SYSTEMS AND METHODS FOR INITIATING INSURANCE PROCESSING USING INGESTED DATA

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ABSTRACT

Methods and systems for pre-filling insurance forms for customers are provided. An insurance provider or other similar entity can receive loss event data associated with a certain loss event that could trigger customers submitting insurance claims. By examining the loss event data and associated customer and insurance policy data, the insurance provider can identify customers who may have experienced damage to property and therefore may be eligible to submit a claim for the damage. According to embodiments, the insurance provider can generate pre-filled forms using at least some of the loss event data and send the pre-filled forms to the potentially eligible customers. The customers can modify the pre-filled forms where necessary and submit insurance claims based on the pre-filled forms for processing by the insurance provider.
FIG. 2

- PROPERTY
  222 PROVIDE SENSOR DATA
  224 PROVIDE USER-SUBMITTED DATA
  232 CUSTOMER ACCESS CLAIMS SYSTEM
  238 MODIFY INSURANCE FORM
  240 SUBMIT CLAIM BASED ON INSURANCE FORM

- DEVICE
  224 PROVIDE USER-SUBMITTED DATA

- THIRD-PARTY SERVER(S)
  220 PROVIDE THIRD-PARTY DATA
  226 INGEST RECEIVED DATA
  228 IDENTIFY SET OF POTENTIAL CLAIMANTS
  230 GENERATE PRE-FILLED INSURANCE FORM
  234 RECONCILE PRE-FILLED INSURANCE FORM AND CUSTOMER INFORMATION

- PROCESSING SERVER
  226 INGEST RECEIVED DATA
  228 IDENTIFY SET OF POTENTIAL CLAIMANTS
  230 GENERATE PRE-FILLED INSURANCE FORM
  234 RECONCILE PRE-FILLED INSURANCE FORM AND CUSTOMER INFORMATION
  238 SEND PRE-FILLED INSURANCE FORM TO CUSTOMER
  242 PROCESS CLAIM
  244 ANALYTICS AND POST-PROCESSING
FIG. 3
400 STORE RECEIVED DATA IN FRONT-OFFICE CLUSTER

443 ANALYZE RECEIVED DATA (CONTINUOUS QUERY PROCESSING, COMPLEX EVENT PROCESSING, SEMANTIC ANALYSIS)

444 DETECT ACTIONABLE EVENT

445 CONTINUE RECEIVED DATA ANALYSIS TO IDENTIFY DATA RELEVANT TO ACTIONABLE EVENT

446 ASYNCHRONOUSLY RELAY RECEIVED DATA TO BACK-OFFICE CLUSTER

449 STORE RECEIVED DATA IN APPLICATION CACHE NODE AS PART OF NON-RELATIONAL DATABASE

447 UPDATE INVERTED INDEX OF NON-RELATIONAL DATABASE, INDEX IS COPIED TO SEARCH CLUSTER(S)

453 STORE RECEIVED DATA IN DATA NODE(S)

FIG. 4
Based on actionable event, search index to identify set of potentially affected customers.

Load policies of potentially affected customers into in-memory cache.

Pre-fill insurance forms for potentially affected customers by cross-referencing actionable event data with policies.

Receive first notice of loss (FNOL) event associated with actionable event.

Match FNOL event information with pre-filled insurance forms.

Modify any pre-filled insurance forms.

**FIG. 5**
FIG. 6
SYSTEMS AND METHODS FOR INITIATING INSURANCE PROCESSING USING INGESTED DATA

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Application No. 61/800,561, filed Mar. 15, 2013, which is incorporated by reference herein.

FIELD OF THE DISCLOSURE

[0002] The present disclosure generally relates to systems and methods for automatically initiating insurance processing, and, more particularly, to using various techniques to gather information about a loss event and automatically generate or "pre-fill" one or more forms associated with potential insurance claims for the loss event.

BACKGROUND

[0003] Customers purchase casualty insurance policies to insulate themselves from various risks posed to their property. For example, a homeowner may purchase a fire insurance policy or a driver may purchase an automobile insurance policy. However, in the unfortunate event of a loss event that causes damage to the insured property, the customer must fill out a claim to collect any monies owed according to the casualty insurance policy. Filling out a claim can be a frustrating process that requires the customer to input information into numerous pages of forms or otherwise complete tedious data entry, and often customers are already overwhelmed or upset because of the loss event. Additionally, after the customer has submitted the claim, the insurer must be able to correctly interpret the information submitted in the claim to decide whether to process the claim and refund the customer with any money according to the claim.

[0004] Accordingly, there is an opportunity for systems and methods to more effectively and efficiently initiate insurance processing associated with loss events.

SUMMARY

[0005] In an embodiment, a computer-implemented method of initiating insurance processing associated with a loss event is provided, wherein the insurance processing is associated with an insurance policy for a property. The method includes receiving loss event data related to the loss event, reconciling, by a processor, the loss event data with customer data to identify a customer potentially affected by the loss event, the customer having the insurance policy for the property, and generating, by the processor for the insurance policy of the customer, a pre-filled form for the loss event based on at least a portion of the loss event data. Further, the method comprises sending the pre-filled form to the customer, receiving, from the customer, a submission request for an insurance claim based on the pre-filled form, and responsive to receiving the submission request, processing, by the processor, the insurance claim to facilitate eventual payment to the customer having the insurance policy.

[0006] In another embodiment, a system for initiating insurance processing associated with a loss event is provided. The system includes a communication module adapted to receive loss event data related to the loss event, a memory adapted to store data related to a plurality of insurance policies for a plurality of properties, and a processor adapted to interface with the communication module and the memory. The processor is configured to execute computer executable instructions stored in the memory to cause the processor to reconcile the loss event data with customer data to identify a customer potentially affected by the loss event, the customer having an insurance policy of the plurality of insurance policies for a property of the plurality of properties. The processor is further configured to generate, for the insurance policy of the customer, a pre-filled form for the loss event based on at least a portion of the loss event data, and send, using the communication module, the pre-filled form to the customer. Additionally, the processor is configured to receive, from the customer via the communication module, a submission request for an insurance claim based on the pre-filled form, and process the insurance claim in response to receiving the submission request.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] The figures described below depict various aspects of the system and methods disclosed herein. It should be understood that each figure depicts an embodiment of a particular aspect of the disclosed system and methods, and that each of the figures is intended to accord with a possible embodiment thereof. Further, wherever possible, the following description refers to the reference numerals included in the following figures, in which features depicted in multiple figures are designated with consistent reference numerals.

[0008] FIG. 1 depicts an example environment including components and entities associated with initiating insurance processing for loss events in accordance with some embodiments.

[0009] FIG. 2 depicts an example diagram associated with generating and processing insurance forms for loss events in accordance with some embodiments.

