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Inventory System

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- The current inventory/orders database
- Requirements for a new inventory system
- Orders as structured data
- An XML document type for an order
- Some benefits of using XML
- An evolutionary strategy
- Complex *ad hoc* queries – the TEC GUI
- Table definitions

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, 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

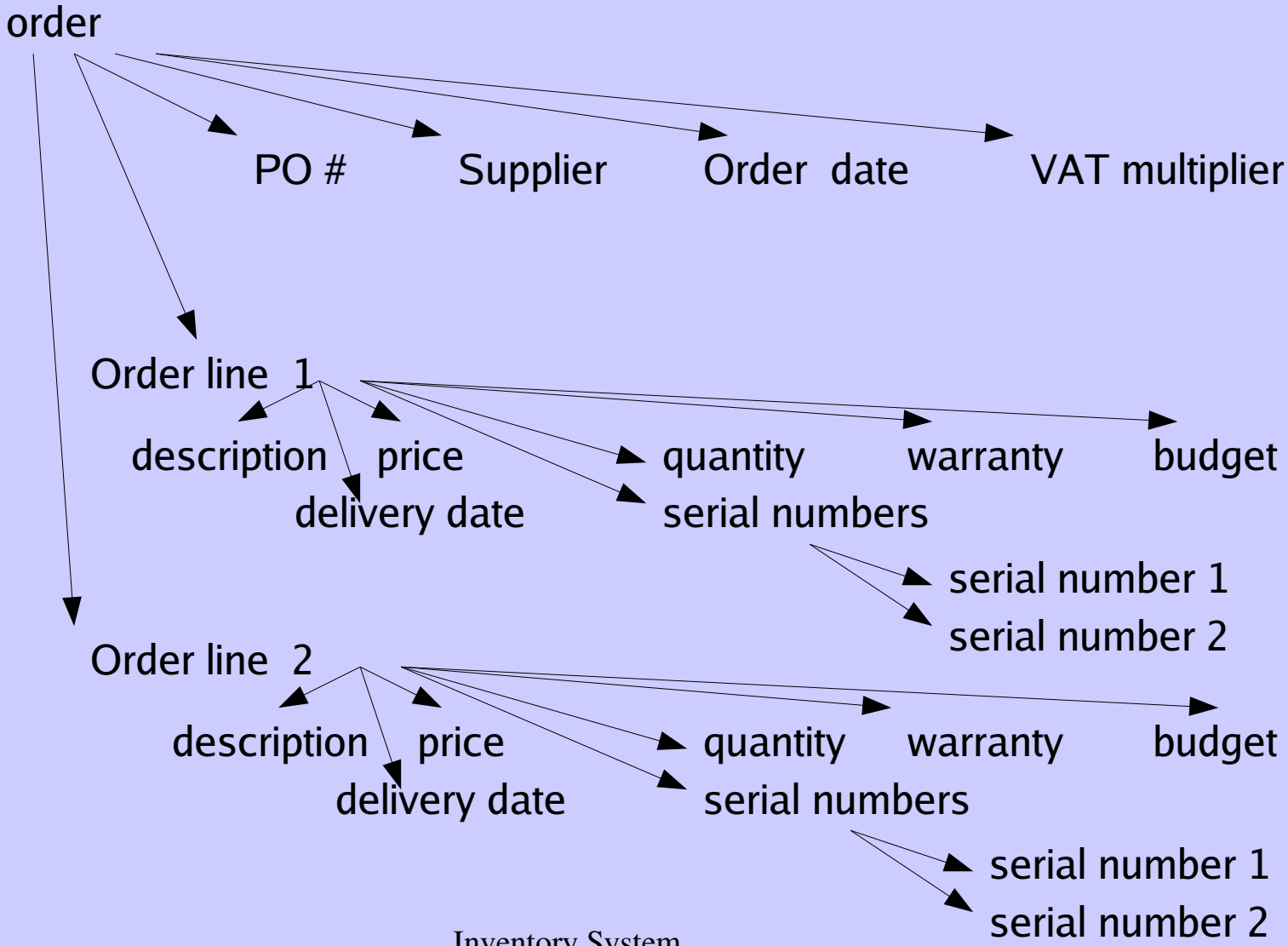
Requirements for a New Inventory System

- Meet requirements for auditing value, location and disposal of equipment (WEEE directive)
- Hold information so that complex queries can be made of the data
- Adequate authentication and authorization
- Easy to add data for multiples of the same item from a single order
- Validation of data entry
- All data in one database

Orders as Structured Data 1

- Orders contain common data that applies to the whole order: PO #, order date, supplier, VAT multiplier
- Orders also contain one or more order lines for various items
- Order lines contain: item description, price, quantity ordered, warranty, budget charged
- The existing data for an order line is also used to store delivery date and zero or more serial numbers

Orders as Structured Data 2



An XML Document Type for Order

- XML is now the standard way of representing data structures within a flat file in a form that is both human and machine readable
- Documents can be verified as complying with the corresponding document type definition (DTD)
- I have chosen to represent constrained values as attributes of elements
- I have specified a style sheet for the order document so that it can be displayed in a more user friendly way

An XML Document Type for Order

- inforder.dtd
  http://homepages.inf.ed.ac.uk/ktd/inforder.dtd
- inforder.xsl
  http://homepages.inf.ed.ac.uk/ktd/inforder.xsl
- A small order current custom format
  http://homepages.inf.ed.ac.uk/ktd/small_order.cu
- Same order in XML format
  http://homepages.inf.ed.ac.uk/ktd/small_order.xr
- And then with the above stylesheet
  http://homepages.inf.ed.ac.uk/ktd/small_order.xr

Some Benefits of using XML

- Using open standard
- Best practice for representing data in a human readable format
- Lots of existing support in software for parsing, and verifying the correctness of the document
- Was able to develop software quickly for processing the data from the XML file
- Currently looking at xmlcopyeditor as a possible open source XML editor

An Evolutionary Strategy 1

- Plan to introduce the new system in parallel with the existing system with synchronized data
- Can develop the functionality 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

- Translate order data from the custom format to the XML format.
- Translate the order data from XML format to the custom format.
- Synchronize the data for the orders in XML format with data held in a database that holds data on orders, items, locations, people etc (e.g. the School database)
- Query the database using the TEC GUI
- Generate reports using gurgle

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

Table Definitions 1

- Existing tables (from old Department of AI inventory):
  - item, system, part, hostname, software, location, (department, grant, type)
  - http://www.dice.inf.ed.ac.uk/doc/database/dm/cluste
- New table:
  - order
    - order@
    - supplier
    - date
    - vat

Table Definitions 2

- Changes to existing tables:
  - item
    - warranty, warranty date
  - system
    - MAC, owner
  - hostname
    - manager, person@ (allocated), OS

Table Definitions 3

- Possible/probable other 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
  - Add special field to item table to record the order line and item count corresponding to the specific item (currently held in comments field)