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A ROADMAP FOR **GROWTH**



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Deployment made easy — solving new fraud problems by adapting legacy solutions





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Introducing:

- **Eric Heikkla**
Amazon
- **Chris Ryan**
Experian





Session overview

- Hurdles in adopting new technology
- Options for overcoming obstacles
- Adapting existing technology to deliver new features
 - ▶ US Card Portfolio case study
- Outsourcing to leverage Big Data
 - ▶ Amazon web services cloud capabilities
 - ▶ FINRA case study





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Hurdles in adoption of new technology





Adoption of technology advancement

Barriers and trends



- IT constraints
- Conflicting priorities
- Cost
- Time to market
- ROI
- Dynamic evolution
- Feature extraction across disparate data silos
- Security and compliance



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Adapting existing technology to deliver new features

Case study: U.S. card issuer





Case study background

Issuer's challenges

- Increasing third-party fraud losses
- Meet retail partner's expectations for booking and POS processing
- System freeze prevented any IT changes for several months



Summary

- Reduce fraud exposure and maintain approval rates without technology changes (models / strategies, etc.)





First: Modeling initiative

- Determine if a custom fraud model could deliver sufficient lift to reduce losses without significant customer impact
 - ▶ Model developed using data from Precise ID[®] and Identity Element Network[™] (IEN)
 - ▶ Initial model provided significant lift
 - ▶ A second blind-sample confirmed model performance results
- **Summary:** An analytical option was available to address the problem
 - ▶ Challenge of deploying it during a system freeze remained



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Identity Element Network™

Identity Element Network™



Adding over two million identity transaction records **daily**



Comprehensive **link analysis** to derive attributes and score



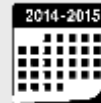
Contains **up-to-date transactional data**



Built from **Experian data**



Capture **consumers' identity elements**



Retain records 24 months for identity **historical view**



Score – Portfolio / batch segmentation

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Second:

Evaluate existing Experian interface

- Issuer used a legacy Experian product to acquire identity attributes and fraud scores
 - ▶ Inquiry included basic identity data
 - ▶ Experian response was mapped into issuer systems to drive “pass / review” decisions
- **Summary:** Infrastructure was in place to deliver identity data to Experian and to retrieve response data that would drive downstream decisions related to fraud and identity



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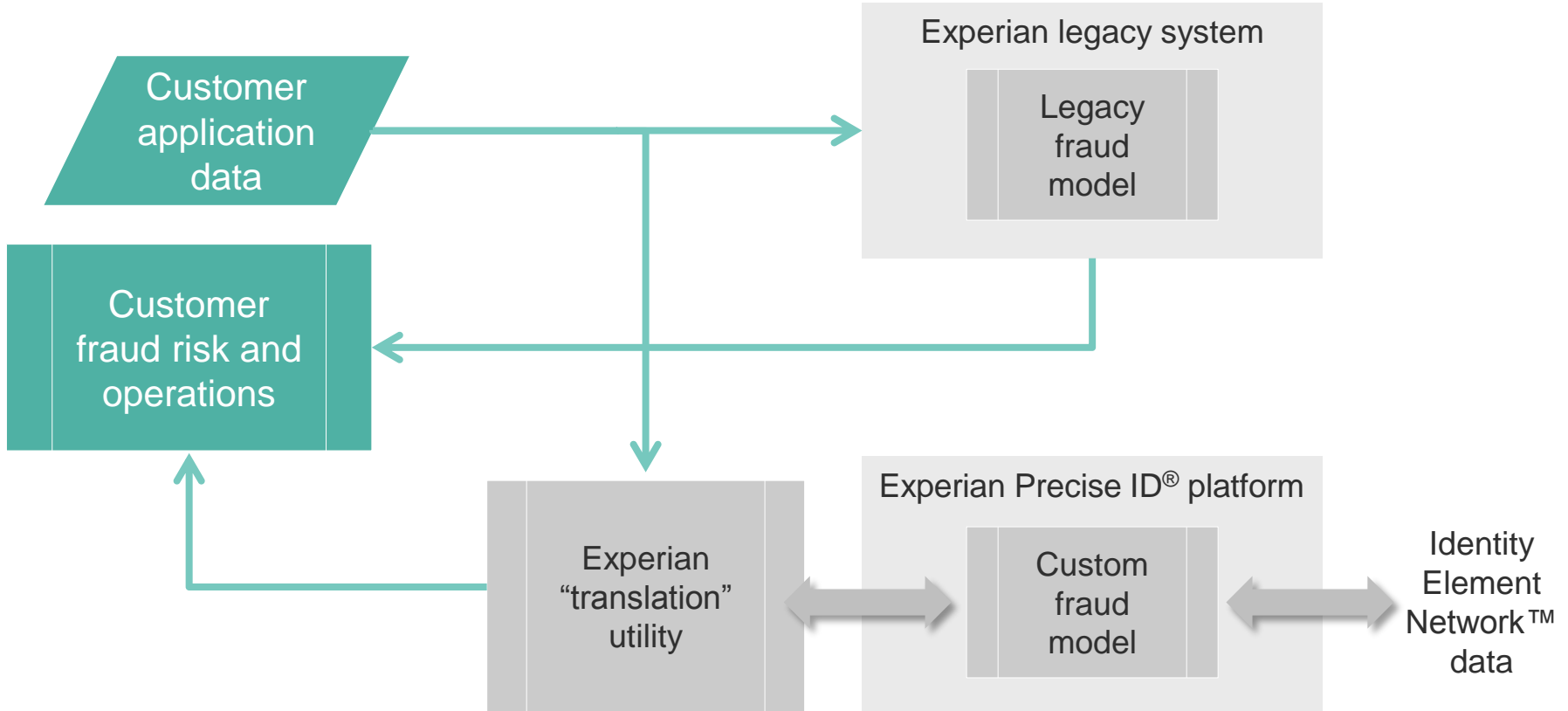
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Making deployment easy





