



Cloud-based Precision Farming Services; Key to Supply Chain Management

Craig Michie; Ivan Andonovic

- Background
- Silent Herdsman Platform
 - Collar engine
- Cloud Services
 - mySilent Herdsman
- Conclusions



silent
herdsman®

Background

- to mitigate the continual economic pressures within the global farming sector it is necessary to develop a technology solution to optimise the efficiency of the supply chain
 - cloud-based platform that quantifies performance and efficiency of individual animals and provide key information to stakeholders within the supply chain
 - only viable at appropriate cost and ease of deployment, use and maintenance

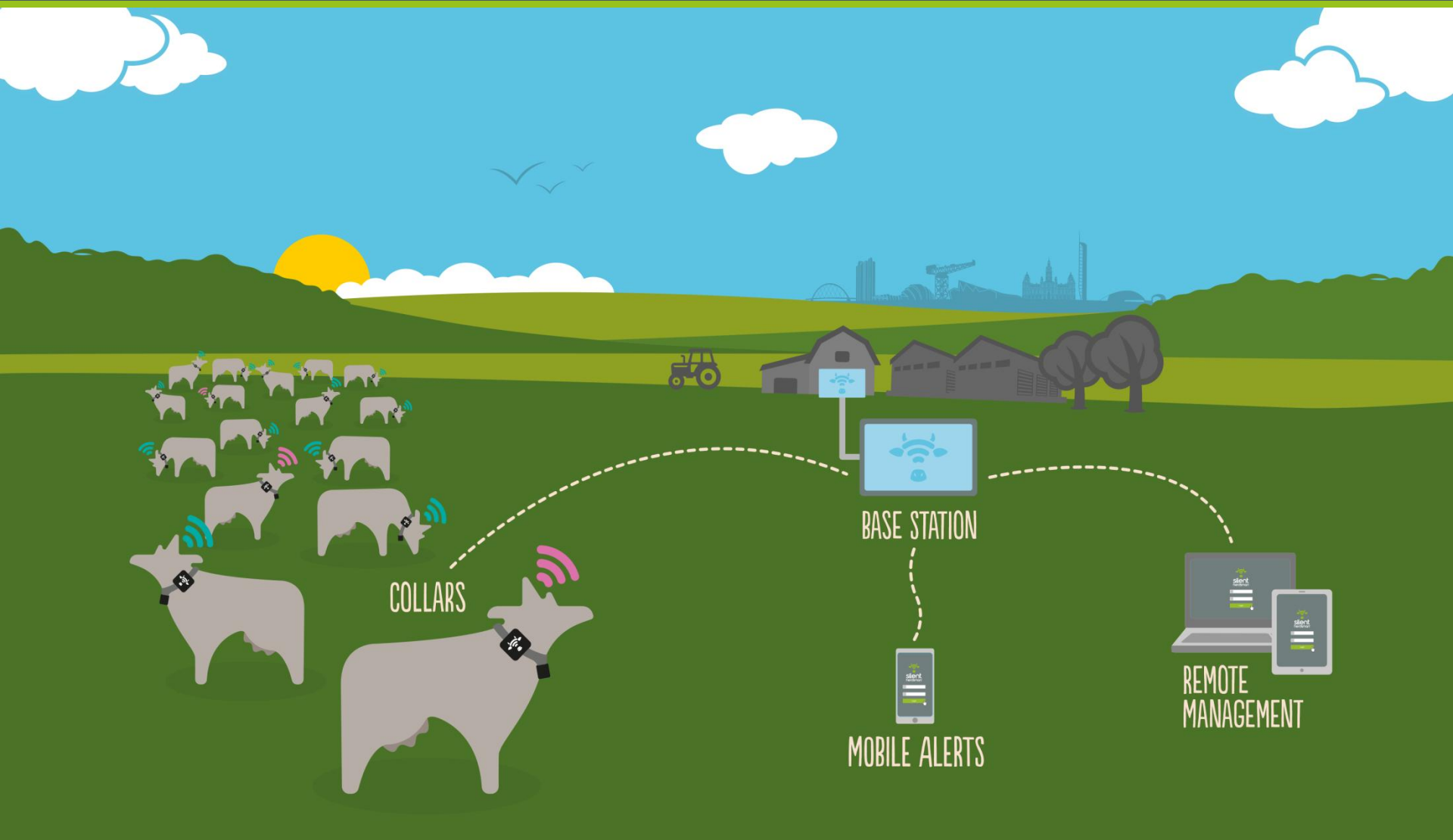
- integration of bulk/individual animal feed characterisation and individual intake with animal output measurements such as growth and carcass yield
- establishing a cloud based platform supporting multiple integrated data streams, processed and delivered throughout the supply chain as a decision support services that quantify production efficiency



