SAS® FORUM
POLSKA 2015

Analytics in Action – transforming the way we use and consume information

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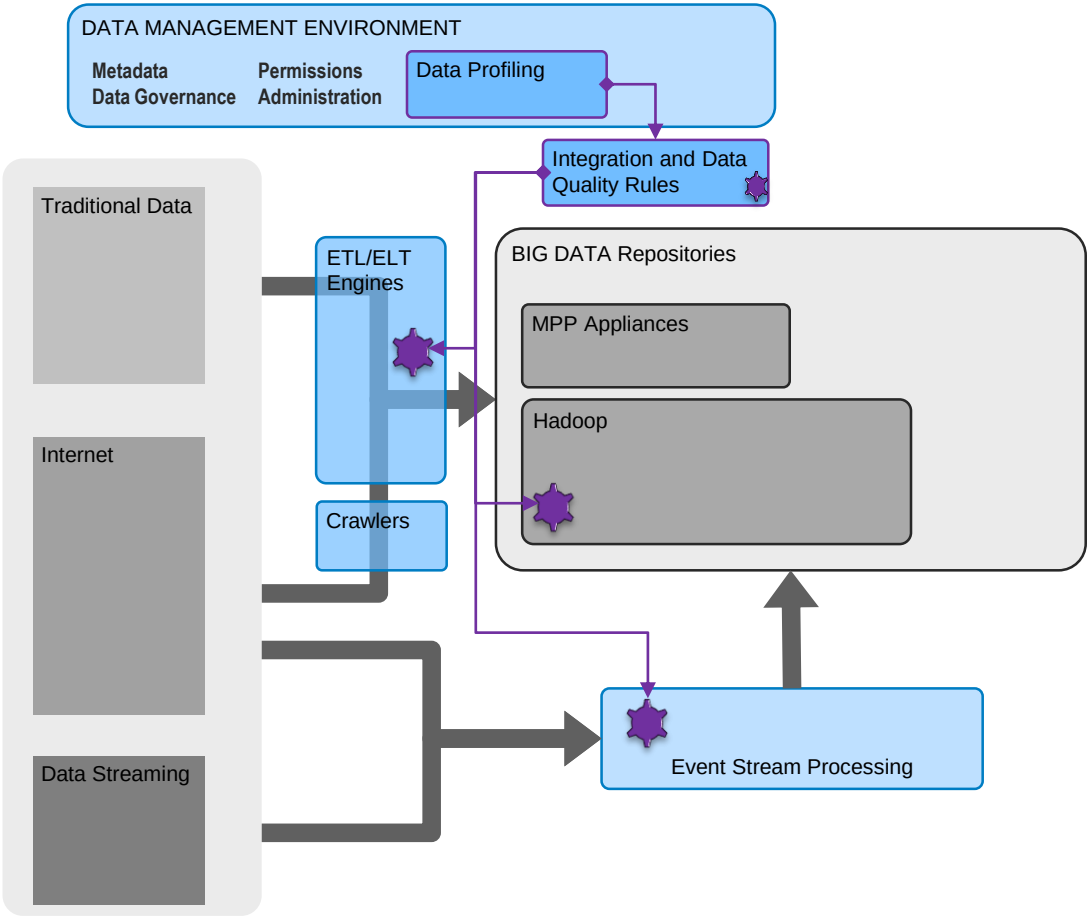
Big Data Ecosystem – The Data

Big Data Ecosystem – Data Management



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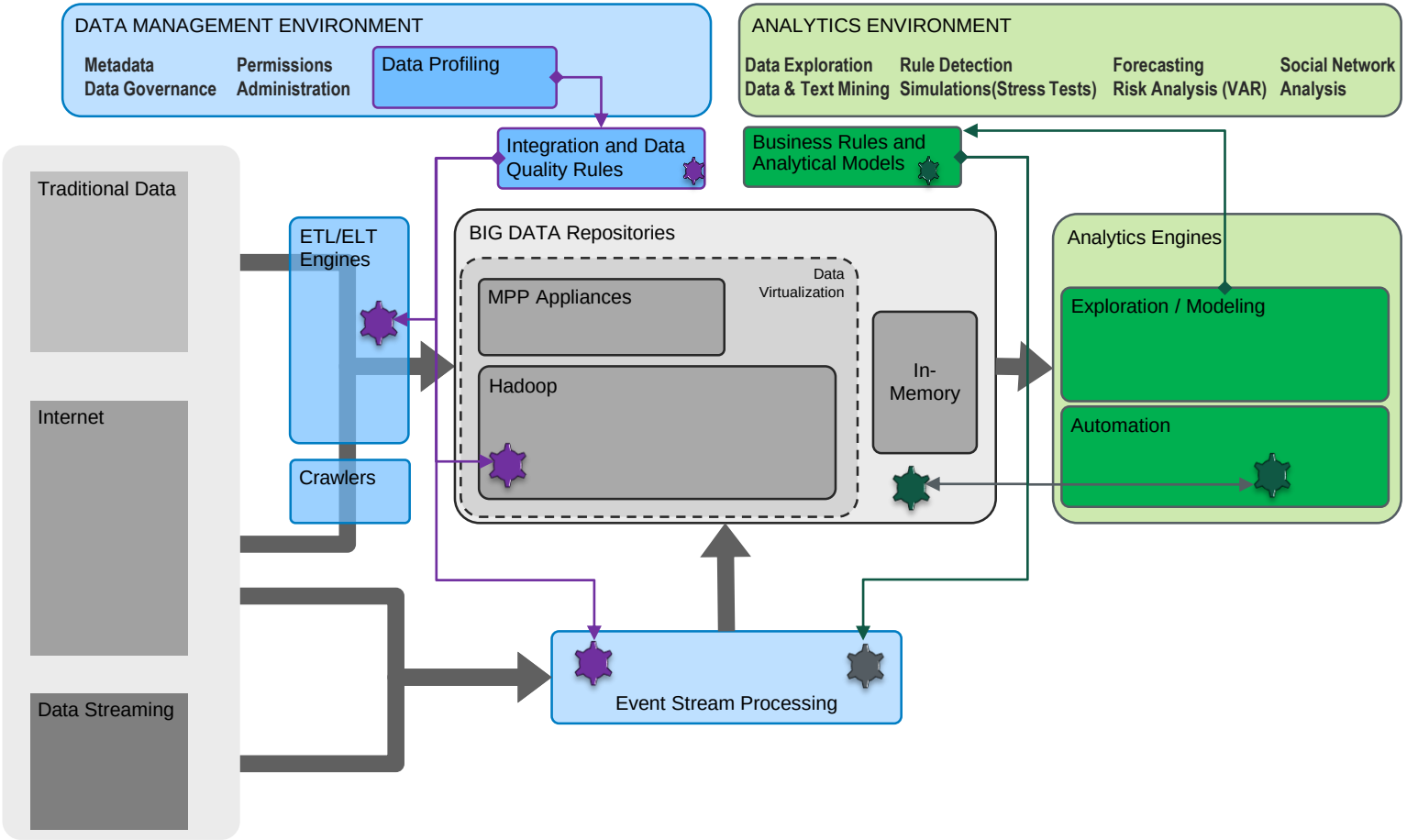
Big Data Ecosystem – Analytics



