

StarGazer:

Map Analytics in StarCraft II

Guang Yang

Menu (F10)

Message Log (F11)

Help (F12)

N 2448

1768

58/89



Menu (F10)

Message Log (F11)

Help (F12)

None (N)

1545

527

62/62



1300 / 1300

1
5

Starport

- Training
- 2
 - 3
 - 4
 - 5



Everyone (E)



► Main Objectives

- Build more Barracks, Factories or Reactors [7/8]
- Build a Command Center at a new resource location
- Defeat the Enemy

► Bonus Objectives

- Upgrade Command Center to Orbital Command or Planetary Fortress
- Research Army Upgrades [2/3]

Build a Supply Depot

4026

1269

149/158



0
F1 F2 78



1 2 3 4



1
2
3



to Move
(A) then ground to Auto-attack



► Main Objectives

- Build more Barracks, Factories or Reactors [7/8]
- Build a Command Center at a new resource location
- Defeat the Enemy

► Bonus Objectives

- Upgrade Command Center to Orbital Command on Planetary Fortress
- Research Army Upgrades [2/3]

4026

1269

149/158







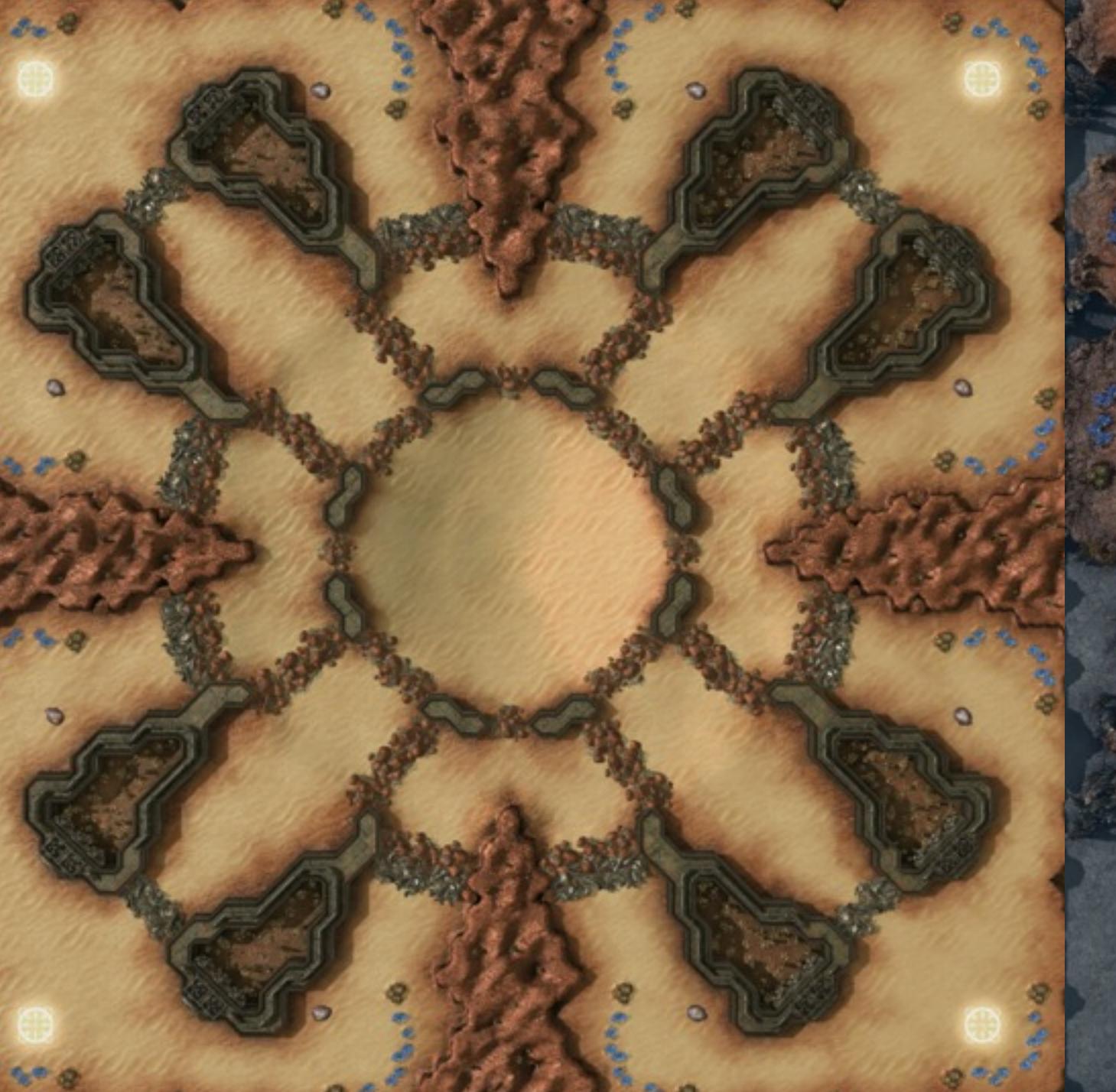
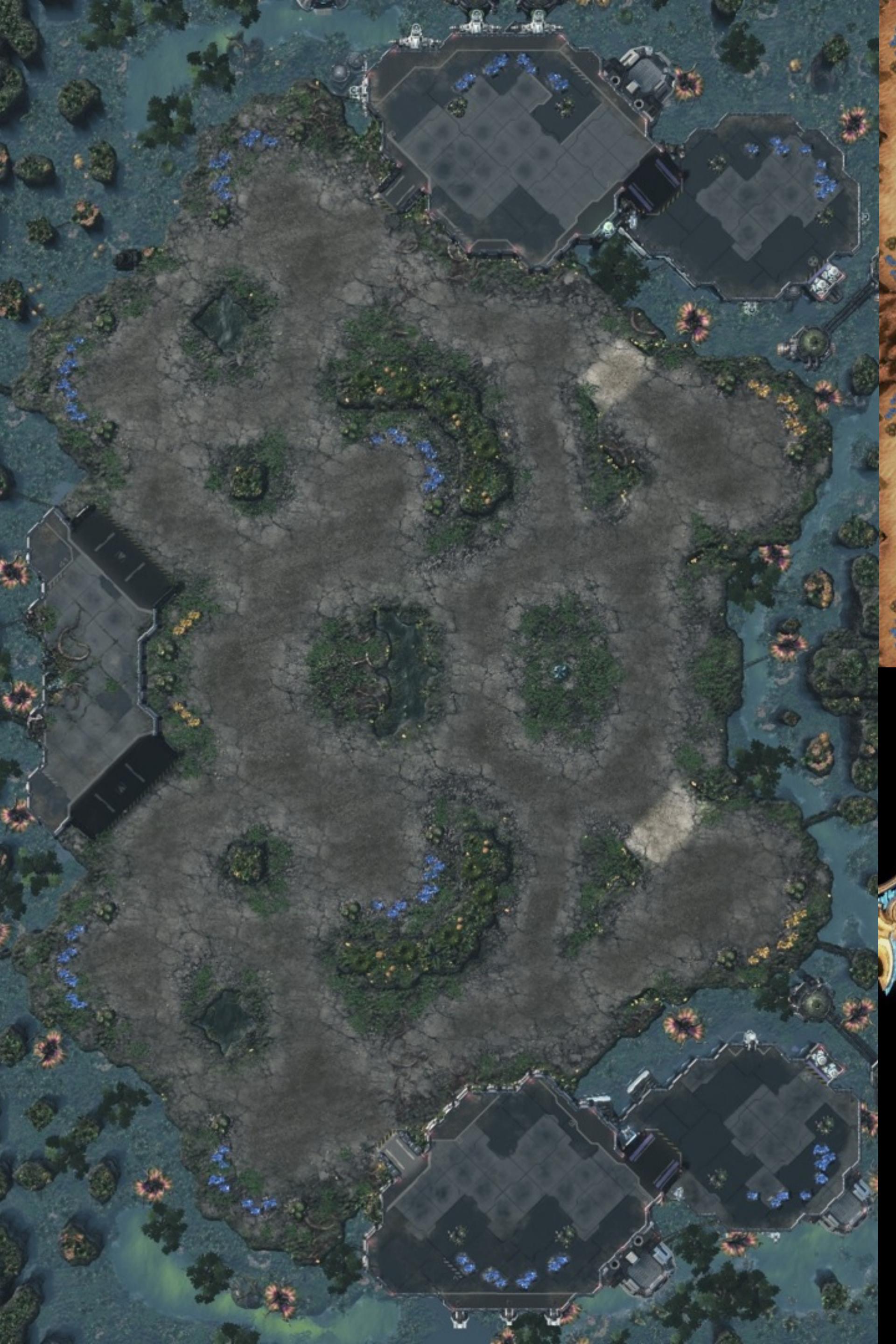