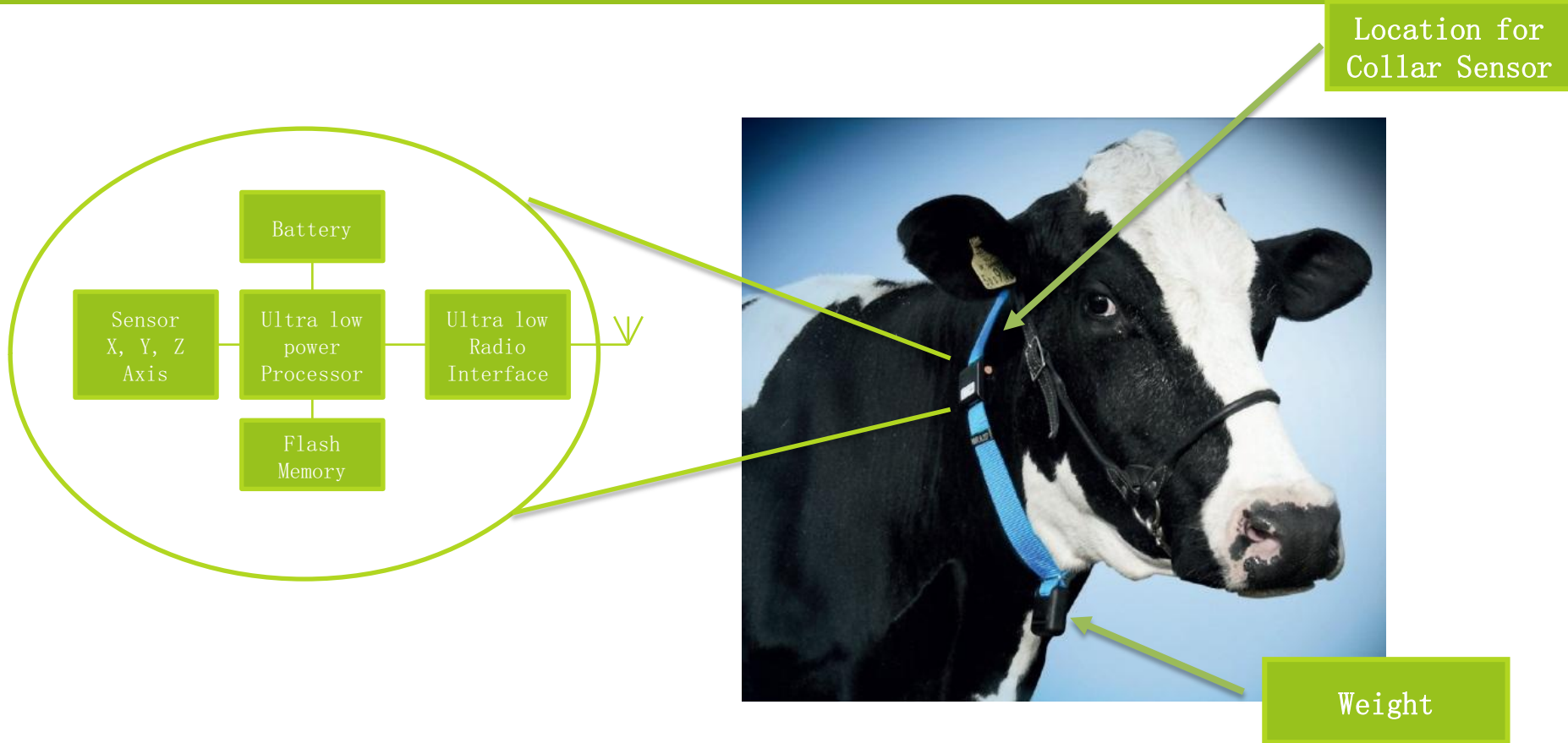
silent
herdsman®

Silent Herdsman Platform

Platform



Smart Collar

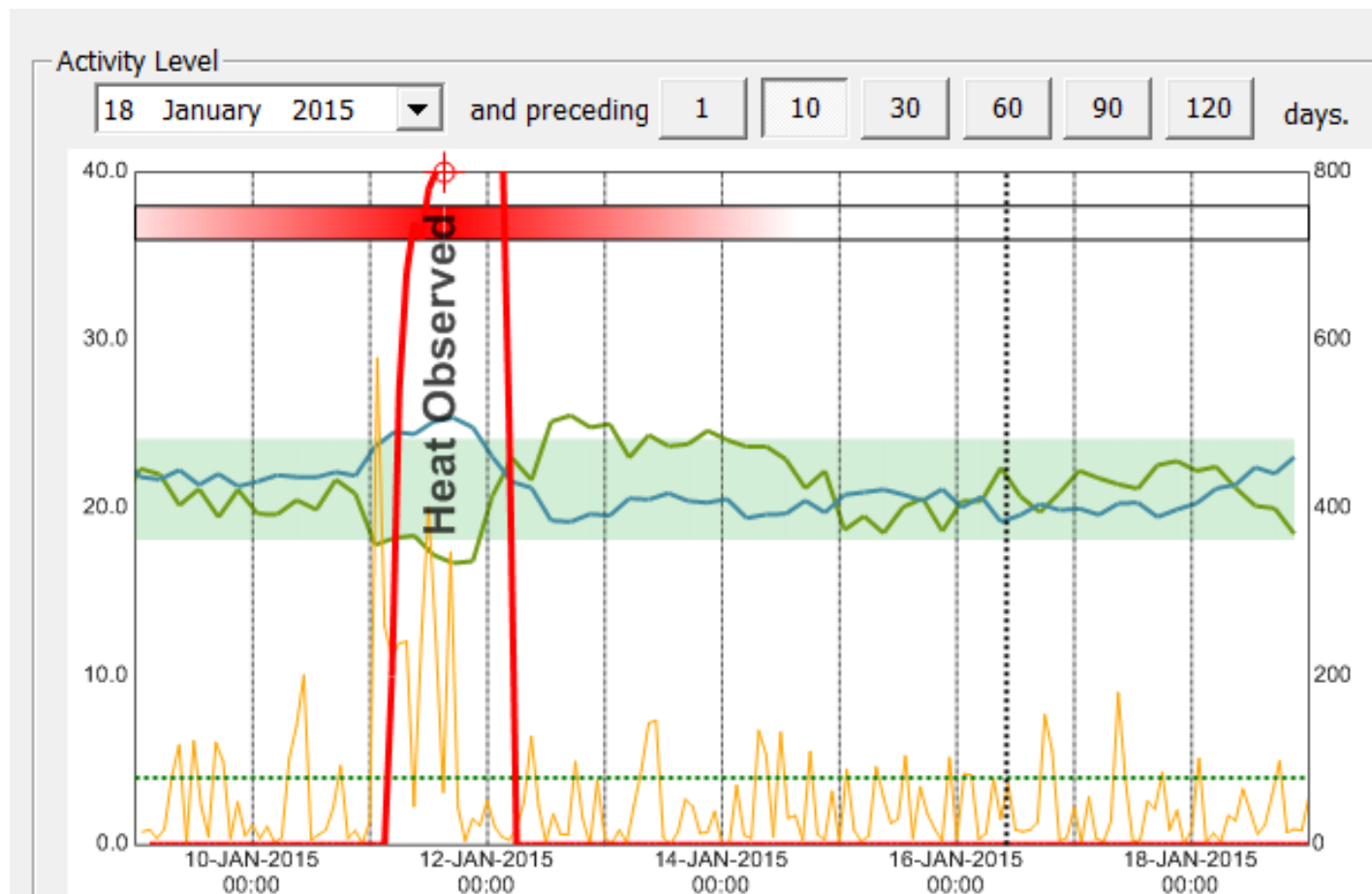


Unique Feature Set

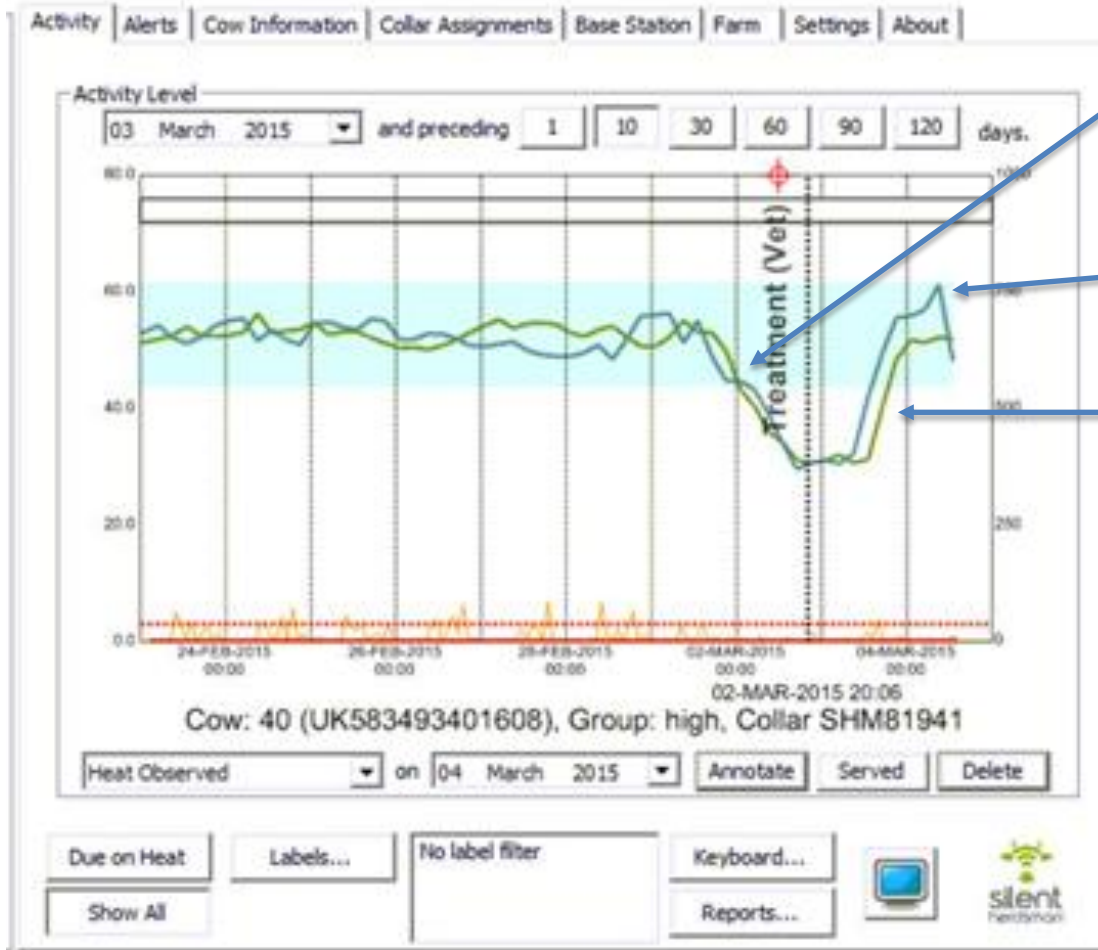


- only patent protected head mounted 3-axis accelerometer product providing multiple conditions (currently THREE);
 - activity profiles
 - eating periods
 - rumination periods
- platform provides both 'oestrus' and 'health' alerts based on these conditions
- 'oestrus' accuracy enhanced through consideration of eating and rumination behaviours
- cloud base services offered
 - off-line functionality guaranteed

Oestrus



Health Alert; (24 x 7 illness monitoring)



