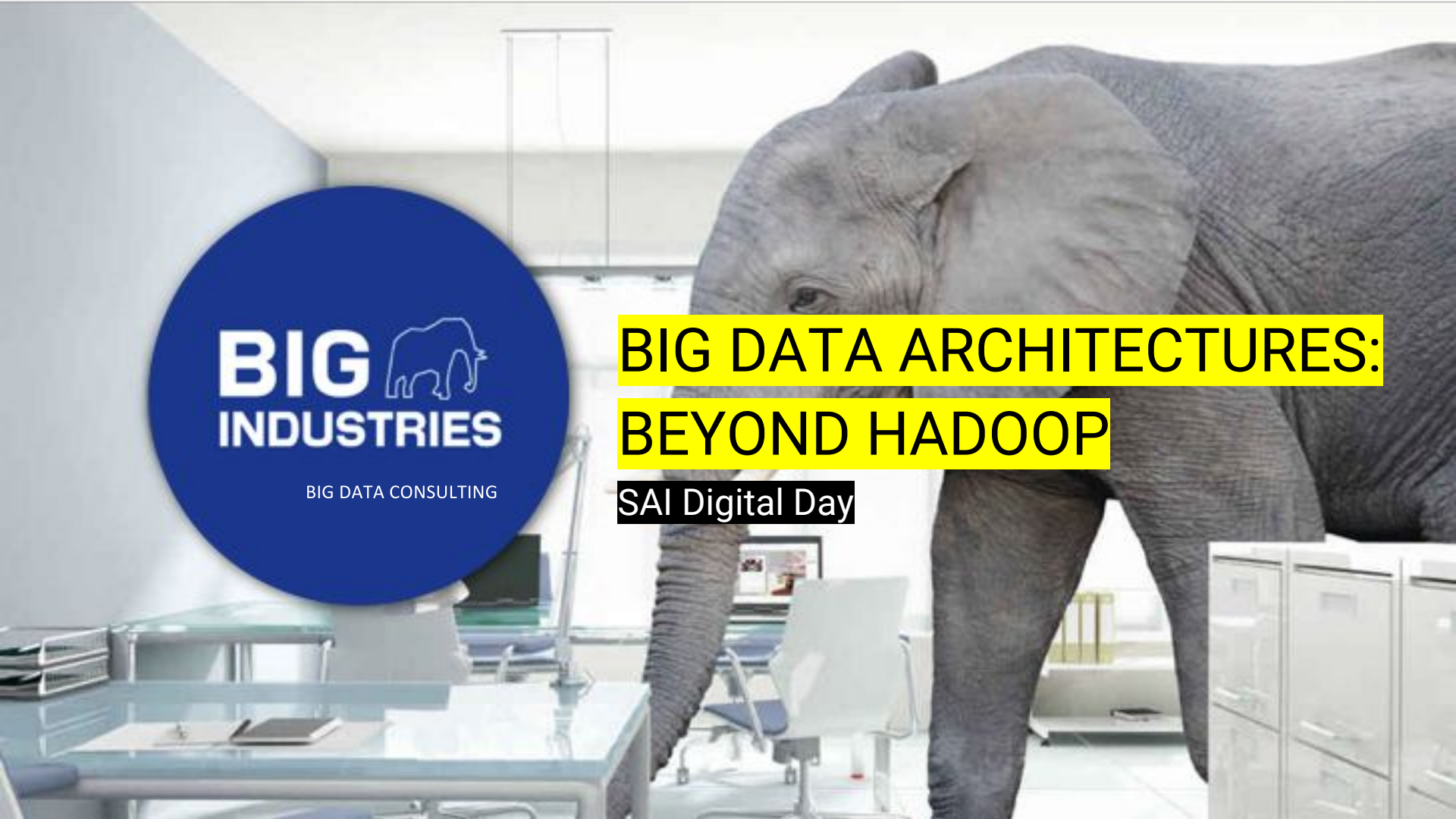
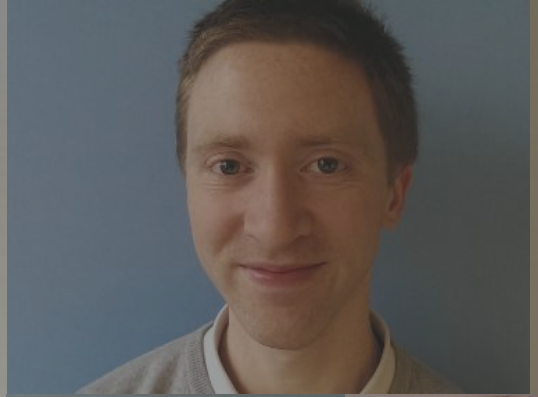
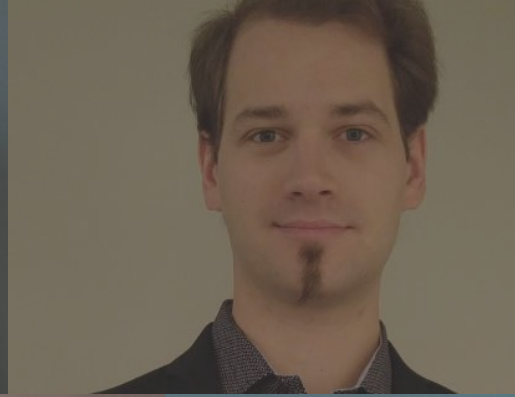


BIG DATA ARCHITECTURES: BEYOND HADOOP

SAI Digital Day

BIG INDUSTRIES

- ESTABLISHED 2014
- BIG DATA CONSULTING
- SERVING BELGIUM
- FOCUS ON SYSTEM ARCHITECTURE & SECURITY
- SERVING ALL KEY INDUSTRIES
- MEMBER OF CRONOS GROUP

