CLAIMS

1. A self-adapting system for matching user requirements, characteristics and service actualization in real time by employing parameters of characteristics of one of a plurality of users and characteristics of other ones of the plurality of users to enable real time variability of the users' characteristics to decrease error rate of actualization of the service slots, maximize utilization of the service slots by the plurality of users, maximize utilization of time of the plurality of users, and minimize wait time of the plurality of users, the system comprising:

an estimator for generating an estimate of real time arrival characteristics for each of the plurality of users in response to preferred ones of the service slots preferred by corresponding ones of the plurality of users, time achievable ones of the service slots achievable by corresponding ones of the plurality of users, and static and dynamic characteristics of the plurality of users;

a recommender engine coupled to the estimator for generating time realizable service slots for ones of the plurality of users in response to the estimate of arrival characteristics for the plurality of users;

a server queue for maintaining one or more queues of the service slots assigned to one or more of the plurality of users;

a dynamic scheduler and placeholder mechanism coupled to the recommender engine, the estimator and the server queue for placeholding one or more of the time realizable service slots within the queue of service slots in response to information associated with ones of the queue of service slots corresponding to the time realizable service slots, wherein the information associated with each of the queue of service slots includes information indicating whether it is an assigned services slot and for which of the plurality of users it is an assigned service slot; and

~~an intervention and adaptation engine coupled to the server queue and the estimator to push information to one or more of the plurality of users indicating one or more of probability of arrival of one of the plurality of users within an assigned service slot associated with that one of the plurality of users, probability of wait time associated with assigned service slots, and available service slots, the pushed information generated in response to the real time arrival characteristics for the plurality of users, the information associated with the queue of service slots, and time information.~~

~~2. The system in accordance with Claim 1 further comprising an aggregation and rules engine coupled to the estimator and generating the static and dynamic characteristics of the plurality of users in response to user information of one or more of the plurality of users.~~

~~3. The system in accordance with Claim 2 wherein the user information comprises context aware information including one or more of location information, calendar information, social network information, task information, and electronic mail information.~~

~~4. The system in accordance with any of the preceding claims wherein the dynamic scheduler and placeholder mechanism further placeholds one or more of the time realizable service slots within the queue of service slots in response to a probability of actualization of assigned service slots, estimated arrival times for each of the plurality of users, and variability thresholds between assigned service slots and estimated arrival times for one or more of the plurality of users.~~

~~5. The system in accordance with any of the preceding claims wherein the dynamic scheduler and placeholder mechanism further placeholds one or more of the time realizable service slots within the queue of service slots in response to a user preferred service slot data from one or more of the plurality of users.~~

~~6. The system in accordance with any of the preceding claims wherein the server queue assigns one or more of the queue of the service slots in response to input data from one or more of the plurality of users.~~

~~7. The system in accordance with Claim 6 wherein the input data comprises user intervention data from one or more of the plurality of users.~~

~~8. The system in accordance with any of the preceding claims further comprising a balancing module coupled to the server queue for real time supply and demand balancing by preserving one or more service slots in the queue of service slots when a demand threshold surpasses a predetermined threshold to mitigate prediction errors and reduce service slot error rate.~~

~~9. The system in accordance with any of the preceding claims wherein the server queue further generates dashboard data for generating a visual presentation of at least a portion of the queue of service slots.~~

~~10. The system in accordance with Claim 9 wherein the dashboard data comprises information for generating a consumer dashboard presentation including presentation of at least a portion of the queue of service slots.~~

~~11. The system in accordance with Claim 9 wherein the dashboard data comprises information for generating a provider dashboard presentation including presentation of at least a portion of the queue of service slots.~~

~~12. The system in accordance with any of the preceding claims wherein the estimator generates the estimate of real time arrival characteristics for each of the plurality of users further in response to embedded compensation criteria corresponding to the plurality of users, wherein the embedded compensation criteria comprises one or more criteria selected from the group including static and dynamic user characteristics of ones of the plurality of users assigned corresponding one of the service slots, time, weather, traffic, locations of the ones of the users assigned the corresponding one of the service slots, modes of transportation of the ones of the users assigned the corresponding one of the service slots, and locations of ones of the users having similar characteristics or similar service slots.~~

~~13. The system in accordance with any of the preceding claims wherein the estimator generates the estimate of real time arrival characteristics for each of the plurality of users further in response to inducing factors corresponding to the service slots, wherein the inducing factors comprise one or more actions related to actualizing the service slots, releasing assigned ones of the~~

service slots in a timely manner, utilization of the service slots, and reducing wait time of the plurality of users.

14. The system in accordance with any of the preceding claims wherein the estimator initially generates a master matrix without any historical data of the plurality of users and thereafter updates the master matrix in response to the static and dynamic characteristics of each of the plurality of users.

15. A self-adapting method for matching user requirements, characteristics and service actualization in real time by employing parameters of characteristics of one of a plurality of users and characteristics of other ones of the plurality of users to enable real time variability of the users' characteristics to decrease error rate of actualization of the service slots, maximize utilization of the service slots by the plurality of users, maximize utilization of time of the plurality of users, and minimize wait time of the plurality of users, the method comprising:

maintaining one or more queues of the service slots assigned to one or more of the plurality of users;

estimating real time arrival characteristics for each of the plurality of users in response to preferred ones of the service slots preferred by corresponding ones of the plurality of users, time achievable ones of the service slots achievable by corresponding ones of the plurality of users, and static and dynamic characteristics of the plurality of users;

generating time realizable service slots for ones of the plurality of users in response to the estimate of arrival characteristics for the plurality of users;

placeholding one or more of the time realizable service slots within the queue of service slots in response to information associated with ones of the queue of service slots corresponding to the time realizable service slots, wherein the information associated with each of the queue of service slots includes information indicating whether it is an assigned services slot and for which of the plurality of users it is an assigned service slot; and

providing information to one or more of the plurality of users indicating one or more of probability of arrival of one of the plurality of users within an assigned service slot associated with that one of the plurality of users, probability of wait time associated with assigned service slots, and available service slots, the pushed information generated in response to the real time arrival characteristics for the plurality of users, the information associated with the queue of service slots, and time information.

