TOP 10 EDGE ANALYTICS USE CASES

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ABOUT CROSSER

Swedish software company
- HQ – Stockholm
- R&D – Sundsvall
- DACH Sales – Munich, Germany

Founded 2016 by serial entrepreneurs with background in building Service Provider and Enterprise Class Solutions

Specialized in solutions for
- Real-time Integration & Automation
- Machine builders
- Industry 4.0 & Industrial IoT
- Asset-rich industries/businesses

LEADER IN EDGE ANALYTICS & INTEGRATION SOFTWARE
Presentation Poll

Which of the following use cases are most relevant to you?
Log in and submit your opinion

www.crosser.io/poll
It all starts with smart data collection.

From Raw data to business value.

Going from the bottom of the pyramid and up.

Changes happen over time.
  - Optimization
  - New data sources
  - New use cases
  - New users
USE CASE 1
SEND MACHINE DATA TO CLOUD
Collect raw machine data and send to any Cloud/storage

USE CASE 2
CLOUD COST REDUCTION
Reduce storage cost of up to 99% or more with smart filtering and aggregation

USE CASE 3
FACTORY FLOOR INTEGRATION
Integrate machine data, historians, SQL servers, ERP systems etc

USE CASE 4
REMOTE CONDITION MONITORING
Look deeper. Save relevant data. Act on anomalies

USE CASE 5
CONNECT MACHINES WITH LOGIC
Look deeper. Save relevant data. Act on anomalies

USE CASE 6
DEPLOYMENT OF ML & CUSTOM CODE
Distribution platform for your custom algorithms and code. At scale

USE CASE 7
VISION BASED QUALITY INSPECTION
Leverage off-the-shelf cameras, find anomalies and integrate triggers

USE CASE 8
VISION FENCING
Use cameras to detect when people or object move in or out of areas

USE CASE 9
SECURE SENSOR TAG SEPARATION
Separation of machine data for delivery of data to machine builders/OEMs

USE CASE 10
INDUSTRIAL MESSAGE BROKER
Message broker built for the shop floor
SEND MACHINE DATA TO CLOUD

What?
Collect raw machine data and send to any Cloud/storage

Challenges
• Multiple machine protocols
• Heterogeneous input data formats
• Cloud connectivity

Benefits
• Turn existing machine data into insights
CLOUD COST REDUCTION

What?
Reduce storage and processing costs up to 99% with smart filtering and aggregation. Bypass expensive cloud entry services.

Challenges
• Multiple machine protocols
• Heterogeneous input data formats
• Smart filtering and aggregation
• Cloud connectivity

Benefits
• Cost reductions by only sending relevant data to the cloud and possibly bypass expensive cloud entry points
FACTORY FLOOR INTEGRATION

What?
Integrate machine data, historians, SQL servers, ERP systems etc.

Challenges
- Data reformatting
- Enhance machine data with additional information
- Connectors to local systems

Benefits
- Get access to machine data wherever it’s needed
REMOTE CONDITION MONITORING

What?
Look deeper. Save relevant data. Act on anomalies

Challenges
• Data reduction through smart filtering and aggregation
• Anomaly detection logic (optional)
• Message buffering

Benefits
• Analyse more data, even with limited connectivity
CONNECT MACHINES WITH LOGIC

What?
Collect data from one or more machines, apply some logic and send the result to the same or different machines. Optimize performance or act on anomalies.

Challenges
• Machine protocols
• Logic
• Latency

Benefits
• Simplified machine-to-machine communication
DEPLOYMENT OF ML & CUSTOM CODE

What?
Distribution platform for your custom algorithms and code. At scale.

Challenges
• Deployment and execution of custom code
• Deployment and execution of trained ML models

Benefits
• Simplified management of advanced logic at the edge

EDGE ANALYTICS USE CASES

Collect
Logic
ML inference
Deliver
Code repository
ML models
VISION BASED QUALITY INSPECTION

What?
Leverage off-the-shelf cameras, find anomalies and integrate triggers.