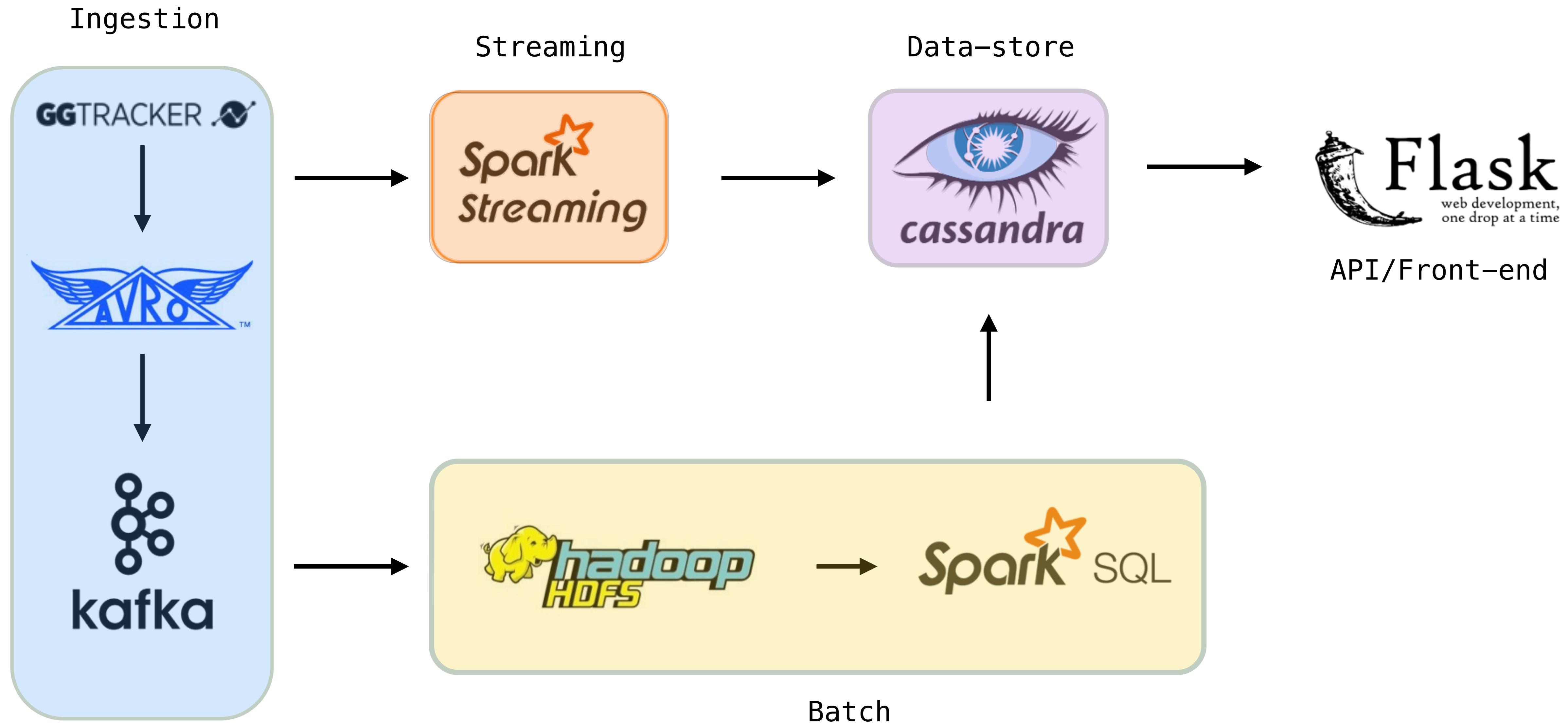




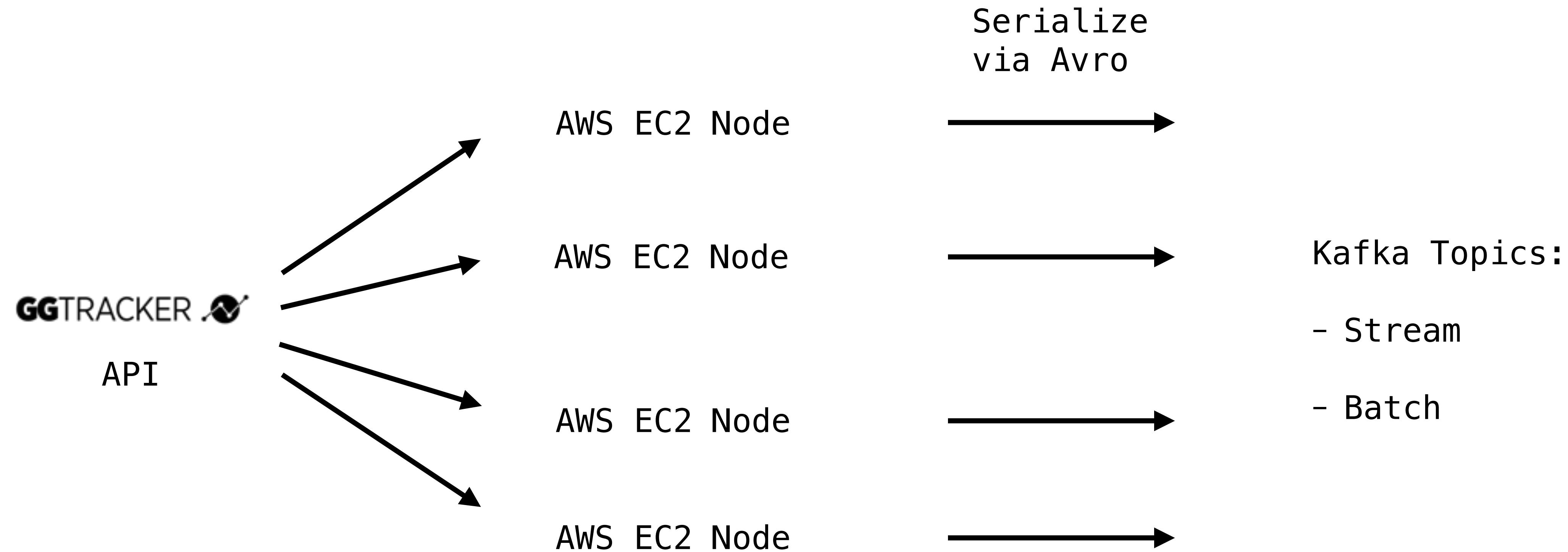


(Demo)

Pipeline



Ingestion



Example API Request: <http://api.ggtracker.com/api/v1/matches/3529593.json>

```

1 {  

2   "id": 5737334,  

3   "ended_at": "2015-01-15T20:46:59+00:00",  

4   "winning_team": 1,  

5   "category": "Ladder",  

6   "game_type": "1v1",  

7   "average_league": 3,  

8   "duration_seconds": 1294,  

9   "release_string": "2.1.8.33553",  

10  "replays_count": 1,  

11  "summaries_count": 0,  

12  "expansion": 1,  

13  "cobrand": null,  

14  "map_name": "Overgrowth LE",  

15  "map": {  

16    "id": 5440,  

17    "name": "Overgrowth LE",  

18    "gateway": "us",  

19    "s2ma_hash": "b4e4d3994ee12ce0212c6703950eed3a61b61",  

20    "image_scale": 0.6944444444444444  

21 },  

22  "map_url": "https://gg2-mi-dev.s3.amazonaws.com/overg",  

23  "entities": [  

24    {  

25      "id": 16630314,  

26      "wpm": null,  

27      "apm": 106.831530139104,  

28      "spending_skill": 6.017045858077446,  

29      "win": true,  

30      "race": "P",  

31      "team": 1,  

32      "color": "B4141E",  

33      "race_macro": 0.859864838650011,  

34      "sat_1_skill": 5.0,  

35      "sat_2_skill": 5.0,  

36      "sat_3_skill": 0.0,  

37      "saturation_skill": 0.0,  

38      "max_creep_spread": null,  

39      "action_latency_real_seconds": 0.623904017742019,  

40      "identity": {  

41        "id": 1106688,  

42        "type": "ESDB::Sc2::Identity",  

43        "name": "Tortuga",  

44        "provider_id": null,  