Success metrics

Improved fraud model performance:

- Custom model leveraged the most advanced data assets that Experian could deliver

Speed to deployment:

- New fraud model in use 6-8 weeks after completion instead of waiting 6-8 months for system freeze

Near-zero effort for issuer IT resources



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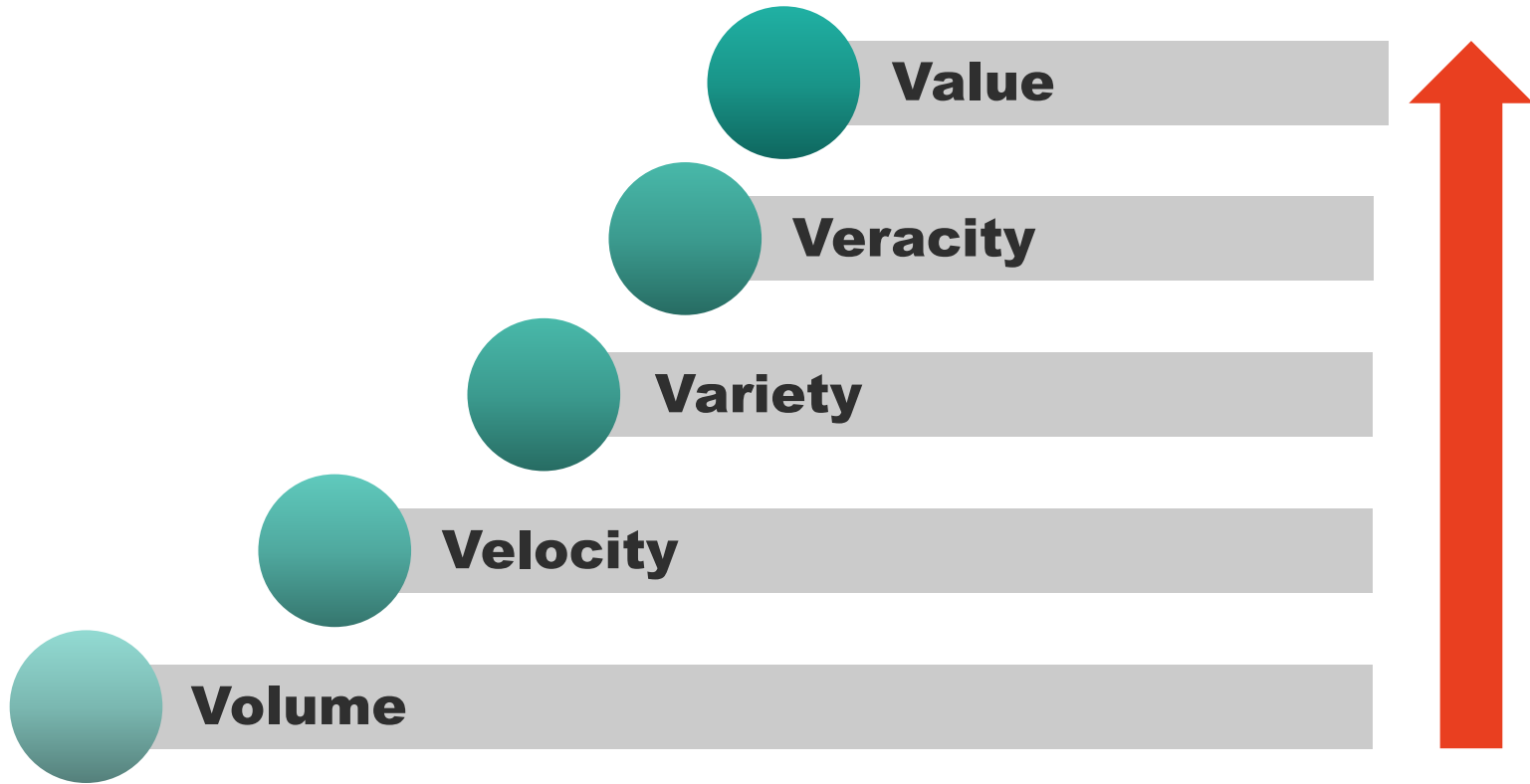
Breaking down the barriers #2

