



## Task 23: Implementation of web services

# Implementation of web service technology

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# Introduction

## **Web service technology**

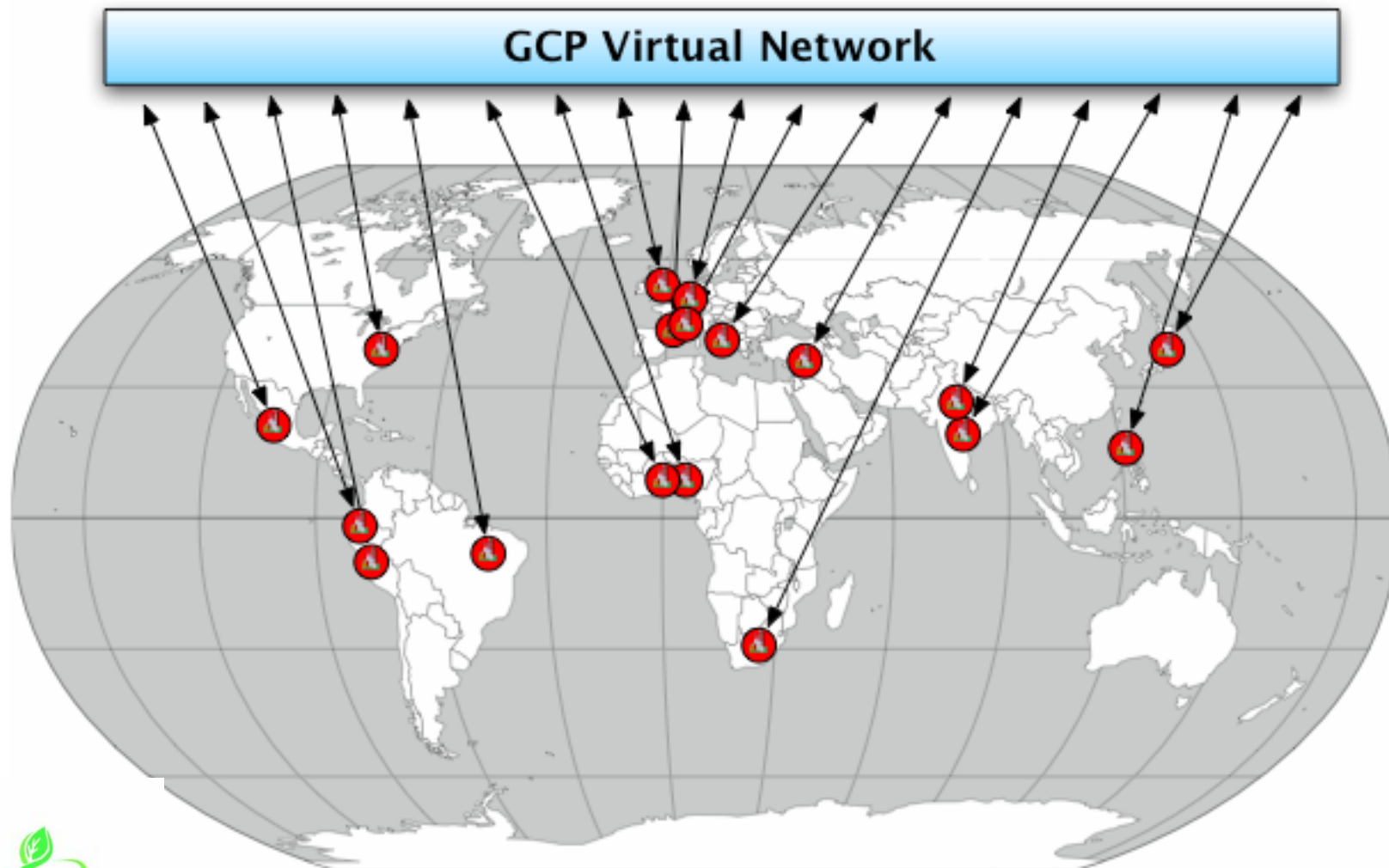
*The Generation CP will generate a wide spectrum of data, ranging from phenotypic to molecular data.*

