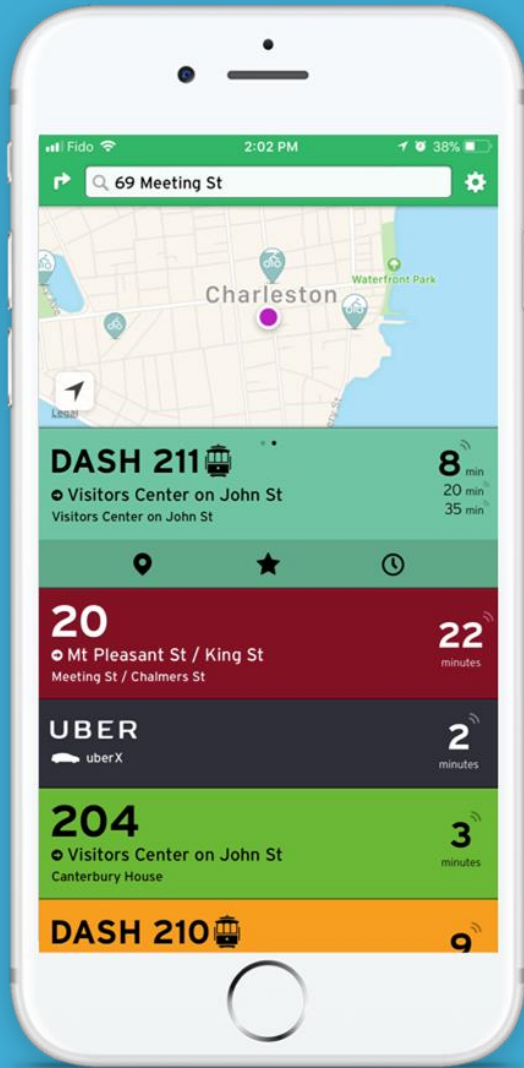




Swiftly

**HARNESSING TECHNOLOGY TO CREATE A  
GREAT TRANSIT RIDER EXPERIENCE**



transit

There is **significant disruption** in the way we move in cities.

**New mobility services** have transformed how people learn about, access, and pay for mobility services.

There are several **fundamental building blocks** needed to make public transportation competitive in today's environment

# RIDER EXPECTATIONS

New mobility services have raised the bar

---



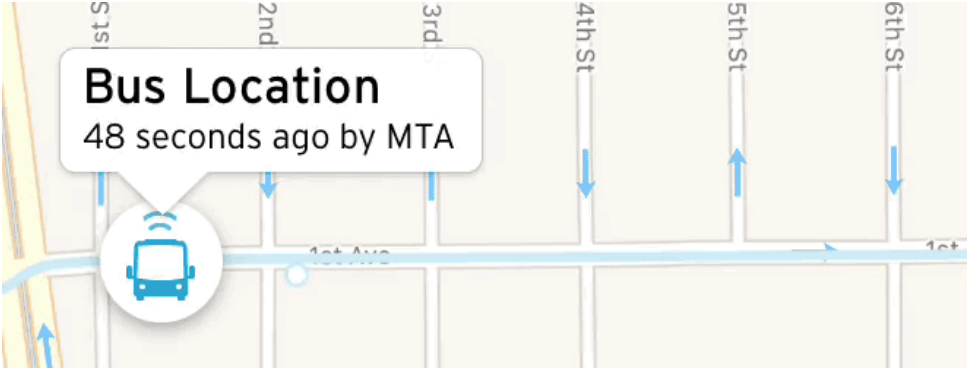
Tell me **where** my bus is and **when** it will arrive.

Transit must get me to my destination **on time.**

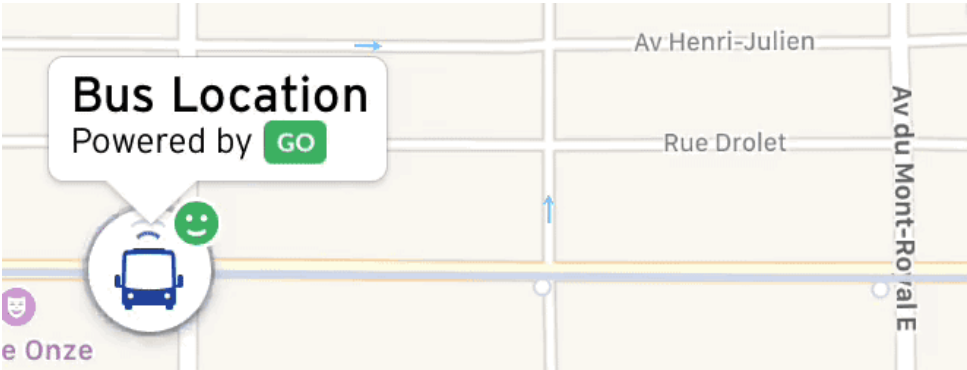
# THE PROBLEM: DATA QUALITY

New mobility services have raised the bar

## CURRENT DATA



## RIDER EXPECTATION



# THE IMPACT OF POOR QUALITY DATA

1

## Performance Management

It's difficult to accurately measure your performance when underlying data is missing.

