are within my areas of expertise.

6. The facts, conclusions, and opinions set forth in this Declaration are based upon my own personal knowledge, and if called as a witness, would and could competently testify to the matters set forth therein.

7. For my work on this declaration, I am being compensated at my standard consulting rate. My compensation is not contingent on the outcome of this case and I have no financial interest in the outcome of this proceeding or any related litigation.

II. Documents and Information Considered

8. I have been retained by Swarm to provide my opinions relating to the patentability of claims 1-14 of the '777 Patent.

9. In formulating my opinions, I have relied upon my knowledge, training, and experience, in the relevant art. I have reviewed Amazon's Petition (Paper 2), U.S. Patent No. 9,146,777 (Exhibit 1001, the "'777 Patent"), File History for U.S. Patent No. 9,146,777 (Exhibit 1002, "'777 FH"), Declaration of David Lowenthal, Ph.D. (Exhibit 1003, "Lowenthal Dec."), U.S. Patent Application Publication No.

2007/0124363 (Exhibit 1007, "Lurie"), The Ethernet – A Local Area Network, Data Link Layer and Physical Layer Specifications (Exhibit 1009, "Ethernet Specification"), U.S. Patent Application Publication No. 2007/0220517 (Exhibit 1031, "Lippett") (Lurie, Ethernet Specification, and Lippett collectively the "Cited Art," see Petition at 1-2), U.S. Patent Application Publication No. 2005/0132380 (Ex. 1008, "Chow"), Foundations of Multithreaded, Parallel, and Distributed Programming (Exhibit 1011, "Andrews"), Adaptive Cluster Computing Using JavaSpaces (Exhibit 1012, "Batheja"), and U.S. Patent Application Publication No. 2007/0074207 (Exhibit 1013, "Bates").

III. Summary of Opinions

10. The Cited Art does not teach "a first agent retrieves the matching task by ... searching the task pool."

11. The Cited Art does not teach a "first solidarity cell comprising a first agent configured to proactively retrieve ... a matching task for the solidarity cell to process."

12. As this declaration is provided in support of Patent Owner's Preliminary Response, I reserve the right to supplement this declaration.

IV. Legal Understanding

13. In forming the opinions expressed in this Declaration, I have relied upon my education and experience in the relevant field of art and have considered

the viewpoint of a person of ordinary skill in the art ("POSITA") as of January 25, 2013 (the filing date of the '777 Patent).

14. It is my opinion that a POSITA would have at least a bachelor's degree in computer science, computer engineering, or a related field, and one or more years of industry or academic research experience in parallel computing, system architecture, or an equivalent field. Alternatively, a POSITA could have a post-graduate degree to compensate for less experience.

15. I was previously a Professor in the Department of Electrical and Computer Engineering, Brigham Young University for over 37 years, where my work focused on computer systems design and analysis, parallel processing systems, configurable computing systems, and related topics.

16. I have worked with, supervised, and taught computer scientists and engineers with similar backgrounds, education, and experience. Thus, I am familiar with the understanding and knowledge of POSITAs, and I was and remain at least as qualified as a hypothetical POSITA since 2013.

17. I am not an attorney and for the purposes of this Declaration, Counsel has advised me of legal concepts that are relevant to inter partes reviews, and I have applied these concepts in reaching my opinions in this Declaration.

18. I understand that during inter partes reviews, patent claim terms are given their ordinary and customary meaning to a POSITA in view of the specification and prosecution history.

a. Anticipation

19. I understand that none of Cited Art can anticipate a patent claim under 35 U.S.C. § 102 unless each and every element and limitation of the particular patent claim is found either expressly or inherently in a single prior art reference.

b. Obviousness

20. I understand that prior art references cannot render a patent claim obvious under 35 U.S.C. § 103 unless the differences between the claimed subject matter and the prior art are such that the claimed subject matter would have been obvious to a POSITA at the time of the claimed invention. In analyzing obviousness, it is necessary to consider the scope of the claims, the level of skill in the relevant art, the scope and content of the prior art, the differences between the prior art and the claims, and any secondary considerations of non-obviousness (such as commercial success, long-felt but unsolved needs, failure of others, unexpected results, copying, skepticism of experts, industry praise, significant effort or high cost to develop, near simultaneous invention, industry acceptance via licensing), if present.

