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Applications for mobile data collections in veterinary fields

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IZSAM

- Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise (IZSAM) is a public health institution engaged in research.
- It provides technical and scientific services, documentation and continuous education and training.
- Our mission is to provide high added value, knowledge-based and innovative services in Veterinary Public Health and Environmental Protection, thus protecting animal and human health.
- Some of our excellence areas are training and Information Technology 






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 IZSAM

- EU Joint Research Center, Ispra (Italy)
- OIE Collaborating Centre
- FAO Collaborating Centre for Epidemiology and Informatics
- Colorado State University (Ft. Collins – USA)
- University of California (Davis – USA)
- Centres for Epidemiology and Animal Health, USDA, Ft. Collins, Colorado (USA)
- Central Veterinary Institute, Agricultural Research Council, Onderstepoort (South Africa)
- Centres for Disease Control and Prevention (Atlanta, USA)





IZSAM Information Systems Laboratory

- Analyzing/developing/hosting software systems for:
 - as technical branch of Italian Ministry of Health (e.g., BDN: Animal I&R system)
 - in national and international projects (EU projects related to tracking animal transport, Silab4Africa)
 - internal use (e.g., SILAB)
- Manages more than 100 (physical and virtual) server and more than 100 (heavy and lightweight) apps.
- Bioinformatics and mobile apps as new frontier



Outline

- The problem: paper based workflows in veterinary fields
 - A solution: mobile applications
 - Mobile applications realized by IZSAM
 - The IZSAM approach for mobile applications development
 - Extensions



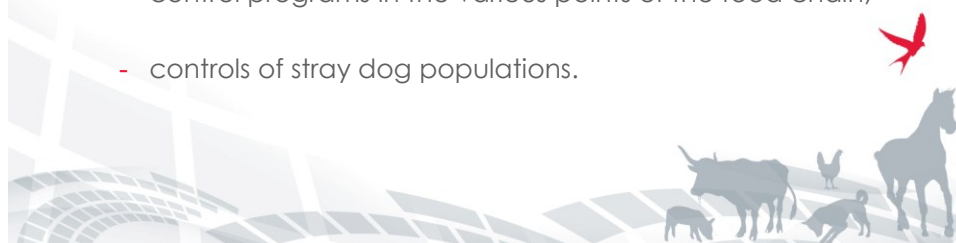
The problem paper based workflows in veterinary fields



The problem

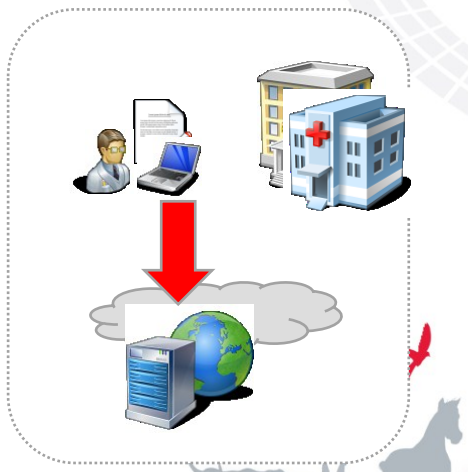
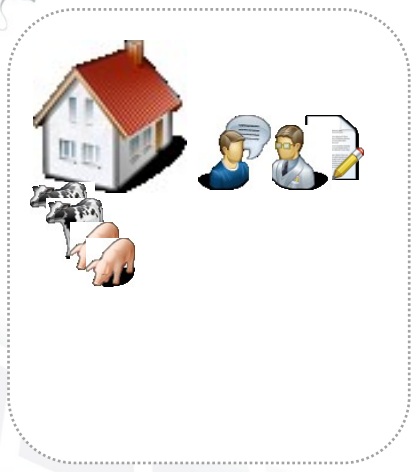
In veterinary fields a lot of data collecting activities are based on papers, especially ones where official veterinarians are involved. Some examples are:

- national control programs for animals infection diseases;
- animals vaccination campaigns;
- control programs in the various points of the food chain;
- controls of stray dog populations.

