



September 20th-22nd, 2022  
MTEch Users Conference





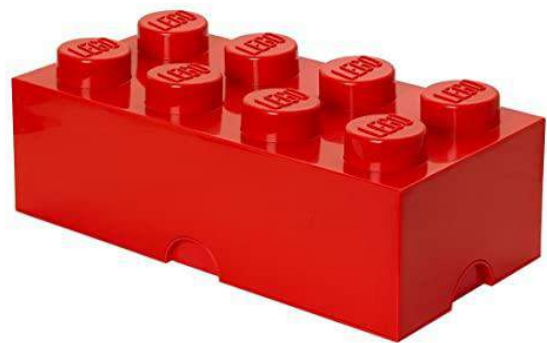
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Marcel Cohen - President of MTech Systems

# Research And Development And Our Vision

# MTech - The Story



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## Our vision

To lead a food revolution by supplying producers with the latest technology to help them improve animal welfare, increase yield and profit while sustainably feeding the growing world population.



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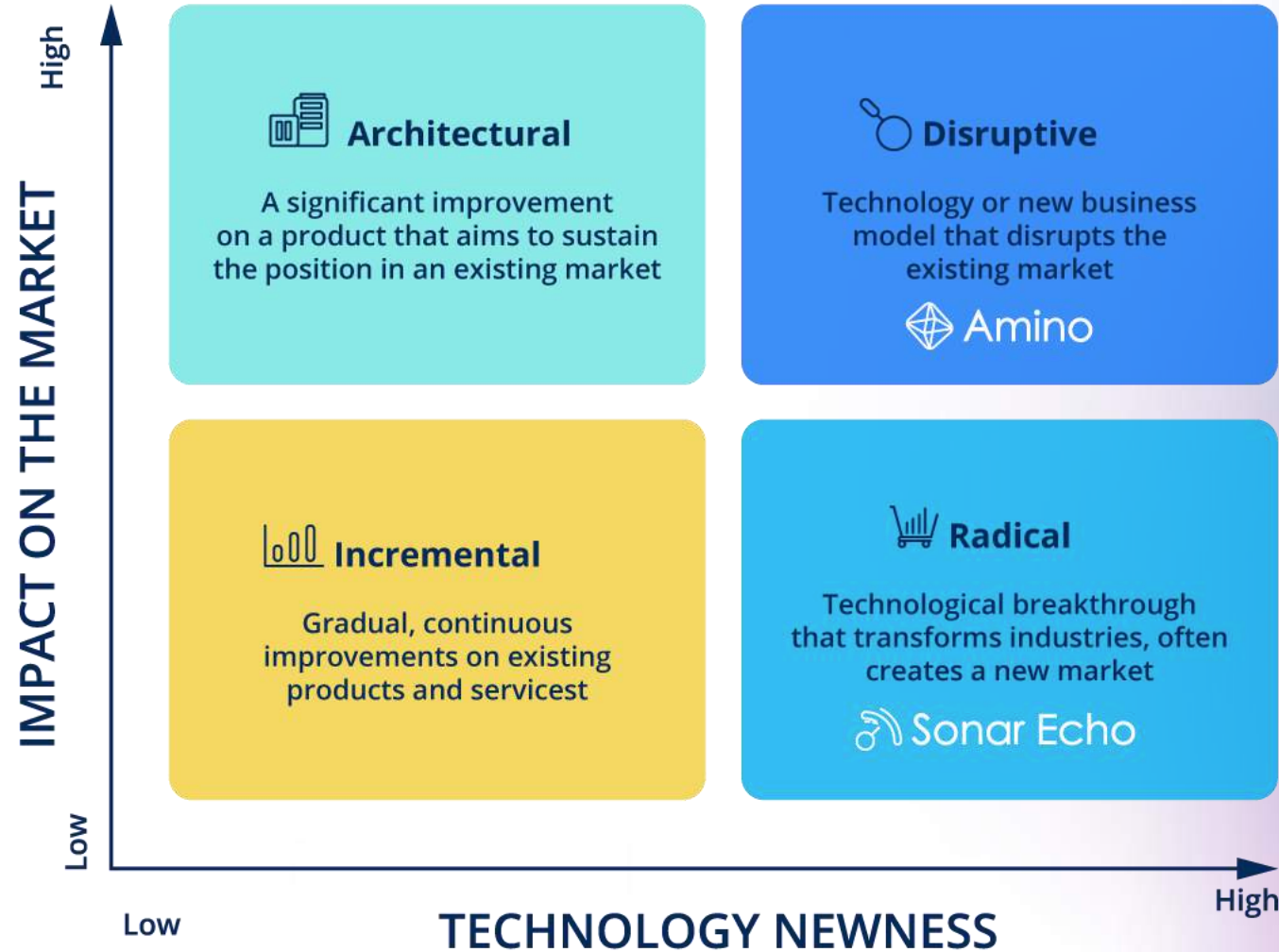
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# Four types of innovations