16. The method in accordance with Claim 15 further comprising generating the static and dynamic characteristics of the plurality of users in response to user information of one or more of the plurality of users.

17. The method in accordance with Claim 16 wherein the user information comprises context aware information including one or more of location information, calendar information, social network information, task information, and electronic mail information.

18. The method in accordance with any of Claims 15 to 17 wherein the placeholding step further comprises placeholding one or more of the time realizable service slots within the queue of

~~service slots in response to a probability of actualization of assigned service slots, estimated arrival times for each of the plurality of users, and variability thresholds between assigned service slots and estimated arrival times for one or more of the plurality of users.~~

~~19. The method in accordance with any of Claims 15 to 18 wherein the placeholding step further comprises placeholding one or more of the time realizable service slots within the queue of service slots in response to receiving a user preferred service slot data from one or more of the plurality of users.~~

~~20. The method in accordance with any of Claims 15 to 19 wherein the step of maintaining a queue of the service slots comprises assigning one or more of the queue of the service slots in response to receiving intervention data from one or more of the plurality of users.~~

~~21. The method in accordance with any of Claims 15 to 20 further comprising mitigating prediction errors and reducing service slot error rate by real time supply and demand balancing to preserve one or more service slots in the queue of service slots when a demand threshold surpasses a predetermined threshold.~~

~~22. The method in accordance with any of Claims 15 to 21 wherein the step of maintaining the queue of the service slots further comprises generating dashboard data for presenting a visual presentation of at least a portion of the queue of service slots.~~

~~23. The method in accordance with Claim 22 wherein the dashboard data comprises information for generating a consumer dashboard presentation including presentation of at least a portion of the queue of service slots.~~

~~24. The method in accordance with Claim 22 wherein the dashboard data comprises information for generating a provider dashboard presentation including presentation of at least a portion of the queue of service slots.~~

~~25. The method in accordance with any of Claims 15 to 24 wherein the estimating step further comprises estimating the real time arrival characteristics for each of the plurality of users in response to embedded compensation criteria corresponding to the plurality of users, wherein the embedded compensation criteria comprises one or more criteria selected from the group including static and dynamic user characteristics of ones of the plurality of users assigned corresponding one of the service slots, time, weather, traffic, locations of the ones of the users assigned the corresponding one of the service slots, modes of transportation of the ones of the users assigned the corresponding one of the service slots, and locations of ones of the users having similar characteristics or similar service slots.~~

~~26. The method in accordance with any of Claims 15 to 25 wherein the estimating step further comprises estimating the real time arrival characteristics for each of the plurality of users in response to inducing factors corresponding to the service slots, wherein the inducing factors~~

~~comprise one or more actions related to actualizing the service slots, releasing assigned ones of the service slots in a timely manner, utilization of the service slots, and reducing wait time of the plurality of users.~~

~~27. The method in accordance with any of Claims 15 to 26 further comprising:~~

~~initially generating a master matrix without any historical data of the plurality of users; and~~

~~thereafter updating the master matrix in response to the static and dynamic characteristics of each of the plurality of users.~~

CLAIMS

1. A system for matching user requirements, characteristics and service actualization in real time to decrease error rate of actualization of service slots, maximize utilization of the service slots by a plurality of users, maximize utilization of time of the plurality of users, and minimize wait time for the plurality of users, the system comprising:

an estimator, for determining static and dynamic characteristics within a demand and supply landscape of one of the plurality of users in response to one or more service slots and one or more queues of the one or more service slots and for determining static and dynamic characteristics of other ones of the plurality of users in response to the one or more service slots and the one or more queues of the one or more service slots; and

a placeholder mechanism for placeholding one or more service slots in response to ones of the plurality of users,

wherein the probability of actualization of the one or more of service slots corresponds to a likelihood of the one or more service slots being utilized by ones of the plurality of users,

wherein the placeholder mechanism placeholds the one or more service slots in response to one or more criteria selected from the group of (a) holding or changing or actualizing the one or more service slots corresponding to ones of the plurality of users in response to the probability of actualization of the static and dynamic characteristics determined by the estimator and (b) holding or changing or actualizing the one or more of the service slots corresponding to ones of the plurality of users in response to the probability of actualization determined in response to an input of the one of a plurality of users, and

wherein the one or more of service slots have at least one parameter in a plurality of parameters associated therewith indicating that it is a preferred one of the one or more service slots

and one or more queues of the one or more service slots corresponding to ones of the plurality of users and indicating that it is one or more service slots corresponding to the ones of the plurality of users.

2. The system in accordance with Claim 1 wherein the placeholder mechanism hold or changes the one or more service slots by holding at least one of the one or more service slots, releasing at least one of the one or more service slots, aborting at least one of the one or more service slots, swapping ones of the one or more service slots or actualizing at least one of the one or more of service slots in response to either the static and dynamic characteristics of the demand and supply landscape corresponding to ones of the plurality of users or variability criteria, wherein the variability criteria comprises limits to changes by the placeholder mechanism.