```

Serialization via Avro



- reinforces schema
- splittable on HDFS
- backward compatible
- saves space (binary)

```

{"type": ["float", "null"], "name": "player0_apm_career"},  

"float", "null"], "name": "player0_wpm_career"}, {"type": |  

"null"], "name": "player0_most_played_race"}, {"type": "flo  

"player0_hours_played"}, {"type": ["boolean", "null"], "nam  

"player0_win"}, {"type": "string", "name": "player0_race"},  

"float", "name": "player0_avg_unspent_resources"}, {"type": :  

"name": "player1_id"}, {"type": "int", "name": "player1_bne"},  

{"type": "string", "name": "player1_name"}, {"type": ["int"  

"name": "player1_current_league_1v1"}, {"type": ["int", "nu  

"name": "player1_current_rank_1v1"}, {"type": ["int", "null  

"player1_matches_count"}, {"type": ["int", "null"], "name":  

"player1_season_games"}, {"type": ["int", "null"], "name":  

"player1_career_games"}, {"type": ["string", "null"], "name":  

"player1_profile_url"}, {"type": "float", "name": "player1_<  

{"type": ["float", "null"], "name": "player1_apm_career"},  

"float", "null"], "name": "player1_wpm_career"}, {"type": |  

"null"], "name": "player1_most_played_race"}, {"type": "flo  

"player1_hours_played"}, {"type": ["boolean", "null"], "nam  

"player1_win"}, {"type": "string", "name": "player1_race"},  

"float", "name": "player1_avg_unspent_resources"}], "type": :  

"name": "simple_match"}DC4avro.codecBSnullNULP@iHÂj  

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prod.s3.amazonaws.com/e454f960e0225bf0d931f7960d16d4fc.SC2F  

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com/overgrowth_le.jpgACK1v1FFLadderŠESCEOT¹]  

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battle.net/sc2/en/profile/6059428/1/Jinx/càBNULAU,BSTXNULS  

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s3.amazonaws.com/d57ba22a2c992287205bd7adee68e980.SC2Replay  

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net/sc2/en/profile/323315/1/kokushu/NULNULNULNULNULÄ²"BN  

€Ë@NULNULSTXZNULNULHB^...°SOHÔÉÅENQDLE0II0000INUL EOTNULN  

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SOHhttps://gg2-replays-prod.s3.amazonaws.  

com/f1a701252e8e9fdaf8ee77d69ec58602.SC2ReplaySYN2.1.8.  

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com/overgrowth_le.jpgACK1v1SOPrivateè  

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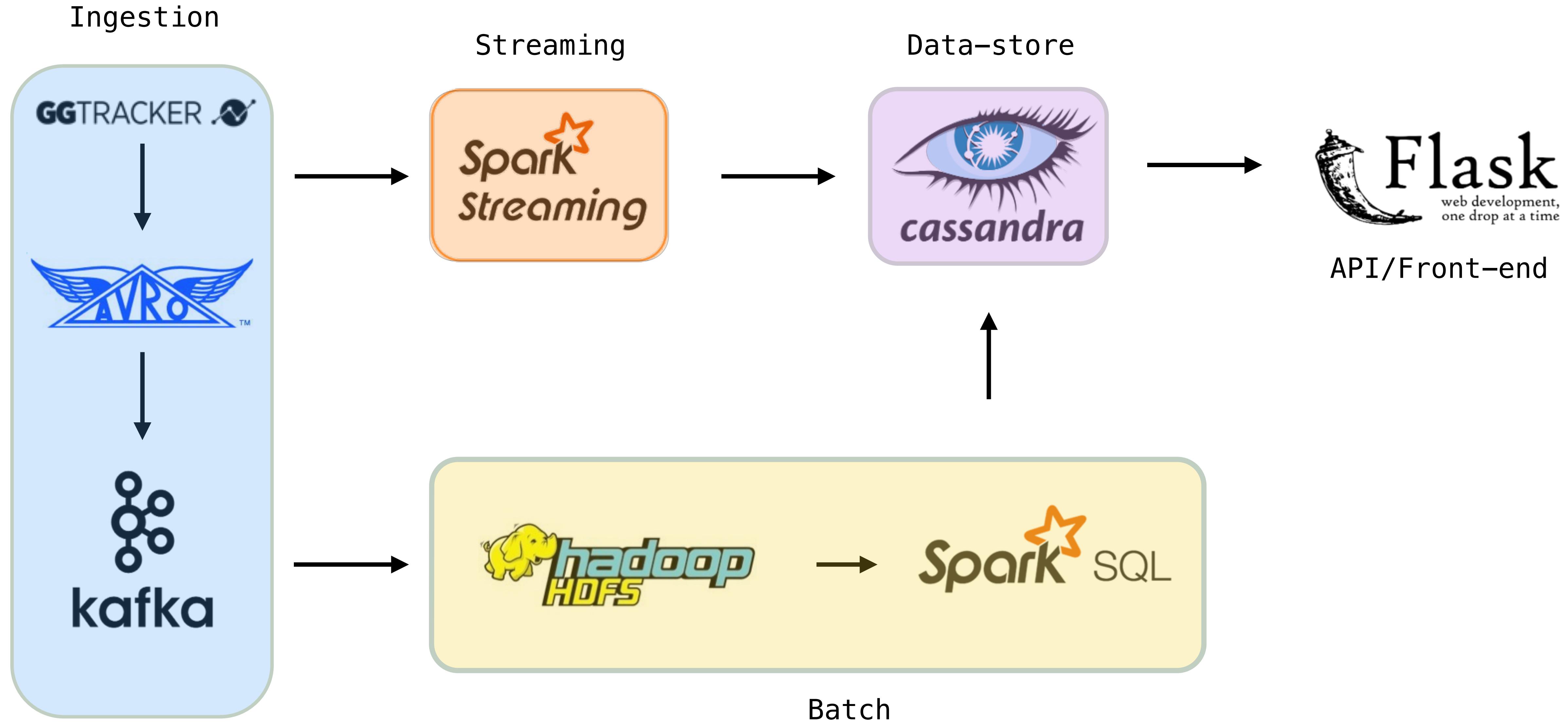
net/sc2/zh/nprofile/1261502/1/iGiA/"!1CNIII~!1CSTXSTXr>