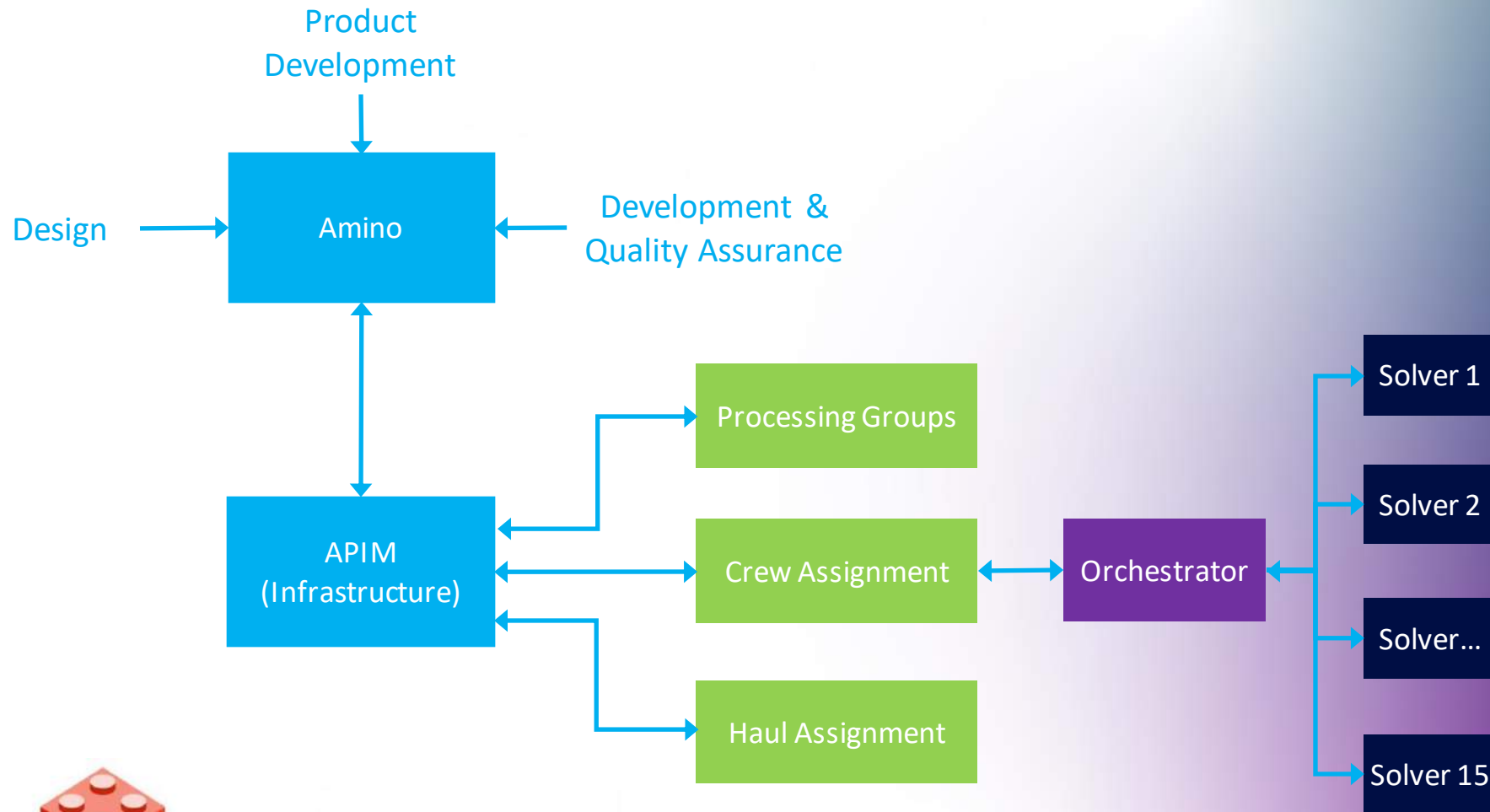
**"You can't just ask customers what they want and then try to give that to them. By the time you get it built, they'll want something new."**  
*Steve Jobs*



