



//ADA STRA

Harness the power of IoT data

Optimizing your business efficiency
with anomaly detection

Rethink Smart Manufacturing in Europe
Berlin & Online / 1st - 2nd July 2021

ADA STRA GMBH



Adastra Solution Portfolio



DATA ENGINEERING

- Data Strategy
- Modern Data Warehousing
- Data Lake
- Data Integration
- Data Visualization
- Business Intelligence



ARTIFICIAL INTELLIGENCE

- Machine Learning
- Deep Learning
- Statistical Analysis
- Text Mining
- Exploratory Data Analysis
- Visual Analytics
- Feature Engineering



CLOUD SERVICES

- Readiness Assessment
- Cloud Provider Evaluation
- Cloud Migration
- Managed Services
- Azure, AWS, GCP



DIGITAL BUSINESS

- Digital Transformation
- Robotic Process Automation (RPA)
- Internet of Things
- Blockchain
- Mobile Apps



GOVERNANCE

- Data Governance
- Data Quality
- Master/Reference Data Management
- Data Lineage
- Metadata Management



Adastra Group Worldwide

2000+

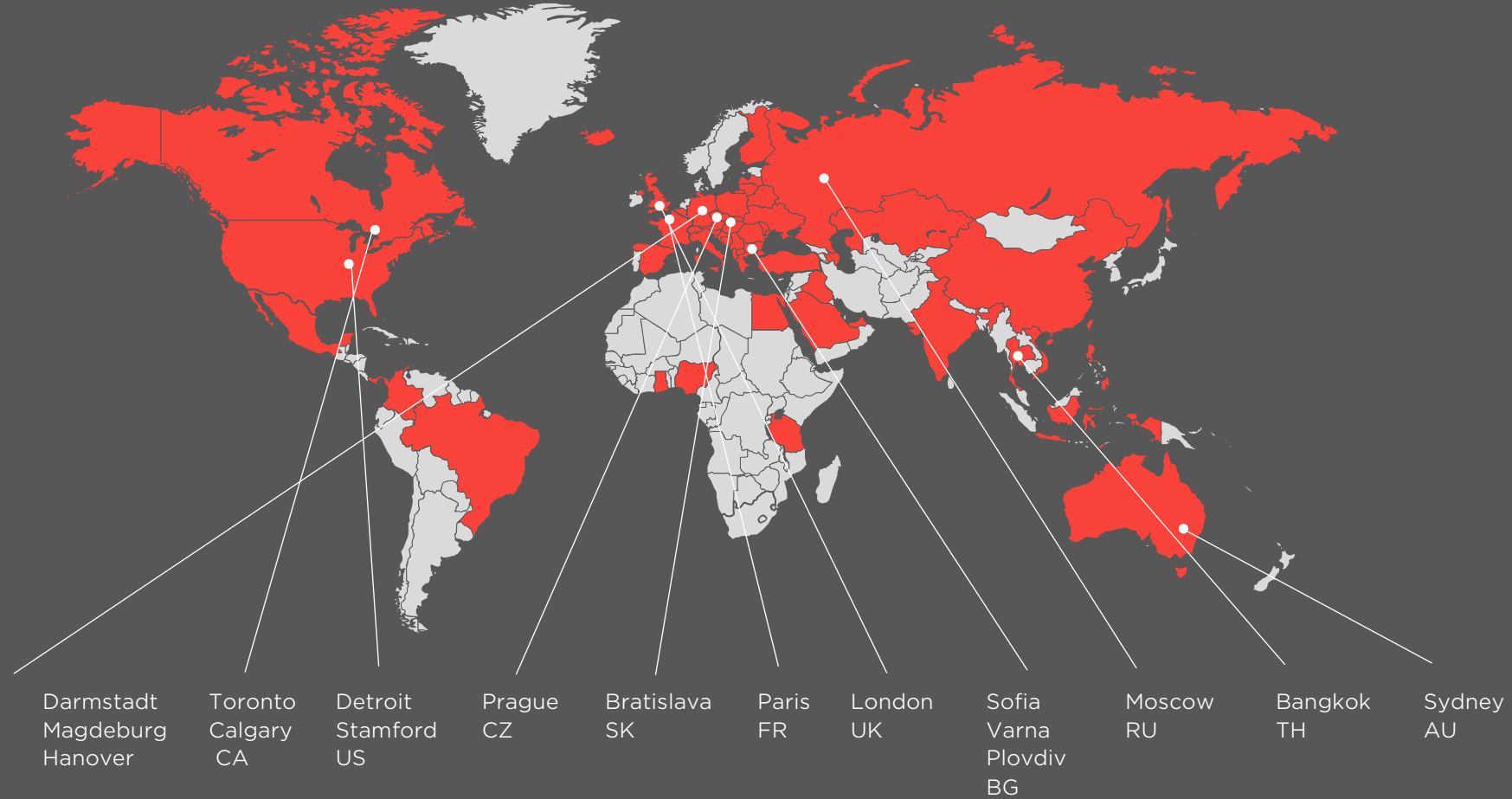
More than 2000
professionals

5000+

Projects in 42
countries

20

Offices in 11
countries



AA Blindspot Solutions – The AI Lab of Adastra Group

Delivering state of the art solutions in **machine learning** and **optimization** to large and small companies.

Novel and existing algorithms to **extract maximal business value**.

50 | Technology **Fast 50**
2020 CE **LAUREATE**
Deloitte

Laureate
of the Deloitte 2020
Fast 50 ranking



BLINDSPOT AI

Specialists in
Artificial Intelligence,
Machine Learning,
Deep Learning



Harness the power of IoT

Adastra IoT Analytics Factory



Good news is:

The top managers want to transform their companies to
data-driven businesses.



Managers are well prepared theoretically



Imperial College Business School

Gesponsert ·



Learn how to use five core digital technologies to implement digital transformation across your organisation. 9-week online programme.

B 9 Weeks | Online

**Digital Transformation:
5 Game-Changing Technologies for Business**

AI IoT Blockchain

Cloud Big Data



Berkeley Online Program on Digital Transformation

Gesponsert ·



Stay ahead of the competition by aligning people, data, and technology with the Digital Transformation online program.