[0010] FIG. 3 is a block diagram of a processing server in accordance with some embodiments.

[0011] FIG. 4 depicts a flow diagram of processing information related to an actionable loss event in accordance with some embodiments.

[0012] FIG. 5 depicts a flow diagram of pre-filling an insurance form in accordance with some embodiments.

[0013] FIG. 6 is a block diagram of a computing device in accordance with some embodiments.

DETAILED DESCRIPTION

[0014] The novel methods and systems disclosed herein generally relate to pre-filling or otherwise processing insurance forms related to or resulting from loss events. According to embodiments, an insurance provider can pre-fill insurance forms for potential claimant customers in response to receiving loss event data associated with a loss event. The insurance provider can receive the loss event data from properties that are insured, from user submissions, from third-party sources, or from other sources. The insurance provider can reconcile the loss event data with customer data to identify a set of customer claimants who may be eligible to file a claim for any property damage resulting from the loss event. In some embodiments, the insurance provider can examine relevant insurance policies for the customers to determine if the insurance policies insure or cover the property damage.

[0015] The insurance provider can use at least a portion of the loss event data as well as any relevant customer information to pre-fill one or more insurance forms for one or more
customer claimants who may have a claim to property damage resulting from the loss event. The insurance provider can provide the pre-filled insurance forms to the customer claimants, for example via email, a website interface, or the like, and the customer claimants can optionally modify the insurance forms and submit insurance claims based on or using the insurance forms. In some embodiments, the insurance provider can process the submitted insurance claims and perform any analytics or post-processing techniques.

[0016] The systems and methods as discussed herein enable more effective and efficient techniques for initiating insurance processing resulting from loss events. In particular, customers having insurance policies with an insurance provider need not hassle with filling out forms or initiating the claims process. Additionally, the systems and methods enable the insurance provider to generate consistent pre-filled forms for customers to submit, thus reducing the need for the insurance provider to examine and modify submitted claims that may have errors or inconsistencies in associated submissions. Further, the insurance provider can perform analyses of the pre-filled forms and submitted claims relating thereto to improve the pre-filling techniques over time. It should be appreciated that other benefits of the systems and methods are envisioned.

[0017] Although the following text sets forth a detailed description of numerous different embodiments, it should be understood that the legal scope of the invention is defined by the words of the claims set forth at the end of this patent. The detailed description is to be construed as exemplary only and does not describe every possible embodiment, as describing every possible embodiment would be impractical, if not impossible. One could implement numerous alternate embodiments, using either current technology or technology developed after the filing date of this patent, which would still fall within the scope of the claims.

[0018] It should also be understood that, unless a term is expressly defined in this patent using the sentence “As used herein, the term ‘_______’ is hereby defined to mean _______” or a similar sentence, there is no intent to limit the meaning of that term, either expressly or by implication, beyond its plain or ordinary meaning, and such term should not be interpreted to be limited in scope based on any statement made in any section of this patent (other than the language of the claims). To the extent that any term recited in the claims at the end of this disclosure is referred to in this disclosure in a manner consistent with a single meaning, that is done for sake of clarity only so as to not confuse the reader, and it is not intended that such claim term be limited, by implication or otherwise, to that single meaning. Finally, unless a claim element is defined by reciting the word “means” and a function without the recital of any structure, it is not intended that the scope of any claim element be interpreted based on the application of 35 U.S.C. §112, sixth paragraph.

[0019] Accordingly, the term “insurance policy,” as used herein, generally refers to a contract between an insurer and an insured. In exchange for payments from the insured, the insurer pays for damages to the insured which are caused by covered perils, acts or events as specified by the language of the insurance policy. The payments from the insurer are generally referred to as “premiums,” and typically are paid on behalf of the insured over time at periodic intervals. The amount of the damages payment is generally referred to as a “coverage amount” or a “face amount” of the insurance policy. An insurance policy may remain (or have a status or state of) “in-force” while premium payments are made during the term or length of coverage of the policy as indicated in the policy. An insurance policy may “lapse” (or have a status or state of “lapsed”), for example, when premium payments are not being paid, when a cash value of a policy falls below an amount specified in the policy (e.g., for variable life or universal life insurance policies), or if the insured or the insurer cancels the policy.

[0020] The terms “insurer,” “insuring party,” and “insurance provider” are used interchangeably herein to generally refer to a party or entity (e.g., a business or other organizational entity) that provides insurance products, e.g., by offering and issuing insurance policies. Typically, but not necessarily, an insurance provider may be an insurance company.

[0021] An insurance provider may offer or provide one or more different types of insurance policies. Types of insurance policies may include, for example, auto insurance; homeowners insurance; condominium owner insurance; renter’s insurance; life insurance (e.g., whole-life, universal, variable, term, etc.); health insurance; disability insurance; long-term care insurance; annuities; business insurance (e.g., property, liability, commercial auto, workers compensation, professional and specialty liability, inland marine and mobile property, surety and fidelity bonds, etc.); boat insurance; insurance for catastrophic events such as flood, fire, volcano damage and the like; motorcycle insurance; farm and ranch insurance; personal article insurance; personal liability insurance; personal umbrella insurance; community organization insurance (e.g., for associations, religious organizations, cooperatives, etc.); and other types of insurance products. In embodiments as described herein, the insurance provider processes claims related to insurance policies that cover one or more properties (e.g., homes, automobiles, personal articles, and others), although processing other insurance policies is also envisioned.

[0022] The terms “insured,” “insured party,” “policyholder,” “customer,” “claimant,” and “potential claimant” are used interchangeably herein to refer to a person, party, or entity (e.g., a business or other organizational entity) that is covered by the insurance policy, e.g., whose insured article or entity (e.g., property, life, health, auto, home, business, etc.) is covered by the policy. A “guarantor,” as used herein, generally refers to a person, party, or entity that is responsible for payment of the insurance premiums. The guarantor may or may not be the same party as the insured, such as in situations when a guarantor has power of attorney for the insured. An “annuitant,” as referred to herein, generally refers to a person, party or entity that is entitled to receive benefits from an annuity insurance product offered by the insuring party. The annuitant may or may not be the same party as the guarantor.

[0023] Typically, a person or customer (or an agent of the person or customer) of an insurance provider fills out an application for an insurance policy. The application may undergo underwriting to assess the eligibility of the party and/or desired insured article or entity to be covered by the insurance policy, and, in some cases, to determine any specific terms or conditions that are to be associated with the insurance policy, e.g., amount of the premium, riders or exclusions, waivers, and the like. Upon approval by underwriting, acceptance of the applicant to the terms or conditions, and payment of the initial premium, the insurance policy may be in-force, i.e., the policyholder is enrolled.

