

iDDEN Update

to the ADE Working Group

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June 9, 2020

Agenda



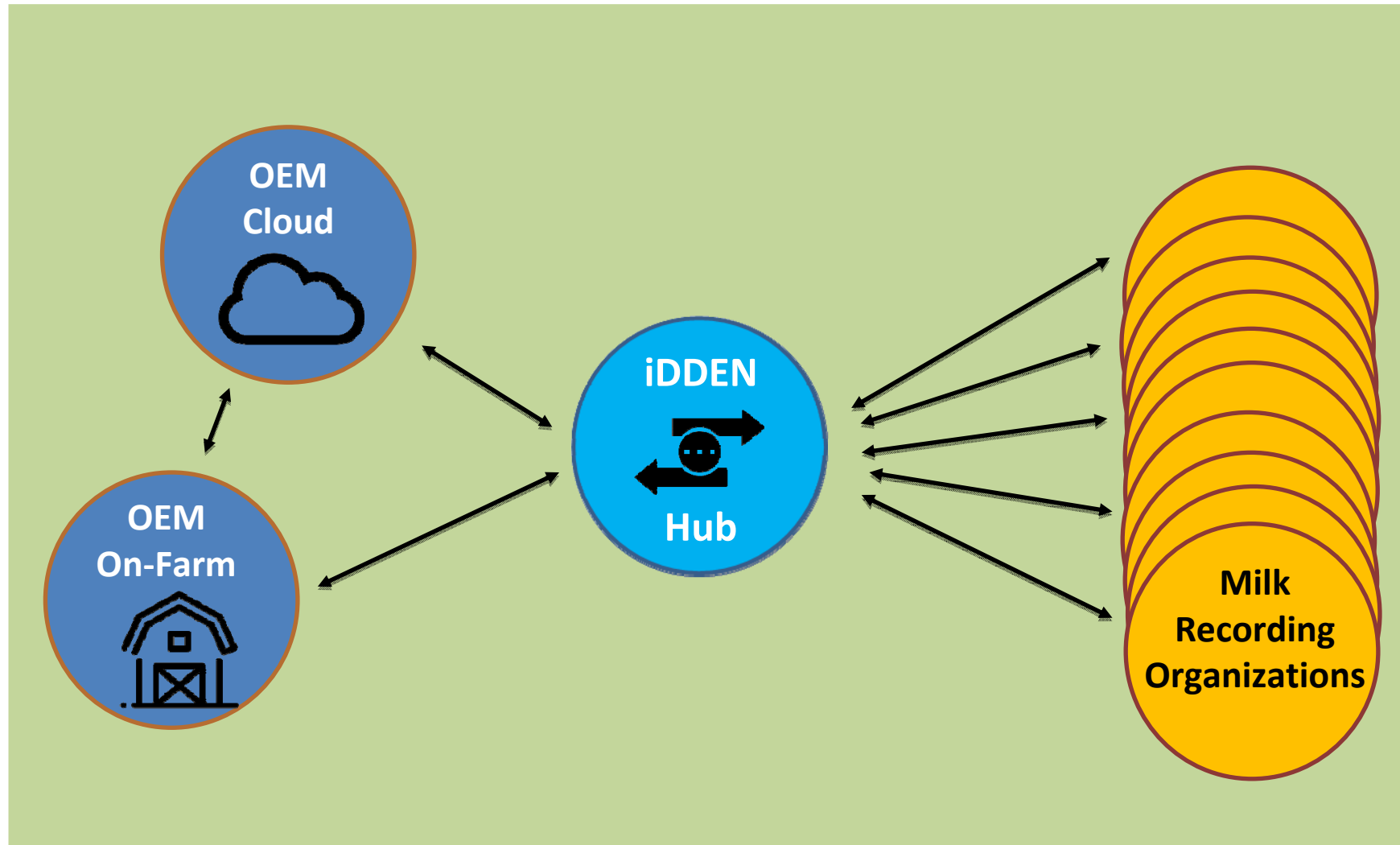
- iDDEN Concept
- Partners & Platform
- iDDEN Benefits
- Technical Highlights
- Questions

The iDDEN Concept...



- **iDDEN** will provide a two-way data exchange/interface service between global dairy equipment manufacturers and dairy industry organisations
- **iDDEN** will be owned & governed by a consortium of farmer-controlled member organisations from different countries
- **iDDEN** will integrate ICAR ADE guidelines as the primary choice when ADE guidelines exist
- **iDDEN** will integrate standard interfaces where possible
- **iDDEN** will represent members in data format discussions with equipment manufacturers and suppliers (a single voice)

The iDDEN Concept...