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DATA SCIENCE
DATA DRIVEN APPLICATIONS
BIG DATA ARCHITECTURE CONSULTING
GOVERNANCE & SECURITY
CLOUD
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THERE HAS ALWAYS BEEN BIG DATA

- HUMAN DEVELOPMENT THRIVES ON INNOVATION
- DEFINE “BIG”

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DATA VOLUMES KEEP GROWING

- TECHNOLOGY ADAPTS
- -OR SHOULD ADAPT-

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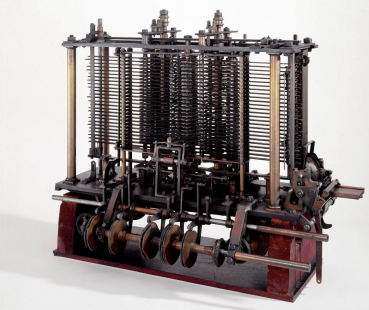
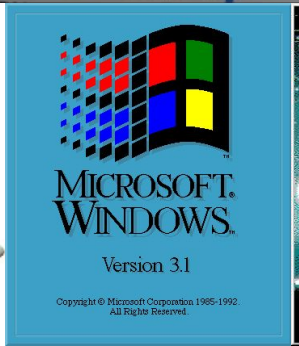


LIVE FREE OR DIE
UNIX*
TRADEMARK OF BELL LABS*
UNIXライセンスプレート

University of Minnesota


MICROSOFT WINDOWS
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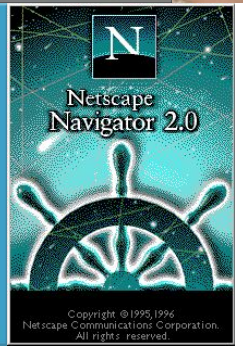
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Google!

1995 - 2005: ZOMBIE IT
VENDOR DECADE
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WHAT IS HADOOP