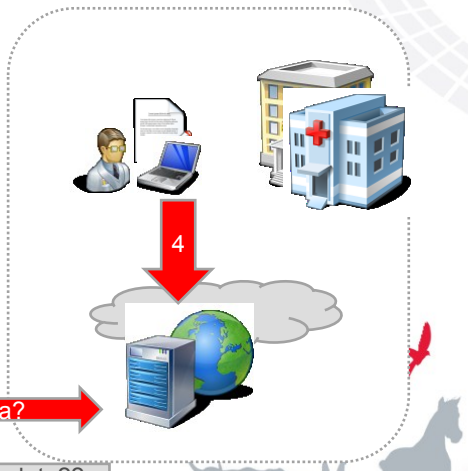
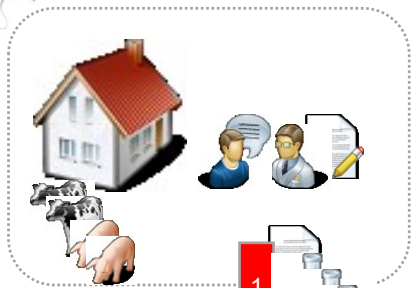




The problem



The problem



2 data?

3. which data??





A solution: Mobile applications



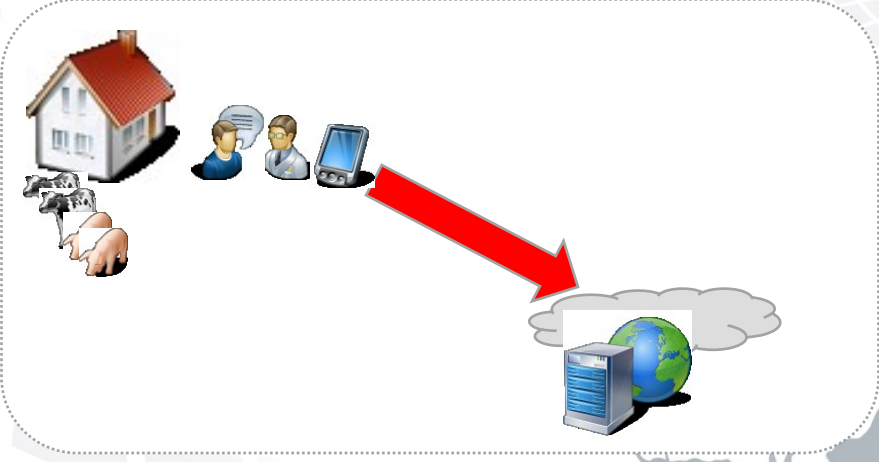
Mobile applications

- Applications for mobile devices can substitute paper based workflows.
- Nowadays, wireless internet connection is available almost everywhere and having an internet enabled mobile device is quite common.

