

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BRYCER, LLC, and BRYCER MANAGEMENT, INC.,
Petitioners

v.

TEGRIS, INC.,
Patent Owner.

Case No. IPR2023-01196
Patent No. 11,126,966

Before KAREN I. SWEENEY, *Trial Paralegal*

**DECLARATION OF DAVID HILLIARD WILLIAMS IN SUPPORT OF
PATENT OWNER PRELIMINARY RESPONSE**

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EXHIBIT LIST

Exhibit No.	Description
2002	David Williams Curriculum Vitae
2003	https://www.wsp.wa.gov/wp-content/uploads/2021/09/Application-Level-ITT-Specialized-Certificate-of-Competency-420263.pdf
2004	Lynnwood Case Study
2005	https://www.nfpa.org/News-and-Research/Publications-and-media/Blogs-Landing-Page/NFPA-Today/Blog-Posts/2020/10/30/guide-to-fire-extinguisher-inspection-testing-and-maintenance
2006	U.S. Published App. No. 2008/0114638 to Colliau
2007	U.S. Published App. No. 2003/0171957 to Watrous
2008	U.S. Published App. No. 2005/0108038 to Cober
2009	U.S. Patent No. 6,446,053 to Elliott
2010	U.S. Published App. No. 2006/0235611 to Deaton
2011	Annual Hydrant Inspection Procedures 2001
2012	U.S. Publication No. 2008/0084291 to Campion

I, David Hilliard Williams, declare as follows:

I. Introduction

1. I have been retained on behalf of TEGRIS, INC. (“TEGRIS”) for the above-captioned *inter partes* review (IPR) proceeding. I am being compensated for my time in connection with this IPR at my standard hourly consulting rate. I understand that this proceeding involves U.S. Patent No. 11,126,966 (“the ‘966 patent”) titled “SYSTEMS AND METHODS FOR A WEB BASED INSPECTION COMPLIANCE REGISTRY AND COMMUNICATIONS TOOL” by Andrew Stanton Moren and Robert J. Moren, and that the ‘966 patent is currently assigned to Tegriss, Inc. of Gig Harbor, WA (US).

2. I have reviewed and am familiar with the specification of the ‘966 patent filed on January 23, 2008. I understand that the ‘966 patent has been provided as EX1001. I will cite to the specification using the following format: EX1001, ‘966 patent, 1:1-10. This example citation points to the ‘966 patent specification at column 1, lines 1-10.

3. I have reviewed and am familiar with the file history of the ‘966 patent. I understand that the file history has been provided as EX1002.

4. I understand that the ‘966 patent has a filing date of January 23, 2008. The ‘966 patent also claims priority to provisional application No. 60/981,782, filed on

October 22, 2007. I do not address any claims by Petitioners with respect to priority date in this Declaration, but reserve the right to do so.

5. In preparing this Declaration, I have also reviewed and am familiar with the following prior art relied upon in the Petition for *Inter Partes* Review of the '966 patent and/or in my declaration below:

<u>Ex.</u>	<u>Reference Name</u>
1005	Key
1006	Sweeney
1007	Campion patent
1016	Chauhan
1018	Silva
1020	McKinney
1024	Buildingreport.com
2006	Colliau
2007	Watrous
2008	Cober
2009	Eliott
2010	Deaton
2012	Campion Published Application

6. The '966 patent describes a method for using a web registry to track the inspection compliance of an owned asset including notifying an owner of an asset that an inspection is needed to comply with a code. Ex1001, '966 Patent, Abstract.

7. I have been asked to provide my technical review, analysis, insights, and opinions regarding the '966 patent and the above-noted references that form the basis

for rejecting the arguments set forth in the Petition for *Inter Partes* Review of the '966 patent. More specifically, I've been asked to opine on the arguments set forth for Claim 8 of the '966 patent, which I do on its technical dimensions and in the context of a Person of Ordinary Skill in the Art (POSA) at the time of the '966 provisional priority date.

II. Qualifications

8. In formulating my opinions, I have relied upon my training, knowledge, and experience in the relevant art. A copy of my current *curriculum vitae* is provided as EX2001, and it provides a comprehensive description of my academic and employment history over the last thirty-plus years.

9. My curriculum vitae is attached as marked at EX2002.

10. I am President and Founder of E911-LBS Consulting, which was founded in 2002. My firm provides consulting, research, forensics, and litigation support services in the fields of telecommunications, mobile, location-based services, and Internet-of-Things (IoT) technologies application, device, infrastructure, and network design and implementation. I have extensive experience in safety and security systems in a variety of life safety-related fields, ranging from 911 systems and processes, personal, home, and commercial safety, alarm, and security devices/applications/monitoring systems, asset tracking and recovery, and criminal forensics safety-related systems analysis. Prior to founding my company in 2002, I

spent 15 years as a senior technology design and implementation consultant for world-leading technology consulting firms Accenture, Booz Allen & Hamilton, and Deloitte Consulting. I started my career in 1983 as an electrical design engineer for Hughes Aircraft Company's Radar Systems Group, working on that system's analog signal-to-digital converter and control unit for the F-15 fighter jet radar system and ground control. My relevant experience for this matter utilizes experience and expertise gained across this timeframe.

11. I obtained a BS in Electrical Engineering from Purdue University in 1983, with an emphasis on Digital System Design, graduating with top honors including the National Engineering Honor Society and National Electrical Engineering Honor Society. In 1987, I also obtained an MBA, focusing on Information Systems Management, from the University of Texas at Austin, graduating first in my class.

12. I have over 35 years of experience related to wireless location services, including experience designing, implementing, and managing numerous location-based service ("LBS") applications, such as navigation, mobile social networking, family tracking, and worker and asset tracking management, as well as working in all fields within the location services ecosystem including all forms of location determination technologies, map data, handset technologies, user interfaces, and associated Information Technology systems including identification, authentication, privacy, security, and other related capabilities such as network engineering and operations.

13. I am currently the President of the company E911-LBS Consulting, and I have been with the company since 2002, as well President of E911-LBS Forensics Engineering, a criminal and civil forensics engineering firm. As the President of E911-LBS Consulting, I provide services across the entire wireless value chain, particularly with respect to technology and business strategic planning and product design and development associated with LBS, Global Positioning Satellite (GPS) systems, E911, WiFi-Based and other medium/long-range Real-Time Location Systems (RTLS), Radio Frequency Identification (RFID), Bluetooth, Near Field Communications (NFC), and beacon-based and other short-range communications/location systems, and other location determination and sensing technologies and services.

14. I have extensive expertise in all aspects of product and service delivery across the wireless location ecosystem including enabling network, map data, geospatial platform, chipset, data management, device, user interface, and location determination infrastructure and integration providers. I am an expert in all related aspects of mobile location services, including use of various communications networks and associated frequencies and protocols involved in the creation, processing, and delivery of information, and key associated enablers of such device hardware and software design, use/deployment of sensors, local and centralized control systems, and underlying communications and computing architectures.

15. For example, in the 1983-1985 timeframe, I was a microprocessor system design engineer on the digitization project of the F-15 fighter jet radar system. Specifically, I designed a system for converting analog signals (radar pings, sensor measurements, etc.) to digital form, and for feeding the converted signals to various parties and localized and centralized control subsystems, including pilots, carriers, and ground control stations. The converted signals corresponded to data relating to navigational and directional information, aircraft status, the location of other aircrafts/targets relative to the pilot's position, and associated images.

16. In the 1987-1995 timeframe, as a senior consultant/manager for Deloitte Consulting and Booz, Allen, and Hamilton, I designed and deployed a variety of computer centers and communications networks supporting industries including hospitality/retail, transportation, and financial services.

17. In the 1995 to 2000 timeframe, as an Associate Partner in the Communications & High Technology Practice of Accenture (one of the world's leading technology companies), I focused on using wireless location technologies to provide services to the public sector and commercial markets. From 1998 to 2000, I led the development of the LBS product/technology strategy and roadmap for Nextel Communications, Inc. (later acquired by Sprint, and now part of T-Mobile). My work with Nextel resulted in some of the earliest LBS applications in the U.S. market and included extensive research into the potential use of various technologies in providing

and enabling a wide array of location-based services. Many of the Nextel products selected for development and implementation included various forms of worker and asset tracking that matched—based on their location—workers with other workers, or workers with assets (*e.g.*, field equipment, vehicles, etc.), tracked worker/asset locations on a map, and provided navigation directions from one point to another. My work developing the product concept and initial requirements sets heavily emphasized the tracking and alert capabilities for those applications. My work also included leading the development of the underlying network and Information Technology architectures that would be required to support the LBS applications product strategy and roadmap, including the future incorporation of other capabilities including Wi-Fi.

18. In 2003, I led the development of part of AT&T Wireless's E911 infrastructure, including the development of systems, processes, and reporting infrastructure to manage and track the deployment of time difference of arrival-based location determination technologies. I managed the testing and Federal Communications Commission reporting of network location inaccuracies, with a particular focus on detecting and troubleshooting out-of-norm technology deployment and inaccurate location conditions. This work also generated the accuracy data associated with determining the location of a portable electronic device that could then be used as supplemental information (*e.g.*, how accurate the location was) to location-

based applications, such as asset tracking, navigation, POI information, or people-finding services.

19. From 2005 to 2007, I worked with NAVTEQ (now called HERE)—the leading provider of map data and services essential to creating LBS applications—to develop the company’s web developer website content and tools. Specifically, I designed and managed the site map and overall content, including the development of comprehensive technical and business web content for all NAVTEQ map product and service lines. Through the developer site, application developers and business managers became intimately familiar with map data, Geographical Information System (GIS) platforms, and location-based services and associated user interface and associated data population options available to successfully develop and launch their LBS applications. For example, I developed content for highlighting key types of map data and for providing technical details on how NAVTEQ tools could be used in LBS design for various consumer and business applications, for example, data product packages focused on shopping and consumer Points-of-Interest, such as retail/retail locations, restaurants and entertainment spots, which could be used by application developers for a variety of purposes, such as retail location local search, and navigation packages focused on different levels of navigation granularity (*e.g.*, malls vs. highways vs. backroads vs. trails) and modes of transportation (*e.g.*, walking, truck, car, bike) across many forms of tracking and user interface platforms. Much of this map data

productization involved links to/dependencies upon the types of location determination technology/techniques, including GPS, cellular network-based techniques, Wi-Fi positioning/networks, Cell ID-based, and other networks/techniques.

20. I also have extensive LBS application product design and implementation experience, including related disciplines including data privacy and security management. For example, from 2007 to 2010, in the role of lead Product Realization Manager, I managed the design, implementation, and launch of several consumer and business-oriented LBS applications for AT&T (then, AT&T Mobility). These LBS applications included navigation, mobile social networking, family tracking, local search, 411-with-LBS, games, mobile resource management, fleet management and tracking, and asset tracking. I also developed corporate-wide location data privacy policies and associated system implementation for all LBS customers. The app had to work within the constraints and capabilities of the literally dozens of phone/device platforms, and also within the constraints and capabilities of the rest of the AT&T IT, network, and operational (sales, customer service, etc.) systems, architecture and processes.

21. Many of these apps involved extensive alerts associated with location-related triggers, such as entering/exiting an area. For example, my work in AT&T's implementation of mobile social networking focused on finalizing the design of the Loopt social networking application, an app being adapted into AT&T's network and

product line. This role and work required extensive knowledge of how the app worked (including its use of location data sharing mechanisms and associated capabilities such as geofences). The role required design modifications to ensure successful implementation across multiple users/friends using different device platforms (and thus differing screen and functional capabilities) so that friends' shared user experience was as accurate and complete as possible. This would include synchronization/coordination of location-alerts, enabling for example joint alerts when friends were nearby or at a certain POI, and provided directions for enabling the friends/users to meet.

22. I have worked extensively in the field of asset management and related capabilities, including alerts including time-based and event-based alerts, such as proximity-based and geofence-based alerts. For example, my work with such asset management systems with AT&T involved alert-based centralized dispatch and remote control over local control systems, triggered off of certain location, location area/geofences, and asset-related conditions, metrics, and time-based events.

23. Further, these applications had to be tied into (and be used by) AT&T's network, AT&T's location infrastructure, and various AT&T IT systems used for functions including Sales, Customer Care, Fulfillment, Billing/Accounts Receivable, and various network and IT operations. The work also included extensive work with AT&T Legal to develop and implement AT&T's location privacy and data security policies. The integration of the application into the above required extensive

authorization-related design work to ensure that a given user could appropriately access the various AT&T systems and subsystems, as well as the application, under the appropriate conditions/circumstances, including appropriately authorizing the use of and the sharing of a user's location with other users and/or systems. This work in location-related data security and privacy networking resulted in a patent: U.S. Patent 8,613,109, titled "Method and Apparatus for Providing Mobile Social Networking Privacy," that issued on December 17, 2013, of which I was the only non-employee inventor.

24. In addition to the above applications, enabling location technologies, wireless communications, and privacy and security experience and expertise described above, I also have many years of Information Technology experience. For example, as a consultant in the Information Technology practices of Deloitte Consulting (originally Touche Ross), Booz Allen & Hamilton, and Andersen Consulting (now Accenture), I served in key technology development and technology leadership roles in numerous projects designing and implementing mainframe, mini-computer, and client-server-based computing systems across a wide variety of industries and a wide variety of functions/applications.

25. I also led the design and development of a number of different communications networks associated with the above computing systems, including

wide- and local-area networks, utilizing both wired and wireless technologies, involving private and public (*e.g.*, Internet-based) communications backbones.

26. I have written numerous articles and reports on location-based services and technologies, as well as authoring multiple books, including:

- The Definitive Guide to GPS, RFID, Wi-Fi, and Other Wireless Location-Based Services (2005 and 2009 versions);
- The Definitive Guide to Wireless E911 (2004, 2005 versions); and
- The Definitive Guide to Mobile Positioning and Location Management (co-author).

27. I am the primary/sole inventor of several patents extensively establishing, tracking, and utilizing networks of devices, platforms, people, places, and entities in supporting those attempting to control/modify/correct/improve various undesired activities and behaviors, such as those suffering from addiction or those in difficulty with the law on issues related to such behaviors, utilizing a wide array of sensor systems and long and short-range networks to collect and transmit data, and to locally and centrally generate alerts and various responses under a wide variety of contextual and location-based events and triggers.

28. I have served/am serving as a mobile location forensics expert in over 50 criminal (homicide, arson, robbery, etc.) and civil (trade secrets, product liability, etc.) cases, many involving various forms of vehicle telematics and otherwise tracking of

individual movements and associated behaviors, using a variety of devices and platforms, possibly associated with the committing of a crime or other infraction, utilizing a variety of data including location information, video/camera data, and various sensor-based data.

29. I have served/am serving as a mobile/wireless and location technology and application/system expert in patent matters involving over 200 patents ranging from short and long-range network design, usage and authentication to local and centralized control systems to safety, security, and surveillance systems, and have been deposed in such matters over 35 times. I have testified in court in ITC court, the Eastern and Western Districts of Texas, and international (Canada, Trinidad and Tobago) venues, as well as various U.S. criminal courts.

30. My curriculum *vitae* contains further details on my education, experience, publications, and other qualifications to render an expert opinion. EX2002. My work on this case is being billed at a flat rate of \$485 per hour, with reimbursement for actual expenses. My compensation is not contingent upon the outcome of this *inter partes* review proceeding.

III. Legal Understanding

A. My Understanding of Claim Construction

31. I understand that during an *inter partes* review proceeding, claims are to be construed in light of the specification as would be read by a person of ordinary skill

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

32. At this point in the proceedings, Petitioners are not advancing any terms that require claim construction. However, as they state in their Petition, they may have “implicit constructions derived from Petitioners’ analysis of the prior art.” I will respond to those “implicit constructions” in the body of my Claim 8 analysis specifically. I also propose a claim construction for “fire hydrant management software” that in my view fits the details and intent of that term as it is used in the patent and prosecution history, specification, and claims.

B. My Understanding of Obviousness

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

34. To obtain a patent, a claimed invention must have, as of the priority date, been nonobvious in view of the prior art in the field. I understand that an invention is obvious when the differences between the subject matter sought to be patented and the

prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art.

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

36. I also understand that when considering the obviousness of a patent claim, one should consider whether a teaching, suggestion, or motivation to combine the references exists so as to avoid impermissibly applying hindsight when considering the prior art. I understand this test should not be rigidly applied, but that the test can be important to avoiding such hindsight.

37. I understand that certain objective indicia can be important evidence as to whether a patent is obvious or nonobvious. Such indicia include: (1) commercial success of products covered by the patent claims; (2) a long-felt need for the invention; (3) failed attempts by others to make the invention; (4) copying of the invention by others in the field; (5) unexpected results achieved by the invention as compared to the closest prior art; (6) praise of the invention by the infringer or others in the field; (7) the taking of licenses under the patent by others; (8) expressions of surprise by experts and

those skilled in the art at the making of the invention; and (9) the patentee proceeded contrary to the accepted wisdom of the prior art.

