

M2M Platform for Beehive Monitoring

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(20 min)

The past (that never existed!) in Monitoring Tools



Hand-Held devices: Apidictor, BeetoneAnalyzer, old scales...

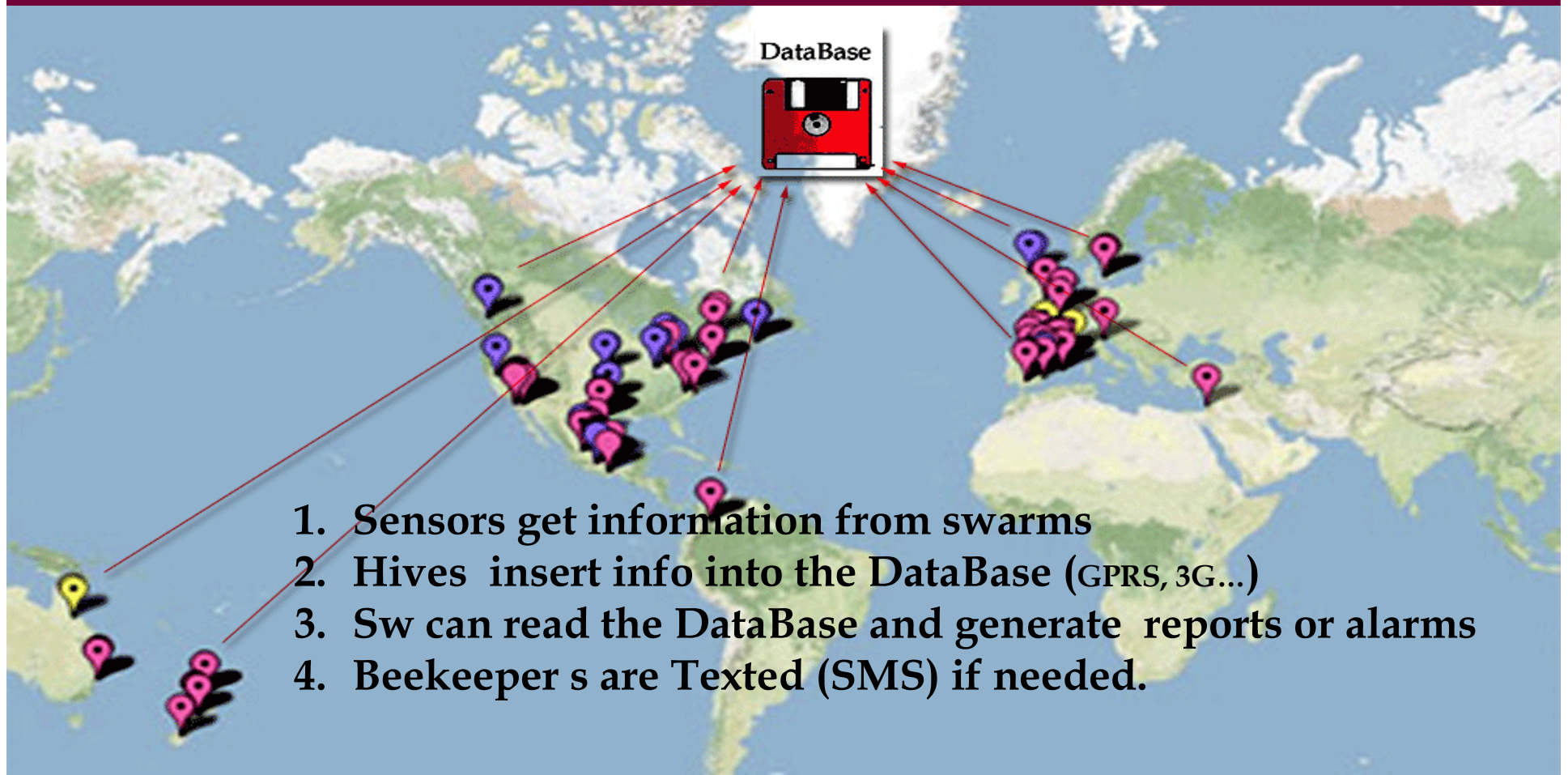
- ✓ Cheap (one device per beekeeper)
- X Events not cached when beekeepers not present
- X Parameters are not valid if contains daily patterns or sudden variations