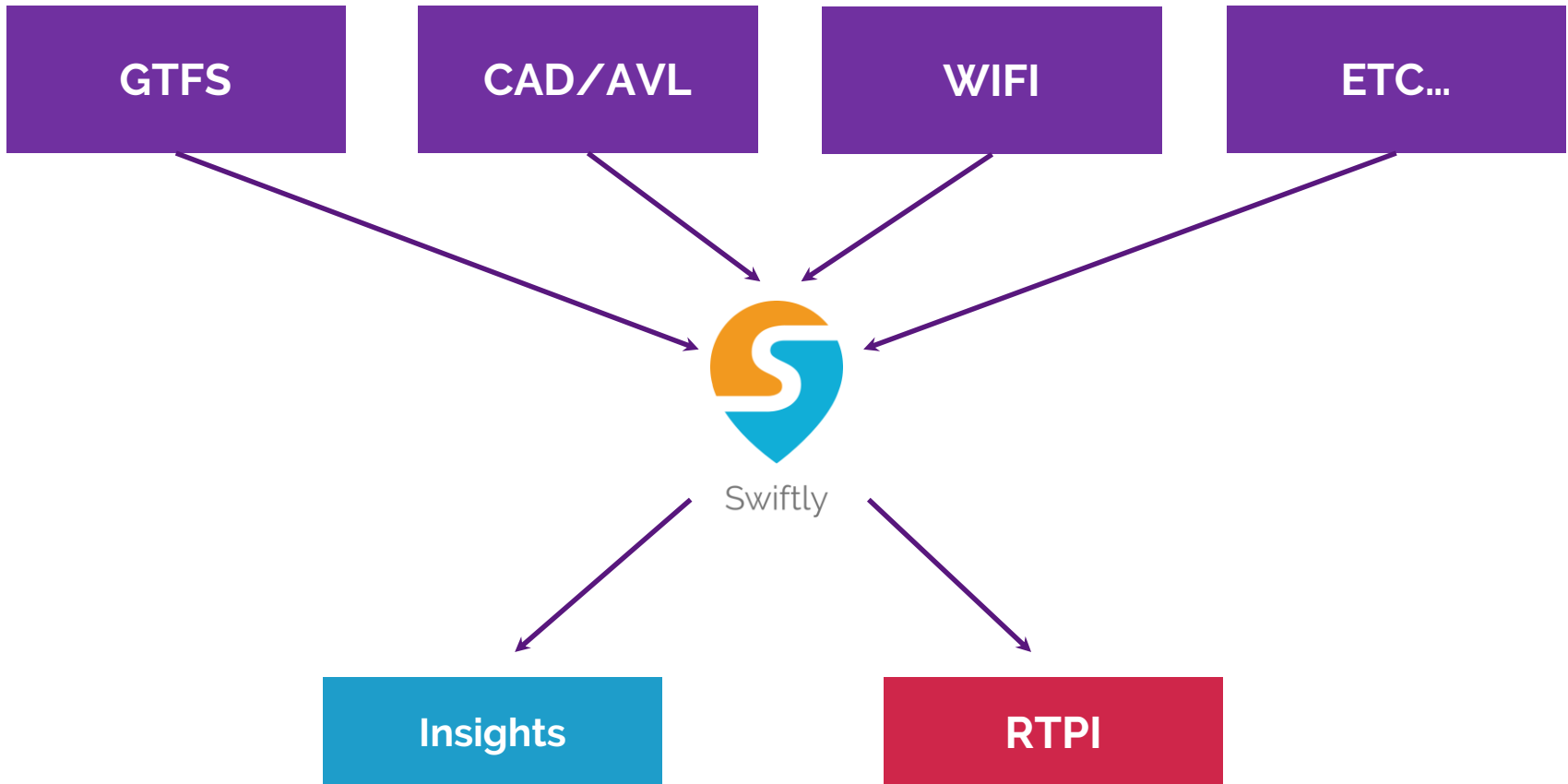
2

## Passenger Information

It's difficult to rely on public transit when you receive inaccurate information about the service.

# THE DATA OFTEN EXISTS

CAD/AVL, WIFI, Fare collection, etc.



# SUPPLEMENT & FUTURE PROOF

Optional trackers can improve AVL data

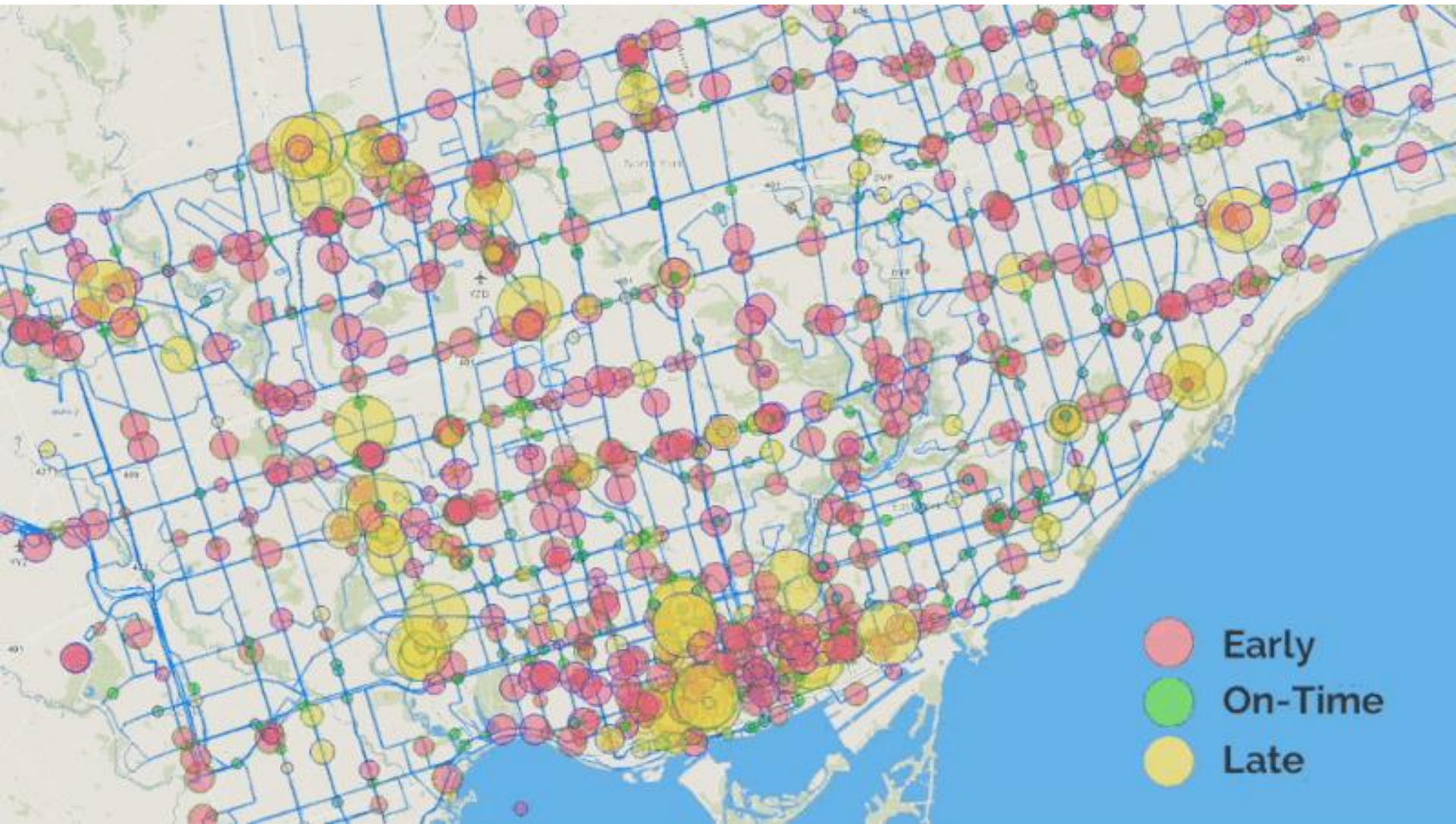
---

- Low cost
- Quick installation
- Use cellular network
- High reporting rate (10 seconds)
- Low latency (2 seconds)
- Augment or replace existing system