*Providers of this data are geographically scattered, use diverse data standards and data formats.*

*Web service technology has been selected as the core foundation to establish a decentralised informatics network that will allow sharing and analysis of scientific data by the Generation CP Consortium members.*



# Introduction



# Introduction

## **Phase 1: development of web services and associated training material**

*Tap onto the “GCP Model Driven Platform and Network Architecture” project for a common set of domain models.*

*Develop a Kit for easy installation of web service technology.*

*Deploy this Kit at each Generation CP partner site.*

*Provide on-site training at all Generation CP sites on web services.*

*Provide training material through the MOBY site.*



# Introduction

## **Phase 2: organise a training workshop on the technical fundamentals of the technology and its future implementation**

*To provide an overview of the main web service technologies used in the scientific community.*

*To promote the BioMOBY and GBIF technologies in the context of the Generation CP.*

*To provide hands on training on the installation and management of these technologies.*

*To establish a deployment strategy in consultation with Generation CP coordinators and the respective technology experts.*



# Introduction

## **Phase 3: deployment of web services at every Generation CP Consortium site**

*IRRI leads the Asia region, CIP the Americas and IPGRI the Europe-Africa regions.*

*One week on-site training to all Generation CP members.*

*Training material and other resources to be posted on the Generation CP virtual workspace.*



# Introduction

## ***Phase 4: sustain the deployment of web services through a help desk support***

*Provide help desk support.*

*Tap onto the expertise of the BioMOBY and BioCASE experts involved in the “GCP Model Driven Platform and Network Architecture” project.*

*Improve training on web services through the analysis of helpdesk incidents.*

*Establish a knowledge database to capture “Questions and Answers”.*



# Activities 2005

**Evaluation of software and hardware requirements.**

**Planning meeting in Holland to review and guide the development teams on the approach to be followed.**

**Evaluation and analysis of the BioMOBY technology and tools.**

**Started development of a software library for BioMOBY services.**

**Held an SGRP and CGIAR ICT-KM program joint workshop on “Web Services, its technical fundamentals and future implementation” with the participation of Generation CP Consortium program technical staff, BioMOBY and BioCASE experts.**



# Deviations from 2005 plans

- **How can we handle in a practical, scalable and sustainable way the mapping of databases to the Generation CP data models?**
- **Are there any existing solutions that can be adapted to the project or do we need to develop a custom system?**
- **How can we practically implement a data abstraction layer that is scalable and sustainable in the long run?**



