

School of Informatics  
University of Edinburgh

# Inventory System

## Project update

Ken Dawson

- The importance of the inventory
- The current inventory/orders database
- Pitfalls and problems
- An evolutionary strategy
- Typical 'life cycle' of inventory records
- LCFG sysinfo data
- Table definitions

# The Importance of the Inventory

- Purchase details: when, cost, description, who paid, supplier
- Detailed record of equipment owned including changeable elements such as current location
- Disposal details: when, how, residual value
- Basis for insurance record
- Planning (e.g. for replacing old equipment)
- Legal requirements

# The Current Inventory/Orders System

- Order data
  - PO #, supplier, date, (VAT); description, delivery date, price, budget, warranty, serial #
- Some data held in machine LCFG profiles
  - Owner, location, maker, model, serial #, manager, allocated, OS and hostname (group and domain)
- Disposed kit data
  - Serial #, hostname, model, reason, date

# The Current Inventory/Orders System 2

Orders entered and edited via rfe using a custom data format with template:

date:

supplier:

.item:

.warranty:

.quantity:

.price:

.sno:

.delivered:NOTYET

.budget

vat:1.175

# The Current Inventory/Orders System 3

- Data held in a postgresql database
- Web access for queries via <http://ordershost.inf.ed.ac.uk/>
- More complex queries require manual construction of the SQL queries
- Some checks done against data obtained directly from hosts

# Pitfalls and Problems 1

- Equipment purchases have not always been recorded on the orders database (e.g. institutes have ordered computing equipment directly)
  - 220 records in LCFG have no corresponding item recorded in the School database
- More commonly (for laptops) no serial number recorded at all in LCFG profile
  - 338 records in LCFG have no serial number

# Pitfalls and Problems 2

- Human error in recording correct serial number in LCFG profile
  - I have corrected a large number in the process of cleaning the data
- EEPROM values missing or incorrect
  - 40 have missing data
  - 7 have incorrect data
- Beowulf nodes not in LCFG inventory and their LCFG server doesn't publish inventory data



# An Evolutionary Strategy 1

- The new system is being introduced in parallel with the existing system with synchronized data
- Functionality is being developed without disturbing the old ways of doing things
- Get benefits of new system as they become available without losing any functionality from the old
- Once the new system is mature enough we can drop the old system

## An Evolutionary Strategy 2

- Order data is automatically translated from the custom format to the XML format as it is added and updated (and vice versa).
- Data for the orders in XML format is now automatically synchronized with data held in the School database that holds data on orders, items, locations, people etc
- Can query the database using the TEC GUI or using scripts like inedit from the command line
- Reports can be generated

# 'Life Cycle' of Inventory Records – DICE 1

- Order placed
  - details of order and items ordered entered using standard form
  - details automatically transferred to database
- Order arrives
  - record arrival date and serial numbers of equipment on form
  - existing item records automatically updated

example order:

<http://ordershost.inf.ed.ac.uk/xml/ikb0153.xml>

# 'Life Cycle' of Inventory Records – DICE 2

- Desktop installation
  - profile created (hostname and MAC address specified)
- *client-report* runs
  - details of hostname, serial number and MAC address (plus make and model) reported centrally to ordershost
  - then transferred to School database
- switch reports analyzed
  - Data on which MAC address seen on which port used to automatically note the location of networked computers and record any change in location

# 'Life Cycle' of Inventory Records

## Networked 1

- Order placed
  - details of order and items ordered entered using standard form
  - details automatically transferred to database
- Order arrives
  - record arrival date and serial numbers of equipment on form
  - existing item records automatically updated
- example order:  
<http://ordershost.inf.ed.ac.uk/xml/ikb0413.xml>

# 'Life Cycle' of Inventory Records Networked 2

- Manual update
  - hostname and MAC address specified via command line tool (invedit)
- switch reports analyzed
  - Data on which MAC address seen on which port used to automatically note the location of networked equipment and record any change in location

# 'Life Cycle' of Inventory Records

## Non-networked 1

- Order placed
  - details of order and items ordered entered using standard form
  - details automatically transferred to database
- Order arrives
  - record arrival date and serial numbers of equipment on form
  - existing item records automatically updated

# 'Life Cycle' of Inventory Records

## Non-networked 2

- Manual update
  - location specified via command line tool (invedit)



# LCFG Sysinfo Data

Inventory data is currently held in the LCFG profiles (e.g. `inv.model`, `inv.sno`, `inv.location`, `inv.owner`, `inv.allocated`)

Much of this will shortly be mastered in the School database and exported in per-machine header files so that it will not be manually entered into the profile.

# Table Definitions 1

- Existing tables are:
  - order,item, system, part, hostname, software, location, (department, grant, type)
- Table definitions are published on the web at [http://www.dice.inf.ed.ac.uk/doc/database/dm/cluster/CLU\\_DAI\\_INV.html](http://www.dice.inf.ed.ac.uk/doc/database/dm/cluster/CLU_DAI_INV.html)

# Table Definitions 2

- Future changes:
  - new switch port table showing switch ports and the locations they are linked to
  - new port-use table linking switch port to MAC address

# Complex *ad hoc* Queries – the TEC GUI

- TEC is a GUI that allows access to any single table in an Ingres (and other) database
- One can also more importantly define *custom forms* that allow one to query, edit and add data from several joined tables
- It is the GUI used by staff for accessing the School database
- There is full support under DICE for the TEC GUI for Ingres
- It is being developed for postgresql