Our Proposal in Monitoring Tools

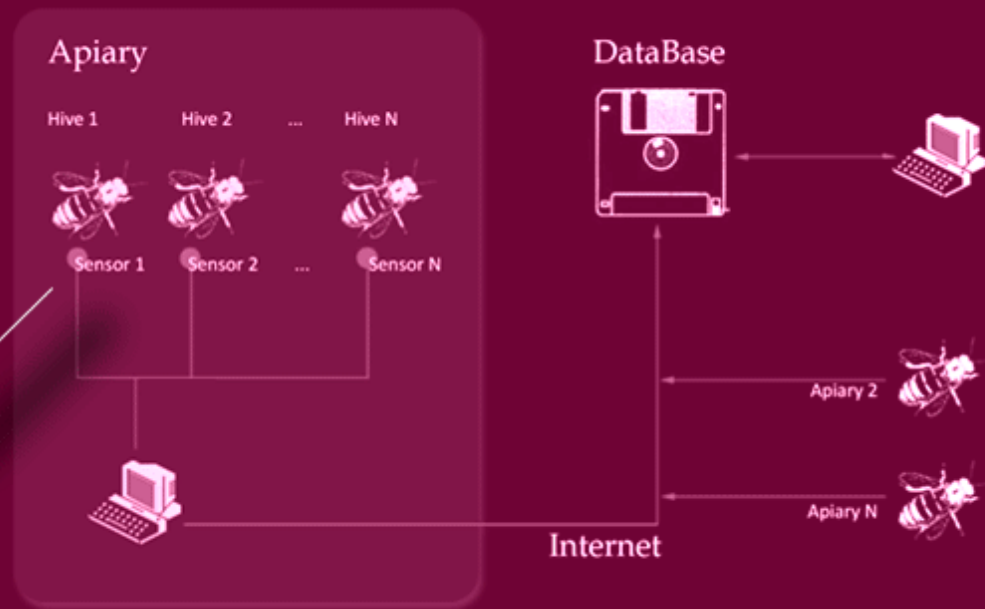
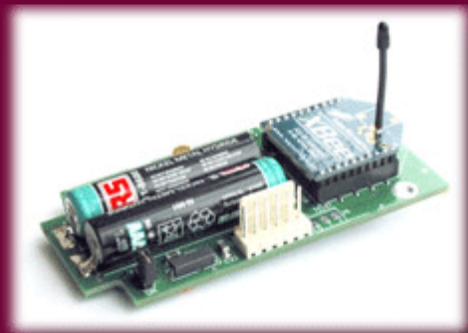
To record and store bee's daily activity

- Unattended
- Regular & continuous
- On line: accessible to users (people or software)
- Global : All the information together in one pack

Our Proposal in Monitoring Tools



Platform Architecture



Our Proposal in Monitoring Tools

It enables:

- Comparison with past conditions, so:
- It permits better managing tools (alarm systems...)
 - Comparison between different climas, regions or management techniques
 - Quick detection of problems
 - **Look back after an incident (ej CCD)**
 - Advanced technologies like dataMining (requiring massive information) can reveal hidden patterns o clustering

Which info to register ?

- Best parameter:
 - Relevant (It reflects swarms activity)
 - Cheap to register
 - Easy installation and maintenance.