# Deviations from 2005 plans

**BioCASE was selected as the distributed data delivery mechanism and concept mapping technology.**

**BioMOBY services will communicate through the BioCASE wrapper to access data.**

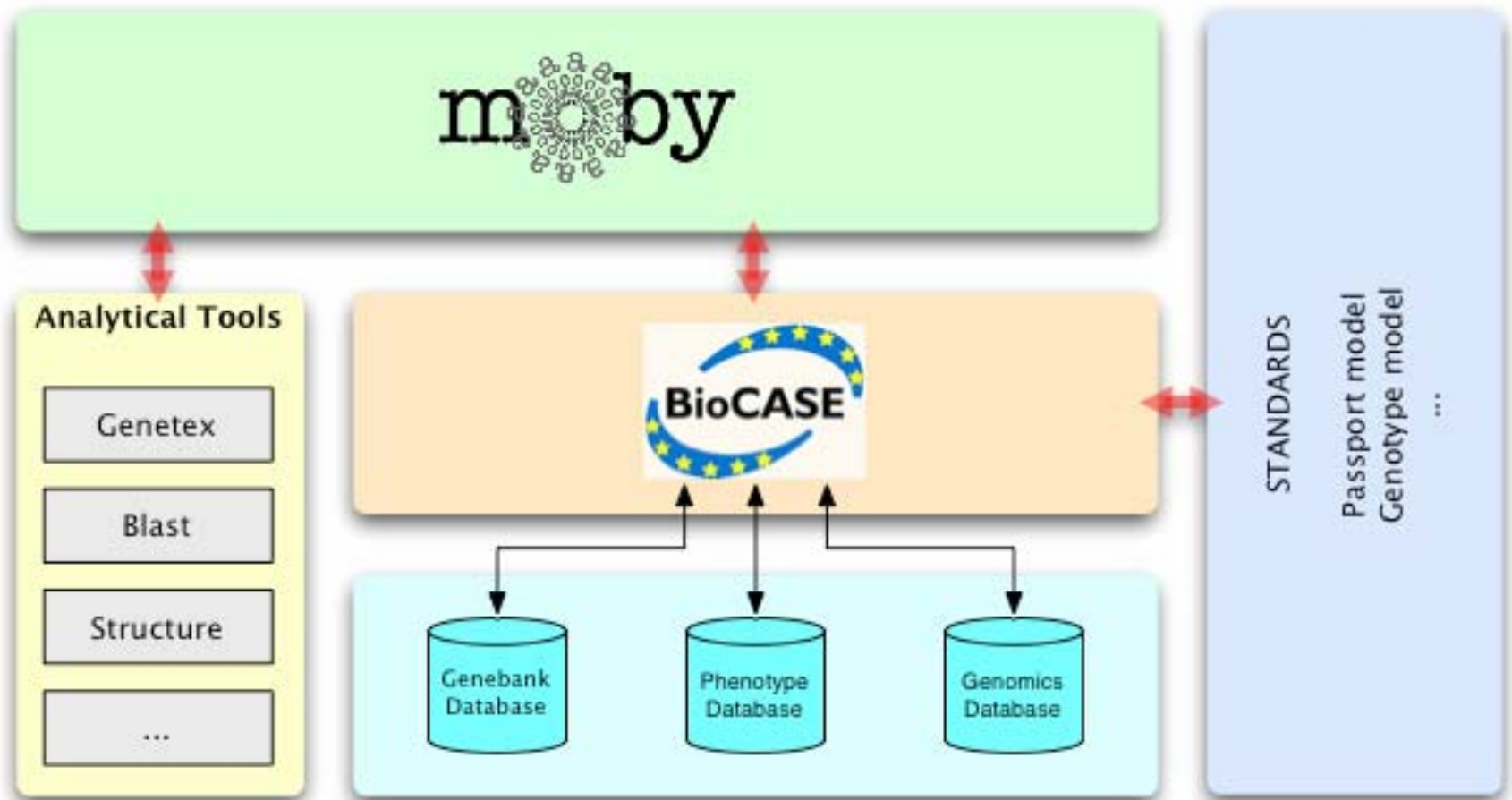
*BioCASE is a proven and known technology, it features a database mapping tool, centralised configuration tools and an installation kit.*

*BioCASE and BioMOBY experts committed to put efforts to make the two technologies interoperable.*

*In the context of the GCP the data models are clearly defined and agreed upon standard.*



# Deviations from 2005 plans



# Deviations from 2005 plans

## **Advantages:**

*BioMOBY web services will communicate with a data abstraction layer (BioCASE) rather than referring to database fields.*

