IRISH CATTLE BREEDING FEDERATION

# An Integrated Database

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*ICAR Cork 2012*

*Session T3: Information Systems*

NDP National Development Plan Transforming Ireland

www.ICAR2012.ie

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# ICBF – an integrated database

- Overview
- Data Sources
- Data Set
- Services Provided
- Technologies

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# ICBF Database

- Entire Irish cattle breeding data set
- Highly integrated database
- Data from many sources
- Multiple organisations provide data:
  - Herd books
  - Milk Recording Organisations
  - AI companies
  - Farming Organisations
  - Dept. of Agriculture

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# ICBF Database

- Organisations involved
  - Provide data
  - Use database services
    - Data Input
    - Reports
    - Pedigree Certificate
    - Farmer Services
    - Online Services
- Large number of individual end users
  - Farmers
  - Advisors
  - Vets
  - Marts

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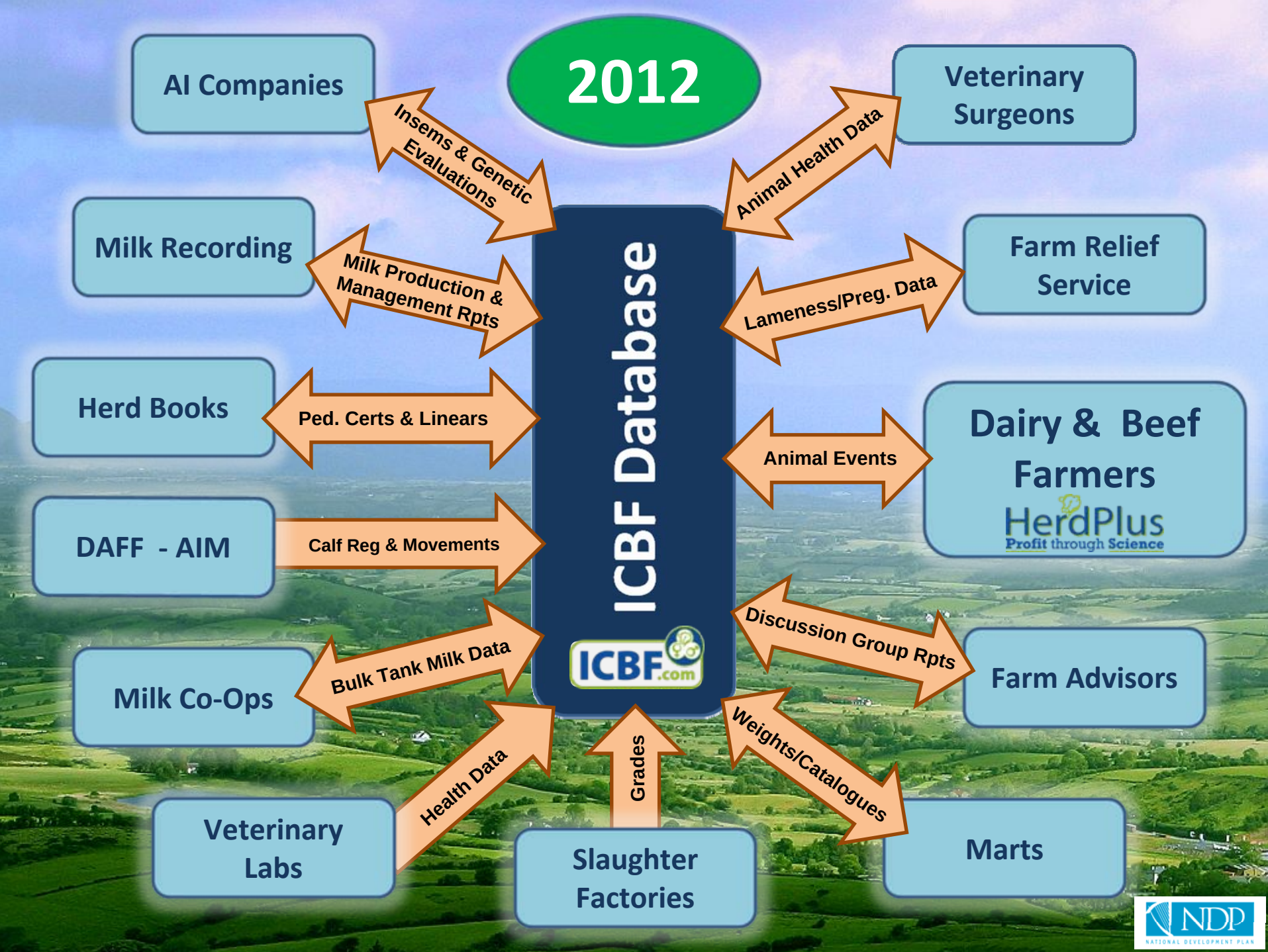
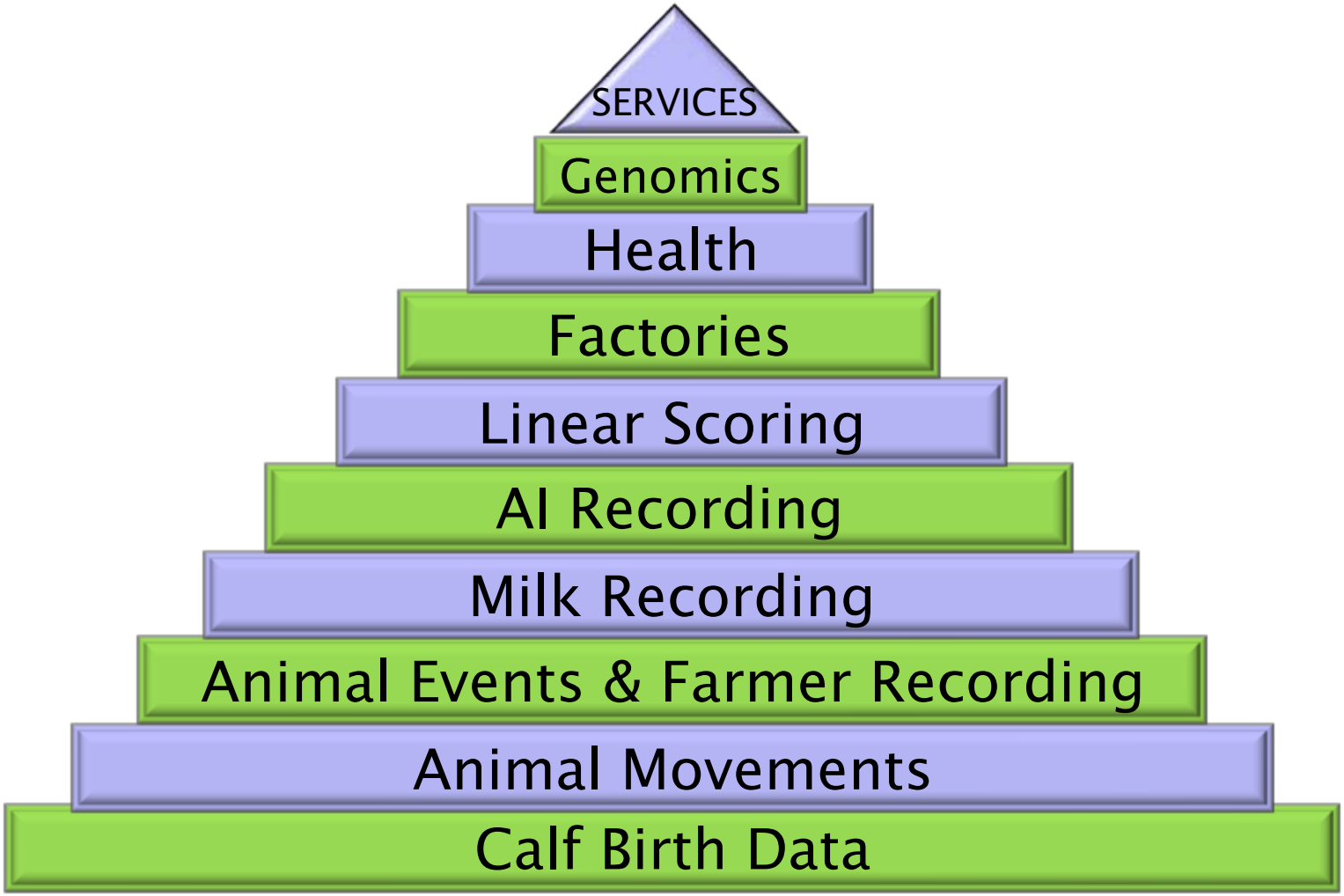