# SWIFTLY

Collects and analyzes billions of data points per month





# MANY AGENCIES ARE ALREADY DOING THIS

---



# Insights

Operational performance analytics

# CURRENT PERFORMANCE MONITORING

Primarily excel, Tableau, and database queries

Run Time	Min Recovery	Min Cycle	Even Cycle	Actual Recovery	Actual % Recovery	Peak Frequency	Peak Hours	Peak Trips	Peak Vehicles	Off-Peak Frequency	Off-Peak Hours
1:47	0:10	1:58	2:00	0:12	10%	0:30	7:00	14	4.0	1:00	6:30
0:48	0:04	0:53	1:00	0:11	18%	1:00	7:00	7	1.0	1:00	6:30
1:29	0:08	1:38	2:00	0:30	25%	0:30	7:00	14	4.0	1:00	6:30
1:29	0:08	1:37	2:00	0:30	26%	1:00	7:00	7	2.0	1:00	6:30
0:48	0:04	0:53	1:00	0:11	18%	1:00	7:00	7	1.0	1:00	6:30
1:26	0:08	1:34	2:00	0:33	28%	0:30	7:00	14	4.0	1:00	6:30
1:06	0:06	1:13	2:00	0:53	44%	1:00	7:00	7	2.0	1:00	6:30
0:57	0:05	1:09	2:00	1:02	52%	1:00	7:00	7	2.0	1:00	6:30
1:17	0:07	1:25	2:00	0:42	35%	1:00	7:00	7	2.0	1:00	6:30
1:34	0:09	1:43	2:00	0:25	22%	0:30	7:00	14	4.0	1:00	6:30
1:00	0:06	1:06	2:00	0:59	50%	1:00	7:00	7	2.0	1:00	6:30
1:35	0:09	1:45	2:00	0:24	20%	0:30	7:00	14	4.0	1:00	6:30
1:05	0:06	1:12	2:00	0:54	45%	0:30	7:00	14	4.0	1:00	6:30
1:33	0:09	1:43	2:00	0:26	22%	0:30	7:00	14	4.0	1:00	6:30
1:06	0:06	1:13	2:00	0:53	44%	0:30	7:00	14	4.0	1:00	6:30
1:10	0:07	1:17	2:00	0:49	41%	0:30	7:00	14	4.0	1:00	6:30
1:23	0:08	1:31	2:00	0:36	31%	0:30	7:00	14	4.0	1:00	6:30



# THE NEXT GENERATION

# STOP LEVEL ON TIME PERFORMANCE

Quickly determine where issues are occurring

## 3 - King Drive, To Michigan/Chicago

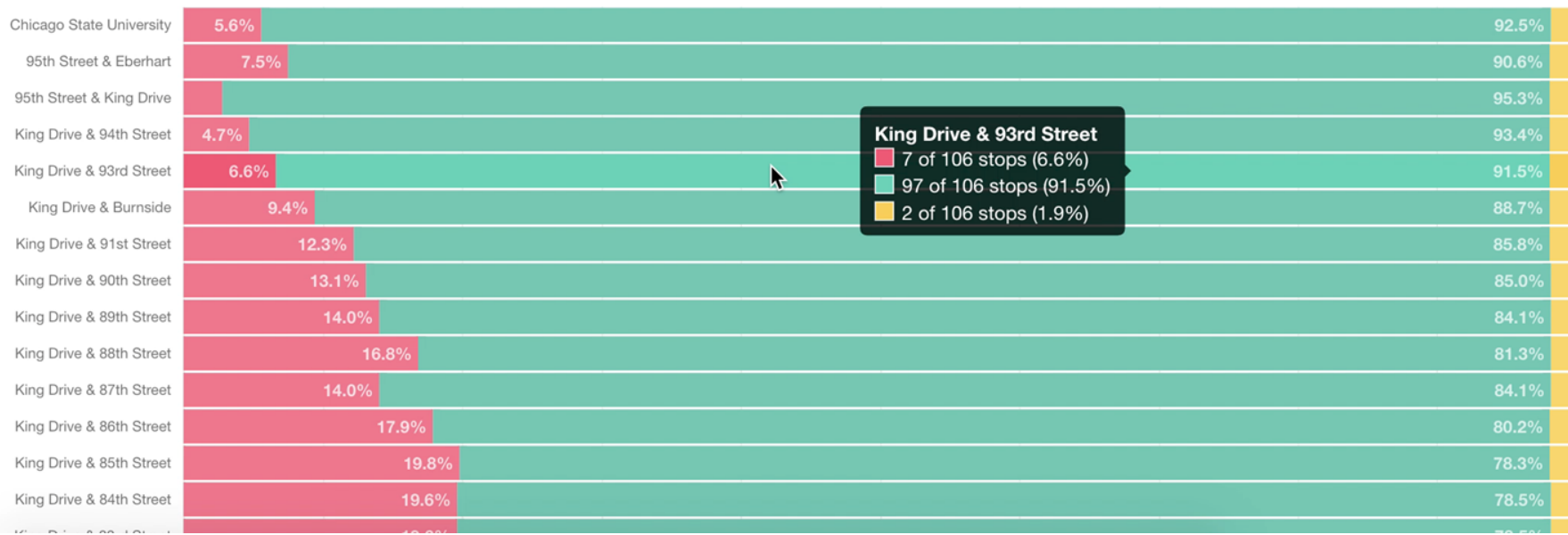
Sorting: Stop Order

% #



10-05-2017, All Day, 1 min early to 5 min late.

