IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

H2 INTELLECT LLC,	
Plaintiff,	**Civil Action No. 2:24-cv-00367**
vs.	
INTERNATIONAL BUSINESS MACHINES CORPORATION,	**JURY TRIAL DEMANDED**
Defendant.	

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff H2 Intellect LLC files this Complaint for Patent Infringement against International Business Machines Corp. ("IBM"), and allege as follows:

NATURE OF THE ACTION

1. This is a civil action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. §§ 1, et seq., including §§ 271, 281, 284, and 285.

THE PARTIES

2. Plaintiff H2 Intellect LLC is a Texas limited liability corporation having an address located at 3630 Durness Way, Houston, TX 77025.

3. Upon information and belief, International Business Machines Corp. ("IBM") is a corporation organized under the laws of the State of New York with a place of business in Armonk, New York 10504. IBM's registered agent for service of process in Texas is CT Corp. System, 1999 Bryan St. Suite 900, Dallas, Texas 75201. Upon information and belief, Defendant IBM sells,

1

offers to sell, and/or uses products and services throughout the United States, including in this judicial district, and introduces infringing products and services into the stream of commerce knowing that they would be sold and/or used in this judicial district and elsewhere in the United States.

JURISDICTION AND VENUE

4.   This is an action arising under the patent laws of the United States, 35 U.S.C. § 271.

5.   This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

6.   Venue is proper in this judicial district under 28 U.S.C. §§ 1391 and 1400(b) because Defendant has committed acts of infringement and has a regular and established place of business in this District. Upon information and belief, IBM has a regular and established place of business in Texas and in this District, including at 1700 Summit Ave., Plano, TX 75074, 931 Litsey Road, Roanoke, Texas 76262, 615 E. State Highway 121, Suite 33, Coppell, Texas 75019, and at 1649 W Frankford Rd., Carrollton, TX 75007 and potentially other locations. IBM has thousands of employees working throughout the state of Texas, including some working within the Eastern District of Texas. Given the location of the plaintiff and its primary stakeholders in Texas, the location of the inventors' activities and contacts at various chambers of commerce in Texas, and the location of relevant witnesses at IBM, including in East Texas, the Eastern District of Texas is a highly convenient, if not the most convenient, forum for this lawsuit.

7.   This Court has personal jurisdiction over IBM. IBM has continuous and systematic business contacts with the State of Texas. IBM, directly and/or through subsidiaries or intermediaries (including distributors, retailers, and others), conducts its business extensively throughout Texas, by shipping, distributing, offering for sale, selling, and advertising (including

the provision of an interactive web page) its products and/or services in the State of Texas and the Eastern District of Texas. IBM regularly does business or solicits business, engages in other persistent courses of conduct, and/or derives substantial revenue from products and/or services provided to individuals in the State of Texas.

8.   IBM, directly and/or through subsidiaries or intermediaries (including distributors, retailers, and others), has purposefully and voluntarily placed one or more products and/or services in the stream of commerce that practice the Asserted Patents with the intention and expectation that they will be purchased and used by consumers in the Eastern District of Texas. These products and/or services have been and continue to be purchased and used by operators/carriers in the Eastern District of Texas.

BACKGROUND OF THE INVENTORS

9.   Inventors Ryan Hardin and Andrew Hill both grew up in Henderson, Texas. After college, Hardin and Hill started an IT services company called Pronet Solutions Corp. in 2002 in East Texas. Upon establishing the business after a few years, Hardin and Hill began to investigate and discuss emerging and future business opportunities that would leverage their technological backgrounds and expertise.

10.   In the 2006-2007 timeframe, Hardin and Hill were interested in the digital billboard business. At that time, digital billboards were relatively new, and Hardin and Hill saw an opportunity to grow a business for displaying content (e.g., advertisements) on digital billboards, which they could efficiently manage and control remotely. However, Hardin and Hill ultimately saw significant barriers to entry for getting into the digital billboard business, including costs, regulatory considerations, and governmental issues.

11.   Then, in late 2007, Hardin was at a meeting in Henderson, and when getting in his car to go to his next appointment, he looked at his phone and thought—why should he and Hill risk the expense to erect digital billboards if much of the public might soon be carrying digital billboards in their pockets? Of course, at that time, smartphones were in a period of rapid development,[1] and while a few mobile devices had GPS, access to the internet, and apps, they were certainly not as commonplace as today. Hardin and Hill were betting on the future. This thought inspired Hardin and Hill to develop several specific technological improvements to the manner in which mobile devices operated over the then-conventional technologies. Going forward, Hardin and Hill continued to fine-tune the implementation of their inventions and applied for their first patent on May 1, 2009.

12.   Separate from the patented inventions, not only did Hardin and Hill realize a technical solution was needed—but they realized they needed a way to market the technology to consumers. In this same timeframe, Hardin and Hill coincidentally received a phone call from the Henderson Area Chamber of Commerce, which requested a website be designed—but as cheaply as possible. Hardin and Hill ultimately saw this as an opportunity to market their inventions. As a result, Hardin and Hill decided they would develop and host the website for free for the Henderson Area Chamber of Commerce, but then ultimately, build free websites for all Chambers of Commerce. Then, through the access the chambers had with businesses, the websites could get advertising revenue—which is how Hardin and Hill could ultimately be compensated. Moreover,

---

[1] For example, upon information and belief, the first version of the Samsung Galaxy smartphone was released in June 2009, and Google launched the Android Market in October 2008 as a way for users to download apps for Android-based phones (e.g., Samsung Galaxy).

once setting up this network of chambers of commerce was complete, eventually the patented technology could also be marketed and used to create location-aware content delivery on mobile devices as they envisioned an increased demand from businesses for location-aware apps and from the public for mobile devices. Hardin and Hill called the product "ChamberPlanet."

13.   Hardin and Hill spent years developing ChamberPlanet and started to get numerous chambers of commerce on board. At one point, Hardin and Hill were working with the Henderson Area Chamber, Jacksonville Chamber, Bullard Area Chamber, Pittsburgh Camp County Chamber, and the Greater Marshall Chamber of Commerce. In fact, Hardin and Hill negotiated the purchase of the MarshallTexas.com domain from a third party and provided it to the Greater Marshall Chamber of Commerce. As more chambers got on board, more challenges arose, including that the chambers also desired an integrated billing system with their websites—which was complex and took significant time to develop.

14.   On or around 2012, however, while Hardin and Hill were still developing and growing the ChamberPlanet product, their separate business Pronet also began to experience some challenges, largely due to the business disruptions created by the financial crisis. Hardin and Hill had to focus more on Pronet, which was the business that provided revenue to them—and this slowed the growth of ChamberPlanet. In addition, numerous members of Hardin's family began to have serious health issues. Hardin's wife had medical issues in pregnancies which required multiple surgeries and then she later developed cancer. Around the same time, Hardin's mother fell and broke her back, and Hardin's father required a lung transplant. Hardin needed to prioritize his family over the continued development of ChamberPlanet for a period of time.

