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**APM**

## **Equipment procurement strategy**

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### **Abstract**

There is a need to purchase certain equipment to progress technical tasks in hand and new work about to start.

Reorganisations in which APM is involved provide a strategic context in which equipment procurement is to take place.

This document contains the strategy and recommendation for purchase of equipment.

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# 1 Overview

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## 1.1 Need

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There is a need to purchase certain equipment to progress technical tasks in hand and new work about to start.

Reorganisations involving APM provide a strategic context in which equipment procurement is to take place.

Note: The details of the reorganisation needs more discussion by the gang of six.

## 1.2 Activities

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The key activities of the three parts of APM are:

- ANSA: Develops infrastructure for distributed interactive multimedia information systems;
- Object Lab: Develops applications and demonstrations in a vendor neutral context, thus fostering uptake of distributed object technology in a wide range of industries and markets;
- Consulting and training: Is involved in innovative projects, consulting and training directly for customers, based on advanced ideas developed in ANSA and vendor neutral proof of concept in Object Lab.

## 1.3 Management summary

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In the long term we aim at:

- ANSA: high speed LAN and UNIX systems enabled for multi-media, high performance and broadband communications;
- Object Lab: a high performance Internet connection with
  - a maintained web and ftp server;
  - a UNIX environment with lower performance than needed for ANSA;
  - a managed PC (Windows95) network with a standard software profile;
  - a managed server environment, either Windows/NT or OS/2;
  - depending on customer demand, a Mac (network);
- Consulting and Training: a mix of equipment appropriate to the tasks in hand and customer demand;
- Software: Document preparation: both Framemaker and Word (.MIF and .RTF) are to be supported.

Note: It is unclear from Richard Soley's feedback (28/6) whether every document should be available in both formats.

**1.4 Change history**

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Version 01: produced by RvdL/AJH/DME 15/6/95

Version 02: Comments from Richard Soley (28/6/95) included.

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## 2 Detailed strategy

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This chapter describes the detailed strategy for each of ANSA, Object lab and APM's consulting and training business.

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### 2.1 ANSA

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#### 2.1.1 Hardware

- Target: high speed multimedia LAN.
- Network: We aim to delay purchase of an ATM network until prices come down and choice increases. In the interim point-to-point ATM connections can be purchased. The current ethernet suffices and should be replaced by high speed MM LAN in one go, not in a piecemeal fashion.
- Network nodes (workstations): these should be high performance workstations with large local memory and large local disks to deal with multi-media data. Initially UNIX will be chosen as this is most relevant to things like Mbone, dpe platform, and server environment. SUN SS20 have a sufficiently large bus and cards to add ATM and AVA can be purchased later. Solaris allows RT programming. PowerPC PCI is not yet seen as sufficiently mature.

#### 2.1.2 Services

- Backup: is currently distributed over several machines. This is seen as safe and is in any case dictated by media capacity.
- Printing: the current situation is satisfactory and no large expansion is foreseen.

#### 2.1.3 Documents

FrameMaker: upgrade to V5, to give us HTML generator capabilities

- advantages:
  - UNIX, PC, MAC versions interwork
  - OMG technical wordprocessing package of choice
  - document management tools work (batch processing Frame documents)
- disadvantages
  - lack of filters (input and output) as standard (even third party supplied filters don't work)

#### 2.1.4 GUI

X11R4, not worth updating to R5 or R6

## 2.2 Object Lab

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### 2.2.1 External Network

Object Lab needs a high quality electronic interface to serve its large constituency of clients. It also needs a way in which Framingham and Cambridge can be connected with a WAN.

#### 2.2.1.1 Customer services

To satisfy the demand we need:

- a fat Internet pipe (128k fibre as a starting point as this is easy to upgrade);

Note: We need to investigate cost options to see whether an upgrade of the existing Internet link should be done in one leap or in several smaller steps.

- a big maintained UNIX server on outside perimeter;
- an ethernet bridge which stands up to increased traffic;
- documents will need to be served in a variety of formats:
  - HTML and Postscript format for display and dissemination (not passing on source texts);

Note: Richard Soley to investigate Adobe's PDF viewers for web browsers.

- FrameMaker, MIF, Word and RTF in cases where source text can be passed on.

#### 2.2.1.2 Internal WAN

To allow optimal cooperation between Object Lab in Framingham and Cambridge it will eventually be necessary to install a WAN which can effectively connect both LAN's. This is specially needed for joint development and testing. In the short to medium term we will have to cope with e-mail and mutual ftp accounts for document and code exchange.

