Molabis - Effective Management of Genetic Data in Farm Animal Biodiversity Studies

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Session 53

INTRODUCTION

Large amounts of data in molecular genetics labs

Traditional methods: workbooks, spreadsheets

Manual operations: take time and cause mistakes

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LIMS
(Laboratory Information Management System)

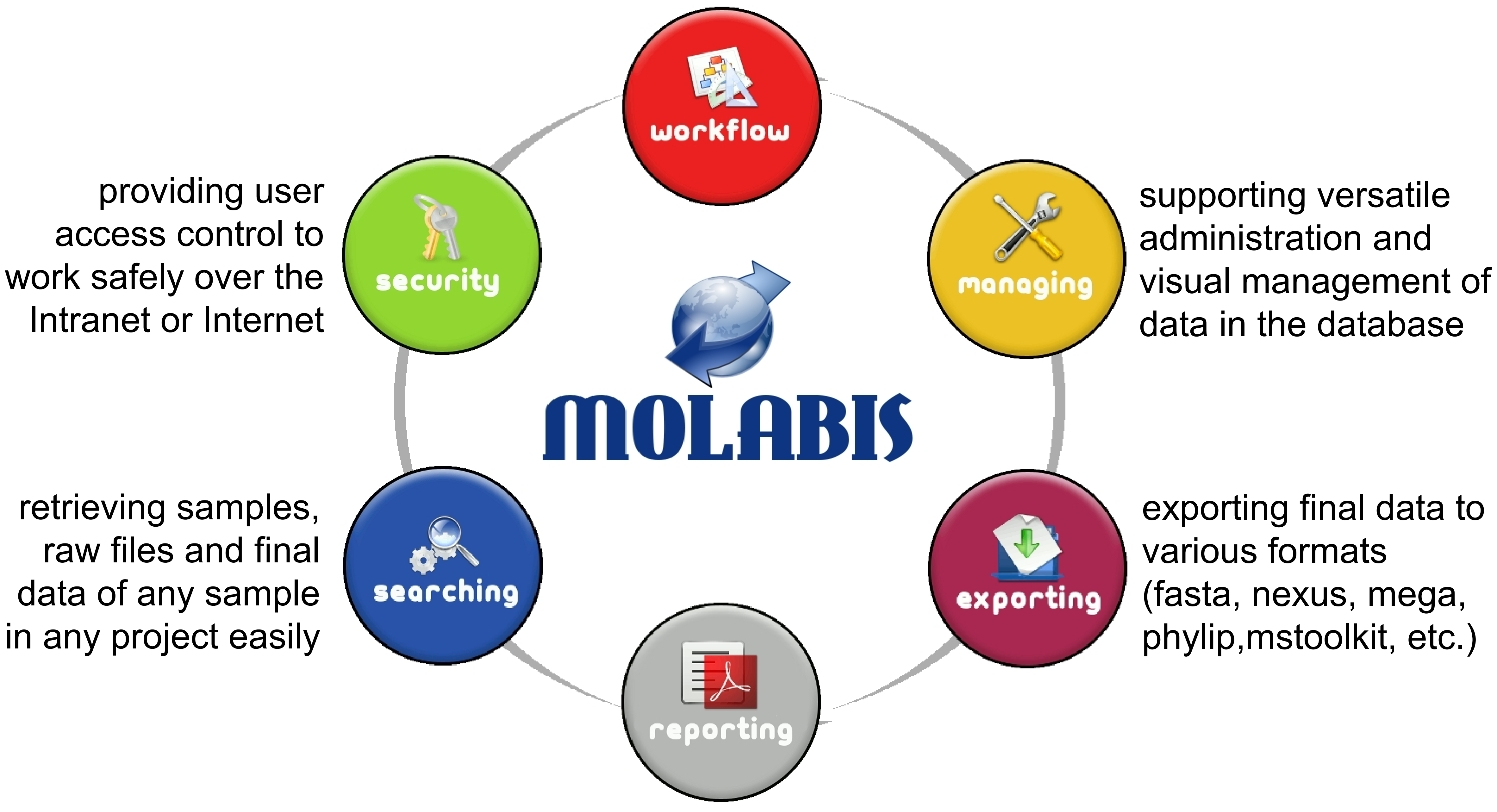
REQUIREMENTS

- ✓ DNA sequencing and microsatellites genotyping
- ✓ Formalized data model
- ✓ Sample logging & tracking
- ✓ Data searching & result reporting
- ✓ Multiple-user environment
- ✓ Central database
- ✓ Workflow data collection
- ✓ WEB application

PIPELINED DATA STREAMS

- Define Project
- Collect Animals
- Collect Samples
- Prepare Samples
- Extract DNA
- Validate DNA
- Amplify PCR
- Check PCR Products
- Run Electrophoresis
- Get Raw Results
- Analyse Results
- Store Final Data