3. The system in accordance with Claim 1 wherein the static and dynamic characteristics of the demand and supply landscape for the plurality of users further comprises at least one parameter selected from (a) configured information of one of the plurality of users, (b) historical information of one of the plurality of users, (c) ones of the plurality of users having similar characteristics, (d) associations between ones of the plurality of users, and (e) real time characteristics,

wherein the static and dynamic characteristics of the demand and supply landscape comprises one or more criteria selected from the group of indications including an indication of a demand within a plurality of demands corresponding to a probability of actualization by the one of the plurality of users of the one or more service slots or the one or more queues of the one or more service slots and an indication of supply of the one or more service slots in the plurality of service slots corresponding to a probability of actualization by the one of the plurality of users of the one or more service slots or the one or more queues of the one or more service slots.

4. The system in accordance with Claim 3 wherein the real time characteristics for the plurality of users comprise one or more criteria selected from the group comprising user's characteristics related to one or more service slots, provider's characteristics related to one or more service slots, provider's agent characteristics related to one or more service slots, system user's characteristics related to one or more service slots, and characteristics in response to Inducing factors corresponding to one or more of the service slots,

wherein the user's characteristics related to one or more service slots include information on probability of actualization of the one or more service slots or one or more queues of the one or more service slots,

wherein the provider's characteristics related to one or more service slots include information on probability of wait time associated with the one or more of the service slots or one or more queues of the one or more service slots,

wherein the provider agent's characteristics related to one or more service slots include information on probability of actualization of the one or more of the service slots or one or more of queues of the one or more service slots,

wherein the system user's characteristics for one of the plurality of system users comprise one or more criteria selected from system user's characteristics including information on probability of actualization of other one or more of the service slots or other one or more queues of the service slots, and wherein the other one or more of the service slots comprise one or more of the service slots or other one or more queues of the service slots for which it is an assigned or placed slot or is a non-assigned or non-placed slot for the one of the plurality of system users it is an assigned or placed slot or is a non-assigned or non-placed slot, wherein the inducing factors comprise one or more actions related to actualizing the service slots and releasing assigned ones of the service slots, and

wherein the probability of wait time of one or more of service slots corresponds to likelihood of wait time of the one or more of the service slots.

5. The system in accordance with Claim 1 wherein the estimator generates the probability of actualization of one or more of the plurality of users of one or more of the service slots in response to criteria having at least one parameter corresponding to time, day, month, weather, traffic, locations, preference, need, state, cycle time of the one or more of the plurality of users of the one or more of the service slots, modes of transportation of the one or more of the plurality of users of the one or more of the service slots, locations of the one or more of the plurality of users of the one or more of the service slots, similar characteristics of one or more of the plurality of users of the one or more of the service slots, and interactions of one or more of the plurality of users of the one or more of the service slots,

wherein the interaction comprises at least one interaction selected from the group comprising a user input by one or more of the plurality of users of the one or more of the service slots, pushed information from one or more of the plurality of users of one or more of the service slots and pulled information from one or more of the plurality of users of one or more of the service slots.

6. The system in accordance with Claim 2 wherein the estimator and the placeholder mechanism generate the variability criteria for placeholding in response to real time characteristics of one or more of the plurality of users of one or more of the service slots,

wherein the variability criteria comprises one or more criteria selected from the group comprising a plurality of time periods corresponding to one or more service slots in response to time of placement of the one or more of the plurality of users and service time of the one or more service slots associated with enabling the placeholding, a plurality of time periods corresponding to one or more service slots in response to current time of interaction of the one or more of the plurality of users and

service time of the one or more service slots associated with enabling the placeholding, a plurality of time periods corresponding to one or more service slots in response to estimated time of arrival of the one or more of the plurality of users and service time of the one or more service slots associated with enabling the placeholding, characteristics of the demand and supply landscape in response to one or more service slots for placeholding, priority for placeholding of the one or more of the plurality of users in response to one or more service slots, weight of utilization of one or more service slots in response to one or more of the plurality of users placed in one or more service slots or one of the queues of one or more service slots, and weight of utilization of one or more service slots in response to one or more of the plurality of users not placed in one or more service slots or one of the queues of one or more service slots,

wherein the estimated time of arrival of the one or more of the plurality of users of the one or more service slots is determined in response to at least one of the parameters in the plurality of parameters corresponding to the estimate from the estimator, and from the input from the one or more of the plurality of users, and

wherein the weight of utilization of one or more of the service slots is determined in response to the one or more of the plurality of users associated with the probability of actualization of the one or more service slots by the one or more of the plurality of users.

7. The system in accordance with Claim 1 wherein the estimator generates embedded compensation in response to real time characteristics of the ones of the plurality of users corresponding to the one or more service slots, the embedded compensation criteria selected from the group comprising static and dynamic user characteristics of ones of the plurality of users corresponding to one or more of the service slots, static and dynamic user characteristics of other ones of the plurality of users corresponding to one or more of the service slots, and characteristics of the demand and supply

landscape in response to one or more service slots or one or more queues of the one or more service slots.