[0024] FIG. 1 depicts an example environment 100 associated with initiating insurance processing using received loss
event data. Although FIG. 1 depicts certain entities and components, it should be appreciated that additional or alternate entities and components are envisioned.

As shown in FIG. 1, the environment 100 includes example properties 104 capable of being insured or having insurance policies associated therewith. For example, the insurance policies can be associated with property insurance (e.g., car insurance, homeowner’s insurance, renter’s insurance, etc.), health insurance, life insurance, flood insurance, casualty insurance, and/or the like. The properties 104 can connect (e.g., using various communication modules) to an insurance provider 119 via one or more networks 114 such as, for example, a wide area network (WAN), a local area network (LAN), a personal area network (PAN), or other networks. The network 114 can facilitate any type of data communication via any standard or technology (e.g., GSM, CDMA, TDMA, WCDMA, LTE, EDGE, OFDM, GPS, EV-DO, UWB, IEEE 802 including Ethernet, WiMAX, WiFi, Bluetooth, and others). The insurance provider 119 can be any individual, group of individuals, company, corporation, or other type of entity that can issue insurance policies for customers, such as insurance policies associated with the properties 104. According to embodiments, the insurance provider 119 can include a processing server 120 configured to facilitate the functionalities as discussed herein. Although FIG. 1 depicts the processing server 120 as a part of the insurance provider 119, it should be appreciated that the processing server 120 can be separate from (and connected to or accessible by) the insurance provider 119.

According to embodiments, various types of events that can occur may give rise to various types of insurance claims for the example properties 104 according to the associated insurance policies. For example, the events (referred to herein as “loss events”) that may give rise to a claim can be damage or loss to property (e.g., damage to a car, damage to a home, or other damages or losses), an injury, and/or the like. Once the damage of loss resulting from the loss event has occurred, the various components of the environment 100 can initiate insurance processing associated with that damage or loss. Alternatively or additionally, the various components of the environment 100 can initiate insurance processing before the loss event has occurred (e.g., if the loss event is forecasted), during the loss event, or after the loss event has occurred but before any damage is assessed or known.

Although not depicted in FIG. 1, the example properties 104 can be equipped with one or more sensors capable of recording data related to one or more loss events. For example, a sensor in an automobile may record damage to the hood and windshield during a hail storm and may transmit data about the damage to the processing server 120, for example using telematics techniques. Additionally or alternatively, a sensor in the roof of a house may record damage during a hail storm and may transmit data about the damage to the processing server 120 over a high-speed internet connection. It should be appreciated that the sensors may be coupled to or part of any of a vehicle, a building, a house, or any other property (e.g., an RFID tag on a pallet of electronics in a warehouse), according to various techniques and conventions. It should further be appreciated that the sensors (and/or communication modules) associated with the properties 104 can transmit or provide the data to the processing server 120 according to other techniques or communication channels.

Of course, it will be understood that other data collecting and reporting devices may be used to gather data about a loss event. For example, as shown in FIG. 1, a set of devices 106 (e.g., cellular phone, smartphone, GPS navigation system, a tablet computer, a notebook or desktop computer, etc.) can be configured to detect and/or receive data related to a loss event or potential loss event, and transmit the data to the processing server 120 via the network 114. In some cases, a potential claimant (e.g., an individual having an insurance policy for one of the example properties 104 or another property) may use one of the set of devices 106 to transmit data about the loss event to the processing server 120 (e.g., by reporting data about the loss via a telephone call, by entering data about the loss into a webpage or application, by filling out a paper form and submitting via fax or physical mail, or by other techniques). In other cases, an insurance administrator or other individual associated with an insurance provider may access the device 106 to input loss event data and initiate a transfer of the loss event data to the processing server 120. For example, a potential claimant may visit an insurance provider office and a representative may input the loss event data relayed by the potential claimant. Herein, such sensor, claimant, and/or individual reported data about the loss event may be collectively referred to as “first-party data.”

According to embodiments, the first-party data generally relates to information about loss events such as the occurrence and/or extent of damage, the location of the loss, the time of the loss, the customer(s) to which the loss is pertinent, the cause of the loss (e.g., an indication that a loss was caused by water, fire, physical impact, wind, and others), and/or the like. The first-party data can also include metadata such as the type of sensor reporting the data (e.g., make, model, version number, serial number, etc.), which software version the sensor is using to execute its functions, a timestamp for each data entry, the location of the sensor when it collected the data, information about the owner/renter of the sensor (e.g., name, address, customer ID number, and others), and/or the like. If the first-party data is submitted by a customer or company representative, the first-party data may also include metadata regarding when the loss data was reported, to whom the loss data was submitted, and/or the like.

As depicted in FIG. 1, the processing server 120 can also connect to one or more third-party servers 112. Although FIG. 1 depicts the third-party server(s) 112 being connected to the processing server 120 via the network 114, it should be appreciated that the third-party server(s) can be a part of the processing server 120. According to embodiments, the third-party server 112 can include data from news sources (e.g., national news networks, regional news networks, newspapers, magazines, news websites, and others), data from weather sources (e.g., the National Oceanic and Atmospheric Administration; other federal, state, or local governmental weather bureaus; commercial weather services; weather websites; and others), data from governmental sources (e.g., the Department of the Interior, the Department of Homeland Security, other federal, state, and local governmental sources, and others), data from social networks (e.g., Facebook®, Twitter®, Google+®, Instagram®, and others), data from public databases, data from private databases (e.g., consultants, data miners, surveyors, and others), or other sources. Herein, such data from the third-party server(s) may be collectively referred to as “third-party data,” and can include loss event data relating to one or more loss events that have happened (e.g., a lightning strike), are happening (e.g., a flood), or may happen in the future (e.g., a forecasted hurricane).
According to embodiments, the first-party data and/or third-party data may be received by the processing server 120 as an Advanced Message Queuing Protocol (AMQP) message. It should be appreciated by those skilled in the art that receiving the first- and third-party data as AMQP messages can enable the processing server 120 to receive the data asynchronously and in a standardized format. Accordingly, the sources providing the first- and third-party data may provide the data in the AMQP message format.

[0031] According to embodiments, the processing server 120 can pre-fill forms with data for potential insurance claims. The processing server 120 may also store the pre-filled insurance forms in high-speed memory. FIG. 5 below discusses the processes of identifying a set of potential claimants and pre-filling an insurance form in further detail.

[0032] Referring to FIG. 2, depicted in a diagram 200 illustrating techniques for generating pre-filled insurance forms for customers. In particular, FIG. 2 includes a property 204 (such as one of the properties 104 as described with respect to FIG. 1), a device 206 (such as one of the devices 106 as discussed with respect to FIG. 1), a third-party server 212, and a processing server 220 (such as the processing server 120 as discussed with respect to FIG. 1).