### 2.2.2 Internal network and nodes

To mount a good mix of applications and demonstrations, a mixed environment is required. This means a UNIX and a PC network for development and demonstration (and depending on customer demand, a Macintosh for the preparation of multimedia documents and testing).

- a network of UNIX workstations: these are non-critical and older or modestly sized systems can be employed. Many of the existing ANSA workstations (specially SS2s and SS3s) fit this description.
- a network of PC's (Windows95) as client systems and WindowsNT or OS/2 based server machines: this should sport printing, file service and backup facilities. The programming environment is likely to be Visual C++. OLE capable in the near future. It should be possible to take some of these machines with a portable ethernet for external demonstrations.

Note: Both networks will of course run over the same physical ethernet LAN.

- depending on customer demand, Macintosh and MacOS can be added: a small network could be planned with support for printing, file service, and backup. AudioVisual equipment and a scanner could be added. Extensions to allow video conferencing are also possible (CU-SeeMe).

Note: Richard Soley is pessimistic on the demand for Mac's.

### **2.2.3 Development environment**

To develop applications and demonstrations Object lab will require tools. The following is a brief list of requirements on such tools:

- must allow a physically distributed development team;
- object based or object oriented;
- include issue and version control;
- separate build and version control process;

## **2.3 Consulting and training**

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This will be mostly based on PC (Windows95, NT) and Mac and anything appropriate for the client involved.

Training: in short term low end UNIX stations (even Xterms) are acceptable.

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## 3 Immediate needs

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We have several places where work is being slowed down or unable to start due to equipment needs.

The following brief list contains the prioritised items:

- **Internet link:** our current link is virually saturated. The recent addition of anonimous ftp will be adding to trafic once we put more information there.
- **WindowsNT workstation:** the current machine has many shortcomings: low on memory and performance, no NFS, bad screen, poor graphics resolution, no sound. The new multimedia applications need all this. A replacement is more economical than an upgrade (taking effort into account too). We can just about complete the /RT work with the existing set up (which has been upgraded to WindowsNT 3.5) but due to lack of ftp it will be slow merging UNIX and WindowsNT trees and debugging.
- **Sun disk space:** several older Sun workstations have are running out of adequate disk space. Current solution is to mount disks of other machines (this is satisfactory in the short term only). A 500M disk pack costs around £600.

Note: Buying direct in the US may save money.

The following items appeared at the top of the list, but have now either been satisfied or delayed for the stated reason:

- **JAB Mac disk full;** requires additional external storage -- *approved*
- **Solaris:** needed for AEG work, testing Java, and we need to do a port of ANSAware/RT onto Solaris for AEG. -- *purchased*
- **Mac back-up:** the current system is patchy with several solutions, none of them satisfactory. Networked backup is too slow and insecure (MCI). *Given the low priority on Mac's in Object Lab, the current patchy situation is to be prolonged.*



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## 4 Recommendation

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Given the context sketched in chapter 2 and the immediate needs described in Chapter 3, the following recommendation for the purchase of equipment can be made:

- upgrade the Internet link; specification below;
- delay purchase of PCs with WindowsNT until OL agreement can be achieved; start from a specification as given below.
- prioritise agreement on wordprocessing and other software within ANSA/OL/SCL

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### 4.1 Internet link upgrade

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Approximate cost 10K£/annum (currently 6K£/annum)

Upgrade cost to 64Kbps £2K

Required is an upgrade to 128k fibre based.

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### 4.2 NT workstation specification

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Approximate cost: £3.5K?

Proposed configuration:

- Processor: Pentium 90MHz +
- Memory: 24Mb
- Hard Drive: 1G
- Network:: Ethernet card
- CD-ROM: Guaranteed White Book/Video CD compatible
- Bus slots: PCI
- Audio: 16 bit digital sound, 8-note synthesizer, MIDI playback
- Graphics: Fast, 24 bit TrueColor graphics card, e.g.. DIAMOND Stealth 64Dram card
- Monitor: Non-interlaced, 0.28mm dot pitch, 1280x1028 min res, low radiation (MPR II standard)
- Back-up: SCSI controller card
- OS: Windows NT 3.5 (or 3.51), Windows 3.1

### **4.3 Software**

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#### **4.3.1 FrameMaker 5**

- UNIX (8 licenses)
  - upgrade to version 4 £3120
  - maintenance to V5 £2295
- MAC
  - upgrade to version 4 (£159 / machine); maintenance to V5 £99 / machine
- Windows
  - purchase £500?

#### **4.3.2 Software development tools**

Note: needs an investigation