8. The system in accordance with Claim 2 further comprising an intervention and adaptation engine coupled to the estimator and providing interactions and information of ones of the plurality of users in response to the one or more service slots,

wherein the interactions and information of ones of the plurality of users comprise one or more criteria selected from the group comprising information pushed to one or more of the plurality of users indicating probability of actualization of the one or more of the plurality of users, information pulled from one or more of the plurality of users indicating probability of actualization of the one or more of the plurality of users, information pushed to one or more of the plurality of users indicating the variability criteria of the one or more of the plurality of users, interactions corresponding to the exchange of information in response to one or more service slots of the one or more of the plurality of users, probability of wait time of the one or more service slots, characteristics of demand and supply of the one or more service slots, available service slots, and time information of the one or more service slots.

9. The system in accordance with Claim 8 wherein the intervention and adaptation engine generates inducing factors corresponding to ones of the plurality of users in response to the one or more service slots, and wherein the inducing factors comprise one or more actions related to actualizing the one or more service slots and releasing the one or more service slots.

10. The system in accordance with Claim 1 wherein the estimator initially generates a master matrix without any historical data of the plurality of users and thereafter updates the master matrix in response to the static and dynamic characteristics of each of the plurality of users.

11. The system in accordance with Claim 1 further comprising a recommender engine coupled to the estimator for generating time realizable service slots for ones of the plurality of users in response to the probability of actualization for one or more of the service slots.

12. The system in accordance with Claim 3 wherein the placeholder mechanism placeholds one or more of the service slots within the queue of service slots in response to embedded compensation criteria corresponding to the plurality of users, wherein the embedded compensation criteria is selected from criteria including static and dynamic user characteristics of ones of the plurality of users corresponding one or more service slots, static and dynamic user characteristics of other ones of the plurality of users corresponding one or more service slots, and characteristics of the demand and supply landscape in response to one or more service slots or one or more queues of the one or more service slots.

13. A method for matching user requirements, characteristics and service actualization in real time to decrease error rate of actualization of service slots, maximize utilization of the service slots by a plurality of users, maximize utilization of time of the plurality of users, and minimize wait time for the plurality of users, the method comprising:

determining static and dynamic characteristics within a demand and supply landscape of one of the plurality of users in response to one or more service slots and one or more queues of the one or more service slots and for determining static and dynamic characteristics of other ones of the plurality

of users in response to the one or more service slots and the one or more queues of the one or more service slots; and

placeholding one or more service slots in response to ones of the plurality of users and in response to one or more criteria selected from the group of (a) holding or changing or actualizing the one or more service slots corresponding to ones of the plurality of users in response to the probability of actualization of the static and dynamic characteristics determined by the estimator and (b) holding or changing or actualizing the one or more of the service slots corresponding to ones of the plurality of users in response to the probability of actualization determined in response to an input of the one of a plurality of users,

wherein the probability of actualization of the one or more of service slots corresponds to a likelihood of the one or more service slots being utilized by ones of the plurality of users, and

wherein the one or more of service slots have at least one parameter in a plurality of parameters associated therewith indicating that it is a preferred one of the one or more service slots and one or more queues of the one or more service slots corresponding to ones of the plurality of users and indicating that it is one or more service slots corresponding to the ones of the plurality of users.

14. The method in accordance with Claim 13 wherein the criteria of holding or changing the one or more service slots includes holding or changing the one or more service slots by holding at least one of the one or more service slots, releasing at least one of the one or more service slots, aborting at least one of the one or more service slots, swapping ones of the one or more service slots or actualizing at least one of the one or more of service slots in response to either the static and dynamic characteristics of the demand and supply landscape corresponding to ones of the plurality of users or variability criteria, wherein the variability criteria comprises limits to changes by the placeholder mechanism.

15. The method in accordance with Claim 13 wherein determining the probability of actualization determined in response to an input of the one of a plurality of users comprises determining the probability of actualization of one or more of the plurality of users of one or more of the service slots in response to criteria having at least one parameter corresponding to time, day, month, weather, traffic, locations, preference, need, state, cycle time of the one or more of the plurality of users of the one or more of the service slots, modes of transportation of the one or more of the plurality of users of the one or more of the service slots, locations of the one or more of the plurality of users of the one or more of the service slots, similar characteristics of one or more of the plurality of users of the one or more of the service slots, and interactions of one or more of the plurality of users of the one or more of the service slots,

wherein the interaction comprises at least one interaction selected from the group comprising a user input by one or more of the plurality of users of the one or more of the service slots, pushed information from one or more of the plurality of users of one or more of the service slots and pulled information from one or more of the plurality of users of one or more of the service slots.

16. The method in accordance with Claim 13 wherein the static and dynamic characteristics of the demand and supply landscape for the plurality of users further comprises at least one parameter selected from (a) configured information of one of the plurality of users, (b) historical information of one of the plurality of users, (c) ones of the plurality of users having similar characteristics, (d) associations between ones of the plurality of users, and (e) real time characteristics,

wherein the static and dynamic characteristics of the demand and supply landscape comprise one or more criteria selected from the group of indications including an indication of a demand within a plurality of demands corresponding to a probability of actualization by the one of the plurality of users

of the one or more service slots or the one or more queues of the one or more service slots and an indication of supply of the one or more service slots in the plurality of service slots corresponding to a probability of actualization by the one of the plurality of users of the one or more service slots or the one or more queues of the one or more service slots,

wherein the real time characteristics for the plurality of users comprise one or more criteria selected from the group comprising user's characteristics related to one or more service slots, provider's characteristics related to one or more service slots, provider's agent characteristics related to one or more service slots, system user's characteristics related to one or more service slots, and characteristics in response to Inducing factors corresponding to one or more of the service slots,

