

城市级实时计算的力量

The Power of Real-time Computing on a City Level

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机器智能首席科学家
闵万里





数据量大

In Large Volume

逻辑复杂

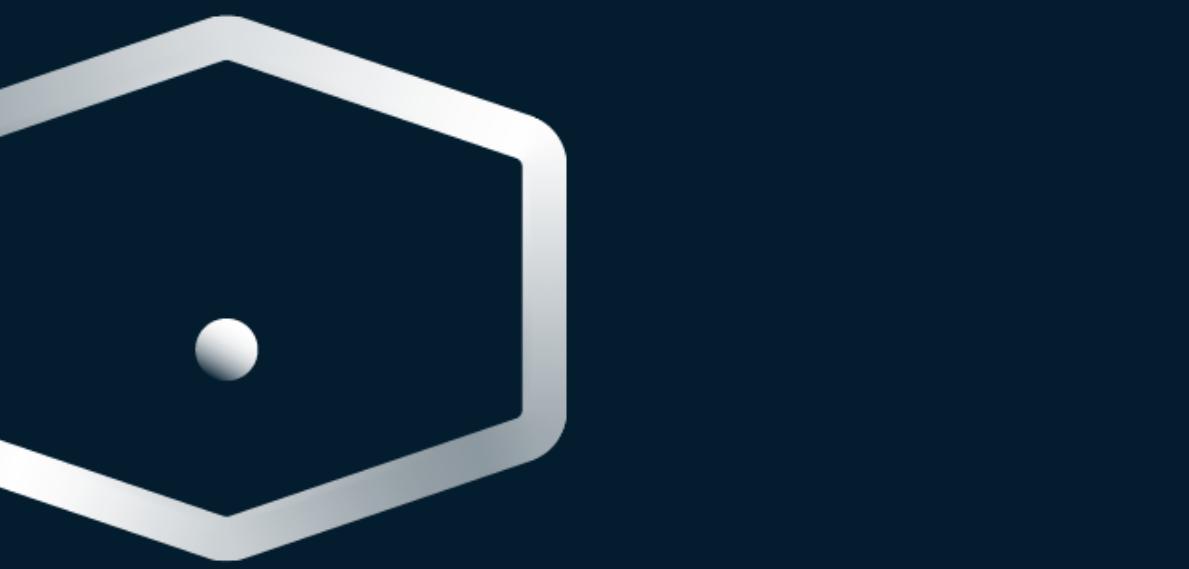
Complicated Logic

实时性强

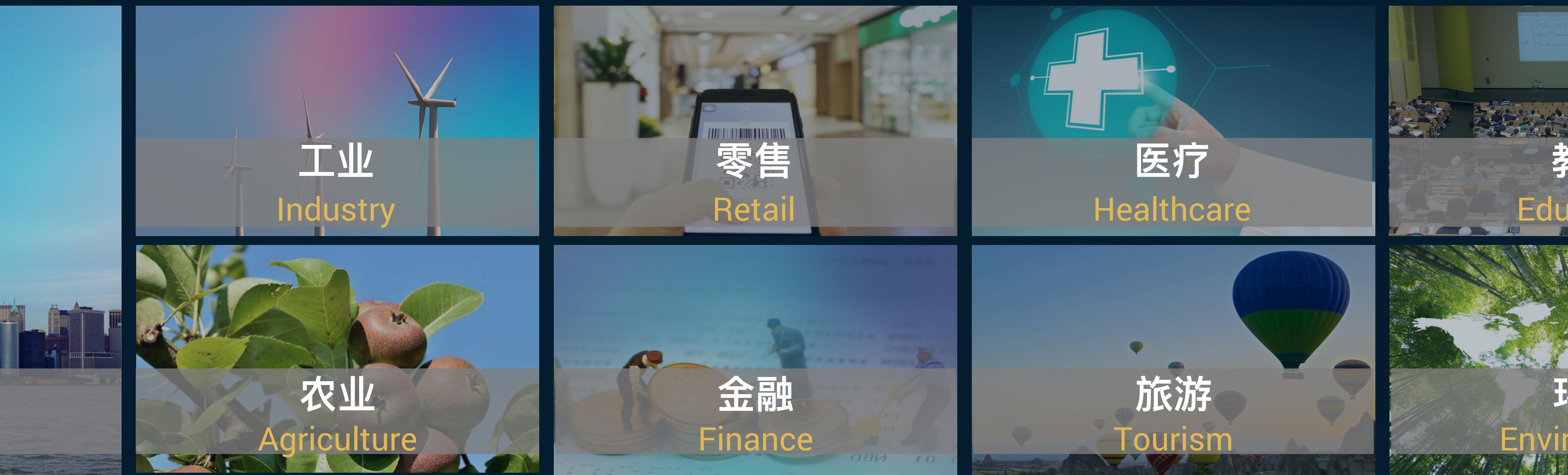
In Real-Time

上下游多

Complex Connections



ET BRAIN
ET大脑





值

10 of 10



数据，技术，行

Te

ogy

行业)