15.   During this period of time, however, Hardin and Hill noticed that mobile devices were starting to utilize the technological advances that Hardin and Hill invented and ultimately patented. Moreover, these companies developing the mobile devices and related software and services had significantly more financial resources that enabled them to commercialize the inventions much more quickly than Hardin or Hill could. As a result, Hardin and Hill then decided to focus more on protecting the intellectual property they had developed, while continuing to look for opportunities to bounce back and continue to make progress on their technology.

THE ASSERTED PATENTS

16.   Plaintiff is the owner in right, title, and interest in and to multiple United States patents and patent applications, including U.S. Patent No. 9,286,625 (the "'625 Patent"), U.S. Patent No. 8,977,247 (the "'247 Patent"), and U.S. Patent No. 11,948,171 (the "'171 Patent") (collectively, the "Asserted Patents"). The Asserted Patents are valid and enforceable, and the inventions claimed in the Asserted Patents were novel, non-obvious, unconventional, and non-routine as of the May 1, 2009 filing date of the patent application leading to issuance of the Asserted Patents.

17.   The '625 Patent, entitled "Exclusive Delivery of Content within Geographic Areas," was duly and legally issued to inventors Ryan Hardin and Andrew Hill on March 15, 2016. Plaintiff owns the entire right, title, and interest in the '625 Patent and is entitled to sue for past and future infringement. A true and correct copy of the '625 Patent is attached as Exhibit A.

18.   The '247 Patent, entitled "Exclusive Delivery of Content within Geographic Areas," was duly and legally issued to inventors Ryan Hardin and Andrew Hill on March 10, 2015.

Plaintiff owns the entire right, title, and interest in the '247 Patent and is entitled to sue for past and future infringement. A true and correct copy of the '247 Patent is attached as Exhibit B.

19.   The '171 Patent, entitled "Exclusive Delivery of Content within Geographic Areas," was duly and legally issued to inventors Ryan Hardin and Andrew Hill on April 2, 2024. Plaintiff owns the entire right, title, and interest in the '171 Patent and is entitled to sue for past and future infringement. A true and correct copy of the '171 Patent is attached as Exhibit C.

OVERVIEW OF THE INVENTIONS

20.   The Asserted Patents are generally directed to methods and systems for delivering content to application programs on mobile devices based on the geographic location of the devices. The Background of the Asserted Patents describes conventional delivery of content to mobile devices in response to requests based on user interactions and preferences. The Asserted Patents describe and claim particular technical solutions that overcome the disadvantages of the conventional methods while being specifically applicable to the unique nature of mobile devices.

21.   The innovations described and claimed in the Asserted Patents provide several benefits over conventional technologies, as described below.

22.   *First*, one or more of the Asserted Patents includes the feature that the area for content delivery is customizable, which enables delivery of content in near-real time to areas as specific as particular business or home locations. *See, e.g.*, '625 Patent, at 8:60-61. The area can be defined by various "geometric constructs," or by "map features, such as streets, rivers, landmarks, or any of the other various map features." *See, e.g.,* '171 Patent at 9:27-30. This is claimed by, for example, allowing sponsors to provide "perimeter definitions" (*see, e.g.,* '625 Patent at 8:65-:9:17; '171 Patent at 9:41-43; '171 Patent, claim 1 ("geographic reservation data

[that] comprises a geometric construct used to establish at least one perimeter as a boundary for the selected geographic area of interest"). This solves unique problems associated with providing content to applications on mobile devices. For example, it allows a business that rents canoes to provide content to mobile devices (or related mobile applications) located on the unique geographic confines of a particular river or lake. *See, e.g.,* '171 Patent at 5:8-16 ("reserved geographic area can be partially bounded by a … river, … or other desired boundary."). Or it could allow a parent to receive a notification via a mobile application on her mobile device when her child arrives safely at home from school. *See, e.g.,* '171 Patent at 9:39-45 ("the content received from the sponsor can be stored for later delivery to registered applications running on mobile devices having target locations… such target locations may include… when the mobile device or target location physically enters… the sponsor's reserved area").

23.   *Second*, one or more of the Asserted Patents describes and claims the feature that the delivery of content is based on the mobile device entering an area for a predetermined/specified period of time, for example where this period of time can be specified by the requestor. *See, e.g.,* '625 Patent at 3:35-37, claim 13 ("wherein receiving the request to obtain the interest in the designated geographic area includes receiving a value representing a specified length of time for having content associated with the one or more sponsors delivered to the one or more application program instances after it is determined that the object of interest has entered the designated geographic area and has remained within the designated geographic area for the specified length of time."). Conventional methods prior to May 1, 2009, did not enable content delivery specifically targeted to mobile applications within a given area for a certain amount of time.   This technological advance enables the delivery of content for those mobile devices that enter and

remain within the claimed requested customizable region. In contrast, conventional broadcast delivery (e.g., TV or radio) is generally neither aware of the location of the intended device (apart from knowing that they must be within range of the transmitter, e.g., in a city), nor is aware of how long the intended device has remained within range, nor is it aware of any movement of the intended device. This capability allows, for example, avoiding the delivery of content when a mobile device has not met the time restriction, e.g., the mobile device is merely passing through the region or nearby the region's boundary.

24.   This capability was particularly important to avoid the problem in the industry of "alert spam," wherein mobile devices would receive unwanted alerts (such as notifications or offers) that were not relevant to the mobile device application or user. As explained in the preceding paragraph, the Asserted Patents describe and claim a technical solution to this problem of alert spam that was unique to mobile devices. The capability is actually counterintuitive, for example, for a parent receiving a notification via a mobile application on her mobile device when her child arrives safely at home from school, one would think that ideally the notification would be sent immediately, but by including a slight time delay there are actually technical benefits that may outweigh the benefit of an immediate notification.

25.   *Third*, one or more of the Asserted Patents include the feature that an entity operating as a centralized management system can receive requests from multiple apps for the delivery of content when the device enters a specific geographic area, determine a mobile device's physical geographic location, and deliver content to requesting apps when it has been determined that the mobile device has entered any of the specified areas and remained therein for a predetermined/specified period of time.' *See, e.g.* '625 Patent at 3:28-39, claim 13, 15:8-16. The

centralized management system can thereby deliver specific content to each of a number of registered apps within specific regions under centralized management.

26.   *Fourth*, one or more of the Asserted Patents include the feature that an identifier can be provided for each request from an application program, and that this identifier be associated with the application program and a region; this identifier further being provided to the requesting application program when entry into the region has been detected. *See, e.g.,* '625 Patent at 5:56-63; '171 Patent, claim 1 ("sending… a request to have an identifier, being associated with a selected geographic area of interest, delivered to a computer program on the mobile device after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the selected geographic area of interest"). This is a unique technological solution for the central management of content delivery for multiple mobile devices, multiple areas, and potentially multiple apps running on mobile devices. It also describes a novel system for mobile device location awareness in which computer programs on a mobile device can become aware of the location of the mobile device with respect to a selected geographic area of interest. A benefit of the system is that the application processor that the computer program uses does not need to remain awake and continuously poll the device location so that the computer program can become aware of the mobile device location. Among other benefits, this technological solution improves the mobile device's battery life because the application processor uses less power.