- A GRID COMPUTING STACK
- MODULAR, EXTENSIBLE DATA MANAGEMENT
- RELATIVELY EASY TO USE
- FREE OPEN SOURCE SOFTWARE

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HADOOP: ADOPTION
48% OF GLOBAL ENTERPRISES HAVE SET UP A DATA LAKE*
* FORRESTER RESEARCH
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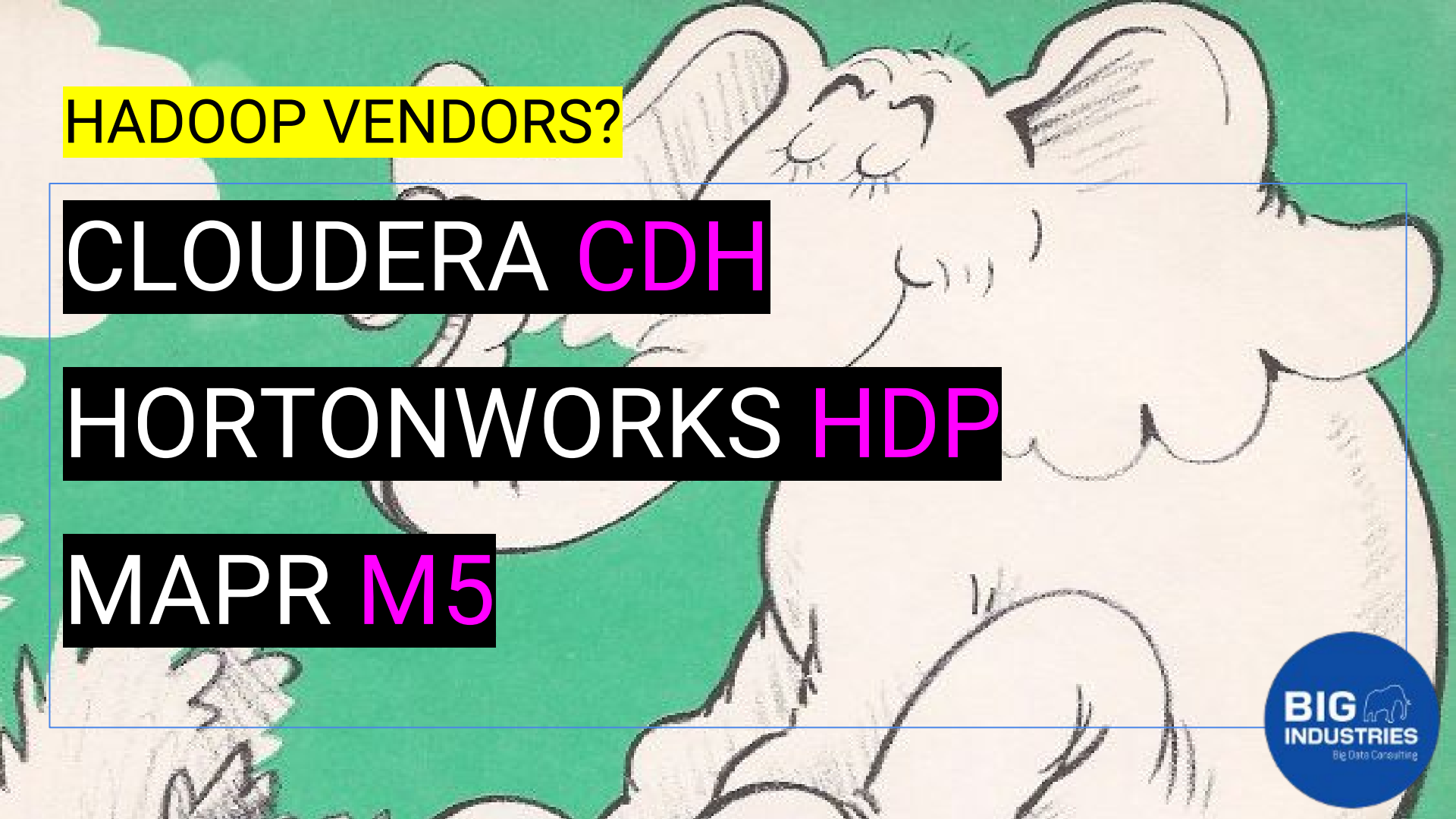
HADOOP VENDORS?
CLOUDERA CDH
HORTONWORKS HDP
MAPR M5
BIG
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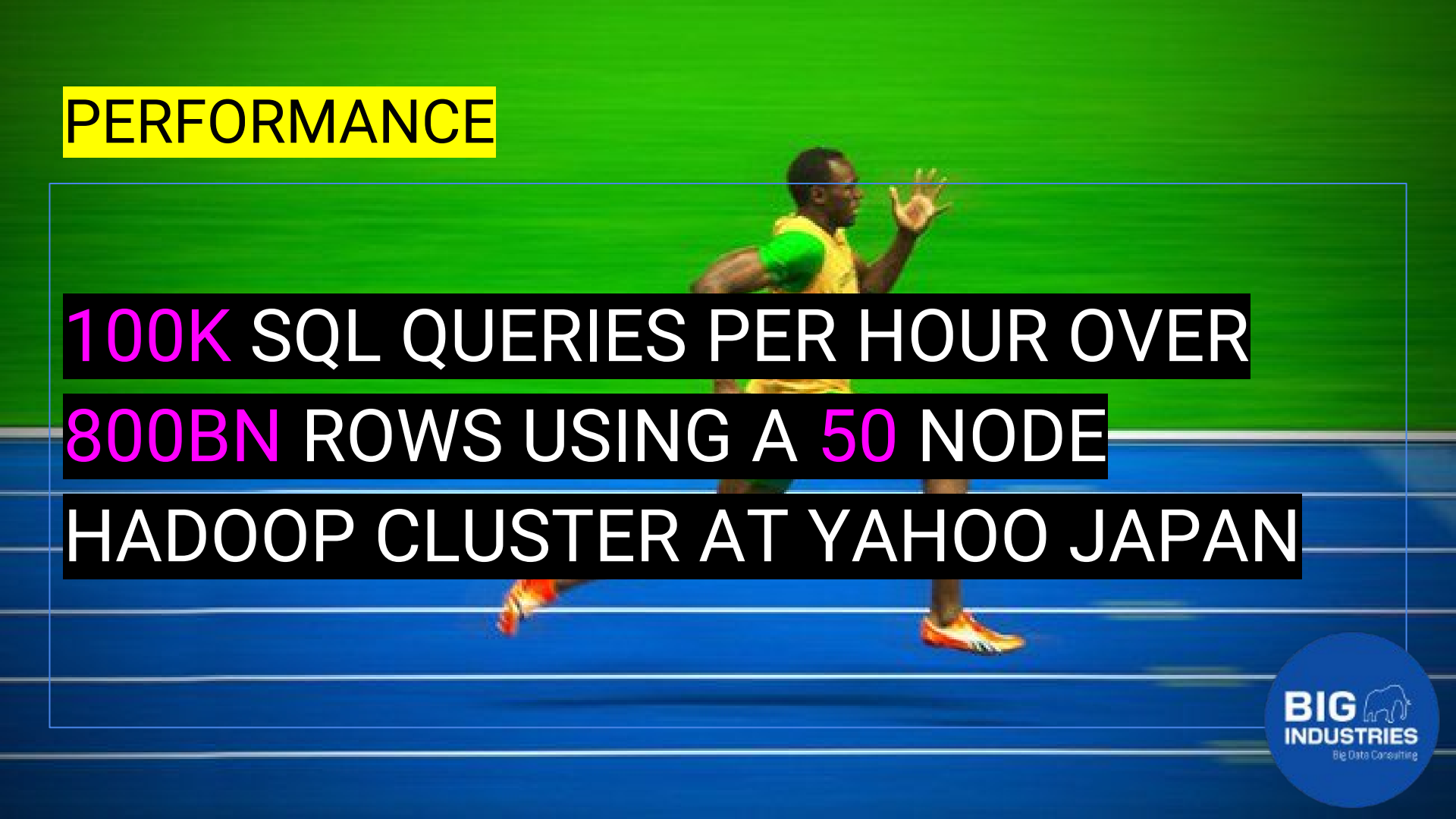
HADOOP BENEFITS

- HORIZONTALLY SCALABLE DATA PROCESSING
- HIGH PERFORMANCE
- FLEXIBLE WORKLOADS
  - AI/MACHINE LEARNING
  - BI/DATA WAREHOUSING
  - STREAMING DATA
  - NOSQL DATABASE