● Combined ● Early ● On-Time ● Late

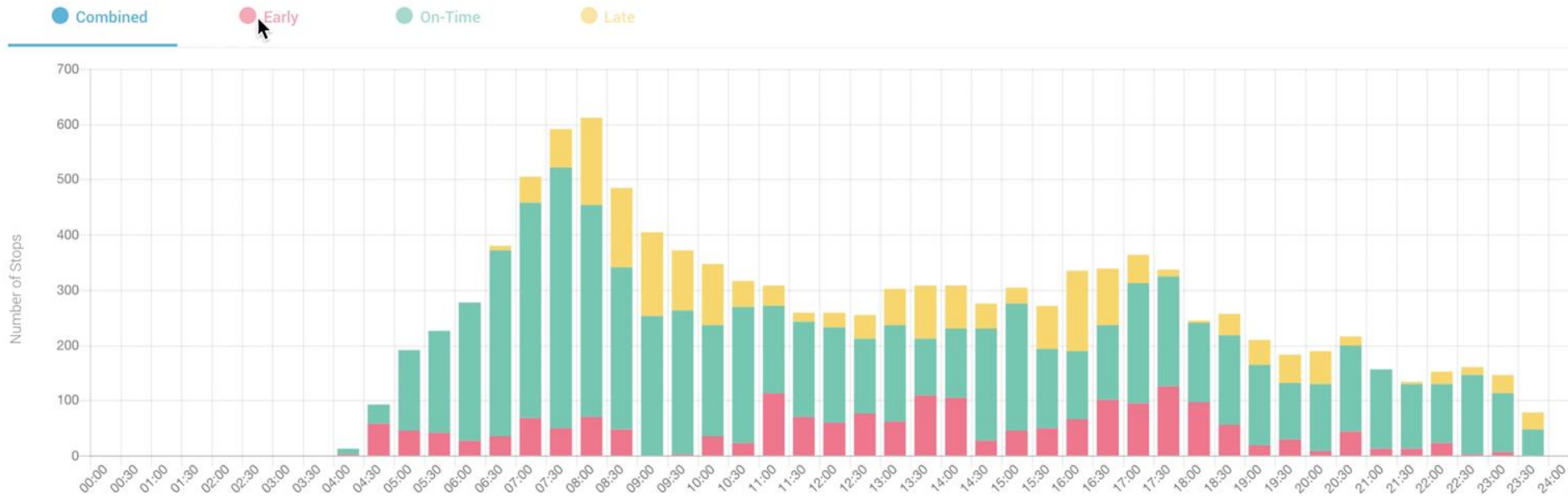


# TIME OF DAY

Quickly determine when issues are occurring

## On-Time Performance By Hour: 3 - King Drive, To Michigan/Chicago

10-05-2017, All Day. 1 min early to 5 min late.



# TRIP & STOP LEVEL

Quickly determine where and when issues are occurring

## On-Time Performance For Schedule: 3 - King Drive, To Michigan/Chicago

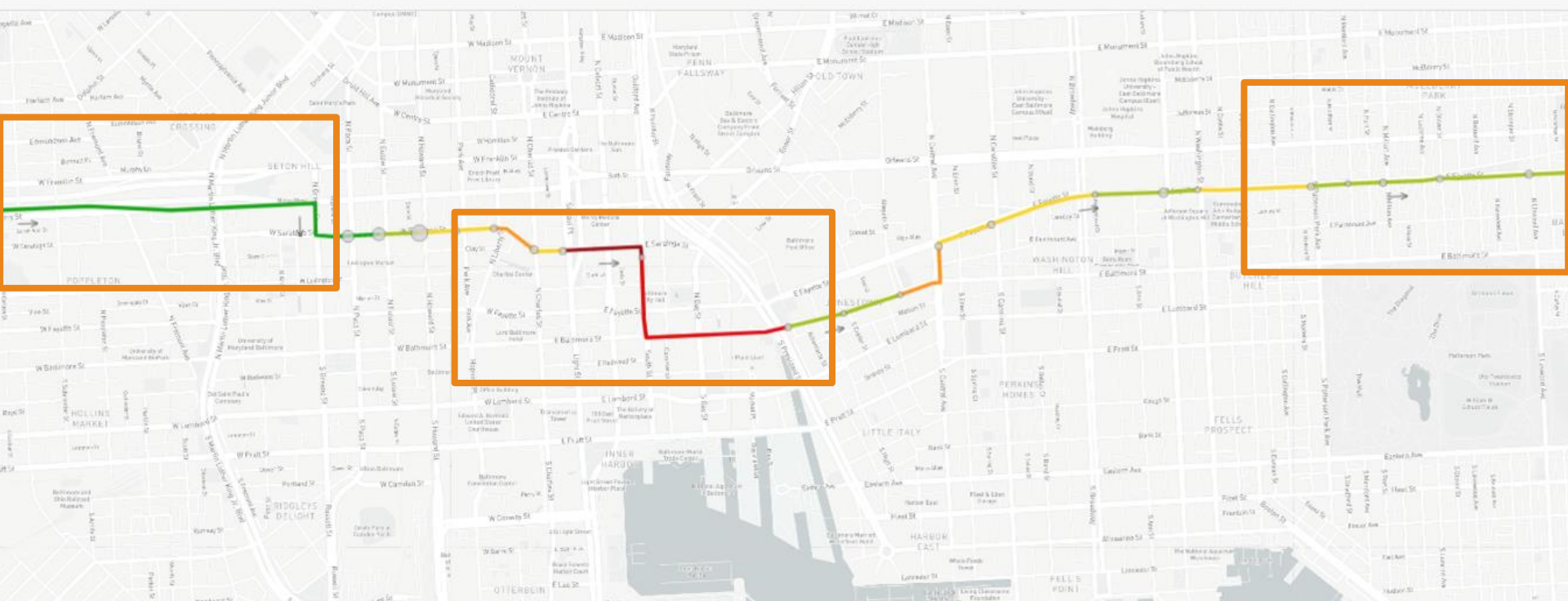
10-05-2017, All Day, 1 min early to 5 min late.