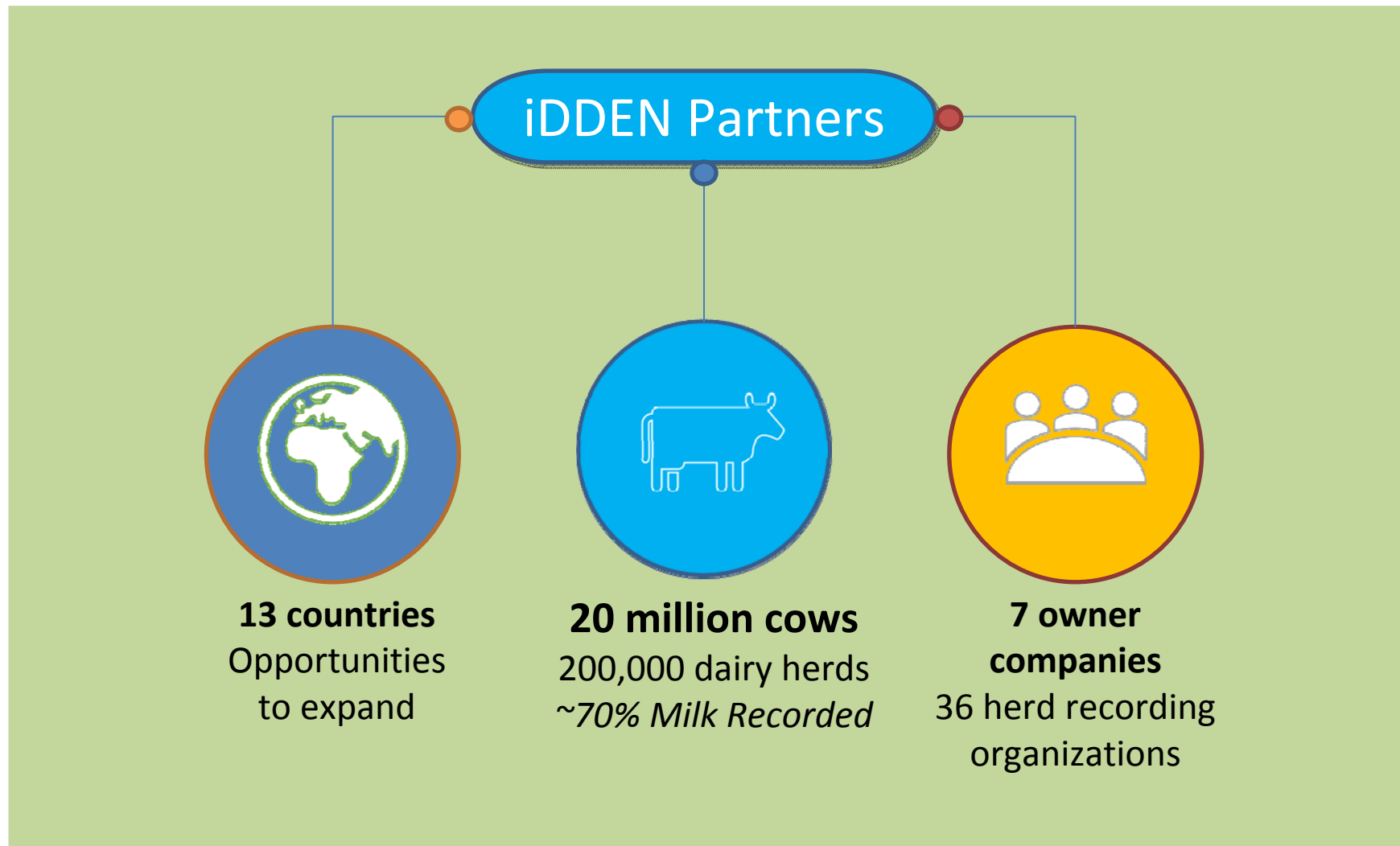
The iDDEN Partners...



There are seven founding partners of **iDDEN** – a legal entity established in Germany. The partners include:

- **CRV** – *the Netherlands & Belgium*
- **DataGene** – *Australia*
- **Lactanet** – *Canada*
- **National DHIA** - *USA*
- **NCDX** – *Denmark, Finland, Iceland, Norway and Sweden*
- **RDV** – *Austria & Germany*
- **VIT** – *Germany & Luxemburg*

The iDDEN Partners...