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# Live Haul Logistics





# Research and Development

 Amino  Sonar Echo

 Software as a Service

 Quality Control

 User Experience

 Security

 Data Science

 Data & Analytics

 Environment

“**You can't** solve a problem on the **same level** that it was created. **You** have to rise above it to the next **level.**” *Albert Einstein.*



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## Software as a Service

- We provide end-to-end management of the solution from installation to upgrade with continuous improvement.
- Developed a product that fully leverages cloud infrastructure
  - Elastically scalable, easy to use, reduces cost and enhances security
  - No more local server updates or downtime, OS compatibility issues,
- Automated monitoring for error tracking and performance issues
- SSO/MFA
- High availability solution with robust Recovery Point Objective (RPO) and Recover Time Objective (RTO).
- DBA's and Security Team dedicated to environment optimization

A sustainable business.

Application → environment → performance monitoring and optimizations → updates and releases → QA → development



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- Created a team with 15% of the work force.
- Three tier testing: Backend (CAT), Front End (Testim), manual.
- Created Continue integration and continue deployment (CI/CD) pipelines for building/testing code.
- Eliminated redundancies and multi step processes from older versions allowing our QA testing to be simpler and faster.
- In progress of transforming our QA team from QA testers to QA Analysts.

### How to communicate Success

#### Cost of a software bug

100\$

If found in **Gathering requirements** phase

1500\$

If found in **QA testing** phase

10,000\$

If found in **Production**



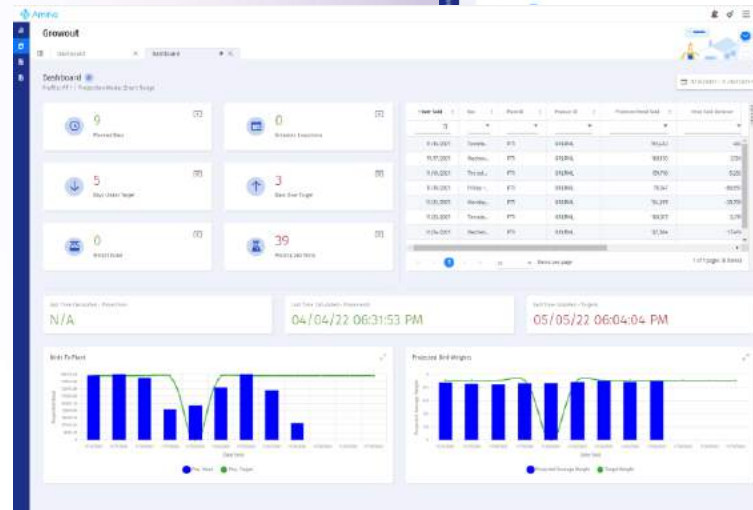
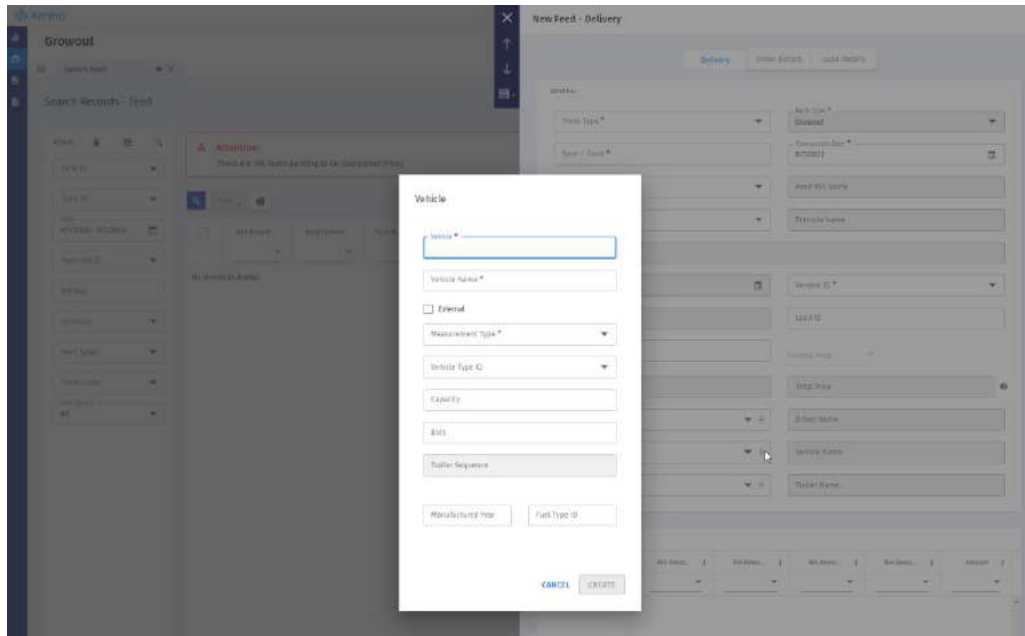
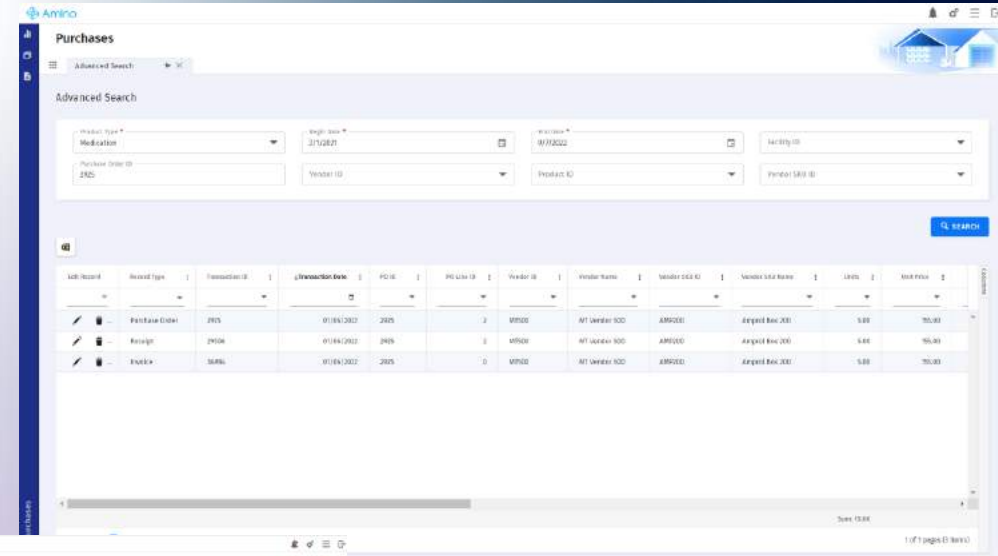
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- Advance Search: For purchases and sales transactions you can see all the details from order to invoice.
- Immediate access to dashboard and analytics for solutions like planning, global post and period end.
- Ability to create master data from transactions screens like driver, vehicles, etc.