Challenges
• Image/Video capture (high bandwidth)
• Execution environment for vision algorithms, including ML

Benefits
• High bandwidth data processed locally

EDGE ANALYTICS USE CASES

Collect images
Vision algorithm
Deliver
VISION FENCING

What?
Use cameras to detect when people or objects move in or out of areas. Warn intruders or stop machines to avoid incidents.

Challenges
• Image/Video capture (high bandwidth)
• Execution environment for vision algorithms, including ML

Benefits
• Enhanced security through non-intrusive setup
• Local actions
SECURE SENSOR TAG SEPARATION

What?
Separation of machine data for delivery of data to machine builders/OEMs and other external users.

Challenges
- Separation of sub-sets of machine data
- Secure and limited access to data sub-sets

Benefits
- Gives factory owners control of external access to their data
INDUSTRIAL MESSAGE BROKER

What?
Message broker built for the shop floor.

Challenges
• Many-to-many communication
• Multi-protocols in multi-protocols out
• Heterogeneous data formats

Benefits
• Enable event-driven integration between any systems
Presentation Poll

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BONUS CASE
ON PREMISE AGGREGATION

What?
Use hierarchies of edge nodes to collect large amounts of data which is delivered through a single connection to the cloud, without exposing the internal infrastructure.

Challenges
• Collect large amounts of data
• Use single connection to cloud

Benefits
• Add/change the internal setup without changing the cloud configuration
• No need to expose endpoints only used for on-premise use cases to the cloud
CROSSER EDGE ANALYTICS
CROSSER SOLUTION
3 Key Principles

SELF-SERVICE SIMPLICITY
- Drag-and-drop
- Pre-built Modules

FULL FLEXIBILITY
- Machine Learning
- Custom Modules

ENTERPRISE SCALABILITY
- Secure Provisioning
- Mass Config Updates
CROSSER EDGE ANALYTICS SOLUTION

Orchestration & Management
- Multi-tenant cloud platform
- Flow Studio – Visual Design
- Edge Director – Orchestration
- Monitoring Dashboard
- Control & Management data – no customer data goes through Crosser Cloud

The real-time engine
- Small footprint
- Deployed in a Docker container
- High performance. Over 100,000 messages per second (HW dependent)
- In-memory processing. Single digit millisecond latency
- Bring your own AI. Supports different ML frameworks.
BENEFITS OF FLOW BASED PROGRAMMING

- Minimize the need for software developers
- Shorten the time from idea to deployment
- Minimize life cycle costs by having easy to understand flows instead of hard-to-read code
- Involve non-technical staff in the process
EDGE DIRECTOR
Management & Orchestration

Multi-node management
- Organize nodes in flexible groups using labels
- Easily deploy flows to any number of nodes.

Dashboard
- Live status of all your nodes
- Historical data for trend analysis
- Notifications to steer your attention

Deploy and Upgrade
- Register new nodes
- Deploy new and updated software in a controlled way, over multiple nodes
- Auto roll-back if upgrades fail.
CROSSER EDGE PROCESSING LAYER

The Abstraction & Integration Layer for Industry 4.0

To enhance and complement current and future IT infrastructure

Enabling:
- Advanced Analytics
- Machine to Machine Communication (M2M)
- ML & AI
- PdM
CROSSER BENEFITS
Ultra-Low TCO with smart solutions for the whole life-cycle

DESIGN
• Make sure more people can innovate and build solutions. And make changes over the lifetime.
• Innovate Faster.
• Flexibility to use any ML/AI frameworks

DEPLOY
• Hardware & OS independent
• Cloud Independent
• Secure & Automated provisioning of nodes
• Mass deployment of flows and ML models

VERSION CONTROL & CHANGES
Strict version control of the deployed logic

MASS-UPDATES & UPGRADES
Automate the update process
THANKS

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