# ML Artifacts Ownership Enforcement

**Yan Yan**

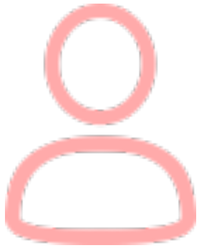
Production Engineer, Facebook [July. 30th, 2020]

# Agenda

- Background story
- Problem statement
- Challenges
- Solution workflow
- Architecture
- Ads example
- Benefits
- Future work & Takeaways

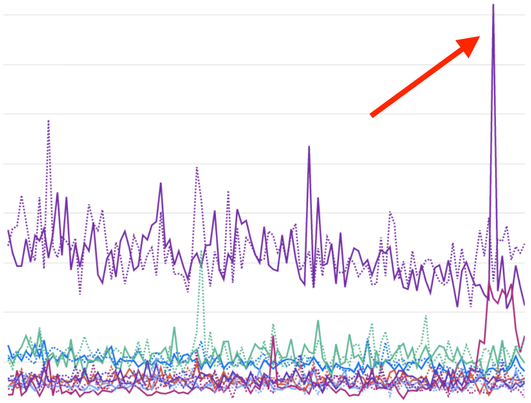
# Let's start with a story. : )

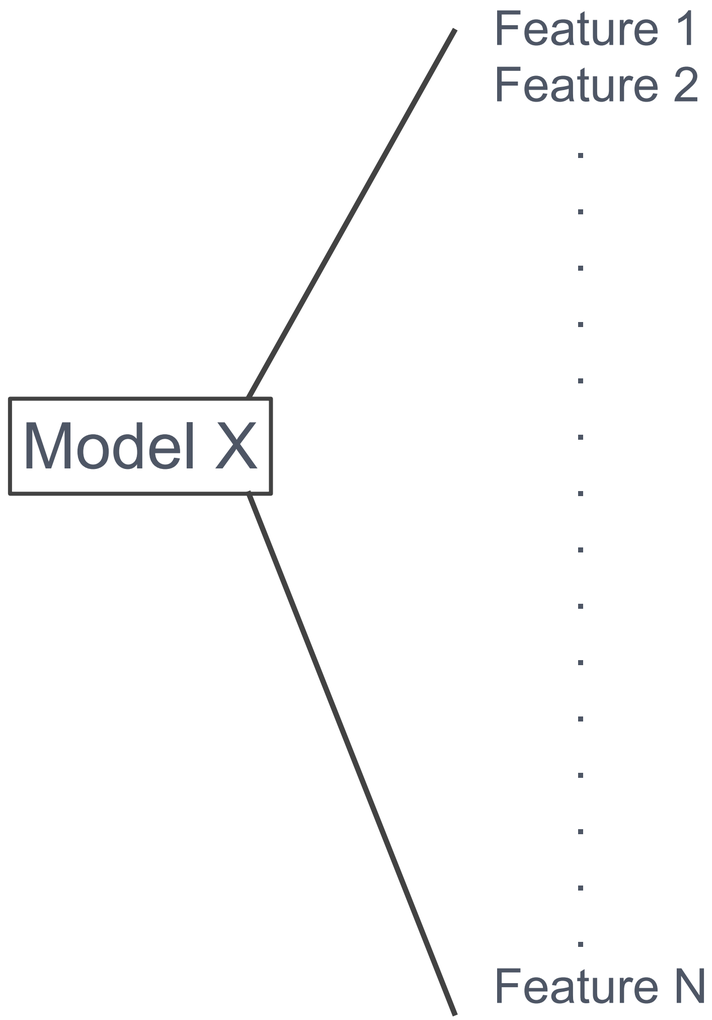
Oncall



| Priority | Progress | Updated | Priority | Progress | Updated |
|---|---|---|---|---|---|
| UBN! | | Just now | High | | Just now |
| UBN! | | Just now | High | | Just now |
| UBN! | | Just now | High | | Just now |
| UBN! | | Just now | High | | Just now |
| UBN! | | Just now | High | | Just now |
| UBN! | | 1 min ago | High | | Just now |
| UBN! | | 1 min ago | High | | Just now |
| UBN! | | 1 min ago | High | | Just now |
| UBN! | | 2 mins ago | High | | Just now |