Cloud capabilities





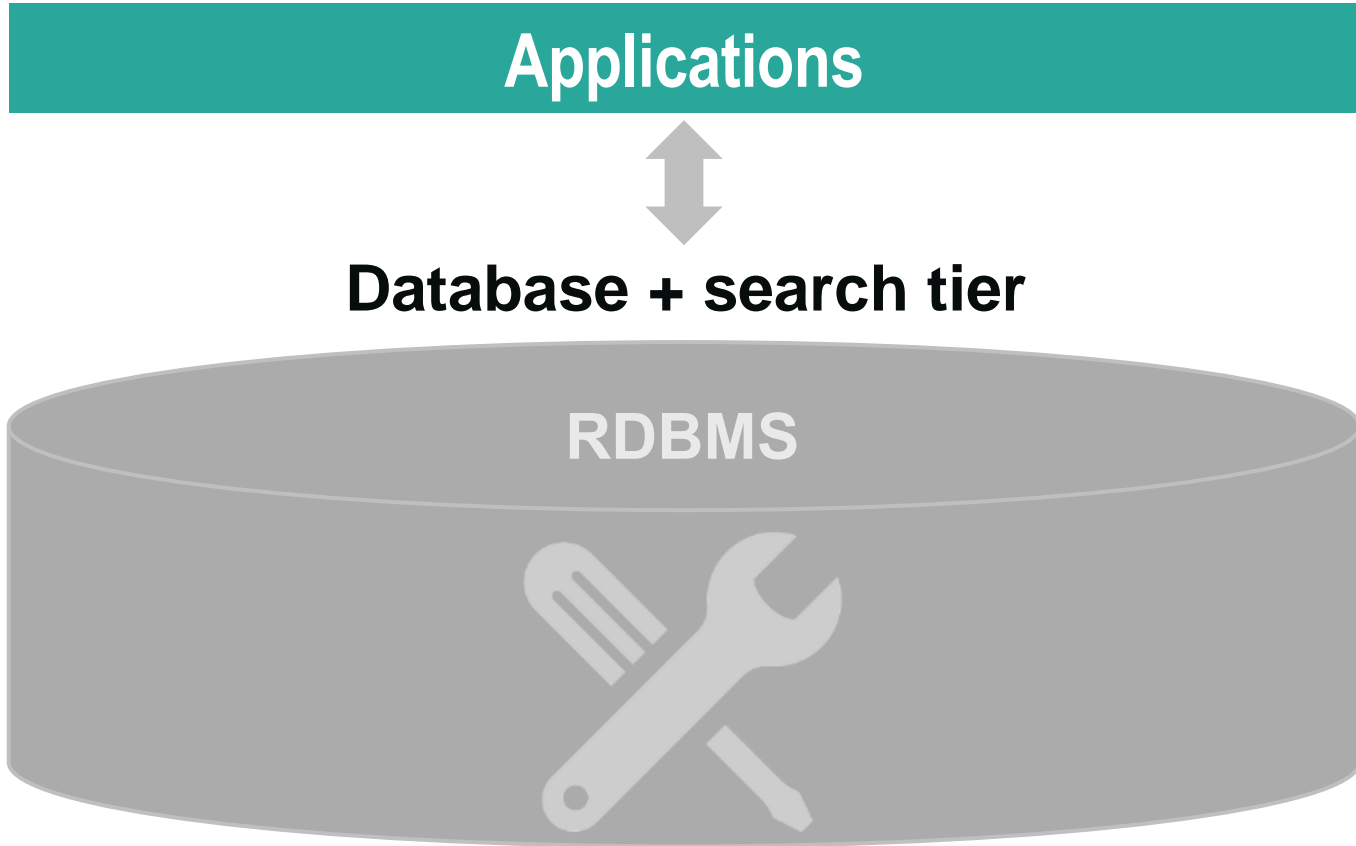
Ever increasing data





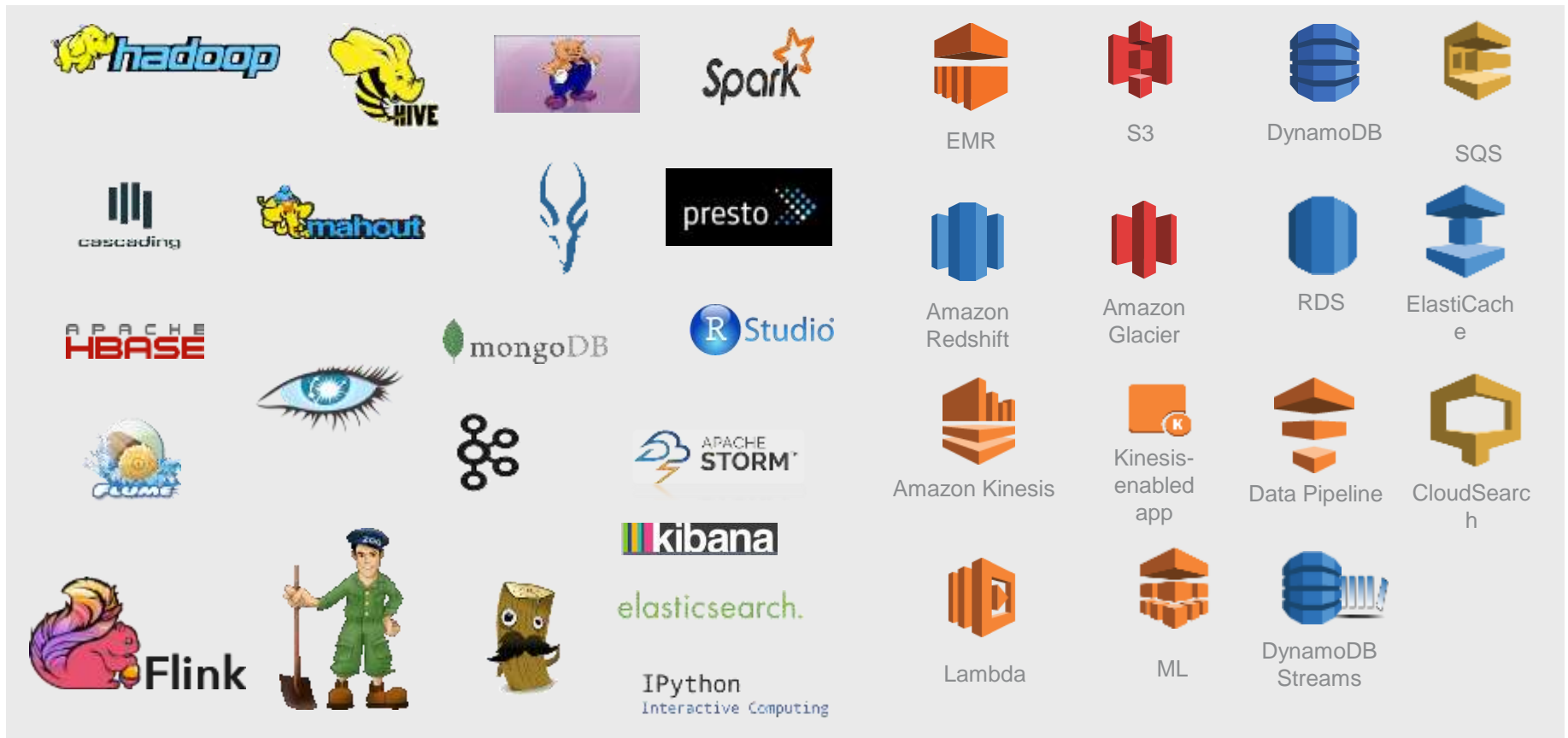
The old way of doing things

One blunt tool – the relational DB





Plethora of tools to work with data





How do I ...

... select a reference architecture?

... know which tools I should use?

... make sense of the diverse toolset?

... manage risk of selecting the wrong tool?

... find, recruit, hire and keep data scientists?



Enterprise data lake



- A storage repository that holds a vast amount of raw data in its native format until it is needed
- A data warehouse stores data in files or folders, while a data lake uses a flat architecture to store data without transformation or schema definition
- Store all of your data (both relational and unstructured) in a single centralized repository and analyze each set as required in its native format with the proper tool
- No longer do analysts have to go to four or five data marts to do their job
 - ▶ Everything is in one place



Why an enterprise data lake?