The iDDEN Platform...



- **iDDEN** is acquiring an existing data exchange platform that currently exchanges data between 5 different milk recording organisations and Lely/DeLaval on-farm software systems.
- **iDDEN** will invest in the further development of the platform to integrate the new ADE protocols
- **iDDEN** will invest in the connection of the data exchange hub to on-farm and cloud data systems of major equipment manufacturers and subsequently with other sensor manufacturers (eg. heat detection, milk composition, health and disease diagnostics, etc...)
- **Discussions** with initial equipment manufacturers have been initiated.

Key iDDEN Participants



- **Founding Members** - Seven farmer-controlled dairy organisations providing the investment to develop the system.
- **Strategic Partners** - Equipment manufacturers who will work with iDDEN on the data exchange. Initial partners are expected to be milking equipment manufacturers operating on a global scale. Other companies with dairy related equipment or sensors will follow.
- **Customers** - Other milk recording/dairy industry organisations that move/collect on-farm data in other parts of the world.
- **iDDEN Technical Support** – Mtech, a technology company based in Finland and owned by agricultural organisations, developed the NCDX system with Nordic MRO's and will be engaged to further develop, operate and support the iDDEN system.

Other Notes...



- **Future Members, Strategic Partners & Customers** will each be approved by iDDEN
- **Technical Committee** comprised of member and Strategic Partner staff to provide input and recommendations on future development
- **Current Timeline**
 - *Q4 2020 – first operating connections of an iDDEN member and Strategic Partner.*
 - *2021 – Connection of remaining iDDEN member and additional equipment manufacturers.*

iDDEN Benefits...



- **Milk Recording Organizations** will be able to build and maintain a universal data interface with multiple companies
- **Manufacturers** will be able to use a universal interface with dairy organisations around the world
- **Industry Efficiencies**
 - Transition to a common international standard (ICAR ADE)
 - Operate and maintain a single universal data exchange system
 - Provide operational efficiencies for dairy farmers/industry
- **Herds** will remain in control of who has access to their data

Lactanet Benefits...



- **Business Efficiencies**

- *Reduces the number of equipment interfaces to develop*
- *Reduces the number of equipment interfaces to maintain*
- *Integrates an international standard reduce our need to create stds.*
- *Economies of scale regarding the data hub development – we could not afford to do this alone*
- *Allows faster access to equipment connections...“better service”*
- *Allows lower operating costs for connections...“better value”*

- **Farmers**

- *Retain control of their data – they must authorize access*
- *Overall reduced cost for moving data – today many farmers expect data movement has no cost*

