## CLAIMS

1. A system, comprising:

a plurality of computing devices configured to implement a rule-based action triggering system and a provider network comprising a plurality of resources, wherein the rule-based action triggering system is configured to:

define a plurality of rules based at least in part on a plurality of triggers and a plurality of actions on different resources in the provider network, wherein each of the plurality of rules comprises a respective one or more of the triggers and a respective one or more of the actions;

monitor, via the provider network, operations of the plurality of resources;

receive, via the rule-based action triggering system, a request to fire a particular one of the triggers generated based at least in part on one or more conditions for firing the particular one of the triggers are determined based at least in part on the monitoring;

determine a particular one or more of the rules that comprise the particular one of the triggers;

generate one or more messages describing a particular one or more of the actions in the particular one or more of the rules that comprise the particular one of the triggers;

send the one or more messages to a messaging service; and

deliver the one or more messages from the messaging service to one or more action handlers, wherein the one or more action handlers are configured to perform the particular one or more of the actions described in the one or more messages on different resources in the provider network.

2. The system as recited in claim 1, wherein the rule-based action triggering system is further configured to:

determine an additional one of the rules that comprises the particular one of the triggers, wherein the additional one of the rules comprises a queue exchange; and

send a queue message to a queue service based at least in part on the queue exchange in the additional one of the rules.

3. The system as recited in claim 1, wherein the rule-based action triggering system is further configured to:

receive a request to fire an additional one of the triggers, wherein the additional one of the triggers is scheduled for a particular time;

generate one or more additional messages describing an additional one or more of the actions in an additional one or more of the rules that comprise the additional one of the triggers;

send the one or more additional messages to the messaging service; and

deliver the one or more additional messages from the messaging service to the one or more action handlers, wherein the one or more action handlers are configured to perform the additional one or more of the actions described in the one or more additional messages.

4. The system as recited in claim 1, wherein, in response to the particular one or more of the actions described in the one or more messages, the rule-based action triggering system is further configured to:

receive a request to fire an additional one or more of the triggers;

determine an additional one or more of the rules that comprise the additional one or more of the triggers;

generate one or more additional messages describing an additional one or more of the actions in the additional one or more of the rules that comprise the additional one or more of the triggers;

send the one or more additional messages to the messaging service; and

deliver the one or more additional messages from the messaging service to the one or more action handlers, wherein the one or more action handlers are configured to perform the additional one or more actions described in the one or more additional messages.

5. A computer-implemented method, comprising:

monitoring, via a provider network, operations of a plurality of resources in the provider network;

receiving a request to fire one or more of the triggers, wherein one or more conditions for the one or more triggers are determined based at least in part on the monitoring;

determining one or more rules that comprise the one or more of the triggers;

determining one or more actions to perform on different resources in the provider network from the one or more rules that comprise the one or more triggers; and

performing the one or more actions, comprising modifying the different resources in the provider network.

6. The method as recited in claim 5, further comprising:

generating one or more messages describing the one or more actions;

sending the one or more messages to a messaging service; and

delivering the one or more messages from the messaging service to one or more action handlers.

7. The method as recited in claim 6, wherein the messaging service comprises a queue service, wherein the one or more messages are placed in one or more queues managed by the queue service, and wherein the one or more messages are removed from the one or more queues by a job dispatcher.

8. The method as recited in claim 5, further comprising:

determining an additional rule that comprises at least one of the one or more triggers, wherein the additional rule comprises a queue exchange; and

sending a queue message to a queue service based at least in part on the queue exchange in the additional rule.

9. The method as recited in claim 5, further comprising:

scheduling an additional trigger for a particular time;

in response to the arrival of the particular time, determining one or more additional actions in one or more additional rules that comprise the additional trigger; and

performing the one or more additional actions.

10. The method as recited in claim 5, wherein, in response to performing the one or more actions, the method further comprises:

firing one or more additional triggers;

determining one or more additional rules that comprise the one or more additional triggers;

determining one or more additional actions in the one or more additional rules that comprise the one or more additional triggers; and

performing the one or more additional actions.

11. The method as recited in claim 5, wherein the monitoring of the plurality of resources in the provider network comprises monitoring one or more service logs, monitoring one or more service metrics, monitoring one or more data streams, monitoring one or more alarm state changes, or a combination thereof, generated by the plurality of resources.

12. The method as recited in claim 5, further comprising:

receiving user input defining a plurality of rules based at least in part on a plurality of triggers and a plurality of actions, wherein each of the plurality of rules comprises

a respective one or more of the triggers and a respective one or more of the actions.

13. A non-transitory computer-readable storage medium storing program instructions computer-executable to perform:

defining a plurality of rules based at least in part on a plurality of triggers and a plurality of actions, wherein each of the plurality of rules comprises a respective one or more of the triggers and a respective one or more of the actions on different resources in a provider network comprising a plurality of resources;

receiving a request to fire a particular one or more of the triggers, wherein one or more conditions for firing the particular one or more of the triggers are determined based at least in part on a monitoring by a provider network of a plurality of resources in the provider network;

determining a particular one or more of the rules that comprise the particular one or more of the triggers; and

sending one or more messages describing a particular one or more of the actions in the particular one or more of the rules that comprise the particular one or more of the triggers, wherein one or more action handlers are configured to receive the one or more messages and perform the particular one or more of the actions described in the one or more messages on different resources in a provider network comprising a plurality of resources.