APSARA

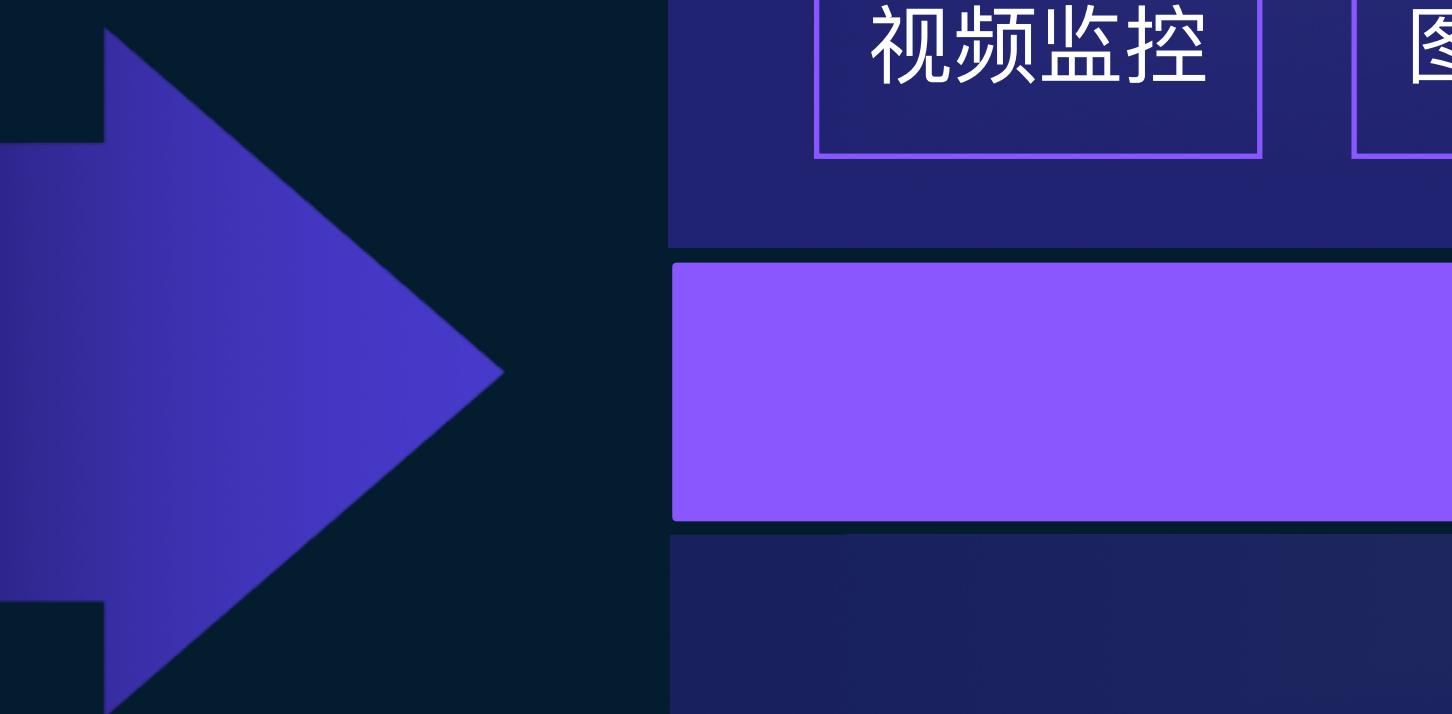
APSARA



Apache Flink

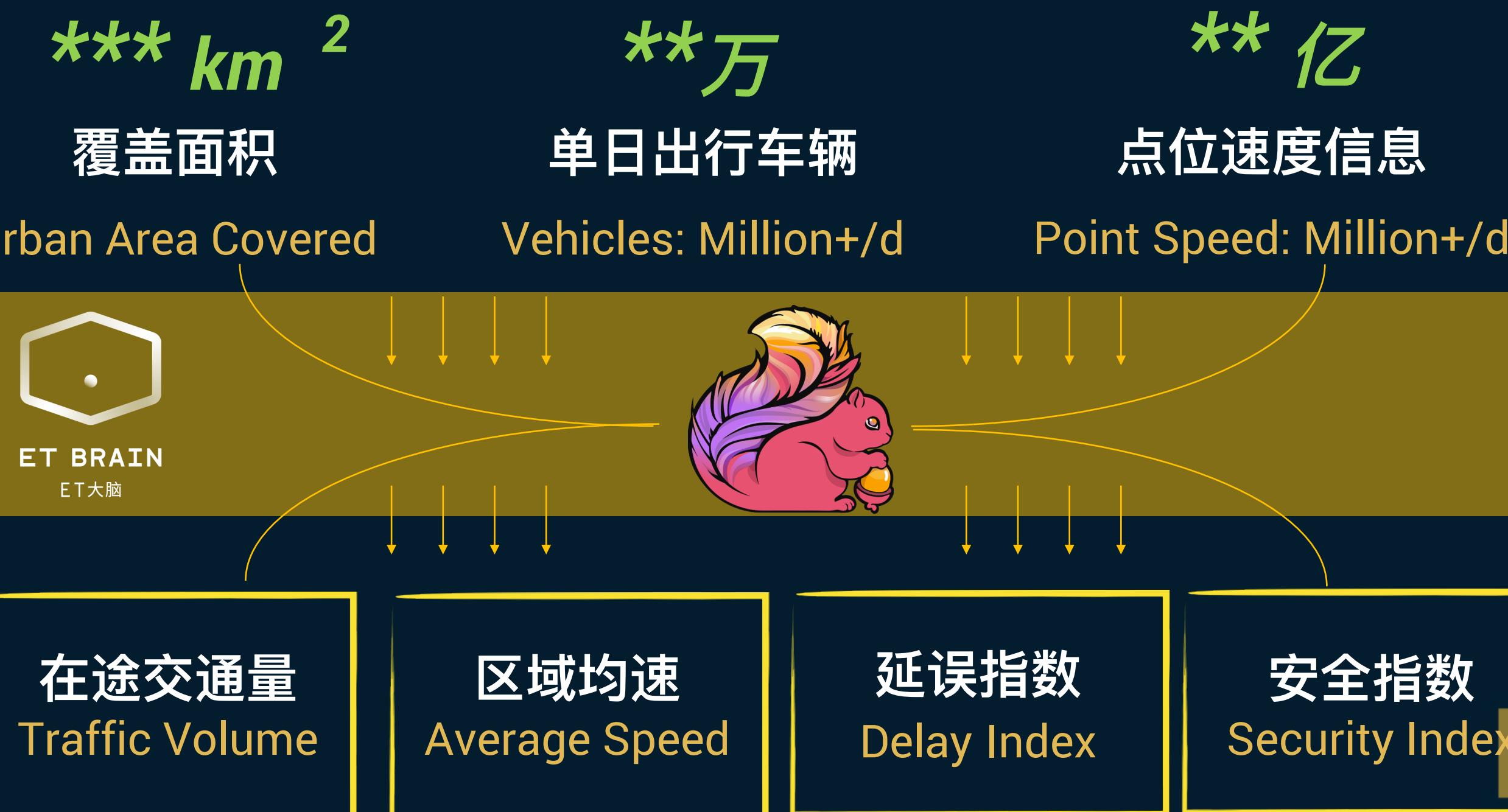
在ET大脑中的作用

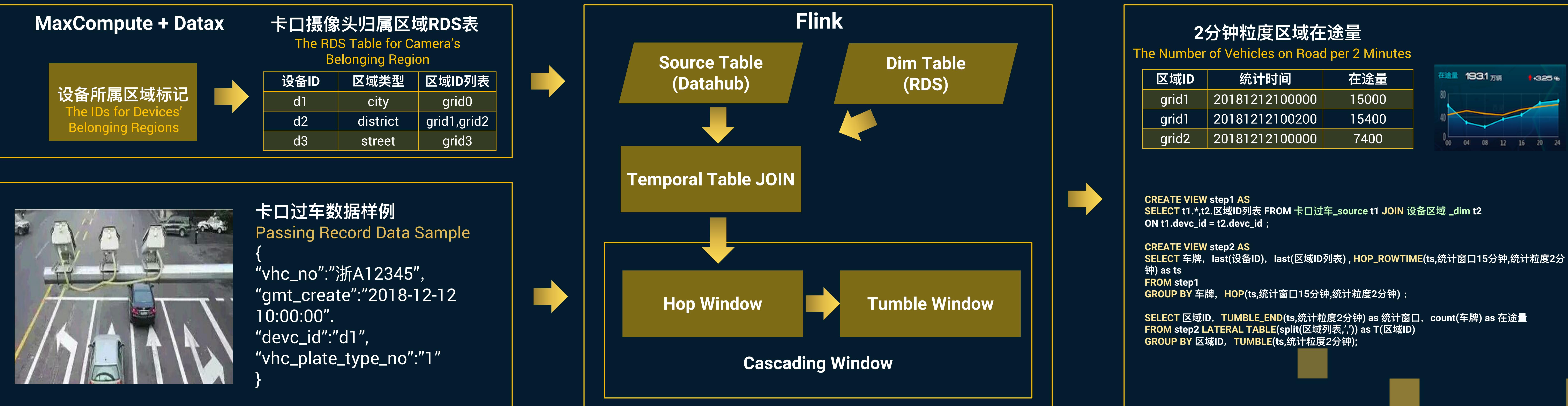
The Role in ET Brain



全知 – 城市级态势感知

Situation Perception on a City Level

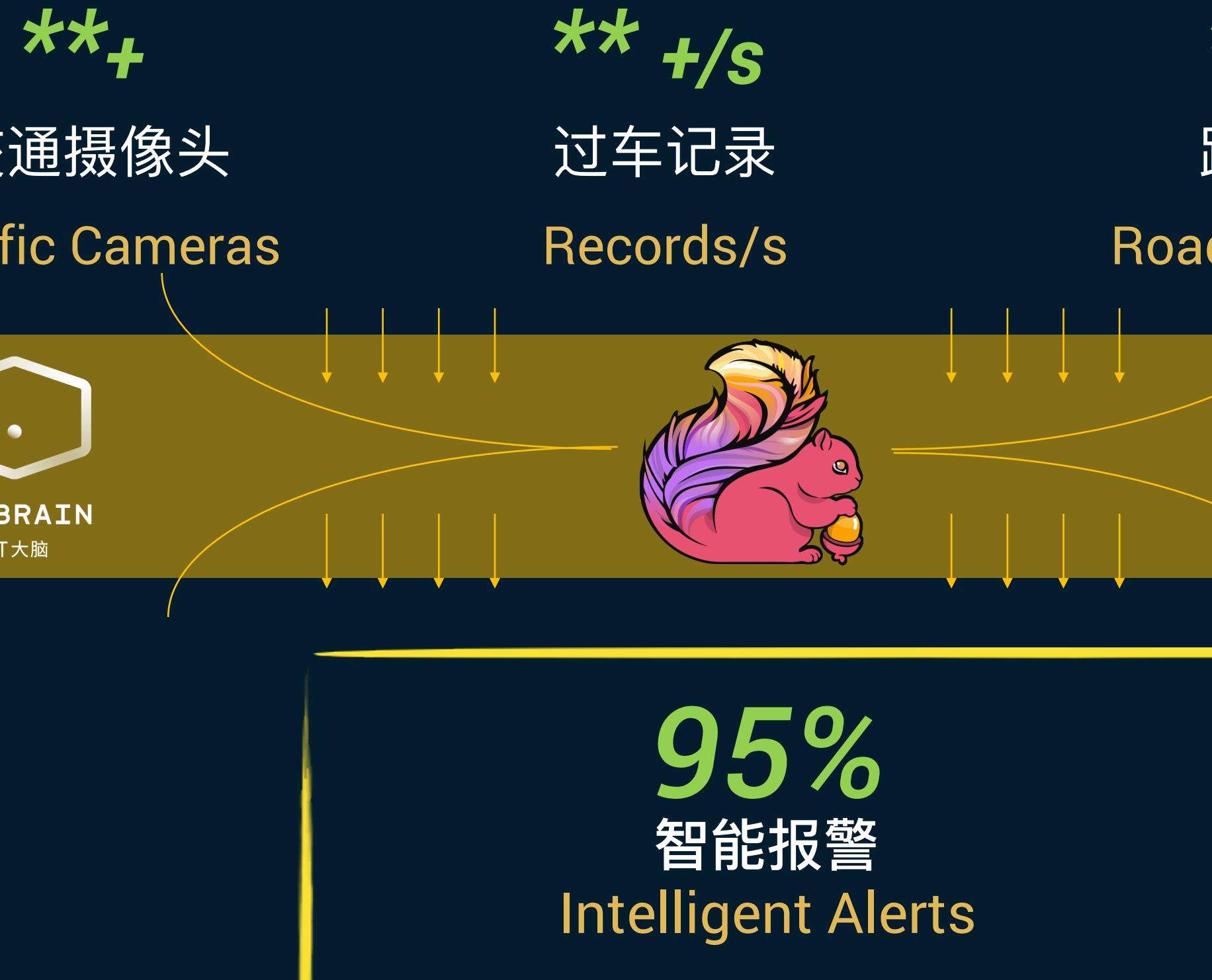




全智 - 实时预警 动态调优

Real-Time Alerting

Dynamic Tuning