- **Simplify and centralize**
- **Stop wasting valuable time:** Avoid analysts and data scientists running between many siloed data stores or, even worse, can't find their data; enable data experimentation and use case discovery by putting tools around the data
- **Agility:** Get to results faster by eliminating the time analysts move between repositories and by giving them access to the tools they need to do their job
- **Cost optimize:** Select elastic infrastructure that can scale with your needs and not cost a lot
- **Limit overhead:** Leverage managed cloud services for non differentiating admin. Shouldn't your DBAs & Analysts be transforming, loading and analyzing data instead of patching a database or racking servers?

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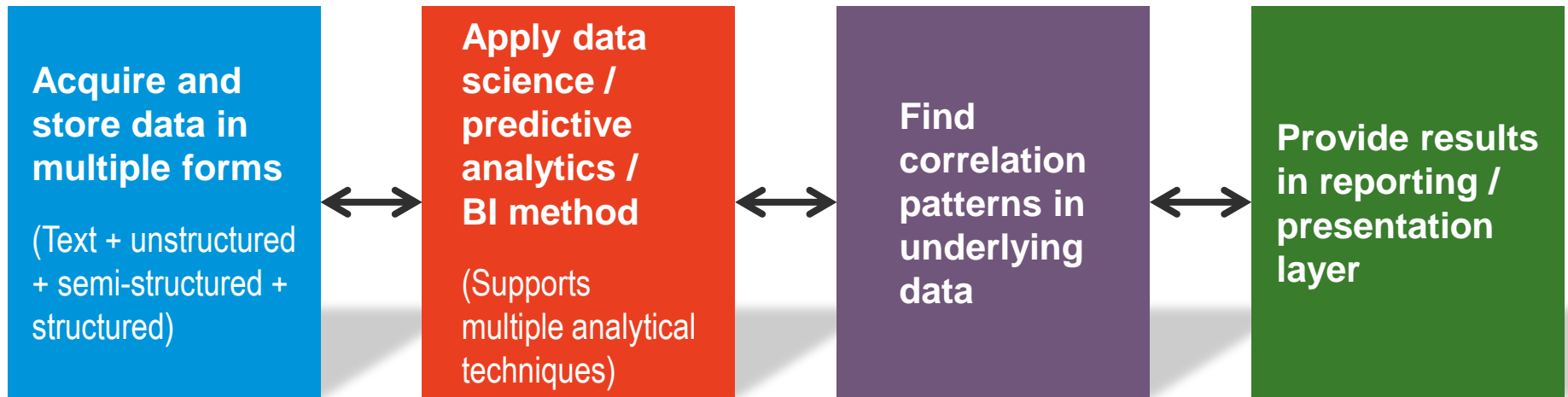
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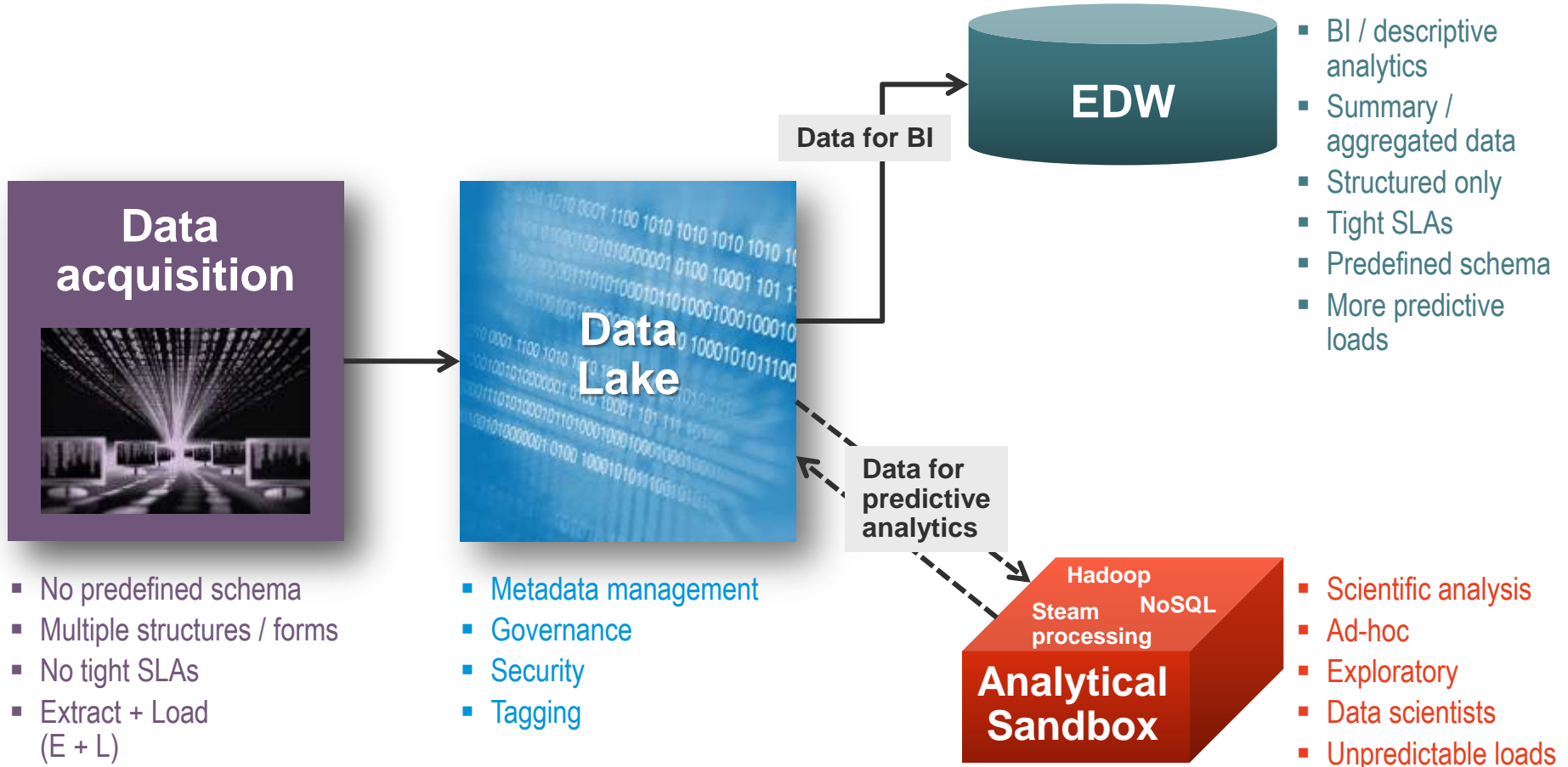
Typical data lake use case pattern