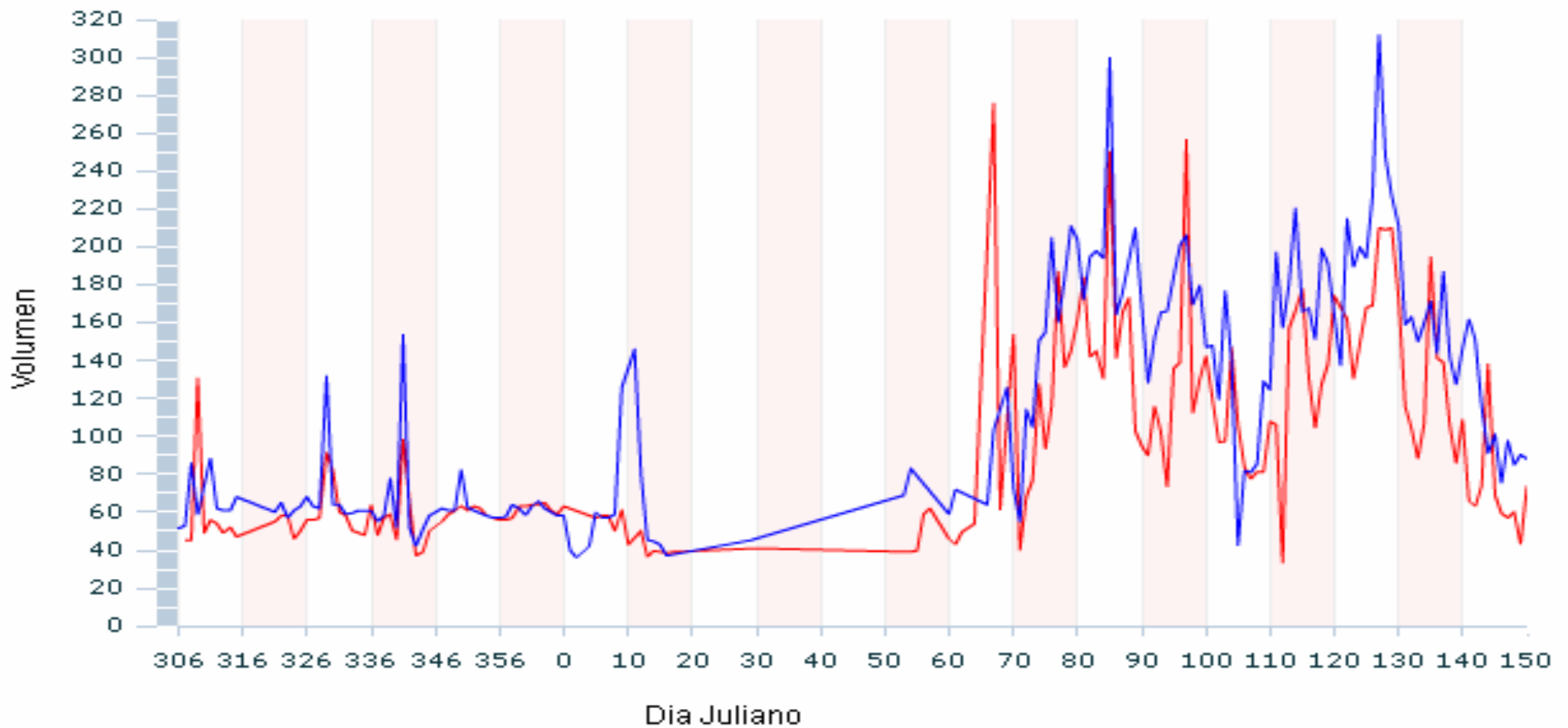
Which info to register ?

- Temp and Humidity
- Weight:
- Beecounters
- CO₂
- ...
- **SOUND!**

Sound

- Great amount of information :-))
- Still mainly unknown :_(
- Cheap and mature tech.
- Suitable for most hives

Sound (example 1)



Daily volume during day (blue) and night (red) between 1/ November / 2008 and 1/ June / 2009

Platform Potentials

- CCD Research
- Global Warming research
- Beekeeping tools
- Environmental surveillance

Thanks :-))

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