21. I understand that in assessing obviousness, any proposed combination or modification of the prior art must be supported by articulated rationale(s). It is insufficient to merely state that a combination or modification “would have been obvious.” Furthermore, the mere fact that references can be combined or modified does not render the resultant combination or modification obvious.

22. I understand that it is improper to use the challenged claims as a roadmap in building a prima facie case of obviousness; that is, an obviousness conclusion cannot be based on hindsight.

23. I understand that if a proposed modification or combination of the prior art would change the principle of operation of the prior art being modified, then the teachings of the references are not sufficient to render the claims obvious.

24. I understand that if a proposed modification or combination would render the prior art inoperable or unsatisfactory for its intended purpose, then there may be no suggestion or motivation to make the proposed modification.

V. Claims 1-14 of the '777 Patent are Patentable over the Cited Art

a. The Cited Art Does Not Teach a “first agent retrieves the *matching task* by ... *searching the task pool*”

25. Independent claim 1 of the '777 Patent requires a “first solidarity cell comprising a first agent configured to proactively retrieve ... a matching task for the solidarity cell to process ... wherein the first agent retrieves the matching task by ... searching the task pool for a task that is ready to be processed and has a function that

the first solidarity cell can perform" '777 Patent, 7:45-8:3. Claims 2-13 are dependent on claim 1 and thus include these elements by incorporation.

26. Independent claim 14 of the '777 Patent similarly requires a "first solidarity cell comprising a first agent configured to proactively retrieve ... a matching task for the solidarity cell to process ... a second solidarity cell comprising a second agent that proactively retrieves matching tasks ... wherein each agent retrieves a matching task by ... searching the task pool for a task that is ready to be processed and has a function that the agent's solidarity cell can perform" '777 Patent, 8:55-9:11.

27. The '777 Patent discloses that an "agent searches within the task pool for available tasks that match the cell's instruction type." *Id.*, Abstract. Furthermore, "it is an object [of this invention] that the co-processors include an agent that searches a task pool to acquire tasks for the co-processors to perform." *Id.*, 1:50-52. Additionally, "The [solidarity cells] act proactively in that they seek a task 22 from the task pool 13 as soon as the [solidarity cells] become available to do further processing. To acquire a task 22, a [solidarity cell] sends an agent 30A to the task pool 13 to search for and retrieve an available task 22 that requires completion, is not locked, and has a task type that can be performed by the [solidarity cell]." *Id.*, 5:22-28. Moreover, "the agent 30A searches the task 22 descriptors for an executable instruction that matches one of the instructions that that [solidarity cell] is capable

of executing. When a matching task 22 is found, the agent 30A delivers the descriptor of the matching task 22 to the [solidarity cell], which begins to process the task 22.” Id., 6:26-31.

28. In each of the above descriptions, it is clear that the solidarity cells, through their agents, determine the task that will be executed by the solidarity cell and return a descriptor of the task back to the solidarity cell.

29. The Cited Art does not teach the claimed limitations. Without providing supporting evidence, Petitioner flatly asserts that “Lurie (alone or with Ethernet) teaches or suggests that the dispatched agent searches the task pool for a task function that the sending TCW can perform.” Petition at 28. Petitioner is mistaken. Under all modes of operation, Lurie teaches that it is the system (not the TCW) that selects the TCW to work on a task.

30. Petitioner’s argument is that “[a]n obvious way to implement Lurie’s disclosure of matching the TCW based on its capabilities to a task function that it can perform would have been for the TCW to dispatch a data frame or agent carrying a payload that includes, e.g., one or more indices, names or pointers/references associated with one or more (list of) task types that the TCW can perform—such as a particular version of a particular platform (e.g., MATLAB, LabVIEW, etc.), or a subset of the function/commands in that platform.” Petition at 26-27. Petitioner’s

argument, however, is conclusory, is based on hindsight reasoning, and defies Lurie's express teachings.