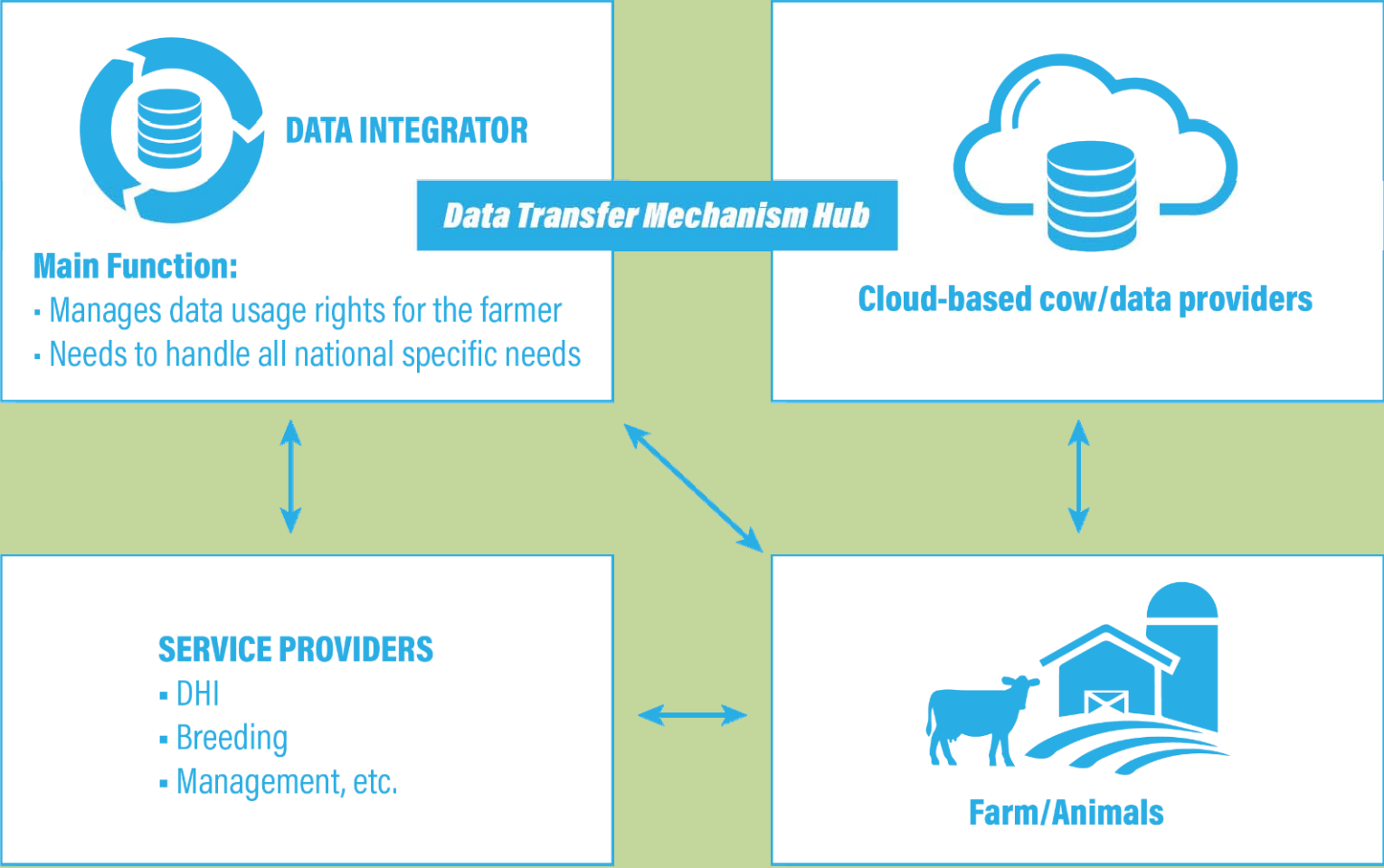
iDDEN

Technical Highlights

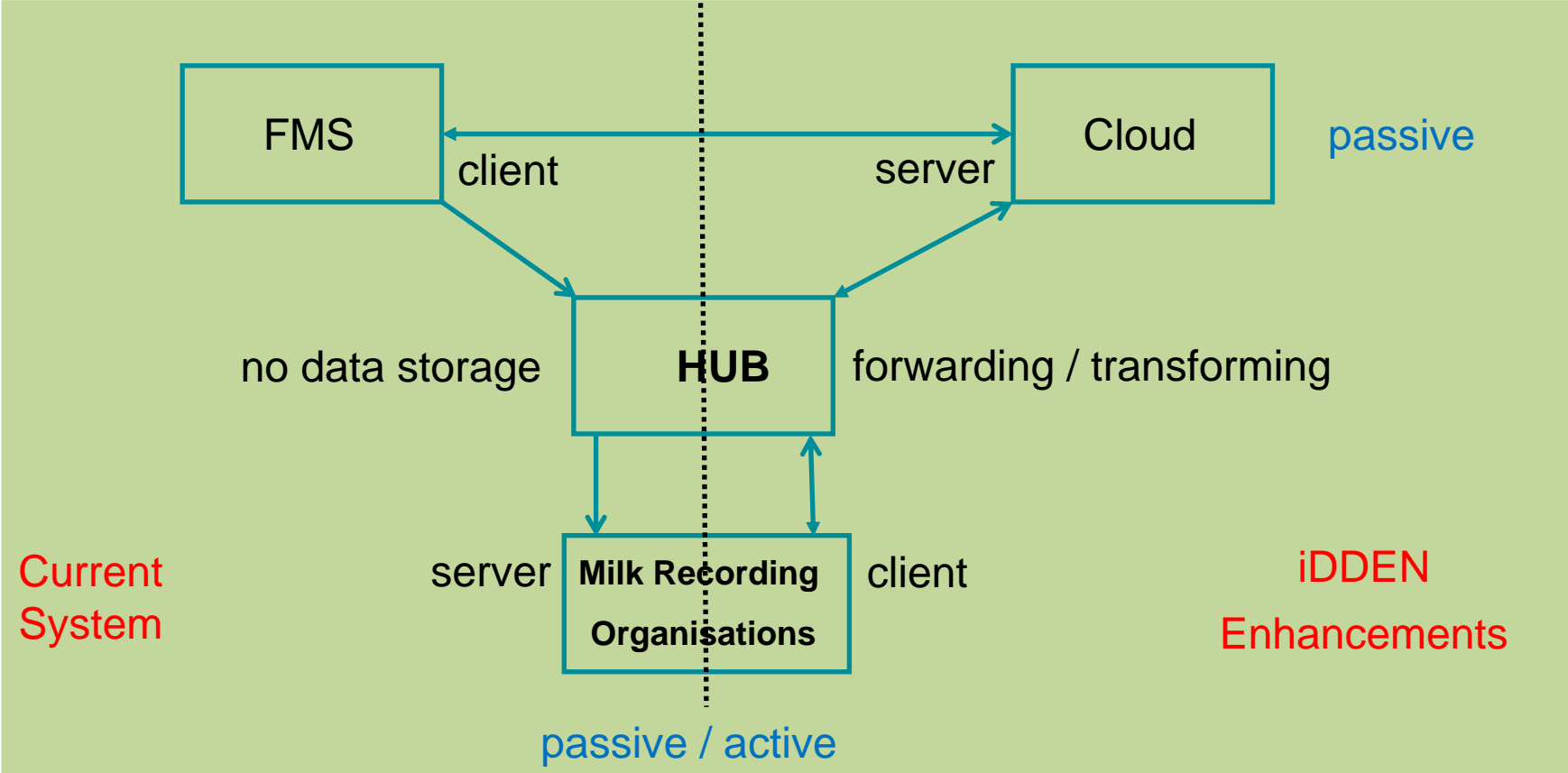
A data exchange/interface service between global dairy equipment manufacturers and dairy industry members located around the world