27.   *Fifth*, one or more of the Asserted Patents include the feature that the geographic areas can be exclusively reserved, including providing technical solutions for time-sharing and resolving competing priority claims in real-time. *See, e.g.,* '625 Patent at 3:28-39, 7:20-44, claim

2 ("wherein restricting content delivery to the one or more application program instances includes restricting content delivery after receiving the request to obtain the interest in the designated geographic area"); '247 Patent at 7:8-32, claim 3 ("restricting content delivery to being to the first one of the registered application programs during a first period of time and to being to from the second one of the registered application programs during a second period of time"). This feature solves problems that are unique to the environment of mobile devices with multiple applications, such as how to resolve competing claims for exclusivity in a particular geographic area when multiple applications are simultaneously in use on a mobile device.

28.   *Sixth*, one or more of the Asserted Patents also provide solutions to resolving potentially competing claims to a reserved area. *See, e.g.,* '625 Patent at 7:29-44, claim 11 ("wherein restricting content delivery to the one or more application program instances includes restricting content delivery to being content to be delivered during the one or more designated times."); '247 Patent at 7:8-32, claim 3 ("restricting content delivery to being to the first one of the registered application programs during a first period of time and to being to from the second one of the registered application programs during a second period of time"). One example embodiment is to increase the predetermined radial distance of a target location if needed to determine which content should be provided in response to a negative determination. *See, e.g.,* '625 Patent at 2:3-8.

29.   These claimed features provide technological solutions to problems that are unique to the technological environment of multiple application programs on mobile devices and thereby improve the functionality of mobile devices. For example, the centralized management solution allows for battery savings through the reduction of instances in which a device's location must be

polled. It also provides solutions for resolving competing claims of exclusivity to a particular

geographic area by content providers, allowing geographic exclusivity to be further divided among

other dimensions including based on mobile application and time. As mentioned above, it also

addresses the unmet need in the industry for a solution to the problem of "alert spam."

COUNT I: CLAIM FOR PATENT INFRINGEMENT OF THE '625 PATENT

30.   Plaintiff repeats and realleges the allegations in paragraphs 1-29 as if fully set forth

herein. IBM has infringed, contributorily infringed, and/or induced infringement of one or more

claims of the '625 Patent by making, using, selling, offering for sale, or importing into the United

States, or by intending that others make, use, import into, offer for sale, or sell in the United States,

products and/or methods covered by one or more claims of the '625 Patent including, but not

limited to the MaaS360 product, the IBM Streams product, the Maximo Manage Product, and/or

the Max Engage with Watson product (collectively, the "Accused Products").

31.   Upon information and belief, IBM's products and services that infringe one or more

claims of the '625 Patent include at least the MaaS360 product, the IBM Streams product, the

Maximo Manage Product, and/or the Max Engage with Watson product. The products listed are

exemplary, and Plaintiff will be able to provide a more comprehensive list after discovery. Upon

information and belief, IBM also infringes one or more claims of the '625 Patent through its use

of geofencing or location information in its advertising or content delivery efforts or its own

applications it develops.

32.   For example, upon information and belief, one or more of the Accused Products

infringe at least claim 20 of the '625 Patent. IBM makes, uses, sells, offers for sale, imports,

exports, supplies, or distributes within the United States one or more of the Accused Products and thus directly infringes the '625 patent.

33.   IBM indirectly infringes one or more claims of the '625 Patent as provided by 35 U.S.C. § 271(b) by inducing infringement by others, such as manufacturers, resellers, and end-user customers in this District and throughout the United States. For example, direct infringement is the result of activities performed by manufacturers, resellers, or operators/carriers of mobile devices which use the Accused Products, who, upon information and belief, perform each step of the claimed invention as directed by IBM. IBM received actual notice of the '625 Patent at least as early as the filing of this Complaint.

34.   IBM contributorily infringes one or more claims of the '625 Patent as provided by 35 U.S.C. § 271(c) by contributing to the infringement by others, such as manufacturers, resellers, and end-user customers in this District and throughout the United States.

35.   For example, upon information and belief, the Accused Products have been used, as a result of IBM's conduct, in industries including, but not limited to, transportation, healthcare, and oil & gas. *See, e.g.,* IBM, *How Independent Health Secures PHI with IBM MaaS360*, https://mediacenter.ibm.com/media/How+Independent+Health+Secures+PHI+with+IBM+MaaS 360/1_y7gga9lo ; Roger Rea, *Continuous Intelligence in Action: Lessons from 3 Use Cases* (Jan. 9, 2020), https://www.rtinsights.com/continuous-intelligence-in-action-learnings-from-3-use-cases/; HG Insights, Companies Currently Using IBM Streams (March 31, 2023), https://web.archive.org/web/20230331192041/https://discovery.hgdata.com/product/ibm-streams. Direct infringement of one or more claims of the '625 Patent is the result of one or more of these activities performed by manufacturers, resellers, or operators/carriers of mobile devices

industries, who, upon information and belief, perform each step of the claimed invention as directed by IBM.

36.   IBM provides products comprising a non-transitory computer readable medium tangibly embodying a program of computer executable instructions, the program of instructions comprising at least one instruction for registering an application program for having content associated with one or more sponsors delivered to one or more application program instances after it is determined that an object of interest has one of entered and exited a designated geographic area thereby designating the application program as a registered application program, including as demonstrated in the images below.

Geofencing
Via MaaS360 geofencing policy, compliance rules can be configured to block access to or selectively wipe sensitive data from a user's device. This is typically common in secure work environments, such as a hospital or financial institution, wherein the user may not need access once they have left for the day.

IBM, *IBM Security MaaS360 with Watson*, https://www.ibm.com/downloads/cas/XWL4B1AE [hereinafter *Example Image 1.1*].

Managing secure locations for a device

Last Updated: 2024-01-05

The Locations feature allows an administrator to determine whether a device is at a designated secure location and receiving the necessary policies while onsite.

About this task

The geo-fencing rule, included with the compliance rule set, places a device out of compliance if a device is removed from a designated secure location. The administrator can send actions against the device and also apply policies to the device when the device checks back in a designated secure location.

If a device is removed from a designated secure location, the device can receive a policy in other ways based on the following sequence: rules, groups, devices, users, or default. A location-based policy receives the highest preference.

A location is either a physical location such as a physical address, or a network connection such as a wifi SSID. MaaS360® can detect a geographically-based or wifi-based location and apply a policy to a device within 30 minutes depending on the network connection and the status of the MaaS360 app on the device.

For Android devices, MaaS360 immediately detects a wifi-based location for a device. For an address-based location, MaaS360 uses a policy to detect a device, which might take up to 5 minutes (the default setting is 15 minutes) depending on the network connection and the status of the MaaS360 app on the device. MaaS360 detects the location of a device based on the frequency setting configured in the Android MDM policy. If this setting is configured to check the device often, you might drain the battery on the device. The MaaS360 agent can only notify the MaaS360 Portal up to 100 times a day for any changes to a device's location. When that limit is reached, the agent cannot communicate changes to the MaaS360 Portal or change a policy until the next day. MaaS360 provides offline geo-fencing functions for Android MDM policies. Offline policy features require applicable Android devices to come online to receive policy and map data. Once this information is gathered, the device updates policies by using geo-fencing guidelines while the device is offline. To enable offline geo-fencing, contact your IBM MaaS360 Account Manager or Partner.