PERFORMANCE
100K SQL QUERIES PER HOUR OVER
800BN ROWS USING A 50 NODE
HADOOP CLUSTER AT YAHOO JAPAN
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WHAT’S THAT OVER THE HILL IS IT A MONSTER
BIG
INDUSTRIES
Big Data Consulting

amazon
BIG
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CLOUD STRENGTHS

- COMPLIANT
- MATURE
- CAN BE CHEAP
- HIGHLY FLEXIBLE
- COMPREHENSIVE OFFERINGS

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CLOUD DRAWBACKS

- PROVIDER LOCK-IN
- RUNNING COSTS
- SHADOW IT SERVICES
- COMPLEXITY & RISK
- GETTING DATA BACK OUT

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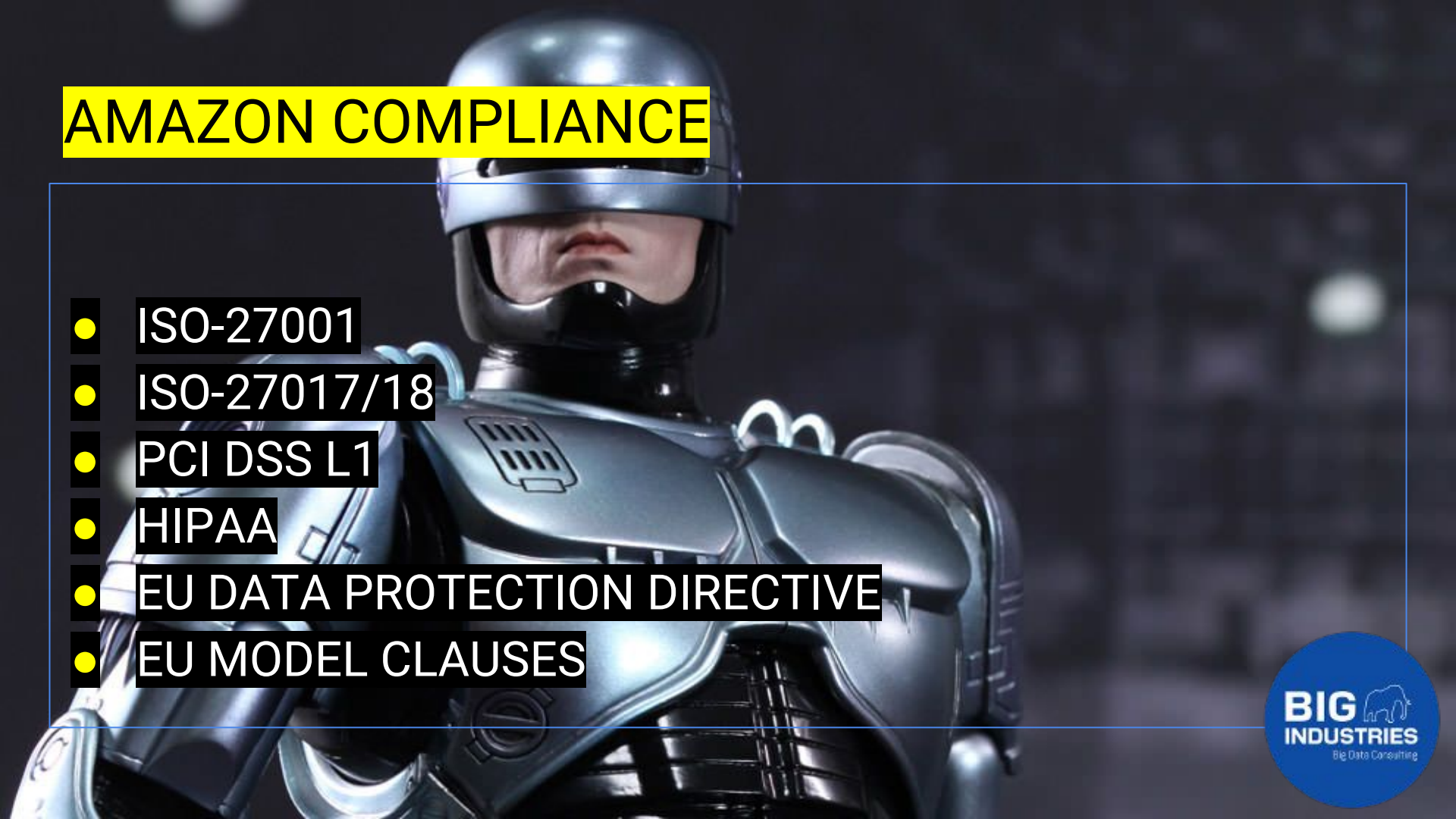