Starts	Vehicle	Chicago State University	95th Street & Eberhart	95th Street & King Drive	King Drive & 94th Street	King Drive & 93rd Street	King Drive & Burnside	King Drive & 91st Street	King Drive & 90th Street	King Drive & 89th Street	King Drive & 88th Street	King Drive & 87th Street	King Drive & 86th Street	King Drive & 85th Street	King Drive & 84th Street	King Drive & 83rd Street	King Drive & 82nd Street	King Drive & 81st Street	King Drive & 80th Street	King Drive & 79th Street	King Drive & 78th Street	King Drive & 77th Street	King Drive & 76th Street	King Drive & 75th Street	King Drive & 74th Street	King Drive & 73rd Street	King Drive & 72nd Street	King Drive & 71st Street	King Drive & 70th Street	
04:25:00	7975	+00:06	-00:04	-00:14	-00:26	-00:32	-00:42	-00:42	-00:45	-00:50	-01:01	-00:59	-01:05	-01:15	-01:28	-01:43	-01:44	-01:51	-01:46	-01:29	-00:38	-00:54	-01:01	-00:54	-01:00	-01:11	-01:39	-02:01	-02:12	-02:30
04:43:00	7987	-00:40	-00:51	-00:29	-00:42	-00:48	-00:53	-00:56	-00:58	-00:50	-00:29	-00:29	-00:39	-00:45	-00:57	-01:01	-00:44	-00:48	-00:47	-00:41	-00:57	-01:11	-00:24	-00:12	-00:19	-00:29	-00:47	-00:24	-00:30	-00:48
04:58:00	1205	+00:57	+00:50	+00:57	+00:47	+00:42	+00:33	+00:43	+00:39	+00:35	+00:31	+00:32	+00:25	+00:27	+00:29	+01:04	+01:24	+01:38	+01:31	+01:28	+01:12	+00:50	+00:53	+00:57	+01:02	+01:23	+01:08	+00:51	+00:33	+00:28
05:11:00	7948	-00:12	-00:19	-00:14	-00:24	-00:28	-00:34	-00:46	-00:41	-00:40	-00:45	+00:11	+00:03	-00:02	-00:09	-00:13	-00:20	-00:17	-00:16	-00:01	-00:02	-00:02	-00:01	-00:01	-00:14	-00:25	-00:31	-00:06	-00:16	-00:17
05:23:00	1306	-00:06	-00:27	-00:40	-00:54	-00:11	-00:25	-00:31	-00:36	-00:42	-00:50	-01:02	-01:03	-01:10	-01:21	-01:33	-01:09	-01:14	-01:21	-01:25	-01:44	-02:02	-01:56	-01:35	-01:45	-01:34	-01:30	-01:23	-01:20	-01:31
05:35:00	1363	-00:45	-00:51	-00:34	-00:46	-00:42	-00:44	-00:49	-00:49	-00:43	-00:53	-00:14	-00:18	-00:14	-00:25	-00:21	+00:12	+00:10	+00:06	+01:14	+00:56	+00:29	+00:07	+00:30	+00:25	+00:30	+00:26	+00:37	+00:26	+00:41
05:47:00	7942	+00:16	+00:05	+00:04	-00:07	-00:08	-00:18	-00:23	-00:24	-00:26	-00:34	+00:14	+00:06	+00:02	-00:07	+00:15	+00:15	+00:21	+00:31	+00:48	+00:34	+00:13	+00:03	+00:04	+00:03	+00:28	+00:07	+00:05	+00:14	+00:30
05:57:00	1245	-00:04	-00:01	+00:21	+00:12	+00:00	-00:13	-00:22	-00:26	-00:30	-00:43	+00:27	+00:21	+00:12	-00:04	+00:22	+00:31	+00:42	+00:44	+00:43	+00:25	+00:18	+00:13	+00:00	-00:21	-00:38	-01:07	-00:59	-01:11	-01:10
06:07:00	7914	-00:11	+00:05	+00:02	-00:07	+00:02	+00:11	+00:09	+00:07	+00:08	-00:00	+00:02	+00:01	+00:01	-00:09	-00:12	+00:14	+00:19	+00:19	+00:19	-00:03	-00:21	+00:38	+00:58	+00:41	+00:29	+00:24	+00:46	+00:42	+00:38
06:15:00	7964	-00:07	+00:24	+00:46	+00:41	+00:32	+00:21	+00:10	+00:07	+00:20	+00:15	+00:20	+00:11	+00:06	-00:07	-00:19	-00:30	-00:41	-00:43	-00:33	-00:30	-00:53	-00:29	-00:04	-00:00	+00:40	+00:34	+00:52	+00:42	+00:55
06:22:00	7928	+00:16	+00:41	+00:34	+00:20	+00:16	+00:05	+00:07	+00:16	+00:18	+00:20	+00:45	+00:59	+01:01	+01:04	+01:03	+01:29	+01:40	+01:34	+01:25	+01:24	+01:22	+01:14	+01:04	+00:49	+01:14	+00:50	+00:35	+00:17	+00:01
06:29:00	7996	-00:09	+00:31	+00:22	+00:18	+00:16	+00:15	+00:13	+00:10	+00:25	+00:18	+00:22	+00:15	+00:08	-00:04	-00:08	+00:09	+00:22	+00:42	+00:40	+00:30	+00:25	+00:30	+00:16	-00:06	-00:20	-00:21	-00:27	-00:27	-00:27
06:36:00	7929	+00:45	+01:18	+01:22	+01:12	+01:33	+01:33	+01:46	+01:57	+01:55	+01:45	+02:07	+02:05	+01:54	+01:41	+01:38	+01:43	+01:37	+01:22	+01:40	+01:25	+01:10	+01:08	+01:04	+00:41	+00:24	+00:22	+00:35	+00:34	+01:01
06:43:00	7995	+00:26	+01:03	+01:23	+01:29	+01:26	+01:32	+01:26	+01:30	+01:24	+01:20	+01:36	+01:26	+01:19	+01:30	+01:57	+02:10	+02:46	+02:47	+03:03	+02:50	+02:23	+02:07	+02:08	+02:18	+02:47	+02:21	+02:48	+02:47	+03:02
06:49:00	7935	-00:45	-00:50	-00:31	-00:43	-00:48	-01:03	-01:14	-00:52	-00:59	-01:09	-00:40	-00:45	-00:47	-00:60	-01:16	-01:33	-01:44	-01:46	-00:37	-00:48	-01:14	-01:02	-01:10	-01:32	-01:44	-02:05	-02:18	-02:19	-01:26
06:54:00	7952	-00:14	-00:14	+00:01	-00:12	-00:04	-00:02	+00:09	+00:19	+00:25	+00:31	+00:38	+00:28	+00:32	+00:41	+00:48	+00:58	+01:11	+01:20	+01:34	+01:34	+01:17	+01:07	+01:09	+00:53	+00:50	+00:46	+00:41	+00:41	+00:41
06:59:00	7975	-00:00	+00:16	+00:37	+00:22	+00:07	-00:10	-00:13	-00:22	-00:26	-00:40	-00:20	-00:21	-00:32	-00:37	-00:38	-00:36	-00:45	-00:51	+00:37	+00:24	-00:04	-00:26	-00:01	-00:23	-00:40	-00:49	-00:36	-00:41	-00:15
07:03:30	7961	-00:12	+00:02	+00:31	+00:23	+00:13	+00:12	+00:11	+00:09	+00:16	+00:09	+00:11	+00:00	+00:13	+00:12	+00:36	+00:47	+01:13	+01:13	+02:15	+01:59	+01:36	+01:16	+01:07	+00:46	+00:53	+00:43	+01:20	+01:18	+01:29