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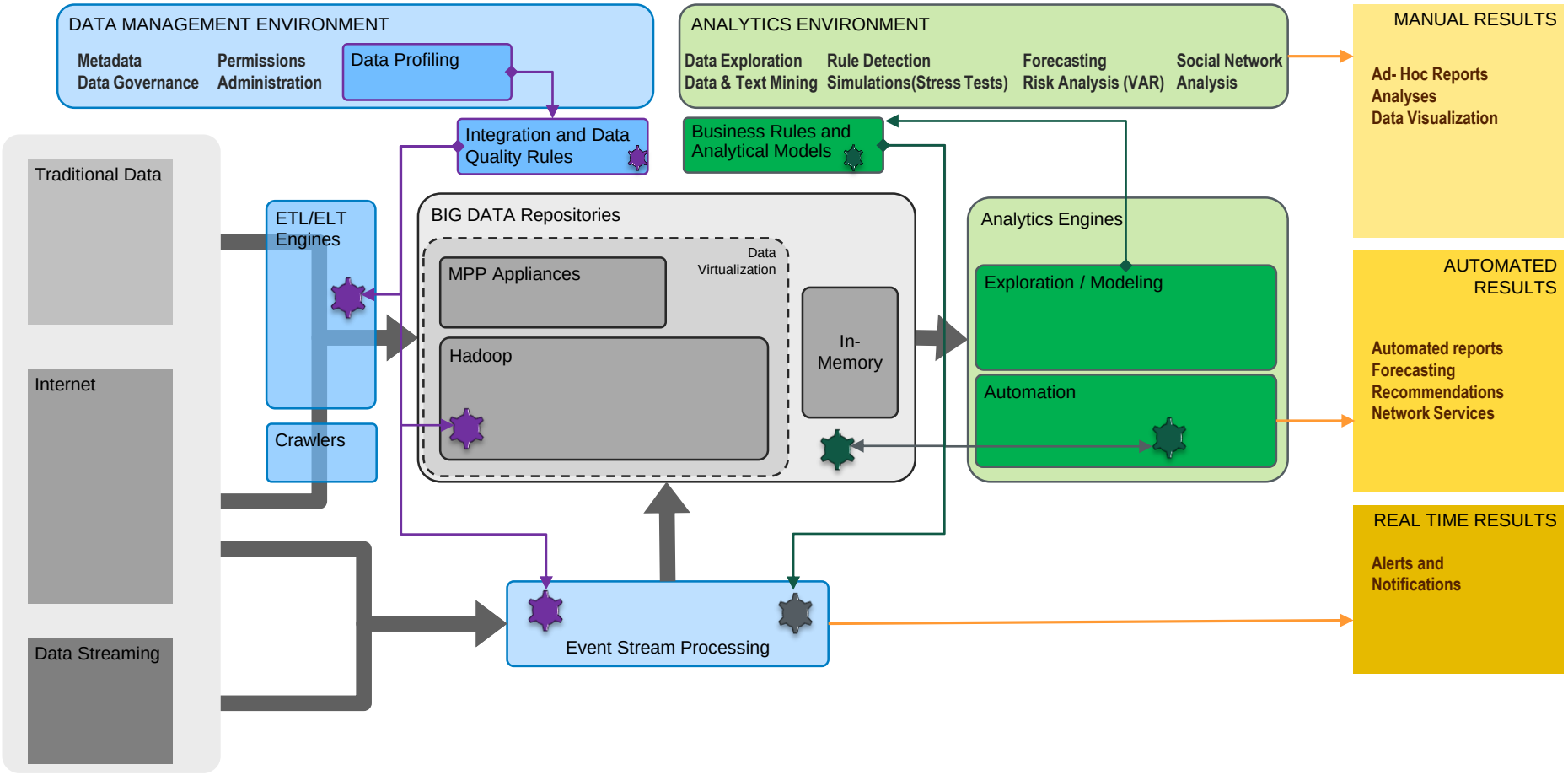
The Complete Big Data Ecosystem



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Technology Focus – SAS and Hadoop

SAS and Hadoop

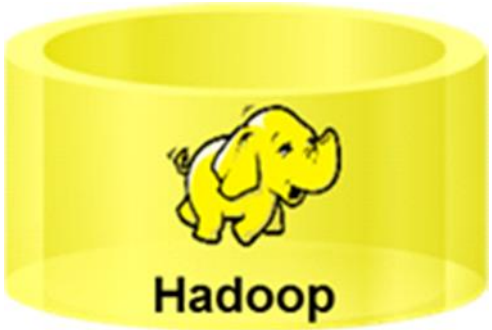
Continuity of Business
- Make it relatively seamless for a SAS programmer to treat Hadoop like any other data source

Bring SAS processing to the Data
- Move SAS closer to the data that is embedded process and LASR

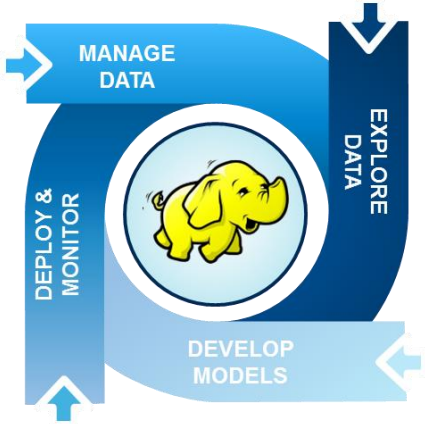
Leverage Hadoop for New Technology offerings
- New solutions built on Hadoop and LASR