2012
AI Companies
Insems & Genetic Evaluations
Veterinary Surgeons
Animal Health Data
Milk Recording
Milk Production & Management Rpts
Farm Relief Service
Lameness/Preg. Data
ICBF Database
Herd Books
Ped. Certs & Linears
Animal Events
Dairy & Beef Farmers
HerdPlus
Profit through Science
DAFF - AIM
Calf Reg & Movements
Discussion Group Rpts
Farm Advisors
Bulk Tank Milk Data
Milk Co-Ops
ICBF.com
Health Data
Grades
Weights/Catalogues
Veterinary Labs
Slaughter Factories
Marts
NDP
NATIONAL DEVELOPMENT PLAN

# Data Sources

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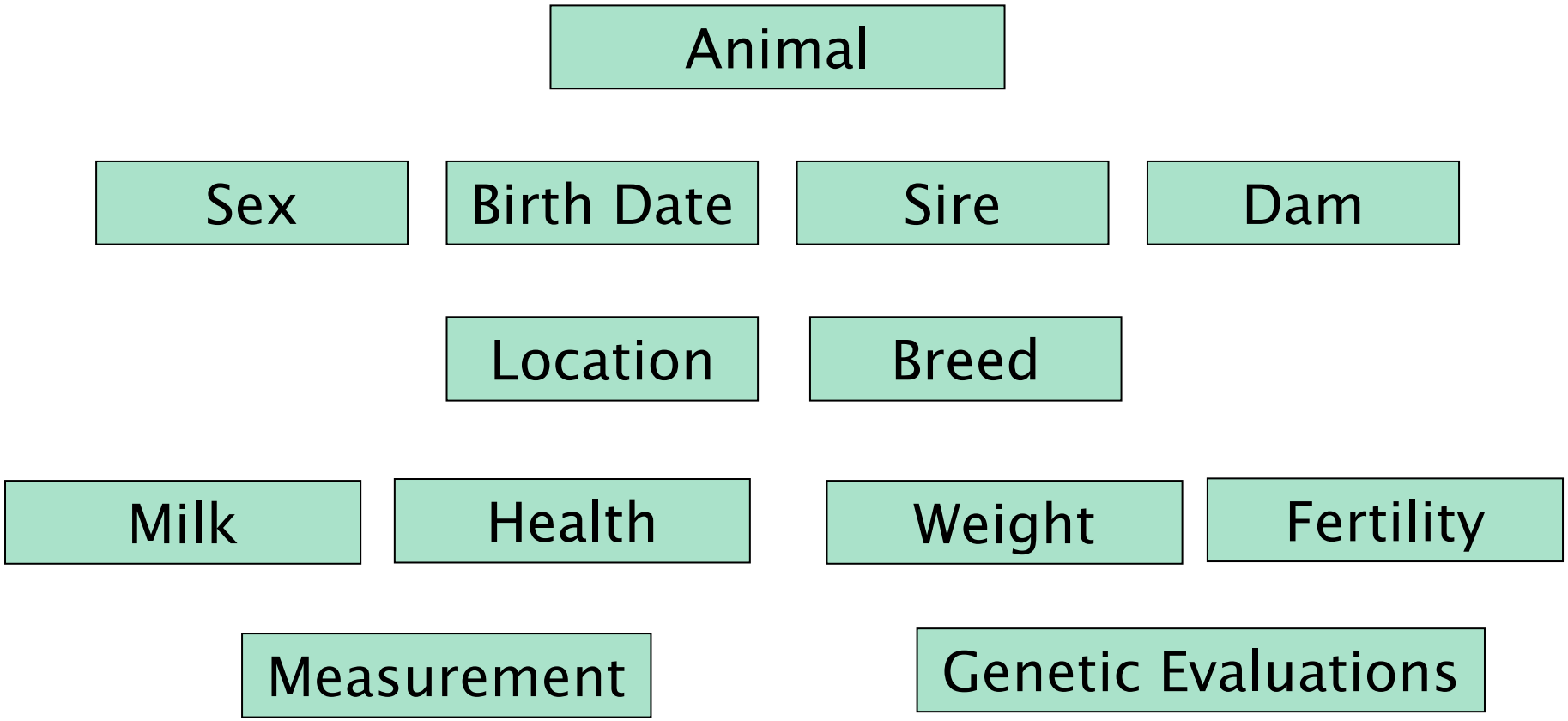
# Core Data Sets

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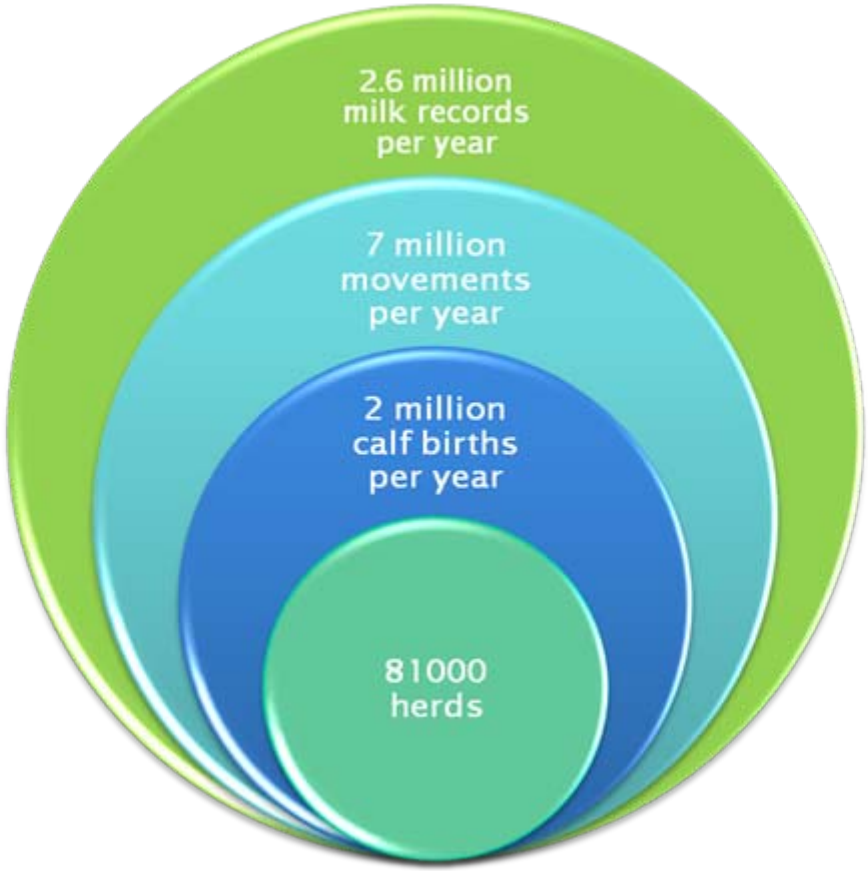
# Size of Regular Data Set