ONLINE

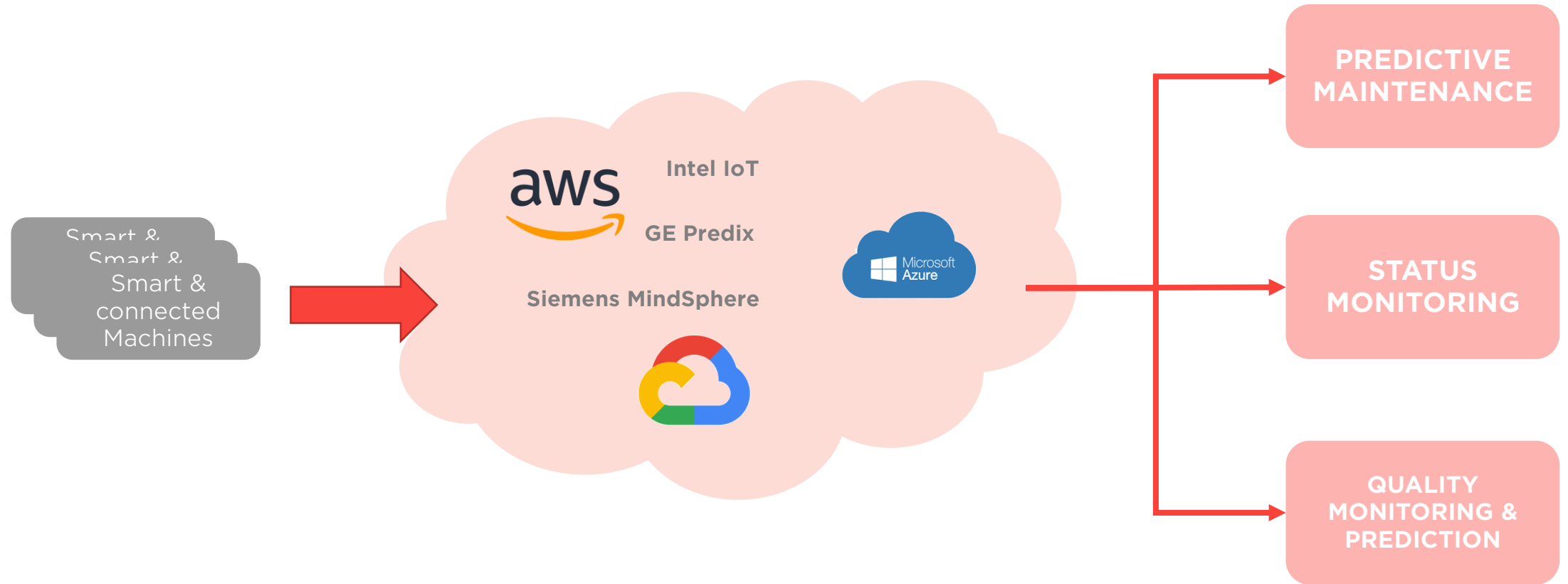
**DIGITAL
TRANSFORMATION**
2 MONTHS, ONLINE PROGRAM

Technology Data Internet of things Automation AI

Berkeley Haas

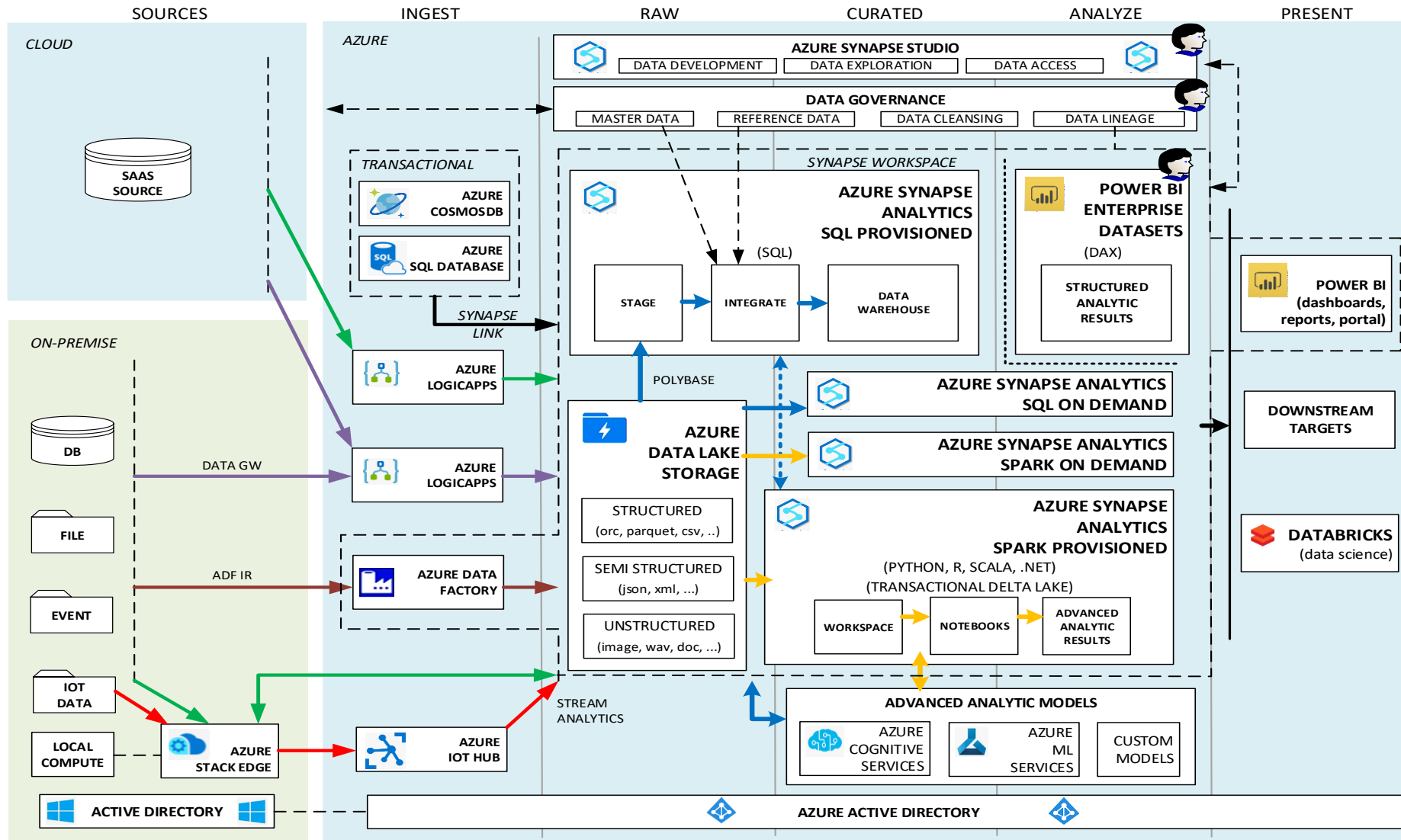


Age of Digital & Cloud-first programs





What do large IoT Platform providers sell?





...expecting euphoric clients.





Clients: reluctance and skepticism

- / Uncertainty regarding IT security and data protection
- / Concerns due to US Cloud Act
- / Lack of know-how
- / Complexity and costs of migration
- / Large investments in legacy solutions in the recent expensive initiatives to CFOs
- / **Reluctance due to possible vendor lock-ins**





Should you first select your All-In IoT Data Platform before starting harnessing the IoT data?



What do you need to start with IoT Analytics?