wherein the user's characteristics related to one or more service slots include information on probability of actualization of the one or more service slots or one or more queues of the one or more service slots,

wherein the provider's characteristics related to one or more service slots include information on probability of wait time associated with the one or more of the service slots or one or more queues of the one or more service slots,

wherein the provider agent's characteristics related to one or more service slots include information on probability of actualization of the one or more of the service slots or one or more of queues of the one or more service slots,

wherein the system user's characteristics for one of the plurality of system users comprise one or more criteria selected from system user's characteristics including information on probability of actualization of other one or more of the service slots or other one or more queues of the service slots, and wherein the other one or more of the service slots comprise one or more of the service slots or other one or more queues of the service slots for which it is an assigned or placed slot or is a non-assigned or non-placed slot for the one of the plurality of system users it is an assigned or placed slot or

is a non-assigned or non-placed slot, wherein the inducing factors comprise one or more actions related to actualizing the service slots and releasing assigned ones of the service slots,

and

wherein the probability of wait time of one or more of service slots corresponds to likelihood of wait time of the one or more of the service slots.

17. The method in accordance with Claim 14 comprising generating the variability criteria for placeholding in response to real time characteristics of one or more of the plurality of users of one or more of the service slots,

wherein the variability criteria comprises one or more criteria selected from the group comprising a plurality of time periods corresponding to one or more service slots in response to time of placement of the one or more of the plurality of users and service time of the one or more service slots associated with enabling the placeholding, a plurality of time periods corresponding to one or more service slots in response to current time of interaction of the one or more of the plurality of users and service time of the one or more service slots associated with enabling the placeholding, a plurality of time periods corresponding to one or more service slots in response to estimated time of arrival of the one or more of the plurality of users and service time of the one or more service slots associated with enabling the placeholding, characteristics of the demand and supply landscape in response to one or more service slots for placeholding, priority for placeholding of the one or more of the plurality of users in response to one or more service slots, weight of utilization of one or more service slots in response to one or more of the plurality of users placed in one or more service slots or one of the queues of one or more service slots, and weight of utilization of one or more service slots in response to one or more of the plurality of users not placed in one or more service slots or one of the queues of one or more service slots,

wherein the estimated time of arrival of the one or more of the plurality of users of the one or more service slots is determined in response to at least one of the parameters in the plurality of parameters corresponding to the estimate from the estimator, and from the input from the one or more of the plurality of users, and

wherein the weight of utilization of one or more of the service slots is determined in response to the one or more of the plurality of users associated with the probability of actualization of the one or more service slots by the one or more of the plurality of users.

18. The method in accordance with Claim 13 further comprising generating embedded compensation in response to real time characteristics of the ones of the plurality of users corresponding to the one or more service slots, the embedded compensation criteria selected from the group comprising static and dynamic user characteristics of ones of the plurality of users corresponding to one or more of the service slots, static and dynamic user characteristics of other ones of the plurality of users corresponding to one or more of the service slots, and characteristics of the demand and supply landscape in response to one or more service slots or one or more queues of the one or more service slots.

19. The method in accordance with Claim 14 further comprising generating interactions and information of ones of the plurality of users in response to the one or more service slots,

wherein the interactions and information of ones of the plurality of users comprise one or more criteria selected from the group comprising information pushed to one or more of the plurality of users indicating probability of actualization of the one or more of the plurality of users, information pulled from one or more of the plurality of users indicating probability of actualization of the one or more of the plurality of users, information pushed to one or more of the plurality of users indicating the

variability criteria of the one or more of the plurality of users, interactions corresponding to the exchange of information in response to one or more service slots of the one or more of the plurality of users, probability of wait time of the one or more service slots, characteristics of demand and supply of the one or more service slots, available service slots, and time information of the one or more service slots.

20. The method in accordance with Claim 19 further comprising the steps of generating inducing factors corresponding to ones of the plurality of users in response to the one or more service slots, and wherein the inducing factors comprise one or more actions related to actualizing the one or more service slots and releasing the one or more service slots.

21. The method in accordance with Claim 13 comprising initially generating a master matrix without any historical data of the plurality of users, and

wherein the determination step thereafter updates the master matrix in response to the static and dynamic characteristics of each of the plurality of users.

22. The method in accordance with Claim 13 further comprising the steps of generating time realizable service slots for ones of the plurality of users in response to the probability of actualization for one or more of the service slots.

23. The method in accordance with Claim 16 wherein the placeholding one or more of the service slots within the queue of service slots comprises placeholding one or more of the service slots within the queue of service slots in response to embedded compensation criteria corresponding to the plurality of users, wherein the embedded compensation criteria is selected from criteria including static

and dynamic user characteristics of ones of the plurality of users corresponding one or more service slots, static and dynamic user characteristics of other ones of the plurality of users corresponding one or more service slots, and characteristics of the demand and supply landscape in response to one or more service slots or one or more queues of the one or more service slots.