SAS offers the widest breath and depth of modern analytic methods
- Solution for advanced analytics on Hadoop

Hadoop as a Data Platform
(standalone or as part of a broader ecosystem)

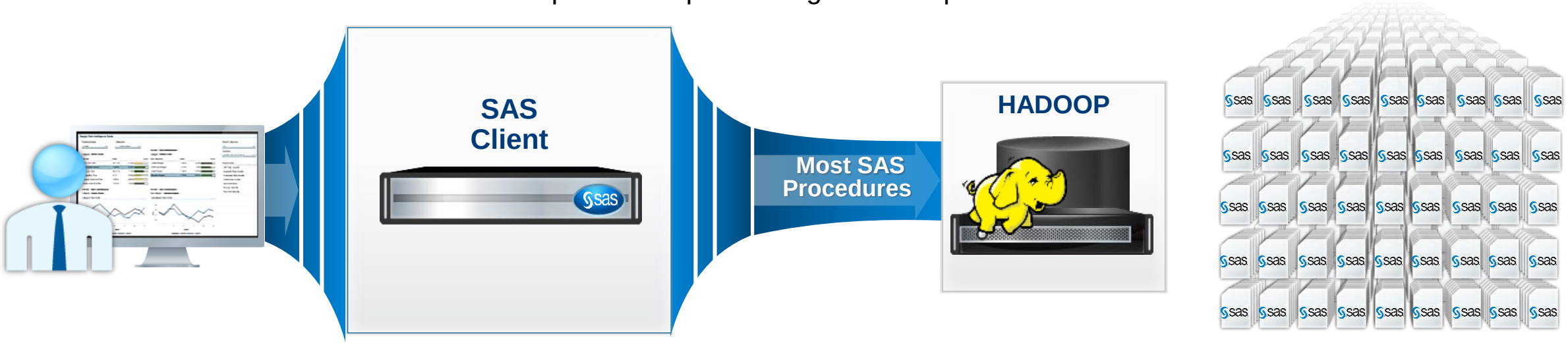


Hadoop as a component of the next generation of Business Analytics



SAS Grid Manager for Hadoop

SAS/Grid Manager for Hadoop - Treat a Hadoop Cluster as a Grid for MVA SAS using Yarn
- Push SAS procedure processing to Hadoop



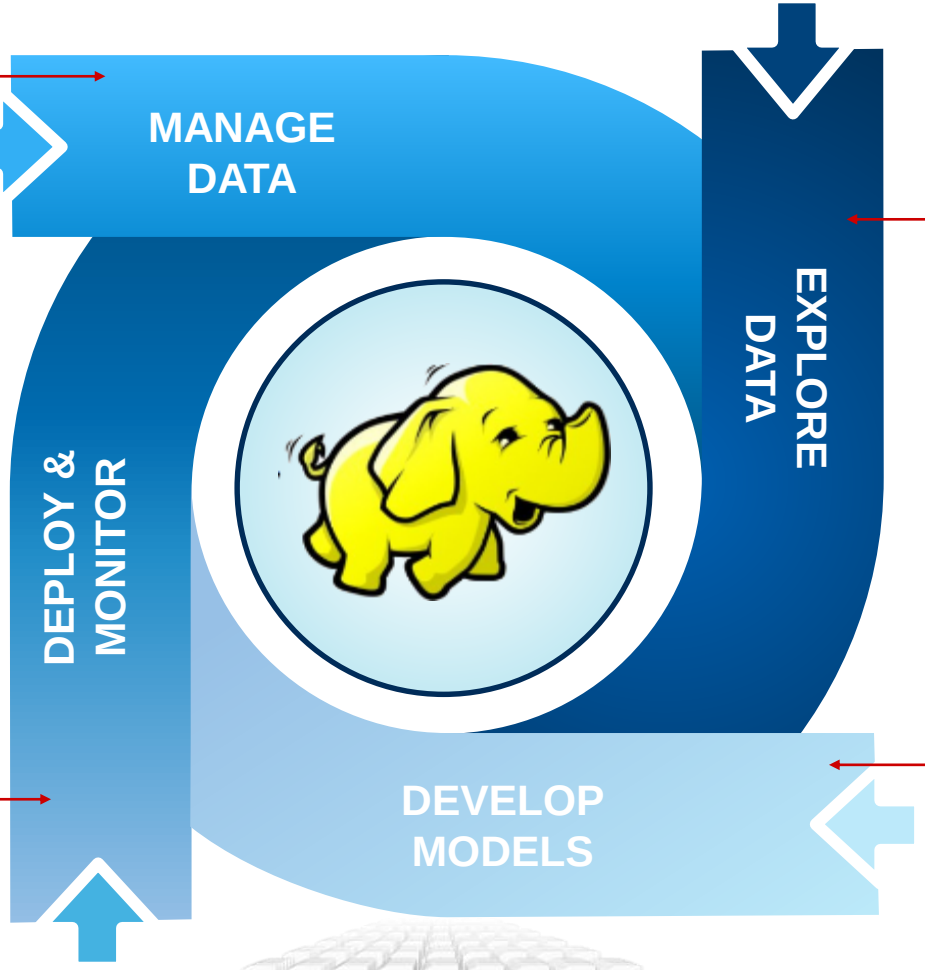
Workload Management
High Availability
Parallel Processing

Enabling The Entire Analytics Lifecycle Around Hadoop

SAS Data Loader for Hadoop

Prepare data **IN** Hadoop for analytics

Move data **FROM** Hadoop into a SAS environment



- SAS Visual Analytics
- SAS In-memory Statistics

- SAS Scoring Accelerator for Hadoop

- SAS Visual Statistics
- SAS In-memory Statistics
- SAS High-Performance Analytics Products

SAS Data Loader for Hadoop Logical Architecture

Profile	Query
Cleanse	Filter
Join	Transform
Load	De-duplicate

(Browser)

vAPP

SAS Data Loader (Web App)

SAS/Access to Hadoop

Hadoop Cluster

Oracle

Other RDBMS

SAS

Text Files

SAS LASR In-Memory Analytic Server (Optional)