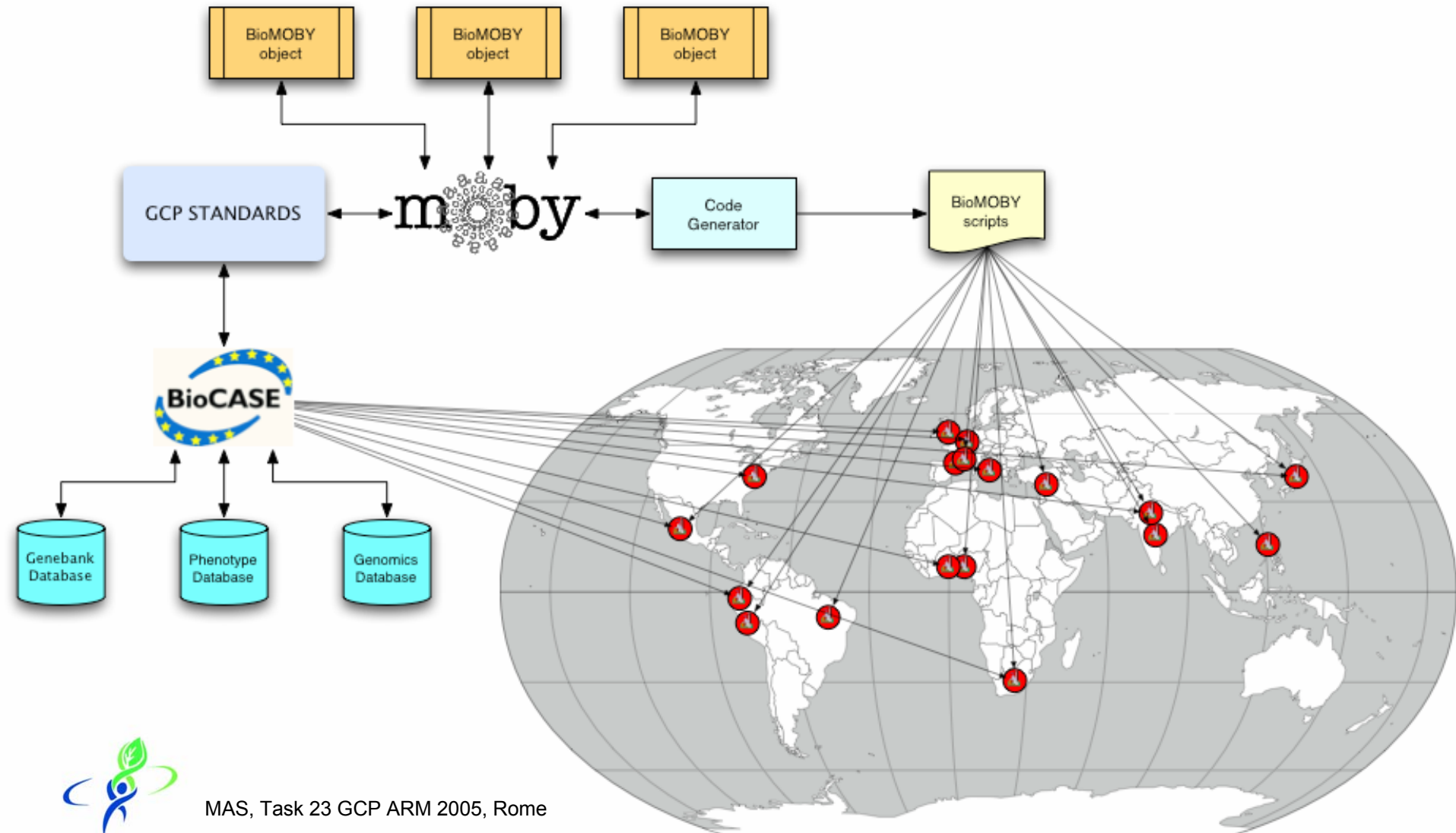
*The data abstraction layer will be the same for all Generation CP Consortium data sources.*

*It will be possible to create and register on-line BioMOBY services mapped to the Generation CP data models.*

*BioMOBY services can be created on-line and be deployed via an automatic code generator at remote sites, or hosted centrally to access remote BioCASE providers.*



# Deviations from 2005 plans





# Deviations from 2005 plans

MOBY-S Web Service Auto-Generator - Webservice Properties

http://bioinfo.icapture.ubc.ca/cgi-bin/code-generator0.6.cgi

Local Apple Development Documentation News Directories User Info Downloads Current Projects Version Trackers

MOBY-S Web Service Auto-...

