

Predictive cards

What are predictive cards?

Predictive cards are helpful reminders that appear on a driver's screen (can be Centerstack, cluster, HUD, mobile or wearable device such as a watch) and provide timely and relevant alerts. In the first implementation, the cards will contain the following information:

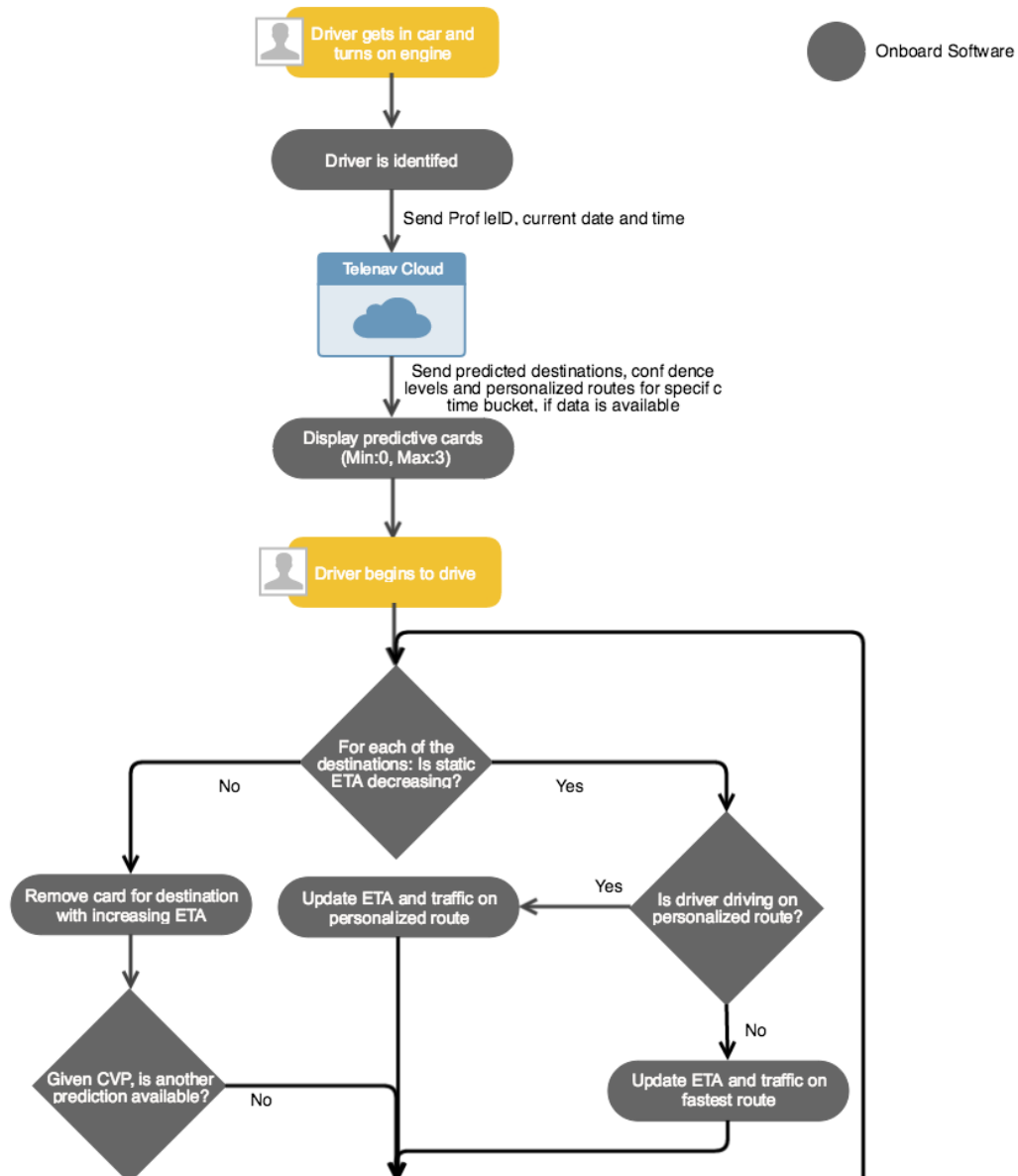
1. Predicted destination (Default is address if location cannot be identified, can be labelled by user)
2. ETA to predicted destination from current location taking into account traffic on driver's personalized route
3. Via information will display major road segment