Hadoop (1 Node)

SAS Embedded Process

SAS Data Quality Accelerator for Hadoop

SAS Code Accelerator for Hadoop

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SAS Data Loader for Hadoop User Profiles

User Profile

Business User (Analysts)

Data Scientists/IT (SAS coder, ETL developer)

Action

Use wizard-based "directives" (no coding)

Write SAS Code or HiveQL

Data Loader (vApp)

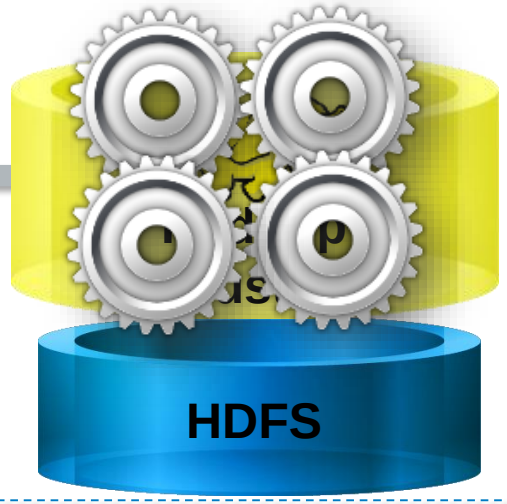
- **Interpret directives or code**
- **Generate code or HiveQL as needed**
- **Send code to Accelerators, queries to Hive**

SAS Embedded Process

Deployed With EP

Code Accelerator

Data Quality Accelerator



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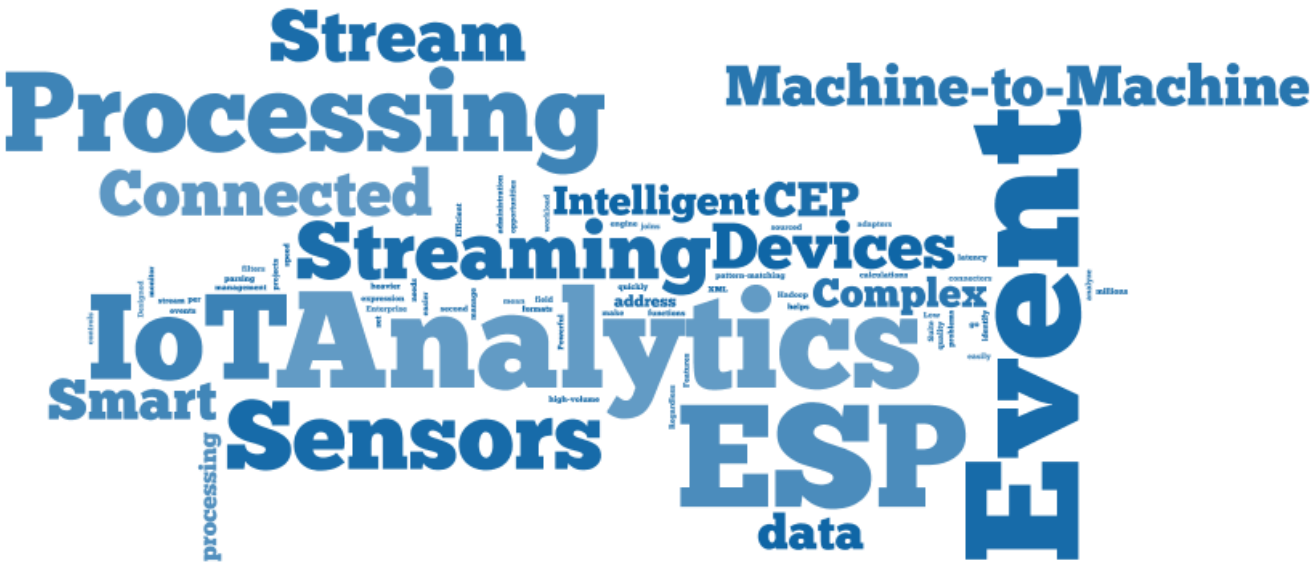
Technology Focus – Streaming Analytics

Streaming Analytics

Take Real-time Action
- Decisive reaction to complex patterns and events as they happen

Apply Multi-Phase Analytics
- Advanced analytics and multi-phase processing

Focus on Relevant Data
- Continuous loading of relevant streaming data



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Streaming Analytics Ecosystem

Edge Analytics

Network Systems, Surveillance

Monitor equipment on the platform for failures and safety issues, and take action.