Data



1 SME

Storage



1 Data Engineer

Compute Power

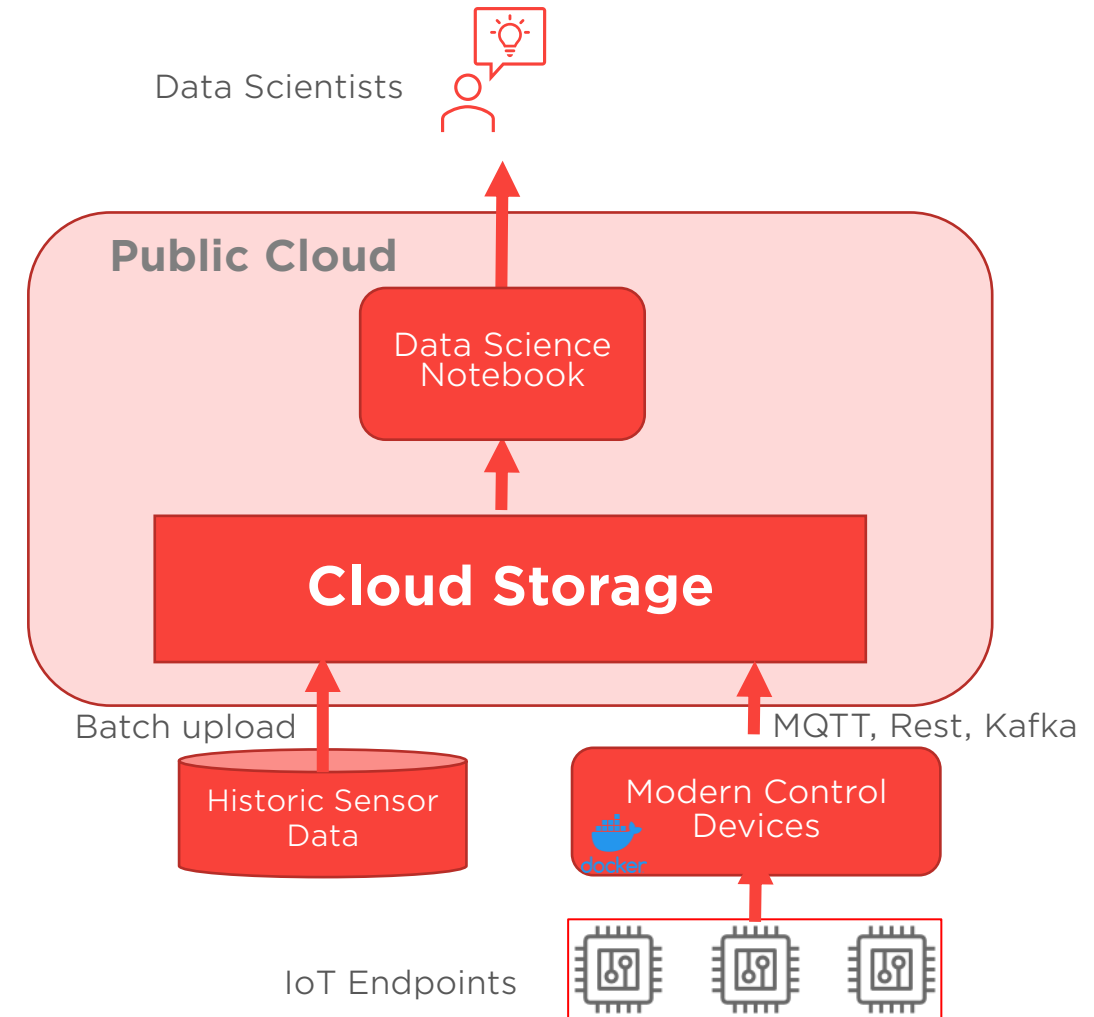


1 Data Scientist



Where to start?

- / Quick identification of a suitable use case
- / Get approval by IT security and data protection departments
- / Quick upload of relevant historic IoT Data in the cloud storage
- / Grant data access to analysts and data scientists
- / Deployment of the first MVP with maximum 3 months





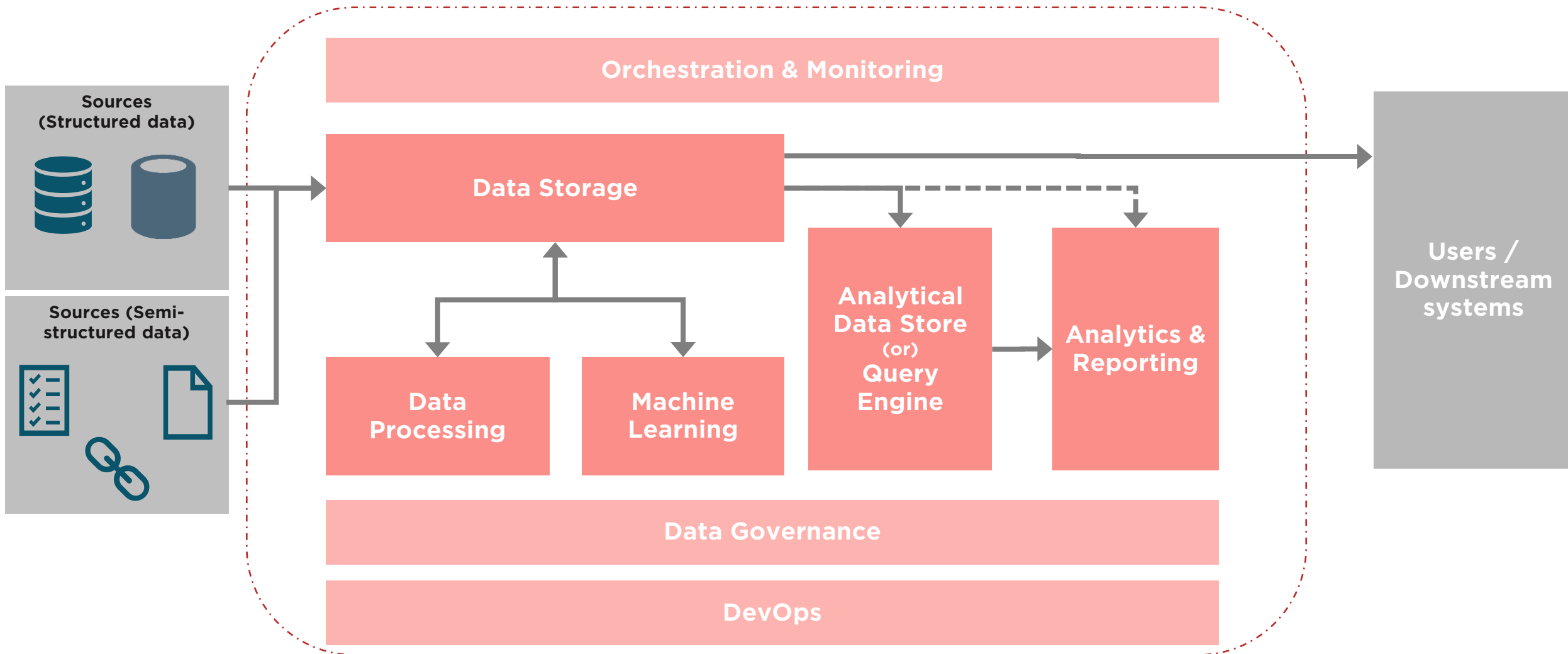
What to learn from the first IoT Analytics MVPs?

Get a first impression of...