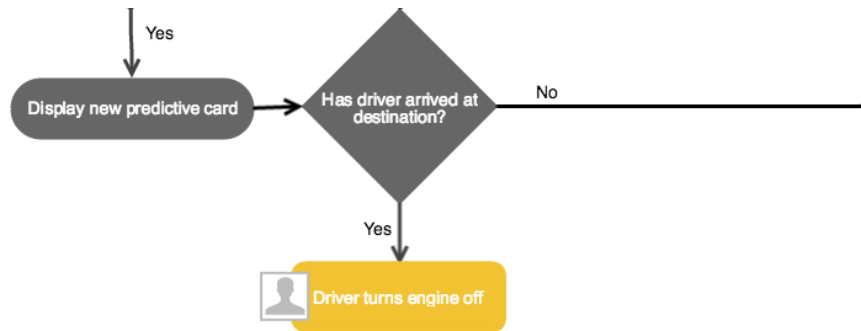
The cards will use colors to identify whether ETA is as expected or greater than expected.

Tapping on a card will reveal details about where the congestion/delay is located, and alternative routes available to drive around congestion.

How do they work?

How do predictive cards work?





Reference

<http://resourcedev.telenav.com/resources/>

<http://resourcedev.telenav.com/docs/api/>

<http://resourcedev.telenav.com/docs/api/com/telenav/api/data/api/v1/RetrieveRequest.html>

<http://resourcedev.telenav.com/docs/api/com/telenav/api/data/user/insight/v1/PredictiveDestination.html>

<http://resourcedev.telenav.com/docs/api/com/telenav/api/data/user/insight/v1/PersonalizedRoute.html>

<http://svn.telenav.com/tn/automotive/ReferencePlatform/trunk/scout4cars/Android-Java/predictivecard>

<http://svn.telenav.com/tn/automotive/ReferencePlatform/trunk/tools/RouteCreator>