24. A non-transitory computer readable storage medium configured to store instructions that, when executed, perform functions for matching user requirements, characteristics and service actualization in real time to decrease error rate of actualization of service slots, maximize utilization of the service slots by a plurality of users, maximize utilization of time of the plurality of users, and minimize wait time for the plurality of users comprising:

determining static and dynamic characteristics within a demand and supply landscape of one of the plurality of users in response to one or more service slots and one or more queues of the one or more service slots and for determining static and dynamic characteristics of other ones of the plurality of users in response to the one or more service slots and the one or more queues of the one or more service slots; and

placeholding one or more service slots in response to ones of the plurality of users and in response to one or more criteria selected from the group of (a) holding or changing or actualizing the one or more service slots corresponding to ones of the plurality of users in response to the probability of actualization of the static and dynamic characteristics determined by the estimator and (b) holding or changing or actualizing the one or more of the service slots corresponding to ones of the plurality of users in response to the probability of actualization determined in response to an input of the one of a plurality of users,

wherein the probability of actualization of the one or more of service slots corresponds to a likelihood of the one or more service slots being utilized by ones of the plurality of users, and

wherein the one or more of service slots have at least one parameter in a plurality of parameters associated therewith indicating that it is a preferred one of the one or more service slots and one or more queues of the one or more service slots corresponding to ones of the plurality of users and indicating that it is one or more service slots corresponding to the ones of the plurality of users.

[0007] In the food and beverage industry, provisions for information of dining places and availability are currently growing with the advent of location based advertisements. However, this may be limited to the existing location of the users, and consumers and providers are still subject to the challenges of wait time, no shows, and voids of underutilization if they take in booking. Again, imposing penalties to both the consumers and providers that warrant a delay to the intended time may take a toll in the satisfaction compounded by the vast competition in the landscape these days. This could result in loss of revenue from losing consumers when they switch providers.

[0008] As a result, there is a need for a novel approach that provides coalition in matching of the users' characteristics and requirements, and connects their availability to cater for the real time variability to the actualization of the event, to minimize loss time and maximize utilization and contextual flow for all actors in the system.

SUMMARY OF THE INVENTION

~~**[0009]** In accordance with one aspect of the present invention, a self-adapting system for matching user requirements, characteristics and service actualization in real time by employing parameters of characteristics of one of a plurality of users and characteristics of other ones of the plurality of users to enable real time variability of the users' characteristics to decrease error rate of actualization of the service slots, maximize utilization of the service slots by the plurality of users, maximize utilization of time of the plurality of users, and minimize wait time of the plurality of users is provided. The system includes an estimator, a recommender engine, a server queue, a dynamic scheduler and placeholder mechanism, and an intervention and adaptation engine. The estimator generates an estimate of real time arrival characteristics for each of the plurality of users in response to preferred ones of the service slots preferred by corresponding ones of the plurality of users, time achievable ones of the service slots achievable by corresponding ones of the plurality of users, and~~

~~static and dynamic characteristics of the plurality of users. The recommender engine is coupled to the estimator and generates time realizable service slots for ones of the plurality of users in response to the estimate of arrival characteristics for the plurality of users. The server queue maintains one or more queues of the service slots assigned to one or more of the plurality of users. The dynamic scheduler and placeholder mechanism is coupled to the recommender engine, the estimator and the server queue and placeholds one or more of the time realizable service slots within the queue of service slots in response to information associated with ones of the queue of service slots corresponding to the time realizable service slots, wherein the information associated with each of the queue of service slots includes information indicating whether it is an assigned services slot and for which of the plurality of users it is an assigned service slot. And the intervention and adaptation engine is coupled to the server queue and the estimator and pushes information to one or more of the plurality of users indicating one or more of probability of arrival of one of the plurality of users within an assigned service slot associated with that one of the plurality of users, probability of wait time associated with assigned service slots, and available service slots, the pushed information generated in response to the real time arrival characteristics for the plurality of users, the information associated with the queue of service slots, and time information.~~

In accordance with one aspect of the present invention, a system for matching user requirements, characteristics and service actualization in real time to decrease error rate of actualization of service slots, maximize utilization of the service slots by a plurality of users, maximize utilization of time of the plurality of users, and minimize wait time for the plurality of users. The system includes an estimator and a placeholder mechanism. The estimator determines static and dynamic characteristics within a demand and supply landscape of one of the plurality of users in response to one or more service slots and one or more queues of the one or more service slots and

for determining static and dynamic characteristics of other ones of the plurality of users in response to the one or more service slots and the one or more queues of the one or more service slots. The placeholder mechanism placeholds one or more service slots in response to ones of the plurality of users, wherein the probability of actualization of the one or more of service slots corresponds to a likelihood of the one or more service slots being utilized by ones of the plurality of users, wherein the placeholder mechanism placeholds the one or more service slots in response to one or more criteria selected from the group of (a) holding or changing or actualizing the one or more service slots corresponding to ones of the plurality of users in response to the probability of actualization of the static and dynamic characteristics determined by the estimator and (b) holding or changing or actualizing the one or more of the service slots corresponding to ones of the plurality of users in response to the probability of actualization determined in response to an input of the one of a plurality of users, and wherein the one or more of service slots have at least one parameter in a plurality of parameters associated therewith indicating that it is a preferred one of the one or more service slots and one or more queues of the one or more service slots corresponding to ones of the plurality of users and indicating that it is one or more service slots corresponding to the ones of the plurality of users.