[0033] Although not shown in FIG. 2, it should be appreciated that the processing of the diagram 200 may be triggered by or initiated before, during, or after the occurrence of a loss event. For example, there may be a tornado in a specific area that can constitute a loss event. The property 204 can provide (222) sensor data (or another type of loss event data) to the processing server 220. For example, a wind gauge on a house can sense high winds and provide data associated with the high winds to the processing server 220. In some cases, the device 206 can provide (224) user-submitted data to the processing server 220, such as if a user (e.g., the customer, an insurance agent, or others) of the device manually enters data about a specific loss event. In further cases, the third-party server 212 can provide (226) third-party data to the processing server 220. For example, the third-party data can include social media data related to a blizzard.

[0034] After receiving the sensor data and/or the user-submitted data (collectively the first-party data), and/or the third-party data, the processing server 220 can ingest (226) the received data. In some embodiments, it may be advantageous for the processing server 220 to store the ingested data in high-speed memory (e.g., RAM) and/or bulk storage (e.g., magnetic hard disk drive). FIG. 4 depicts more detailed processing associated with the processing server 220 ingesting the received data.

[0035] The processing server 220 may then process the ingested data and automatically process and/or generate insurance processing for the loss. In particular, the processing server 220 can identify (228) a set of potential claimants based on the ingested data and optionally based on customer information. It may be advantageous for the processing server 220 to store, in high-speed memory, the list of potential claimants, customer information for the potential claimants, and other pertinent ingested data. In some embodiments, the processing server 220 can copy the customer information and/or the ingested data from bulk storage to the high-speed memory. After identifying the set of potential claimants, the processing server 220 may generate (230) one or more pre-filled insurance forms for one or more of the potential claimants based on the ingested information and on customer information. According to embodiments, the processing server 220 may also store the pre-filled insurance forms in high-speed memory. FIG. 5 below discusses the processes of identifying a set of potential claimants and pre-filling an insurance form in further detail.

[0036] A customer may access (232), using for example the device 206, a claims system, an insurance claiming interface, or the like. For example, the customer can access the claims system via accessing a website or app, by calling the claims system, by an in-person visit to an insurance agent, or by other channels. The processing server 220 can then search or reconcile (234) the list of potential claimants to determine whether the customer accessing the claims system is listed as a potential claimant and to access any pre-filled insurance forms that have been generated corresponding to the customer. Alternatively or additionally, if the customer was not on the list of potential claimants, the processing server 220 may access the customer information pertaining to the customer (e.g., by retrieving the customer information from bulk storage and loading it to high-speed memory), search the ingested data by cross-referencing the ingested data with the customer information pertaining to the customer, and generate a pre-filled insurance form.

[0037] Subsequent to the generating the pre-filled insurance form, the processing server 220 can send (236) the pre-filled insurance form to the customer for presentation to the customer. It should be appreciated that the customer may be presented with or otherwise access the pre-filled insurance form or any number of direct and/or indirect ways. For example, the customer may be presented with the pre-filled insurance form via a website or application. In particular, the customer can access the website or application, select a "file a claim" or similar button or link, and be presented with a claim submission option that includes some or all of the pre-filled insurance form. Additionally or alternatively, the customer may be presented with the pre-filled insurance form by an insurance agent or other person affiliated with the insurance company processing the claim. The customer may access the claims system via phone or an in-person visit to an insurance office, and the customer’s insurance agent may access the claims system described herein to access the pre-filled insurance form.

[0038] After being presented with the pre-filled insurance form, the customer may optionally modify (238) the pre-filled insurance form. In particular, the pre-filled insurance form may be incomplete or may need corrections, so the customer and/or insurance agent may access the pre-filled insurance form to add or correct information. For example, the pre-filled insurance form may include information about damage to the roof of a house which occurred during a recent hailstorm but may not include information about damage to the roof of a carport also covered by the homeowner’s insurance policy. In another example, the pre-filled insurance form may overestimate the amount of damage that actually occurred. Additionally, while reviewing the insurance form, the customer and/or insurance agent may correct and/or update customer infor-
mation. For example, if the customer has moved to a new address, the address portion of the customer information may be updated. Other examples of updates or corrections may include updating phone numbers, email addresses, adding a new vehicle to an automobile policy, adding information about a recently born dependent child, etc. The customer can submit (240) a completed claim based on the insurance form (modified or unmodified) to the processing server 220. In some embodiments, if sufficient loss event data and customer information is collected, ingested, and processed as described herein, the pre-filled insurance form may be fully filled out, in which case the customer may merely need to review and sign the pre-filled insurance form to submit an insurance claim.

[0039] After submission of the claim, the processing server 220 can process (242) the claim for payment. For example, a claims handler may use the processing server 202 to verify the report made in the claim to ensure accuracy, identify fraudulent claims, etc. After processing the claims, the processing server 220 may use information about the claim to generate (244) analytics for various users and administrators of the processing server 220. For example, an insurance agent may evaluate how the claim affects his or her book of business. Additionally or alternatively, the employees or contractors with a strategic resources department (or similar department) of the insurance company may assess the impact of the event that caused the loss for the claimants (e.g., the total cost of a hailstorm that causes damage throughout a city leading to one or more claims by multiple claimants may be calculated) for handling future responses, change in insurance policies, or business rule changes. Additionally or alternatively, an insurance provider may review claim generation data to identify relevant information or data to include in future instances of pre-filling claims.

[0040] Referring to FIG. 3, depicted is a more detailed view of the processing server 120 and components thereof configured to ingest and store loss event data and any resulting data or information. Before processing or using any received data as discussed herein, the processing server 120 can process and store the received data in a non-relational database (e.g., one or more Log-Structure Merge Tree (LSM-Tree) Databases such as HBase stored using a Hadoop framework), a process referred to herein as “ingestion.” The one or more non-relational databases may be stored in a federated database hardware 350. Generally speaking, the processing server 120 can receive two different kinds of data: transactional data and non-transactional data. Transactional data includes data and documents with direct monetary impact (e.g., insurance claims, insurance policies, financial transactions between the customer and insurance company, financial transactions between insurance companies, banking records, and others). Non-transactional data refers to data that does not have a direct monetary impact (e.g., data gathered by sensors in the field, posts to social networks, news reports, weather reports, and others). According to some embodiments, it may be advantageous for the processing server 120 to ingest transactional data and non-transactional data differently. In particular, it may be advantageous for the processing server 120 to ingest transactional data into the federated database hardware 350 and ingest non-transactional data using dedicated stream processing hardware 352 in order to process incoming heterogeneous data with varying latency requirements. As shown in FIG. 3, the stream processing hardware 352 can be connected to the federated database hardware 350 via a dedicated back-end network 358, which may be understood to be any type of data connection. According to embodiments, a compute node 366 can facilitate any processing (e.g., memory reads, memory writes, and others) associated with the stream processing hardware 352.