- / how fast new IoT analytics applications can be implemented in the cloud
- / how Cloud Consumption costs develop and how I get a grip on them (therefore MVP, not only PoC)
- / if necessary, whether my legacy system can be brought into the cloud fast, with manageable costs and ideally automatically?
- / Won knowledge to decide on “Buy or Make yourself”

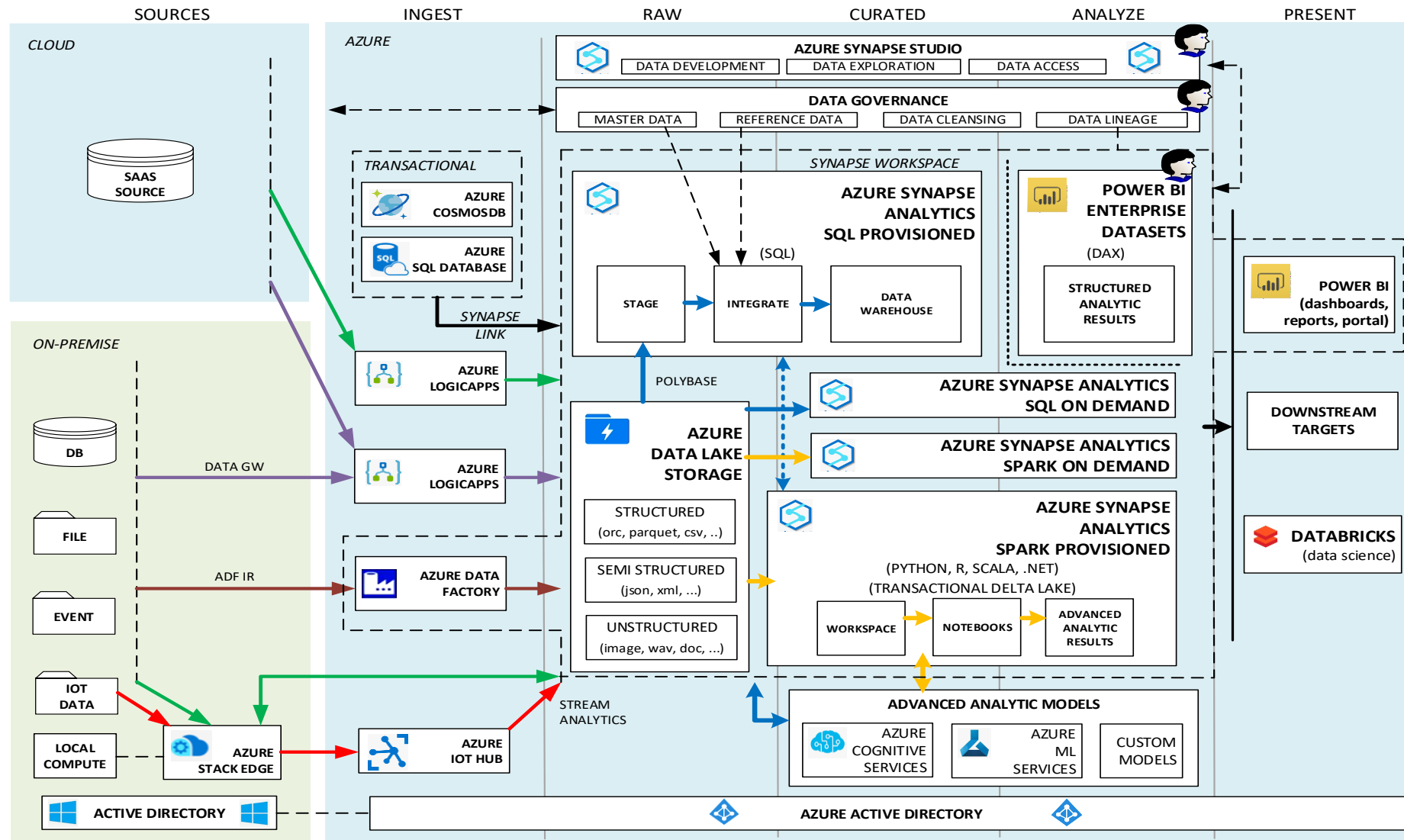


Mature Cloud Data Lake & Modern DWH






Implemented with Cloud native components





Do you have to use cloud-native technologies/tools only?

No!

A person wearing a red jacket and dark pants stands on a rocky cliff overlooking the ocean at sunset. The sky is filled with orange and yellow clouds, and the water is dark. The scene is framed by a large red diagonal shape on the left and a white diagonal shape on the right.

Avoiding Vendor Lock-In with Adastra IoT Analytics Factory



Adastra IoT Analytics Factory

Based on:

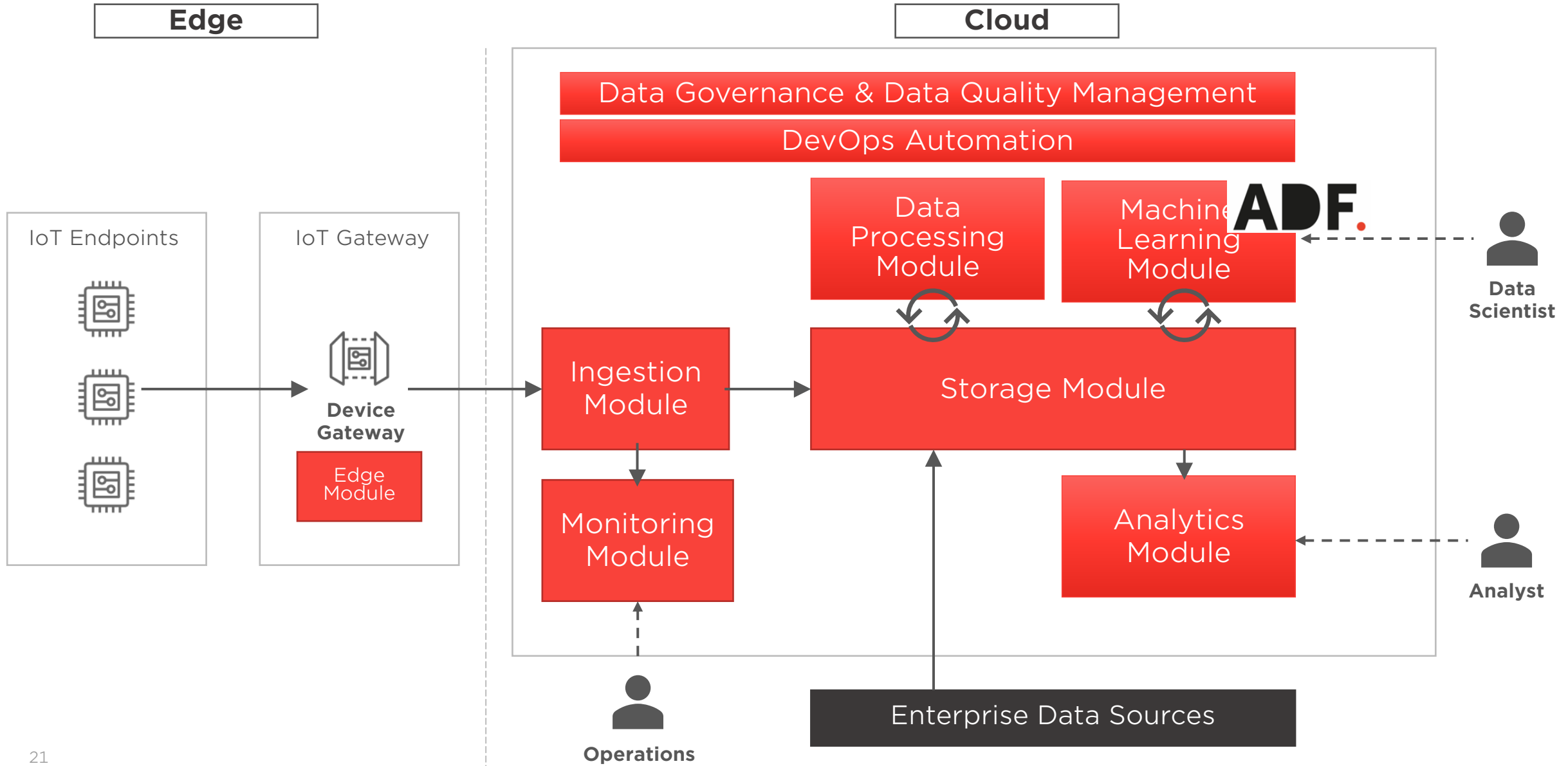
- the Adastra experience with Automotive, Manufacturing, Telcos, Retails, Utilities, Mining
- more than 25 years of experience with implementation of complex Data Management Systems