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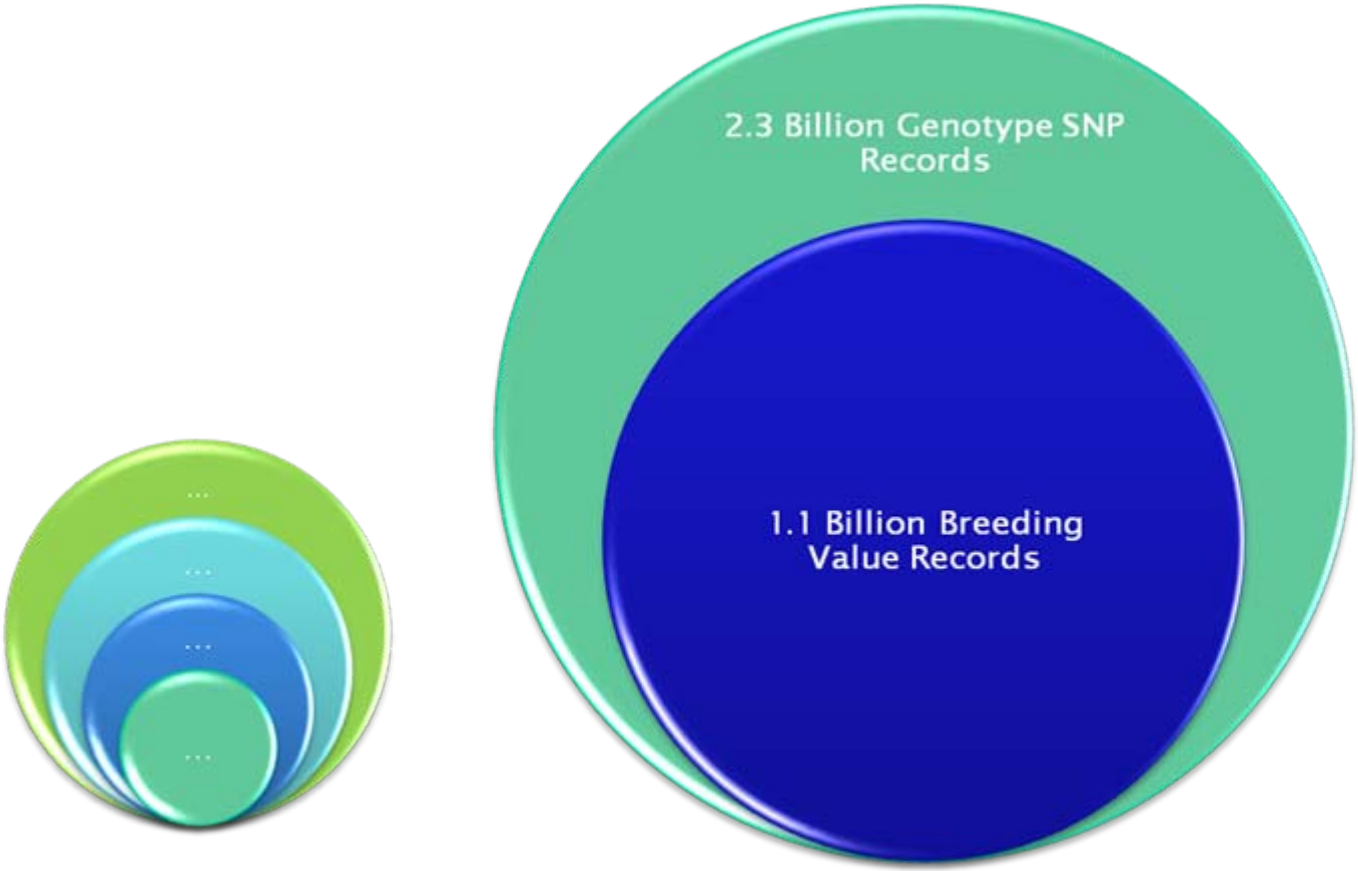
# Size of Larger Data Sets