38. I also understand that “obviousness” is a legal conclusion based on the underlying factual issues of the scope and content of the prior art, the differences between the claimed invention and the prior art, the level of ordinary skill in the prior art, and any objective indicia of non-obviousness. For that reason, I am not rendering a legal opinion on the ultimate legal question of obviousness. Rather, my testimony addresses the underlying facts and factual analysis that would support a legal conclusion of obviousness or non-obviousness, and when I use the term obvious, I am referring to the perspective of one of ordinary skill at the time of invention.

C. Level of Ordinary Skill in the Art

39. I understand that a person of ordinary skill in the relevant art (“POSA”) is presumed to be aware of all pertinent art, thinks along conventional wisdom in the art, and is a person of ordinary creativity—not an automaton.

40. I have been asked to consider the level of ordinary skill in the field that someone would have had at the time the claimed invention was made. In deciding the level of ordinary skill, I considered the following:

- the levels of education and experience of persons working in the field;
- the types of problems encountered in the field; and
- the sophistication of the technology.

41. My opinion below explains how a POSA would have understood the technology described in the references put forth in the Petition, at the time of the patent provisional filing in 2007. Specifically, based on the disclosure of the '966 patent, a POSA would have had either: (1) a Bachelor of Science degree in Electrical Engineering or an equivalent field, with at least 2 years in asset management, including familiarity with associated asset inspection, testing, and/or maintenance disciplines, as well as familiarity with the life safety industry; or (2) a Master of Science degree in Electrical Engineering or an equivalent field, with at least 1 year of academic or industry experience in the same field. This description is approximate, and a higher level of education or skill may make up for less experience, and vice-versa.

42. Included in the above is knowledge of life safety systems, including fire hydrants, fire alarms, and/or building sprinkler systems. As indicated in the Qualifications section, at that time I had several years' experience with public safety 911 systems and processes, as well as other safety-related fields/disciplines. In addition, as part of this effort I have interviewed one or the inventors of the '966 patent, to more fully understand the state of the art up to the time of the filing date thereof. In total, I believe that qualifies me as a POSA at that time.

IV. Patent and Prosecution History

43. The inventors of the patent have a long history of working in the life safety field.

44. As one of the named inventors explained, “no one was enforcing inspections [nor] Inspections, Testing, and Maintenance related to them.” The documentation related to the inspections and ITM “would be filed by the firehouse document manager, then die.” At the time of the patent provisional filing, “only about 20% [of life safety equipment owners], most of them box stores, would follow up” on inspections/ITM, primarily for insurance purposes.¹

45. The inventors in their patent disclosure described a variety of assets, fire-related and otherwise, including assets associated with what is known as “life safety” functions. These assets functions include, as their core/primary purpose, capabilities that actively and directly prevent life threatening situations, or actively and directly help in in trying to recover from/survive such life-threatening situations. This could include assets ranging from a heart defibrillator to a tornado shelter to Personal Protective Equipment (PPE) for hospital staff and life preservers for boaters. The key to identifying such systems (also applicable to fire and other “emergency” assets) is as follows: is the core, or primary purpose, of the asset to prevent/pre-empt a life-threatening situation, and/or to help recover/survive a life-threatening situation.

46. In addition to fire and life safety-related assets, consistent with the above would be for other types of assets that have, as their core/primary purpose, emergency prevention or survival. This would include assets such as emergency lighting systems,

¹ Source: Telephone Interview with Andrew Moren on 10/3/23

emergency warning systems, emergency evacuation plans, emergency response teams, even 911 communications system. The word “emergency” doesn’t have to be in the title; it is the core purpose/use cases that are key. All of the above types of assets could have one or both of preempting (a fire, life safety situation, or emergency) or (if already underway), recovering from/surviving such situations.

47. With that as a premise, as a minimum starting point it is *inclusive* of software that can be used to manage Fire Hydrants (both public and private). Such software can also manage related assets with the word “fire” in them used in the *Background of The Invention* section of the original application such as, Fire Alarm Systems, Fire Sprinkler Systems, and Fire Extinguishers. Like hydrants, such fire-related assets have, as their core/primary purpose, the prevention of and/or fighting of fires and are required to be working when there is a fire emergency.

48. Finally, in addition to the fire/life safety/emergency primary/core purpose or use cases described above, the scope of the disclosure includes those assets that can be—and are—inspectable by a qualified inspector(s). Inspection (as well as often associated functions of testing and maintenance) is clearly part of the core overall functionality involved in the patent, and facilitating the proper inspections of fire/life safety/emergency asset inspections and the flow of inspection-related information is at the core of what the patent is trying to accomplish.

49. It is (very) important to note that while the disclosure of the original patent application and initial office actions were very broad as to the type web registry-based owned asset management involved encompassing not only fire hydrants, fire alarm systems, and fire sprinkler systems, fire hood system, and fire extinguishers, but also all sorts of other assets ranging from retention ponds and boilers to farm equipment and weapon caches, as described in the '966 Patent Background of the Invention (EX1001, 1:22-34), that broad range of assets was not the final claimed result that was approved by the Examiner. Instead, the Examiner approved revised claim language for pending claim 21 (which became granted Claim 8) shown below:

21. (Previously Presented) A computer-implemented method for using a fire hydrant management software and a web-based registry to track requisite inspection of an owned asset comprising:

granting remote access to a web-based registry system, wherein the web-based registry is configured to run a fire hydrant management software, to at least three classes of user, wherein the three classes of user comprise:

- (1) an owner of an asset
- (2) an approval authority
- (3) an inspector

retrieving, by a computer-based fire hydrant management software system, real time records of assets from a database, the database being accessible and augmentable by a classes of user;

analyzing the records of assets from the database to identify notification events;

based on the analysis, notifying an owner of an asset ~~at~~ of a notification event, wherein the notice includes a standard format description of the type of inspection, and a cost associated with the type of inspection, and wherein the notification event comprises a designatable interval in advance of an impending deadline for the inspection, and wherein the owner of the asset, upon remotely accessing the fire hydrant management software compliance registry, may update and review the status of the assets;

based upon the analysis, ~~notifying~~ sending a standard format notice to the approval authority of the status of the assets assigned to the approval authority, and wherein the approval authority, upon accessing the web-based registry, may update and review the status of the assets assigned;

upon logging on to a password controlled website configured to provide access to the fire hydrant management software, providing to an inspector the owner selects, the selection based upon a list of qualified inspectors that are available to inspect the asset based upon attributes

including proximity to the asset, a web-based template configured to describe the asset an each of the steps of the inspection;

receiving from the inspector, inspection information in specific response to the web-based template;

storing in a database in association with the asset, the inspection information, wherein the inspection information is accessible to the users, and updating the database in association with the asset based upon the inspection information;

transmitting to the approval authority, a standard format compliance report including noting compliance, wherein the compliance report includes, noting deficiencies in the asset and storing the noted deficiencies in association with the asset.

See EX1002, 604-616, 628-629.

50. It is important to note that the above does not mean that if an asset has a few functions or use cases related to a fire, life safety, or emergency services asset, that the asset qualifies as being covered under “fire hydrant management,” as the Petitioner asserts in its Petition. As discussed herein, almost any physical (and some digital) assets can become “dangerous” if neglected, abused, or misused. Putting aside the issue about what is “dangerous” or not (a term also used by the Petitioners in advocating certain types of assets as being included in Fire Hydrant Management), including those assets just because they have potentially a few non-primary/fringe fire/life safety/emergency use cases in the scope of this term would render adding “fire hydrant management” to the claims almost meaningless. As such, assets such as boilers or elevators, which *primary* purpose is to heat liquids or move people, respectively, would *not* qualify as assets being managed with “fire hydrant management software” under any construction.

This is discussed in more detail and in the discussion of each of the individual pieces of the Petitioners' prior art.

V. Claim Construction

51. As seen above, and through the patent examination, as claims were modified by the later office actions, "fire hydrant management software" was a key addition to the claims to secure allowance, and narrowed the scope of Claim 8 (and others). In my opinion it is important to have an explicit construction for the claim term, both because of the specificity and importance of its use in getting the patent approved by the Examiner, and because the Petitioners are extremely vague in what *they* think the term means.

52. In forming an opinion on "fire hydrant management software," first I believe it is important to understand the "boundaries," e.g. the metes and bounds, of the term. In my view, "fire hydrant management" is first and foremost a description of the scope of the type of assets that can be managed by the software. I do not believe, and I believe the Petitioners agree via its Petition positions, that the patent disclosure is focused solely on the management of fire hydrants. However, it is not any and all types of assets either, even if they possibly have situations or use cases where they somehow become "dangerous" (which is the case for many, even most assets if they are misused or not taken care of). Otherwise, the scope of assets would be huge (many thousands of types of assets), and the inclusion of the term in the claims meaningless.

53. Moreover, the '966 patent provides a description of fire hydrant management software. EX1001, 1:63-66.

54. Thus, in my opinion a proper construction of the term “fire hydrant management software” would be:

Software that allows the user to input fire hydrant information, schedule maintenance and create reminders for service.

VI. Background of the Technology

55. Before getting into the various technical fields/disciplines associated with the '966 patent, it is very important to understand the market and use cases for which it was intended. Some of this was described in the previous section. In addition, it is useful to understand the “raw” numbers of the markets and use cases. For example, instead of 67 jurisdictions presumed by the Key patent, the inventors estimate that there were about 15K relevant jurisdictions for the '966 patent at the time of the provisional patent filing in the fire safety field alone and that is just in the United States. By itself this difference in numbers of and definition of jurisdictions indicate a major difference in focus between the '966 patent and Petitioners' primary art reference Key.

56. The number of assets involved is also a significant consideration. While almost impossible to quantify nationwide, the number of fire/emergency/life safety systems in Seattle at present (out of a population estimate of approximately 733K) is

over 80,000 systems, based on my above referenced discussion with one of the named inventors.

57. Another major difference is the nature of Inspectors/Inspections. The Petitioners' art, to the extent it addresses specific Inspector requirements at all, is very generic about their qualifications, capabilities, and focus. In contrast, the '966 patent focuses on Fire/Emergency/Life Safety assets used primarily or solely for fire/emergency/life safety saving purposes. As such, there are *extremely stringent* qualifications that an inspector must have to be certified to inspect those assets, and they vary by assets and inspection scope. For example, Washington State (and most states) have multiple levels of certification:²

Levels of Certification	Single family, single story homes Purview of NFPA 13 – D					Multi-family, 4 > stories in height Purview of NFPA 13 – R					Commercial – Full Protection Purview of NFPA 13				
	Design	Installation~	Inspection and Testing	Repair and Maintenance~	Underground Fire Service Mains	Design	Installation~	Inspection and Testing	Repair and Maintenance~	Underground Fire Service Mains	Design	Installation~	Inspection and Testing	Repair and Maintenance~	Underground Fire Service Mains
Level 1	X	X	X	X	X										
Level 2	X	X	X	X	X	X	X	X	X	X					
Level 3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Level ITT*	Not Addressed By NFPA 25							X					X		
Level U	Not Addressed By NFPA 24									X					X
Residential		X		X			X		X						
Journey		X		X			X		X			X		X	

* Limited to inspection and testing of wet and dry pipe systems ONLY. Deluge, pumps, and chemical systems must be supervised/signed off by a Certificate of Competency Holder certified at the level of system with the component – usually Level 3.

² EX2003, <https://www.wsp.wa.gov/wp-content/uploads/2021/09/Application-Level-ITT-Specialized-Certificate-of-Competency-420263.pdf>

Who Uses NICET?

The value of a NICET certification lies in what it says about the professionalism of the certification-holder. Because such people are valuable to employers and customers alike, certification often influences hiring, retention, promotion, and contracting decisions. The NICET programs that are most commonly required by local and state jurisdictions, and by federal agencies. Click on the State's name to be taken to their Requirements page.

Fire Alarms

GSA Contractor	Kansas	Nevada	South Carolina
Alabama	Kentucky	New Hampshire	South Dakota
Alaska	Michigan	New Jersey	Texas
Arizona	Minnesota	New Mexico	Utah
California	Montana	New York (City)	West Virginia
Delaware	Nebraska	Ohio	Wyoming

Inspection & Testing of Water Based Systems

GSA Contractor	Illinois	South Carolina
Alaska	Iowa	South Dakota
Arizona	Kansas	Texas
Delaware	Maryland	Utah
Florida	New Jersey	Washington
Georgia	Ohio	West Virginia

58. In 2007, it is estimated that there were about 200 inspectors in Washington state at the above-referenced ITT level (licensed to inspect and test fire sprinkler systems). Further, since an inspector was often qualified to inspect more than one type of asset, these inspectors, besides being highly qualified, had a huge number of assets and types of systems to inspect.

59. With those numbers as backdrop, the '966 patent, and in particular Claim 8, involves the following technical fields/disciplines:

- Web-accessible client-server asset management systems, and
- Inspection, Testing, and Maintenance for Fire Hydrant Management systems

60. It is informative to explore each of these fields/disciplines in more detail, both as general background and in particular to understand the technical approach and obviousness strategy being used by the Petitioners in their Petition to the PTAB. In my

view, that approach emphasizes—indeed uses as its core foundation—the *general* technologies and associated processes of prior art as the related to internet connected client-server asset management systems, and to a lesser extent inspection and compliance processes and related systems, while in effect ignoring the *specific* issues, challenges, and associated novelty of the ‘966 patent with respect to Fire Hydrant Management systems, as construed and described above in the Patent and Prosecution History section and in more technical detail in their associated fields/technical disciplines, next.

A. While Web-Accessible Client-Server Asset Management Systems Were Generally Well-Known in 2007, There Were Numerous Important Variations Making the Prior Art and Associated Combinations Inconsistent with the ‘966 patent.

61. The Petitioners go to great lengths to point out similarities between the ‘966 patent and prior art with respect to web-accessible client-server-based asset management systems. It is worth examining each of these components in turn, including their state/status at the time of the ‘966 earliest priority date of 2007.

1. Client Server Systems

62. Petitioners place major emphasis on how their prior art—particularly its primary reference Key—uses a very similar systems architecture to the ‘966 patent, as if that is the critical similarity that must be demonstrated (it is not):

“Key discloses a “hardware architecture” (similar to Figure 2 of the ‘966 patent). **Client computers 305** “run web browsing applications that

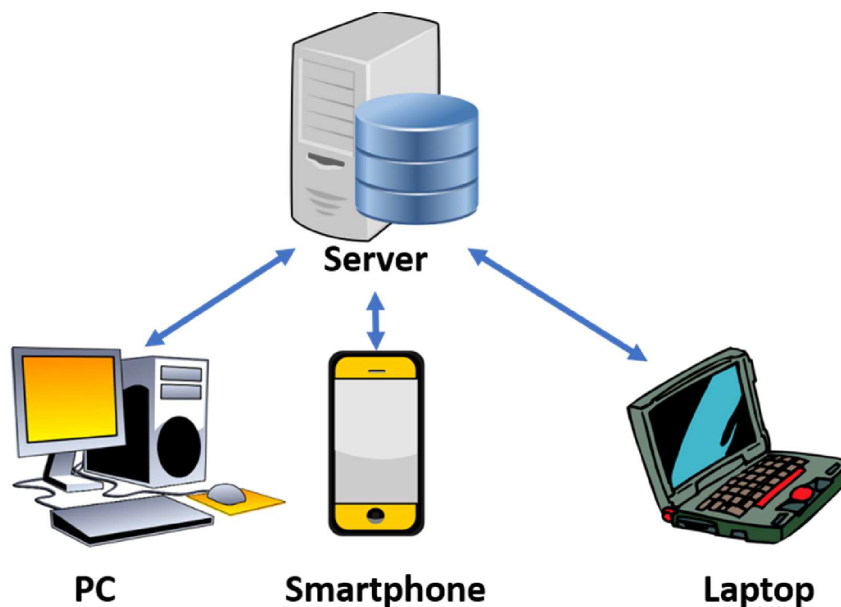
retrieve and display the [JOM's] web pages" which are "retrieve[d] ... over a global computer network 199 such as the Internet" by "mak[ing] a request over Internet 199 to a **web server 320**," which are "operative to implement the front-end software" to "display information to users operating a web browser" and "provide notifications in a known manner usually via email." EX1005, [0065]-[0067]. **Application servers 330**, coupled to **web servers 320** and **database servers 340**, are "operative to implement the application software" which "contains the logic that is used to determine which web pages are presented to the user and how respond to user's actions," "contains the necessary logic to process the user's transaction and provide the associated updates and any notifications," and are described "in greater detail" in Figure 4. EX1005, [0068]. **Database servers 340** are "operative to store and retrieve information from a **database 350**." EX1005, [0069]."