'Health' Alert (ill cow)
when both fall 30 %
below cow average

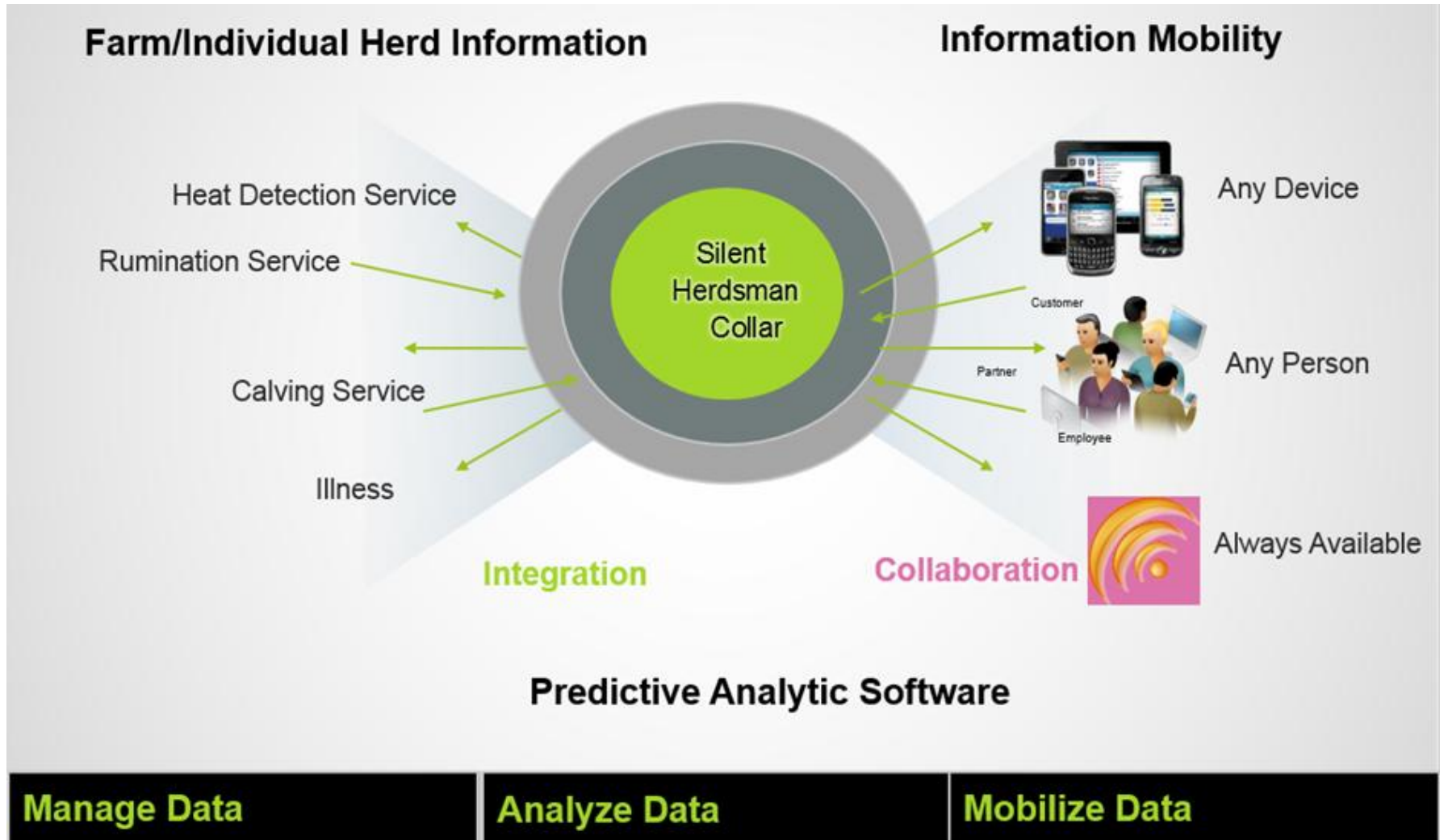
Eating

Rumination



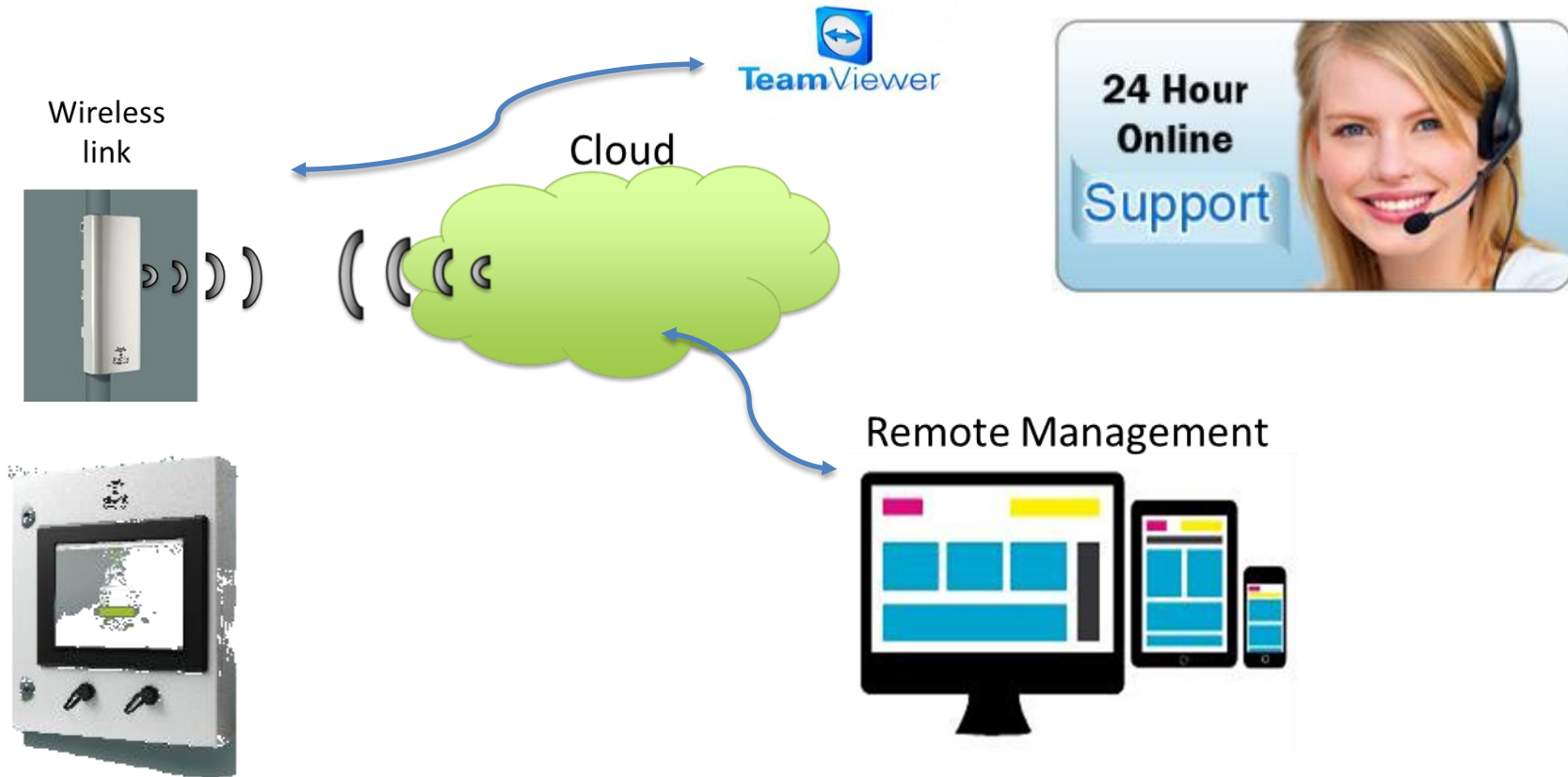
Cloud Based Services:
mySilent Herdsman

One Collar, Multiple Information



mySilent Herdsman

- on-line ensures customer service and strategic data opportunities
- full off-line operation guaranteed



mySilent Herdsman; key benefits



- full on-line/off-line modes
- multiple farms in one view
- easy interfacing to management/parlour systems
- new features can be deployed easily
- dashboard approach provides a concise overview to multiple stakeholders in the supply chain
- opportunity for stakeholders to be involved in product evolution

Note; the Silent Herdsman smart collar reduces the volume of data from the 3-axis accelerometer prior to transmission

- *nevertheless* the volume of data from ~600 farms with ~100 collars per farm generates ~450 GBbytes of data per collar feature e.g. heat indication over 1 year
- ~1 Billion cattle throughout the world; 1% of total with ~1000 collars per farm translates into;
 - ~10,000 farms
 - ~65 Tbytes of data over a year per feature
 - increases with number of connected farms and per collar feature
- *'Internet of Things (IoT)'*

Summary

- truly global market
- an undoubted exemplar sector encapsulating the challenges of IoT and Software-as-a-Service business model
- data analytics a competitive and necessary goal for the sustainability of the farming sector
 - economics and human factors key in the evolution
- solutions are a mix of advanced, elegant engineering in collaboration with animal scientists and industries operating in the supply chain
 - multiple behavioural states of individual animals can be derived from the raw data captured by a neck mounted 3-axis accelerometer
 - heat detection
 - eating times
 - rumination times etc etc
- a mix of services/applications directed to optimising production efficiencies
 - fertility
 - breeding
 - Illness etc etc

THANK
YOU!