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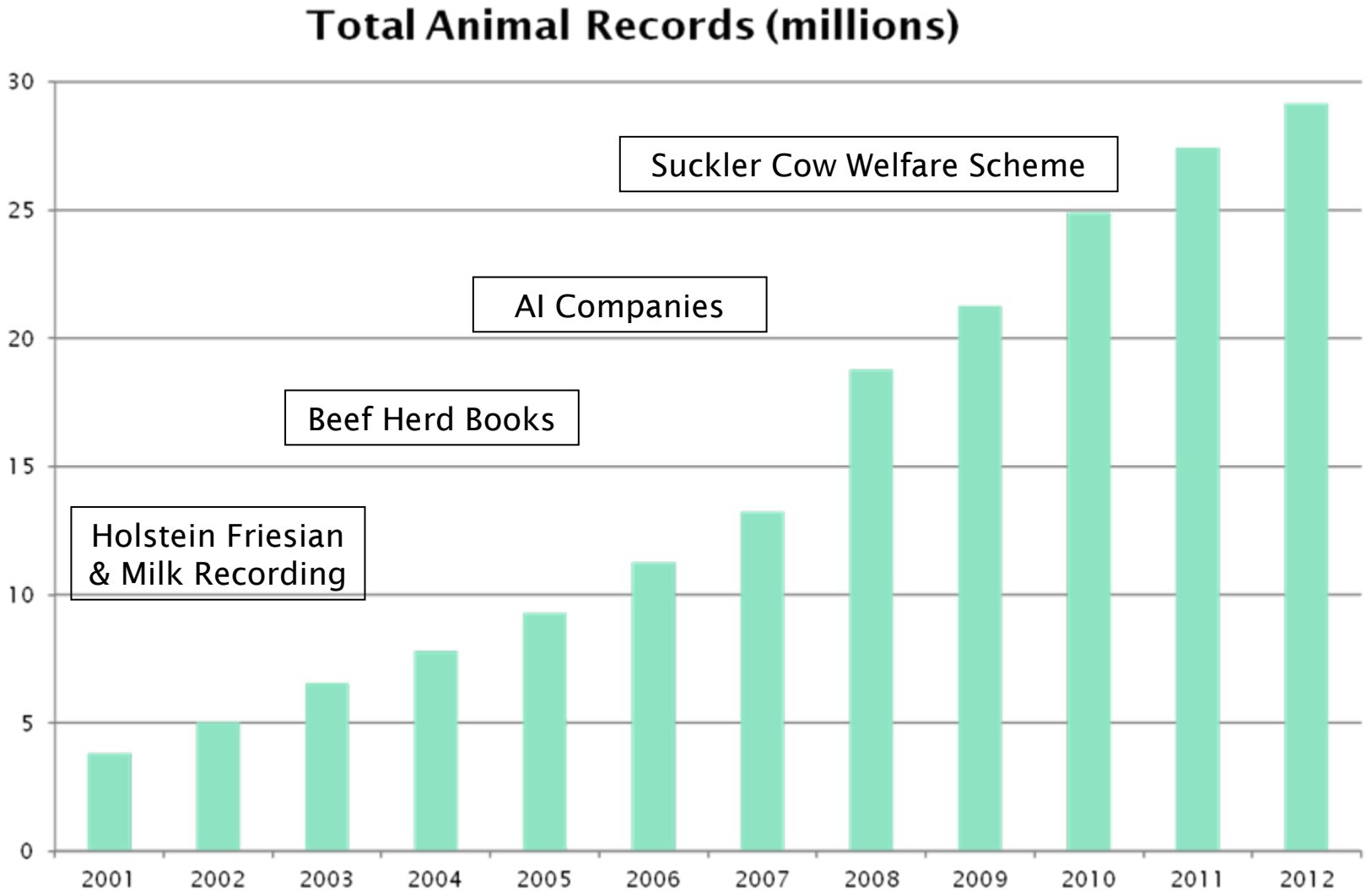
# Database Growth

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# Accessing the Database

- 2001 - Server – Client Model
  - Third Party Client Software
  - Organisations accessed WAN over ISDN
- 2003 - Intranet Services
  - Increased services using intranet developed in-house
- 2005 - Introduction of Internet Services
  - Farmers & Advisors could access reports online
- 2006 - Herdplus Service
  - Enhanced commercial web service to farmers
- 2008 - Herd Book Web App. (developed in-house)
  - Herd books move away from legacy system
- 2009 - Introduction of MRO Web Application
  - MROs move away from legacy system
- 2010 - More organisation types with web access
  - Enhanced services for vets, advisors, consultants etc.