Petition, pp. 11-12.

63. Client-server architecture at a very high level of generality, utilizing various forms of client computers and web, application, and database servers, was well known at the time of the '966 priority date. Indeed, Client-Server Computing, including its architecture and protocols, was used for a myriad of purposes and use cases at that time. By 2007, client-server systems had very significantly outpaced predecessor

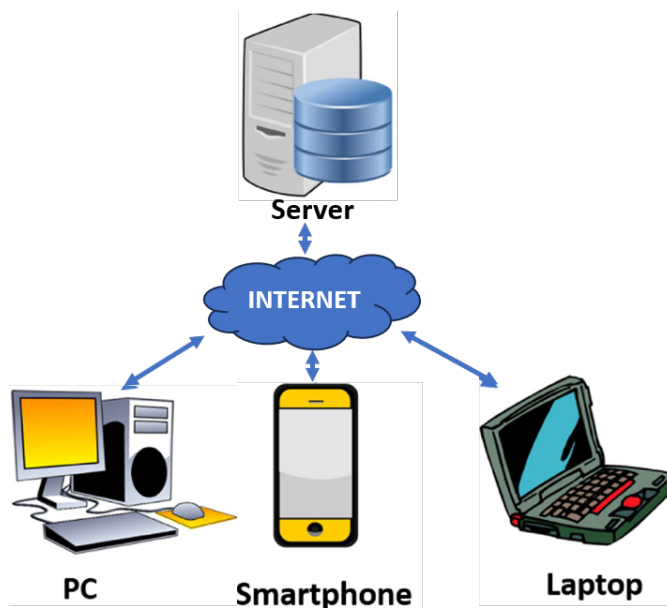
architectures like mainframe and mini-computer system as the “go-to” architecture for all sorts of business applications (though not necessarily for government applications, which often used mainframe, mini-computer, or even paper-based systems for years beyond 2007 and even to today).

64. Generally, client-server computing architecture uses a computer server as the primary “node” through which multiple (wired or wireless) devices (“clients”) communicate, with the server performing key processing capabilities as well as communications services, thus called “client-server” computing, as illustrated below:



65. Client-server systems began to emerge in the United States in the early 1980s as computing transitioned from large mainframes to distributed processing using multiple workstations or personal computers. Corporations quickly adopted client-server systems, which became the backbones of their office automation and

communication infrastructure. While the first client-server architectures involved Personal Computers (PCs) connected to servers using wired (typically Ethernet-based) connections, these wired networks quickly turned to wireless connections to cut down on the prodigious running of cables through buildings that wired networks required. As the Internet became rapidly accessible during this time, more and more companies turned to using it in their architecture (and by doing so reducing communications costs), as seen below:



66. While Client-Server systems were well known in 2007, there were numerous design/implementation considerations and variations that made different systems work differently—sometimes very differently—from other supposedly similar systems. For patent purposes, the devil is in the details; just relying on various types of clients and servers is barely a starting point for considering obviousness. Indeed, a Google

patent search for prior to October 23, 2007 using “client server,” “application server,” “web or Internet,” “database server,” and “asset management” yields over 100,000 results (the maximum number returned by Google Patent search).³

67. Additional factors must be considered when contemplating the applicability of the Prior Art, starting with the details of the web/internet-based client server architecture. These more detailed technical considerations/variations are relevant in at least two respects: 1) whether a POSA would be motivated to combine prior art in a way at least consistent with various technical considerations/variations of the ‘966 patent, and 2) is the prior art at least technically consistent, compatible, and synergistic with the ‘966 patent with respect to these details, to the point of having a reasonable expectation of success? The considerations/variations of relevance to this matter include(d):

- *Open/Closed Architecture* – Key questions: Do the systems utilize open or proprietary software? Are standards employed? Are the systems described by the art lends themselves to flexibility/interoperability with other systems, such as using Application Programming Interfaces? Put another way, trying to combine a secondary system with a clearly closed primary system would give pause to POSA on both motivation to combine and reasonable expectation of success perspectives.

3

[https://patents.google.com/?q=\(client+server\)&q=application+server&q=+web+or+Internet&q=data+base+server&q=asset+management&before=priority:20071023](https://patents.google.com/?q=(client+server)&q=application+server&q=+web+or+Internet&q=data+base+server&q=asset+management&before=priority:20071023)

The '966 patent employs an open architecture, with all stakeholders being treated similarly, heavy emphasis on standards, and in general demonstrating flexibility, whereas Key in my opinion uses a Closed Architecture (discussed more in the prior art section below) that would teach away from combining with other systems. Further, most of the other art employed (*e.g.*, Sweeney and McKinney) are what I consider to be standalone/closed systems, making combination with other closed art (like Key) impractical, and unlikely to attract the positive attention of POSA when looking for applicable art.

- *Topology* – Are the clients and particularly servers centralized or decentralized/distributed? The '966 patent is distributed/decentralized, whereas Key is very specifically centralized. Having different topologies can bring in technical complications that teach away from using Key as the core prior art.
- *Age*—Normally age is not a major issue once the architecture is decided. However, in this matter that is not the case. The '966 patent was provisionally filed in 2007, whereas Key was filed in 2000. This is relevant as in the very early 2000s many of the web-based standardized interfaces and standards for interconnecting various types of clients and servers had not yet been established, finalized, and/or published, further

complicating any attempt at combining multiple pieces of system art.⁴

Some of the other prior art offered by the Petitioners were “old” by this measure (McKinney—2001, Sweeney—2003).

- *User Interfaces*—As mentioned immediately above, the early 2000’s was a time of great technical standards development, particularly with respect to user interfaces for accessing the Internet, and doing it from mobile devices. The ‘966 patent, with its 2007 priority date and in its specification, recognized the use and utility of such standards and interfaces. In contrast, the Year 2000-era Key system was before many of those standards/interfaces were established/stabilized, making it less likely a POSA would seek out art of that era. Further, the primary purpose of Key was not to utilize standard interfaces so that any jurisdiction’s forms would look standard to the user, but quite the contrary: to force the user to use the form that the jurisdiction wanted the user (*e.g.*, inspector) to use. This is a polar opposite philosophy between the ‘966 and the Key patents with respect to how a user interface should work.
- *Security and Access*—A system, or collection of systems, can be

⁴ <https://blog.postman.com/intro-to-apis-history-of-apis/>

characterized by how the system is secured, and more generally who can access it, under what conditions, and who controls both. The '966 patent was envisioned as an open system, geared equally towards Owners, Inspectors, and Approval Authorities/Jurisdictions, geared towards maximizing information flow across the stakeholders (particularly owners, generally a secondary priority on prior systems). In contrast, the Key system was envisioned as being fully controlled by each of the 67 jurisdictions under the Key system umbrella, with significant additional control by a 4th stakeholder (insurance companies), with inspectors being a distant 3rd priority (after jurisdictions and insurers) with respect to access, with owners last. These different (*e.g.*, highly controlled vs. open) security and access philosophies are exactly consistent with above observations about closed versus open systems, stakeholders, data, etc., and would further support a POSA not seeking out the Petitioners' Prior Art in an obviousness effort, from both motivation to combine and reasonable expectation of success perspectives.

- *Real-Time, Event-Based Triggers*—As discussed before, in my opinion the scope of the '966 patent in practicality was focused on emergency use-based (including fire and life safety) assets. While the Petitioners

assert that Key, for example, teaches real-time access to databases in order to pull data (as does ‘966 patent), in reality Key’s (and most of the other prior art) does not teach, use or need real-time access because its use cases are not as “emergency” (e.g., real-time) as the ‘966 patent use cases, making it less likely that a POSA would seek such art in an obviousness effort.

- *Data Architecture (Stakeholders)*—Data architecture is an important—indeed often critical—design element, though often hard to quantify when considering whether a system is compatible, or at least consistent with, other art. There are at least two perspectives to consider—the stakeholders and their relative importance, and the data use in the technical functionality of the system. With respect to the former, in the ‘966 patent case, there are three, relatively equal stakeholders: the asset owner, the inspector, and the approval authority. Of these three “equals”, the owner perspective is the most important, as the inventors were trying to fix the problem of owner (lack of) compliance with inspection requirements, such as by extensively transmitting various forms, alerts, and notifications to an asset owner. In contrast, the Key reference, while involving all three stakeholders (to highly varying degrees), also include the insurer as a fourth stakeholder, and one almost

equal to the jurisdiction in importance. Indeed, in my opinion the primary focus of the Key patent is on the jurisdictional and insurance stakeholders, with inspectors next, and owners last. This differing stakeholder focus would also contribute to a POSA being less likely to consider Key when looking for applicable art—data structures would potentially be incompatible, and at minimum require extensive rework in practicality.

- *Data Architecture (Functional)*—In addition to stakeholders, what data elements there are and how they are used is a key consideration by a POSA looking for applicable art. For the ‘966 patent, in my opinion the data focus would be (as discussed earlier) on asset data and associated use cases for fire/life safety/emergencies prevention or survival as their primary purpose. Key, with its general asset management focus, takes a much broader/less specialized perspective on this data, making it less likely to attract the attention of a POSA looking for applicable art. Indeed, as made clear throughout this document, a POSA would deliberately seek out art at least heavily related to fire--emergency usage of assets, as there are literally many thousands of other asset management systems that would have to be considered with a less focused approach.

- *Mobile Location/Proximity Support*—The ‘966 Claim 8 includes a limitation involving “inspect[ing] the asset based upon attributes including proximity to the asset.” This limitation adds non-trivial dimensions to the potential art that a POSA might look for other art, in particular the ability to determine location—both absolutely (*e.g.*, the latitude and longitude of a small asset, such as a hydrant or extinguisher) and relatively (proximity of an inspector to an asset). Key makes no mention of proximity as recited by claim 8. This is unsurprising given its focus on assets like boilers and elevators, where a street address manually entered onto a form will suffice. However, the ‘966 patent assets generally are smaller (*e.g.*, harder to find), and may not even be associated with a street address, or there could be numerous assets associated with a single street address. None of the prior art (besides Chauhan, which is deficient for related reasons) references asset proximity/location, or the importance of precise location. As such, by itself, the Petitioners’ art lacking these essential precise location capabilities would in my opinion disqualify the art from POSA perspective.
- *Asset Type*—Finally, as evidenced above including in claim construction and patent disclosure but made specific here, the ‘966

patent is focused on assets used primarily for fire-emergency purposes. This includes the assets having a very precise location such as a typical fire hydrant located on an urban sidewalk. Another is a standpipe system configured to provide a firefighting water supply. There can be multiple standpipes in a single building. Thus, the assets can either be single individual assets at each location or multiple assets in a building (*e.g.*, standpipes) and thus need to have a very precise location instead of only general address information (*e.g.*, so that an individual standpipe can findable and distinguishable from the other two dozen standpipes in the building). The Key patent, and all the other prior art (partially excepting Chauhan), are for fixed (in address location) assets, not requiring precision or proximity determination. This major difference is also enough by itself to disqualify the art technically as well as with respect to Motivation to Combine and Reasonable Expectation of Success to Result in the Claimed Invention in my opinion.

68. Thus, even with (high-level superficial) similarities between the '966 patent and the prior art with respect to system architecture, examination at a more detailed level makes these similarities far less relevant—to the point of a POSA, in my opinion, not seeking out that art when looking to perform an obviousness analysis relative to the '966

patent particularly with respect to Motivation to Combine and Reasonable Expectation of Success to Result in the Claimed Invention. Those differences become even more pronounced when the background of asset management technology and applications at the time of the '966 provisional filing is considered, next.

2. Inspection, Testing, and Maintenance Asset Management Systems

69. Asset Management systems (and methods) have existed for decades, as has client/server-based asset management systems. For example, a search for Asset Management, Asset, Management, and Client Server, before October 23, 2007 yields over 57,000 results.⁵

70. There are several types of asset management systems, generally categorized as follows:

- Physical assets (buildings, machinery)
- Financial assets (stocks, bonds)
- Human assets (employees and contractors)
- Fixed assets (furniture, equipment, and vehicles)
- Enterprise assets (physical, financial, and human assets across an organization)
- IT assets (hardware, software, and data), and

⁵ [https://patents.google.com/?q=\(asset+management\)&q=ASSET&q=MANAGEMENT&q=CLIENT+SERVER&before=priority:20071023](https://patents.google.com/?q=(asset+management)&q=ASSET&q=MANAGEMENT&q=CLIENT+SERVER&before=priority:20071023)

- Digital assets (images, videos, documents).⁶

71. The above list shows part of the novelty of the ‘966 patent; it crosses multiple asset management categories: Physical, Fixed, Enterprise, IT, and even Digital (*e.g.*, forms, inspection notifications, etc.). Indeed, in my opinion, the assets it covers—fire emergencies—form its own asset management category, given the diverse nature of the assets, as well as the varied use cases that must be Inspected, Tested, and Maintained (ITM). Indeed, adding “inspection” to the search list drops the results to 17,900,⁷ and adding “test,” and “maintain” drops it to about 12,100.⁸

72. Adding “fire hydrant” to the above list returns twenty-one (21) results.⁹ The first of this 21 patents is the ‘966 patent, with several others being vehicle oriented.¹⁰ Only one other prior art referenced in this matter (Chauhan) makes that list (insufficiently, as will be discussed in the Prior Art section). Even broadened to adding

⁶ https://www.bing.com/search?pglt=161&q=types+of+asset+management+systems&cvid=f389b5b20b5b45178d0d844cdfaa1bd0&gs_lcrp=EgZjaHJvbWUqBAGAEAAyBAGAEAAyBAGBEAAyBAGCEAAyBAGDEAAyBAGEEAAyBAGFEAAyBAGGEAAyBAGHEAAyBAGIEADSAQg2NzA2ajBqMagCALACAA&FORM=ANNTA1&PC=U531

⁷ [https://patents.google.com/?q=\(asset+management\)&q=\(ASSET\)&q=\(MANAGEMENT\)&q=\(CLIENT+SERVER\)&q=\(inspection\)&before=priority:20071023](https://patents.google.com/?q=(asset+management)&q=(ASSET)&q=(MANAGEMENT)&q=(CLIENT+SERVER)&q=(inspection)&before=priority:20071023)

⁸ [https://patents.google.com/?q=\(asset+management\)&q=\(ASSET\)&q=\(MANAGEMENT\)&q=\(CLIENT+SERVER\)&q=\(inspection\)&q=\(test\)&q=\(maintain\)&before=priority:20071023](https://patents.google.com/?q=(asset+management)&q=(ASSET)&q=(MANAGEMENT)&q=(CLIENT+SERVER)&q=(inspection)&q=(test)&q=(maintain)&before=priority:20071023)

⁹ [https://patents.google.com/?q=\(asset+management\)+\(ASSET\)+\(MANAGEMENT\)+\(CLIENT+SERVER\)+\(inspection\)+\(test\)+\(maintain\)+&q=fire+hydrant&before=priority:20071023](https://patents.google.com/?q=(asset+management)+(ASSET)+(MANAGEMENT)+(CLIENT+SERVER)+(inspection)+(test)+(maintain)+&q=fire+hydrant&before=priority:20071023)

¹⁰ There are other types of “hydrants” than just fire hydrants, for example Flush hydrants, which are used to flush out sediment and debris from water mains. They are usually located at the end of a water main or at a low point in the system.

“fire,” “emergency,” and “life safety” (and deleting “fire hydrant”) only returns 319 results.¹¹

73. Thus, as of the ‘966 provisional filing date there just was not much activity in this particular “niche” asset management field. That is explained by a variety of factors, next.

B. Fire Hydrant Management Systems and Associated Inspection, Test, and Maintenance (ITM) Capabilities Are Much More Specialized than General Asset Management, and in 2007 Were Still Highly Manual, Paper-Based “Systems” Fragmented Across Hundreds of Jurisdictions.

74. As the above patent analysis indicates, the ‘966 patent was in a niche, “emergency asset management with ITM” market, one not yet tapped until the ‘966 invention. This generally can be ascribed to a variety of reasons:

- A long history of being almost purely paper-based;
- A huge number of assets to manage, of various types;
- A very large population of asset owners;
- A strong aversion to inspections and associated obligations by those owners;
- A large number of jurisdictions, and

¹¹ [https://patents.google.com/?q=\(asset+management\)+\(ASSET\)+\(MANAGEMENT\)+\(CLIENT+SERVER\)+\(inspection\)+\(test\)+\(maintain\)+\(fire\)+\(emergency\)+\(life+safety\)&before=priority:20071023&page=3](https://patents.google.com/?q=(asset+management)+(ASSET)+(MANAGEMENT)+(CLIENT+SERVER)+(inspection)+(test)+(maintain)+(fire)+(emergency)+(life+safety)&before=priority:20071023&page=3)

- A small number of qualified inspectors, particularly compared to the number of assets to be inspected.