[0041] Referring to FIG. 4, depicted is a block diagram of an example data reception and ingestion technique 400 implemented by the processing server 120 as depicted in FIG. 3. The processing server 120 can receive first-party data (represented as block 441) and/or third-party data (represented as block 442). As discussed herein, the first-party data 441 can include data collected by sensors associated with properties (e.g., sensors in an automobile, house, property tag, mobile device, etc.) or data relayed to the processing server 120 by a customer or company representative via a device (e.g., a mobile phone, tablet, computer, etc.). Further, as discussed herein, the third-party data 442 can include data or information from various sources such as those relating to news, weather, government, social networks, public databases, private databases, and others.

[0042] Referring to FIG. 4 in conjunction with FIG. 3, when a new portion of non-transactional data is received by the processing server 120 (e.g., as an AMQP message), the data is routed (block 443) to a front office cluster 354 of the stream processing hardware 352 for storage. Depending on the type of data, received data may be prioritized for immediate ingestion processing off the front office cluster 354 or sent to a back office cluster 356 for later ingestion. For example, transactional data such as with a first notice of loss may be ingested directly off the front office cluster 354 via a search-based application (SBA). In embodiments, non-transactional data and/or transactions from machine sources (e.g., telematics data) can be ingested through the stream processing hardware 352 and then to the federated database hardware 350, and specifically from the front office cluster 354 to the back office cluster 356 then to the federated database hardware 350.

[0043] According to embodiments, the front office cluster 354 may be used to address low latency ingesting and processing, primarily with RAM, and the back office cluster 356 may be used to address processing with less demanding latency, primarily with direct-attached storage (DAS) such as an array of hard disk drives. In some embodiments, it may be advantageous to initially receive all data at the front office cluster 354 and asynchronously copy data with less demanding latency to the back office cluster 356 continuously as new data is received (block 447). Of course, it will be appreciated that it may also be advantageous for data with particularly low latency to be processed off the front office cluster 354 without or prior to it being sent to the back office cluster 356. A given SBA can specify data ingestion routes (e.g., front office cluster 354 to back office cluster 356 to federated database hardware 350, and other routes).

[0044] Because data is received continuously and it is advantageous to ensure that received data is made available for access as soon as possible, the ingestion of any received data from the front office cluster 354 may include routing the received data to a high-speed memory store. Because the processing and/or modification of the data discussed below may occur in real-time as the data is received or used, it is advantageous for the data processor(s) to be able to access data via high-speed memory. It may further be advantageous to load data into high-speed memory as it is needed (or anticipated to be needed) to minimize the amount of high-speed memory that is allocated at a certain period of time. Addition-
ally, as the data is being processed, the underlying data may need to be changed or updated (e.g., correcting a typo in a name, updating an old mailing address, etc.). Thus, as the change is made to the data entry loaded into high-speed memory, the updated data entry is used for whatever processing is pending, and cached to allow the entry in bulk storage to be updated asynchronously when computing resources are available (i.e., write-behind).

[0045] It may be advantageous to perform complex event processing (CEP), continuous query processing, and/or semantic processing on the received data using either or both of the front office cluster 354 and the back office cluster 356 (block 444). In an example, the CEP, continuous query processing, and/or semantic processing may be performed by one or more front office clusters 354 on received data stored in the in-memory cache of the one or more front office clusters 354. In another example, the CEP, continuous query processing, and/or semantic processing may be performed by one or more back office clusters 356 on received data stored on a hard disk drive of the one or more back office clusters 356.

[0046] According to embodiments, the CEP results in the identification of an occurrence of an event based on business needs for a given search-based application (SBA) along with a corresponding action. The event and action mapping can be a many-to-many relationship, whereby one event may spawn multiple actions and many events may spawn an action. The front office cluster 354 and the back office cluster 356 may be used to relay events to actors using a "publish-subscribe" pattern to perform the CEP for a given SBA. In some embodiments, the CEP may be self-contained within a single process. It should be appreciated that actions may generate transaction or non-transaction data which can be routed for storage in the federated database hardware 350. Identified events that are specific to a given SBA that acted upon those events in producing transaction or non-transaction data are likely to be recorded alongside and in the form of data enrichment and audit. In some embodiments, all data recorded on the federated database hardware 350 may be indexed with an inverted index which permits information retrieval and/or search. Further, transactional and non-transactional data enriched with acted-upon event identifiers may be visible to search along with data stored in the federated database hardware 350.

[0047] Referring back to FIG. 4, and as discussed herein, the CEP may be used to identify an actionable event (block 445). After identifying an actionable event, the CEP may further be used to identify other pieces of data related or relevant to the actionable event (block 446). For example, the back-end network 358 may receive an official hail storm alert from a governmental weather agency (e.g., the NOAA), which may be identified as an actionable event and may trigger the use of CEP techniques to identify data that may be associated with the storm alert (e.g., damage reports from sensors in automobiles/houses, social media posts about a hail storm, local news coverage of a hail storm, or other data). The CEP may include identifying characteristics about the triggering event such as location, affected population, and/or the like, and search for data and/or words and phrases relating to the triggering event that are substantially related to the identifying characteristics. In the hail storm example discussed above, CEP may include identifying the county or counties included for which the hail storm alert was issued and performing continuous query processing for data and/or words and phrases that correlate to hail damage. The CEP may further include the use of semantic processing tools and techniques to improve the identification of relevant data. For example, the back-end network 358 may use semantic classification software such as Apache® Stanbol. Such semantic processing may be useful to evaluate data by contextualizing search query hits. For example, semantic processing may be used to identify references in news coverage and social media posts to "hail" that are associated with the storm alert (e.g., a social media post consisting of a photograph of a large hailstone with a caption about the size of hailstones falling in the posting user's backyard) and exclude references that are not relevant (e.g., a social media posting by a user complaining about the difficulty of finding a taxi cab to hail).

[0048] Actionable events may be any of a number of events that have the potential to affect claims by a plurality of customers. In addition to weather alerts, actionable event triggers may include recall notices from an automobile manufacturer or automobile manufacturer supplier, an earthquake notification from the United States Geological Survey or other agency, a news report of a man-made disaster (e.g., a multiple-vehicle collision, a train derailment, a chemical spill, etc.), a report of a sudden swarm of insects, etc. Actionable events may be single occurrences (e.g., a hail storm) or ongoing events (e.g., a swarm of insects). When data that may be associated with an actionable event is identified, a record may be made (e.g., an entry in an index) that can store at least a portion of the data. Additionally, non-relevant data may be archived in bulk storage for recall at a later time. This record may be used in facilitating the use of the data in generating pre-filled insurance forms as discussed below in connection to FIG. 5.