31. Referring to each of the Direct Distribution, Automatic Task Distribution, and Batch modes (as described in FIGS 3A-3D), Lurie states that "the system can determine or select the [TCW] to work on a task by operational and/or performance characteristics of the [TCW]." Lurie, [0081] (emphasis added). Describing how the system can determine the TCW to work on a task, Lurie explains that a TCW "may have a specification or profile ... which provides a description of any operational and performance characteristics of the version of [MATLAB] running on that specific [TCW]." Lurie, [0081]. Lurie further describes that "[t]his profile may be described in a file accessible over the network or retrievable through an interface mechanism of the [TCW]." *Id.* Finally, Lurie highlights that "[f]or determining a [TCW] to work on a task, the system may discover any configuration, properties, and operational and performance characteristics of the MATLAB®-based distributed computing application of a [TCW] through any interface of the [TCW], such as, for example, in a file, graphical user interface, command or message." *Id.*

32. In view of the complete description provided in Lurie paragraph [0081], a POSITA would understand that it is not the TCW that determines which task to work on. For example, a POSITA would understand that it would be non-sensical

for the TCW to “discover” its own properties by “interfacing” with itself. Contrary to Petitioner’s assertion, a POSITA reading Lurie in its entirety would understand that it is another device within the system that is responsible for “discovering” the profile of the TCWs through an interface with the TCW or via a file that is accessible over the network. This is consistent with additional details provided throughout Lurie.

33. For example, Lurie teaches that “the [ATD Mechanism] provides notification to the [TCW] of the availability of the task (step 538).” Lurie, [0088] (emphasis added). A POSITA would understand this passage to indicate that the task has already been determined by the ATD Mechanism prior to the notification which is sent to the TCW. Furthermore, a POSITA would understand this passage to indicate that the notification is task-specific. As a result of the notification, the TCW would simply retrieve the task identified by the notification. This understanding is further supported by the following exemplary embodiment which provides that “the task is sent, by the job manager 265 to the [TCW] as notification to perform the task.” Id. (emphasis added). Again, it is clear that the task is determined by the system, prior to the notification being sent to the TCW. In this particular Batch Mode embodiment, it is the task itself that is sent to the TCW as notification to perform the task. A POSITA would understand it to be non-sensical and redundant for a TCW to also make a determination of which task it would retrieve after the ATD

mechanism has already sent a notification of the task (or has sent the task itself) to the TCW.

34. The above is also consistent with Lurie's other disclosures about task determination. For example, Lurie discloses that "[t]he job runner 667 can have such logic to determine from the worker pool 668 which [TCW] should be assigned and sent a task from the job queue 267." Lurie, [0100]. In this example it is a job runner that makes the determination. In another example, Lurie teaches that "a separate automatic task distribution mechanism 260 can be responsible for determining the TCW to be assigned a task and to send the task to the assigned [TCW]." Lurie, [0100]. Here it is clearly the ATD mechanism that determines which task will be assigned to a TCW.

35. Dr. Lowenthal argues that "a TCW able to perform only a certain type or types of tasks invokes `getTask` (via its agent) with the list of functions the TCW can perform as a parameter – thus searching the ATD Mechanism for a task that the TCW can perform." Lowenthal Dec., ¶169. However, Dr. Lowenthal is mistaken. Lurie neither describes nor suggests any basis for the parameter of the `getTask` method to include "[a] list of functions the TCW can perform."

36. While Lurie provides only a single statement regarding the `getTask` method, a POSITA would understand that the parameter passed with `getTask` is simply the specified "TaskID" which is a "unique task identifier." Lurie, [0120].