75. The conflicting objectives/cross-purposes of the owners (not wanting inspections, particularly not paying for inspections) and the jurisdictions/inspectors (wanting regular inspections, particularly paid inspections) was a particularly big problem: there was little-to-no upside for the owners of the emergency assets to *do* the ITM activities (exception: to get affordable insurance), with the inspectors viewed as a bearer-of-bad-news-only. Meanwhile the jurisdictions were overwhelmed by the huge number of assets and owners, while being very understaffed. Even with digitization there was the potential for adding work to this kind of already overworked/understaff/underappreciated regulatory body. In a nutshell, for differing reasons, there were numerous reasons why the various stakeholders had not conceived of the type of capabilities offered by the '966 patent, even if they made overall sense in the abstract. Meetings were held about 3rd Party ITM compliance (another name for this niche market) where people would effectively state “Good luck finding us!”¹²

76. There had been attempts at digitization of some parts of this niche market. But being able to submit inspection-related reports electronically helped relatively little—in particular they did not drive compliance. Such reports showed who was

¹² EX2004 Lynnwood Case Study, p. 3

responsible to submit reports, but did not provide a record of who didn't comply. "Everyone" assumed that if an inspection was needed to adhere to local law, fire marshals would chase down the non-compliant properties. But that put the onus on the fire marshals/jurisdictions, who as already noted were chronically understaffed and geared towards paper-based system in any event.¹³

77. As the '966 patent, and claim 8 indicates, there were (and are) numerous stakeholders in fire/safety-related asset management, including:

- Approval Authorities (Jurisdictions)
- Inspectors
- Owners of an Asset

78. The prior art relied upon by the Petition takes a different approach and priority to the above stakeholders, with Key adding insurers as a primary stakeholder for example. Thus, when the numbers and variations within these stakeholders are considered, the focus and design of the '966 patent is very different than that of the prior art (particularly *Key*) offered by the Petitioners.

Approval Authorities/Jurisdictions

79. For example, the *Key* patent is designed around U.S. state and Canadian provincial jurisdictions, totaling 67 in all KEY/EX1005, [0012], [0013]. However, the

¹³ EX2004 Lynnwood Case Study, p. 3.

greater numbers of jurisdictions for the ‘966 patent’s asset management purposes are significantly larger in numbers, generally defined by cities, municipalities, and counties instead of states and provinces.¹⁴ In 2007 there were at least 900 jurisdictions.¹⁵ In addition there were (are) also state Fire Marshals as well as the jurisdiction-level ones. Fire Marshals are the persons that lead the jurisdiction’s Fire Prevention department, which often consists of 1 or 2 people. In Seattle, for example, in 2007 there were about 2.5 FTEs (Full-Time Equivalents) enforcing ITM (Inspection, Testing, and Maintenance) on approximately 80,000 systems.¹⁶

80. The paper-intensive historical nature of the ITM processes, and the lack of communications with owners about needed inspections and overall compliance needs, required a major new way of thinking. The ‘966 patent and associated implementation by the inventors enabled that to happen. Specifically, it allowed jurisdictions/approval authorities to provide service to more owners with less total people/overhead. The ‘966 patent enabled data flow across city lines, and collaboratively with inspectors and owners, and across a wide range of assets.

81. For example, as mentioned earlier, in 2007 Washington State had about 200 inspectors, covering a wide variety of fire/emergency/life safety (and other) assets,

¹⁴ Areas outside city/municipality limits are generally serviced by the county; some regional authorities that provide services to multiple adjacent municipalities.

¹⁵ Source: Moren interview.

¹⁶ Source: Moren interview and response to questions.

all require different specialty certification by the state as well. It is reasonable to expect the numbers of inspectors/inspection companies nationwide would be 30 to 50 times the WA state number.

82. Just for Tegriss' inspection company, in WA state, the number of assets covered include the following (2023 numbers):

Total systems	37,402
Fire Alarm	8,884
Wet Sprinkler	9,094
Dry Sprinkler	2,978
Commercial Hood	4,059
Range Hood Cleaning	2,519
Private Hydrant	1,365
5-Year Report	544
Fire Door	377
Fire Pump	259
Clean Agent	202
Deluge	212
Pre Action	135
Emergency Radio	41
Shaft Pressure	15
Fire and Smoke	14

83. This is without major cities like Seattle, Bellevue, Redmond, Everett, Tacoma, and Spokane. Tegriss estimated that for Seattle alone their system count is over 80,000.

84. The numbers by themselves only tell part of the story for each stakeholder. For example, for inspections it is common that one inspector carries multiple certifications so they can perform more than one service per visit (*e.g.*, inspect multiple kinds of assets). That said, it was/is also common for a company to send multiple people to accomplish multiple services, *i.e.* an alarm tech and a sprinkler tech working on tandem to each accomplish their ITM work at the same time, and sometimes the inspectors are not even from the same company. For example, a fire alarm tech from one company might work with a kitchen hood suppression tech to bring a building into compliance. Each would need to submit a certified report for the same property. Thus facilitating the ITM coordination and data flow could be very complex; one of the main goals of the '966 patent was simplifying it, at least from the perspective of the end stakeholders.

85. Further complicating matters was that in contrast to inspectors and even assets, Owners are highly variable/dynamic in nature. There is usually one person who is designated as the owner (or “responsible person” per code). That person can manage as many properties as they want. Best Buy could choose to assign one person per store, or one person for ten stores. And they can either setup several accounts or one account with shared access to several owner type users. The only static requirement is that some person must be assigned (legally responsible).

86. Approval authorities/jurisdictions can also get complicated. Fire Chiefs are usually the highest level of the fire department (and have larger budgets). They usually appoint the fire marshal (fire prevention team), which has often very little budget. Some municipalities are so small that Prevention is actually performed by a building official. It is also common to have 1 or 2 people running the entire fire prevention (*e.g.*, inspection reviews) department. In some cases, the Fire Chief is also the Fire Marshal for the jurisdiction.

87. Fire marshal offices can take the form of a fire marshal, an administrator, and sometimes an assistant fire marshal. Their duties are often new building submittal review, road closures, issuing burn bans, plan review for development, crew training, elected official interface, construction site compliance, ITM enforcement and report review, and community education.

88. It is worth noting that compliance is only one part of the Fire Marshall's job. Below is a copy of a Tegriss PowerPoint slide used in presentations illustrating the responsibilities and tasks typically performed by a Fire Marshall:



89. Finally, it is worth examining all the various codes that the Inspectors (and Jurisdictions) need to ensure compliance via their ITM processes. These include:

- NFPA—the national standard for fire codes; NFPA 25 regulates all ITM for water-based fire protection systems (sprinkler systems, standpipes, fire pumps);
- NFPA 72—the code for fire alarms;
- NFPA 96—the code for Kitchen Hood systems;¹⁷
- NFPA 291—the code that regulates fire hydrant testing;¹⁸

¹⁷ For Hood Cleaning, IKECA is required in WA State and others.
<https://www.ikeca.org/default.aspx>

¹⁸ NFPA.org provides free access to all their codes with free account sign up. <https://www.nfpa.org/Codes-and-Standards/All-Codes-and-Standards/List-of-Codes-and-Standards>

90. In total, the above lays out a vastly different set of requirements, volumes, stakeholders, technical variations, communications flows, and outcomes between what the ‘966 patent was designed to support and achieve and what the Petitioners think its cobbled-together, at best non-analogous art can do. This will become even more evident as each Petitioners piece of art is discussed, next.

VII. Petition Prior Art is Deficient in Technical Scope and Motivation to Combine and Expectation of Success

91. The Petition uses four primary patents as Prior Art to assert obviousness for the ‘966 patent for Claim 8:

- Key
- Chauhan
- Sweeney
- McKinney

92. For numerous reasons, introduced earlier and further below, a POSA would not be motivated to seek out these patents when pursuing an obviousness argument with respect to the ‘966 patent. Further, in my opinion using them in combination would not have a reasonable expectation of success in achieving the ‘966 patent’s technical objectives or resulting in the claimed invention. In addition, each is missing key elements with respect to Claim 8, as discussed in that separate section below.

A. Key

93. Petitioners use U.S. Patent App. Pub. No. 2002/0029222 (“Key”) published March 7, 2002 [EX1005], as their primary §103 prior art reference.

94. In my opinion, Key would not be sought out as prior art for a POSA seeking art similar to the ‘966 patent (*e.g.*, a POSA would not be motivated to seek out Key as primary art, nor combine it with other art), nor would a POSA, using Key as the primary reference, believe that there would be a reasonable expectation of success in combining it with other art.

95. Petitioners assert as follows regarding Key:

Key discloses “*a jurisdiction online management system* that manages required inspections mandated by a plurality of different jurisdictions performed by non-government entities.” “The system provides an *efficient, centralized, and web enabled process* for transfer of data between multiple jurisdictions and multiple entities required to routinely interact with the multiple jurisdictions,” where the “system manages required inspections **mandated by [the] jurisdictions performed by non-government entities...** The system “provides a **hierarchical data structure** that allows for easy updates” and “enables real time availability of current data.” EX1005, [0017]. According to Key, **the system is applicable to a variety of assets, including “pressure vessels, boilers,**

elevators, amusement park rides, and *other required jurisdictional inspections of objects.*” EX1005, [0015].

Petition, pp. 10-11, emphasis added with bold and italics in the original text.

96. Just this brief overview in Petitioners’ own words indicate some of the deficiencies of Key relative to the ‘966 patent. It is Jurisdiction centric, with no mention of owners; there is a very strict data structure geared towards jurisdictions, not owners; and its focus is on non-emergency assets. Further, as mentioned in the Background of Technology section, Petitioners place major emphasis on how its prior art—particularly its primary reference Key—uses a very similar systems architecture to the ‘966 patent, as if that is *the* critical similarity that must be demonstrated:

“Key discloses a “hardware architecture” (similar to Figure 2 of the ‘966 patent). **Client computers 305** “run web browsing applications that retrieve and display the [JOM’s] web pages” which are “retrieve[d] ... over a global computer network 199 such as the Internet” by “mak[ing] a request over Internet 199 to a **web server 320,**” which are “operative to implement the front-end software” to “display information to users operating a web browser” and “provide notifications in a known manner usually via email.” EX1005, [0065]-[0067]. **Application servers 330,** coupled to **web servers 320** and **database servers 340,** are “operative to implement the application software” which “contains the logic that is used

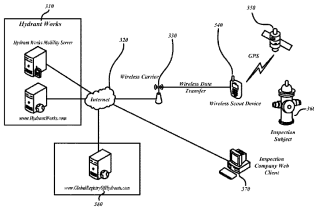
to determine which web pages are presented to the user and how respond to user's actions,” “contains the necessary logic to process the user's transaction and provide the associated updates and any notifications,” and are described “in greater detail” in Figure 4. EX1005, [0068]. **Database servers 340** are “operative to store and retrieve information from a **database 350.**” EX1005, [0069].”

Petition, pp. 11-12.

97. While client-server architecture in general, utilizing various forms of client computers and web, application, and database servers, was well known at the time of the ‘966 patent priority date, including for unrelated asset management purposes as discussed above, that architecture and associated components would not provide a helpful basis for a POSA seeking similar art. Indeed, as described earlier in the Background of Technology section, Client-Server computing, including its architecture and protocols, was used for many thousands of purposes and use cases at that time, none of which would have been helpful for solving the problems addressed by the inventors of the ‘966 patent.

98. Instead of relying on client-server architecture as the key basis for identifying potential art (including knowing that it would do little to narrow down the art), a POSA would go into more detailed analysis of the potentially relevant and useful art based on a variety of technical elements when assessing applicable technical art,

motivation to combine, and reasonable expectation of success with such art. A full inventory comparing the '966 patent's technical elements vs. Key is shown below:

Technical Element	'966 patent	Key
<i>Open/Closed Architecture</i> – Do the systems utilize open or proprietary software? Are standards employed? Are the systems described by the art lends themselves to flexibility/interoperability with other systems, such as using Application Programming Interfaces?	Open--The '966 patent employs an open architecture, with all stakeholders being treated similarly, heavy emphasis on standards, and in general demonstrating flexibility. Generally open control for how system operates.	Closed—Jurisdiction controlled; no changes can occur without the approval of a jurisdiction.
<i>Topology</i> – Are the clients and particularly servers centralized or decentralized/distributed?	Decentralized/ distributed  The diagram illustrates a network topology where a central server (labeled 'Server') is connected via a 'Wireless Gateway' to several types of client devices. These include a 'Mobile Phone' (labeled 110), a 'PDA' (labeled 120), a 'Desktop Computer' (labeled 130), and a 'Wireless Server Device' (labeled 140). The server is also connected to a 'Database' (labeled 150) and a 'Web Client' (labeled 160). The entire system is labeled 'System' at the bottom.	Key is centralized. Having different topologies can bring in technical complications that teach away from using Key as the core Prior Art, as it makes combining with other systems more complex, particularly when the primary system is centralized, the other art is standalone or distributed (the case in the other prior art in this matter) and the desired end result is decentralized/distributed.
<i>Age</i>—A gap in age of art normally is a minor issue. However, in this matter that is not the case., whereas Key was filed in 2000.	The '966 patent was provisionally filed in 2007	Key's priority date was 2000. This is relevant in the early 2000s many of the web-based standardized interfaces and standards for interconnecting various types of clients and servers

		had not yet been established or finalized, further complicating any attempt at combining multiple pieces of system art, and making it less likely that a POSA would seek out art before these standards were developed (e.g., post-Key at a minimum).
<i>User Interfaces</i> —The early 2000’s was a time of numerous important technical standards development, particularly with respect to user interfaces for accessing the Internet, and doing so from mobile devices.	The ‘966 patent, with its 2007 priority date, recognized the use and utility of such standards and interfaces.	In contrast, the Year 2000-era Key system was before many of those standards/ interfaces were established/stabilized, making it less likely a POSA would seek out art of that era. Further, the primary purpose of Key was not to utilize standard interfaces so that any jurisdiction’s forms would look standard to the user, but exactly the opposite: to force the user to use the form that the jurisdiction wanted the user (inspector) to use. This is a very different philosophy between the ‘966 and the Key patents with respect to how a user interface should work.
<i>Security and Access</i> —A system, or collection of systems, can be	The ‘966 patent was envisioned as an open system, geared equally	In contrast, the Key system was envisioned as being fully

characterized by how the system is secured, and more generally who can access, under what conditions, and who controls both.	towards Owners, Inspectors, and Approval Authorities/Jurisdictions, geared towards maximizing information flow across the stakeholders.	controlled by each of the 67 jurisdictions, with some additional control by a 4 th stakeholder (insurance companies), with inspectors being a distant 3 rd with respect to access, and owners last. These different security and access philosophies are exactly consistent with above observations about open and closed system, stakeholders, data, etc., and would further support a POSA <u>not</u> seeking out the Petitioners' Prior Art.
<i>Real-Time, Event-Based Triggers</i> —How critical is responsiveness to real-time events to system operation and data access in the primary use cases for the system?	In my opinion the scope of the '966 patent was focused on in practicality emergency-based assets, <i>e.g.</i> those which use cases were primarily or only for emergencies.	While the Petitioners assert that Key, for example, teaches real-time access to databases in order to pull data (as does '966 patent), in reality Key's (and most of the other art) use cases are not as "emergency" (<i>e.g.</i> , real-time) as the '966 patent use cases, making it less likely that a POSA would seek such art.
<i>Data Architecture (Stakeholders)</i> —Are the stakeholders (<i>e.g.</i> , the entities for which the data is for, about, or obtained from) the same, <u>and</u> is their relative importance similar? With respect to the former	In the '966 patent, there are three, relatively equal stakeholders: the asset owner, the inspector, and the approval authority. Of these three "equals", the owner perspective	In contrast, the Key reference, while nominally involving all three stakeholders, also include the insurer as a fourth stakeholder. Further, in my opinion the focus of the Key patent is on the

	is arguably the most important, as the inventors were trying to fix the problem of owner (lack of) compliance with inspection requirements, such as by extensively transmitting various forms, alerts, and notifications to an asset owner.	jurisdictional and insurance stakeholders. This differing stakeholder focus would also contribute to a POSA being less likely to consider Key when looking for applicable art.
<i>Data Architecture (Functional)</i> —What data elements there are and how they are used is a key consideration by a POSA looking for applicable art.	For the ‘966 patent, in my opinion the data focus would be (as discussed earlier) on asset data and associated use cases for fire and/or emergency/life safety as the primary or sole purpose.	Key, with its general asset, non-emergency functions management focus, takes a much broader/less specialized perspective on this data, making it less likely to attract the attention of a POSA looking for applicable art.
<i>Mobile Location/Proximity Support</i> —Does the system have key location elements to its primary use cases, e.g. knowing precisely where an asset is, and/or its relative proximity to a person or other asset? Does the asset(s) involve have the potential to be mobile (e.g., a fire extinguisher), and/or is just knowing the street address insufficient for the use cases?	The ‘966 Claim 8 includes a limitation involving “inspect[ing] the asset based upon attributes including proximity to the asset.” This limitation adds non-trivial dimensions to the potential art that a POSA might look for other art, in particular the ability to determine location—both absolutely (e.g., the latitude and longitude of a small asset, such as a hydrant or	Key makes no mention of GPS or proximity. This is unsurprising given its focus on assets like boilers and elevators, where a street address manually entered onto a form will suffice. However, the ‘966 patent assets generally are smaller (e.g., harder to find), and may not even be associated with a street address (or, there could be numerous assets associated with a street address). None of the prior art (besides Chauhan, which is deficient for

	extinguisher) and relatively (proximity of an inspector to an asset).	related reasons) references asset proximity/location, or the importance of precise location. As such, <u>by itself</u> , the Petitioners' selection of art lacking these capabilities would in my opinion disqualify the art from POSA perspective.
<i>Asset Type</i> —Is the art being considered for the same type of assets?	The '966 patent assets being inspected are used primarily or solely for fire/emergency/life safety purposes, with the assets either being mobile, need to have a very precise location, or both.	The Key patent, and all the other art (partially excepting Chauhan), are for fixed (in location) assets, and not requiring precision or proximity determination. This major difference could be enough by itself to disqualify the art technically as applicable. Further, Key seems to focus on 1:1 inspector-to-asset ratio.