Feature 1
Feature 2
Model X
Feature N

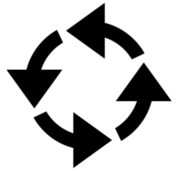


Codebase 1 → Owner1: Alice ⊖ Not a current employee

Codebase 2 → Owner2: Bob



Codebase 3 → Owner3: Chris





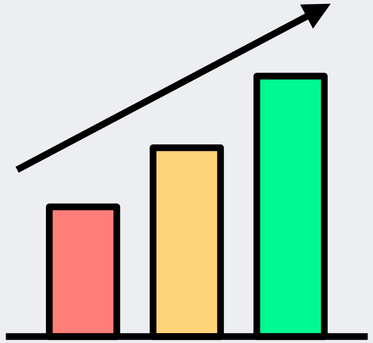
→ Owner4: David



# Problems

- Dependency on ML artifacts' ownership
- Highly fluent environment
- System discrepancy



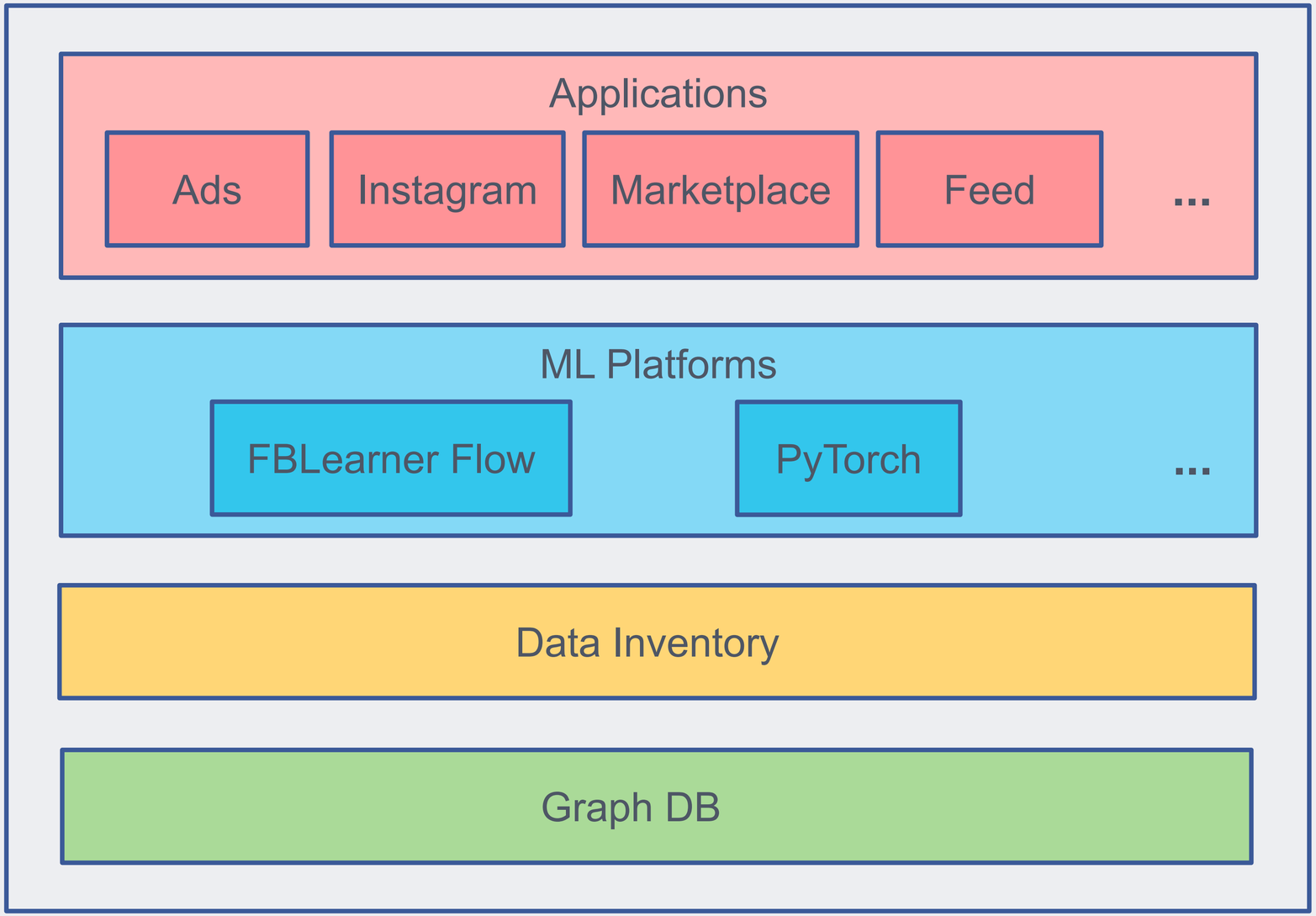


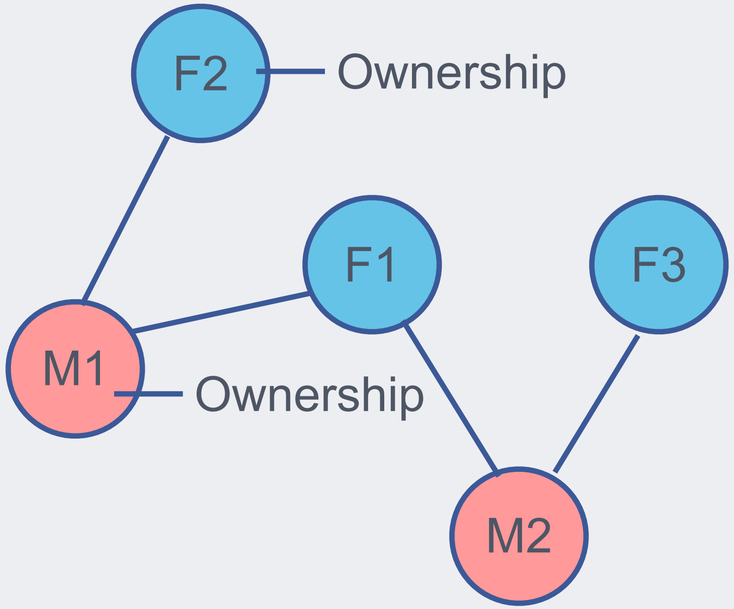


# Workflow

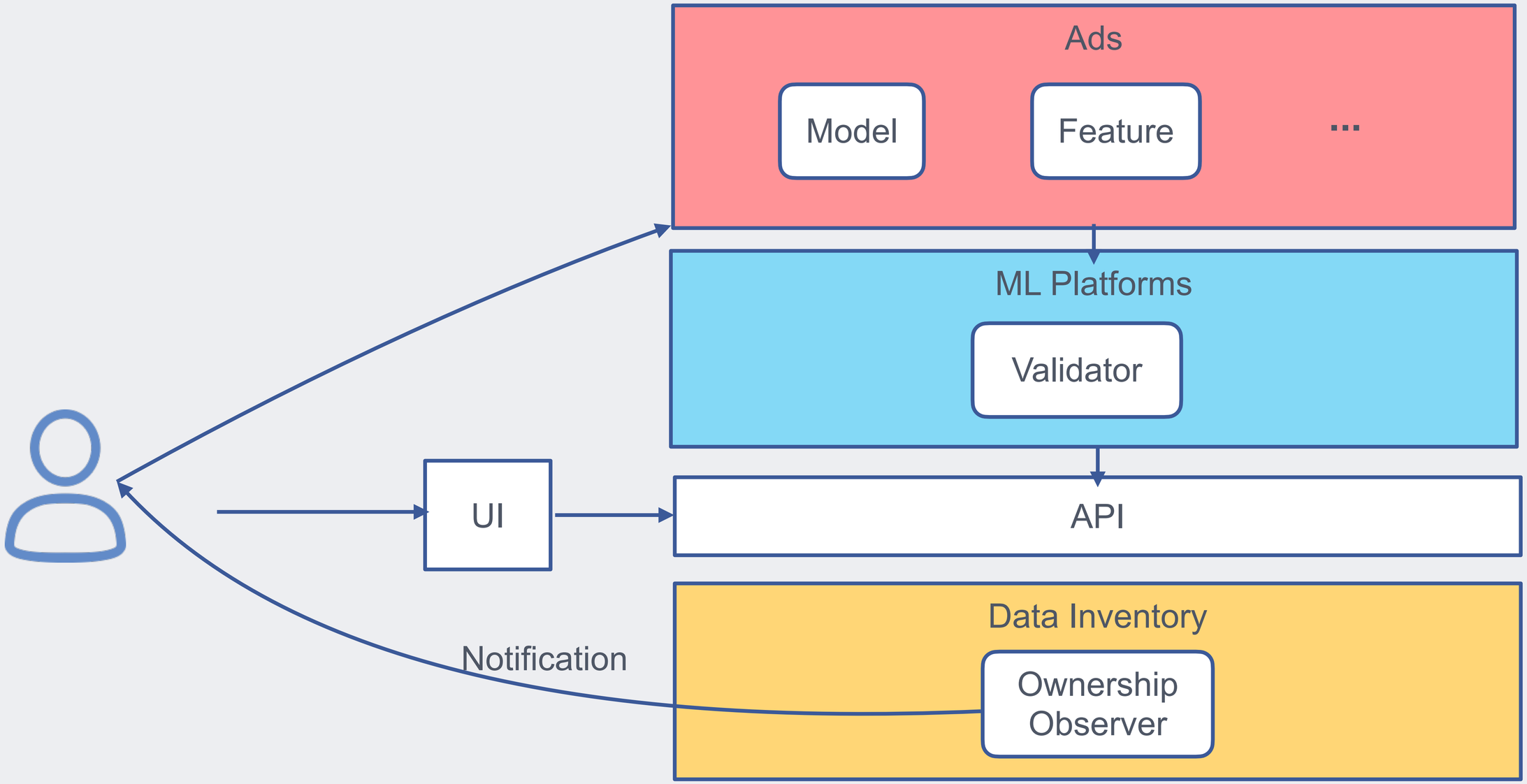
- Form virtual work teams
- Identification
- Classification
- Prioritization
- Existing Ownership Registration
- New Ownership Enforcement