This is consistent with Lurie's description that "the [ATD Mechanism] provides notification to the [TCW] of the availability of the task ... [i]n response to receiving the notification ... the [TCW] obtains (step 542) the task provided (step 540) from the [ATD Mechanism] or the [Job Manager]." Lurie, [0088] (emphasis added). See also Lurie [0128] (describing the result-specific getResult method "works the same as getTask, except a result will be taken rather than a task.") (emphasis added).

37. A POSITA reading Lurie would understand that it is the system that determines the TCW to work on a particular task, and that the notification of one or more tasks being available that is sent from the ATD Mechanism to the TCW is task-specific, and that the retrieval of the task(s) from the ATD Mechanism by the TCW is task-specific. In this way, the "[TCW] takes task 1 from the [ATD Mechanism]" Lurie, [0072]. In Lurie's JavaSpace implementation, the getTask method is used to "take" the specific task. See Lurie, [0128] (describing getTask as "a task will be taken from the space"). Furthermore, when there are "multiple task submissions from the [TCC], the [ATD Mechanism] can manage and handle the delegations of the tasks to the same [TCW], or to other [TCWs]" Lurie [0062].

38. And Lurie does not describe any other parameter (other than null) which would be passed with the getTask method. Incidentally, a POSITA would understand that when a null is used with the getTask method, "a task with any TaskID will be returned" by the system. Lurie, [0128]. This is consistent with the

fundamental operation of Lurie wherein the system “determine[s] or select[s] the [TCW] to work on a task ...” Lurie, [0081].

39. The use of a taskID as the parameter for a `getTask` method in Java is not only what a POSITA would understand Lurie to describe, but is also publicly documented as being used by others. For example, IBM's Decision Optimization Server Documentation provides a corroborating description for a Java-based `getTask` method using “taskID” as the parameter:

getTask

‘Task `getTask(taskId)` ‘
Get a specific task details.

This API retrieves the details for a specific task.

...

Parameters

Name	Type
taskID	String

TaskApi – IBM Documentation, <https://www.ibm.com/docs/en/doc/4.0.1?topic=21-taskapi#getTask> (last visited April 7, 2023).

40. In another example, Oracle's AquaLogic documentation provides another corroborating description of a Java-based *getTask* method using “taskID” as the parameter:

Java

...

```
//get the parent task
ITask task = tasklistManager.getTask(taskID);
```

Managing Collaboration Task Workflow Using IDK Remote APIs, https://docs.oracle.com/cd/E13183_01/en/alui/devdoc/docs6x/aluidevguide/tsk_prc_collab_tasks_managingworkflow.html (last visited April 7, 2023).

41. In view of the above, a POSITA would not understand Lurie to teach or suggest any embodiment where the TCW, or any purported agent of a TCW, participates in the determination of its task. As a result, Lurie does not teach a “first solidarity cell comprising a first agent configured to proactively retrieve ... a matching task for the solidarity cell to process ... wherein the first agent retrieves the matching task by ... searching the task pool for a task that is ready to be processed and has a function that the first solidarity cell can perform” ’777 Patent, 7:45-8:3; *see also id.*, 8:55-9:11.

42. Moreover, Petitioner has not shown that a POSITA would be motivated to modify Lurie to meet the claimed limitations. As discussed in more detail below, Petitioner’s proposed modifications render portions of Lurie’s system inoperable and fundamentally alter Lurie’s principles of operation. As a result, a POSITA would not find Petitioner’s proposed modifications to be obvious.

43. There is nothing to suggest that the remaining Cited Art can supply these missing limitations. While Petitioner argues that Lurie with Ethernet Specification can teach the claimed agent (Petition at 28), Petitioner is mistaken. Neither Lurie, nor Ethernet Specification, alone or in combination, teach an agent as that term would be understood by a POSITA in the context of claims 1-14. With

regard to Ethernet Specification, there is nothing to suggest that an ethernet data frame can by itself provide the searching capabilities defined in the '777 specification and required by the claims. Describing its own disclosure, the Ethernet Specification provides, “this document provides precise detailed definitions of the lowest two layers of an overall network architecture It does not specify the higher levels of protocols needed to provide a complete network architecture. Such higher level protocols would generally include such functions as internetwork communication, error recovery, flow control, security measures (e.g., encryption), and other higher level functions that increase the power of the communication facility and/or tailor it to specific applications.” Ethernet Specification at 11-12.