99. The above in my opinion makes clear that Key would not have been sought out by a POSA looking for similar prior art to the '966 patent. Even if a POSA had stumbled across Key, the POSA would not have found it useful or applicable in solving the problem the inventors sought to solve with the '966 patent for all the reasons set forth above. Petitioners recognize this, and thus note for example that Key “objects 150” (such as pressure vessels and boilers) “can be dangerous if they are not properly maintained and operated.” This comment is in effect saying that if you abuse, neglect, or misuse a piece of equipment or system, it can be bad. Further, the term “dangerous”

can be subjective. Is it referring to life-threatening situations only, or would the possibility of a minor injury also qualify?

100. Regardless, such a comment is applicable to many, even most assets, particularly if the asset is neglected, abused, or misused. Key makes clear that any “dangerous” condition is not a normal state of its inspected assets, instead being focused on providing “a **cost-effective** system for the performance and jurisdictional review of boiler and pressure vessel inspections.” EX1005, KEY [0043], emphasis added. Even with the neglect-and-it-can-be-dangerous catch-all, Key’s cost-effective asset management focus is not for assets used primarily fire emergency purposes such as fire hydrants. That is, the ‘966 patent is focused on a different problem – namely, ensuring improved compliance through more and better inspections and maintenance to provide safe and effective assets without requiring actual use of the assets. As stated above, in my opinion at a minimum the primary art used in such an IPR petition should at least be focused on those kinds of assets. That the Petitioners did not (due, in all likelihood, to the scarcity of such art as seen in the Background of Technology section) in my view undermines its entire obviousness argument, including for Claim 8.

101. Another aspect of Key that in my view teaches away from, or at least does not lend itself to selecting, Key is the difference in user/stakeholder focus between Key and the ‘966 patent. Like the ‘966 patent, Key discloses various stakeholders (also called users), specifically: jurisdictions, insurance companies, inspectors, and owners.

However, besides having an “extra” stakeholder (insurers), Key designs its system first and foremost around 67 jurisdictions’ requirements desired inspection documentation (*e.g.*, what forms they want filled out, and in what format, following a process they dictate), followed closely by system elements under the control or direction of the insurer and thus a closed, centralized system.

102. In contrast, the ‘966 patent doesn’t even mention an insurer as one of the “classes of user” in its claims, including Claim 8, and only a few times (7) in the specification. In contrast Key references “insurance” fifty-four (54) times, including in its claims. As any POSA even casually familiar with the insurance industry knows, insurance systems are highly specialized and focused in supporting a business model based on actuarial-based risk and reward calculations and use cases. Put another way, A POSA would be unlikely to look at insurance industry-focused systems for art on a system that is not insurance industry-focused, such as the ‘966 patent.

103. This distinction, and more broadly the differing emphasis on types of users, has significant practical implications in examining system art. The ‘966 patent specification (and history) of the patent makes clear that the asset owner user is “first among equals,” *e.g.*, that much of the system is geared towards notifying/alerting the user to an inspection requirement and facilitating their participation in getting the asset inspected. In Key, the owner is last in priority after Jurisdiction, Insurer, and Inspector—indeed almost an afterthought. As a high-level contrast the Key patent only

references variations of “owner” 29 times, and never in the claims. In contrast the ‘966 patent uses variations of “owner” and “owned” 81 times, including in the claims (including in every independent claim).

104. In my opinion this disconnect in users of the system and associated purpose and use cases would cause a POSA to not be motivated to investigate Key as a piece of prior art, let alone being its primary art, in an obviousness analysis. Further, even if a POSA did so, in my view it would not have a reasonable expectation of success to result in the invention defined by claim 8, as the relevant details of the systems are so different.

B. Chauhan

105. WO 2004/104891 (“Chauhan”) published December 2, 2004. EX1016. It is prior art under §102(b).

106. In my opinion a POSA would be unlikely to be motivated to seek out Chauhan as prior art in an obviousness analysis, and would be unlikely to view its combination with Key to have a reasonable expectation of success to result in the claimed invention.

107. The Petitioners describe Chauhan as follows:

“Chauhan “generally relates to an automated management system for managing data, outage repair, load switching, job workflow and crew dispatching, crew workflow, installation, maintenance and restoration of utility services by integrating geographic information systems (GIS) data

with many other data sources so as to gather, transform, manipulate, analyze, and produce desired information for continuously supplying utility and relevant services.” EX1016, [0001]. Chauhan discloses entering of inspection data such as for the purpose of “code violations.” EX1016, [0001].

Chauhan discloses a “UtilityCenter™ [that] is an integrated GIS suite of applications that manages information across the entire utility” and with “[t]he primary data ... stored in a Microsoft SQL Server® database” as known in the art, (EX1016, [0039]-[0042], FIG. 1, below), including “*fire hydrant inspections* ... with UtilityCenter” and a “HYDRANT Theme” that allows an inspector “edit and view inspection fields,” (EX1016, [0207]). Beyond fire hydrants, Chauhan discloses that its UtilityCenter has wide applicability and that the “same technology” can be used for “electric transmission and distribution utilities,” as well as “fire and police departments, zoning and planning commissions, ... gas pipeline and distribution utilities, water distribution utilities & wastewater utilities, broadband telecom providers, real property tax assessment, municipal zoning and planning, ... Department of Energy utility applications, and other local, state and federal government agencies.” EX1016, [0218], [0042] (various “utility themes”).”

Petition, pp. 14-15.

108. First off, Chauhan is in a very distinct field—utility management. Like insurance companies, utility companies are generally highly specialized and focused on utility-specific use cases and associated assets. That those assets need to be inspected, tested, and maintained are certainly important, but so do many other types of assets, for sometimes widely diverse reasons (*e.g.*, cost management, performance optimization, replacement planning). Like Key, Chauhan is only tangentially interested in emergency assets and situations, instead focused on “managing data, outage repair, load switching, job workflow and crew dispatching, crew workflow, installation, maintenance and restoration of utility services by integrating geographic information systems (GIS) data with many other data sources.” EX1016, Abstract. A POSA could argue that while the ‘966 patent is focused on pre-empting problems with respect to assets (*e.g.*, making sure fire hydrants work before they are needed), Chauhan at best is focused on fixing assets after they break.

109. The Petitioners appear to have included Chauhan in its Petition (including Claim 8) for two reasons: its references to a fire hydrant in one embodiment, and its utilizing of location information—both major deficiencies in Key, as described above.

110. First, Chauhan refers only twice to a fire hydrant relating to work crews. The first is in the context of a work crew scheduling assignment (*emphasis added*):

The system architecture allows managers or administrators to temporarily assign permissions to work crews. For example, a contractor hired to do **fire hydrant** inspections could be given a laptop with UtilityCenter loaded on it and assigned a username that only allows him to edit and view the inspection fields on the **HYDRANT theme**.

EX1016, ¶0207 (emphasis added.)

111. The context and usage of the term adds nothing to how that kind of asset would be treated any differently than any other kind of asset. Its use of “HYDRANT” does serve to illustrate Chauhan’s use of “themes,” but with zero detail to indicate how that theme is any different than any other theme.

112. Secondly, Petitioners use Chauhan to address the “in proximity” limitation of Claim 8 stating:

“And further confirming the obviousness of allowing owner selection of qualified inspectors based on attributes **including asset proximity**, Chauhan discloses “smart features” that allow selection of crews **based on location (such as within a district or a search radius)** as well as based on a specific type of crew”

Petition, pp. 60-61 (emphasis added).

113. This disclosure is insufficient, both with respect to a Motivation to Combine as well as the needs of Claim 8. The proximity limitation of Claim 8

describes: “the selection based upon a list of qualified inspectors that are available to inspect the asset based upon attributes including proximity to the asset.”

114. The ‘966 patent limitation is specific to discussing the proximity of an inspector to the asset. It is safe to say that there are literally hundreds of thousands of patents that discuss the proximity of a “thing” to a person. That Chauhan is disclosing that a generic person (or at best, a “type of crew”) is far different than an inspector who has a very specific set of qualifications and objectives when inspecting an asset.

115. Another concern is the lack of specificity with respect to location capabilities. The Petitioners seem to feel that just disclosing Geographic Information Systems (GIS) and an implied general location determination capability for crews is sufficient. However, while Chauhan does disclose GPS, it does not disclose using it to locate an Inspector. Further, it says nothing about using location information to determine proximity. Proximity is a relative term, and used to answer a specific question: is an inspector near a particular asset or not? The absolute location (*e.g.*, latitude/longitude, or even a street address) is secondary to whether the Inspect is “in proximity” to an asset. The term “proximity” is never used in Chauhan. The Petitioners seem to think that being “within a district or a search radius” is synonymous. It is not. “In proximity” in the context of the claims, in my opinion, is referring to whether or not an Inspector at a location could, with relatively minimal effort, go from where he/she is now to where the asset is and inspect it. Being “in the district” or a search radius does

not mean the same thing, particularly if a district is many square miles in size. Even if the “search radius” is small, that still is different than “in proximity,” particularly since a POSA would recognize that “in proximity” could be achieved by methods other than GPS, such as whether or not there is a Wi-Fi or Bluetooth or other connection between the Inspector’s smart phone and the asset’s transmitter (*e.g.*, within 30 meters or less), that doesn’t require knowing the actual location of either the inspector or the asset—just if they are near each other at a given time.

116. Finally, like Key the details of Chauhan’s system are inconsistent with that of the ‘966 patent, and even Key. The inventory of technical elements for all of them are seen below:

Technical Element	‘966 patent	Key	Chauhan
<i>Open/Closed Architecture</i> – Do the systems utilize open or proprietary software? Are standards employed? Are the systems described by the art lends themselves to flexibility/interoperability with other systems?	Open	Closed	OPEN-Though provides overlay of GIS-type data only; underlying (KEY) system still closed/proprietary; MENTIONS HYDRANTS BUT ONLY VERY HIGH LEVEL-NO DETAILS; some discussion of 3 rd party interfaces

-70-

<i>Security and Access</i> —A system, or collection of systems, can be characterized by how the system is secured, and more generally who can access, under what conditions, and who controls it.	The ‘966 patent was envisioned as an open system, geared equally towards Owners, Inspectors, and Approval Authorities/Jurisdictions, geared towards maximizing information flow across the stakeholders.	In contrast, the Key system was envisioned as being fully controlled by each of the 67 jurisdictions, with some additional control by a 4 th stakeholder (insurance companies), with inspectors being a distant 3 rd with respect to access, and owners last.	Utility and work crew focus would likely be highly secured (re: restrictive), and unlikely to be readily used for general asset owners.
<i>Real-Time, Event-Based Triggers</i> —How critical is responsiveness to real-time events to system operation and data access in the primary use cases for the system?	The ‘966 patent was focused on in practicality emergency-based assets, e.g. those which use cases were primarily or only for emergencies.	Key’s use cases are not as “emergency” (e.g., real-time) as the ‘966 patent use cases.	Chauhan utility focus describes either performance use cases of non-emergency assets, or repair/recovery after disaster occurred. This is different than needing to know if asset will work IN an emergency. Some mention of real-time events
<i>Data Architecture (Stakeholders)</i> —	In the ‘966 patent, there are three,	In contrast, the Key reference,	No mention of owners, or

Are the stakeholders (<i>e.g.</i> , the entities for which the data is for, about, or obtained from) the same, <u>and</u> is their relative importance similar?	relatively equal stakeholders: the asset owner, the inspector, and the approval authority. But primary focus on asset owner.	while involving all three stakeholders, also include the insurer as a fourth stakeholder.	insurers. Stakeholders are utilities and (implied) jurisdictions. Thus, owner stakeholder group unlikely to be a priority.
<i>Data Architecture (Functional)</i> —What data elements there are and how they are used is a key consideration by a POSA looking for applicable art.	Focus on asset data and associated use cases for fire and/or emergency/life safety as the primary or sole purpose.	Key focused on general assets, or at least where primary use cases are on performance, not malfunction/disaster use cases.	Focused on GIS overlay of existing assets, vs adding other assets or other functionality.
<i>Mobile Location/Proximity Support</i> —Does the system have key location elements to its primary use cases, <i>e.g.</i> knowing precisely where an asset is, and/or its relative proximity to a person or other asset?	The '966 Claim 8 includes a limitation involving “inspect[ing] the asset based upon attributes including proximity to the asset.” This limitation adds non-trivial dimensions to the potential art that a POSA might look for other art, in particular the ability to determine location—both absolutely (<i>e.g.</i> , the latitude and longitude of a small asset, such as a hydrant or extinguisher) and	Key makes no mention of GPS or proximity, just street address.	No mention of inspector location determination; no proximity determination. Does use GPS and implies data collection using mobile devices

	relatively (proximity of an inspector to an asset).		
<i>Asset Type</i> —Is the art being considered for the same type of assets?	The '966 patent assets being inspected are used primarily or solely for fire/emergency/life safety purposes, with the assets either being mobile, need to have a very precise location, or both.	The Key patent is for fixed (in location) assets, and not requiring precision or proximity determination.	Supports both fixed and mobile assets.

117. Thus, Chauhan is also deficient when a more detailed analysis of its system is provided. In short, the minimal disclosure (and no detail) around “hydrants”, as well as no mention of location of an Inspector, and no mention whatsoever of “proximity,” leads me to conclude it would be unlikely for a POSA to be Motivated to Combine it with Key in an effort to meet limitations of claim 8 not disclosed in Key. Further, substantial differences between Chauhan and both the ‘966 patent and Key would in my view raise serious questions regarding a reasonable expectation of success to result in the claimed invention.

C. Sweeney

118. U.S. Patent App. Pub. No. 2005/0021449 (“Sweeney”) published January 27, 2005. EX1006. It is prior art under §102(b).

119. Sweeney is inappropriate art in that a POSA would not be motivated to seek out a construction asset management system in trying to replicate the ‘966 patent.

As the Petitioners note, Sweeney discloses “methods and systems for online management of construction assets.” EX1006, [0007], [0002]. Sweeney further discloses that an “asset owner/manager may log in to a secure portion of a website to reach a web page containing the asset owner’s information” and may, *e.g.*, view “inspection reports.” EX1006, [0040]-[0041]. A report may be generated that “relate[s] to one or more of the plurality of the construction assets and be generated according to at least one of age of the construction asset, a rated condition of the construction asset, a type of the construction asset, recommended repairs listed on the inspection report[], date of construction, date of last repair, expected remaining lifetime of the construction asset, contractors responsible for construction of or repairs to the construction asset, a location of the construction asset, repair history, repair type, repair costs, defect history, and the like.” EX1006, [0042], [0007]-[0008]. *See* Petition, pp. 16-17.

120. Petitioners appear to use Sweeney in an effort to address Key’s deficiencies with respect to owners and owner-related functionality. More specifically, Petitioners use Sweeney to address part of Claim 8’s limitation about notifying an owner of an inspection, as well as schedule and cost information about that inspection.