Provides:

- Out of the Box reusable components for all major modules
- Best practice templates & concepts for typical use cases
- Control Metadata Model for Audit Trail and Monitoring
- Deployable with native implementations on AWS, MS Azure, GCP and as a Kubernetes Cluster (e.g. Red Hat OpenShift) on any other Cloud platform or on-prem
- Close Integration with Blindspot.AI Anomaly Detection Framework (ADF)
- Integration with Cloud Platforms' independent technologies like InfluxDB (IoT DB), Snowflake, Databricks



Adastra IoT Analytics Factory



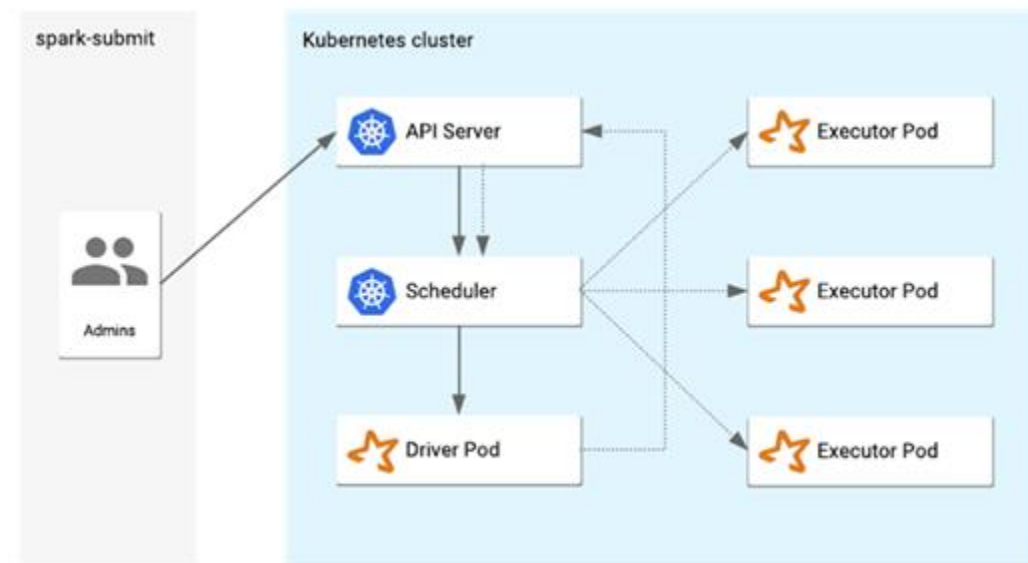
Portable D&A Platform with Spark & Kubernetes



- / **Kubernetes:** „*Run K8s Anywhere* - Kubernetes is open source giving you the freedom to take advantage of on-premises, hybrid, or public cloud infrastructure, letting you effortlessly move workloads to where it matters to you.“ (<https://kubernetes.io/de/>)

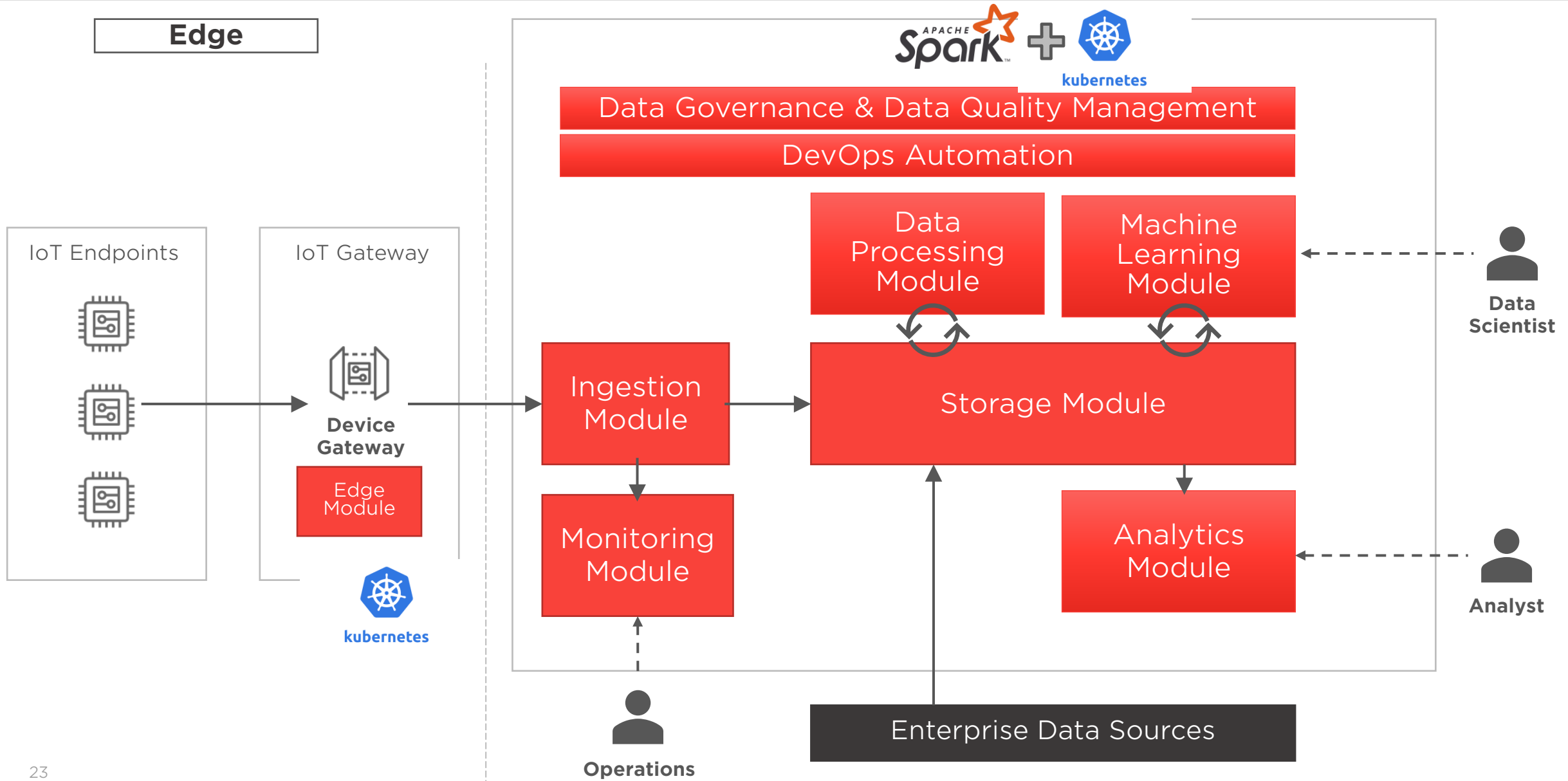
Wikipedia: „*Kubernetes* is an open-source container-orchestration system for automating computer application deployment, scaling, and management.“