Data lake

Conceptual architecture



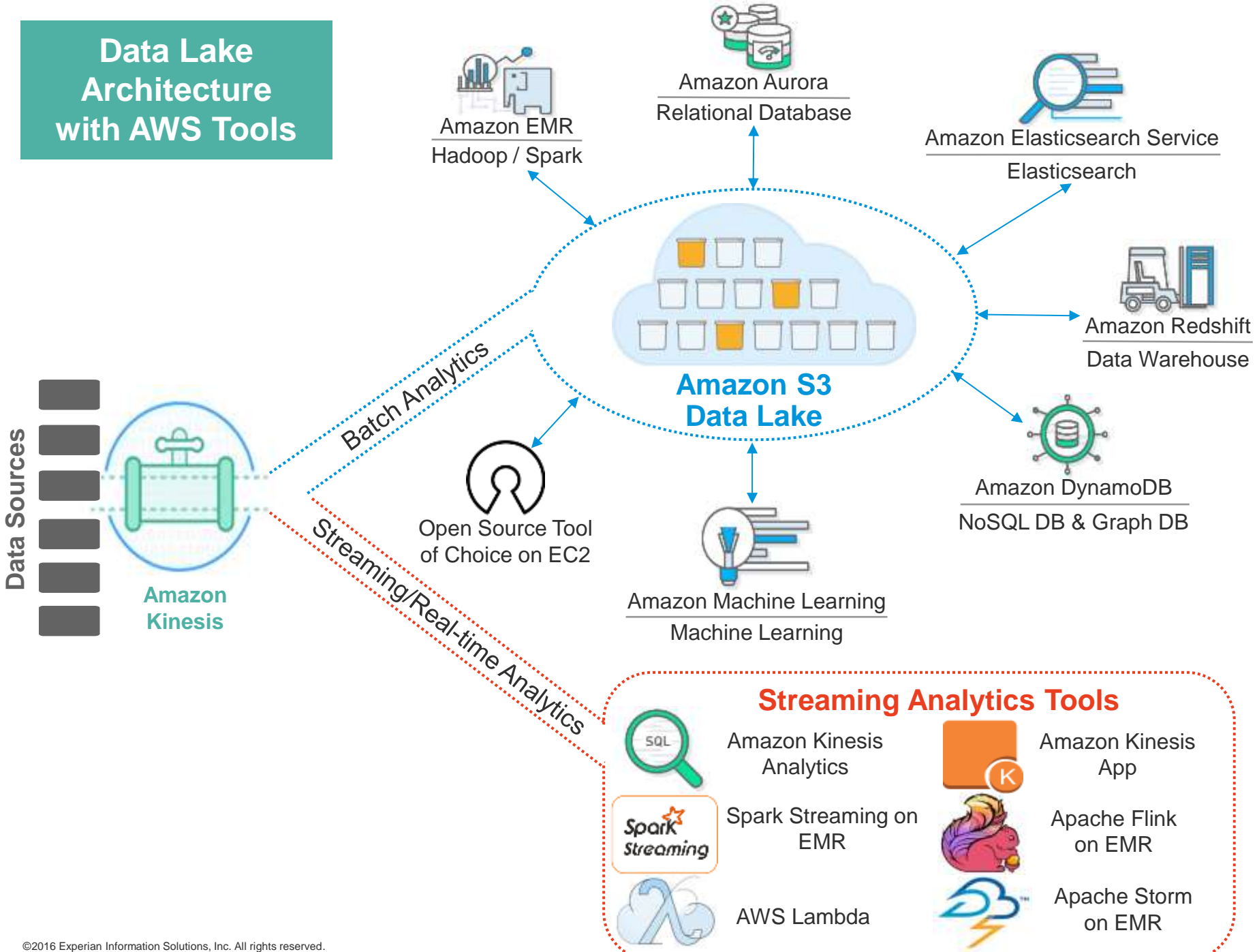


What makes a good data lake?

- **Object-based storage**
(store anything and everything)
- **Flexibility:** A collection of different analytics tools to sit around object store, always have the right tool for the job
- **Scalability:** Never want to have your data lake outgrow the capacity of your on-premises appliances
- **Low cost:** Never want to throw away data because it costs too much to keep it
- **High durability:** Never want to lose your single source of the truth!



Data Lake Architecture with AWS Tools





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Big Data outsourcing data lake

Case study: FINRA





FINRA



Deter

misconduct by
enforcing the rules

Detect

and prevent wrongdoing
in the U.S. markets

Discipline

those who break