In-Motion Analytics

Transactions, Logs, Clickstreams

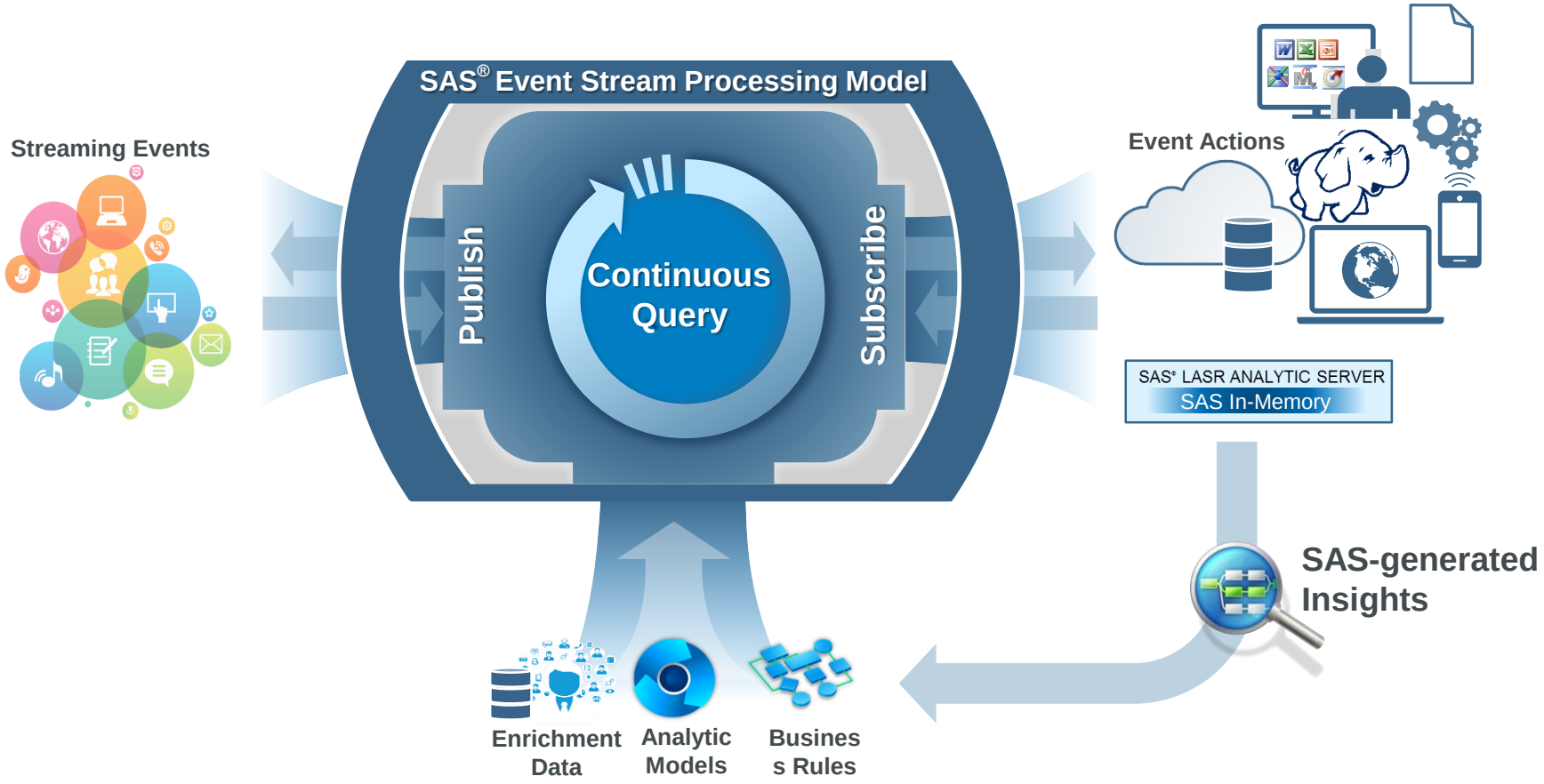
Identify fraudulent transactions and be alerted in real-time.

At-Rest Analytics

Strategic Data Integration

Intelligently integrate customer information with real-time streaming data

Streaming Analytics – Conceptual Overview



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Technology Focus – Approachable Analytics

Approachable Analytics

Unlimited Data Volumes
- Embrace the potential

Speed
- The ability to fail fast

Democratized Analytics
- Cater to the citizen data scientist

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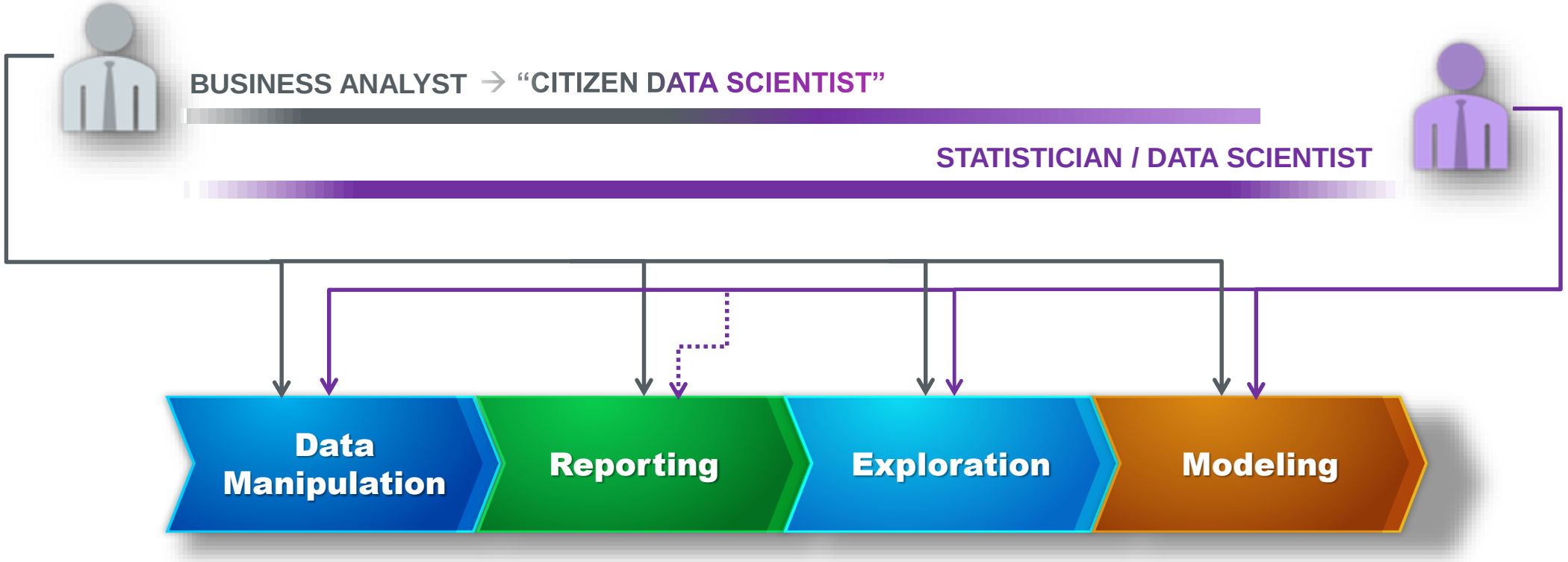
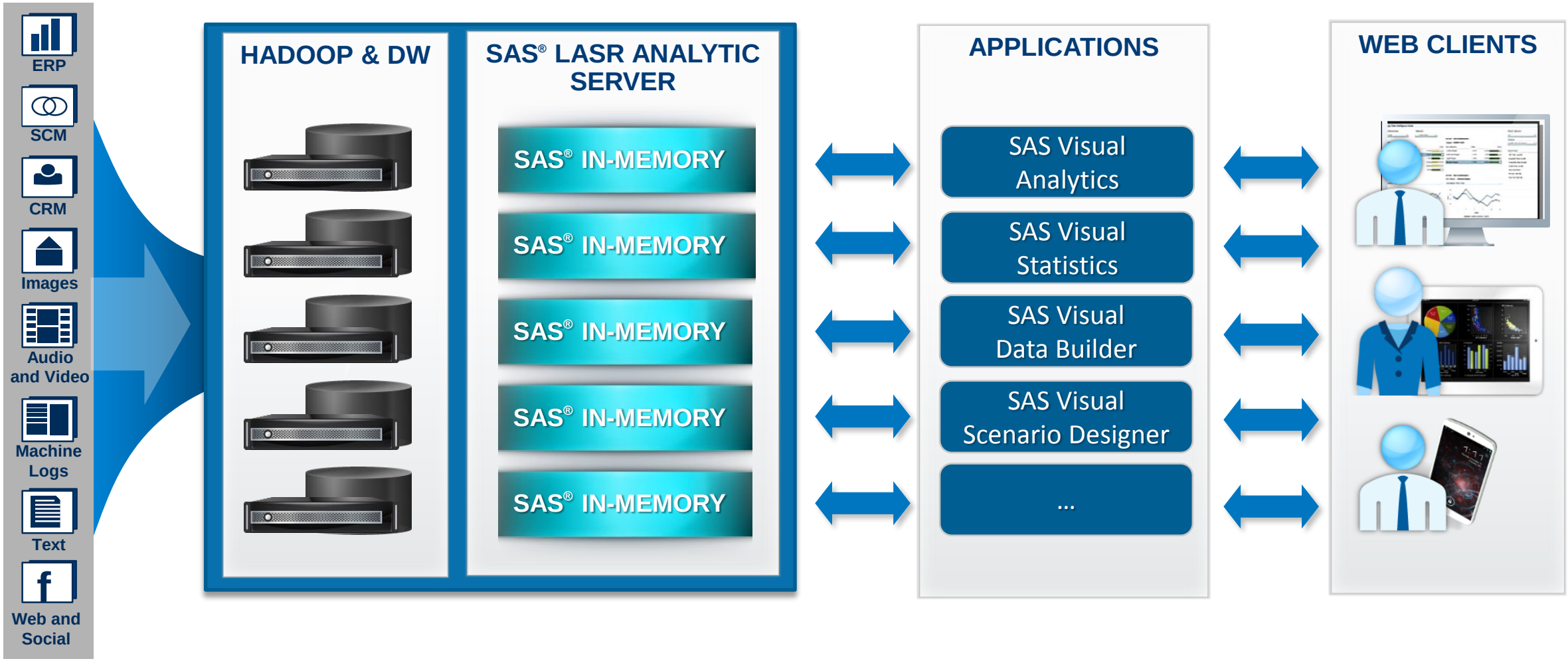
Sophisticated Analytics For Everyone