- / **Apache SPARK:** Already for the on-prem and now for the Cloud Data Lakes one of the most used platforms for parallel processing of Big Data
- / Since 2018, **Kubernetes** is available as an alternative Apache Spark Cluster Manager (next to Mesos & Yarn)



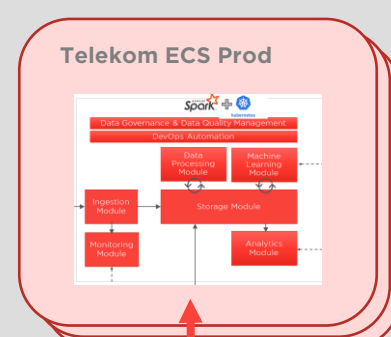
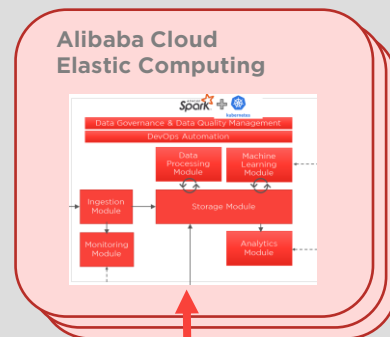
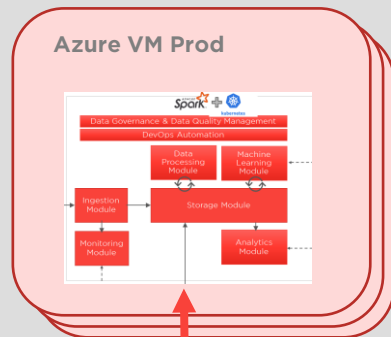
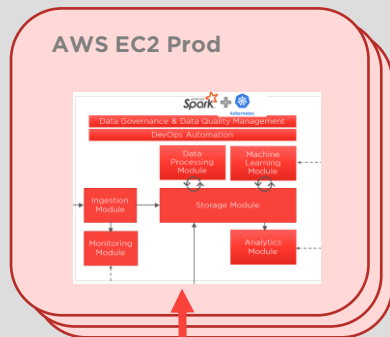
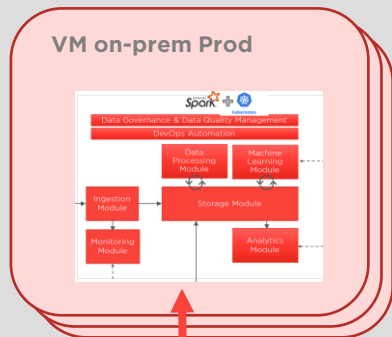
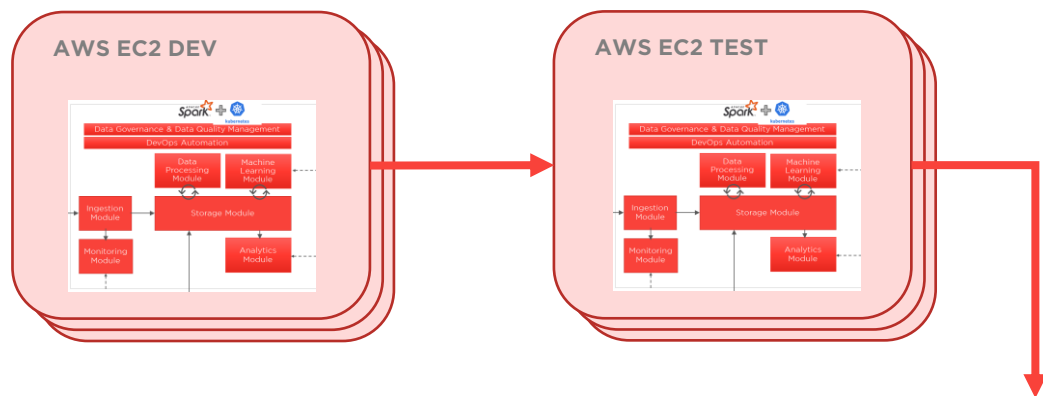


Adastra IoT Analytics Factory on Kubernetes





One Framework, deployed everywhere



Object Data Storage
on Prem
(e.g., Ceph, EMC
Isilon)