44. A POSITA would understand that while the Ethernet Specification provides methods for facilitating communication and data transfer between computing devices, it does not teach or suggest anything regarding the content of said communications or data transfers. As a result, the Ethernet Specification cannot supply the missing limitations such as a “first solidarity cell comprising a first agent configured to proactively retrieve ... a matching task for the solidarity cell to process ... wherein the first agent retrieves the matching task by ... searching the task pool for a task that is ready to be processed and has a function that the first solidarity cell can perform” ’777 Patent, 7:45-8:3. See also ’777 Patent, 8:55-9:11. As a result, a POSITA would not find the claims of the ’777 Patent obvious over the Cited Art.

b. The Cited Art Does Not Teach a “first solidarity cell comprising a first agent configured to proactively retrieve ... a matching task for the solidarity cell to process”

45. The title of the '777 Patent is “Parallel Processing with Solidarity Cells by Proactively Retrieving from a Task Pool a Matching Task for the Solidarity Cell to Process” (emphasis added). Each claim of the '777 Patent requires, expressly or by incorporation, a “first solidarity cell comprising a first agent configured to proactively retrieve ... a matching task for the solidarity cell to process.” '777 Patent, 7:46-49. See also *id.*, 8:56-58.

46. The '777 Patent provides that “it is an object of this invention to provide an apparatus and method for parallel processing in a multiprocessor system using co-processors that proactively seek threads to process.” *Id.*, 1:46-49. Describing proactivity of the solidarity cells, the '777 Patent discloses that “[e]ach solidarity cell is proactive, in that it obtains a task to perform by sending its agent to the task pool when the solidarity cell has no processing to perform.” *Id.*, 2:8-10. Moreover, “the [solidarity cells] act proactively in that they seek a task 22 from the task pool 13 as soon as the [solidarity cells] become available to do further processing.” *Id.*, 5:22-25.

47. The Cited Art does not teach the claimed limitations. Petitioner summarily states that “Lurie’s TCWs do not receive an instruction to retrieve a task from the ATD, either. Lurie’s TCWs ‘register[]’ with the ATD ‘to receive

notification of one or more tasks (step 527) becoming available, or appearing, in the [ATD]. Lurie [0087], [0097] In other words, the ATD's notification merely informs the TCWs when tasks first become available." Petition at 23-24. Petitioner's interpretation of Lurie is mistaken. While it is correct that the TCWs register to receive notifications about tasks, nowhere does Lurie teach that the task notifications are merely generic broadcasts to all TCWs for the sole purpose of identifying when tasks have become available.

48. Indeed, the very paragraphs cited by Petitioner belie Petitioner's mistaken interpretation. For example, paragraph [0097] of Lurie describes that "[w]hen the task is submitted to the object exchange repository 662 by the job manager 265, the technical computing worker 270 receives a notification and takes the task from the object exchange repository 662 by performing a take operation." (emphasis added). Paragraph [0087] of Lurie provides that in an exemplary embodiment, the TCWs "receive a task from the job manager 265 or the automatic task distribution mechanism 260 as notification to perform computing on the task." Lurie, [0087] (emphasis added). A POSITA would understand that in all embodiments, the notifications are TCW-specific and task-specific.

49. This understanding is further supported by the fact that the task notifications are sent as a result of the system "determin[ing] or select[ing] the [TCW] to work on a task by operational and/or performance characteristics of the

[TCW].” Lurie, [0081]. The fact that Lurie’s task notifications may identify “one or more tasks” does not change any of the aforementioned analysis. And this is consistent with Lurie’s disclosure that “[t]he automatic task distribution mechanism 260 provides notification (step 538) to the technical computing worker 260 of the availability of the task,” and, “[i]n response to receiving the notification (step 540) the technical computing worker obtains (step 544) the task provided (step 540) from the automatic task distribution mechanism 260.” Lurie, [0086], (emphasis added). See also [0071]-[0072], Figs. 3B and 5B (relating to ATD mode), and [0087]-[0088], [0073]-[0076], Figs. 3C and 5C (relating to Batch Mode).