- Annual audit for SOC 2 Type 2 Compliance Standards for the Trust Service Category of Security.
- Follow best practices such as OpenID Connect and OAuth 2.0 implemented by Azure AD B2C, which adds features like risk detection.
- Code is automatically passing through SonarQube and WhiteSource Bolt, which checks for code that is poorly written or introduces vulnerabilities.
- Ongoing cyber-security training for staff that occurs twice yearly.
- Implemented Transparent Data Encryption which encrypts the data at rest.
- Code checked into source code control continues to go through a multi-level review process.
- Rolled out advanced endpoint protection to SaaS architectures (Microsoft Defender for Cloud).
- Networks are connected to Security Event and Incident Management (SEIM) system which are analyzed in real-time by independent Security Operations Center.

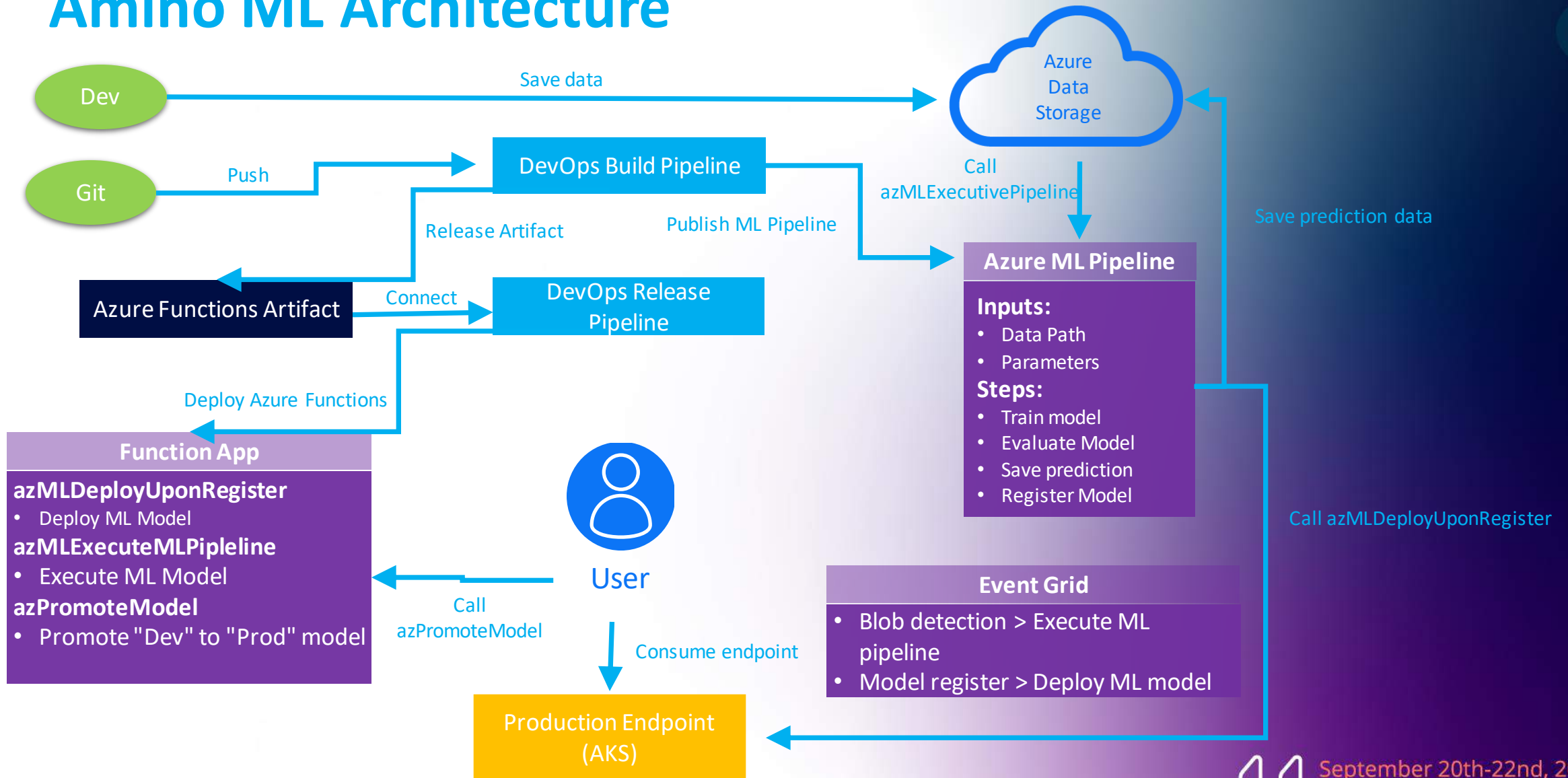
“There are only two types of companies: those that have been hacked, and those that will be.” *Robert Mueller, FBI Director, 2012.*