# TRAVEL SPEEDS & DELAYS

Visualize the impact down to the intersection

LUE - Cms - To Blue Hopkins Bayview

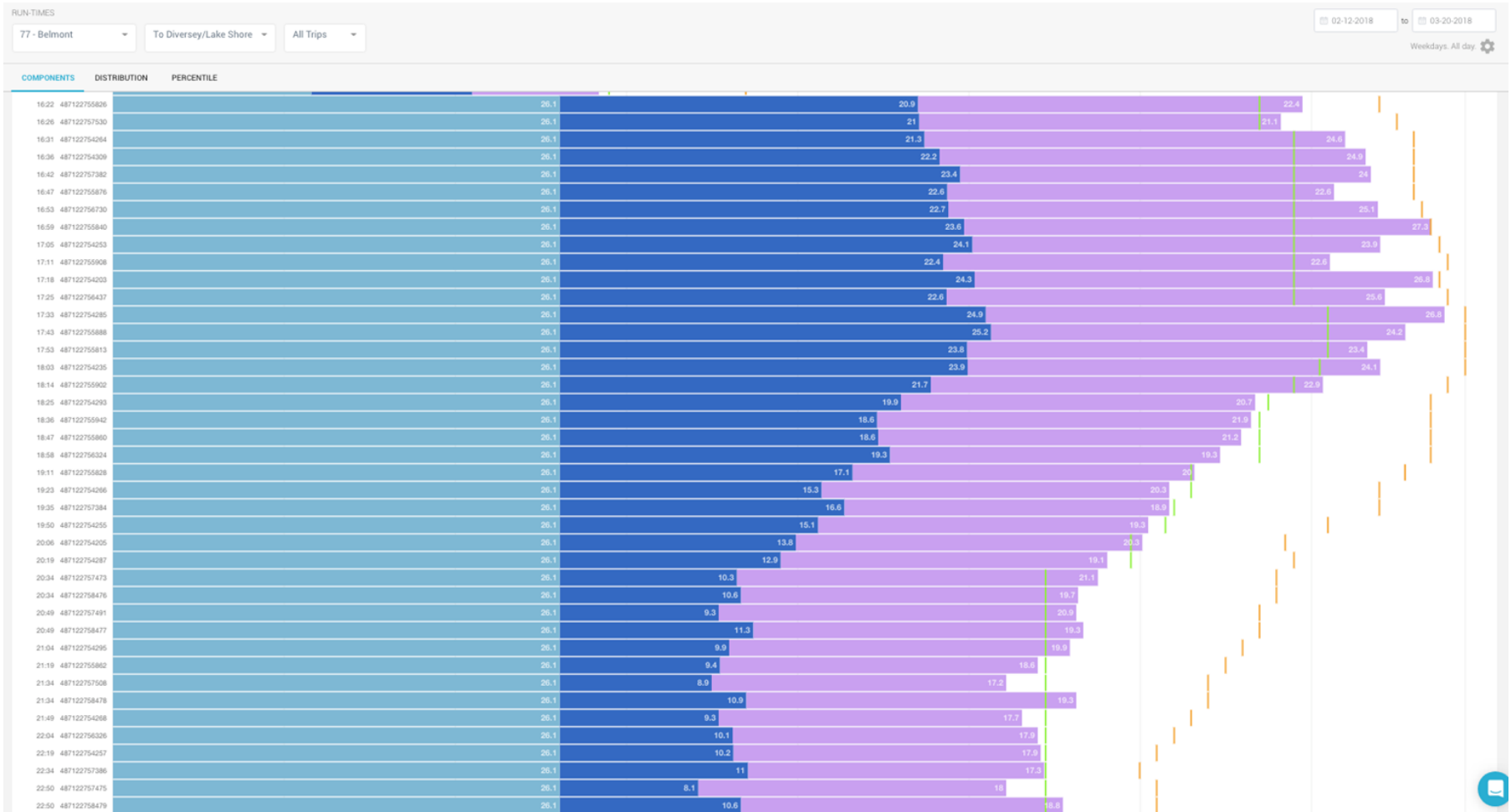




# RUNNING TIME

Quickly determine running times for any route, trip, or even between stops.  
Rapidly detect and solve scheduling or performance issues.