AMAZON COMPLIANCE

- ISO-27001
- ISO-27017/18
- PCI DSS L1
- HIPAA
- EU DATA PROTECTION DIRECTIVE
- EU MODEL CLAUSES

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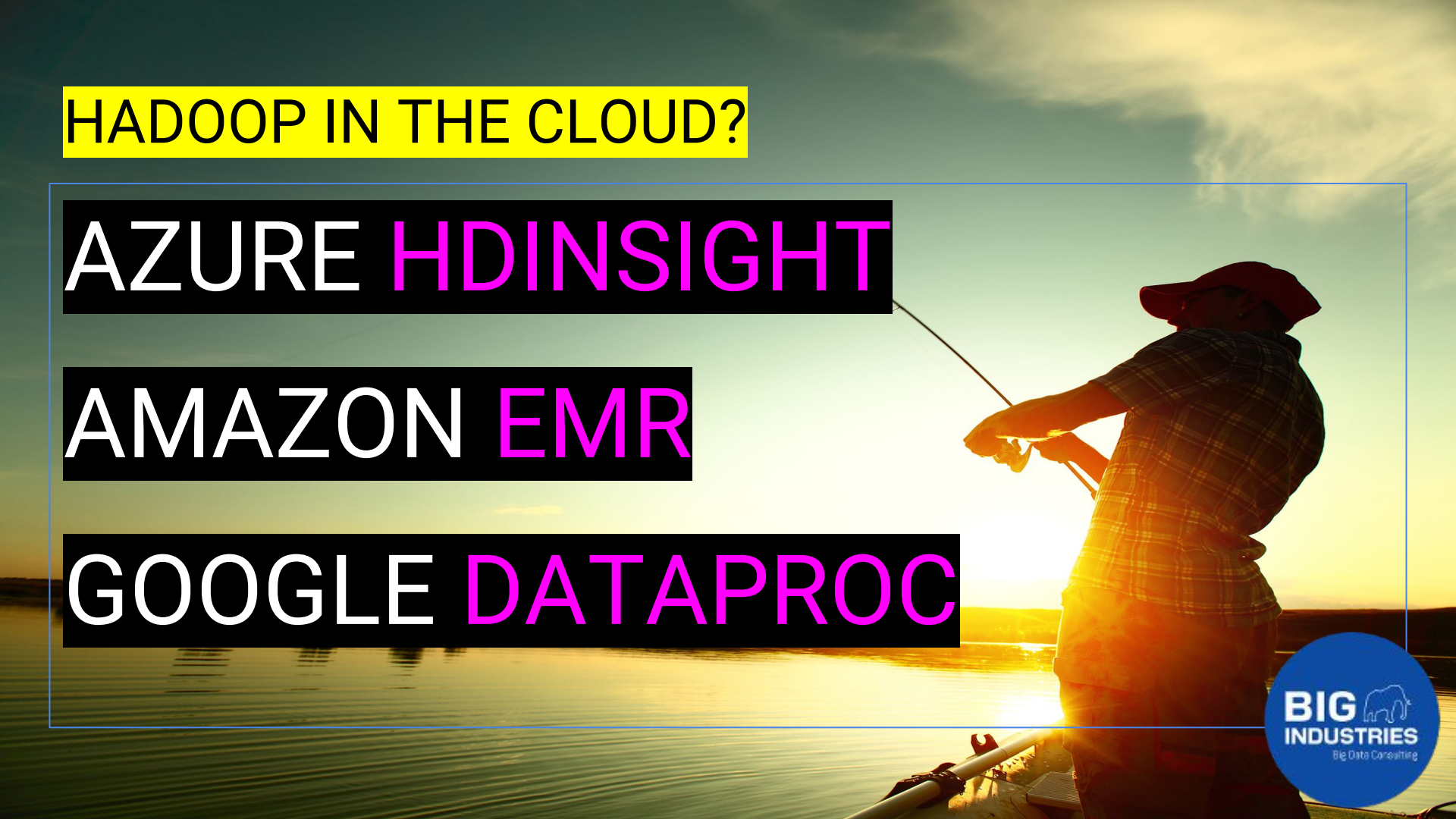
HADOOP IN THE CLOUD?

AZURE HDINSIGHT

AMAZON EMR

GOOGLE DATAPROC

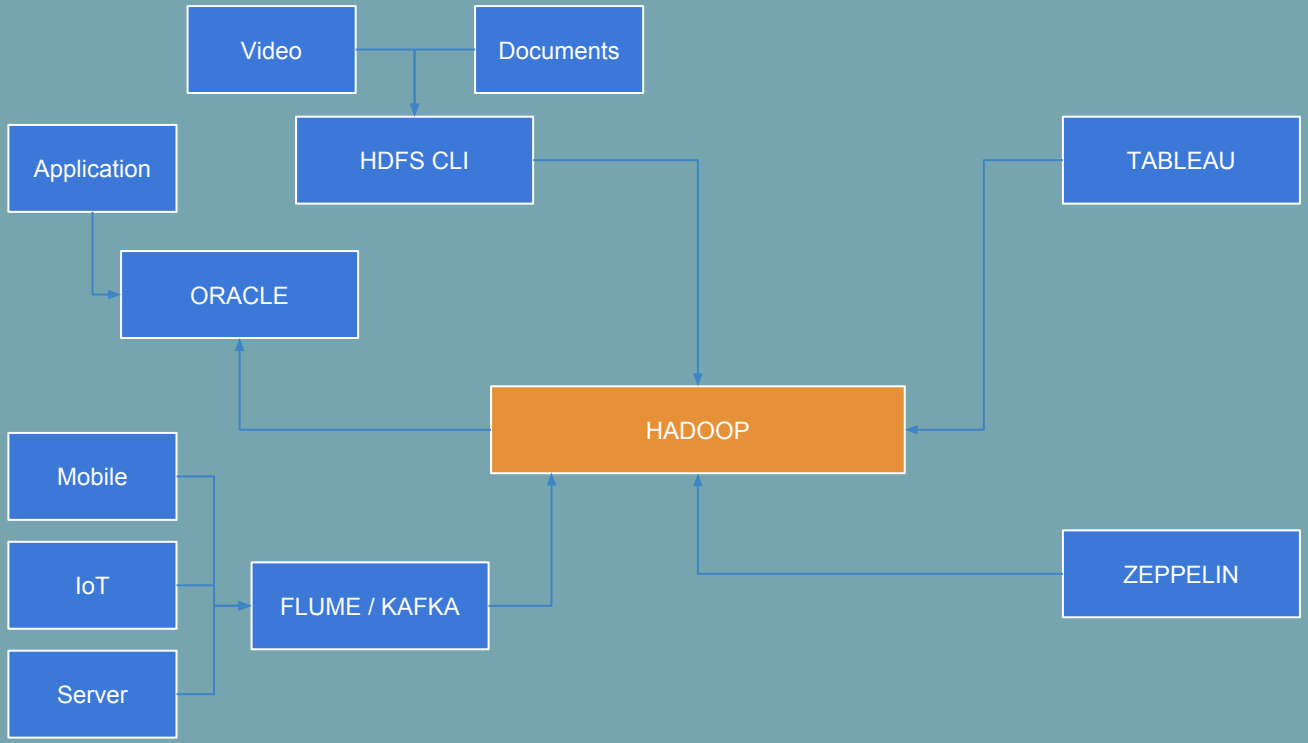


CLOUD HADOOP PLATFORMS

- + ELASTIC SCALABILITY
- + RAPID PROVISIONING
- + INTEGRATION WITH OTHER SERVICES
- - ACCESS CONTROLS
- - METADATA AND AUDITING
- - HIGH AVAILABILITY