121. However, in my opinion a POSA would not seek out Sweeney when considering art alone or in combination with Key to make the invention recited in the ‘966 claim 8, as it is in a different asset field. Construction assets, particularly large items like roofs, driveways, and parking lots, are not primarily used for fire emergency

assets as (in my opinion) the claims require. Short of a roof collapsing or a sink hole developing in a driveway, there are even very few fringe “dangerous” use cases. Sweeney states “The present invention enables online monitoring of the condition of construction asset, Such as a building, a roof, a parking lot, or the like.” [EX1006, 0002]. Even if it is argued that the assets involved are broader, Sweeney claim 15 provides a view on what this broader set of assets would look like:

15. A method in accordance with claim 12, wherein:

Said project comprises at least one of repair of a roof leak, roof replacement, building repair, building renovation, building remodeling, driveway repair, driveway repaving, parking lot repair, parking lot repaving, window repair, window replacement, gutter repair, gutter replacement, interior painting, exterior painting, erection of a commercial or residential Structure, and demolition of a commercial or residential Structure.

[EX1006, pp. 10-11.]

122. In short, the assets covered by Sweeney bear no resemblance to those of the ‘966 patent’s fire emergency assets. Further, it should be noted that the scope of Sweeney’s inspections is focused on during construction or after construction but in need of repair—not the pre-emptive nature of the ‘966 patent that ensures the fire emergency assets are in order after they are put in place, but before they are used. That

123. Further, like other prior art in the Petition, a more detailed comparison of the technical aspects of Sweeney with the '966 patent and Key shows inconsistencies and conflicts that would not motivate a POSA to seek out Sweeney as prior art relative to the '966 patent, nor have a reasonable expectation of success in combination with Key:

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<i>Age</i> —A gap in age of art normally is a minor issue. However, in this matter that is not the case., whereas Key was filed in 2000.	The ‘966 patent was provisionally filed in 2007	Key’s priority date was 2000—before key standards were determined/established.	2003.
<i>User Interfaces</i> —The early 2000’s was a time of numerous important technical standards development, particularly with respect to user interfaces for accessing the Internet, and doing so from mobile devices.	The ‘966 patent, with its 2007 priority date, recognized the use and utility of such standards and interfaces.	In contrast, the Year 2000-era Key system was before many of those standards/interfaces were established/stabilized	Discloses the use of web browsers. However, no mention at all of wireless/mobile devices.
<i>Security and Access</i> —A system, or collection of systems, can be characterized by how the system is secured, and more generally who can access, under what conditions, and who controls it.	The ‘966 patent was envisioned as an open system, geared equally towards Owners, Inspectors, and Approval Authorities/Jurisdictions, geared towards maximizing information flow across the stakeholders.	In contrast, the Key system was envisioned as being fully controlled by each of the 67 jurisdictions, with some additional control by a 4 th stakeholder (insurance companies),	Ambiguous.

		with inspectors being a distant 3 rd with respect to access, and owners last.	
<i>Real-Time, Event-Based Triggers</i> — How critical is responsiveness to real-time events to system operation and data access in the primary use cases for the system?	The ‘966 patent was focused on in practicality emergency-based assets, e.g., those which use cases were primarily or only for emergencies.	Key’s use cases are not as “emergency” (e.g., real-time) as the ‘966 patent use cases.	No mention of use in real-time situations, nor any use of the term or similar of “real time.”
<i>Data Architecture (Stakeholders)</i> — Are the stakeholders (e.g., the entities for which the data is for, about, or obtained from) the same, <u>and</u> is their relative importance similar?	In the ‘966 patent, there are three, relatively equal stakeholders: the asset owner, the inspector, and the approval authority. But primary focus on asset owner.	In contrast, the Key reference, while involving all three stakeholders, also include the insurer as a fourth stakeholder.	Focused on (new) stakeholder “contractors”, with inspector/inspection other major priority. NO mention of jurisdiction or authority.
<i>Data Architecture (Functional)</i> — What data elements there are and how they are used is a key consideration by a POSA looking for applicable art.	Focus on asset data and associated use cases for fire and/or emergency/life safety as the primary or sole purpose.	Key focused on general assets, or at least where primary use cases are on performance, not malfunction/disaster use cases.	Database architecture focused almost solely on contractor-related dimensions, e.g. Bid, Project, Contractor, and Material.

			FIG. 1
<i>Mobile Location/Proximity Support</i>—Does the system have key location elements to its primary use cases, e.g. knowing precisely where an asset is, and/or its relative proximity to a person or other asset?	The '966 Claim 8 includes a limitation involving “inspect[ing] the asset based upon attributes including proximity to the asset.” This limitation adds non-trivial dimensions to the potential art that a POSA might look for other art, in particular the ability to determine location—both absolutely (<i>e.g.</i>, the latitude and longitude of a small asset, such as a hydrant or extinguisher) and relatively (proximity	Key makes no mention of GPS or proximity, just street address.	Focus on fixed, easily findable assets: “The present invention enables online monitoring of construction asset, such as a building, a roof, a parking lot, or the like.” [0002] No mention of GPS, no mention of proximity, no discussion of location determination

	of an inspector to an asset).		
<i>Asset Type</i> —Is the art being considered for the same type of assets?	The '966 patent assets being inspected are used primarily or solely for fire/emergency/life safety purposes, with the assets either being mobile, need to have a very precise location, or both.	The Key patent is for fixed (in location) assets, and not requiring precision or proximity determination.	(Very) Fixed asset focus, e.g. “The present invention enables online monitoring of construction asset, such as a building, a roof, a parking lot, or the like.” [0002]

124. As seen above, a POSA would have significant doubt as to a reasonable expectation of success to result in the claimed invention in addition to a lack of Motivation to Combine. Sweeney focuses on a completely different set of assets, used different temporal contexts (*e.g.*, during construction and after repair is needed), than the '966 patent. Further, Sweeney does not support determining a precise location of an asset, tracking mobile assets, nor an “in proximity” capability, mentioning only that a “geographic location” element can be involved, thus being inadequate with respect to those elements of the '966 patent.

D. McKinney

125. U.S. Patent App. Pub. No. 2004/0230455 (“McKinney”) published November 18, 2004. EX1020. It is prior art under §102(b).

126. Similar to the above art, in my opinion a POSA would not be motivated to seek out McKinney as art relative to the '966 patent, and would have reservations with respect to a reasonable expectation of success to result in the claimed invention.

127. As the Petitioners state, McKinney “relates generally to monitoring systems and, in a presently preferred embodiment, provides a system and method for servicing and for verifying compliance related to maintenance, operation, inspection, repair, and/or service contract renewal status of environmental equipment such as wastewater treatment systems.” EX1020, [0003]. McKinney discloses that its system “may provide an electronic regulatory compliance method for one or a plurality of environmental equipment systems” that may have “a plurality of different owners,” where the assets must comply with certain regulations. EX1020, [0032], [0044]-[0045]. McKinney further discloses a web-based system operating over the Internet, (EX1020, [0023], [0029], [0050]-[0053]) as well as “form letters” provided to, *e.g.*, the owner, scheduling of inspections, and monitoring by the regulatory agency, (EX1020, [0057]-[0059]). *See* Petition, p. 18.

128. McKinney makes no reference to the term “fire” in any way in its specification or claims. However, even if with its alarm references McKinney is “closer” the ‘966 patent in terms of assets involved, the patent’s core purpose is fundamentally different than the ‘966 patent. Specifically, McKinney is about setting up ad hoc communications networks to connect remote wastewater-related systems with various service and regulatory bodies:

“The present invention provides an electronic communication System
and method that permits an environmental equipment System installer to

install equipment without the need to run a data line Such as a telephone line or other specialized data line thereby decreasing the cost and time required for installing the System.”

[EX1020, Abstract.]

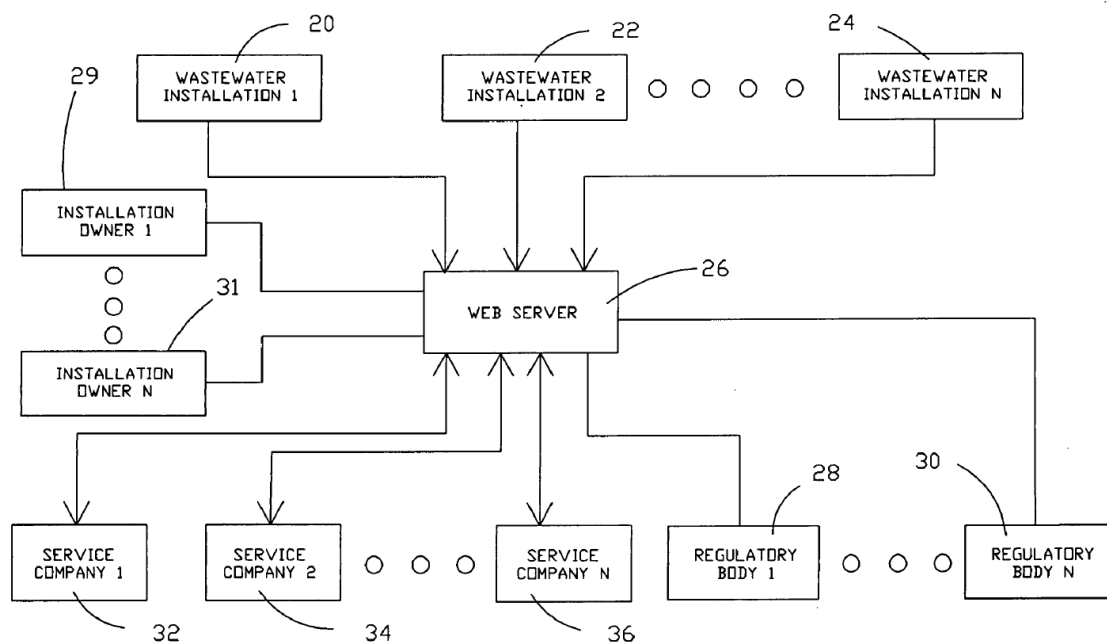


FIG. 2

[EX1020, p.3.]

129. This is completely different purpose than the ‘966 patent, despite the Petitioners’ attempt to use it for purposes such as the “in proximity to” element of Claim 8. Setting up ad hoc networks is a very specialized field in the communications world; putting communications capabilities in place where there is little-to-no existing communications infrastructure. While such ad hoc networks can be used for emergency purposes (for example there are patents for setting up emergency networks for fighting

130. Further, like the above art, once a more detailed technical analysis is performed (below), a POSA would have significant reservations regarding a reasonable expectation of success.

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<i>Age</i>—A gap in age of art normally is a minor issue. However, in this matter that is not the case., whereas Key was filed in 2000.	The ‘966 patent was provisionally filed in 2007	Key’s priority date was 2000—before key standards were determined/established.	2001. Would generally be before most web and mobile interface standards were determined/established. Only use of standards was wrt wastewater handling
<i>User Interfaces</i>—The early 2000’s was a time of numerous important technical standards development, particularly with respect to user interfaces for accessing the Internet, and doing so from mobile devices.	The ‘966 patent, with its 2007 priority date, recognized the use and utility of such standards and interfaces.	In contrast, the Year 2000-era Key system was before many of those standards/interfaces were established/stabilized	Little reference to user interfaces, and that is generic. Again, focus is on establishing ad hoc networks, between various nodes of a wastewater system, not in interfacing with end users.
<i>Security and Access</i>—A system, or collection of systems, can be characterized by how the system is secured, and more generally who can access, under what conditions, and who controls it.	The ‘966 patent was envisioned as an open system, geared equally towards Owners, Inspectors, and Approval Authorities/Jurisdictions, geared towards maximizing information flow across the stakeholders.	In contrast, the Key system was envisioned as being fully controlled by each of the 67 jurisdictions, with some additional control by a 4th stakeholder	Teaches against opening up to end owners: “For security reasons, access to website 18 is preferably limited for responsible parties to information about their own wastewater Systems.” [0062]

		(insurance companies), with inspectors being a distant 3 rd with respect to access, and owners last.	
<i>Real-Time, Event-Based Triggers</i> — How critical is responsiveness to real-time events to system operation and data access in the primary use cases for the system?	The ‘966 patent was focused on in practicality emergency-based assets, e.g. those which use cases were primarily or only for emergencies.	Key’s use cases are not as “emergency” (e.g., real-time) as the ‘966 patent use cases.	Significant focus on supporting “alarm events”
<i>Data Architecture (Stakeholders)</i> — Are the stakeholders (e.g., the entities for which the data is for, about, or obtained from) the same, <u>and</u> is their relative importance similar?	In the ‘966 patent, there are three, relatively equal stakeholders: the asset owner, the inspector, and the approval authority. But primary focus on asset owner.	In contrast, the Key reference, while involving all three stakeholders, also include the insurer as a fourth stakeholder.	Stakeholders are service companies (a new stakeholder, or at least having major differences from owner) and regulatory bodies
<i>Data Architecture (Functional)</i> — What data elements there are and how they are used is a key consideration by a	Focus on asset data and associated use cases for fire and/or emergency/life safety as the primary or sole purpose.	Key focused on general assets, or at least where primary use cases are on performance, not	Focused on wastewater-related assets and associated use cases

POSA looking for applicable art.		malfunction/disaster use cases.	
<i>Mobile Location/Proximity Support</i> —Does the system have key location elements to its primary use cases, e.g. knowing precisely where an asset is, and/or its relative proximity to a person or other asset?	The '966 Claim 8 includes a limitation involving “inspect[ing] the asset based upon attributes including proximity to the asset.” This limitation adds non-trivial dimensions to the potential art that a POSA might look for other art, in particular the ability to determine location—both absolutely (<i>e.g.</i> , the latitude and longitude of a small asset, such as a hydrant or extinguisher) and relatively (proximity of an inspector to an asset).	Key makes no mention of GPS or proximity, just street address.	Despite remote/rural nature of system use, only passing reference to GPS, and that is with respect to vehicle location, not system component location. No mention of proximity other than need to position nodes in proximity to equipment – no mention of humans/inspectors.
<i>Asset Type</i> —Is the art being considered for the same type of assets?	The '966 patent assets being inspected are used primarily or solely for fire/emergency/life safety purposes, with the assets either being mobile, need to have a very precise location, or both.	The Key patent is for fixed (in location) assets, and not requiring precision or proximity determination.	Supports both fixed and mobile assets. That said, near total lack of precision or proximity-related location information teaches away from those claim elements.

131. The primary reason that a POSA would not look to McKinney in replicating the ‘966 patent’s capabilities is that it is for a completely different purpose than the ‘966 patent—setting up ad hoc communications networks, versus facilitating the inspection of fire emergency assets. Further, a POSA would have doubts with respect to a reasonable expectation of success in that McKinney’s focus in large part has little to do with end users (*e.g.*, owners), as well as having surprisingly little to do with precision location/GPS/proximity, despite its rural/remote context.

E. Campion

132. U.S. Patent No. 7,649,450 (“Campion”) was filed January 30, 2007, issued January 19, 2010, and identifies as a related provisional filed October 5, 2006. EX1007; EX1008. It is prior art under §102(e).

133. Of all the art in the Petition, Campion, by a significant amount, is the most relevant to the ‘966 patent. However, it is art already considered the examiner and demonstrates the cumulative nature of Petitioners’ asserted art when compared to the prior art evaluated during examination (discussed further below).

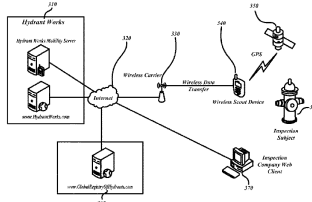
134. As the Petitioners note, Campion “relates generally to authenticated testing of life-safety equipment such as smoke detector, fire alarm, and sprinkler systems and more particularly, to providing an authenticated test report and other authenticated test related and monitoring related metrics for a life-safety equipment, such as a fire alarm control panel for facilitating on-site walkabout testing, inspection, installation,

servicing, and control of fire alarm systems.” EX1007, 1:18-25. Campion notes the existence of, and importance of complying with, jurisdictional codes and ordinances such as the New Jersey State Fire Prevention Code derived from the Uniform Fire Code published by the National Fire Protection Association (“NFPA”). EX1007, 1:27- 2:33. Per Campion, “life safety equipment is mandated to be serviced, tested, and inspected at regular intervals as dictated by applicable codes and standards in a given jurisdiction.” EX1007, 1:38-40. *See* Petition, p. 19.

135. As with the ’966 patent and other prior art, Campion discloses a conventional client-server system, as depicted in Figure 5, below, including (i) **web server 530** to retrieve and store data and display specific questions during an inspection, (ii) **data server 520** for data storage, and (iii) **multiple devices 532-535** such as workstations, laptops, etc. EX1007, 6:57-7:28, 9:8-25. “Workstations can also be used to schedule inspections due over the course of coming time for periods as required, to set dates for required inspection and receive reminders of inspections due and the like.” EX1007, 9:37-41.