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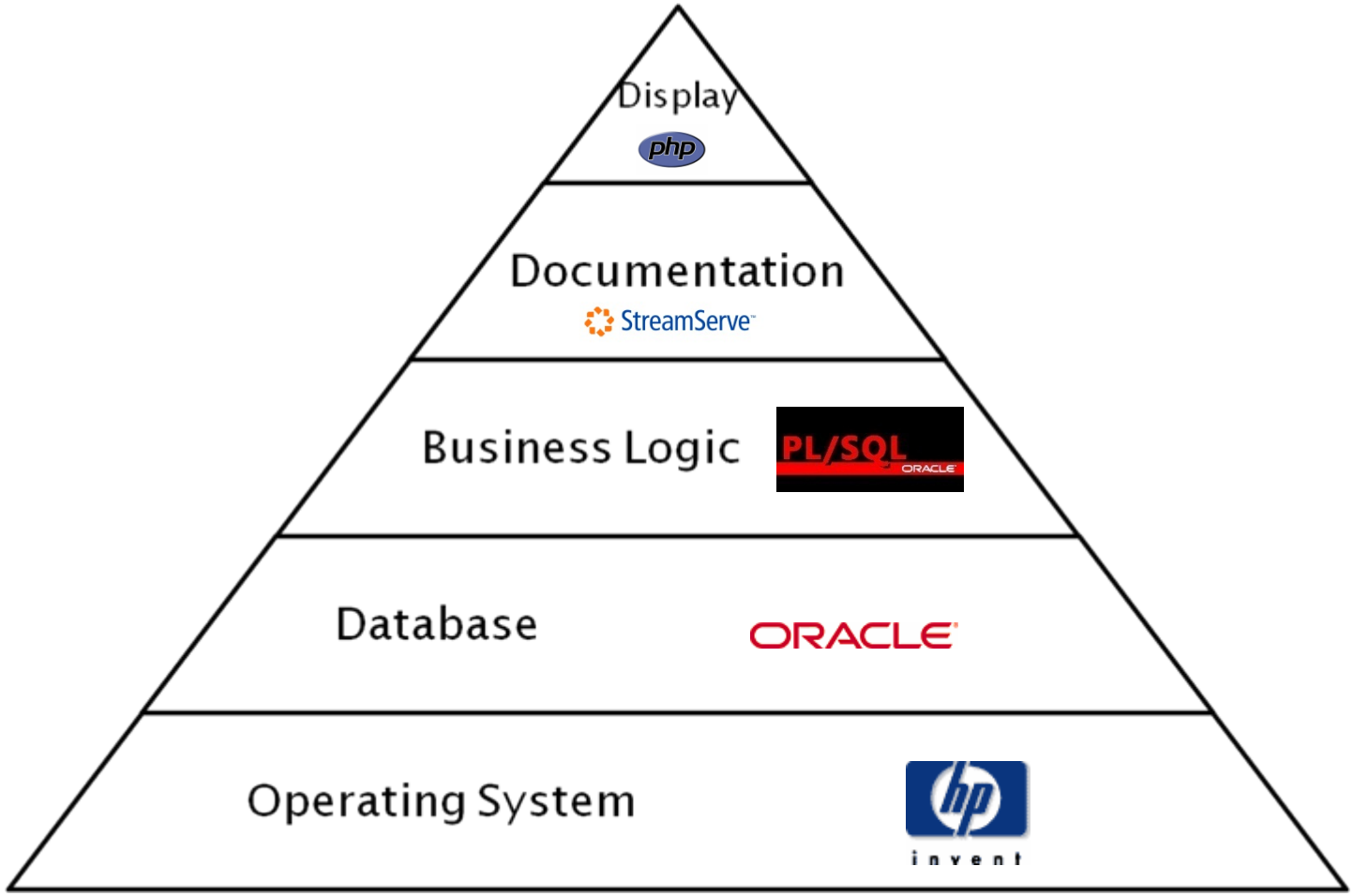
# Core Technologies

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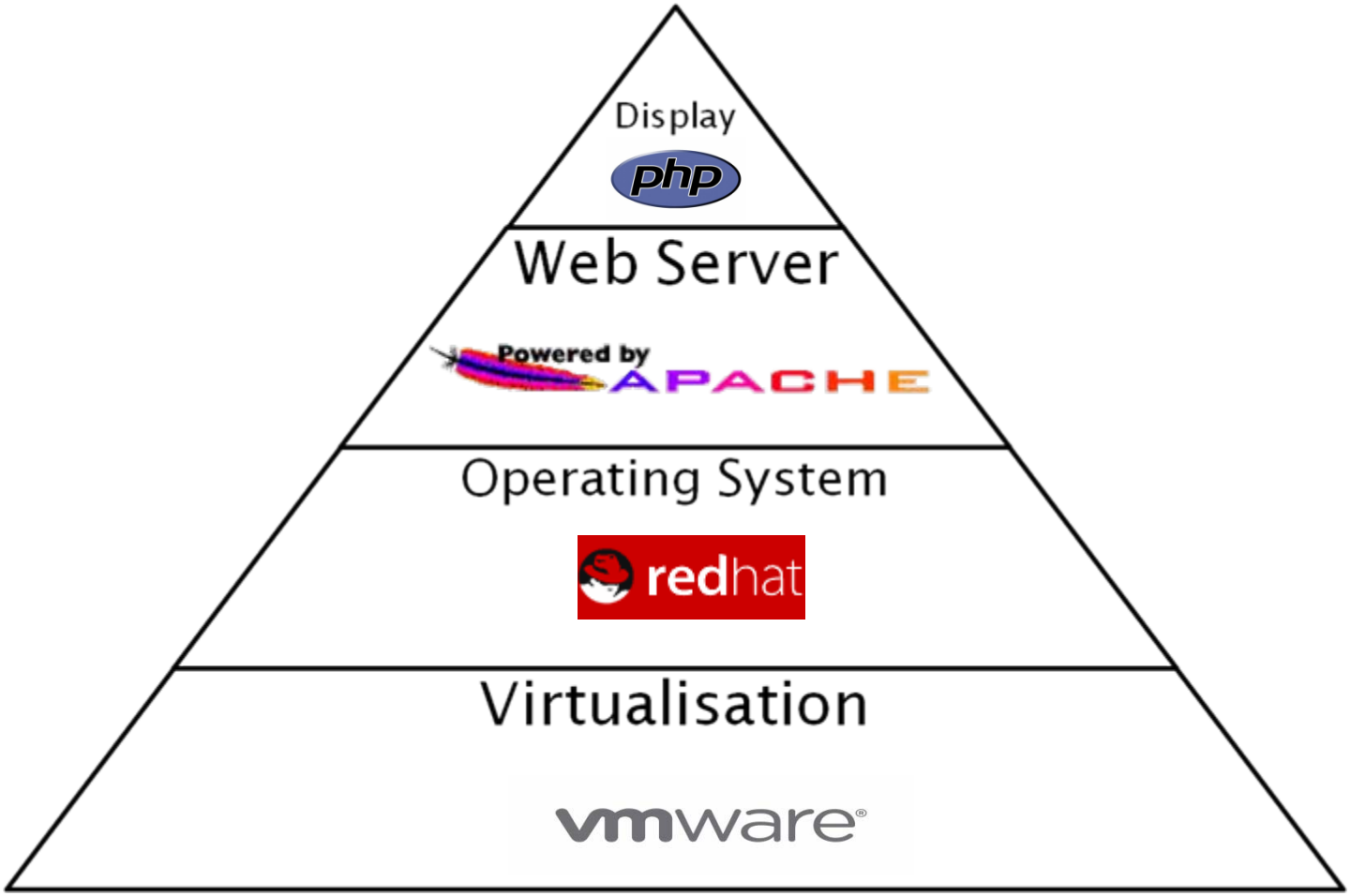
# Web Servers