RIDING THE THIRD WAVE

CLASSIC HADOOP BIG DATA ARCHITECTURE



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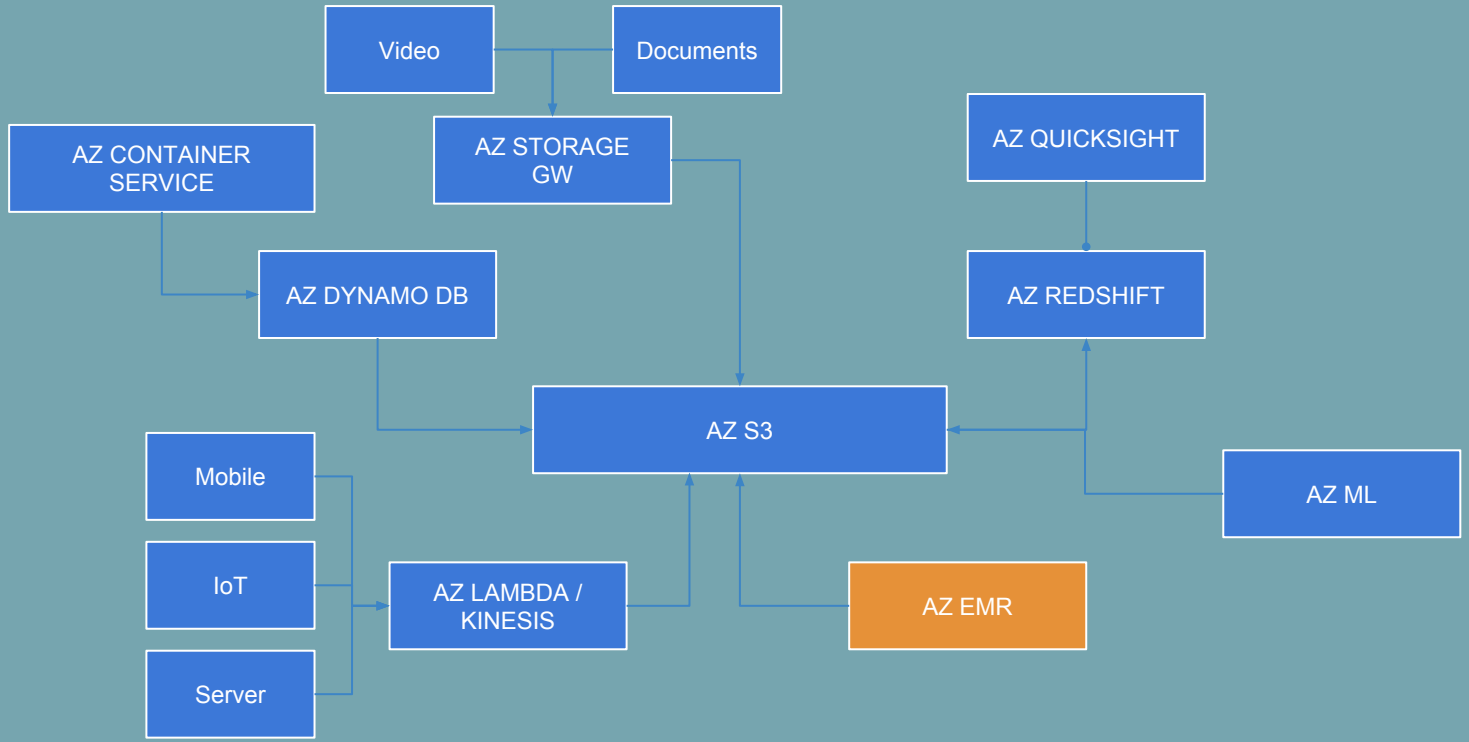
CLOUD BIG DATA ARCHITECTURE (AWS)