the rules



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UP TO
75 BILLION
 EVENTS PER
 DAY



Monitors
**99% EQUITIES &
 70% OPTIONS**
 in the US



Market
 Reconstruction
 containing
TRILLIONS of
 nodes & edges

Over **5 PETABYTES** of
 storage



Investor
PROTECTION



Market
INTEGRITY

THINK
BIG



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That kind of volume comes with challenges



Market volumes are volatile and steadily increasing



Exchanges are dynamically evolving



Regulatory rules are created and enhanced



New securities products are introduced



Market manipulators innovate



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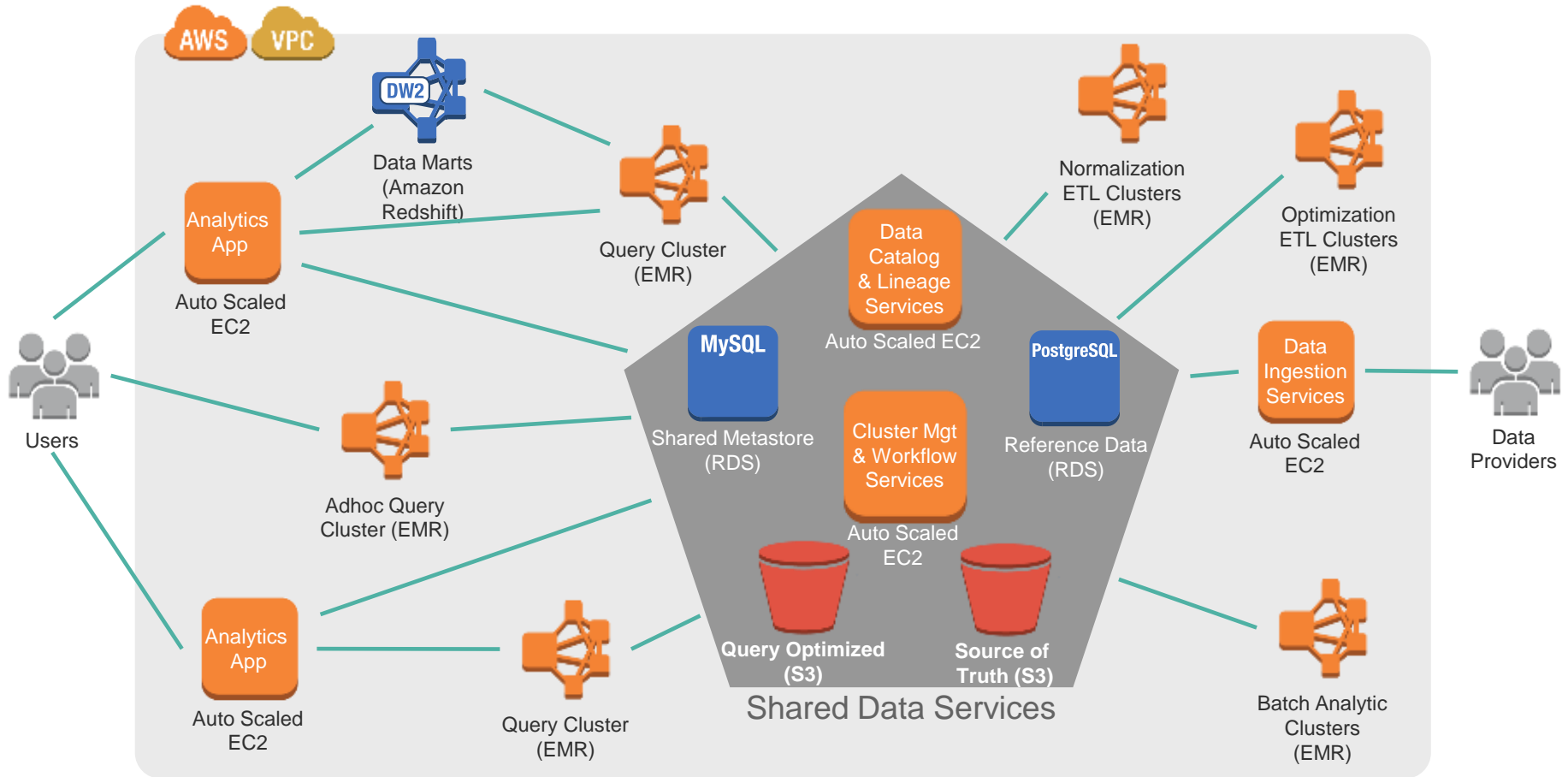
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The S3 data lake paired with Hadoop applications is at the core of FINRA's platform