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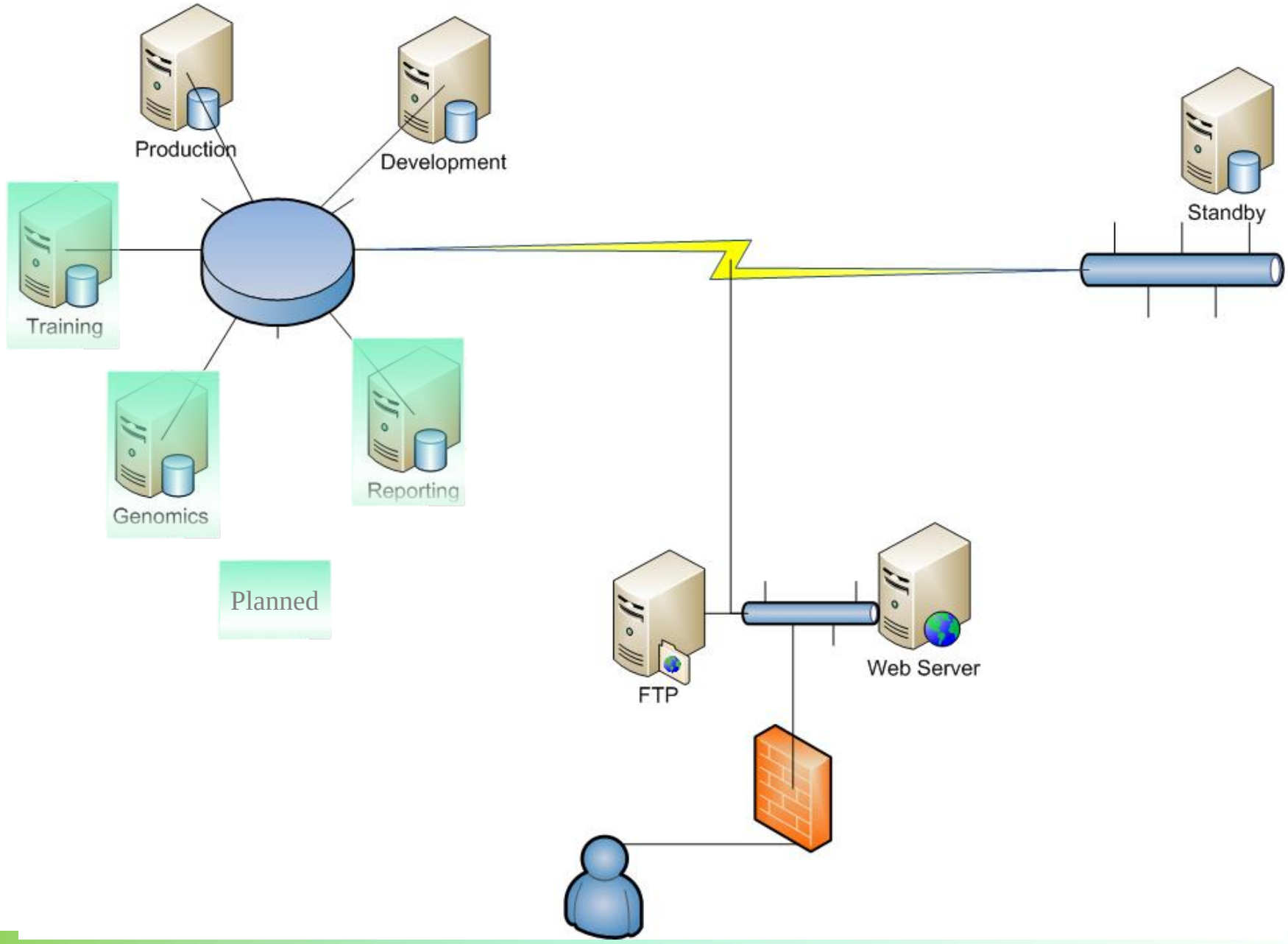