> ℹ️ **Note:**
> – To use location-based functions, the administrator must enroll devices and install the MaaS360 app on the device.
> – Location tracking is not supported on Android devices that are enrolled in Profile Owner (PO) and Work Profile on Corporate Owned (WPCO) modes.

IBM, *Managing secure locations for a device* (Jan. 5, 2024), https://www.ibm.com/docs/en/maas360?topic=security-managing-secure-locations-device [hereinafter *Example Image 1.2*].

Procedure

1. From the MaaS360 Portal Home page, select **Security > Locations**.
   The Locations page is displayed.

2. Choose one of the following options:

   - If you want to add an address-based location, follow these steps:

     a. Click **Add Address based Location**. The Bing map displays the location of a device based on the IP address that is used to sign in to the MaaS360 customer account.

     b. Type the location address and range (in miles), and then click **Search**.

     c. Type the name of the location, and then click **Add this specific location with Range**. The location is displayed on the Locations page.
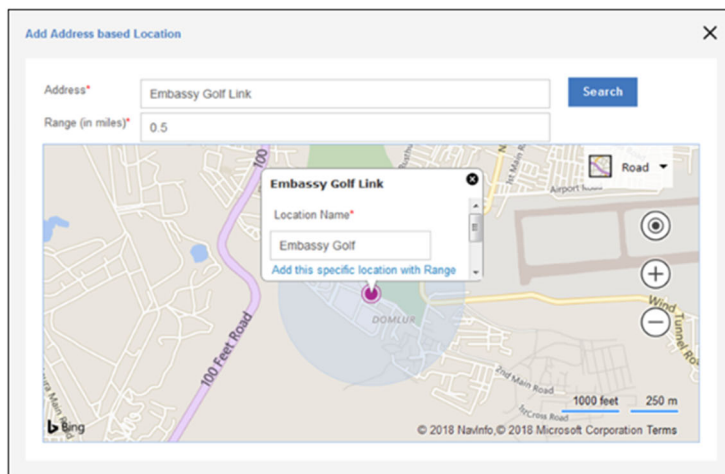
   - If you want to add a wifi-based location, follow these steps:

     a. Click **Add Wi-Fi based Location**.

     b. Type the name of the location, the wifi SSID, and the MAC address, and then click **Add**. The location is displayed on the Locations page.

IBM, *Managing secure locations for a device* (Jan. 5, 2024), https://www.ibm.com/docs/en/maas360?topic=security-managing-secure-locations-device [hereinafter *Example Image 1.3*].

Procedure

1. From the MaaS360 Portal Home page, select **Security > Compliance Rules**.
   The Compliance Rules window is displayed.
2. Click **Add Rule Set**.
   The Add Rule window is displayed.
3. Specify the group that the rule applies to, the name of the rule set, and which existing rule to use as a basis.
4. Click **Continue**.
   The **Basic Settings** tab is displayed.
5. Configure the following settings and rules:
   - **Basic Settings:**Configure the platforms that the rule set applies to and then enter the email addresses that receive alerts for the rule set.
   - **Enforcement Rules:** Configure to enforce security compliance for mobile devices.
     Choose the following options:
     - Enrollment in MDM
     - Specific operating system versions
     - Support for block- and file-level encryption, or no encryption
     - Compliance with corporate app policies for allowed, blocked, and required apps
     - Support for remote wipe
     - Restrictions for jailbroken (iOS), rooted (Android), or Health Attestation Failed (Windows) devices
     - Managing access of blocked devices to corporate resources
     - Enforcing operating system patch update installation

     You can configure various enforcement actions for this rule. For more information, see Configuring enforcement actions for compliance rules.

     The **Wipe** action wipes all data from the mobile device and resets the device to the original factory settings. For Android 2.2, the **Wipe** action resets the phone memory only. However, for Android 2.3, the **Wipe** action resets both the phone memory and the SD card.

     > ⓘ   **Note:** The **Block** and the **Wipe** enforcement actions are available only with the Cloud Extender® integration.

   - **Geo-Fencing Rules:** Configure to enforce location related compliance for mobile devices, to change the policy on the device based on its location or to specify actions that occur on the device when the device is removed from one of the approved locations.
     You can configure various enforcement actions for this rule. For more information, see Configuring enforcement actions for compliance rules.

IBM, *Creating a compliance rule for devices* (Jan. 5, 2024),
https://www.ibm.com/docs/en/maas360?topic=devices-creating-compliance-rule [hereinafter
Example Image 1.4].

Python packages that wrap SPL toolkits and provide an API to use in your Python Topology:

- Apache Kafka integration - streamsx.kafka
- Database integration - streamsx.database
- Geospatial analytics- streamsx.geospatial
- MQTT integration - streamsx.mqtt
- Cloud Object Storage integration - streamsx.objectstorage
- Streaming primitives - streamsx.standard

A full list of available packages is at: https://pypi.org/search?q=streamsx

IBM, *Working with SPL toolkits*, http://ibmstreams.github.io/streamsx.documentation/docs/python/1.6/python-appapi-devguide-7/ [hereinafter *Example Image 1.5*].

```
streamsx.geospatial.region_match(stream, region_stream, schema=
<streamsx.topology.schema.StreamSchema object>, event_type_attribute=None, region_name_attribute=None,
id_attribute=None, latitude_attribute=None, longitude_attribute=None, timestamp_attribute=None,
name=None)
```

Uses the RegionMatch operator to compare device data with configured regions.

Stores geographical regions (also called Geofences) together with a set of attributes per region. On the input stream it receives observations from moving devices and matches the device location against the stored regions. As a result it emits events if the device enters, leaves or is hanging out in a region. The regions can be added or removed via the region_stream. The events are send to output stream.

Example with input streams "device_stream" and "region_stream":

```
import streamsx.geospatial as geo
...
res = geo.region_match(stream=device_stream, region_stream=region_stream)
```

Geospatial integration for IBM Streams, https://streamsxgeospatial.readthedocs.io/en/1.1.4/ [hereinafter *Example Image 1.6*].

18

Regions= <streamsx.topology.schema.StreamSchema object>

This schema can be used for `region_match()` to configure a region.

The schema defines following attributes

- id(str) - The unique identifier of the region.

- polygonAsWKT(str) - The geometry of the region as WKT string. For example:

  `POLYGON((13.413140166512107 52.53577235025506,13.468071807137107 52.53577235025506,13.468071807137107 52.51279486997035,13.413140166512107 52.51279486997035,13.413140166512107 52.53577235025506))`

- removeRegion(bool) - A flag indicating if the region shall be removed. If false the region will be added. If true it will be removed. On removal only the regionId field is needed.

- notifyOnEntry(bool) - A flag indicating if an ENTRY event shall be generated when a device enters the region.

- notifyOnExit(bool) - A flag indicating if an EXIT event shall be generated when a device leaves the region.

- notifyOnHangout(bool) - A flag indicating if a HANGOUT event shall be generated when a device stays in the region for some time.