50. In all cases, a POSITA would understand that Lurie’s TCW is dependent upon a notification from the ATD Mechanism for obtaining a task and Lurie does not provide any disclosure where a TCW obtains a task without first being notified. As a result Lurie “fail[s] to teach a technical computing worker ‘proactively’ retrieving a task from the automatic task distribution mechanism.” IPR2022-00283 Preliminary Guidance at 17. See also IPR2022-00633 Preliminary Guidance at 17.

51. Petitioner argues in conclusory fashion “it would have been obvious to implement Lurie to have this functionality” Petition at 33. Petitioner’s sole rationales for modifying Lurie are to “reduce unnecessary message traffic” and

“eliminat[e] a deadlock problem.” Petition at 34. Petitioner is mistaken on both accounts.

52. Petitioner’s rationales are based two faulty assumptions. First, that Lurie’s system does not “determine or select the [TCW] to work on a task by operational and/or performance characteristics of the [TCW],” (Lurie, [0081]), and second, that Lurie’s notifications are not task-specific. As a result, Petitioner incorrectly assumes that Lurie’s notifications are nothing more than vague and generic indicators. Having manufactured this problem of meaningless notifications, Petitioner then proposes modifying Lurie to incorporate the functionality of the ’777 Patent. This is classic hindsight-based reasoning. A POSITA reading Lurie would understand the necessity and functionality of Lurie’s notifications in context of “determine[ing] or select[ing] the [TCW] to work on a task by operational and/or performance characteristics of the [TCW].” Lurie, [0081]. A POSITA would not find Petitioner’s proposed modifications to be obvious because they fundamentally alter these principles of operation of Lurie.

53. Furthermore, Petitioner’s proposed modifications render multiple components of Lurie’s system inoperable or moot. For example, Petitioner proposes modifying Lurie such that there exists only “one initial notification to kick off the procedure. The initial notification informs all registered TCWs that one or more tasks are available.” Lowenthal Dec., ¶196. See also Petition at 33.

54. Petitioner's "kick off" theory, however, would render Lurie's job manager entirely inoperable. Lurie's job manager is configured to "provide control of delegating tasks and obtaining results" Lurie, [0063]. The job manager "go[es] through the list of [TCWs] registered in the worker pool 667 and send[s] communications to each of the [TCWs] to determine their status and if they are available." Id., [0099]. The job manager ensures the completion of jobs (and their associated tasks) in a predetermined and ordered manner. "[F]or example, the job manager may handle jobs in a first-in first-out (FIFO) manner. In this case, the job manager 265 does not process the next job until all the tasks from the current job have been processed by the automatic task distribution mechanism 260." Lurie, [0075]. Moreover, "[t]he system may not start a job unless there is a minimum number of [TCWs] registered or available to work on the job." Id., [0080].

55. A POSITA would understand that Petitioner's proposed single notification "kick off" theory would change the above-described principles of operation of the job manager and the resulting haphazard task completion would run counter to Lurie's express design.

56. In view of the above, a POSITA would not understand Lurie to teach or suggest a "first solidarity cell comprising a first agent configured to proactively retrieve ... a matching task for the solidarity cell to process." And there is nothing to suggest that the remaining Cited Art can supply these missing limitations.

Moreover, Petitioner has not shown that a POSITA would be motivated to modify Lurie to meet the claimed limitations. Petitioner's proposed modifications render portions of Lurie's system inoperable and fundamentally alter Lurie's principles of operation. As a result, a POSITA would not find the claims of the '777 Patent obvious over the Cited Art.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on: 10 April 2023

By:



Dr. Brent Nelson