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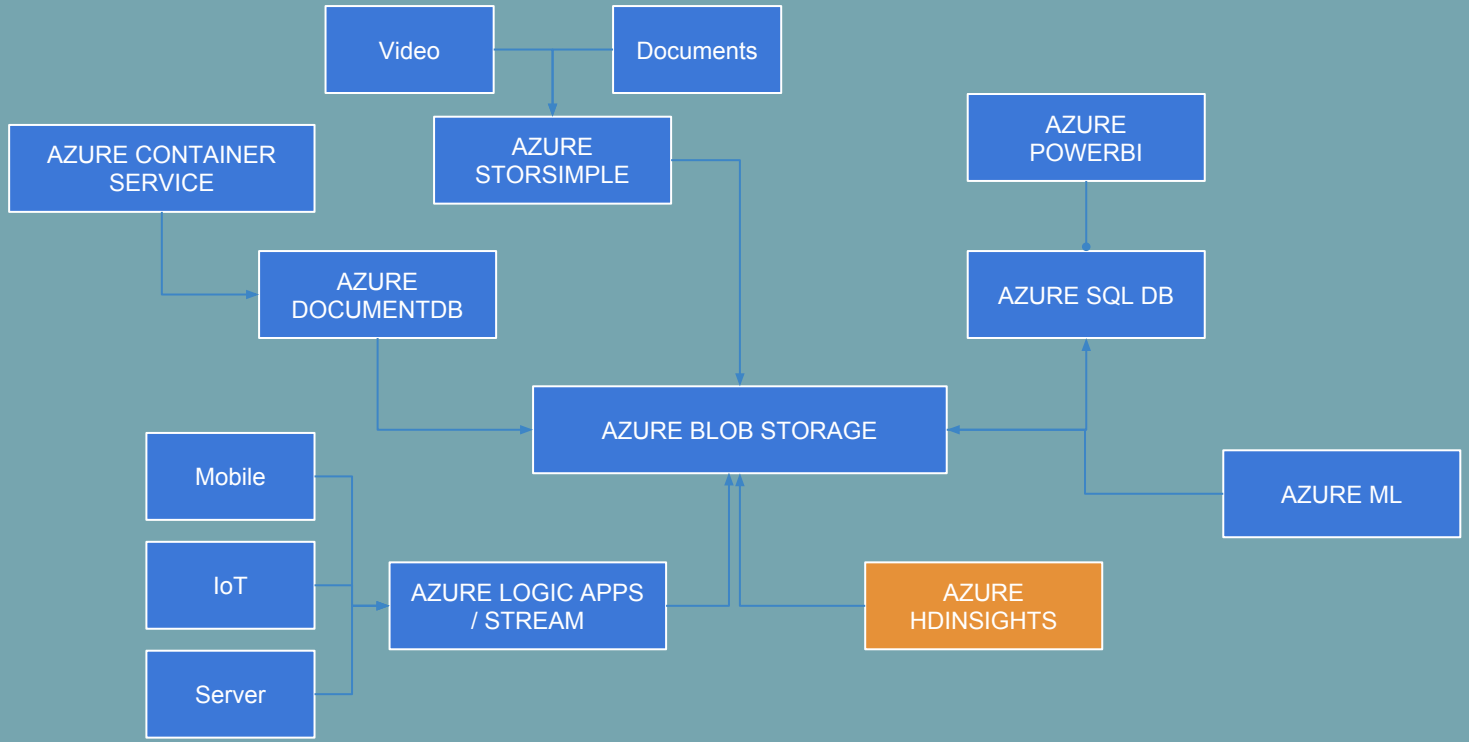
CLOUD BIG DATA ARCHITECTURE (AZURE)



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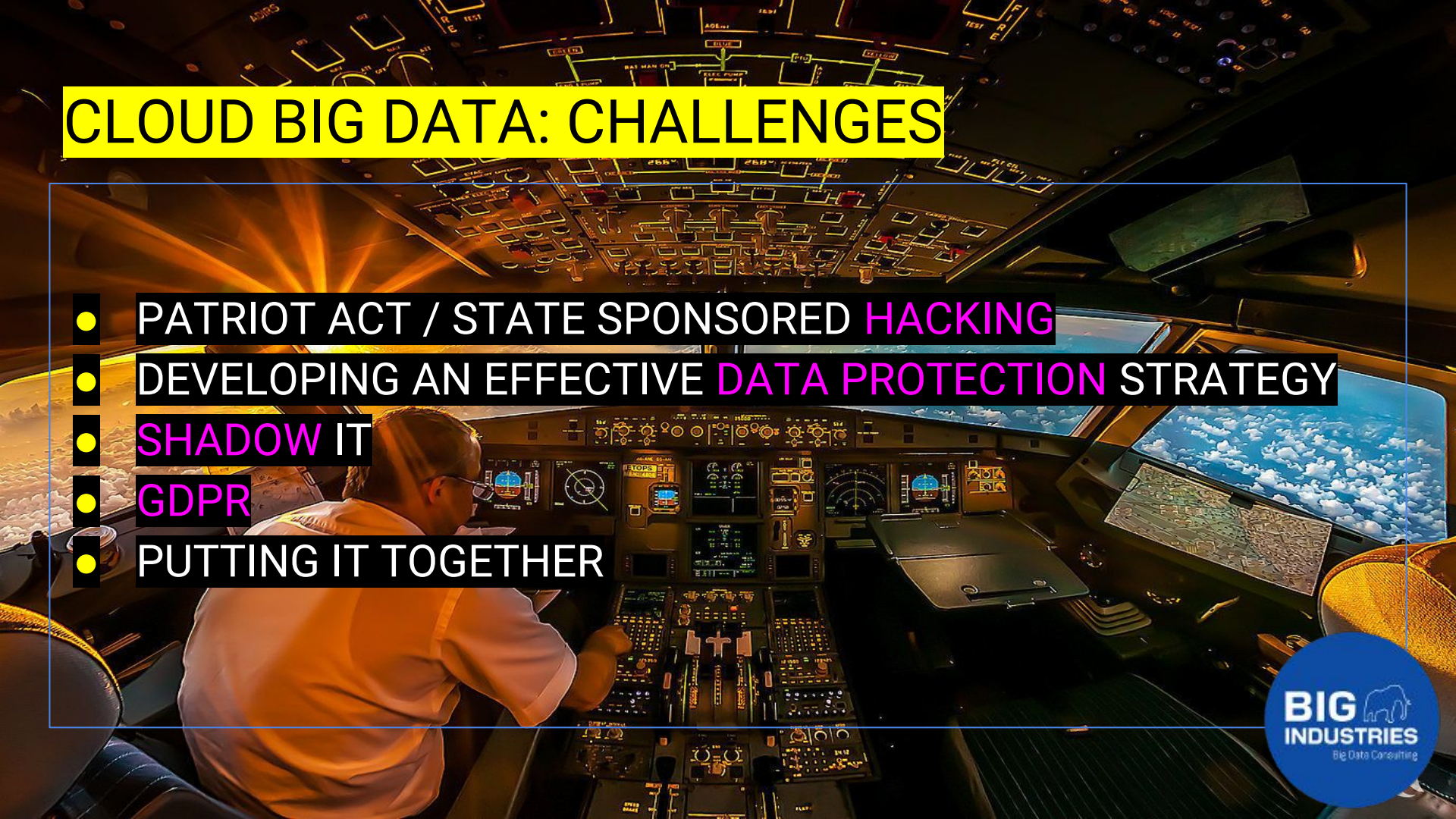
CLOUD BIG DATA: CHALLENGES