<http://ec2s-usersvc-01.mypna.com:8080/umstool/secured/index.jsf>

Requirement

Predictive cards - personalized routing

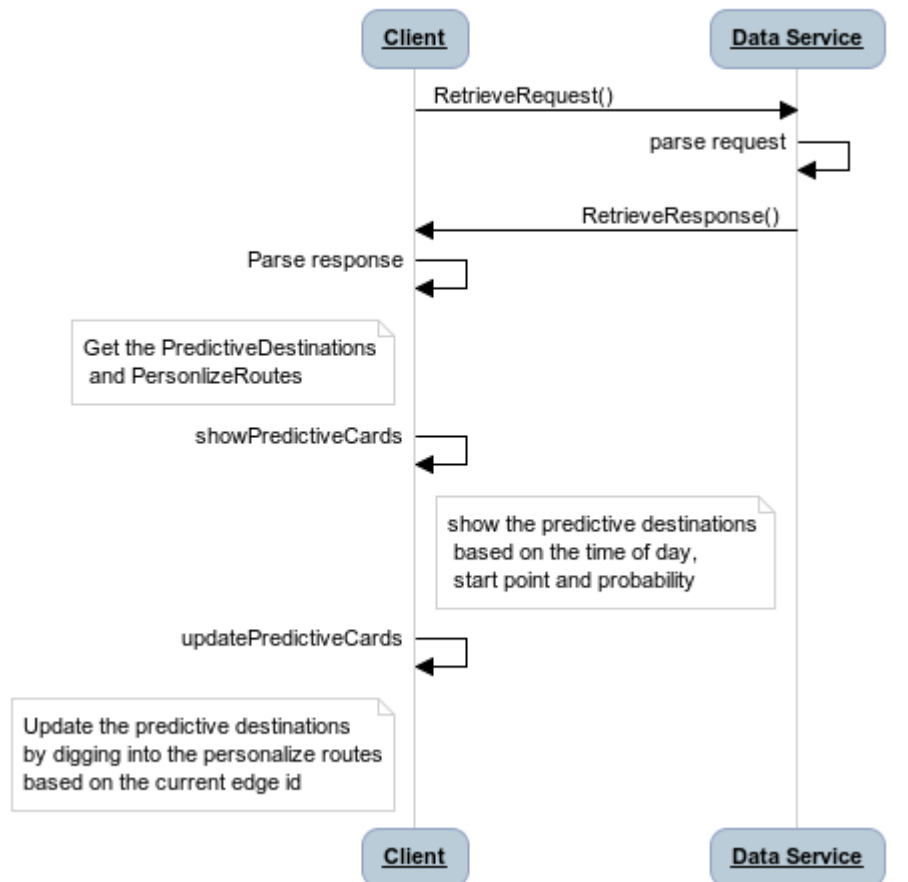
ARP roadmap 2H FY2015 v1.6.pptx

UI

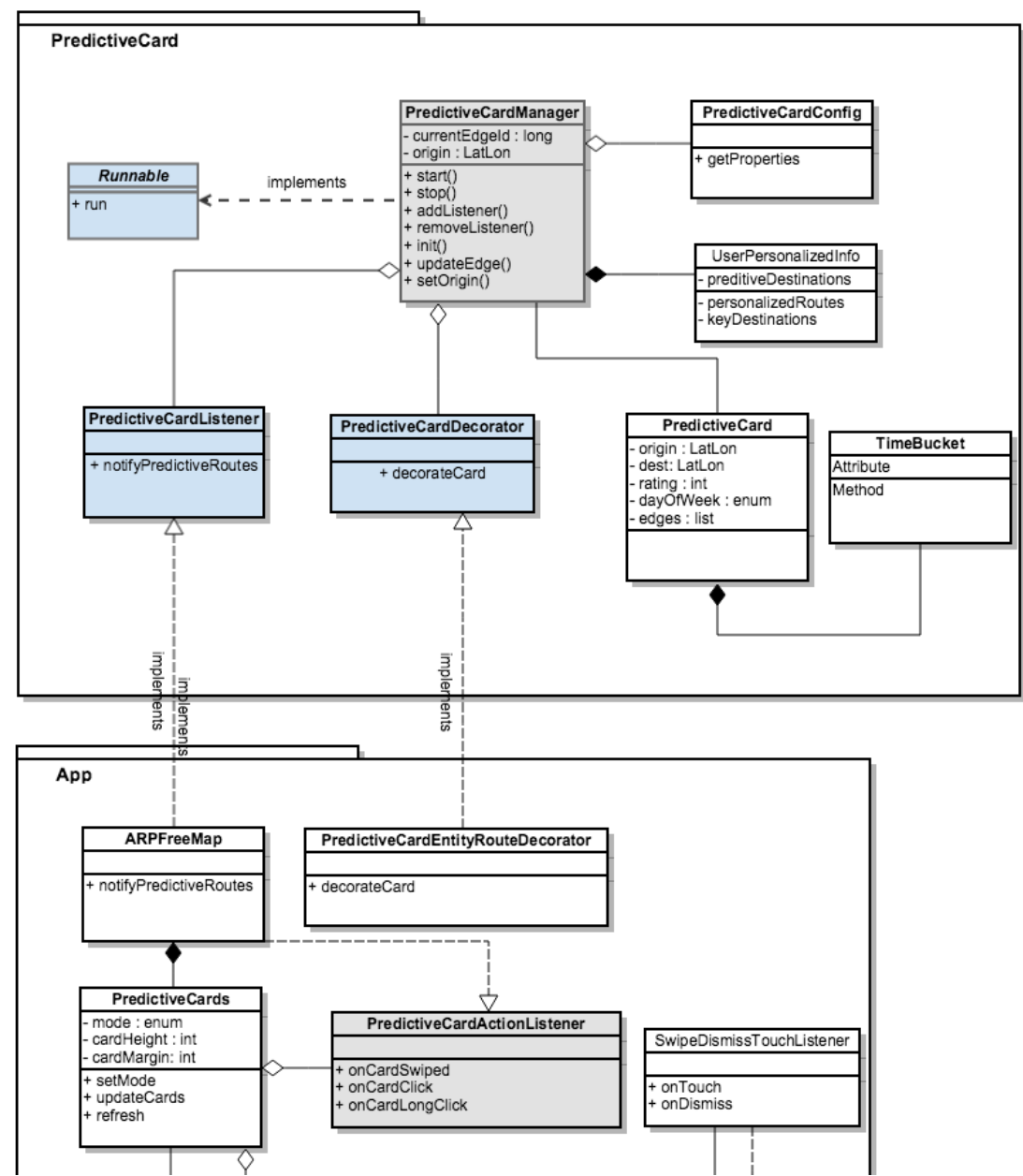
arp-03a-predictivecards-HS-v2.pdf

Design

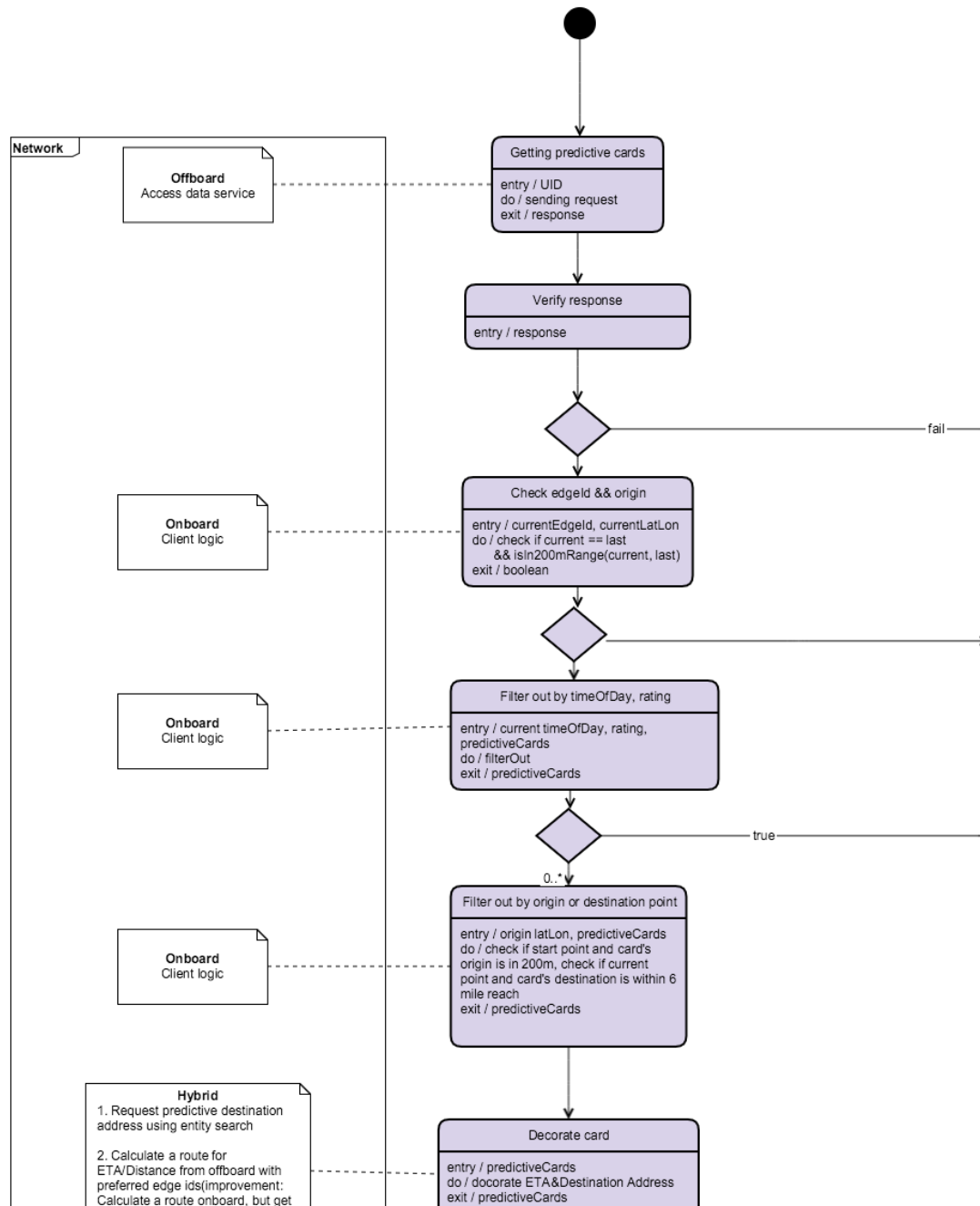
PredictiveCards Sequence

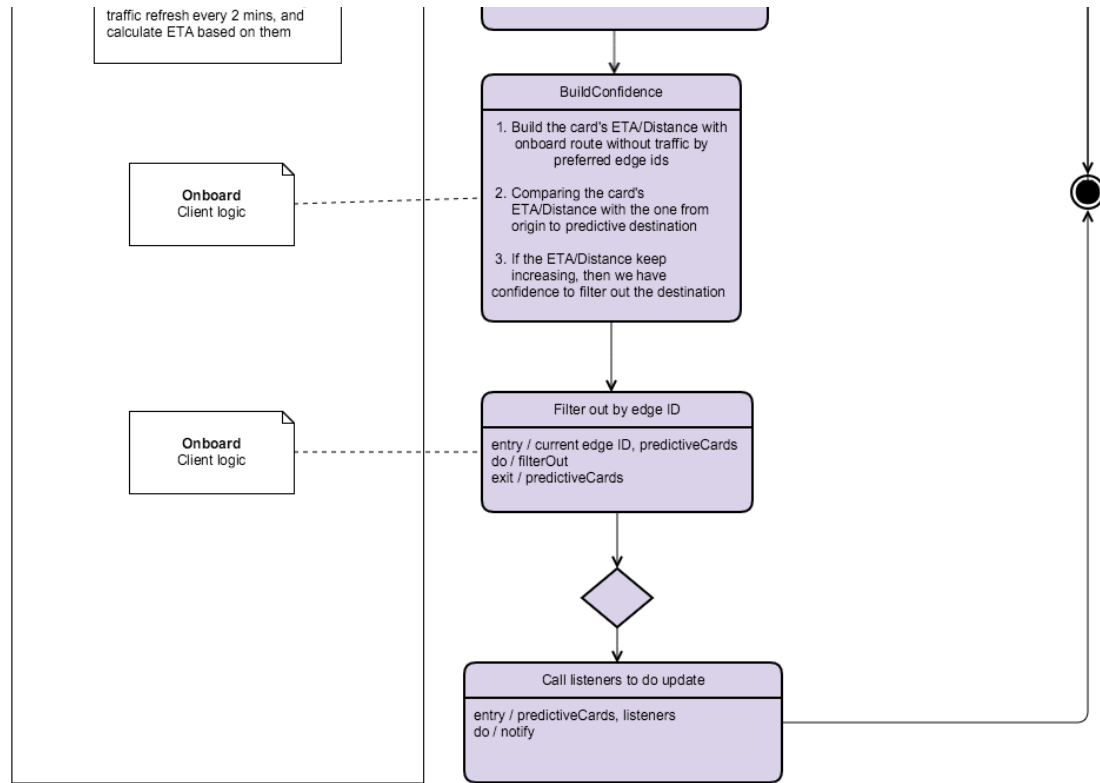


PredictiveCards Class Diagram

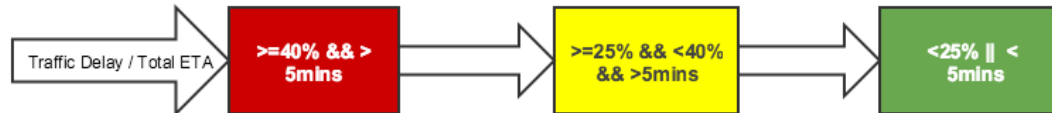








Predictive Card ETA



Predictive cards client ETA based prediction:

In client based on ETA(if its still on personalized route, calculate ETA based on that route, or else using fastest route) client will build up the confidence for a particular card, higher the confidence, higher the chance of card start appearing and vice versa.

- 1) Once we filter out the card by day & time, we decorate the card to find out ETA to predicted destination (ETA without traffic delay of-course).
- 2) We collect multiple samples of ETA. In current scenario, we collect last 5 ETA samples.
- 3) Once we reach to limit of 5 ETA samples, we start to build the confidence level on the card depending on the difference between last & first collected ETA. If the ETA has decreased more than 20 seconds, we boost the confidence level where as if ETA has increased then we decrease the confidence level.
- 4) If the confidence level reaches around 40%, we start to show the card.