- minimumDwellTime(int64)- The minimum time in seconds a device has to be observed in a certain region, before a 'Hangout' event is reported.

- timeout(int64) - Device timeout in seconds. In case a device was last observed more than timeout seconds ago, the device is treated as stale and is removed before the new observation is processed. If this value is zero, no timeout handling is performed.

Geospatial integration for IBM Streams, https://streamsxgeospatial.readthedocs.io/en/1.1.4/ [hereinafter *Example Image 1.7*].

Overview

A moving object is any device that is reporting its location periodically to Streams: a bus, taxi, ship, cell phone, etc.
In addition to knowing when, an object is stopped completely, it sometimes useful to detect that an object is moving but hasn't left the same general area for some time.

For example, a freight company can detect when there is heavy traffic that is moving slowly to provide up-to-the-minute delivery times.

This article will cover the problem of detecting where and when moving objects are completely or relatively stationary. This is called *hangout detection*.
You'll learn how to use the `Hangout` operator to solve this problem and answer the following questions:

a. Which of the moving objects are hanging out together at the same time (co-hangout)?
b. Where are the most popular areas for hangouts right now?
c. How do I determine when an object starts/stops hanging out?

Natasha D'Silva, *Common patterns for tracking moving objects in Streams, part 1* (Aug. 17, 2020), https://community.ibm.com/community/user/cloudpakfordata/viewdocument/common-patterns-for-tracking-moving?CommunityKey=c0c16ff2-10ef-4b50-ae4c-57d769937235&tab=librarydocuments [hereinafter *Example Image 1.8*].

The Hangout operator in the Geospatial toolkit can be used to detect when either scenario occurs. In the example, above, it would report that both objects are in a *hangout*. A *hangout* means an object has been within a specific geographic area for some time.

Reporting Hangouts – how?

Continuing the illustration above, reporting a hangout also involves reporting where it is happening. Since the yellow object is stationary, something like "the yellow object has been hanging out at coordinates (x, y) for 10 minutes" would be correct.

In the case of the purple object, it is more difficult to report where it is hanging out because it reports a different location each time.
Thus, latitude and longitude coordinates are insufficient for objects that are moving about. So, a more complex way to report the location of the hangout is needed.

The Hangout operator solves this problem by reporting the location of a hangout as a geohash instead of latitude and longitude coordinates. If you are unfamiliar with Geohashes, read the section in the appendix to learn more.

Configuring the Hangout operator's parameters

To configure the Hangout operator to detect a Hangout, you must specify:

a) the maximum distance the object can travel, while still viewed as relatively stationary. This value is set in the cellSize parameter of the operator, which is the size of each geohash cell.
b) the minimum length of time the object must remain within the area specified above to be considered as idle or hanging out. This value is set using the minimumDwellTime parameter.

A hangout being detected means that the object has been in the same geohash G1 for M seconds. Geohash G1 has dimensions P x Pmeters. P and M are parameters cellSize and minimumDwellTime, respectively.

The values you choose for these parameters depend on your use case and the speed of the objects being tracked.

Natasha D'Silva, *Common patterns for tracking moving objects in Streams, part 1* (Aug. 17, 2020), https://community.ibm.com/community/user/cloudpakfordata/viewdocument/common-patterns-for-tracking-moving?CommunityKey=c0c16ff2-10ef-4b50-ae4c-57d769937235&tab=librarydocuments [hereinafter *Example Image 1.9*].

Simple geofencing

Along a bus' route, we have known points of interest, e.g. a station where a road is closed, or a store with promotions, and we want to detect when the buses are within X meters of the point of interest.

In this case, our *geofence, or virtual perimeter is a circle* of radius X meters, with the point of interest P at the centre:

The solution is to calculate the distance between the point of interest and the location of each moving objects. If the calculated distance is less than the specified radius, the object must be within the geofence.

The distance function of the geospatial toolkit does exactly that: computes the distance between 2 points or geometries.

So, for each reported location in the location input stream, we'll use the distance function in a Custom operator to compute the distance to P.

Points passed as parameters to the distance function must be specified as Well Known Text. WKT is a format for defining geospatial features like lines and polygons. Let's look at an example.

Natasha D'Silva, *Common patterns for tracking moving objects in Streams, part 2: Geofencing* (Aug. 17, 2020), https://community.ibm.com/community/user/dataops/viewdocument/common-patterns-for-tracking-moving-1?CommunityKey=c0c16ff2-10ef-4b50-ae4c-57d769937235&tab=librarydocuments [hereinafter *Example Image 1.10*].

Determine when an object enters or exits the geofence

You could use this information to make sure that buses receive alerts only when they enter the geofence, and that the alert is removed when they exit the geofence. Or, this could be used to compute statistics such as total time spent within the geofence.

Change the Geofence operator to keep track of entry and exit events by changing the outputMode to events:

```
stream<LocationAndFenceEvents> BusLocationWithEvents =
                    Geofence(BusLocationStream ; Geofences){
        param
            outputMode : events ;
        output
         BusLocationWithEvents :
                currentFences = CurrentFences(),
                fencesEntered = FencesEntered(),
                fencesExited = FencesExited() ;
}
```

Notice that there are 2 additional lists in the output: fencesEntered(), and fencesExited(). These functions report which geofences the object has just entered or has exited.

Printing the application's output:

Bus 30 entered AT&T Park, entry message: If the Giants win, show your game ticket to get 15% off a GetThere taxi!

Bus KT entered AT&T Park, entry message: If the Giants win, show your game ticket to get 15% off a GetThere taxi!

Bus 30 exited AT&T Park

Natasha D'Silva, *Common patterns for tracking moving objects in Streams, part 2: Geofencing* (Aug. 17, 2020), https://community.ibm.com/community/user/dataops/viewdocument/common-patterns-for-tracking-moving-1?CommunityKey=c0c16ff2-10ef-4b50-ae4c-57d769937235&tab=librarydocuments [hereinafter *Example Image 1.11*].

22

IBM Streams 4.2

Operator Geofence

Last Updated: 2021-03-05

SPL standard and specialized toolkits > com.ibm.streams.geospatial 3.0.2 > com.ibm.streams.geospatial > Geofence
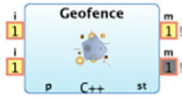
The Geofence operator is used to manage user-defined geographical regions called geofences and provide information as entities move in and out of of these regions. Geofences in this operator are uniquely identified by a user-supplied fence id and a polygon defined as a string, while an entity can be any object in motion.

An entity is defined by its unique id and its location. If a fence's polygon fully contains the location that is associated an entity, the entity is said to be present in the fence. This statement is true even if the entity's location is a polygon and not a simple point. The entity's location can be a pair of latitude and longitude coordinates or a geometry.

IBM, *Operator Geofence* (Mar. 5, 2021),
https://www.ibm.com/docs/en/streams/4.2.0?topic=comibmstreamsgeospatial-geofence
[hereinafter *Example Image 1.12*].

This sample demonstrates how you can use the Geofence operator from the com.ibm.streams.geospatial toolkit for a smart marketing campaign.