Schematic of data flow between on-farm data and other (central) data



Data Movement Overview...



FMS = Farm Management system, this can be stand alone on farm or as cloud solution
Cloud = System of a sensor device manufacturer or a milking equipment company
HUB = The iDDEN Data Transfer System
Milk Recording Organization = Central Data processor handling national specific needs & managing usage rights that a farmer has assigned

Mandates in iDDEN...



- Rights are managed and validated by data delivering partners
 - Reuse existing authentication services
 - Use standardised login request
- Centralised organisation ID
 - Provide ID during registration for Hub-API-Key
 - One ID for each organisation
 - Organisation uses ID to login to data delivering partner

Registration...



- Registration process
 - Will be handled manually in the beginning
- Setup a new Organisation (e.g. MRO)
 - Register with iDDEN:
 - > Receive iDDEN-API-Key and
 - > unique **Organisation-ID**
 - Register at data providing partner (OEM or MRO)
 - > using the **Organisation-ID** as identifier
 - > Receiving a secret on a side channel (e.g. password)

Formats...



- Organisation-ID Format
 - 3 characters for country (ISO, using INT for intern. Org.)
 - 3 characters for type of Organisation (MRO or OEM...)
 - 12 digit random generated Number (added after dash)
 - e.g. DEU-MRO-123231423123 or INT-OEM-567867245325
- Format of Token (verify login)
 - Which token to use is up to Issuer
 - Max Length has to be defined
 - Only using ASCII-7bit characters (base64-encoded)
 - e.g. 0938uusdgfv937f-2349dfsdfeff-22cvbnbnqoicx9qzzpoiljk89nv
 - not allowed: öööööööööö123 or äääüüßß or other special char

Rights Management...