14. The non-transitory computer-readable storage medium as recited in claim 13, wherein, in sending the one or more messages, the program instructions are further computer-executable to perform:

sending the one or more messages to a messaging service; and

delivering the one or more messages from the messaging service to the one or more action handlers.

15. The non-transitory computer-readable storage medium as recited in claim 13, wherein at least one of the rules binds one of the triggers to a plurality of the actions.

16. The non-transitory computer-readable storage medium as recited in claim 13, wherein the program instructions are further computer-executable to perform:

determining an additional one of the rules that comprises the particular one or more of the triggers, wherein the additional one of the rules comprises a queue exchange; and

sending a queue message to a queue service based at least in part on the queue exchange in the additional one of the rules.

17. The non-transitory computer-readable storage medium as recited in claim 13, wherein the program instructions are further computer-executable to perform:

scheduling an additional one of the triggers for a particular time; and

sending one or more additional messages describing an additional one or more of the actions in an additional one or more of the rules that comprise the additional one of the triggers, wherein the one or more action handlers are configured to receive the one or more additional messages and perform the additional one or more of the actions described in the one or more additional messages.

18. The non-transitory computer-readable storage medium as recited in claim 13, wherein, in response to performing the particular one or more of the actions described in the one or more messages, the program instructions are further computer-executable to perform:

firing an additional one or more of the triggers;

determining an additional one or more of the rules that comprise the additional one or more of the triggers;

sending one or more additional messages describing an additional one or more of the actions in the additional one or more of the rules that comprise the additional one or more of the triggers, wherein the one or more action handlers are configured to

receive the one or more additional messages and perform the additional one or more of the actions described in the one or more additional messages.

19. The non-transitory computer-readable storage medium as recited in claim 13, wherein the monitoring comprises monitoring one or more service logs, monitoring one or more service metrics, monitoring one or more data streams, monitoring one or more alarm state changes, or a combination thereof.

20. The non-transitory computer-readable storage medium as recited in claim 13, wherein, in defining the plurality of rules, the program instructions are further computer-executable to perform:

receiving user input defining the plurality of rules, wherein the user input comprises a selection of one or more predefined actions, one or more custom actions, or one or more predefined actions and one or more custom actions.

21. A system, comprising:

a plurality of computing devices configured to implement a plurality of sub-services and a routing handler, and wherein the routing handler is configured to:

receive, from a client, a request that specifies a particular operation at a particular one of the plurality of sub-services, wherein the plurality of sub-services comprise a rules sub-service and an actions sub-service, wherein the rules sub-service comprises one or more operations for defining a plurality of rules using a plurality of triggers and a plurality of actions, wherein individual ones of the rules are defined to bind a respective one or more of the triggers to a respective one or more of the actions, and wherein the actions sub-service comprises one or more operations for performing the actions on different resources in a provider network comprising a plurality of resources;

determine the particular operation in the request;

determine the particular one of the sub-services based at least in part on the particular operation, wherein the particular one of the sub-services is determined using a routing map, wherein the routing map maps operations to the plurality of sub-services and is dynamically loaded from a data store to the routing handler;

route the request to the particular one of the sub-services;

receive a response to the request from the particular one of the sub-services; and

return the response to the client.

22. A computer-implemented method, comprising:

receiving, at a routing handler from a client, a request that specifies a particular operation at a particular one of a plurality of sub-services, wherein the plurality of sub-services comprise one or more operations for defining a plurality of rules, wherein individual ones of the rules are defined to bind a respective one or more of a plurality of triggers to a respective one or more of a plurality of actions, and wherein the plurality of sub-services comprise one or more operations for performing the plurality of actions on different resources in a provider network comprising a plurality of resources;

determining, at the routing handler, the particular operation in the request;

determining, at the routing handler, the particular one of the sub-services based at least in part on the particular operation, wherein the particular one of the sub-services is determined using a routing map that maps operations to the plurality of sub-services and is shared by the routing handler and one or more additional routing handlers; and

routing the request to the particular one of the sub-services.

23. A non-transitory computer-readable storage medium storing program instructions computer-executable to perform:

receiving, at a routing handler from a client, a request that specifies a particular operation at a particular one of a plurality of sub-services, wherein the plurality of sub-services comprise one or more operations for defining a plurality of rules, wherein individual ones of the rules are defined to bind a respective one or more of a plurality of triggers to a respective one or more of a plurality of actions, and wherein the plurality of sub-services comprise one or more operations for performing the plurality of actions on different resources in a provider network comprising a plurality of resources;

determining, at the routing handler, the particular operation in the request;

determining, at the routing handler, the particular one of the sub-services based at least in part on the particular operation, wherein the particular one of the sub-services is determined using a routing map that maps operations to the plurality of sub-services, wherein the routing map is loaded from a data store and shared by the routing handler and one or more additional routing handlers; and

routing the request to the particular one of the sub-services.