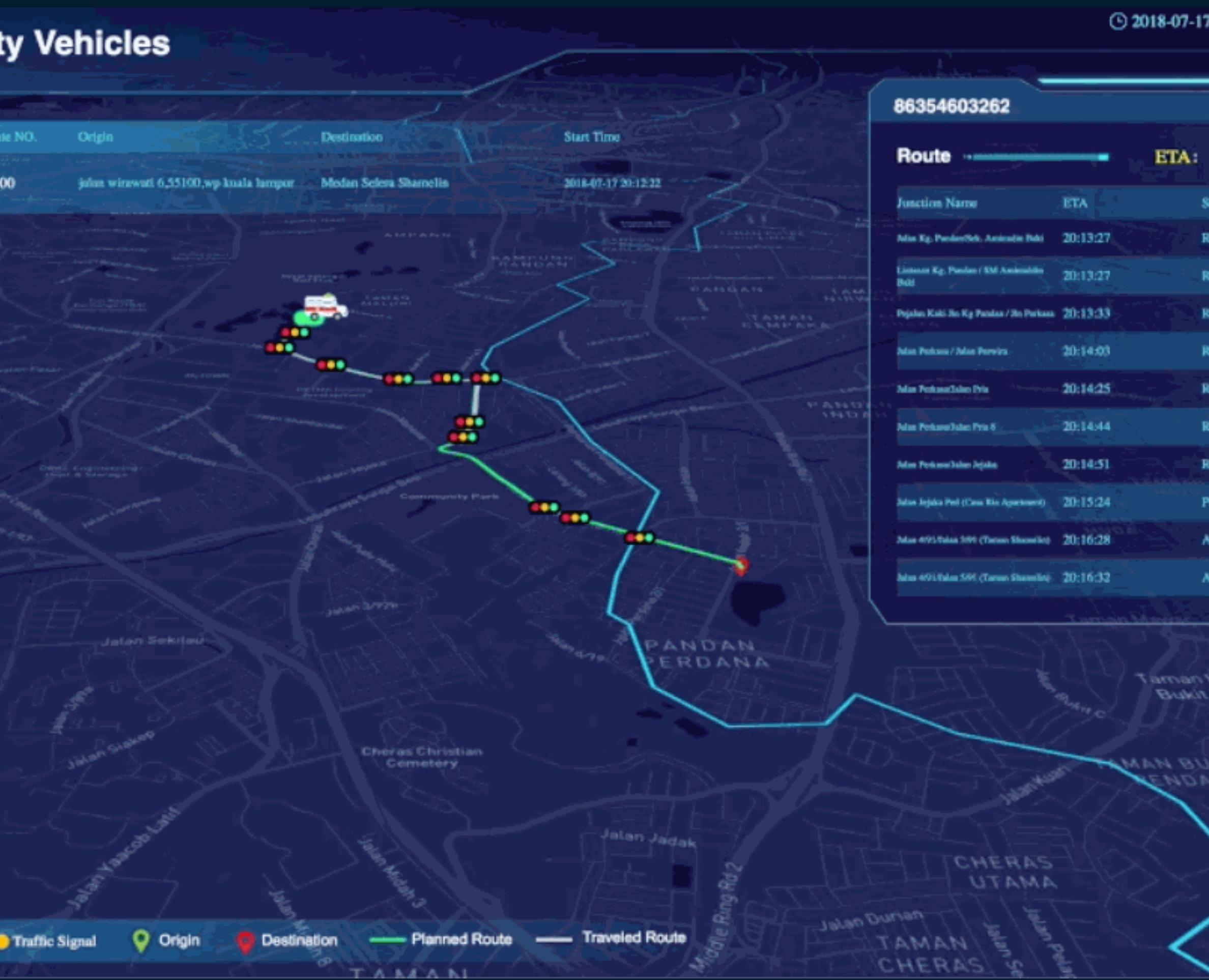






全优 – 打造绿色生命通道

Establishment a Green Life Channel



>** 条/s

每辆车GPS信息

GPS Pulse

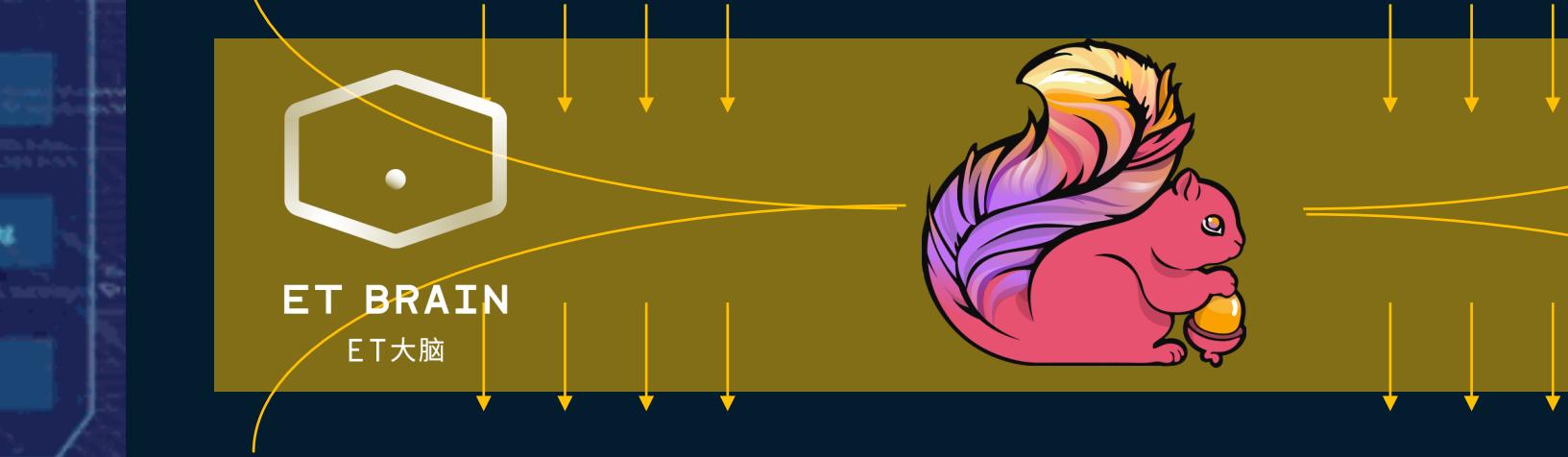
>** 条/s

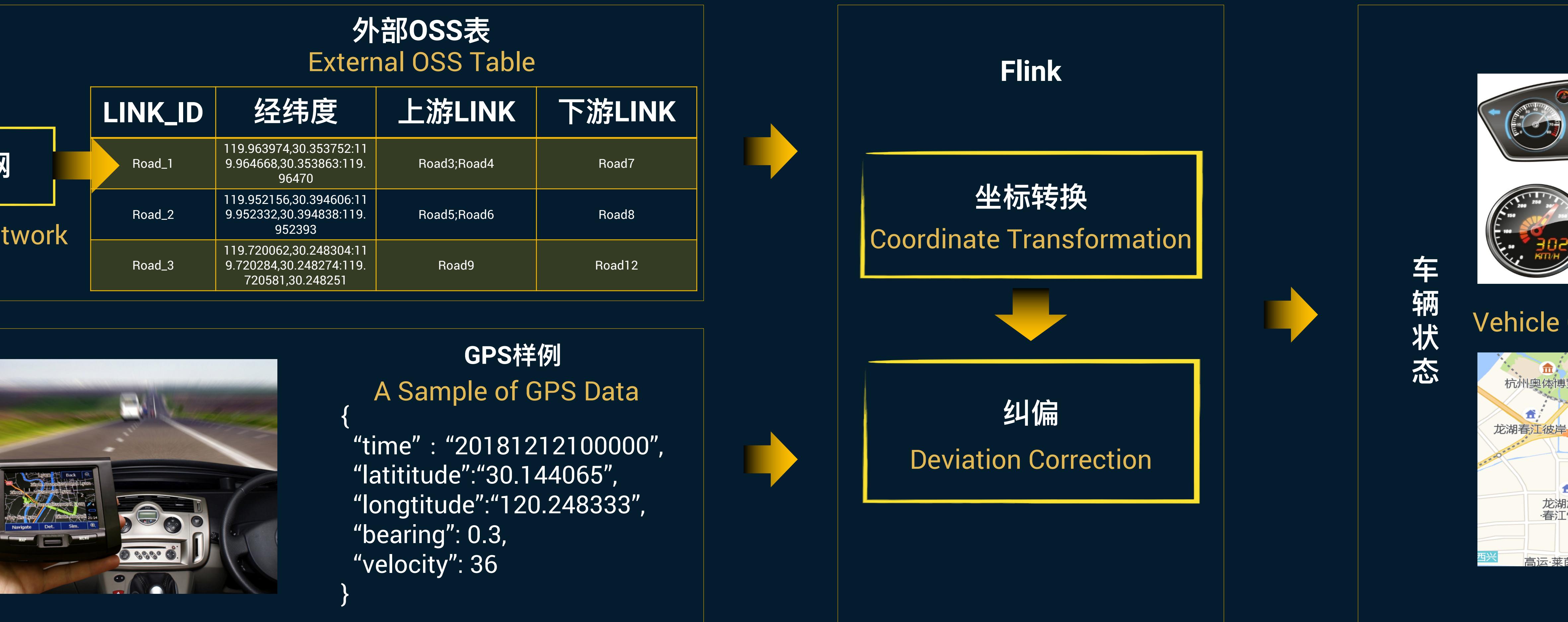
实时路况信息

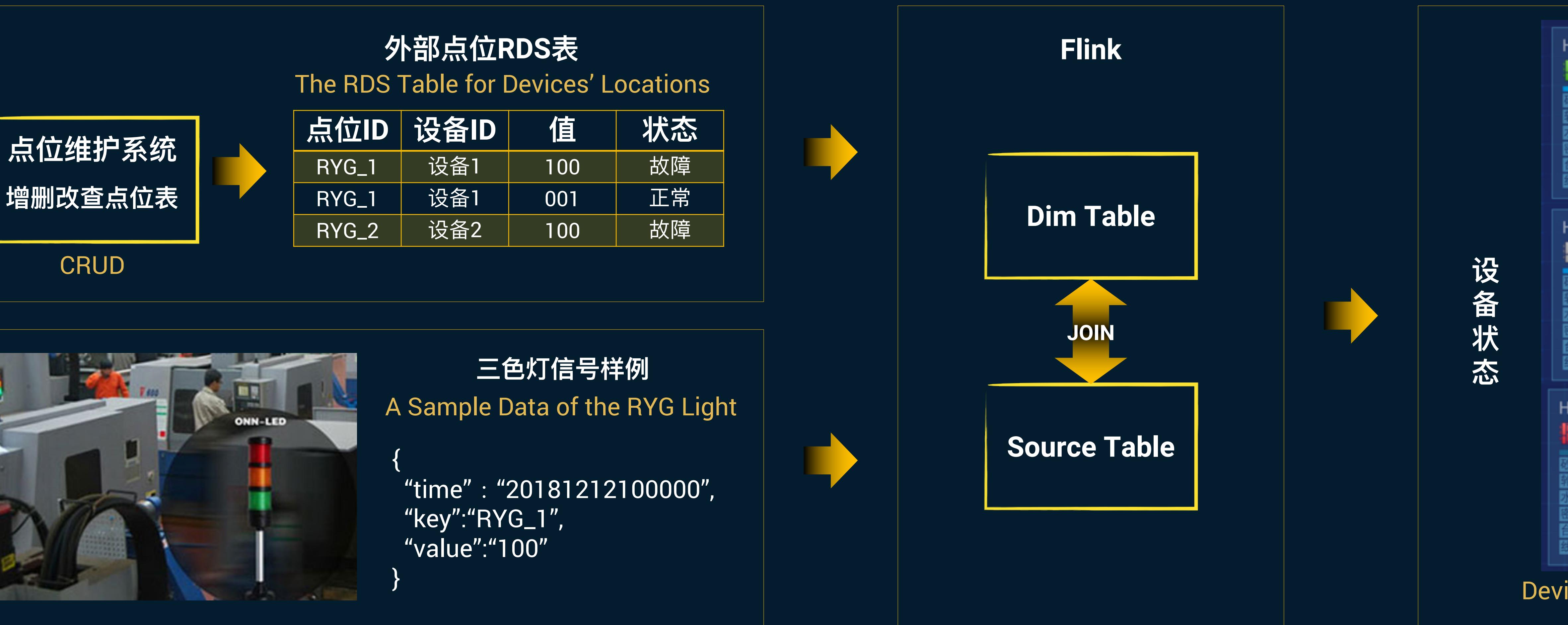
Real-Time Road Condition

48.9%

通行时间节约
Travel Time Saved









