CLAIMS

1. A network device, comprising:

a transceiver to send and receive data over a network; and

one or more processors that are operative to perform actions including:

tracking actions of a plurality of customers of a telecommunications service provider in using functionality provided by the telecommunications service provider;

analyzing the tracked actions and predicting, based on the analyzing, multiple customers that are a subset of the plurality of customers and are expected to alter their future actions in response to a message to perform modifications to operations of accounts of the multiple customers with the telecommunications service provider;

selecting the predicted multiple customers to include in a target group to receive the message to perform the modifications;

sending, over the network to client devices of the predicted multiple customers, electronic communications that include the message to perform the modifications;

tracking, over a period of time after sending the electronic communications, responses of the predicted multiple customers to the message based at least in part on further actions that are taken by at least some of the predicted multiple customers over the period of time to perform the modifications; and

updating, based on the tracked responses, stored information about the predicted multiple customers, to adjust future predictions that the predicted multiple customers will alter further future actions based on one or more future messages.

2. The network device of claim 1 wherein the predicting of the multiple customers includes rank ordering each of the plurality of customers based on a determined expected response of the customer to the message, and using the rank ordering to identify the subset of the plurality of customers.

3. The network device of claim 1 wherein the selecting of the predicted multiple customers includes determining that the predicted multiple customers are eligible to receive the message based at least in part on attributes of the predicted multiple customers and on constraints associated with the message.

4. The network device of claim 1 wherein the predicting of the multiple customers includes assigning at least one customer to a control group that does not receive the message.

5. The network device of claim 4 wherein the predicting of the multiple customers further includes determining to assign at least one customer to the control group or to the target group based on whether the at least one customer previously received a different message related to the message.

6. The network device of claim 1 wherein tracking of the responses to the message includes receiving replies to the sent message from some or all of the predicted multiple customers, and wherein the updating of the stored information about the predicted multiple customers includes adaptively refining a ranking model used for multiple other messages based in part on the received replies, and selecting at least one of the multiple other messages to provide to at least one of the predicted multiple customers based in part on the refined ranking model.

7. The network device of claim 1 wherein the period of time is at least greater than one week, and wherein the tracking of the responses is based on a defined

metric that includes a delay during the period of time between the sending of the messages and the further actions.

8. The network device of claim 1 wherein the selecting of the predicted multiple customers is performed for each of multiple distinct messages that have distinct target groups and further includes selecting one or more additional customers to be part of at least one control group, and wherein selecting of customers for the target groups and the at least one control group is performed to satisfy one or more defined criteria that include at least one of a frequency of assignments to a group or a total number of customers for a group.

9. A non-transitory computer-readable storage device having computer-executable instructions stored thereon that, in response to execution by a processor unit, cause the processor unit to perform operations including:

tracking, by the processor unit, actions of a plurality of customers having accounts with a telecommunications service provider;

analyzing, by the processor unit, the tracked actions to predict, for each of multiple distinct messages related to accounts of the plurality of customers, multiple customers that are a subset of the plurality of customers and are expected to alter their future actions based on the message, and selecting the predicted multiple customers for a target group to receive the message; and

managing, by the processor unit, the multiple distinct messages, including performing, for each of the multiple distinct messages:

sending one or more communications that include the message over one or more networks to client devices of the predicted multiple customers in the target group for the message;

tracking responses of the predicted multiple customers for the target group for the message based at least in part on further actions that are taken by at least some of those predicted multiple customers over a period of time related to the accounts of the at least some customers; and

updating, based on the tracked responses, stored information about the predicted multiple customers in the target group for the message, to adjust future predictions that customers will alter further future actions based on one or more future messages.

10. The non-transitory computer-readable storage device of claim 9 wherein, for one of the multiple distinct messages, predicting of the multiple customers includes rank ordering each of the plurality of customers based on a determined expected response of the customer to the one message.

11. The non-transitory computer-readable storage device of claim 9 wherein, for one of the multiple distinct messages, the selecting of the predicted multiple customers for the target group to receive the one message includes determining that those predicted multiple customers are eligible to receive the one message based at least in part on attributes of those predicted multiple customers and on rules associated with the one message.

12. The non-transitory computer-readable storage device of claim 9 wherein the analyzing of the tracked actions further includes selecting at least one customer for a control group that is sharable across two or more of the multiple distinct messages.

13. The non-transitory computer-readable storage device of claim 9 wherein the analyzing of the tracked actions includes selecting at least one customer for the target group for one of the multiple distinct messages based at least in part on the at least one customer being previously assigned to a target group for a different message that is related to the one message.

14. The non-transitory computer-readable storage device of claim 9 wherein tracking of responses for the multiple distinct messages includes receiving replies

to sent messages, and wherein the updating of the stored information includes adaptively refining a ranking model used for predicting of the multiple customers for one or more of the multiple distinct messages, and selecting at least one customer to receive at least one additional message based in part on the refined ranking model.

15. The non-transitory computer-readable storage device of claim 9 wherein the processing unit is one of a plurality of processing units that are arranged to execute as asynchronous and independent processes and that are coordinated through an interchange of data at defined points.

16. The non-transitory computer-readable storage device of claim 9 wherein the selecting of the predicted multiple customers for one of the multiple distinct messages is performed to satisfy one or more defined criteria that include at least one of a frequency of assignments to a target group, or a total number of customers for a target group.

17. A system, comprising:

a non-transitory data storage device; and

a computer device that accesses and stores data on the data storage device and employs at least one processor to perform actions, including:

tracking actions of a plurality of customers of a service provider in using functionality provided by the service provider, wherein the plurality of customers have accounts with the service provider;

analyzing the tracked actions to predict multiple customers that are a subset of the plurality of customers and are expected to alter their future actions based on a message to perform modifications to the accounts of the multiple customers with the service provider, and selecting the predicted multiple customers to include in a target group to receive the message;

sending, to client devices of the predicted multiple customers over one or computer networks, the message to perform the modifications;

tracking, over a period of time after sending the message, responses of the predicted multiple customers to the message based at least in part on further actions that are taken by at least some of the predicted multiple customers over the period of time to perform the modifications; and

updating, based on the tracked responses, stored information about the predicted multiple customers, to adjust future predictions that the predicted multiple customers will alter further future actions based on one or more future messages.

18. The system of claim 17 wherein predicting of the multiple customers includes rank ordering each of the plurality of customers based on a determined expected response of the customer to the message, and wherein the rank ordering includes using a ranking model that includes one of a tree, a logistic a regression model, a neural network, a support vector regression, a Gaussian process regression, or a Generalized Bayesian model.

19. The system of claim 17 wherein the selecting of the predicted multiple customers includes determining that the predicted multiple customers are eligible to receive the message based at least in part on attributes of the predicted multiple customers and on constraints associated with the message.

20. The system of claim 17 wherein the selecting of the predicted multiple customers includes assigning at least one customer to a control group that does not receive the message.

21. The system of claim 17 wherein the selecting of the predicted multiple customers further includes determining to assign at least one customer to a

control group or to the target group based on whether the at least one customer previously received a different message related to the message.

22. The system of claim 17 wherein the tracking of the responses is based on a defined metric that includes a delay during the period of time between the sending of the message and the further actions.