136. Thus, Campion does address the type of assets of the ‘966 patent, in roughly similar architecture. In the Petition, Campion is used in an effort to address Key’s deficiencies in operational compliance of fire/life safety systems, though it does not mention fire hydrants. *See* Petition, pp. 25-26. It particularly focuses on the testing component of Inspection, Test, and Maintenance. That said, there are a number of

considerations that would give a POSA pause with respect to a reasonable expectation of success in any effort to combine it with Key to make the invention recited in ‘966 claim 8.

Technical Element	‘966 patent	Key	Campion
<i>Open/Closed Architecture</i> – Do the systems utilize open or proprietary software? Are standards employed? Are the systems described by the art lends themselves to flexibility/interoperability with other systems?	Open	Closed	Standalone, focused on testing alarm systems
<i>Topology</i> – Are the clients and particularly servers centralized or decentralized/distributed?	Decentralized/ distributed 	Centralized	Distributed
<i>Age</i> —A gap in age of art normally is a minor issue. However, in this matter that is not the case., whereas Key was filed in 2000.	The ‘966 patent was provisionally filed in 2007	Key’s priority date was 2000—before key standards were determined/established.	2006.

<i>User Interfaces</i>— The early 2000’s was a time of numerous important technical standards development, particularly with respect to user interfaces for accessing the Internet, and doing so from mobile devices.	The ‘966 patent, with its 2007 priority date, recognized the use and utility of such standards and interfaces.	In contrast, the Year 2000-era Key system was before many of those standards/interfaces were established/stabilized	Broad in its utilization of various user interfaces
<i>Security and Access</i>—A system, or collection of systems, can be characterized by how the system is secured, and more generally who can access, under what conditions, and who controls it.	The ‘966 patent was envisioned as an open system, geared equally towards Owners, Inspectors, and Approval Authorities/Jurisdictions, geared towards maximizing information flow across the stakeholders.	In contrast, the Key system was envisioned as being fully controlled by each of the 67 jurisdictions, with some additional control by a 4th stakeholder (insurance companies), with inspectors being a distant 3rd with respect to access, and owners last.	Minimal (User ID and Password)

<i>Real-Time, Event-Based Triggers</i> — How critical is responsiveness to real-time events to system operation and data access in the primary use cases for the system?	The ‘966 patent was focused on in practicality emergency-based assets, e.g. those which use cases were primarily or only for emergencies.	Key’s use cases are not as “emergency” (e.g., real-time) as the ‘966 patent use cases.	Refers to how testing results can be known in real-time.
<i>Data Architecture (Stakeholders)</i> — Are the stakeholders (e.g., the entities for which the data is for, about, or obtained from) the same, <u>and</u> is their relative importance similar?	In the ‘966 patent, there are three, relatively equal stakeholders: the asset owner, the inspector, and the approval authority. But primary focus on asset owner.	In contrast, the Key reference, while involving all three stakeholders, also include the insurer as a fourth stakeholder.	While mentions owner as key stakeholder, references are exclusively to “building owner,” e.g. a corporate focus vs. broader ‘966 patent owner view.
<i>Data Architecture (Functional)</i> — What data elements there are and how they are used is a key consideration by a POSA looking for applicable art.	Focus on asset data and associated use cases for fire and/or emergency/life safety as the primary or sole purpose.	Key focused on general assets, or at least where primary use cases are on performance, not malfunction/disaster use cases.	Focused on Testing part of ITM. Despite its range of fire/life safety-type assets (e.g., small, numerous, movable), and use of mobile devices, there is no technical support wrt precise location determination or proximity detection.
<i>Mobile Location/Proximit</i>	The ‘966 Claim 8 includes a limitation	Key makes no mention of GPS	Key deficiency: No mention of GPS,

<i>y Support</i>—Does the system have key location elements to its primary use cases, e.g. knowing precisely where an asset is, and/or its relative proximity to a person or other asset?	involving “inspect[ing] the asset based upon attributes including proximity to the asset.” This limitation adds non-trivial dimensions to the potential art that a POSA might look for other art, in particular the ability to determine location—both absolutely (e.g., the latitude and longitude of a small asset, such as a hydrant or extinguisher) and relatively (proximity of an inspector to an asset).	or proximity, just street address.	precision location/location determination, or in proximity. Location in general is general (e.g., 1st floor West Side stairwell), and presumes manual input of location.
<i>Asset Type</i>—Is the art being considered for the same type of assets?	The ’966 patent assets being inspected are used primarily or solely for fire/emergency/life safety purposes, with the assets either being mobile, need to have a very precise location, or both.	The Key patent is for fixed (in location) assets, and not requiring precision or proximity determination.	Despite its range of fire/life safety-type assets (e.g., small, numerous, movable), and use of mobile devices, there is no technical support wrt precise location determination or proximity detection.

137. While *Campion* provides far better disclosure of fire/emergency/life safety assets than any of the other prior art, it is limited, particularly with respect to two areas:

1) it focuses on the Testing component of ITM (*e.g.*, is very focused, more so than the ‘966 patent), and 2) it is surprisingly deficient with respect to the proximity elements described in the ‘966 patent and more broadly the associated need for precision location determination.

138. Given that Campion was already considered by the Examiner, as well as the deficiencies above, while a POSA would have potential motivation to utilize Campion in a general art search relative to the ‘966 patent, it is insufficient to overcome the deficiencies in the other art, particularly Key. Further, Campion’s contribution to the cumulative nature of Petitioners’ asserted art and the prior art evaluated during examination (discussed more shortly) support the Board denying institution.

VIII. Response to Petitioners’ Claim 8 Arguments

139. Petitioners assert that “the combination of Key, Chauhan, Sweeney and McKinney discloses and renders obvious the claimed computer-implemented method with claimed steps,” including Claim 8. Technically, as well as with respect to Motivation to Combine and Reasonable Expectation of Success, Petitioners’ prior art does not render Claim 8 obvious. The motivation to combine and reasonable expectation of success issues described earlier in the Prior Art section are fully applicable to Claim 8; the below analysis focuses on that arts’ missing elements with respect to each limitation within Claim 8.

A. [8pre] A computer-implemented method for using a fire hydrant management software and a web-based registry to track requisite inspection of an owned asset comprising:

140. Petitioners assert that regardless of whether the preamble is limiting, the combination of Key, Chauhan, Sweeney and McKinney discloses and renders obvious the claimed computer-implemented method with claimed steps. *See* Petition, p. 29. As discussed in the Background of Technology, Patent and Prosecution History, and Prior Art sections, fire hydrant management software, as described in the Claim Construction section, is not disclosed in the Prior Art, and thus does not meet the “using a fire hydrant management software...to track requisite inspection of an owned asset.” This fact is stated repeatedly through the rest of the Claim 8 analysis, as it is so central to most of the limitations.

141. As seen in the previous analyses, Key, nor Chahuan, Sweeney, or McKinney meet the requirements to be considered inclusive of “fire hydrant management software.” Further, their emphasis on stakeholders other than the owner of an “owned asset,” and the associated technical deficiencies noted in the above analysis, lead me to conclude that the Petitioners do not meet even this preamble requirement.

142. Further, as described above, the Motivation to Combine the asserted art would be insufficient for a POSA, and there would not be a reasonable expectation of success for its combination, given its not meeting the “fire hydrant management software” requirement.

- B. [8a] granting remote access to a web-based registry system, wherein the web-based registry is configured to run a fire hydrant management software, to at least three classes of user, wherein the three classes of user comprise: (1) an owner of an asset[,] (2) an approval authority[,] (3) an inspector**

143. Petitioners state that Key alone or in combination with Chauhan would meet this claim limitation. *See* Petition, pp. 29-33. I do not agree.

144. First, Key alone does not meet the limitation in this step of Claim 8. It does not address the claim construction of “fire hydrant management software” =. Petitioners fail to show or even assert that Key discloses a web registry and fire hydrant management software accessible to the recited classes of users. While Petitioners assert that it would have been obvious that the recited “asset” could be a fire hydrant, they completely ignore the fire hydrant management software limitation.

145. With respect to other limitations in this step, in my opinion it does not meet the “at least three classes of user” as envisioned by the ‘966 patent inventors, as Key is focused on the approval authority and to a (slightly) lesser extent insurance companies—a class of user not recited in claim 8. Further, in Key an inspector (one of the ‘966 Claim 8 user classes) is subordinated to an insurer (in effect making it a subclass), and any owner requirements are at best an afterthought.

146. Combining Key with Chauhan would not cure these and other Key deficiencies. First, Key is a closed system, not readily combinable with other systems, and is focused on supporting an insurance company’s actuarial-based business model,

not actively and directly preempting or providing services for fire/life safety/emergencies. Further, Chauhan is focused on utilities, not fire/life safety/emergency assets. Chauhan only refers to fire hydrants regarding work crews in one embodiment in user permissions for fields within a database, and as an example, states that a contractor hired to inspect fire hydrants could be assigned a “username that only allows him to edit the inspection fields on the HYDRANT theme.” EX1016, ¶0207. Chauhan never expounds upon or otherwise describes what “HYDRANT theme” means. In any event, Chauhan does not disclose the use of a web registry when discussing a Security Manager, which allows an administrator to set and update fire hydrant management software as recited in claim 8.

147. Further, as a closed utility system, focused on assets fully controlled by the utility, Chauhan would not be a system readily modifiable to and accessible by “outsiders” (*e.g.*, owners). Indeed, Chauhan discloses a system for a utility to improve its outage management systems, not for inspection of assets prior to outage, let alone helping owners deal with outages. [*See* EX1016, ¶0001-0002.]

148. Petitioners fail to explain why or how a POSA would combine Key, which describes a multi-jurisdictional system for managing the inspection of boilers and pressure vessels, with Chauhan, which describes a system for a utility to improve its outage management, to satisfy the above referenced limitations in Step [8a], which relates to a different technical field than both of those references. *See* Pet., pp. 29-33.

While the Petitioners' expert notes that Chauhan states that the same technology "has been tailored to the specific needs of public agencies, such as fire and police departments" (*see* EX1003, ¶130), Chauhan nowhere explains how the utility outage management system was in fact modified to meet the needs of a fire department (unless referring to the power of the fire department building), especially where a fire department does not need a power outage management system, as described in Chauhan. Among other issues, fighting a fire generally requires that a power be turned off if it is on, so dealing with an outage would be an almost irrelevant part of fire-fighting use cases.

149. Thus, Key alone, or Key in combination with Chauhan, would not meet the requirements of this limitation.

C. [8b] retrieving, by a computer-based fire hydrant management software system, real time records of assets from a database, the database being accessible and by a classes of user;

150. Petitioners assert Key alone or in combination with Chauhan satisfies this limitation. *See* Petition, pp. 34-38. I do not agree.

151. First, Petitioners again fail to demonstrate that Key alone or in combination with Chauhan discloses the recited "computer-based fire hydrant management software system" retrieving real time records of assets from a database. As discussed above, neither Key nor Chauhan disclose a fire hydrant management software. Petitioners ignore it, again failing to discuss it at all.

152. Rather, Petitioners cite to Key Figures 3 and 4, noting that the database is coupled to application servers 330 which run application software. *Id.* at 34-35. As noted before, this is a basic, even superficial comparison that technically means little, and certainly not enough to demonstrate obviousness. Further, Key Figure 3 also shows client computers 305, which are described as only retrieving and displaying JOM web pages accessed via the internet. EX1005, [0065]. On the contrary, the ‘966 patent Fig. 2 teaches the use of a server 230 in communication with a client device 210 via a network 220. It explains that the client device need not be served by the server but may download computer executable instructions or otherwise install them locally via CD-ROM or other storage media. EX1001, 6:58-7:5. In contrast, Key is a highly centralized system that has nearly all of its core functionality performed at the server. Hence, Key teaches away from the recited computer-based fire hydrant software system, recited in claim 8 and described in the ‘966 patent specification, and more broadly Key alone or in combination with Chauhan do not satisfy this limitation for the same reasons as discussed above.

D. [8c] analyzing the records of assets from the database to identify notification events;

153. Petitioners assert Key discloses, or it would have been obvious to include as part of Key, step [8c]. *See* Pet., pp. 38-41. I disagree.

154. To start, [8c] depends upon the “fire hydrant management” components of the earlier limitations. As discussed in great detail above, Key does not meet teach in

any way “fire hydrant management software.” While relevant for most of the limitations of Claim 8, it is of particular relevance here, as the analysis of the records of the assets is done by such software. Analysis using software is generally made up of a variety of rules, triggers, “if-then” conditional loops, and in general conditional logic that depends greatly upon the attributes of the assets involved and how they are used or potentially used, e.g. their use cases. As described in great detail above, the purpose and use cases of fire- emergency assets are very different than other assets, even if those other assets have some sort of non-primary “dangerous” use cases.

155. Further, the data attributes underlying records of fire- emergency assets are very different than “general” assets. “General” assets focus on relatively basic information like when put in service, operating parameters, key sensor outputs and how they relate to various ranges or thresholds, service record, repair record, expected life, and of course inspection record.

156. Fire-emergency asset attributes are very specific to the type of asset, and often the associated analysis requires focus on these details to a degree that a “general” asset would not. For example, in the ‘966 patent data about fire hydrants include the following:

Hydrant Details Save

Inspection
Condition Report
Test
Service Record
Recommended Maintenance

Hydrant Number

Address GPS

Line 1

Line 2

City, State, Zip

Make Model Barrel Color ☐

Install Date Barrel Type ☐ Top Color ☐

Distance from CL Side Of Road ☐ Nozzle Color ☐

Wrench Type Nozzle Coeff

Base Size Gate Valve

Base Connection ☐

Base Elevation

Special Markings

Notes

No Image Loaded

Nozzles

Nozzle Height Size Fitting

No records to display

Fig. 11

157. This information can—will be—key in an emergency, when the fire hydrant has to be actually opened and used. But unlike general assets, there is no “normal, ongoing” operation about which its performance can be analyzed. Instead, analysis of fire-emergency assets often have to be done without actually *using* the asset. In other words, the analysis of such assets is based on non-operating data, versus general asset operating or performance data.

158. In short, analysis of fire- emergency assets is a specialized type of analysis (assessing the asset’s readiness for use, without actually *using* it), using different type of data (non-operating data), for use cases no one wants to actually happen, nor is possible to actually test without undermining the asset’s ability to be used. While other emergency-type assets, such as alarm warning systems or emergency lighting systems, can be tested (*e.g.*, used) somewhat, it is often a great production putting many people

to inconvenience, and in any event such “operating” data is still being collected in artificial conditions (*e.g.*, “this is just a test”), not real emergencies, which are (usually) very different conditions (storms, etc.). So other non-operating data is still critical to any meaningful analysis.

159. Thus, to in effect try and portray such specialized analysis with everyday operating asset analysis is trying to do an apples-to-broccoli comparison: there might be a few commonalities but for the most part they are very different. So Petitioners’ attempt at portraying Key’s “analysis” as equivalent to the ‘966 patent analysis is flawed and technically unsound in my opinion.

E. [8d] based on the analysis, notifying an owner of an asset of a notification event, wherein the notice includes a standard format description of the type of inspection, and a cost associated with the type of inspection, and wherein the notification event comprises a designatable interval in advance of an impending deadline for the inspection, and wherein the owner of the asset, upon remotely accessing the fire hydrant management software compliance registry, may update and review the status of the assets;

160. Petitioners assert that Key alone or in combination with Sweeney discloses, or it would have been obvious to include as part of Key, step [8d]. *See* Petition, pp. 42-48. I do not agree.

161. The Petitioners break down this limitation into two parts.

162. *Part 1: “based on the analysis, notifying the owner ... wherein the notice includes a standard format description ... and wherein the notification event*

comprises a designatable interval in advance of an impending deadline for the inspection”

163. First, as discussed above, Section [8d] when properly construed requires that this limitation is based on analysis performed by the “fire hydrant management software,” also construed above. Petitioners fail to address the proper construction of this limitation and fail to show that any of the prior art of record discloses fire hydrant management software performing this limitation.

164. In addition, Petitioners fail to demonstrate that the prior art discloses “the notification event comprises a designatable interval in advance of an impending deadline.” In fact, Key teaches *away* from a “designatable interval,” as it describes that the JOM *automatically* sets inspection dates, without describing a notification event with a *designatable* interval. [EX1005, Fig. 5 item 535, 0084, Fig. 6 item 662, 0099.]