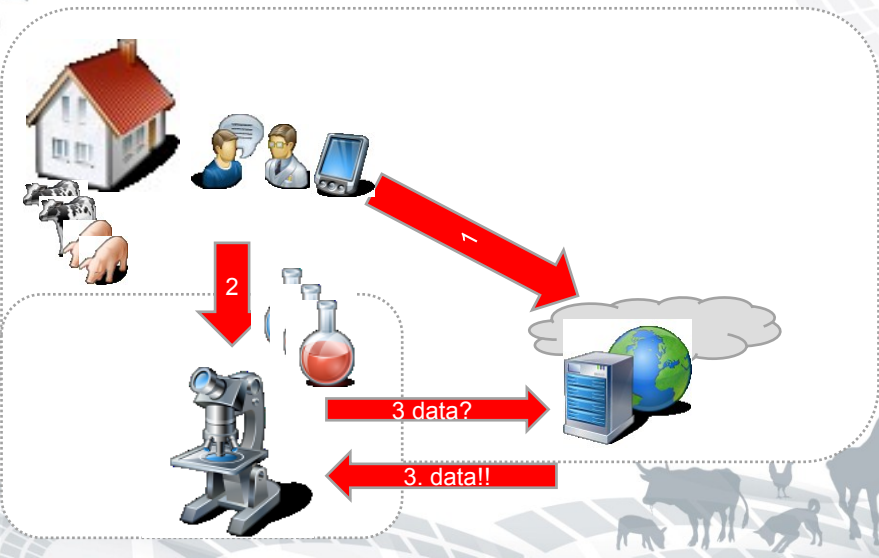


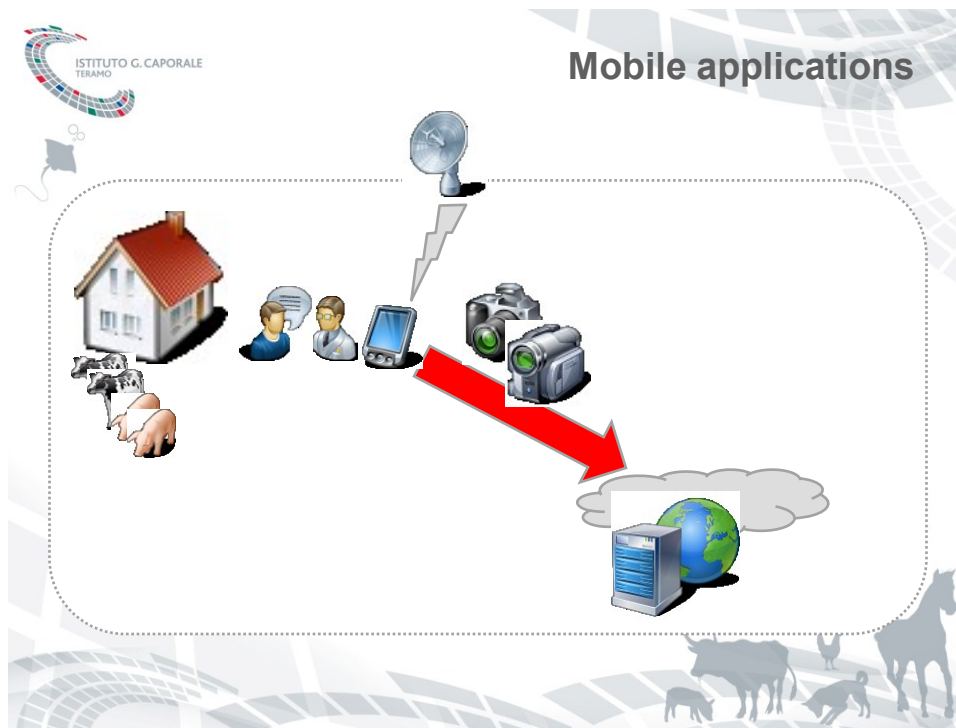


Mobile applications



Mobile applications





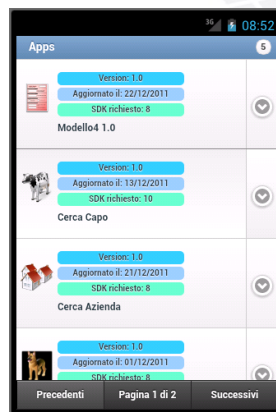


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Mobile applications at IZSAM

Applications for data collection of Italian national control programs of the Italian Ministry of Health.
Example: PNAA (Italian National Control Program on Animal Feeding)

- Applications reporting animal information from national and regional databases.
- An application used in a research project on stray dog population control on urban territory;



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Mobile applications at IZSAM

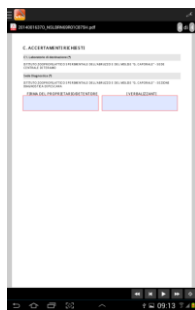
Applications for data collection of PNAA : Italian National Control Program on Animal Feeding (prototype)





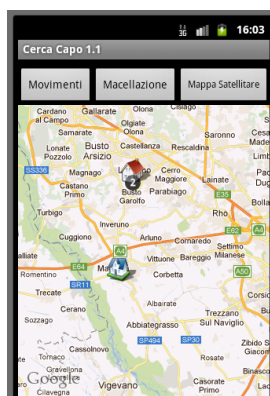
Mobile applications at IZSAM

Applications for data collection of PNAF (Italian National Control Program on Animal Feeding)