- Improved on scheduling optimization through better algorithms and cloud computing.
- Created 5th generation Sonar weight algorithm and working on a scaleless weight prediction.
- Created new feed consumption anomaly detection and projection models to minimize haul backs.
- Created full suite ML projection and retraining pipeline for Amino with automatic drift detection.
- Short term work includes optimizing feed delivery scheduling, MRP, FFA with FCR minimization, breeder placement scheduling, sonar data insights and guided analytics.



# Amino ML Architecture





- Data integration packages available and compatible with different ERP solution, processing plant, batching, feed formulation and loadout systems.
- Currently developing standard API's for simple data imports and exports in Amino.
- Business knowledge built into our solution that allows extracting, transforming and loading massive volumes of data efficiently
- Continuously improving and increasing our standard and out-of-the-box reports.
- Combining Protein and best BI practices into a guided analytics solution for Axis.

### Organizations which use analytics get



### Change your business

Imagine what analytics can do for your business

**3x** 

Top performers are 3x more likely to use analytics than low performers

**53%** 

use analytics to drive strategy

**50%** 

use analytics to transform daily operations



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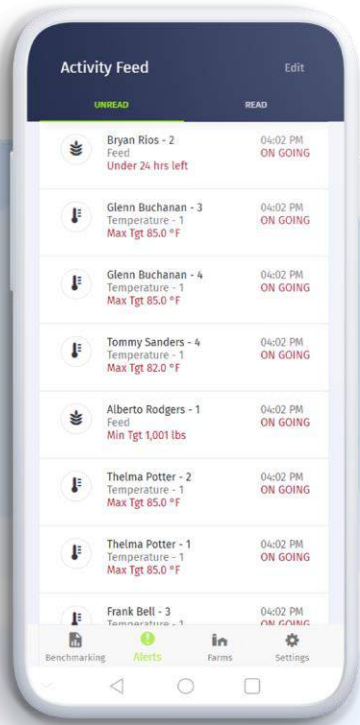


### Paving the way for sustainable agriculture

- Sustainability module in Amino – tackling environmental concerns in agriculture
  - Emissions
  - Water
  - Energy
  - Nutrients
- Created carbon calculator V1 – Allows informed decision making on emission reductions while providing reports for national and international submission