 Code Generator 0.6 

[BioMOBY](#)  
[Code Generator](#)  
[Documentation](#)  
[MOBY Web Services](#)  
[Tutorial](#)  
[About](#)

**1. Service Properties** > 2. Service Algorithm > 3. Data Confirmation > 4. Dispatcher > 5. Code Generation

### Step 1: Service Properties

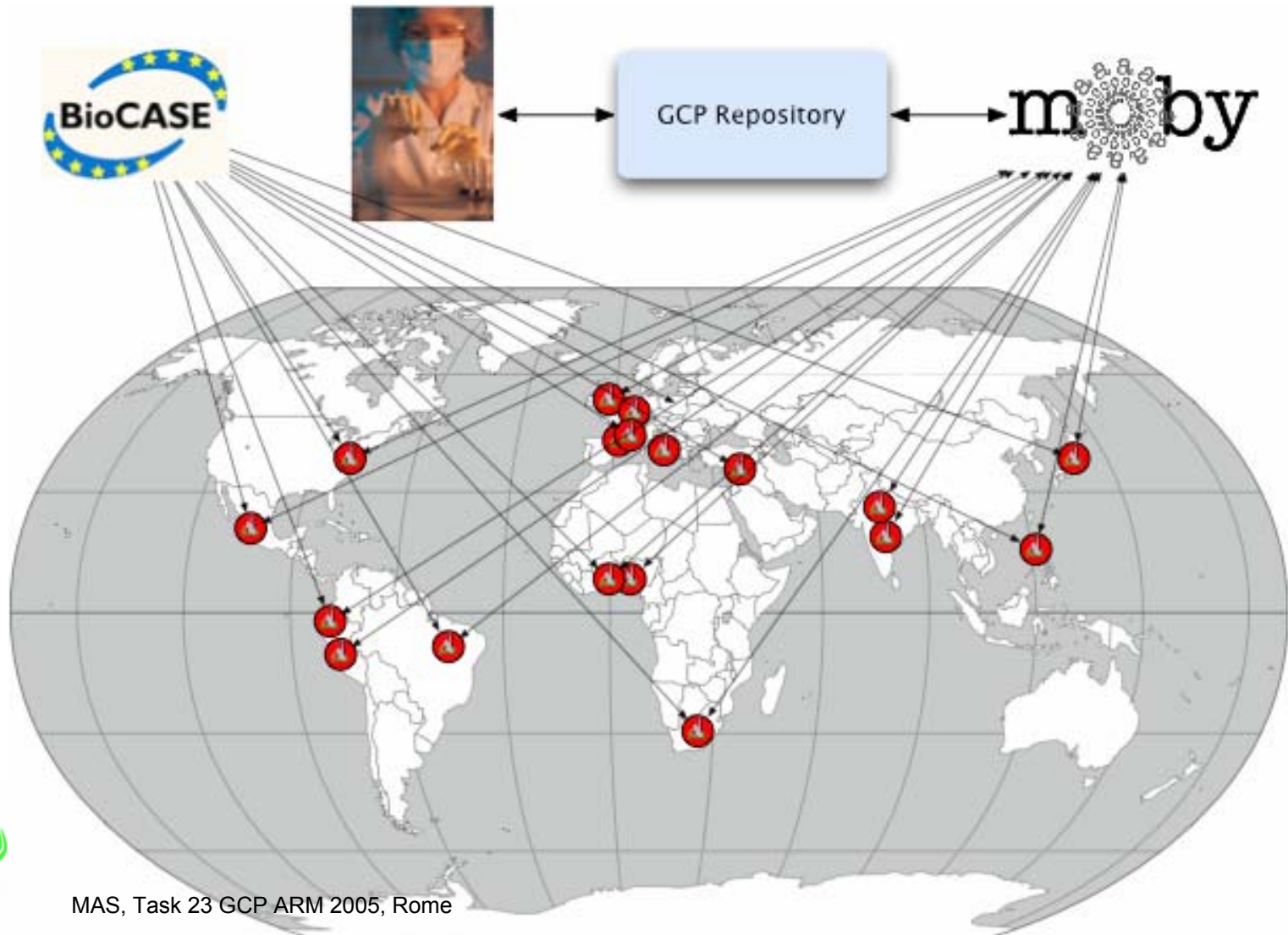
Below are some properties that you have to fill about your webservice  
If there is anything you do not understand, click on the [?] and a short description will appear.  
Once you have finished filling in this form, click on the 'Next' button to continue.