```

2

3

Pipeline



Batch / Streaming

```
duration_over_time: org.apache.spark.sql.SchemaRDD =  
SchemaRDD[4] at RDD at SchemaRDD.scala:108  
== Query Plan ==  
== Physical Plan ==  
Project [match_id#0,ended_at#13,map_name#6,duration_seconds#14]  
PhysicalRDD [match_id#0,game_time#1,replay_id#2,replay_url#3,  
,map_id#7,map_url#8,game_type#9,game_category#10,duration_0_id#11,  
er0_id#14,player0_bnet_id#15,player0_name#16,player0_current_wpm#17,  
player0_matches_count#19,player0_season_games#20,player0_apm_match#21,  
player0_apm_career#24,player0_wpm_career#25,player0_matches_played#27,  
player0_win#28,player0_race#29,player0_avg_wpm#30]
```



| map_name | ended_at | duration_seconds | match_id |
|------------------|------------|------------------|----------|
| Scorched Haven | 1.4181e+09 | 733 | 5652425 |
| Scorched Haven | 1.4182e+09 | 896 | 5652800 |
| Scorched Haven | 1.4182e+09 | 1987 | 5653035 |
| Scorched Haven | 1.4182e+09 | 473 | 5653894 |
| Scorched Haven | 1.4182e+09 | 461 | 5653897 |
| Scorched Haven | 1.4187e+09 | 683 | 5667788 |
| Scorched Haven | 1.4187e+09 | 197 | 5667892 |
| Scorched Haven | 1.4189e+09 | 649 | 5671883 |
| Scorched Haven | 1.4189e+09 | 888 | 5672623 |
| Scorched Haven | 1.4191e+09 | 1140 | 5676483 |
| Scorched Haven | 1.4199e+09 | 971 | 5715495 |
| Scorched Haven | 1.4204e+09 | 722 | 5712781 |
| Scorched Haven | 1.4204e+09 | 1037 | 5712783 |
| Scorched Haven | 1.4206e+09 | 1205 | 5717443 |
| Scorched Haven | 1.4206e+09 | 647 | 5717586 |
| Newkirk District | 1.4168e+09 | 686 | 5668802 |
| Newkirk District | 1.4178e+09 | 574 | 5665078 |
| Newkirk District | 1.4179e+09 | 855 | 5665086 |
| Newkirk District | 1.418e+09 | 350 | 5652640 |
| Newkirk District | 1.4182e+09 | 5 | 5652942 |
| Newkirk District | 1.4182e+09 | 1437 | 5655144 |
| Newkirk District | 1.4182e+09 | 1359 | 5658624 |
| Newkirk District | 1.4182e+09 | 232 | 5658621 |
| Newkirk District | 1.4183e+09 | 5031 | 5658629 |
| Newkirk District | 1.4183e+09 | 726 | 5655520 |
| Newkirk District | 1.4183e+09 | 860 | 5656190 |

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- B.A. in Computational and Applied Mathematics (Rice University)
- M.S. in Industrial Engineering & Operations Research (UC Berkeley)
- Got into Diamond League as Terran without making any Siege Tanks
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- GitHub: github.com/gy8