# Sonar IoT – connect your farm



Controller



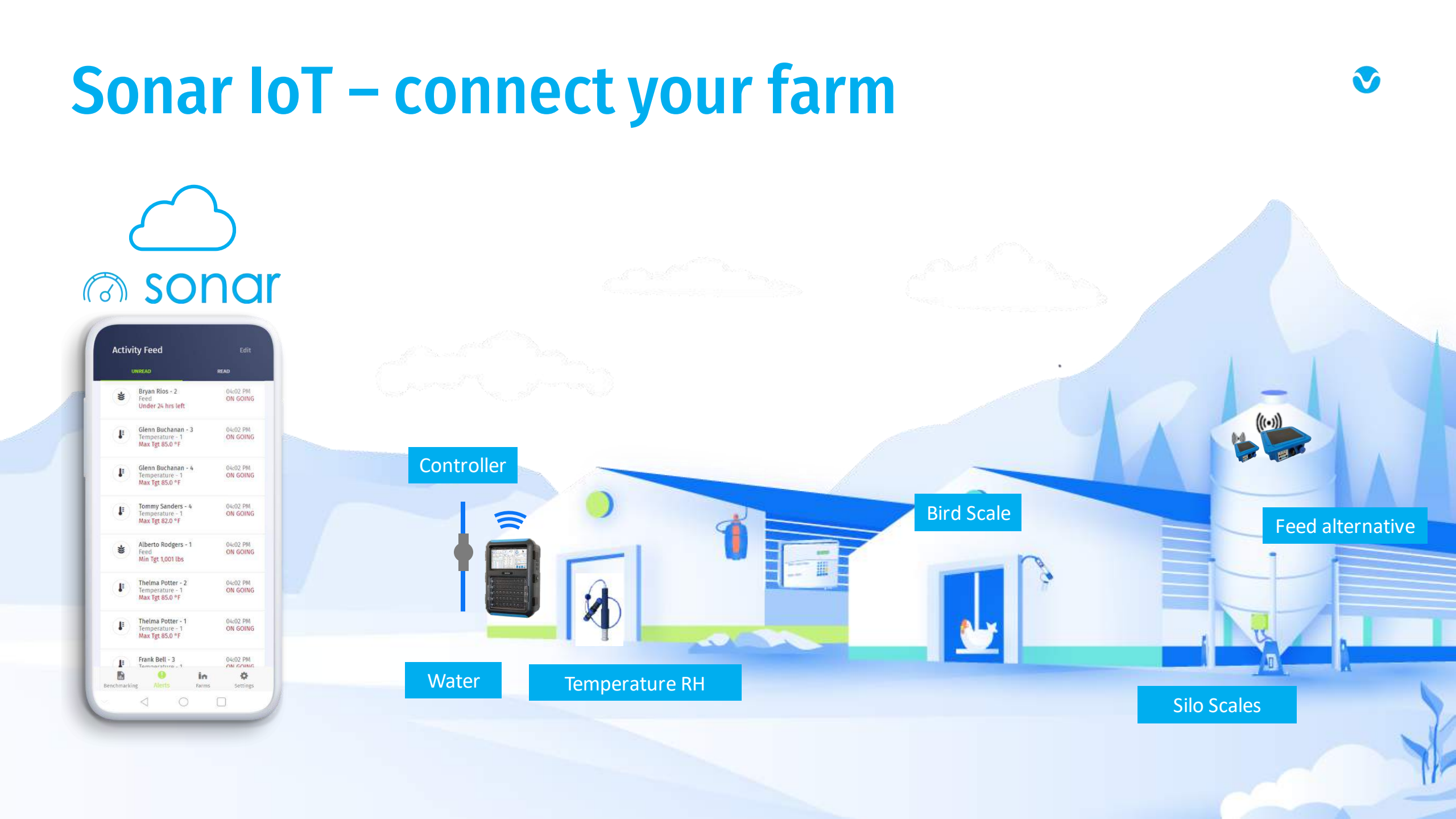
Water

Temperature RH

Bird Scale

Feed alternative

Silo Scales





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Thanks

Gracias

謝謝

اركش

Danke

Спасибо

ありがとう

Obrigado

[mtechsystems.io](https://mtechsystems.io)