Please fill in the required fields

Service Type	<input type="text" value="Please select a Service Type"/> Select the type of service you will provide [?]
Object Consumed	<input type="text" value="Please select an Object"/> What type of data will your service take in? [?] <input type="radio"/> Objects without Secondary [?] <input type="radio"/> Objects with Secondary [?] <input type="radio"/> Simple [?] <input type="text" value=""/> Article Name of the Object <input type="text" value="None"/> Select a namespace [?]
Object Produced	<input type="text" value="Please select an Object"/> What type of data will your service produce? [?] <input type="radio"/> Simple [?] <input type="radio"/> Collection [?] <input type="text" value=""/> Article Name of the Object <input type="text" value="None"/> Select a namespace [?]
Service Name	<input type="text"/> What is the name of your service? [?]
Authority URI	<input type="text"/> What is the Authority URI of your service? [?]
Contact Email	<input type="text"/> How can we contact you? [?]
Description of the Service	<input type="text"/> A short description of the service [?]
Location of MOBY directory	<input type="text" value="/moby/moby-live/Perl/MC"/> Directory of MOBY Modules (Default: /moby/moby-live/Perl/MOBY) [?]
SQL Query or Algorithm	<input type="radio"/> SQL query [?] <input type="radio"/> Algorithm [?]



# Deviations from 2005 plans



# Current status

- **The BioCASE installation software has been tested and is being finalised in collaboration with the BioCASE community.**
- **The BioCASE package and the Passport schema have been distributed to a series of partners for initial testing.**
- **An agreement for collaboration between the BioCASE and BioMOBY communities has been established during the web services workshop in Rome.**
- **The preparation of a software library to bridge the BioMOBY and BioCASE protocols is being undertaken.**
- **A tool is being developed that scans data providers and generates dataset files in the GCP template format.**



# October - December 2005

- Finalise the BioCASE and BioMOBY installation kits.**
- Develop a software library to allow BioMOBY services to interact with the BioCASE protocol .**
- The BioCASE package and available schemas will be distributed to all Generation CP partners.**
- Training will be provided to the Generation CP partners for web service deployment.**
- Develop a tool to allow the creation of BioMOBY web services on-line including a code generator for implementing them; this tool will be hosted on the Generation CP Repository portal.**



# Workplan for 2006

## **Work package 1: development of Web service toolkits and training material.**

- *Consolidate the deployment strategy by finalising the installation kits for LINUX, Windows and MacOS and updating the documentation that will be available via the Generation CP Repository.*
- *Develop a BioMOBY web service generator to allow on-line creation of web services.*



# Workplan for 2006

## **Work package 2: deployment of web services at all Generation CP Consortium member facility.**

- *Ensure that all partners have been trained in the deployment and maintenance of BioCASE and BioMOBY technologies.*
- *Monitor regularly the functioning of web services at all Generation CP installations; distribute and document any new developments of the technology.*



# Workplan for 2006

## **Work package 3: sustain the deployment of web service technologies through help desk support.**

- *Aim at a target of at most 5 working days for responses to e-mail or telephone queries.*
- *Build a knowledge base from information gathered during help desk support complemented with links to external resources.*



# Workplan for 2006

## **Work package 4: enhancement and development of web service technology.**

- *Develop further the interoperability between the BioMOBY and BioCASE with the support of the respective developers of these technologies.*
- *Enhancement of the BioCASE technology by expanding search options and schema interoperability.*



# Workplan for 2006

## Work package 1: development of web services toolkits and training material.

Phase	Q1	Q2	Q3	Q4
Consolidation of the installation kits and documentation.				
Development of the on-line BioMOBY web service generator				



# Workplan for 2006

**Work package 2: deployment of web services at every Generation CP Consortium member facility.**

Phase	Q1	Q2	Q3	Q4
All partners have been trained on BioCASE and BioMOBY				
Monitor and update installations				



# Workplan for 2006

**Work package 3: sustain the deployment of web services through helpdesk support.**

Phase	Q1	Q2	Q3	Q4
Help desk				
Knowledge base				



# Workplan for 2006

## Work package 4: enhancement and deployment of web service technologies.

Phase	Q1	Q2	Q3	Q4
BioCASE and BioMOBY interoperability				
Enhancement of BioCASE technology				