- PATRIOT ACT / STATE SPONSORED HACKING
- DEVELOPING AN EFFECTIVE DATA PROTECTION STRATEGY
- SHADOW IT
- GDPR
- PUTTING IT TOGETHER

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BIG DATA SECURITY RECOMMENDATIONS ON AWS

- USE AWS IAM
- APPLY VPC-ENDPOINT RESTRICTIONS
- APPLY S3 POLICY RESTRICTIONS
- USE S3 CLIENT MANAGED ENCRYPTION
- INVEST IN AWS CLOUD HSM
- USE AWS CLOUD TRAIL
- USE AWS EMR WITH A CUSTOM CRYPTO CODEC

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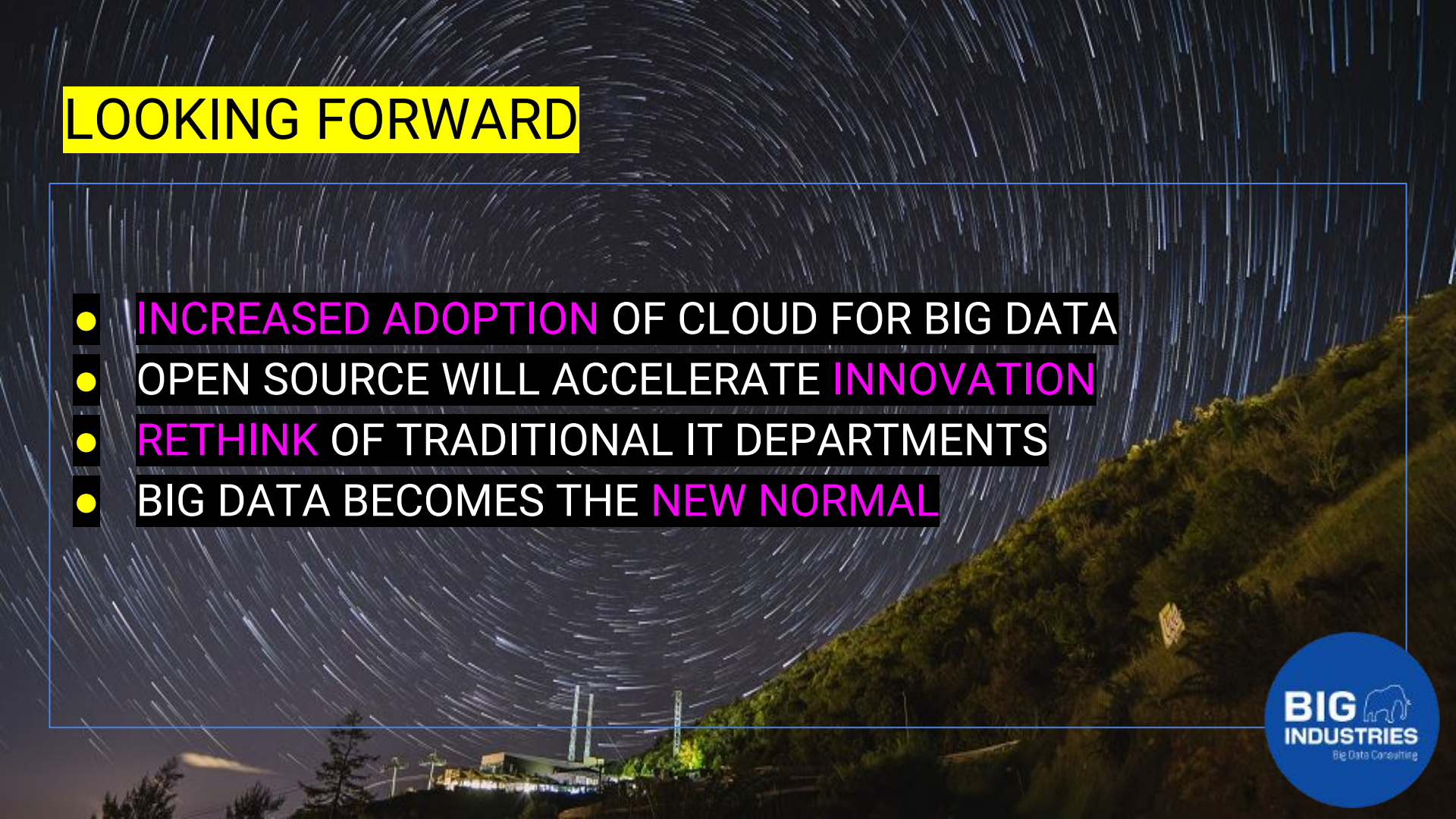
LOOKING FORWARD

- INCREASED ADOPTION OF CLOUD FOR BIG DATA
- OPEN SOURCE WILL ACCELERATE INNOVATION
- RETHINK OF TRADITIONAL IT DEPARTMENTS
- BIG DATA BECOMES THE NEW NORMAL



CONCLUSION

- THE RIGHT SOLUTION IS THE ONE THAT WORKS FOR YOU
- THERE ARE TRADEOFFS WHATEVER THE APPROACH
- SPECIALIST EXPERTISE REQUIRED

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THANKS FOR LISTENING

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- BIG INDUSTRIES - BIG DATA CONSULTING
  - <www.bigindustries.be>