"A person who creates models that use predictive or prescriptive analytics, but whose primary job function is outside of the field of statistics and advanced analytics. They are "power users" who will be able to perform simple and moderately sophisticated analytic applications that would previously have required more expertise. They often reside in the lines of business and have deep domain expertise" - Gartner Inc.



Gartner's predicts that through 2017, the number of citizen data scientists will grow five times faster than the number of highly skilled data scientists

Approachable Analytics High Level Architecture



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Technology Focus – Decisions at Scale

Decisions at Scale

Automate

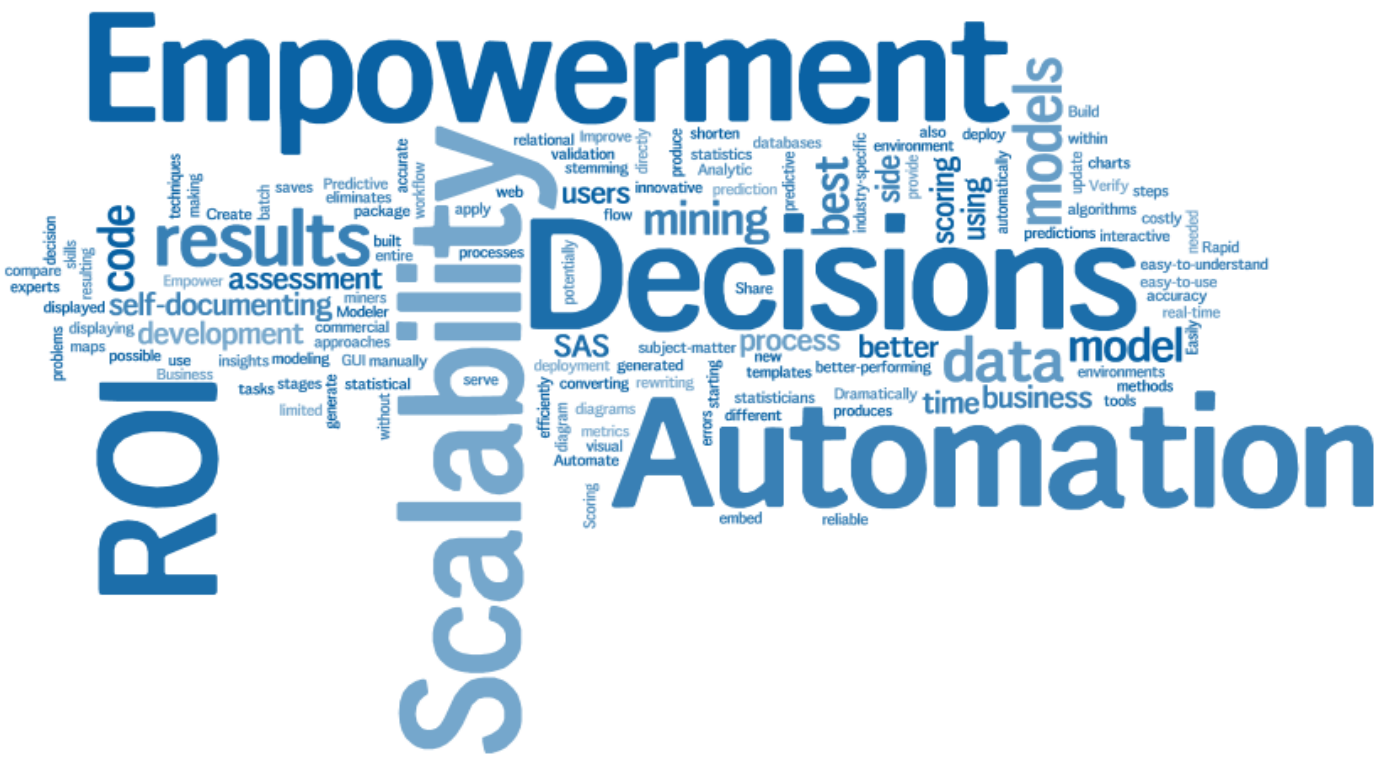
- Build, monitor, and evaluate models using modern methodologies