Predictive cards client UX improvement

Currently, predictive cards disappear when driver is no longer on a personalized edge or at a known point of origin. This does not create a good UX since simple things like making a U-turn or map matching issues will cards to disappear and then reappear when car is on a known edge again.

A better user experience can be provided by using ETAs to determine when predictive cards should shuffle or disappear in addition to using edge IDs.

When user veers of a known edge ID, use static ETA (ETA without traffic) to determine whether or not to dismiss a predictive card. Predictive card should persist unless ETA to a predicted destination continues to increase beyond 5 minutes. Once ETA exceeds 5 minutes, predictive card can disappear.

Special Cases

Q: If user is driving at the same edge id but beyond another direction, how to handle the predictive cards?

A:

Q: If user is driving with a small turn around but still approaching the same destination

A: If user leaves the preferred route, the cards should disappear. All bets are off at this point. We have no idea whether user is planning to fill gas and come back to original route or go someplace completely different. We should only resume showing cards when he is back on a known edge.

Q: Onboard/offboard switching

A: We will not support onboard. I don't see how we can save/process all the historical information onboard to identify predicted destinations or personalized routes without querying the server. Is there a way you can think of? If yes, we can consider it.

Q: The server only gives us the lat/lon of predictive destination, how can we detect it as Gym or Daycare?

A: There are 2 options:

1. Prompt user Google style "it appears you visit this location regularly. Would you like to save it so we can help you?" - that kind of thing. I bet Herman has good ideas on how to do this effectively without being annoying.
2. RGC

Env

Setup library into project

Gradle:

```

repositories {
  ivy {
    url "http://tar2.telenav.com/repository/"
    layout "pattern", {
      artifact "[organisation]/AutoRef/Scout4cars-Android/[revision]/arp-common-components/[revision]/[module]-[revision].[ext]"
    }
  }
}

dependencies {
  compile('telenav:predictivecard:0.6.407142@aar') { // 0.6.407142 is one of version, and you can use latest one such as 0.6.+
    transitive = false
  }
}

```

Publish mock user insight(for testing purpose only):

URL: <http://denalistage.telenav.com/data/v2/domain/update>

Headers:

x-tn-api_key: f05a47ec-2111-478f-9c73-a95aa0e7ad89
 x-tn-api_signature: f05a47ec-2111-478f-9c73-a95aa0e7ad89:1439329300:628aa0addaf55a91f60214e89cf04e6e

Post - UserInsight

- ScreenShot

Or you can use the tool named [RouteCreator](#) to mock up the data([RouteTool](#)), and pls install the plugin <https://chrome.google.com/webstore/detail/allow-control-allow-origi/nlfbmbojpeacfghkpbjhd/dihlkkiljbi/related?hl=en-US> to allow upload data into server.

For some random reason, the tool cannot upload the data into server side successfully.

In that case, you may use the [RestClient](#) (the plugin for Chrome Browser) to upload the JSON data([screenshot](#)).

Response -

Get mock user insight:

URL: <http://denalistage.telenav.com/data/v2/domain/retrieve>

Headers:

x-tn-api_key: f05a47ec-2111-478f-9c73-a95aa0e7ad89
 x-tn-api_signature: f05a47ec-2111-478f-9c73-a95aa0e7ad89:1439329300:628aa0addaf55a91f60214e89cf04e6e

Post:

```

{
  "domain": "USER_INSIGHT",

```

```
"filters": [  
  {  
    "params": [  
      "EURB9DPV7M8PKVKJ1XJSOUE2U" // Can be your user id  
    ],  
    "type": "USER_ID"  
  }  
]
```

Response - [PredictiveDestinations](#)

Test

Steps:

1. Launch the application
2. Wait no more than 1 min, and you will see your most 3 possible destinations show up
3. Swipe any card to dismiss
4. Click any card to do navigaiton
5. If you want to test with the mock data, enable the mock setting in SecretSettingPage

Others

Predictive Cards is using the DataService V2 which may break up the True Delta.

Predictive Cards currently in only supporting NA.

Using 'predictive' to filter out the related logs.