Andrija Marcic • 1st
Cloud Solution Architect Data & AI

- Almost 10 years at Microsoft
- IoT, Data & AI Specialist
- Very active within the SQL User Group

Mattias Lögdberg • 1st
Solutions Architect at iBiz Solutions AB

- Deep knowledge of cloud and hybrid integration solutions
- Developed Riksidrottsförbundets API Portal for Idrott Online
  (https://enterprise.microsoft.com/sv-se/customer-story/roles/it-leader/riksidrottsforbundet/)
- Very outgoing nerd
Internet of Things

Mattias Lögdberg
iBiz-Solutions

Andrij Marcic
Microsoft
AI, Machine Learning & Deep Learning
DATA EXPLOSION

+6 Exabyte Data Born Each Day

+60% Annual Growth

85% is New Sources

<table>
<thead>
<tr>
<th>Namn</th>
<th>Symbol</th>
<th>Faktor</th>
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<tbody>
<tr>
<td>Kilobyte</td>
<td>kB</td>
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<tr>
<td>Megabyte</td>
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<td>PB</td>
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<tr>
<td>Exabyte</td>
<td>EB</td>
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</tbody>
</table>

Source: IDC (figure exceeds prior forecasts by 5ZBs)
Världen: 274 000 000
Sverige: 350 000

SCR Dairy
12 000 000
Benefits

- Six-week conception rate rose from 48.5% to 57.8% in first year
- 27% more cows in calf to AI, with expected $32,000 revenues from selling extra springing heifers
- 20% increase in daily milk production in August due to more cows calving earlier
- Higher heat detection accuracy justifies using sexed semen
- Near-zero visual observation frees up two hours a day during joining period
- Now culling for reasons other than infertility, enabling improved herd quality
Accelerating the speed of business

Reactive  ➔  Proactive

Historical data  ➔  Predictions

People and processes  ➔  Decision Automation
Transform data into actionable insight

- Data Sources
- Apps
- Sensors & Devices

Cortana Intelligence

People
- Apps
- Automated systems

Data → Intelligence → Action
Begrepp

- Edge / IoT Gateway
- Device Provisioning Service
- IoT Hub
- Event Hub
- Stream Analytics
- DataLake Store
- Service Bus
Quick orientation

Provisioning happens here

Devices

IoT Hub

Stream Analytics

Storage blobs

Event Hub

Web/ Mobile App

Power BI

Web Jobs

DocumentDB

Logic Apps

* Azure ML

Back end systems and processes
Azur IoT Hub Device Provisioning Service

DPS knows exactly which IoT Hub to connect and provision

IoT Hub US
IoT Hub Japan
IoT Hub India

Device 1
Device 1000
Device 100
Device 3
High-level IoT topology

IoT device

IoT device

IoT Edge

Azure IoT Hub

Customer solution
Edge runtime using Docker
Local version of IoT Hub
Edge stream analytics module
ML module
Azure Function module
Demo
Azure IoT Hub device management

IoT device

Device twin

Properties

- Desired
- Reported

Methods

IoT Hub

Telemetry

Device twin

Properties

- Desired
- Reported

Tags

Methods

Commands

Cloud-owned, device visible

Device-owned, cloud visible

Cloud-only, device metadata

Cloud-initiated C2D with response

Cloud-initiated C2D message
Azure IoT Hub device management

- **Jobs**
  - Schedule and broadcast device twin changes
  - Set desired properties, tags, call methods

- **Queries**
  - Query across device twin state
  - For business logic, reporting, and compliance
Milk tank level
Machine Error
Demo

**DATA SOURCES**

- IoT Hub
- Stream analytics
- Event Hub
- Stream analytics
- Azure Functions
- Logic Apps

**INGEST**

**PREPARE**

**ANALYZE**

**PUBLISH**

**CONSUME**
En olycklig kossa gjorde att tåget blev försenat.

Pendlaren Linda Westerberg Staaf, 26, blev vittne till händelsen som inträffade i Tällberg i Dalarna.

– Jag har aldrig varit med om något liknande, säger passageraren till Aftonbladet.

Tåget var på väg från Mora till Borlänge och strax innan Tällberg i Dalarna bromsade lokföraren in, något som DT var först med att rapportera.