~~**[00010]**In accordance with a further aspect, a self-adapting method is provided for matching user requirements, characteristics and service actualization in real time by employing parameters of characteristics of one of a plurality of users and characteristics of other ones of the plurality of users to enable real time variability of the users' characteristics to decrease error rate of actualization of the service slots, maximize utilization of the service slots by the plurality of users, maximize utilization of time of the plurality of users, and minimize wait time of the plurality of users. The~~

~~method includes maintaining one or more queues of the service slots assigned to one or more of the plurality of users and estimating real time arrival characteristics for each of the plurality of users in response to preferred ones of the service slots preferred by corresponding ones of the plurality of users, time achievable ones of the service slots achievable by corresponding ones of the plurality of users, and static and dynamic characteristics of the plurality of users. The method further includes generating time realizable service slots for ones of the plurality of users in response to the estimate of arrival characteristics for the plurality of users and placeholding one or more of the time realizable service slots within the queue of service slots in response to information associated with ones of the queue of service slots corresponding to the time realizable service slots, wherein the information associated with each of the queue of service slots includes information indicating whether it is an assigned services slot and for which of the plurality of users it is an assigned service slot. And the method also includes providing information to one or more of the plurality of users indicating one or more of probability of arrival of one of the plurality of users within an assigned service slot associated with that one of the plurality of users, probability of wait time associated with assigned service slots, and available service slots, the pushed information generated in response to the real time arrival characteristics for the plurality of users, the information associated with the queue of service slots, and time information.~~

In accordance with another aspect of the present invention , a method is provided for matching user requirements, characteristics and service actualization in real time to decrease error rate of actualization of service slots, maximize utilization of the service slots by a plurality of users, maximize utilization of time of the plurality of users, and minimize wait time for the plurality of users. The method includes determining static and dynamic characteristics within a demand and supply landscape of one of the plurality of users in response to one or more service slots and one or more

queues of the one or more service slots and for determining static and dynamic characteristics of other ones of the plurality of users in response to the one or more service slots and the one or more queues of the one or more service slots. And the method also includes placeholding one or more service slots in response to ones of the plurality of users and in response to one or more criteria selected from the group of (a) holding or changing or actualizing the one or more service slots corresponding to ones of the plurality of users in response to the probability of actualization of the static and dynamic characteristics determined by the estimator and (b) holding or changing or actualizing the one or more of the service slots corresponding to ones of the plurality of users in response to the probability of actualization determined in response to an input of the one of a plurality of users, wherein the probability of actualization of the one or more of service slots corresponds to a likelihood of the one or more service slots being utilized by ones of the plurality of users, and wherein the one or more of service slots have at least one parameter in a plurality of parameters associated therewith indicating that it is a preferred one of the one or more service slots and one or more queues of the one or more service slots corresponding to ones of the plurality of users and indicating that it is one or more service slots corresponding to the ones of the plurality of users.

In accordance with another aspect of the present invention, a non-transitory computer readable storage medium configured to store instructions that, when executed, perform a method for matching user requirements, characteristics and service actualization in real time to decrease error rate of actualization of service slots, maximize utilization of the service slots by a plurality of users, maximize utilization of time of the plurality of users, and minimize wait time for the plurality of users. In the non-transitory computer readable storage medium, the method includes determining static and dynamic characteristics within a demand and supply landscape of one of the plurality of users in response to one or more service slots and one or more queues of the one or more service

slots and for determining static and dynamic characteristics of other ones of the plurality of users in response to the one or more service slots and the one or more queues of the one or more service slots. And in the non-transitory computer readable storage medium, the method also includes placeholding one or more service slots in response to ones of the plurality of users and in response to one or more criteria selected from the group of (a) holding or changing or actualizing the one or more service slots corresponding to ones of the plurality of users in response to the probability of actualization of the static and dynamic characteristics determined by the estimator and (b) holding or changing or actualizing the one or more of the service slots corresponding to ones of the plurality of users in response to the probability of actualization determined in response to an input of the one of a plurality of users, wherein the probability of actualization of the one or more of service slots corresponds to a likelihood of the one or more service slots being utilized by ones of the plurality of users, and wherein the one or more of service slots have at least one parameter in a plurality of parameters associated therewith indicating that it is a preferred one of the one or more service slots and one or more queues of the one or more service slots corresponding to ones of the plurality of users and indicating that it is one or more service slots corresponding to the ones of the plurality of users.

BRIEF DESCRIPTION OF THE DRAWINGS

[00011] FIG. **1** illustrates an exemplary communication system with the wireless communication network, location service and the platform in an illustrative embodiment of the invention;

[00012] FIG. **2** illustrates an exemplary platform that contains the content layer, database layer, engine layer, configuration layer and application layer in an illustrative embodiment of the invention;

$$\boldsymbol{f(u,s) = \mathbf{f1(c)} + \mathbf{f2(p)} + \mathbf{f3(pa)} + \mathbf{f4(s)} + \mathbf{f5(ind)}} \quad (1)$$

wherein u denotes the user that has booked the slot, s denotes the users in the systems (users being both consumers and providers), and *f(u, s)* denotes the function of u and s. In one embodiment, the *f(u,s)* may refer to the estimate, weight or the probability of the slot being actualized. Also, c denotes the consumer that has booked the slot, I; p denotes the provider with characteristics for queue related to slot, I such as cycle time; pa denotes the provider agent with such characteristics for queue related to slot I, such as start time; and ind denotes the inducing factor of such methods that induce user's action to decrease the error rate of actualization of the service.