[0049] After a datum has been subject to continuous query processing at least once (e.g., to determine whether the datum has information that should trigger an actionable event and/or analyze the datum to determine whether it is relevant to one or more actionable events), the datum may be asynchronously received at the back-office cluster 356 (block 447). After being received, the datum may be queued for indexing and inclusion in one or more non-relational databases stored in the back-end network 358 (block 448). When computing resources are available, then any queued data (transactional or non-transactional) may be stored as a data transfer object (DTO) in an In Memory Work In Progress (WIP) Data Store stored on one or more application cache nodes 362 and/or one or more data nodes 360 of the federated database hardware 350. Additionally, the back-end network 358 may receive transactional data as discussed above, which may also be queued for indexing and inclusion in one or more non-relational databases stored in the back-end network 358 (block 450). When computing resources are available, then any queued data (transactional or non-transactional) may be stored as a data transfer object (DTO) in an In Memory Work In Progress (WIP) Data Store stored on one or more application cache nodes 362 as part of one or more non-relational databases (block 449).

[0050] It may be advantageous to index the received data as each datum is added to the one or more non-relational databases to make information retrieval more efficient (block 451). The received data may be indexed using one or more inverted indexes. In one embodiment, an inverted index may be an index data structure with mapping information indicating where content (e.g., words, numbers, etc.) is located in each datum. The inverted indexes may enable the one or more non-relational databases to be full text searchable. In an example, the back-end network 358 may use Apache® Lucene, an information retrieval software library, to generate the one or more inverted indexes. Additionally, it may be advantageous to have one or more components of the back-
end network 358 dedicated to generating and storing the one or more indexes, such as in one or more index nodes 364. If one or more dedicated index nodes 364 are used, the index nodes 364 may communicate with the application cache nodes 362 in which the received data is stored to generate the one of more indexes and to store the indexes at the index nodes 364.

[0051] Once a datum is stored in the In-Memory WIP Data Store, it may be replicated in a non-relational database spanning the one or more data nodes 360 (block 453). As discussed below, there may be a plurality of the data nodes 360, and the datum may be replicated with a copy stored on multiple data nodes 360 for redundancy. Once a datum has been replicated onto the one or more data nodes 360, it may be advantageous to remove the datum from the In-Memory WIP Data Store. In particular, if the copy of the datum stored in the In-Memory WIP Data Store is not currently in use or predicted to be in use in the near future, the copy of the datum stored in the In-Memory WIP Data Store may be deleted and the space in memory de-allocated. It may be advantageous to structure the In-Memory WIP Data Store such that when memory is de-allocated, some of the hardware providing the In-Memory WIP Data Store may be turned off to conserve power and reduce heat in one or more data centers in which the back end components are situated.

[0052] Referring to FIG. 5, depicted is a block diagram of an example insurance form pre-filling technique 500 implemented by the processing server 120 as depicted in FIG. 2. In some embodiments, the processing server 120 can perform the technique 500 after ingesting any received data (processing 226 of FIG. 2) as discussed with respect to FIG. 2, and specifically after detecting the actionable event (block 445 of FIG. 4) as discussed with respect to FIG. 4. The processing server 120 can search (block 570) the existing data of the index based on the actionable event to identify a set of potentially affected customers. According to embodiments, the processing server 120 can retrieve location data associated with customers and compare the customer location data to location data associated with the actionable event. For example, if the actionable event indicates a hail storm in Chicago, Ill., then the processing server 120 can generate a list of policyholders residing in Chicago, Ill.

[0053] The processing server 120 can load (block 572) insurance policies of potentially affected customers into in-memory cache from disk storage. It should be appreciated that other techniques to retrieve the insurance policies are envisioned. The processing server 120 can pre-fill (block 574) insurance forms for the potentially affected customers by cross-referencing the data of the actionable event with data of the insurance policies. In particular, the processing server 120 can compare coverages specified in the insurance policies to the actionable event data. For example, if the actionable event indicates a flooding of River A and a customer living along River A has flood insurance, then the processing server 120 can deem the customer eligible to file a claim for any damage caused by the flood. Accordingly, the processing server 120 can pre-fill a corresponding form associated with a potential claim submission for potential damage to the property of the customer as a result of the flood.

[0054] In some embodiments, the processing server 120 can receive (block 576) a first notice of loss (FNOL) event that details initial loss information relating to the actionable event. The processing server 120 can match (block 578) the FNOL information with information of the pre-filled insurance forms. In some cases, the FNOL information may not entirely match the information of the pre-filled insurance forms. For example, the FNOL information may indicate that damage from a thunderstorm extends to a region not indicated by the actionable event information. Accordingly, the processing server 120 may optionally modify (block 580) any pre-filled insurance forms based on any discrepancies between the actionable event information and the FNOL information. In some embodiments, the processing server 120 may identify other potential claimants for the actionable event based on the FNOL information. Processing can return to 446 of FIG. 4, to 232 of FIG. 2, or to other steps.

[0055] FIG. 6 illustrates an example computing device 620 (such as at least a portion of processing server 120 as discussed with respect to FIG. 1) in which the functionalities as discussed herein may be implemented. It should be appreciated that the computing device 620 can be a part of the processing server 120 or as part of any of the components (e.g., 350, 352, 354, 356, 360, 362, 364, 366) of the processing server 120, as discussed herein. The computing device 620 can include a processor 672 as well as a memory 674. The memory 674 can store an operating system 676 capable of facilitating the functionalities as discussed herein as well as a set of applications 678 (i.e., machine readable instructions). For example, one of the set of applications 678 can receive loss event data from one or more sources and generate pre-filled insurance forms, as well as perform other functionalities as discussed herein. The processor 672 can interface with the memory 674 to execute the operating system 676 and the set of applications 678. According to embodiments, the memory 674 can also store data associated with insurance policies, such as any specified coverages or other parameters, customer data, loss event data, and/or any other data as discussed herein. The memory 674 can include one or more forms of volatile and/or non-volatile, fixed and/or removable memory, such as read-only memory (ROM), electronic programmable read-only memory (EPROM), random access memory (RAM), erasable electronic programmable read-only memory (EEPROM), and/or other hard drives, flash memory, MicroSD cards, and others.

[0056] The computing device 620 can further include a communication module 680 configured to communicate data via one or more networks 614. According to some embodiments, the communication module 680 can include one or more transceivers (e.g., WWAN, WLAN, and/or WPAN transceivers) functioning in accordance with IEEE standards, 3GPP standards, or other standards, and configured to receive and transmit data via one or more external ports 682. For example, the communication module 680 can receive loss event data from various sources via the network 614. For further example, the computing device 620 can transmit pre-filled insurance forms to customers via the communication module 680 and the network(s) 614. The computing device 620 may further include a user interface 684 configured to present information to a user and/or receive inputs from the user. As shown in FIG. 6, the user interface 684 includes a display screen 686 and I/O components 688 (e.g., ports, capacitive or resistive touch sensitive input panels, keys, buttons, lights, LEDs, speakers, microphones, and others). According to embodiments, the user may access the computing device 620 via the user interface 684 to process insurance policies and/or perform other functions. In some embodiments, the computing device 620 can perform the functionalities as discussed herein as part of a “cloud” network or can
otherwise communicate with other hardware or software components within the cloud to send, retrieve, or otherwise analyze data.