165. The Petitioners’ expert tries to gloss over that gap in Key by conflating its inspection date with the recited notification event with a designatable interval, arguing that a POSA would set the interval at 60-90 days before the deadline. EX1003, ¶167. However, this is disingenuous, as portions of Key relied upon by him describe setting the inspection deadline itself, as opposed to a “notification event” for an inspection deadline. Put another way, the recited limitation allows the notification interval to be changed, i.e., it is designatable, as opposed to the *predetermined* inspection deadline

described in Key. Predetermined is not the same as designatable; in fact they are conflicting in nature, i.e., Key teaches away from the claim limitation.

166. Tacitly acknowledging this gap in Key, Petitioners cite to yet another reference (Apostolides) arguing that it discloses setting and notifying predetermined services intervals. *See* Petition, p. 45 citing EX1032, [0121]. However, Petitioners fail to provide any support for the motivation to combine Key with Apostolides. Moreover, the referenced portion of Apostolides describes setting the service interval, i.e., the next inspection date, like Key, as opposed to a notification event with a designatable interval in advance of the inspection date, as recited in step 8[d].

167. Offering Sweeney as a formal combination to address this deficiency, Petitioners argue at length that it describes providing notices, often with detailed information regarding assets to the owner. *See* Petition, p. 47. However, none of this discloses a notification event with a designatable interval in advance of the inspection deadline.

Part 2: “and wherein the owner of the asset, upon remotely accessing the fire hydrant management software compliance registry, may update and review the status of the assets.”

168. The Part 2 above is the *full* recitation of the last half of claim limitation [8d]. However, the Petitioners are disingenuous in its Petition by phrasing it as follows:

Part 2: “wherein the owner of the asset ... may update and review the status of the assets.”

See Petition, p. 48.

169. This is a blatant attempt to slide past another missing limitation: “upon remotely accessing the fire hydrant management software compliance registry.” Like the first part of [8d], and indeed Claim 8 as a whole, Petitioners seem to know how vulnerable it is with respect to the lack of disclosure in its art of fire hydrant management software, and seeks to downplay the specialized focus and associated capabilities of such software (*e.g.*, any asset can be dangerous), or even eliminate it (*e.g.*, asset...may update), wherever possible. Key does not address fire hydrant management software, period. Petitioners know this, and take every opportunity to dissemble or evade that reality in their Petition.

F. [8e] based upon the analysis, sending a standard format notice to the approval authority of the status of the assets assigned to the approval authority, and wherein the approval authority, upon accessing the web-based registry, may update and review the status of the assets assigned;

170. Petitioners assert that Key discloses, or it would have been obvious to include as part of Key, step [8e]. *See* Petition, p. 49 citing EX1003 ¶¶191-208. I do not agree, as (again) step [8e] is premised on the first part of the patent requiring the utilization of “fire hydrant management software.”

171. In particular, Key does not disclose the first part of the limitation: **“based up the analysis, sending a standard format to the approval authority of**

the status of the assets assigned to the approval authority.” This part is tied to step [8b], which recites the fire hydrant management software system retrieving records of assets, step [8c], which recites that software analyzing such records to identify notifications events, and then based on that analysis, in step [8d] notifying an asset owner of the notification event, and in step [8e] notifying (*e.g.*, sending a standard format notice to) the approval authority.

172. Therefore, step [8e] when properly construed requires that this step is “based upon the analysis” performed by the “fire hydrant management software,” discussed above, and as discussed not disclosed by Key. Petitioners fail to address the proper construction of this step and fail to show that any prior art discloses fire hydrant management software performing step [8e].

173. Petitioners argue that Key discloses a notification system 414 that is operative to send notifications to users, which include jurisdictional reviewers. Petition, p. 49-50; EX1003, ¶195. Petitioners assert that Key discloses a JOM that schedules the inspection to be reviewed by the jurisdiction and places a task in the jurisdiction task listing. Pet., p. 51 citing EX1003, [0177]-[182]. That portion of Key describes Fig. 15, which depicts a review interface routine. That review interface routine is a more detailed description of review function 880 shown in Fig. 8, which depicts the user interface routine. Key explains that review function 880 is initiated if a user has requested the review unit. EX1005, [0115], [0123]. Regarding

Fig. 15, Key similarly provides that review routine 880 is accessed upon a user requesting review functions from Fig. 8. *Id.* at [0177]. Hence, while Key does state that reviews to be performed are listed in the “task listing for that jurisdiction,” such tasks are not triggered by fire hydrant management software retrieving and analyzing asset records, but rather, by a user request as described in Key. Moreover, Key provides no description of the information associated with a task placed in the “task listing” discussed above. *See* EX1005, [0177].

174. Also, Petitioners assert that “it was well-known and obvious to provide relevant information to the appropriate JOM stakeholders such that they could take the appropriate actions (*e.g.*, to the controlling jurisdiction such that they can passively monitor and keep up-to-date on compliance or inspection status of assets within their jurisdiction, and better and more efficiently manage the mandatory inspection process and regulatory oversight, and improve information flow across the relevant stakeholders).” Petition, p. 50 citing EX1003 ¶200; EX1005, [0002], [0014]-[0015]. Even if this statement is true, a high-level statement about how information was generally disseminated to “the appropriate...stakeholders” so they could “take the appropriate actions” is not enough for a POSA to understand how it was intended to be done in practice—there are many ways to disseminate information, and even more ways to analyze information on which the subsequently

disseminated information was based. This detail is lacking in Key, in part, because Key does not teach the fire hydrant management software.

175. Hence, Key does not teach or suggest sending a standard format notice to the approval authority *based on the analysis of the records of assets*, as recited in claim element [8e].

G. [8f] upon logging on to a password controlled website configured to provide access to the fire hydrant management software, providing to an inspector the owner selects, the selection based upon a list of qualified inspectors that are available to inspect the asset based upon attributes including proximity to the asset, a web-based template configured to describe the asset an[d] each of the steps of the inspection;

176. Petitioners assert that Key alone or in combination with McKinney and/or Sweeney discloses, or it would have been obvious to include as part of Key. *See* Petition, pp. 53-61. I do not agree.

177. In particular, the limitation requires that “**an inspector the owner selects, the selection based upon a list of qualified inspectors that are available to inspect the asset.**”

178. This part of the limitation requires that the *asset owner* to select an inspector (vs. Key’s insurer-based selection), from a list of available inspectors provided to the owner. The ‘966 patent describes making recommendations to asset owners regarding inspecting a fire hydrant or other assets by providing a list of inspectors, type of inspection, and costs associated therewith. EX1001, 8:26-29. It

also explains that the asset owner may select from the available list of inspectors, which include licensed and bonded inspectors. *Id.* at 8:42-53.

179. Petitioners argue that Key discloses the referenced limitation, as it discloses that inspections must be performed by an inspector commissioned to perform inspections in a particular jurisdiction. Pet., p. 57 citing EX1005, [0048], [0051]. However, they avoid the broader context in which inspector selection is done, e.g. through the insurer, not the owner:

An administrator at the insurance company manages the active policies, which have boiler and pressure vessel coverage. **The administrator determines the inspections due dates and allocates the inspections among the company's inspectors authorized in the Subject jurisdiction.**

[EX1005, KEY [0008] emphasis added.]

180. The problem that Key was trying to solve was that this insurance-focused process was very paper form intensive, and “very cumbersome, time consuming, inefficient, and involves many steps.” [0009]. Key attempts to address those problems, but does not attempt to change the basic context involved, e.g. helping an insurance administrator. Key does not disclose the referenced limitation in step 8[f], which requires providing a list of available inspectors to the asset owner, from which the asset owner can select to arrange an inspection. Instead, any “list” that exists is for use by insurers. This is consistent with the earlier overview of Key,

with its focus on Jurisdictions and Insurers as the key stakeholders associated with the Key patent.

181. Petitioners also attempt to argue that Key in combination with Sweeney satisfies [8f]. *See* Petition, p. 60. This is also not the case. While Sweeney discusses inspectors/inspections and associated reports, it nowhere references that asset owners are provided a list of inspectors.

182. In fact, while Sweeney references “inspections,” the term “inspector” or “inspectors” does not appear—at all—in Sweeney. Further, the closest Sweeney references a list provided to owners is a list of contractor’s representatives onsite [0053]. Thus, Sweeney does not fulfil the requirement “an inspector the owner selects, the selection based upon a list of qualified inspectors that are available to inspect the asset,” as Sweeney does not reference the concept of inspectors, nor a list of inspectors, let alone them being provided to the owner of an asset.

183. Therefore, in total, the combination of Key, Chauhan, Sweeney and McKinney does not disclose nor renders obvious the claimed computer-implemented method with claimed steps” of Claim 8.

IX. Petitioners’ Motivation to Combine the Art is Deficient and Insufficient

184. Overall, as described above, a POSA would not be motivated to identify, select, and use the art provided by the Petitioner in attempting to replicate the invention recited in claim 8 of the ‘966 patent. First and foremost, the assets that

most of the prior art focuses on, including the primary reference Key, are not focused on fire emergency assets that are used for the primary purpose of fire prevention or firefighting or fire emergency prevention or assistance purposes, as required by the ‘966 patent. The only exception, McKinney, is for a completely different purpose, setting up ad hoc (non-emergency) networks for use in remote wastewater installation data collection.

185. Further, an examination of details associated with the various prior art systems would see very significant inconsistencies, incompatibilities, and other key differences in the systems that would cause the POSA in my opinion to seek other art that were closer to the various technical architectural elements demonstrated by the ‘966 patent. The fact that the prior art is client-server-based, like the ‘966 patent, is at best a general prerequisite to other potential art, being in common of tens of thousands of other patents, even in the asset management field.

X. A POSA Would Not Have a Reasonable Expectation of Success

186. Consistent with a POSA’s lack of motivation to select, identify, and combine the prior art selected by the Petitioners, a POSA would not have a reasonable expectation of success in such selection/combination. To start with, the primary reference Key is a closed system, one focused on jurisdictions and insurers, versus the roughly-equal, and open, owner—inspector—jurisdiction stakeholders of the ‘966 patent (including Claim 8). Looking at all the technical elements involved,

from open/closed architecture to data stakeholders and functionality to (lack of) mobile/proximity in much of the art, in my view a POSA would not have a reasonable expectation of success for any of art combination, particularly as it is rooted in Key—a very different type of system than the ‘966 one, client-server architecture notwithstanding.

XI. Petitioners’ Prior Art was Cumulative Similar to that Done by The Examiner in The Prosecution History

187. The inventors went through several office actions in the process of obtaining the ‘966 patent, including overcoming several pieces of prior art asserted by the Examiner. Cumulatively this art was similar to—even superior to—the art put forth by the Petitioners in this Petition.

188. For example, Office Action reference *Campion* is both identical to asserted art repeatedly referenced in Ground 1 and also substantially the same as the disclosure relied upon as the asserted primary reference *Key*. *Campion* describes “A method, apparatus, remote accessory and authentication server are provided for facilitating operations such as an authenticated test of life safety equipment having components including a control panel and sensors. The life safety equipment requires testing according to a fire code.” Abstract.

189. *Campion* further describes “The various embodiments described herein result in a method and apparatus to assist building owners, fire officials, testers of

life safety and/or fire alarm systems, and companies that service life safety and/or fire alarm systems. The various embodiments described herein allow for a network-based, authenticated fire alarm inspection.”

190. Thus, in addition to providing inspection-related capabilities for assets, those assets were fire, life safety, and emergency in nature—an aspect clearly superior to Key. Further, Champion was a more open system than Key, had a distributed architecture, utilized similar user interfaces to the ‘966 patent, enabled communications among all key (and very similar to the ‘966 patent’s) stakeholders, and indeed was similar in age (2006) to the ‘966 patent (2007).

191. Other art in the Office Actions were similar to Petitioner’s current art. For various aspects of the ‘966 patent claims, the Examiner reviewed Colliau, Silva, Cober, Elliott, and Deaton. Colliau (US 2008/0114638) teaches a system for automatically scheduling an appointment for performing a task. [EX2006, Abstract.] Silva (US 7,831,628) teaches users to transmit plans, request inspections, and retrieve inspection results along with issued certifications via a network. [EX1018, Abstract.] Cober (US 2005/018038) teaches an online fire plan system that includes a data entry, storage, and retrieval module, as well as a fire plan wizard for guiding a user. [EX2008, Abstract.] Elliott (US 6,446,053) teaches a computer implemented method and system that enables a user to develop a construction proposal including a detailed graphical model and a detailed cost estimate model. [EX2009, 2:25-39.]

Deaton (US 2006/0235611) teaches systems and methods for recording and reporting data collected from a remote location. [EX2010, Abstract.] It includes a portable computing device for storing the inspection and a bidirectional communications interface for transmitting the inspection data to the client and receiving the inspection plan from the client. [*Id.* at 0002, 0009.] Hence, the prior art considered during examination is more pertinent and cumulative of the references relied upon by Petitioners.

192. For example, Petitioners argue that Key combined with Sweeney renders obvious steps [8d] and [8f]. Petition, pp. 42, 53. For step [8d] regarding the notice provided to an asset owner, Petitioners rely on Sweeney for the disclosure of computer-generated reports on assets. *Id.* at p. 47. While such reports are not notices to the asset owner as recited in claim 8, the Patent Examiner cited *Campion* for “notifying an owner of the asset of an impending deadline for the inspection such notice (§ 0043: discloses providing notification to a building owner of inspections required during a particular time frame via calendar or schedule management tool.”) [See *e.g.*, EX1002, pp. 237-338.]

193. For step [8f], Petitioners rely on Sweeney for the disclosure of an online bid process for construction contracts asserting that it discloses the “list of inspectors” limitation within that step. Pet., p. 60. Further, during prosecution, the Patent Examiner reasoned that *Colliau* [0123] discloses “an inspector selection

indication is received from the user for selecting at least one of the available inspectors” and [0014] discloses a list of inspectors available to inspect is generated according to specifications provided by a user including an inspection schedule window and predetermined locations or the like. [See *e.g.*, EX1002, pp. 338, 390.] Hence, Colliau is cumulative of Sweeney for the features relied upon by Petitioners.

194. In another example of how the cumulative art teaches what Petitioners are arguing in this Petition, Petitioners argue that McKinney discloses the limitation of step [8f], where the owner selects the inspector from a list of inspectors. Petition, pp. 58-59. Petitioners refer to McKinney’s disclosure of online contracts whereby a homeowner may contract with service providers of choice. *Id.* at 59. However, that disclosure is cumulative of Colliau for the same reasons noted above.

195. In another example, Petitioners argue Key combined with Chauhan teaches steps 8[a] and 8[b] of claim 8 (but failed to explain how in that section of the Petition). Petition, pp. 29, 34. Petitioners elsewhere rely on Chauhan for its oblique reference to inspecting fire hydrants. *Id.* at p. 15. The prior art of record during prosecution, included the “Annual Hydrant Inspection Procedures 2001,” (EX2011) and the ‘966 patent in the Background of the Invention discusses known software used in connection with the inspection of fire hydrants used by fire departments or asset owners. See EX1001, p. 2 List of References, 1:59-2:5. Further, as noted before, Campion focuses on fire/life safety/emergency assets. Hence,

Chauhan does not teach anything regarding the inspection of fire hydrants that was not considered by the Patent Examiner.

196. Applying the factors set forth in *Becton* factors set forth above, (1) *Campion* is more pertinent than Petitioners asserted art references in Ground 1 and also includes substantially the same disclosure as relied upon by Petitioners for their primary reference *Key*; (2) Petitioners' secondary references are cumulative of the art evaluated during examination, as shown above; (3) *Campion* was repeatedly cited as the primary reference during the patent prosecution and cited in Reasons for Allowance as the "closed prior art"; (4) Petitioners rely on prior art in the same manner as considered during prosecution, as shown above, and the Patent Owner will be repeating the same or substantially the same arguments to distinguish over that prior art, as during examination; (5) Petitioners fail to point out how the Examiner erred in its evaluation of the asserted prior art; and (6) Petitioners fail to provide additional evidence and facts to warrant reconsideration of the prior art or arguments. In short, the factors (1)-(6) each weigh against institution.

XII. Concluding Statements

197. For the foregoing reasons, Petitioners fail to show a reasonable likelihood of prevailing on Ground 1, as the cited prior art do not disclose all of the limitations of claim 8, as properly construed, and Petitioners fail to show that a POSA would be motivated to combine their disparate references to make the

combined steps of claim 8 nor have a reasonable expectation of success when doing so. In addition, Petitioners rely on arguments and references that are cumulative of arguments and references considered by the Patent Examiner during prosecution, and they fail to show that the Patent Examiner erred in allowing the Challenged Claims.

198. I declare under the penalty of perjury that all statements made herein of my knowledge are true and correct. I also declare that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001.



David H. Williams
President, E911-LBS Consulting
Executed on October 27, 2023