Summary of benefits of AWS for data lake



- An infinitely scalable data lake to handle future data growth
- Massive flexibility in the data tools that sit around the S3 data lake
 - ▶ Therefore more data applications / experiments can be completed
 - ▶ Provides a hedge against the risk of rapidly changing ecosystem and requirements because the data lake can adapt and evolve
- Store anything and everything in one place in S3... at very low cost!
- S3 is durable and high available
- Feed multiple data applications in parallel from S3



Conclusions

- Fraud technology can be improved despite perceived challenges
- Legacy interfaces can deliver the most current model and data capabilities without rip and replace
- Cloud based solutions deliver value in a changing data landscape
- Both are near-term opportunities to improve results





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Vision Conference
Breakout Session Survey

Experian

1. How would you rate the presenters' knowledge?
 Excellent Above average Average Below average Poor

2. How would you rate the presenters' delivery?
 Excellent Above average Average Below average Poor

3. How would you rate the presenters' time management?
 Excellent Above average Average Below average Poor

4. How useful was the session information?
 Very useful Somewhat useful Neutral
 Somewhat not useful Not useful

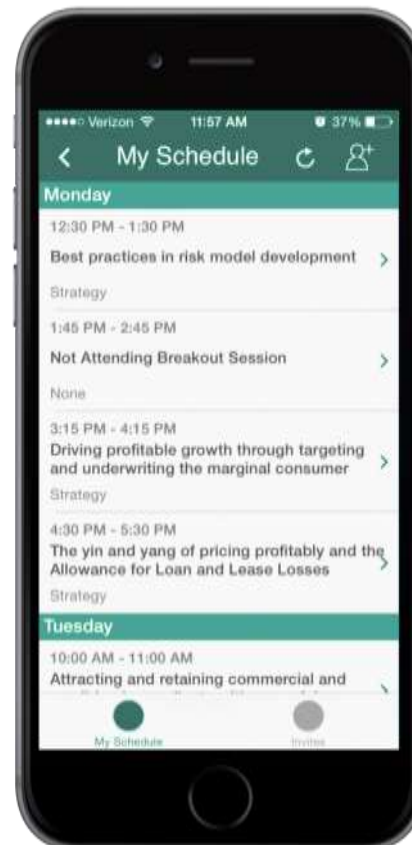
5. How would you rate the session on being current?
 Very current Somewhat current Neutral
 Somewhat not current Not current

6. How relevant was the session content to the title and description?
 Very relevant Somewhat relevant Neutral
 Somewhat not relevant Not relevant

7. How would you rate the level of content?
 Too advanced Just right Too basic

8. Why did you attend this session? (Check all that apply)
 Relates to my business The presenter(s) Interest in new product
 Compelling session description Increase product knowledge

9. Do you have any additional comments?





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