See this article about this sample: https://developer.ibm.com/streamsdev/docs/geofence-smart-marketing/

This application has a custom operator that randomly generates cell phone user GPS locations around a shopping center North of Toronto. The application has also sent up a geofence around the shopping center that we are interested in running the smart marketing campaign for. As cell phone users are detected to enter the shopping center, the application sends targeted promotions to the users.

To see this sample in action, compile and submit the main application to a streams instance.

To compile the application, you need:

- Streams 4.0 - for the new com.ibm.streams.geospatial toolkit

- com.ibm.streamsx.inet toolkit v2.5 prerelease from here: https://github.com/IBMStreams/streamsx.inet/releases

In a browser, open the following URL: http://PEHost:8080/map/map.html

To see popup on the map, open the following URL: http://PEHost:8080/map/map.html?popup=true

Mark Heger, *Geofence Marketing* (Dec. 19, 2016),
https://github.com/IBMStreams/samples/blob/main/Geospatial/GeofenceMarketing/ [hereinafter
Example Image 1.13].

37.   IBM provides products comprising a non-transitory computer readable medium

tangibly embodying a program of computer executable instructions, the program of instructions

comprising at least one instruction for receiving, from the registered application program, a request

to obtain an interest in the designated geographic area for having content associated with the one

or more sponsors delivered to the one or more application program instances after it is determined

that the object of interest has entered the designated geographic area, including as demonstrated in

the images below and/or in *Example Images 1.1-1.13, supra* at paragraph 35.

Centrally manage mobile devices

MaaS360 provides a unified mobile device management console for smartphones and tablets with centralized policy and control across multiple platforms.

- Configure email, calendar, contacts, Wi-Fi and VPN profiles over-the-air (OTA)
- Approve or quarantine new mobile devices on the network
- Create custom groups for granular management
- Distribute and manage public and corporate applications
- Safely share and update documents and content
- Define role-based administrative portal access rights within MaaS360 Mobile Device Management
- Decommission devices by removing corporate data and MDM control

Proactively safeguard mobile devices

MaaS360 Mobile Device Management provides dynamic, robust security and compliance management capabilities to continuously monitor devices and take action.

- Require passcode policies with configurable quality, length, and duration
- Enforce encryption and password visibility settings
- Set device restrictions on features, applications, iCloud, and content ratings
- Detect and restrict jailbroken and rooted devices
- Remotely locate, lock and wipe lost or stolen devices
- Selectively wipe corporate data leaving personal data intact
- Implement near real-time compliance rules with automated actions
- Enable geo-fencing rules to enforce location-based compliance

IBM, *IBM MaaS360 Mobile Device Management* (Mar. 2016),
https://www.mdmsecured.com/datasheets/Mobile-Device-Mangement.PDF [hereinafter *Example Image 1.14*].

Polygon based geofencing with the Geofence operator

Some use cases require a geofence of arbitrary shape. Consider a cell phone company wishing to bill customers for roaming when they leave the state. In that scenario, the geofence must match the state's diameters exactly and cannot be a circle:

The diagram above shows how circles are sometimes insufficient for geofencing and a more complex shape is required. Using a point in New York state as the central point of interest and adding a radius would create a geofence much larger than needed.

To solve this problem, use the Geofence operator. It allows you to define geofences as a region of any shape. The geofences it uses are geometric shapes called polygons. Instead of computing the *distance* from an object's location to the point of interest, it determines if the interior of the polygon *contains* the point where the object is located.

You supply geofences to the Geofence operator, and it produces output indicating which geofences contain objects in the location data stream.

Defining a geofence for the Geofence operator

Each geofence used by the operator is defined by its id and the boundaries of the polygon covering the area.

A polygon must also be specified as Well Known Text (WKT). WKT Polygons are defined as a list of line segments that make up the polygon's boundaries. Each line segment is a made up of 2 points.
Polygons provided to the Geofence operator can overlap, or be contained within other polygons.

Natasha D'Silva, *Common patterns for tracking moving objects in Streams, part 2: Geofencing* (Aug. 17, 2020), https://community.ibm.com/community/user/dataops/viewdocument/common-patterns-for-tracking-moving-1?CommunityKey=c0c16ff2-10ef-4b50-ae4c-57d769937235&tab=librarydocuments [hereinafter *Example Image 1.15*].

Configuring maps

Last Updated: 2021-03-05

Mobile workers can use the map view in the Maximo® Anywhere Work Execution application and the Maximo Anywhere Inspection application to check the geographical location of work orders. To make the map view available, you must prepare the Maximo Anywhere environment and configure the application.

– **Configuring IBM Maximo Spatial Asset Management maps**
  With IBM® Maximo Spatial Asset Management, you can locate on maps objects that are associated with assets, and locations, as well as work orders. You can also see, for example, pumps, and valves that you configure in Maximo Spatial Asset Management in a map running using Maximo Anywhere. The IBM Maximo Spatial Asset Management advanced map capabilities apply only to the IBM Maximo Anywhere Work Execution app.
– **Configuring Esri maps**
  When Maximo Anywhere is configured to use the Esri map service provider, mobile workers can get a route and directions to their work order locations. Both Esri online and offline maps are supported.
– **Activating GPS**
  Maximo Anywhere uses global positioning system (GPS) data to determine the geographical location of mobile workers and work orders. GPS is also needed to add position markers to the map view.
– **Configuring route lines**
  When the map view is enabled, you can control the color, transparency, and width of the route lines between markers. You can configure the route lines by using the Anywhere Administration application if it is enabled.
– **Configuring zoom levels**
  When the map view is enabled, you can control the zoom level of the online maps. You can configure zoom levels by using the Anywhere Administration application if it is enabled.

IBM, *Configuring maps* (Mar. 5, 2021), https://www.ibm.com/docs/en/maximo-anywhere/7.6.3?topic=anywhere-configuring-maps [hereinafter *Example Image 1.16*].

Monetize new digital content

Weave relevant monetization opportunities – such as promotions for local businesses – throughout your mobile app as interstitial ads or pre-roll videos. Ads for local businesses can be geo-fenced to target customers in their area, helping to increase value for you and your sponsors.

You can also publish content to Facebook with sponsor logos and banners as well as to Twitter and Instagram*. The Max Engage dashboard displays the engagement results of postings to aid you in understanding what resonates with your viewers and refining your content strategies. Our dedicated client success staff also helps you optimize content and ads to produce click-worthy videos, build your customer base, and increase engagement. In fact, Max Engage users have increased mobile views by up to 13x in just a few months.[1]

For more information or to request a demo of Max Engage with Watson, visit the IBM Marketplace.

IBM, *Max Engage with Watson* (Jan. 2020), https://www.ibm.com/downloads/cas/84D4V6XK [hereinafter *Example Image 1.17*].

38.   IBM provides products comprising a non-transitory computer readable medium tangibly embodying a program of computer executable instructions, the program of instructions comprising at least one instruction for storing a reservation associating the designated geographic area with the registered application program after it is determined that the interest in the designated geographic area is to be granted to the registered application program, including as demonstrated in *Example Images 1.1-1.17, supra* at paragraphs 35-36.