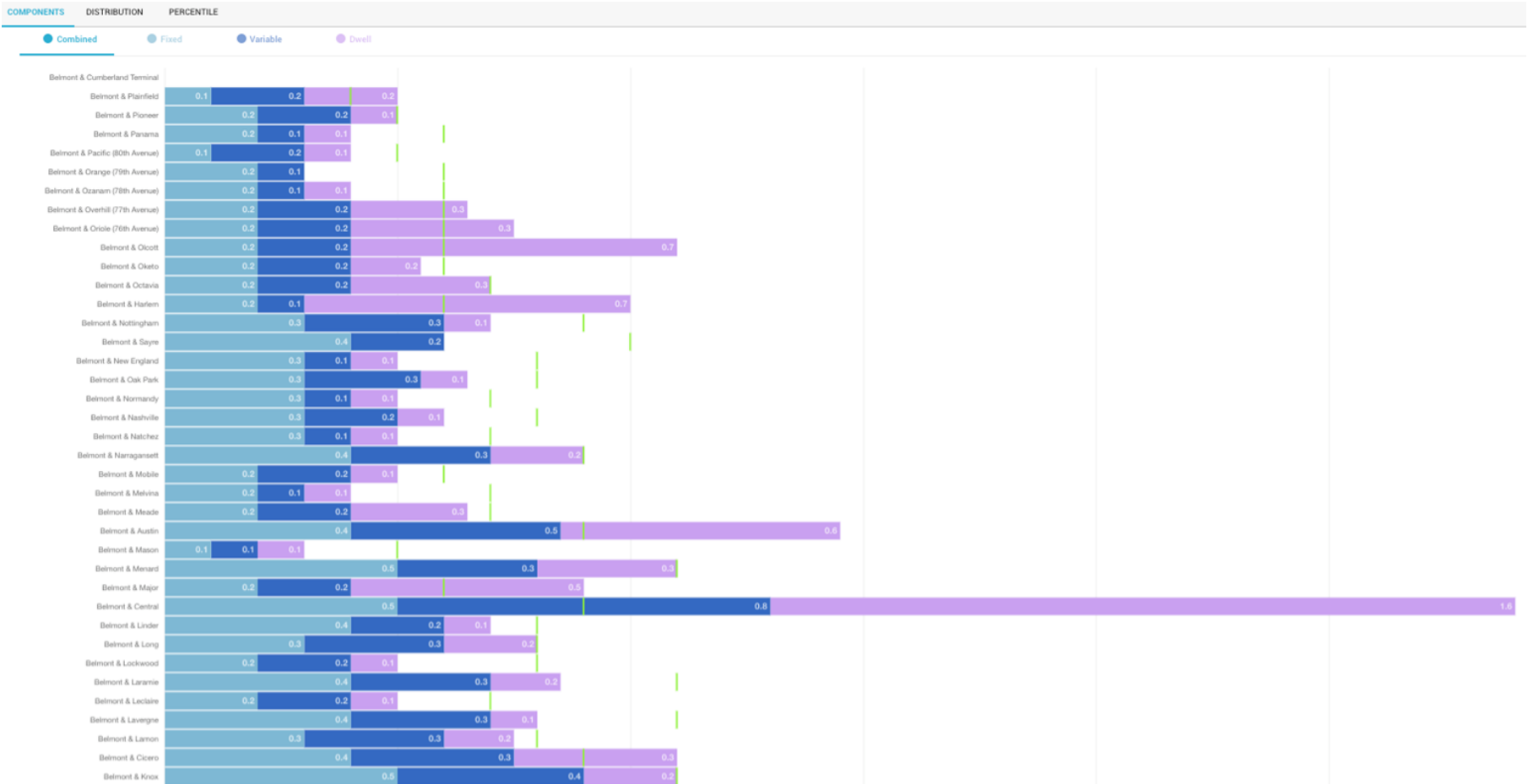
## TRIP LEVEL



# RUNNING TIME

Quickly determine running times for any route, trip, or even between stops.  
Rapidly detect and solve scheduling or performance issues.

## STOP LEVEL

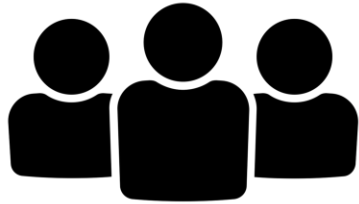


# Transitime

Real-time passenger information

# PASSENGER EXPECTATIONS

Riders expect highly accurate real-time information.  
Transit agencies can realize many benefits from RTPI solutions.



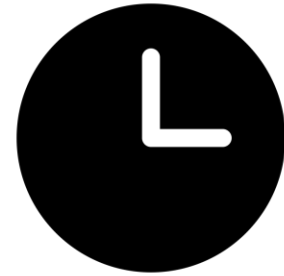
## More Riders

1.5-2% typical  
increase in weekday  
ridership



## Happy Riders

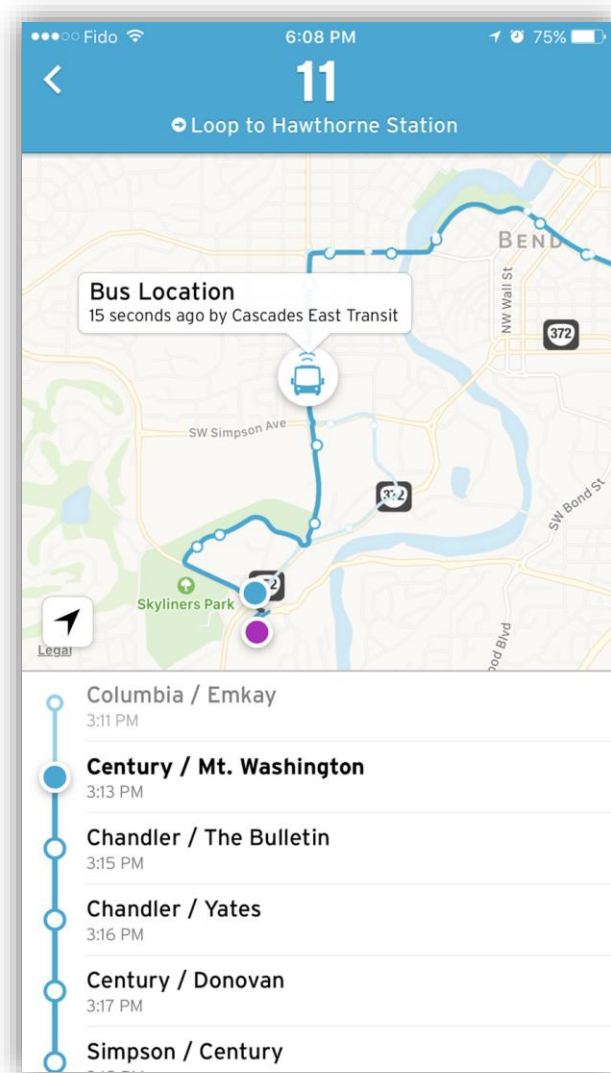
92% of customers  
report greater  
satisfaction