# Architecture

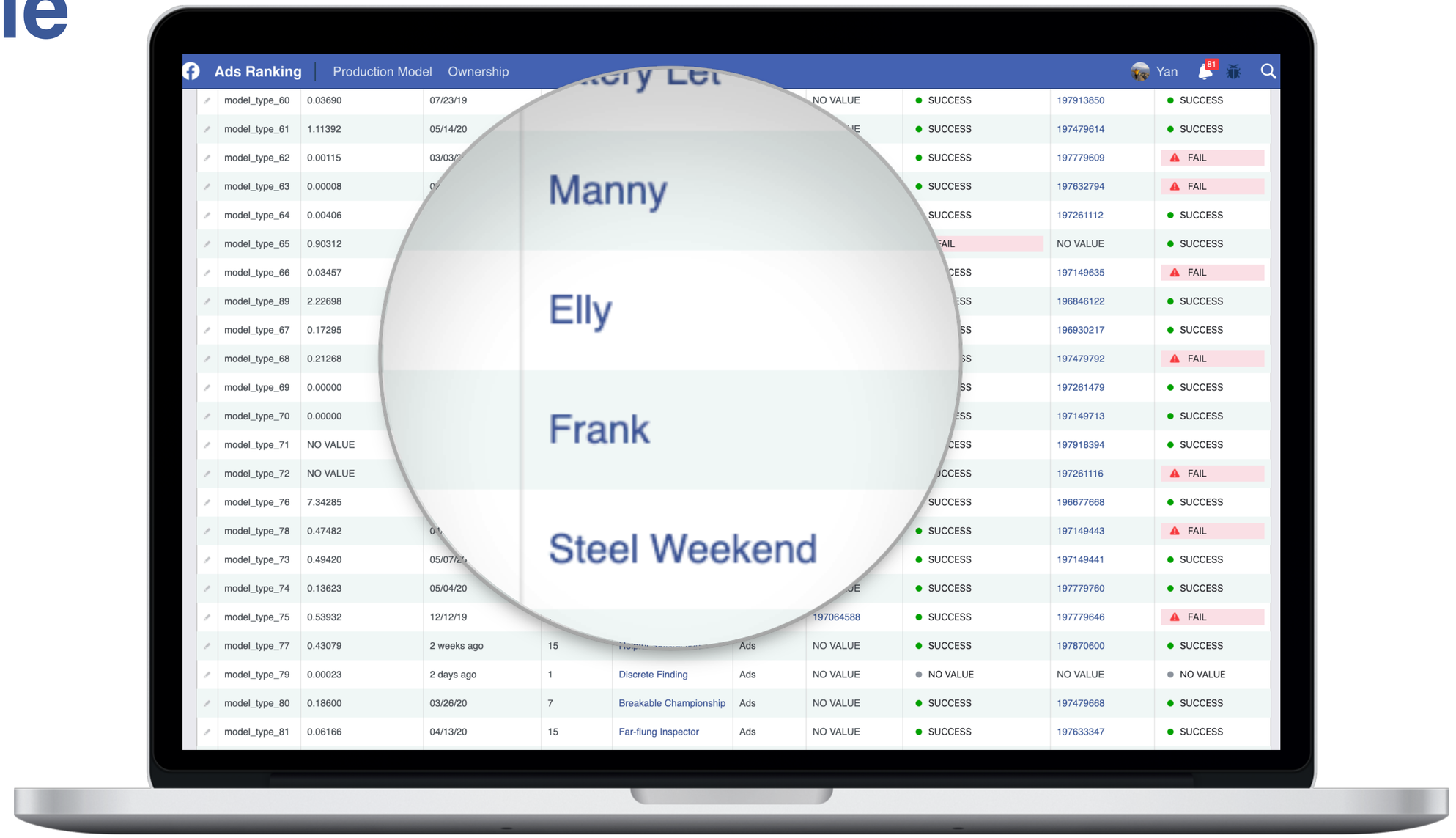


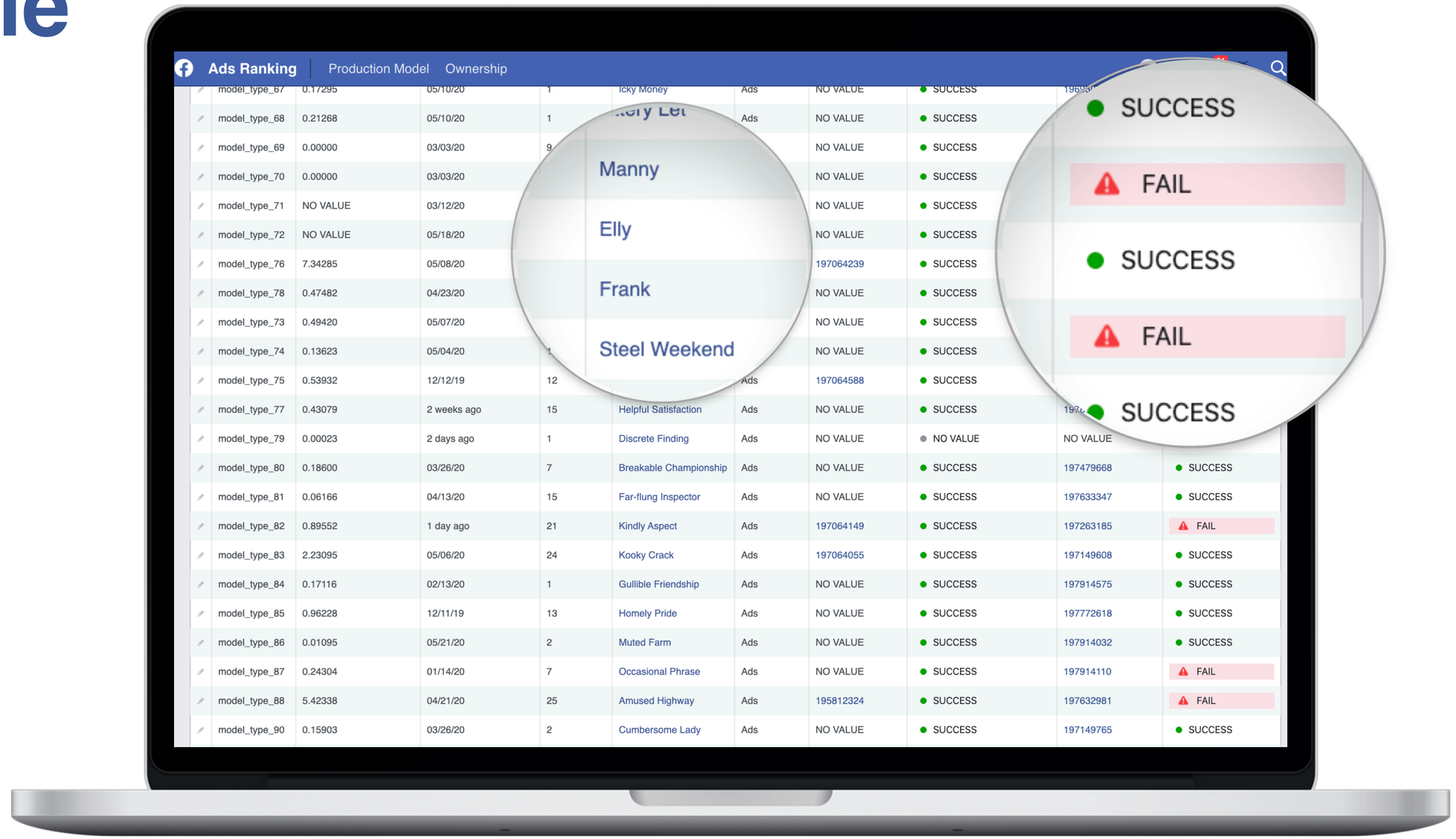
# Example


Ads
Model
Feature
...
ML Platforms
Validator
UI
API
Data Inventory
Ownership Observer
Notification