Empowerment

- Enable decision makers everywhere backed by powerful analytics

Confidence

- Ensure analytic solutions are repeatable, reliable, timely, and relevant across the enterprise



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Deployment Considerations

Decision Requirements

Decision Types
End Consumer
Timeliness
Profitability
Agility
Data Quality

Models / Rules / Data

Integration
New Attributes
Data Granularity
Data Latency
Model Updates

Deployment

Real-Time
Near real-time

Batch
In Database
In Hadoop

Deployment doesn't operate in a vacuum

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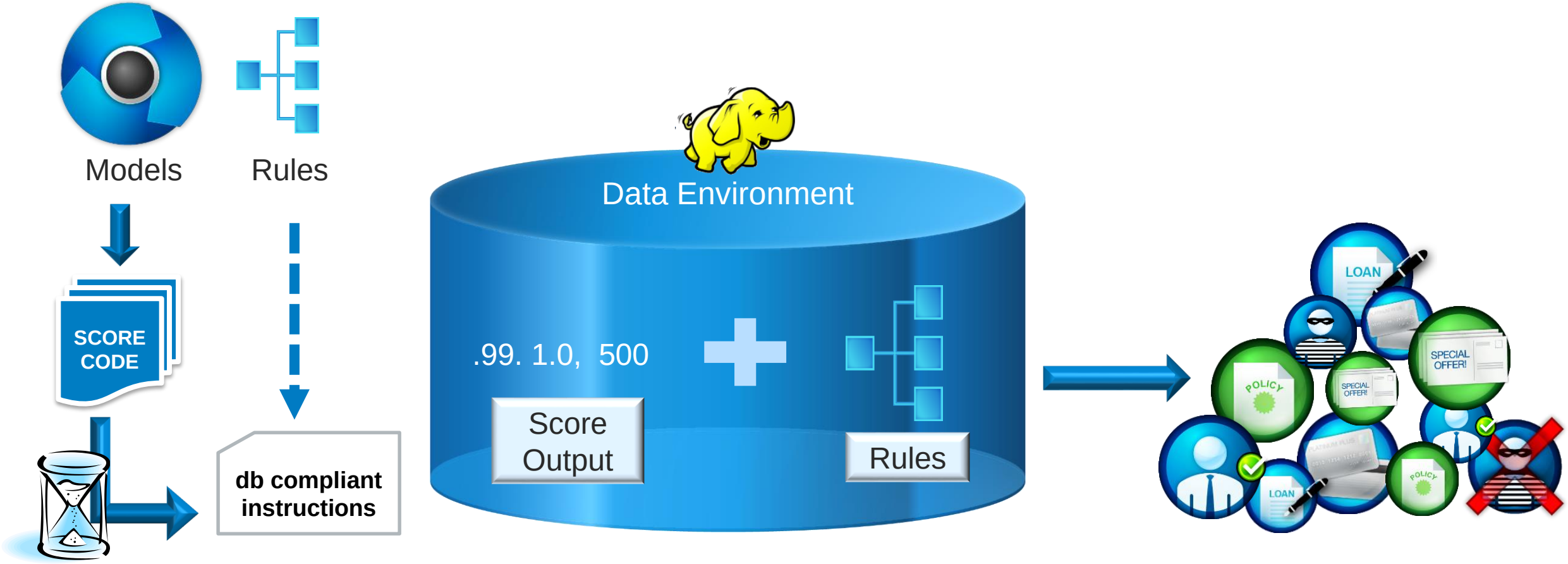
Operationalizing Decision Making



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How Does This All Fit Together?

SAS® Visual Analytics

GUI driven reporting, visualization and interactive data exploration with analytics

SAS® Visual Statistics

GUI driven analytic model development and evaluation

SAS® In-Memory Statistics

Programmatic data wrangling, model development and evaluation

SAS® Enterprise Miner / SAS® Factory Miner

Robust production modelling tools that provide for **repeatability** and **easy operationalization**

SAS® Decision Manager / SAS® Scoring Accelerator

Capabilities to **deploy, monitor and automate** analytics with appropriate business rules into operational business processes

Visualize, explore, interact, explain, understand, democratize, prototype → **Finalize, deploy, integrate, execute, operationalize, industrialize**