## Time Savings

Customers report  
an average of 2  
minutes saved

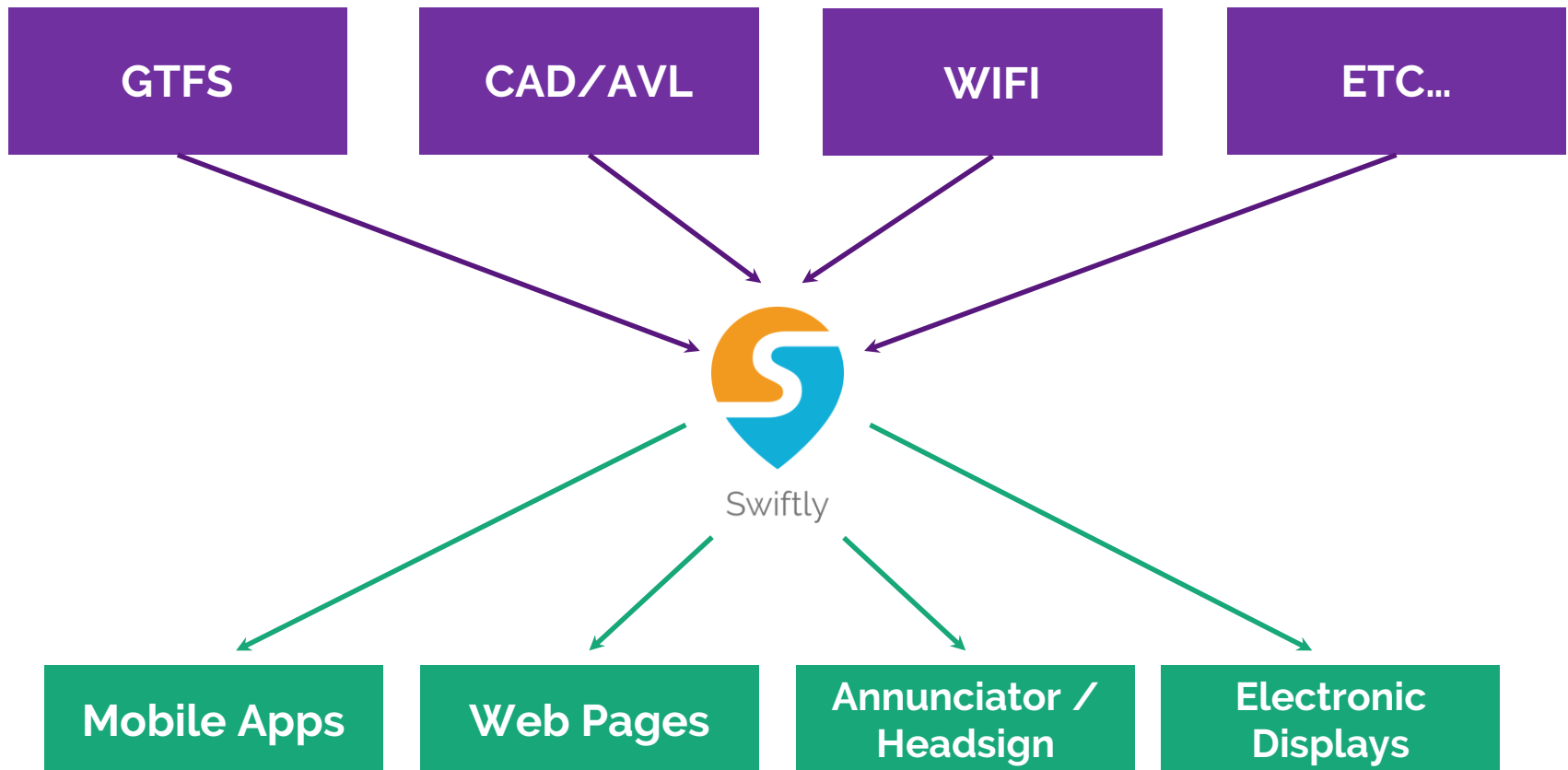
# THE NEXT GENERATION



1. More accurate
1. More reliable
1. Works with any AVL / GPS

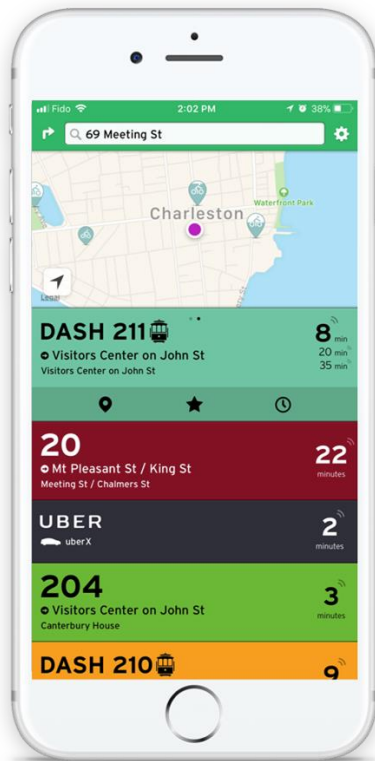
# OPEN DATA PLATFORM

ETA data is published via GTFS-Realtime, JSON, XML, & SIRI feeds

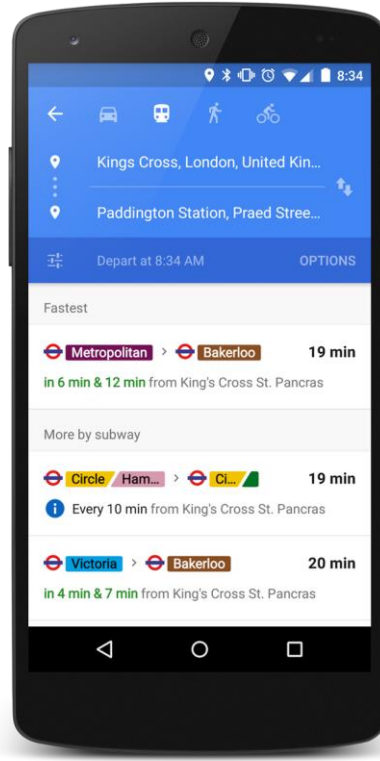


# PASSENGER MOBILE APPS

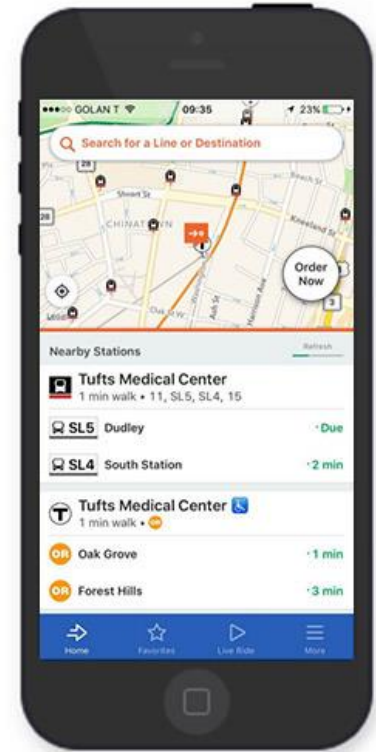
Real-time information can be sent to any app.



Transit



Google Maps



Moovit

# STOP SIGNS AND MORE

Real-time passenger information can be sent anywhere, including electronic stop signs, in-vehicle headsigns, and next stop annunciation systems.





# Key Learnings

# LOVE DATA

You already have a lot. Don't be afraid to grow it further.

010 101  
1010101 0101010  
1010101010101010  
010101010101010  
1010101010101  
1010101010  
0101010  
1010  
0

# DATA

# FOCUS ON DATA QUALITY

Quality matters. Don't just check the box.



# THE RESULT: HAPPY RIDERS





# THANK YOU

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