39.   IBM provides products comprising a non-transitory computer readable medium tangibly embodying programs of computer executable instructions, the program of instructions comprising at least one instruction for restricting content delivery to the one or more application program instances to being content associated with at least one of the one or more sponsors after it is determined that the object of interest has entered the designated geographic area, including as demonstrated in *Example Images 1.1-1.17, supra* at paragraphs 35-36.

40.   IBM provides products comprising a non-transitory computer readable medium tangibly embodying a program of computer executable instructions, the program of instructions comprising at least one instruction for causing registered application program content associated with at least one of the one or more sponsors to be provided for use by the one or more application program instances after it is determined that the object of interest has entered the designated geographic area, including as demonstrated in *Example Images 1.1-1.17, supra* at paragraphs 35-36..

41.   By engaging in the conduct described herein, IBM has injured Plaintiff and is thus liable for infringement of one or more claims of the '625 Patent, pursuant to 35 U.S.C. § 271. IBM has committed these acts of infringement without license or authorization. To the extent any

element is not found literally, upon information and belief, it is satisfied by the doctrine of equivalents.

42.   As a result of IBM's infringement of one or more claims of the '625 Patent, Plaintiff has suffered monetary damages and is entitled to a monetary judgment in an amount adequate to compensate for IBM's past infringement, together with interests and costs. In addition, IBM's infringement is causing irreparable harm and monetary damage to Plaintiff and will continue to do so unless and until IBM is enjoined by the Court.

COUNT II: CLAIM FOR PATENT INFRINGEMENT OF THE '171 PATENT

43.   Plaintiff repeats and realleges the allegations in paragraphs 1-29 as if fully set forth herein. IBM has infringed, contributorily infringed, and/or induced infringement of one or more claims of the '171 Patent by making, using, selling, offering for sale, or importing into the United States, or by intending that others make, use, import into, offer for sale, or sell in the United States, products and/or methods covered by one or more claims of the '171 Patent including, but not limited to, the Accused Products.

44.   Upon information and belief, IBM's products and services that infringe one or more claims of the '171 Patent include at least the Accused Products. The products listed are exemplary, and Plaintiff will be able to provide a more comprehensive list after discovery. Upon information and belief, IBM also infringes one or more claims of the '171 Patent through its use of geofencing or location information in its advertising or content delivery efforts or its own applications it develops.

45.   For example, upon information and belief, one or more Accused Products infringe at least claim 43 of the '171 Patent. IBM makes, uses, sells, offers for sale, imports, exports,

supplies, or distributes within the United States one or more of the Accused Products and thus directly infringes one or more claims of the '171 Patent.

46.   IBM indirectly infringes one or more claims of the '171 Patent as provided by 35 U.S.C. § 271(b) by inducing infringement by others, such as manufacturers, resellers, and end-user customers in this District and throughout the United States. For example, direct infringement is the result of activities performed by manufacturers, resellers, or operators/carriers of mobile devices which use one or more of the Accused Products, who, upon information and belief, perform each step of the claimed invention as directed by IBM. IBM received actual notice of the '171 Patent at least as early as the filing of this Complaint.

47.   IBM contributorily infringes one or more claims of the '171 Patent as provided by 35 U.S.C. § 271(c) contributing to the infringement by others, such as manufacturers, resellers, and end-user customers in this District and throughout the United States.

48.   For example, upon information and belief, the Accused Products have been used, as a result of IBM's conduct, in industries including, but not limited to, transportation, healthcare, and oil & gas. *See, e.g.,* IBM, *How Independent Health Secures PHI with IBM MaaS360*, https://mediacenter.ibm.com/media/How+Independent+Health+Secures+PHI+with+IBM+MaaS 360/1_y7gga9lo ; Roger Rea, *Continuous Intelligence in Action: Lessons from 3 Use Cases* (Jan. 9, 2020), https://www.rtinsights.com/continuous-intelligence-in-action-learnings-from-3-use-cases/; HG Insights, Companies Currently Using IBM Streams (March 31, 2023), https://web.archive.org/web/20230331192041/https://discovery.hgdata.com/product/ibm-streams. Direct infringement of one or more claims of the '171 Patent is the result of one or more of these activities performed by manufacturers, resellers, or operators/carriers of mobile devices

in on or more industries, who, upon information and belief, perform each step of the claimed invention as directed by IBM.

49.   IBM provides products comprising a non-transitory computer readable medium for creating and offloading location awareness, said non-transitory, computer readable medium including instructions executable by at least one processor to cause performance of sending, to a content delivery platform: a request to have an identifier, being associated with a selected geographic area of interest, delivered to a computer program on a mobile device after it has been determined, by at least use of location information representing at least one physical geographic location of the mobile device, that the mobile device has at least entered the selected geographic area of interest, including as demonstrated in *Example Images 1.1-1.17, supra* at paragraphs 35-36.

50.   IBM provides products comprising a non-transitory computer readable medium for creating and offloading location awareness, said non-transitory, computer readable medium including instructions executable by at least one processor to cause performance of sending, to a content delivery platform: geographic reservation data to have the selected geographic area of interest reserved for delivery of the identifier to the computer program, wherein the geographic reservation data comprises a geometric construct used to establish at least one perimeter as a boundary for the selected geographic area of interest, including as demonstrated in *Example Images 1.1-1.17, supra* at paragraphs 35-36.

51.   IBM provides products comprising a non-transitory computer readable medium for creating and offloading location awareness, said non-transitory, computer readable medium including instructions executable by at least one processor to cause performance of receiving, via

the computer program, the identifier delivered by the content delivery platform after it has been

determined, by at least use of the location information representing at least one physical geographic

location of the mobile device, that the mobile device has at least entered the selected geographic

area of interest, including as demonstrated in *Example Images 1.1-1.17, supra* at paragraphs 35-

36.

52.   By engaging in the conduct described herein, IBM has injured Plaintiff and is thus

liable for infringement of one or more claims of the '171 Patent, pursuant to 35 U.S.C. § 271. IBM

has committed these acts of infringement without license or authorization. To the extent any

element is not found literally, upon information and belief, it is satisfied by the doctrine of

equivalents.

53.   As a result of IBM's infringement of one or more claims of the '171 Patent, Plaintiff

has suffered monetary damages and is entitled to a monetary judgment in an amount adequate to

compensate for IBM's past infringement, together with interests and costs. In addition, IBM's

infringement is causing irreparable harm and monetary damage to Plaintiff and will continue to do

so unless and until IBM is enjoined by the Court.

COUNT III: CLAIM FOR PATENT INFRINGEMENT OF THE '247 PATENT

54.   Plaintiff repeats and realleges the allegations in paragraphs 1-29 as if fully set forth

herein. IBM has infringed, contributorily infringed, and/or induced infringement of one or more

claims of the '247 Patent by making, using, selling, offering for sale, or importing into the United

States, or by intending that others make, use, import into, offer for sale, or sell in the United States,

products and/or methods covered by one or more claims of the '247 Patent including, but not

limited to the Accused Products.

55.   Upon information and belief, IBM's products and services that infringe one or more claims of the '247 Patent include one or more of the Accused Products. The products listed are exemplary, and Plaintiff will be able to provide a more comprehensive list after discovery. Upon information and belief, IBM also infringes one or more claims of the '247 Patent through its use of geofencing or location information in its advertising or content delivery efforts or its own applications it develops.