[00097]The following illustrates the components with reference to the function, whereby the function may employ any methods such as statistical methods, or any techniques such as classification methods like multi-class classification to deduce the best estimate at each time state for the maximum utilization of users.

$$\boldsymbol{f1(c) = \mathbf{f(ic, \beta c)}} \quad (2)$$

wherein the ic relates the user's ~~specific context~~ information to the time slot I and βc relates to the parameters for ic.

$$\boldsymbol{f2(p) = \mathbf{f(ip, \beta p)}} \quad (3)$$

wherein ip relates the provider's characteristics with respect to the time slot I and βp relates to the parameters for ip.

$$\boldsymbol{f3(pa) = \mathbf{f(ipa, \beta pa)}} \quad (4)$$

wherein ipa relates the provider's agent characteristics with respect to the time slot I and βpa relates to the parameters for ipa.

intended service time slot *i*, with the system users information. System users information such as the consumers that have booked other slots in the same or different server queue, the provider's characteristics and potential users through the discovery of need service that may need the service slots but have not made the booking. In essence, it accounts for the individual characteristics of the intended service time slot *i,* with the supply and demand landscape characteristics. The supply and demand landscape is taken with respect to all times such as service time slot 0 to N, where N is the maximum time slot in the user's server queue slot *i*, and other queue servers 0 to M, where M is the maximum server queues. The maximum server queues M may or may not include information that is in the user's preference. In one embodiment, Equation **7** with Equation **14** and Equation **15** refers to the dynamic landscape **922** in FIG. **10A**.

[000107] In essence, Equation **7** illustrates the use of user's specific characteristics to the booked service slot *i*, with the system users' characteristics for the estimation. This devise compensation, with respect to the specific slot *i*, is taken to the dynamic scheduler and placeholder for optimization of the slots, with minimum wait time, maximum user's utilization and slot utilization. In one embodiment, the compensation may incorporate the form described in Fig **4** and Fig **5**.

[000108] The function in **Equation 7** includes the time variant information that may be updated in real time through any method such as the system computation of the updates with respect to **Equation 1**.

[000109] One skilled in the art will recognize that the system users information and specific user information may include any form of parameters that influences the user's ~~estimated arrival time or service start time~~ probability of actualization of the service slot.

[000110] In one embodiment, the estimator generates the arrival type characteristics that may be used for the dynamic scheduling placeholder structure described in the later section.

$$\boldsymbol{f}(\boldsymbol{u}, \boldsymbol{s}) = \mathbf{y} \qquad (8)$$

[000119] In essence, the above embodiments provide a provision for the estimate with embedded compensation in the presence of the characteristics of the users in the system, without historical data of the users or need for lengthy user configurations. The impact of this estimate is further enhanced by the architecture of the components in platform **900**.

Service intention – The Recommender Engine 930

[000120] In one embodiment, the discovery of need of service may be obtained through statistical methods through the personal service network **120**, or the like, with a user's authentication for access.

[000121] In another embodiment, the user may not have authenticated access to its personal service network **120** or the like. The user indicates the interest of the service provider by browsing through its platform.

[000122] The platform **900** captures the user's interest and computes a list of service slots with various user configured source departure location, mode of transport, state or event prior to the service time. This targeted list of service time to the user' preferred profile and characteristics are pushed to the user's, through the computer network, mobile devices, or web platform such as **971**. In some embodiments, other information may be made available to the user through **973**, **975** and **976**.The user can place an intention of the service from the list of service time, either from a single or plurality of providers through booking the service time slot.

[000123] The recommender engine **930** would devise the list of service times based all of the users' captured information, such as the current location, state of event prior to service time, mode of transport, time, day, month of the year, weather and other physical or user's specific conditions. This captured information may be from the form of user's authentication to the context aware methods or services, or devise from the current general information of time, day, month, location, responses from users, physical environment conditions, and/or historical information of the users.

placement, users in the system that have not been placed, to the actualization of the service or event.

$$\boldsymbol{f(c,k) = wk} \quad (12)$$

whereby *f(c,k)* is the function of the consumer placed at time slot, *k* and ***wk*** is the weight that determines the utilization of slot *k* placed into user, *k*; and whereby *k* ∈ 0 to N, N being the maximum number of slots in the single queue server and *k* /=*i* and/or k < *variability threshold*.

$$\boldsymbol{f(s,\tilde{i}) = w\tilde{i}} \quad (13)$$

where *f(s,i)* is the function of the system consumers not placed at time slot, *i*. This may be consumers who have been placed in the schedule outside slot *i*, or consumers who are likely to actualize this slot *i* but have not been placed in or booked the service slot. Also, where $\boldsymbol{w\tilde{i}}$ is the weight that determines the utilization of slot *i* from consumers not placed into user, *i*.

[000134] In one embodiment, Equation **12** and Equation **13** may be derived from Equation **1**, where the different weights of the functions relating the *f1(c), f2(p), f3(pa), f4(s), f5(ind)* may be used to determine variability and user's arrival sequence from its booked slot time, *i*.

[000135] FIG. **11** illustrates the placeholder mechanism in the actualization of the service slot. In this illustration, the user has been placed at service slot *i*, and ~~arrived~~ intends to arrive at slot *k* **1110**. The system in **940** and **950** will determine if slot *k* has been taken at **1111**. If slot *k* has not been taken, it will check if the ***wk*** weight of slot *k* at Equation **12** exceeds a determined threshold in **1112**. The threshold in this case may be a value that would indicate the probability of the placed user arrival for the slot. If the ***wk*** weight of slot *k* is not greater than the threshold, it will determine if ***Vw***, the variability window in Equation **11** is within the determined limit in **1113**. If ***Vw***, the variability window is not greater than the determined limit, it will determine if $\boldsymbol{w\tilde{i}}$ in Equation **13** is within the determined limit in **1114.** If this $\boldsymbol{w\tilde{i}}$ is within the determined limit, it will proceed to allocate slot *k* to