In general, a computer program product in accordance with an embodiment includes a computer usable storage medium (e.g., standard random access memory (RAM), an optical disc, a universal serial bus (USB) drive, or the like) having computer-readable program code embodied therein, wherein the computer-readable program code is adapted to be executed by the processor 672 (e.g., working in connection with the operating system 676) to facilitate the functions as described herein. In this regard, the program code may be implemented in any desired language, and may be implemented as machine code, assembly code, byte code, interpretable source code or the like (e.g., via C, C++, Java, Actionscript, Objective-C, Javascript, CSS, XML, and/or others). In some embodiments, the computer program product may be part of a cloud network of resources.

Throughout this specification, plural instances may implement components, operations, or structures described as a single instance. Although individual operations of one or more methods are illustrated and described as separate operations, one or more of the individual operations may be performed concurrently, and nothing requires that the operations be performed in the order illustrated. Structures and functionality presented as separate components in example configurations may be implemented as a combined structure or component. Similarly, structures and functionality presented as a single component may be implemented as separate components. These and other variations, modifications, additions, and improvements fall within the scope of the subject matter herein.

Additionally, certain embodiments are described herein as including logic or a number of routines, subroutines, applications, or instructions. These may constitute either software (e.g., code embodied on a non-transitory, machine-readable medium) or hardware. In hardware, the routines, etc., are tangible units capable of performing certain operations and may be configured or arranged in a certain manner. In example embodiments, one or more computer systems (e.g., a standalone, client or server computer system) or one or more hardware modules of a computer system (e.g., a processor or a group of processors) may be configured by software (e.g., an application or application portion) as a hardware module that operates to perform certain operations as described herein.

In various embodiments, a hardware module may be implemented mechanically or electronically. For example, a hardware module may comprise dedicated circuitry or logic that is permanently configured (e.g., as a special-purpose processor, such as a field programmable gate array (FPGA) or an application-specific integrated circuit (ASIC)) to perform certain operations. A hardware module may also comprise reprogrammable logic or circuitry (e.g., as encompassed within a general-purpose processor or other reprogrammable processor) that is temporarily configured by software to perform certain operations. It will be appreciated that the decision to implement a hardware module mechanically, in dedicated and permanently configured circuitry, or in temporarily configured circuitry (e.g., configured by software) may be driven by cost and time considerations.

Accordingly, the term "hardware module" should be understood to encompass a tangible entity, be that an entity that is physically constructed, permanently configured (e.g., hardwired), or temporarily configured (e.g., programmed) to operate in a certain manner or to perform certain operations described herein. Considering embodiments in which hardware modules are temporarily configured (e.g., programmed), each of the hardware modules need not be configured or instantiated at any one instance in time. For example, where the hardware modules comprise a general-purpose processor configured using software, the general-purpose processor may be configured as respective different hardware modules at different times. Software may accordingly configure a processor, for example, to constitute a particular hardware module at one instance of time and to constitute a different hardware module at a different instance of time.

Hardware modules can provide information to, and receive information from, other hardware modules. Accordingly, the described hardware modules may be regarded as being communicatively coupled. Where multiple of such hardware modules exist contemporaneously, communications may be achieved through signal transmission (e.g., over appropriate circuits and buses) that connect the hardware modules. In embodiments in which multiple hardware modules are configured or instantiated at different times, communications between such hardware modules may be achieved, for example, through the storage and retrieval of information in memory structures to which the multiple hardware modules have access. For example, one hardware module may perform an operation and store the output of that operation in a memory device to which it is communicatively coupled. A further hardware module may then, at a later time, access the memory device to retrieve and process the stored output. Hardware modules may also initiate communications with input or output devices, and can operate on a resource (e.g., a collection of information).

The various operations of example methods described herein may be performed, at least partially, by one or more processors that are temporarily configured (e.g., by software) or permanently configured to perform the relevant operations. Whether temporarily or permanently configured, such processors may constitute processor-implemented modules that operate to perform one or more operations or functions. The modules referred to herein may, in some example embodiments, comprise processor-implemented modules.

Similarly, the methods or routines described herein may be at least partially processor-implemented. For example, at least some of the operations of a method may be performed by one or more processors or processor-implemented hardware modules. The performance of certain of the operations may be distributed among the one or more processors, not only residing within a single machine, but deployed across a number of machines. In some example embodiments, the processor or processors may be located in a single location (e.g., within a home environment, an office environment or as a server farm), while in other embodiments the processors may be distributed across a number of locations.

The performance of certain of the operations may be distributed among the one or more processors, not only residing within a single machine, but deployed across a number of machines. In some example embodiments, the one or more processors or processor-implemented modules may be located in a single geographic location (e.g., within a home environment, an office environment, or a server farm). In other example embodiments, the one or more processors or
processor-implemented modules may be distributed across a number of geographic locations.

[0066] Unless specifically stated otherwise, discussions herein using words such as “processing,” “computing,” “calculating,” “determining,” “presenting,” “displaying,” or the like may refer to actions or processes of a machine (e.g., a computer) that manipulates or transforms data represented as physical (e.g., electronic, magnetic, or optical) quantities within one or more memories (e.g., volatile memory, non-volatile memory, or a combination thereof), registers, or other machine components that receive, store, transmit, or display information.

[0067] As used herein any reference to “one embodiment” or “an embodiment” means that a particular element, feature, structure, or characteristic described in connection with the embodiment is included in at least one embodiment. The appearances of the phrase “in one embodiment” in various places in the specification are not necessarily all referring to the same embodiment.

[0068] Some embodiments may be described using the expression “coupled” and “connected” along with their derivatives. For example, some embodiments may be described using the term “coupled” to indicate that two or more elements are in direct physical or electrical contact. The term “coupled,” however, may also mean that two or more elements are not in direct contact with each other, but yet still co-operate or interact with each other. The embodiments are not limited in this context.

[0069] As used herein, the terms “comprises,” “comprising,” “includes,” “including,” “has,” “having” or any other variation thereof, are intended to cover a non-exclusive inclusion. For example, a process, method, article, or apparatus that comprises a list of elements is not necessarily limited to only those elements but may include other elements not expressly listed or inherent to such process, method, article, or apparatus. Further, unless expressly stated to the contrary, “or” refers to an inclusive or and not to an exclusive or. For example, a condition A or B is satisfied by any one of the following: A is true (or present) and B is false (or not present), A is false (or not present) and B is true (or present), and both A and B are true (or present).

