

Tracking Samples and DNA Profiles

Joel Galloway – Future
Technologies, Inc.

Overall Goal

- As little paper and manual record keeping/data entry as possible
- Overall IT cohesiveness (from collecting samples to making identifications)
 - Ideally one IT system to accomplish every task that can be performed by computers
- User friendly software to visualize data and interpret results in a meaningful way

Our system: LISA

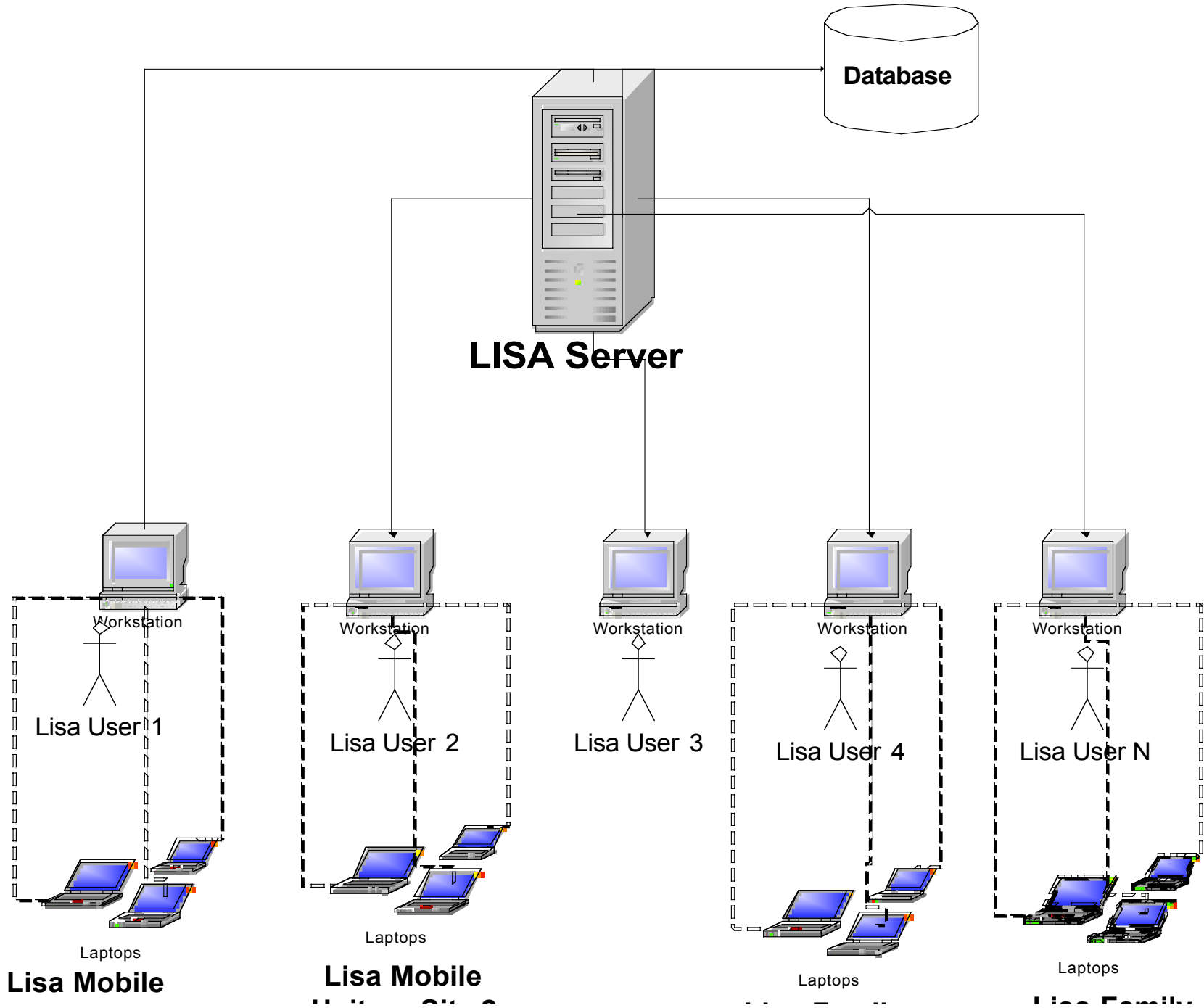
- Client/Server LIMS capable of:
 - Case Accessioning
 - Lab Processing
 - DNA Stats and Searches (STR, Mito, SNPs), Kinship Analysis, Mass Disaster Screening
 - Integrates with DNAView
 - SOP functionality
 - Outsourcing
 - Other

LISA



Sample Collection

- LISA interacts with:
 - Set of “LisaMobile” units used to remotely track unidentified remains
 - Set of “LisaFamily” units used to remotely track family reference samples, personal item samples and missing person biographical data