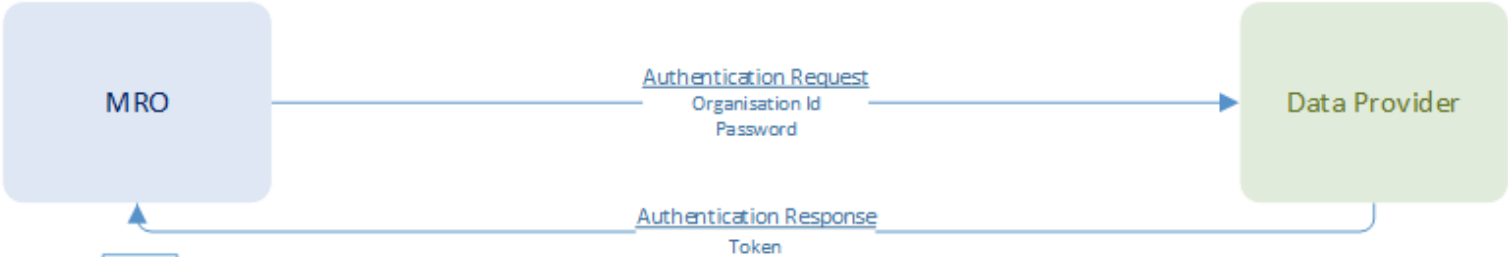
- Have an agreement for the access and use of data
 - Farm, MRO and OEM are willing to share data
 - Farm grants usage of data to MROs Organisation-ID
 - If necessary grant Access and Use of data from MRO to OEM as well
- The delivering partner has to check in their local mandate system if the requesting partner is allowed to access and use the requested data
- The implementation of this mandate system is up to every partner, as every partner has already some level a of system running

Example Data Exchange...



Get data from data provider

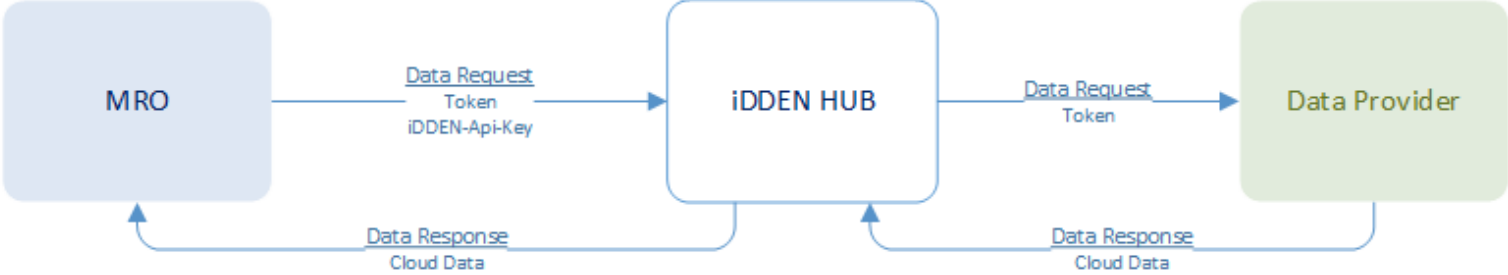
1. The MRO authenticates to the data provider and receives a Token to use afterwards



2. The MRO sends a data request to the iDDEN Hub to get data from the data provider

3. The iDDEN Hub verifies the iDDEN-API-Key and forwards the data request to the data provider

4. The data provider verifies:
- the Token to authenticate the MRO
- the mandate between the farm and the MRO



5. The data provider sends the requested data to the iDDEN Hub and the iDDEN Hub forwards the data back to the MRO

Some iDDEN Messages...



	Message	Description	Priority
0	login	Login to MRO or cloud provider	0
1	milking-visits-simple	Individual milkings collected by the milking machine	1
2	milking-visits-complex	Individual milkings collected by the milking machine plus additional sensor data	1
3	milking-quarter-data	teat-coordinates, milk weights, milking time	1
4	herd-list	list of in herd animals	1
5	mpr-test-day-result	test day milking result (includes lab result)	2
6	birth	I&R, births	2
7	death	I&R, deaths	2
8	arrival	I&R, arrivals	2
9	departure	I&R, departures	2
10	still-birth	I&R, still births	2
11	Insemination	insemination event	3
12	natural-service	natural service event	3
13	device-data	Information on the devices on the farm	3

Some iDDEN Messages...



	Message	Description	Priority
14	drying-off	drying-off event	3
15	pregnancy-check	pregnancy check result (pregnant, not pregnant, doubt)	3
16	abortion	abortion event	3
17	parturition	calving date, parity, birth progress, particularities	3
18	running with a bull	running with a bull event	3
19	keep-open	cow will not be impregnated again	3
20	mpr-lactation	lactation milking result	4
21	mpr lifetimeprod	life time milking result	4
22	mpr-herd-milking-result	herd milking result	4
23	grazing	Daily Grazing of Herd Summary	4
24	heat-report	actual report – attentions	4
25	heat-activities	graph data, steps, rumination	4
26	health-report	actual report – attentions	4
27	health-activities	graph data, walking, standing, lying, ...	4
28	treatments	medical treatments, medicines, diagnosis	4

Questions...

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