SOFTWARE FEATURES



workflow: tracking samples and lab works effectively

managing: supporting versatile administration and visual management of data in the database

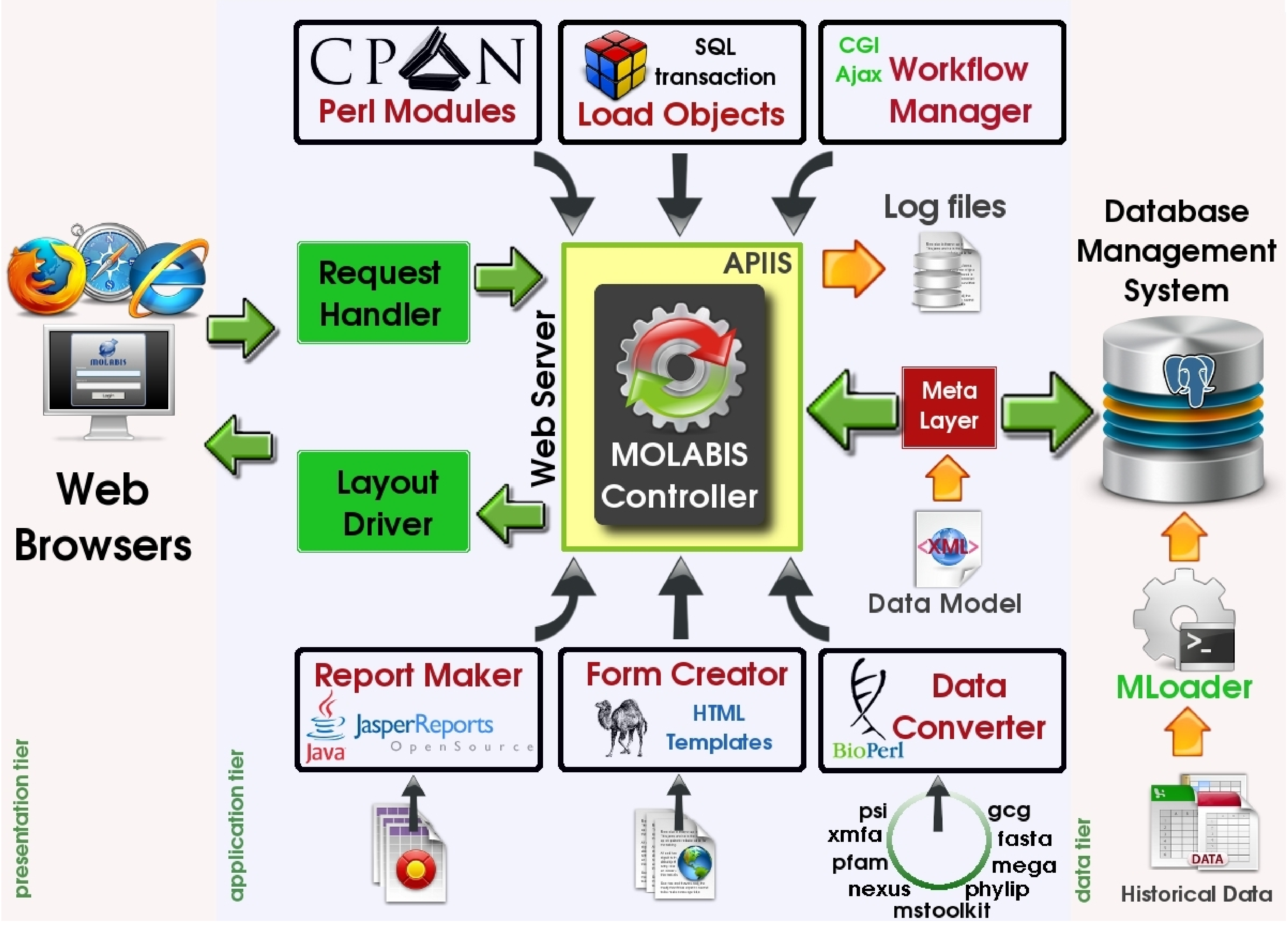
exporting: exporting final data to various formats (fasta, nexus, mega, phylip,mstoolkit, etc.)

reporting: documenting for a project or the whole lab in minutes

searching: retrieving samples, raw files and final data of any sample in any project easily

security: providing user access control to work safely over the Intranet or Internet

APPLICATION ARCHITECTURE



CONCLUSIONS

Long-term Storage

- ✓ Samples (blood, tissue, DNA) from any species
- ✓ Storage places of samples
- ✓ Microsatellites, sequences
- ✓ Protocols, contacts
- ✓ Primers, markers
- ✓ Gel images, raw files

Benefit

- ✓ Increase accuracy of results
- ✓ Decrease workload
- ✓ Save time
- ✓ Make reports quickly
- ✓ Convert data easily
- ✓ Free and Open source