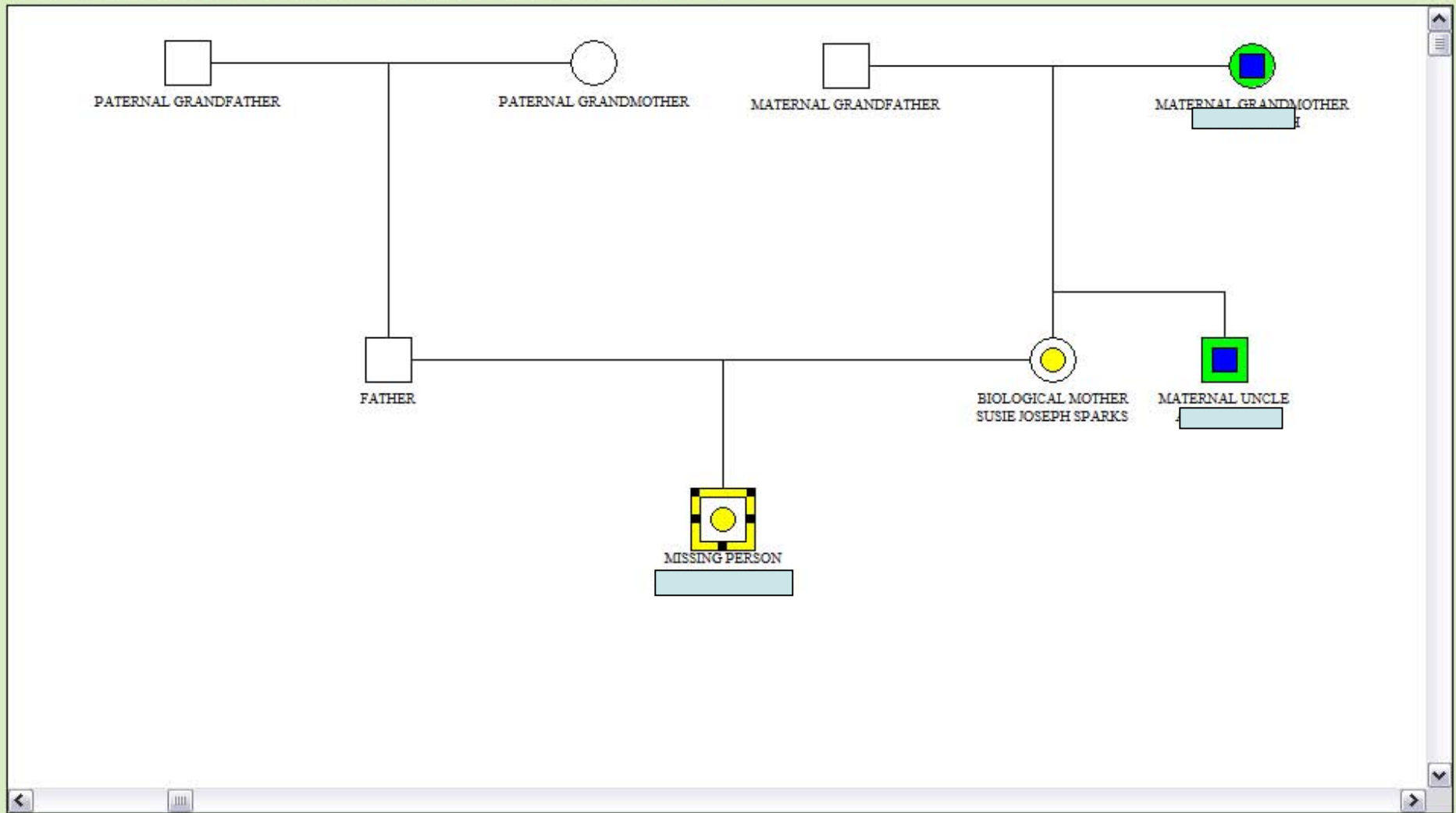
Data Synchronization and Data Integrity

- Mobile Units are assigned a unique id from Lisa and allocated a set of unique numbers to each mobile unit based on numbering schema (configurable from LISA) for project
- Import data from mobile units into LISA (variety of methods here)

Sample Data in Lisa

- Need excellent and user friendly searching utilities
- Present user with a view of related data in meaningful way (e.g. Progeny integration to view missing person pedigrees and which family members have had samples collected)
- Need for lots of reporting functionality

Double click person icon to add relationships, perform data operations or delete individuals.



Legend

- Missing
- Personal Data in System
No sample collected
- Collected Sample for this
Missing Person
- Collected Sample for
other Missing Person
- Quadrant 1: DNA STR Profile in system.
All Quadrants: Use for DNA View Identification
- DNA STR profile not used
for identification

Validated Need More References

Case Kin Report

Print Pedigree

Save

Close

Recreate

Getting the Profiles

- Need to track samples thru lab processing either in house or outsourced
- If outsourced:
 - Easy methodology to record “batches” of samples being send out and received
 - Need for lots of reporting functionality (i.e. when samples have been sent out, when they have been received, turnaround times etc.)

“Searchable” Profiles

Our modeling notion:

- A piece of “evidence” may be a reference sample, personal item sample of an unidentified remain (different types and subtypes)
- Each piece of evidence can contains 1..N “specimens”
 - A specimen is sent to the lab for processing
- Profiles are possibly returned for each specimen
 - Need pre-consensus/consensus functionality
 - Or, possible way to flag pieces of evidence when profiles conflict

Summary

- IT cohesiveness produces efficient results
 - Mobile Units very helpful in this regard
 - Need good integration for specialized tools
- Software must allow users to easily access and visualize data in a meaningful way