56.   For example, upon information and belief, one or more Accused Products infringe at least claim 15 of the '247 Patent. IBM makes, uses, sells, offers for sale, imports, exports, supplies, or distributes within the United States one or more Accused Products and thus directly infringes one or more claims of the '247 patent.

57.   IBM indirectly infringes one or more claims of the '247 Patent as provided by 35 U.S.C. § 271(b) by inducing infringement by others, such as manufacturers, resellers, and end-user customers in this District and throughout the United States. For example, direct infringement is the result of activities performed by manufacturers, resellers, or operators/carriers of mobile devices which use the MaaS360 and IBM Streams products, who, upon information and belief, perform each step of the claimed invention as directed by IBM. IBM received actual notice of the '247 Patent at least as early as the filing of this Complaint.

58.   IBM contributorily infringes one or more claims of the '247 Patent as provided by 35 U.S.C. § 271(c) contributing to the infringement by others, such as manufacturers, resellers, and end-user customers in this District and throughout the United States.

59.   For example, upon information and belief, the Accused Products have been used, as a result of IBM's conduct, in industries including, but not limited to, transportation, healthcare,

and oil & gas. *See, e.g.,* IBM, *How Independent Health Secures PHI with IBM MaaS360,* https://mediacenter.ibm.com/media/How+Independent+Health+Secures+PHI+with+IBM+MaaS 360/1_y7gga9lo ; Roger Rea, *Continuous Intelligence in Action: Lessons from 3 Use Cases* (Jan. 9, 2020), https://www.rtinsights.com/continuous-intelligence-in-action-learnings-from-3-use-cases/; HG Insights, Companies Currently Using IBM Streams (March 31, 2023), https://web.archive.org/web/20230331192041/https://discovery.hgdata.com/product/ibm-streams. Direct infringement of the '247 Patent is the result of one or more of these activities performed by manufacturers, resellers, or operators/carriers of mobile devices in on or more industries, who, upon information and belief, perform each step of the claimed invention as directed by IBM.

60.   IBM provides products comprising a non-transitory computer readable medium tangibly embodying a program of computer executable instructions, the program of instructions comprising at least one instruction for registering a plurality of application programs for use with a content delivery platform, including as demonstrated in *Example Images 1.1-1.17, supra* at paragraphs 35-36.

61.   IBM provides products comprising a non-transitory computer readable medium tangibly embodying a program of computer executable instructions, the program of instructions comprising at least one instruction for establishing a plurality of perimeters defining a plurality of geographic areas, including as demonstrated in *Example Images 1.1-1.17, supra* at paragraphs 35-36.

62.   IBM provides products comprising a non-transitory computer readable medium tangibly embodying a program of computer executable instructions, the program of instructions

comprising at least one instruction for receiving, from at least a particular one of the registered application programs, a request to obtain an interest in a designated geographic area, including as demonstrated in *Example Images 1.1-1.17, supra* at paragraphs 35-36.

63.   IBM provides products comprising a non-transitory computer readable medium tangibly embodying a program of computer executable instructions, the program of instructions comprising at least one instruction for determining if the interest in the designated geographic area is to be provided to at least the particular one of the registered application programs, including as demonstrated in *Example Images 1.1-1.17, supra* at paragraphs 35-36.

64.   IBM provides products comprising a non-transitory computer readable medium tangibly embodying a program of computer executable instructions, the program of instructions comprising at least one instruction for reserving content delivery to at least the particular one of the registered application programs to being from one or more sponsors after it is determined that an object of interest has entered the designated geographic area in response to determining that the interest in the designated geographic area is to be provided to at least the particular one of the registered application programs, including as demonstrated in *Example Images 1.1-1.17, supra* at paragraphs 35-36.

65.   IBM provides products comprising a non-transitory computer readable medium tangibly embodying a program of computer executable instructions, the program of instructions comprising at least one instruction for receiving, from the one or more sponsors, content to be delivered to at least one of the registered application programs in response to said reserving, including as demonstrated in *Example Images 1.1-1.17, supra* at paragraphs 35-36.

66.   IBM provides products comprising a non-transitory computer readable medium tangibly embodying a program of computer executable instructions, the program of instructions comprising at least one instruction for providing at least a portion of the content received from the one or more sponsors to at least the particular one of the registered application programs after it is determined that the object of interest has entered the designated geographic area, including as demonstrated in *Example Images 1.1-1.17, supra* at paragraphs 35-36.

67.   By engaging in the conduct described herein, IBM has injured Plaintiff and is thus liable for infringement of one or more claims of the '247 Patent, pursuant to 35 U.S.C. § 271. IBM has committed these acts of infringement without license or authorization. To the extent any element is not found literally, upon information and belief, it is satisfied by the doctrine of equivalents.

68.   As a result of IBM's infringement of one or more claims of the '247 Patent, Plaintiff has suffered monetary damages and is entitled to a monetary judgment in an amount adequate to compensate for IBM's past infringement, together with interests and costs. In addition, IBM's infringement is causing irreparable harm and monetary damage to Plaintiff and will continue to do so unless and until IBM is enjoined by the Court.

DEMAND FOR JURY TRIAL

69.   Plaintiff hereby demands a trial by jury on all claims so triable.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff respectfully requests that this Court enter judgment in its favor and grant the following relief:

A. Adjudge that IBM infringes one or more claims of the Asserted Patents;

B. Adjudge that the claims of the Asserted Patents are valid and enforceable;

C. Award Plaintiff damages in an amount adequate to compensate Plaintiff for IBM's infringement of one or more claims of the Asserted Patents, but in no event less than a reasonable royalty under 35 U.S.C. § 284;

D. Award enhanced damages pursuant to 35 U.S.C. § 284;

E. Award Plaintiff pre-judgment and post-judgment interest to the full extent allowed under the law, as well as Plaintiff's costs;

F. Enter an order finding that this is an exceptional case and awarding Plaintiff its reasonable attorneys' fees pursuant to 35 U.S.C. § 285;

G. Enter a permanent injunction against all IBM products found to infringe the Asserted Patents;

H. Award, in lieu of an injunction, a compulsory forward royalty;

I. Order an accounting of damages; and

J. Award such other relief, including equitable relief, as the Court may deem appropriate and just under the circumstances.

DATED: May 16, 2024

Respectfully submitted,

/s/ Rex A. Mann
Thomas M. Melsheimer
Texas Bar No. 13922550
tmelsheimer@winston.com
M. Brett Johnson
Texas Bar No. 00790975
mbjohnson@winston.com
Rex A. Mann
Texas Bar No. 24075509
rmann@winston.com
Chad B. Walker
Texas Bar No. 24056484
cbwalker@winston.com
WINSTON & STRAWN LLP
2121 North Pearl Street, Suite 900
Dallas, TX 75201
Telephone: (214) 453-6500

J. Tyler Boyce
Texas Bar No. 24127214
tboyce@winston.com
WINSTON & STRAWN LLP
800 Capitol Street, Suite 2400
Houston, TX 77002
Telephone: (713) 651-2600

ATTORNEYS FOR PLAINTIFF