智产 – 优化控制 参数智能

Optimized Control and Intelligent Parameter Setting

The dashboard on the left shows real-time data for four boilers (2号锅炉, 3号锅炉, 4号锅炉, 23号锅炉) with a focus on coal quantity. It includes a table of recommended values and current values, and a graph showing the execution rate of recommendations over time. A central cartoon squirrel holds a glowing orange sphere, symbolizing intelligence or energy.

电厂名称一

2号锅炉 3号锅炉 4号锅炉 23号锅炉 最近更新: 2018年1月3日 15:03:24

● 强制执行 ● 推荐执行

指标	推荐值	当前值	推荐执行率
煤量	50%	18 t/h	30%
煤量	50%	18 t/h	30%
煤量	50%	18 t/h	30%
煤量	50%	18 t/h	30%
煤量	50%	18 t/h	30%

操作

调整一次风 Tuning primary air

调整二次风 Tuning secondary air



**+

关键影响生产指标

Critical Metrics

**

统计模型算法

Algorithms for Statistical Model

**万

流计算结果

Results of Stream Computing



攀钢集团

PANGANG GROUP

Wynca 新安



恒逸集团

HENGYI GROUP

切片机流数据
过程参数

Streaming Data of Slicing Machines

时间	设备ID	点位ID	点位值
20181212100000	dmr_1	切割速度	1.0
20181212100200	dmr_1	钢线温度	85
20181212100400	dmr_1	**	0.5

晶棒ID	设备ID	开始时间	结束时间	供应商
晶棒_1	dmr_1	20181212100000	20181212100100	Sup_1
晶棒_1	dmr_1	20181212100200	20181212100300	Sup_2
晶棒_2	dmr_1	20181212100400	20181212100500	Sup_3



MES数据库
批次信息
MES Database

晶棒ID	设备ID	开始时间	结束时间	供应商
晶棒_1	dmr_1	20181212100000	20181212100100	Sup_1
晶棒_1	dmr_1	20181212100200	20181212100300	Sup_2
晶棒_2	dmr_1	20181212100400	20181212100500	Sup_3

Flink

晶棒ID	时间	设备ID	点位ID	点位值	供应商
晶棒_1	20181212100000	dmr_1	切割速度	1.0	Sup_1
晶棒_1	20181212100200	dmr_1	钢线温度	85	Sup_2
晶棒_2	20181212100400	dmr_1	**	0.5	Sup_3

**SELECT * FROM 切片机流 JOIN MES流
ON 切片机流.设备ID = MES流.设备ID
WHERE 切片机流.时间 < MES流.结束时间
AND 切片机流.时间 > MES流.开始时间**



开放生态 合作共赢

An Opened Ecosystem Win-Win Cooperation



THANKS