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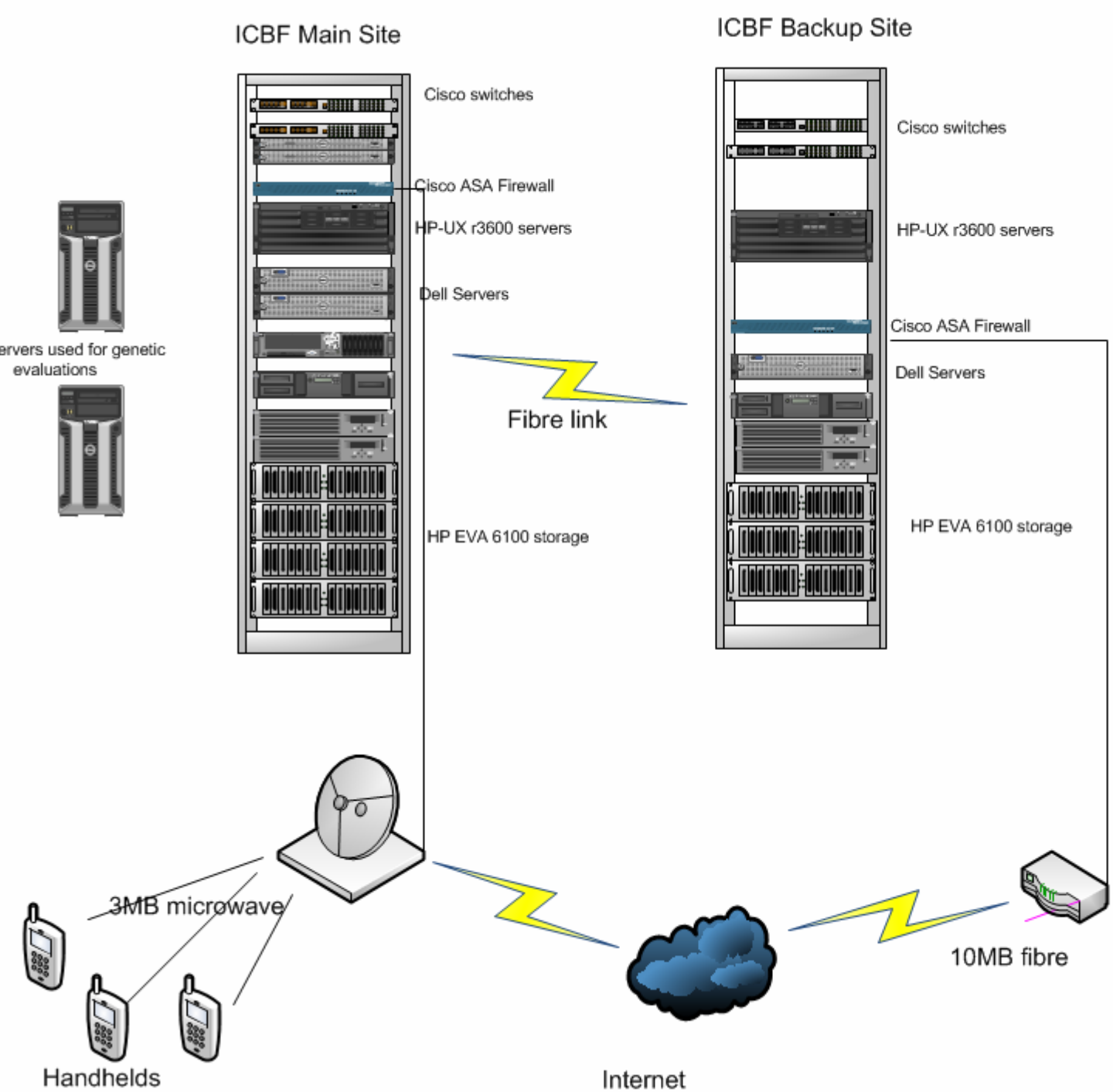
# ICBF Network
# October 2011




- Two sites connected by fibr
- Internet connection to each provides failover.
- Cisco switches and ASA.
- HP-UX servers.
- Dell Servers connected to H storage running VMWare.

# ICBF Development Team

- **Team**
- 7 full time developers
- 2 System Administrators
- 2 Handheld Computer Specialists
- 1-2 contractors

- **Responsibilities**
- Database Software Development
- Web Development
- Document Production
- Handheld Software Development
- Routine Data Transfers
- Database Administration
- System Administration

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# Integrated Database - Key Features

- Clean Data Set
  - Avoid Duplication
  - Data should be as clean as possible at source
- Animal Identification is vital
  - Single Animal ID works best
- Use reliable transfer methods
  - Look at speed, reliability, security
  - Do no over complicate
  - Try to use same methods where possible
- Access
  - Database is only useful if people can access it
  - Internet Technology has become faster, more reliable and is highly adaptable

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# Future Areas of Interest

- Very Large Data Sets
  - How to develop sustainable tools/systems to deal with the volumes of genotype data expected?
  - Data Mining, “Big Data”
- International collaborative projects
  - Optimir, IgenoP
- Handheld Development
  - Data Recording Hand Helds – future growth
  - Smartphone Apps – iPhone, Android
- Virtualisation
  - To what extent do we move to virtual environments
  - What platform do we build on (VM, Microsoft, etc)
  - Cloud Computing

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