AWS S3 Object Data
Storage

Azure Data Lake
Storage

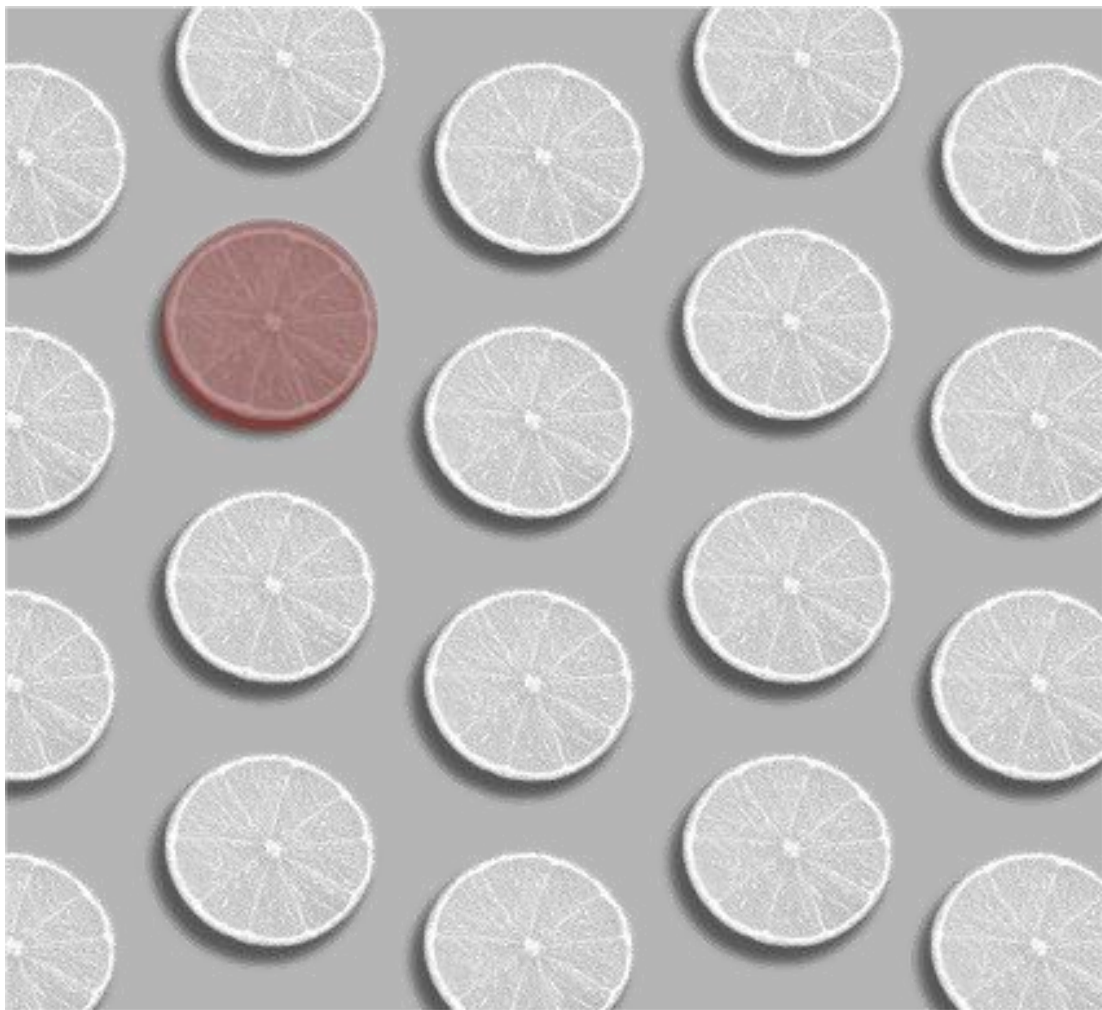
Alibaba Cloud
Storage

Telekom Object
Storage
Services



Optimize your business efficiency with anomaly detection

Anomaly detection Framework
Optimus 4.0



Finding patterns that do not conform to expected behavior

What is anomaly detection 2/2?



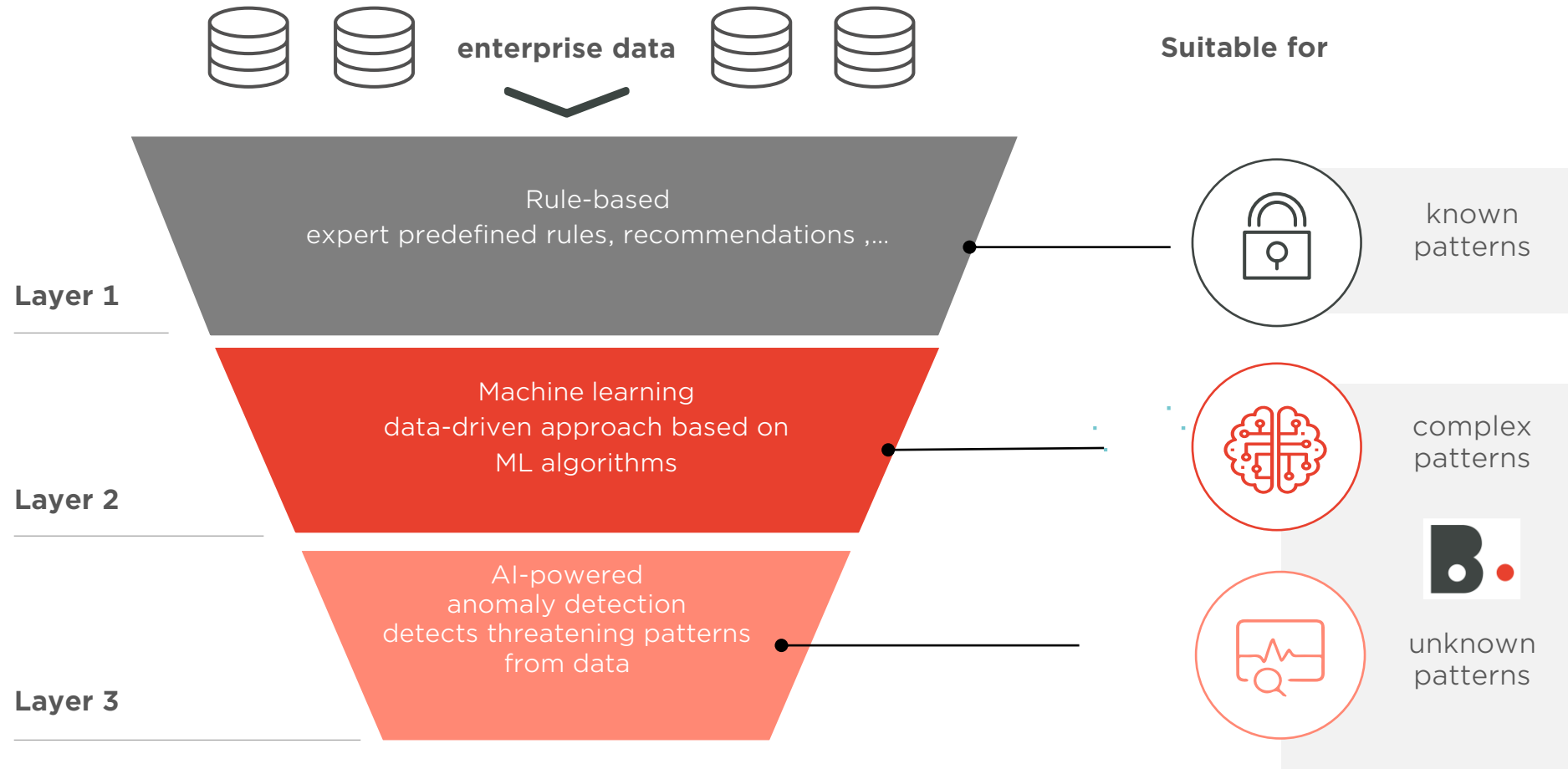
CLIENT global US-based cyber security solution vendor

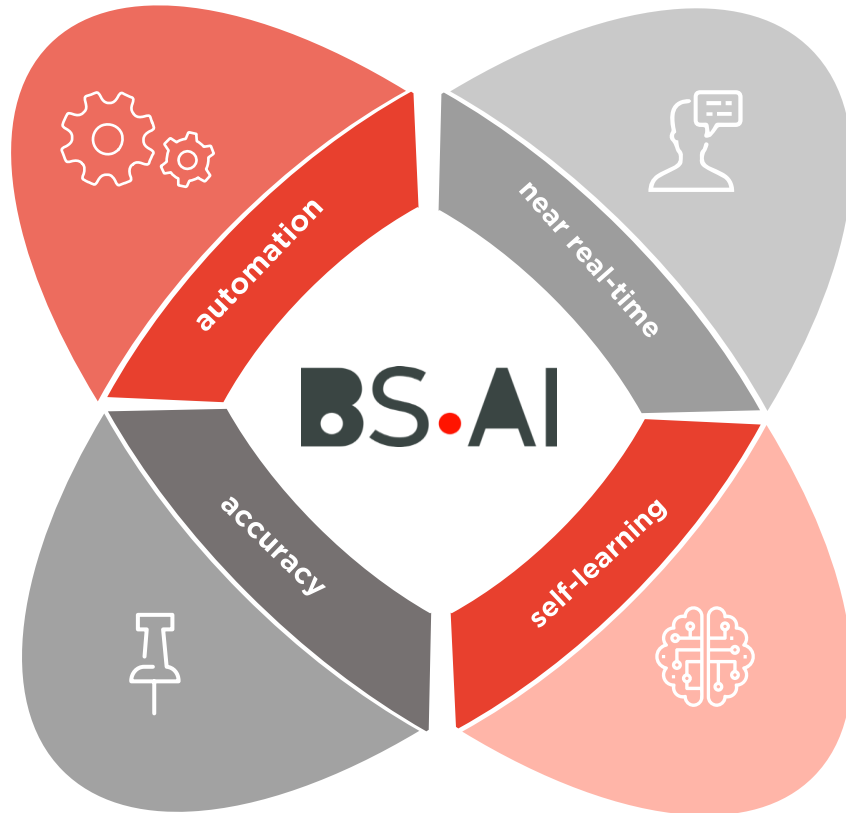
GOAL Reduce amount of cyber related threats that analysts must process.