Mobile applications

• Bovine information from national database





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Mobile applications

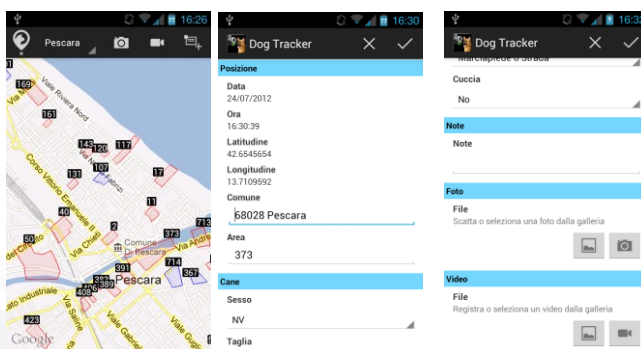
- Dogs information from regional database (prototype)



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Mobile applications

- Stray dog population management systems and data collection (research project)





The IZSAM approach for mobile applications development



Mobile applications development

New challenges (1):

- online/offline mode: connection to the database is not always guaranteed and data synchronization must be foreseen;
- New data type in the form: video, image, geolocalization



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Mobile applications development

New challenges (2):

- not a unique type of mobile devices: the tablet and smartphone market is highly fragmented: 90% of the market share is divided among three or four companies

Global Smartphone Operating System Marketshare %	Q4 '12	2012	Q4 '13	2013
Android	70.3%	68.8%	78.4%	78.9%
Apple iOS	22.0%	19.4%	17.6%	15.5%
Microsoft	2.7%	2.7%	3.2%	3.6%
Others	5.0%	9.1%	0.7%	2.0%
Total	100.0%	100.0%	100.0%	100.0%

<http://www.engadget.com/2014/01/29/strategy-analytics-2013-smartphone-share/>

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Mobile applications development

The IZSAM approach tries to minimize the development effort to realize applications running on different types of devices.

As a part of this approach, the IZSAM realized a software tool which simplify the analysis, design of computer-based forms and the subsequent implementation in different programming languages.

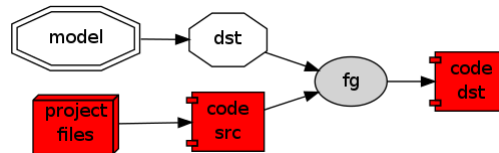
It is important to mention that such a tool has been released as open source project and it is freely used.

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Mobile applications development

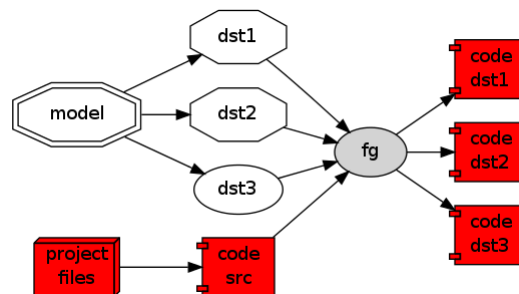
FIREGEN

Find, REplace based GENerator

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Mobile applications development

FIREGEN: cloning many model entities

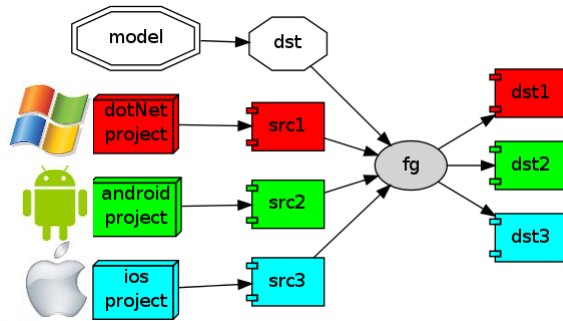




Mobile applications development



FIREGEN: multi-language approach



Extensions





Mobile applications development

- the management of the electronic medical record or personal health record;
- the management of the electronic prescription pharmaceutical.



Thank you for your kind attention

Adriano Di Pasquale

<http://www.adrianodipasquale.it/>

IZSAM

<http://www.izs.it/>