# Example


Ads Ranking
Production Model
Ownership
Yan
Manny
Elly
Frank
Steel Weekend

# Example




| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| model_type_67 | 0.17295 | 05/10/20 | 1 | Icky Money | Ads | NO VALUE | SUCCESS | 19895[illegible] | |
| model_type_68 | 0.21268 | 05/10/20 | 1 | [illegible] | Ads | NO VALUE | SUCCESS | | |
| model_type_69 | 0.00000 | 03/03/20 | 9 | | | NO VALUE | SUCCESS | | |
| model_type_70 | 0.00000 | 03/03/20 | | | | NO VALUE | SUCCESS | | |
| model_type_71 | NO VALUE | 03/12/20 | | | | NO VALUE | SUCCESS | | |
| model_type_72 | NO VALUE | 05/18/20 | | | | NO VALUE | SUCCESS | | |
| model_type_76 | 7.34285 | 05/08/20 | | | | 197064239 | SUCCESS | | |
| model_type_78 | 0.47482 | 04/23/20 | | | | NO VALUE | SUCCESS | | |
| model_type_73 | 0.49420 | 05/07/20 | | | | NO VALUE | SUCCESS | | |
| model_type_74 | 0.13623 | 05/04/20 | 1 | | | NO VALUE | SUCCESS | | |
| model_type_75 | 0.53932 | 12/12/19 | 12 | | Ads | 197064588 | SUCCESS | | |
| model_type_77 | 0.43079 | 2 weeks ago | 15 | Helpful Satisfaction | Ads | NO VALUE | SUCCESS | 197[illegible] | |
| model_type_79 | 0.00023 | 2 days ago | 1 | Discrete Finding | Ads | NO VALUE | NO VALUE | NO VALUE | |
| model_type_80 | 0.18600 | 03/26/20 | 7 | Breakable Championship | Ads | NO VALUE | SUCCESS | 197479668 | SUCCESS |
| model_type_81 | 0.06166 | 04/13/20 | 15 | Far-flung Inspector | Ads | NO VALUE | SUCCESS | 197633347 | SUCCESS |
| model_type_82 | 0.89552 | 1 day ago | 21 | Kindly Aspect | Ads | 197064149 | SUCCESS | 197263185 | FAIL |
| model_type_83 | 2.23095 | 05/06/20 | 24 | Kooky Crack | Ads | 197064055 | SUCCESS | 197149608 | SUCCESS |
| model_type_84 | 0.17116 | 02/13/20 | 1 | Gullible Friendship | Ads | NO VALUE | SUCCESS | 197914575 | SUCCESS |
| model_type_85 | 0.96228 | 12/11/19 | 13 | Homely Pride | Ads | NO VALUE | SUCCESS | 197772618 | SUCCESS |
| model_type_86 | 0.01095 | 05/21/20 | 2 | Muted Farm | Ads | NO VALUE | SUCCESS | 197914032 | SUCCESS |
| model_type_87 | 0.24304 | 01/14/20 | 7 | Occasional Phrase | Ads | NO VALUE | SUCCESS | 197914110 | FAIL |
| model_type_88 | 5.42338 | 04/21/20 | 25 | Amused Highway | Ads | 195812324 | SUCCESS | 197632981 | FAIL |
| model_type_90 | 0.15903 | 03/26/20 | 2 | Cumbersome Lady | Ads | NO VALUE | SUCCESS | 197149765 | SUCCESS |

# Benefits

- Efficiency
- Collaboration
- Reliability
- Scalability
- Privacy

# Future work

- Privacy review
- Owners -> Oncalls
- Automation
- Apply to non-ML artifacts

# Takeaways

- Centralized data inventory
- Privacy metadata
- Standardize E2E process
- ML artifacts ownership for privacy & security

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Thank you

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