ANOMALY PREDICTION IN CYBER-
SECURITY DATA

CASE STUDY





- 01 **automation and simplicity**
- 02 **near real-time**
- 03 **self-learning**
- 04 **accuracy**



Success Stories

Smart Body Dashboard Dimension



CLIENT

large manufacturer



GOAL

Improve quality of car bodies by assisting in corrections during welding



ACTION

Created a mobile application to capture details of corrections and trained a model for prediction of quality issues and finally for correction recommendation



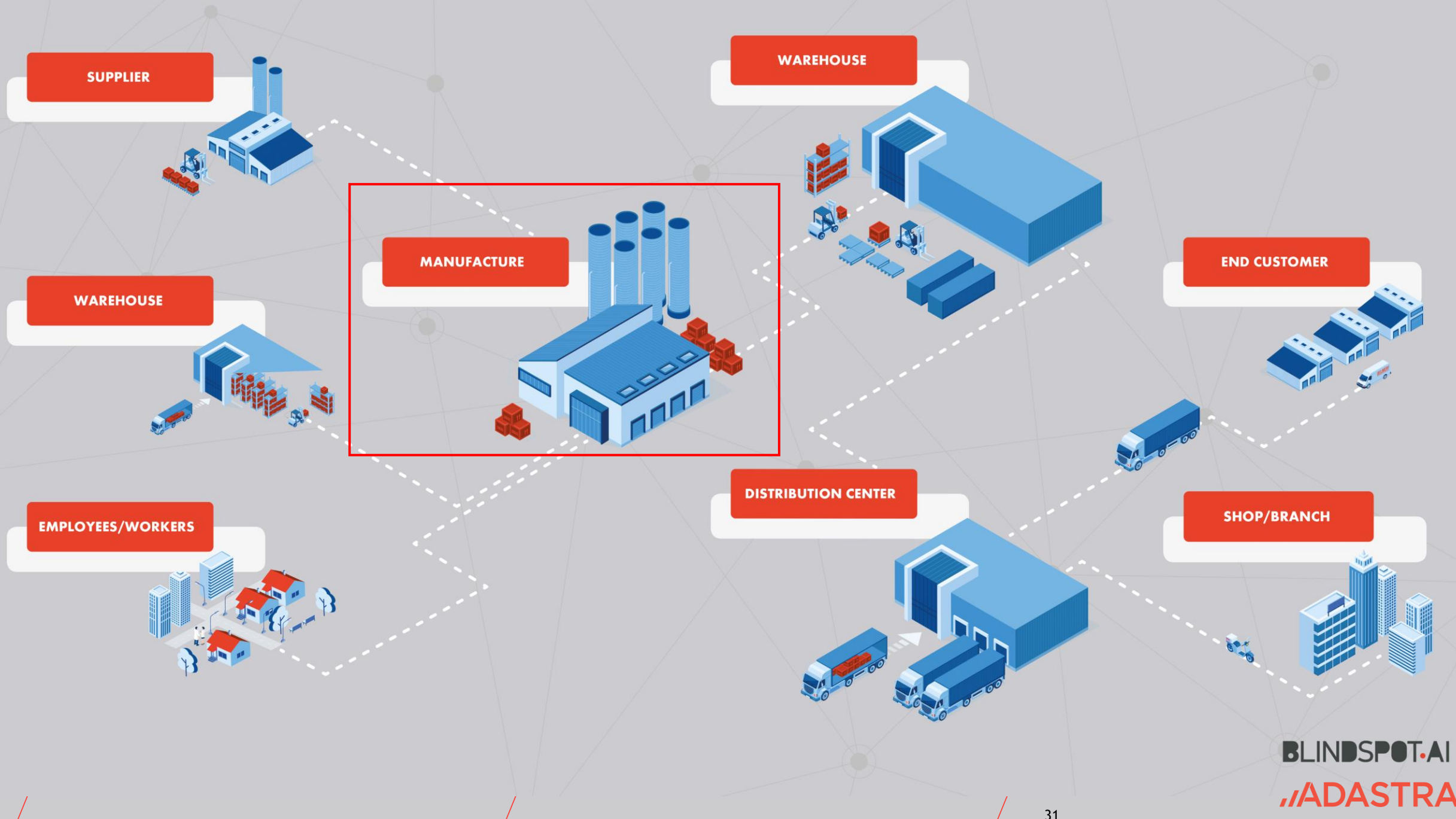
- ✓ Less manual work
- ✓ Increased production stability
- ✓ Early warning detection



Improved quality



Maintenance cost decrease by more than 20%



Optimize and scale up your business through advanced planning

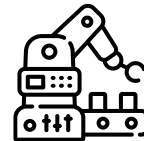
Optimus 4.0 is a algorithm-based optimization engine that has the power and flexibility to deal with the most challenging problems of efficiency and optimization in:



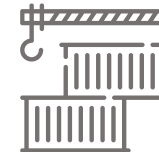
**employee planning
and scheduling**



**logistics and
its processes**



manufacturing



cargo handling



Source: Škoda Auto

Success Stories

Video - Container Loading Optimization





CLIENT Škoda Auto



GOAL Decrease the amount of "air" in shipping containers by loading them more efficiently.



ACTION We prepared an optimization model considering cargo weight and dimensions, developed a tablet UI for the cargo loading team.

RESULTS

- ✓ **increased and maximized cargo volume loaded (98%)**
- ✓ **302 containers saved in first year**
- ✓ **160 tons of CO2 emissions saved in first year**



We saved 840 000 EUR during first year.





Thank you!

Adastra GmbH

Niederuau 36, 60325 Frankfurt am Main
.+49 (0)69 719 779 790 / infoDE@adastragrp.com

www.adastragrp.com



Contact us!

infoDE@adastragr.com
www.adastragr.com

FRANKFURT

Niederuau 36
60325 Frankfurt a.M.

Tel.: 069 713 779 790
Fax: 069 713 779 799

WOLFSBURG

Schlosserstraße 6
38440 Wolfsburg

Tel.: 05361 834 1715

MUNICH

Leopoldstraße 244
80807 Munich

Tel.: 089 208 039 511

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