Approachable Analytics → **Decisions at Scale**

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AMSIO

SaasNow

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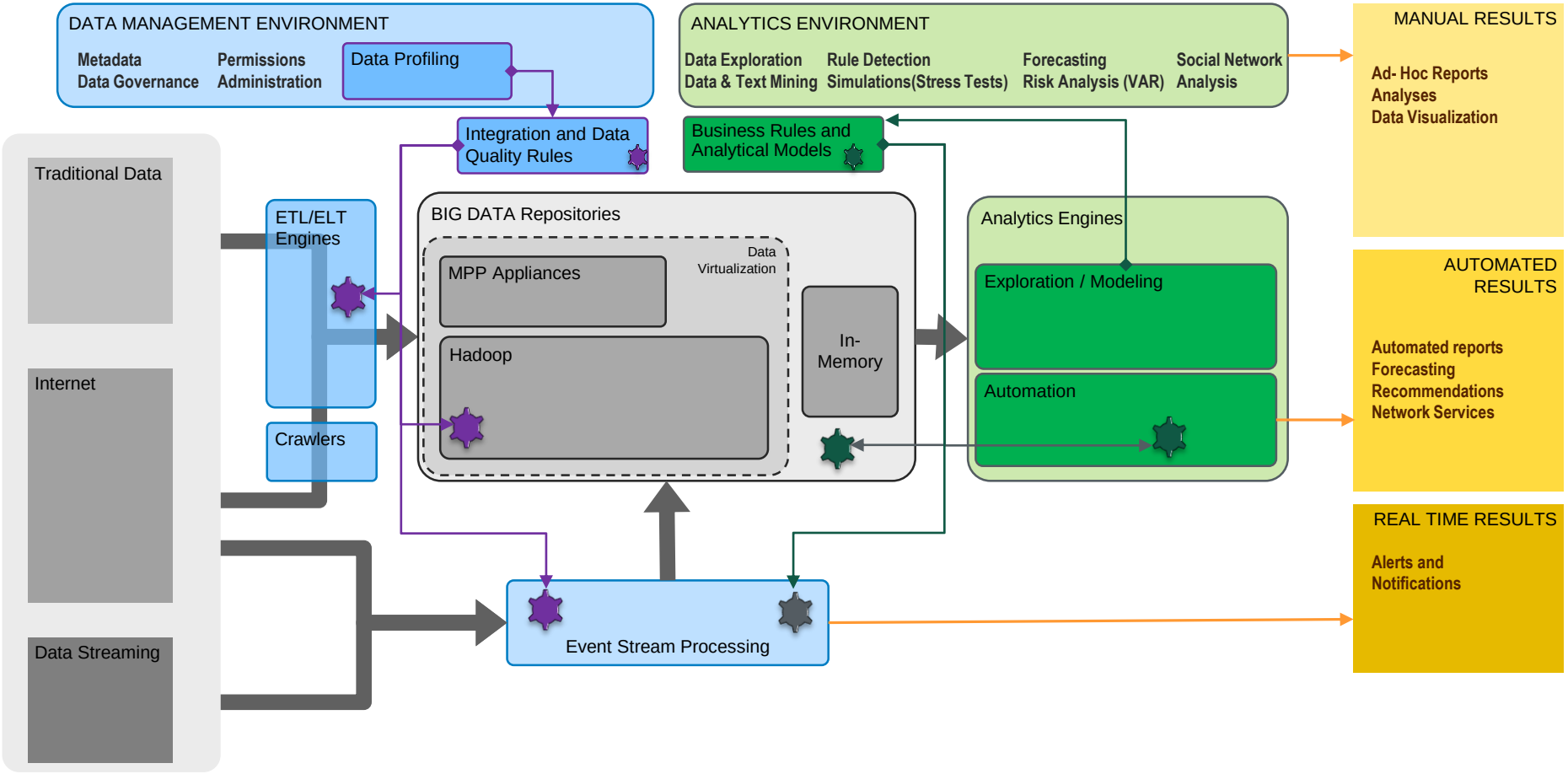
saasnow
powered by amsio

- SAS VA + VS From the cloud
- Automatically deployed in 30 minutes
- Manage your environment in Portal
- Payments per month
- Monthly contracts

Big Data Ecosystem – Build On Existing Technology



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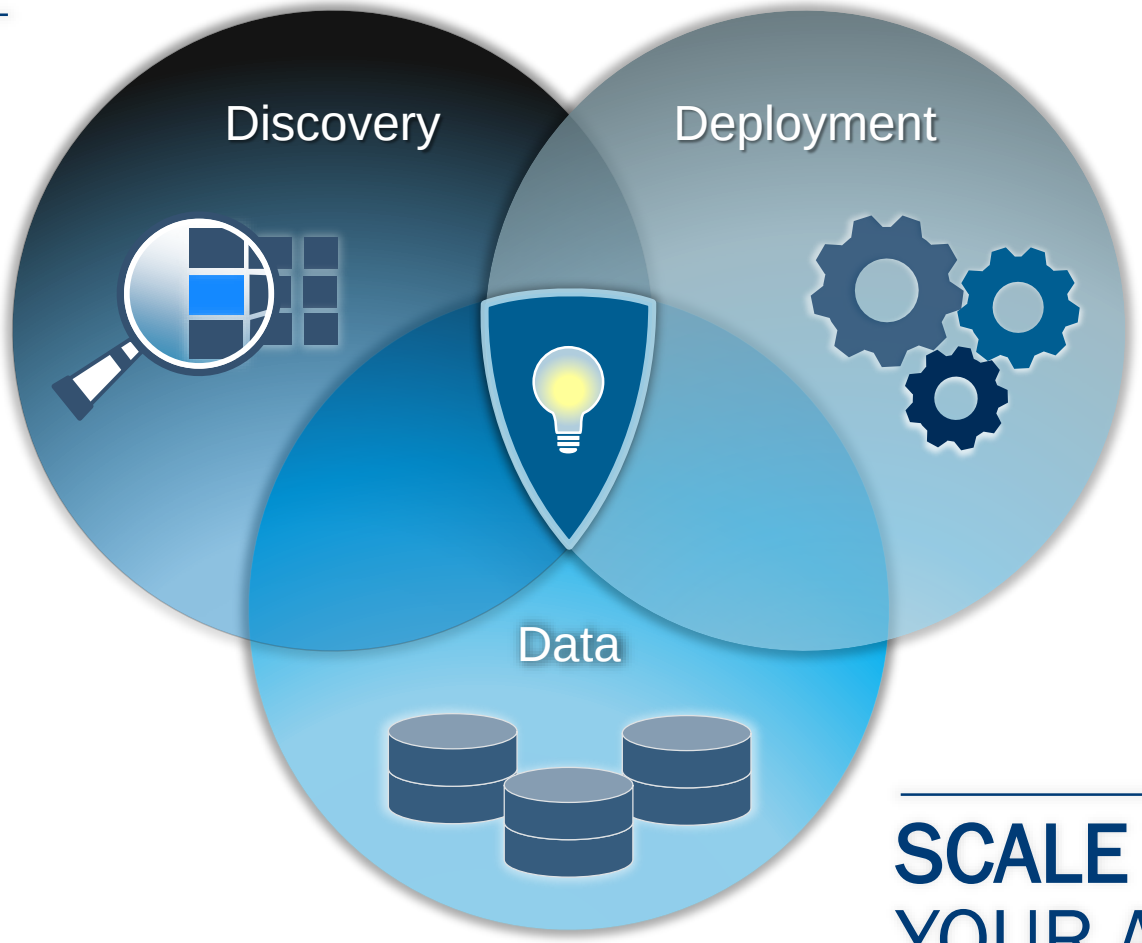
Analytics in Action - SAS Can Help

GROW A CULTURE OF **INNOVATION**

ANALYZE **ALL** OF YOUR **DATA**



MODERNIZE YOUR LEGACY **BI STRATEGY**

SCALE YOUR DATA *AND* YOUR ANALYTICS

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