[0070] In addition, use of the “a” or “an” are employed to describe elements and components of the embodiments herein. This is done merely for convenience and to give a general sense of the description. This description, and the claims that follow, should be read to include one or at least one and the singular also includes the plural unless it is obvious that it is meant otherwise.

[0071] This detailed description is to be construed as examples and does not describe every possible embodiment, as describing every possible embodiment would be impractical, if not impossible. One could implement numerous alternate embodiments, using either current technology or technology developed after the filing date of this application.

What is claimed:

1. A computer-implemented method of initiating insurance processing associated with a loss event, the insurance processing being associated with an insurance policy for a property, the method comprising:
   - receiving loss event data related to the loss event;
   - reconciling, by a processor, the loss event data with customer data to identify a customer potentially affected by the loss event, the customer having the insurance policy for the property;
   - generating, by the processor for the insurance policy of the customer, a pre-filled form for the loss event based on at least a portion of the loss event data;
   - sending the pre-filled form to the customer;
   - receiving, from the customer, a submission request for an insurance claim based on the pre-filled form; and
   - responsive to receiving the submission request, processing, by the processor, the insurance claim to facilitate eventual payment to the customer having the insurance policy.

2. The method of claim 1, wherein receiving the loss event data related to the loss event comprises at least one of 1) receiving sensor data from the property, 2) receiving user-submitted data from a computing device, and 3) receiving third-party data from a third-party server.

3. The method of claim 2, wherein the third-party data is selected from the group consisting of news data, weather data, government data, social network data, data from public databases, and data from private databases.

4. The method of claim 1, wherein receiving the loss event data related to the loss event comprises:
   - receiving the loss event data; and
   - performing a complex event processing (CEP) on the loss event data to identify the loss event.

5. The method of claim 1, wherein reconciling the loss event data with the customer data comprises:
   - detecting an access to a claims system by the customer;
   - identifying, from the access to the claims system, at least a portion of the customer data associated with the customer;
   - and reconciling the loss event data with at least the portion of the customer data to determine that the customer is potentially affected by the loss event.

6. The method of claim 1, further comprising:
   - detecting an access to a claims system by an additional customer;
   - identifying, from the access to the claims system, additional customer data associated with the additional customer;
   - reconciling the loss event data with the additional customer data to determine that the additional customer is also potentially affected by the loss event; and
   - generating, for the additional customer, an additional pre-filled form for the loss event.

7. The method of claim 1, wherein reconciling the loss event data with the customer data comprises:
   - examining the loss event data to identify a location associated with the loss event; and
   - examining the customer data to determine that 1) the property is within the location, and 2) the insurance policy for the property covers the loss event.

8. The method of claim 1, wherein reconciling the loss event data with the customer data comprises:
   - searching, with the processor, an index based on the loss event data to identify the customer and retrieve the customer data; and
   - examining the customer data to determine that the insurance policy covers the loss event.

9. The method of claim 1, wherein generating the pre-filled form for the loss event comprises:
   - receiving a first notice of loss (FNOL) event;
   - comparing information associated with the FNOL event to the loss event data; and
   - generating the pre-filled form based on the comparison.
10. The method of claim 9, further comprising:
based on the information associated with the first notice of loss (FNOL) event, identifying an additional customer also potentially affected by the loss event; and
generating, for the additional customer, an additional pre-filled form for the loss event.

11. A system for initiating insurance processing associated with a loss event, comprising:
a communication module adapted to receive loss event data related to the loss event;
a memory adapted to store data related to a plurality of insurance policies for a plurality of properties; and
a processor adapted to interface with the communication module and the memory, wherein the processor is configured to execute non-transitory computer executable instructions stored in the memory to cause the processor to:
reconcile the loss event data with customer data to identify a customer potentially affected by the loss event, the customer having an insurance policy of the plurality of insurance policies for a property of the plurality of properties,
generate, for the insurance policy of the customer, a pre-filled form for the loss event based on at least a portion of the loss event data,
send, using the communication module, the pre-filled form to the customer,
receive, from the customer via the communication module, a submission request for an insurance claim based on the pre-filled form, and
process the insurance claim in response to receiving the submission request to facilitate eventual payment to the customer having the insurance policy.

12. The system of claim 11, wherein the loss event data related to the loss event includes at least one of 1) sensor data from the property, 2) user-submitted data from a computing device, and 3) third-party data from a third-party server.

13. The system of claim 12, wherein the third-party data is selected from the group consisting of news data, weather data, government data, social network data, data from public databases, and data from private databases.

14. The system of claim 11, wherein the processor is configured to execute the computer executable instructions stored in the memory to further cause the processor to perform a complex event processing (CEP) on the loss event data to identify the loss event.

15. The system of claim 11, further comprising a claim processing interface accessible by the customer, wherein the processor reconciles the loss event data with the customer data to cause the processor to:
detect an access to the claim processing interface by the customer,
identify, from the access to the claim processing interface, at least a portion of the customer data associated with the customer, and
reconcile the loss event data with at least the portion of the customer data to determine that the customer is potentially affected by the loss event.

16. The system of claim 11, further comprising a claim processing interface accessible by the customer, wherein the processor is configured to execute the computer executable instructions stored in the memory to further cause the processor to:
detect an access to the claim processing interface by an additional customer,
identify, from the access to the claims system, additional customer data associated with the additional customer, reconcile the loss event data with the additional customer data to determine that the additional customer is also potentially affected by the loss event, and
generate, for the additional customer, an additional pre-filled form for the loss event.

17. The system of claim 11, wherein the processor reconciles the loss event data with the customer data to cause the processor to:
examine the loss event data to identify a location associated with the loss event, and
examine the customer data to determine that 1) the property is within the location, and 2) the insurance policy for the property covers the loss event.

18. The system of claim 11, wherein the memory includes an index adapted to store the customer data, and wherein the processor reconciles the loss event data with the customer data to cause the processor to:
search the index based on the location data to identify the customer and retrieve the customer data, and
examine the customer data to determine that the insurance policy covers the loss event.

19. The system of claim 11, wherein the communication module is further adapted to receive a first notice of loss (FNOL) event, and wherein the processor generates the pre-filled form for the loss event to cause the processor to:
compare information associated with the FNOL event to the loss event data, and
generate the pre-filled form based on the comparison.

20. The system of claim 19, wherein the processor is configured to execute the computer executable instructions stored in the memory to further cause the processor to:
based on the information associated with the first notice of loss (FNOL) event, identify an additional customer also potentially affected by the loss event, and
generate, for the additional customer, an additional pre-filled form for the loss event.