Costing IT Services

Stuart Lee and Michael Fraser
Oxford University Computing Services

Overview

- Why cost IT services?
- A simple model
- Costing IT Services using TRAC
- Cloud Computing and Costing
- Conclusions

"...the costs of many in house services are not clear. This may be due to budget allocation (e.g. IT, Estates and Finance) or the treatment of sunk costs (frequently for both facilities and staff). Together with the move from capital to operational expenditure, this makes direct comparisons of in house and cloud solutions more difficult."

-- *UCISA Cloud Computing Briefing Paper*, 2011

Why cost IT services?

- Increasing need for transparency of central services and costs;
- Ability to demonstrate value for money (or otherwise) of in house vs out source/cloud based;
- Increase in ‘charge back’;
- Assists in monitoring performance internally.

Allows you to

- Say how much a service costs;
- Consider costs of changes to a service;
- Work out charging for service;
- Compare costs with market rate;
- Compare costs with external supplier;
- Compare central costs with devolved local provision;
- Work out ‘overheads’.
- Etc;

A simple system

- Assign each service a cost centre:

Cost Centre	Service
abcd001	VLE
abcd002	Email/Calendaring

- Within cost centre keep a track of expenditure – equipment, payroll, other …
- Base payroll on a staff allocation matrix:

Staff	abcd001	abcd002
M. Fraser	40%	60%
S. Lee	90%	10%

This then leads to …

- Cost of service is then the cost centre (or cost centres) plus overheads:

Services	Cost	Plus o/h e.g. 43%
Backbone	430k	620k

- A mapping between cost centre(s) and list of services (and a service catalogue).

But …

- Is this really very accurate? Are all costs recorded and allocated correctly?
- How do we show dependencies of services on other services (and the cost thereof)?
- Shouldn't we be including costs across the University – the TRAC concept?

JISC Flexible Service Delivery Programme

- To assist universities investigate and overcome barriers to adoption of flexible/shared services.
- Oxford participated in the Strategic Technologies Group, with three projects:
  - Postgraduate Research Administration Module;
  - Proposal for a centrally managed assessments management system;
  - Proposal for a pilot application of costing models for IT services (Stuart Lee/Michael Fraser) – Jan – July 2010, £25,685).

Methodology

- Work with Melanie Burdett, J M Consulting Ltd;
- Understand existing accounting procedures;
- Understand Oxford's IT environment;
- Meet with IT service managers (e.g. to understand dependencies);
- Develop principles, service profiles, included/excluded costs, drivers of usage;
- Output: Toolkit for Costing IT Services.

Toolkit for costing IT services – Summary

1. Agree purpose of costing exercise;
2. Agree service(s) to be costed and attributes;
3. Agree what costs to be included (FEC or only part?);
4. Establish costs (identify dept costs, direct service costs, dept admin costs etc);
5. Identify capital equipment costs;
6. Attribute IT infrastructure costs to service(s);
7. Establish estates costs;
8. Estimate relevant central service costs;
9. Report costs and any measure of usage;
10. Understand how costs will change (e.g. volume of use, level of service...).

Example: Help Desk

- Applied to three services;
- Came up with 3 models – existing, partial, and full (did not include full University overheads);
- Worked out dependencies of services on help desk (and v.v.):

Service	Existing (£k pa)	Partial (£k pa)	Increase
Help Desk	320k	350k	8%

Example 2: Local Unit's 'Exchange service'

- Costing – server, software, licences, staff time;
- Direct cost = £1,100 (c. 70 users);
- Partial model:
  + dept overheads;
  + central IT services dependencies;
  + central admin costs;
  = £1,750.
- C. £25.00 per user compared with c. £12.00 per user centrally.

Costing & Cloud Services

- Comparing costs may be difficult – not like for like;
- Cloud-based services usually a 'slice' of the overall institutional service (e.g. storage, compute; SaaS applications);
- Your carefully articulated but complex costings may simply translate to a single price;
- Price (your cost) may increase/decrease in realtime based on usage metric (AWS example: "Total Byte-Hour usage= [107,374,182,400 bytes x 15 days x (24 hours / day)] + [109,951,162,777,600 bytes x 16 days x (24 hours / day)] = 42,259,901,212,262,400 Byte-Hours...");
- Hybrid *services* (not simply hybrid clouds).

Costing & Cloud Services

- Culture of Cloud encourage users to consider the price of everything;
- Emerging private and hybrid cloud platforms within institutions;
- Knowing the costs of in-house services gives potential for consistent, usage-based pricing to departments irrespective of cloud location;
- The 'first *n*GB free' is now a familiar model;
- Real difference will likely be the transparency in pricing model for elements controlled by institution;
- Challenge may be the extent to which transparency applies beyond the institution.

Case study: backup

- "Why not backup to the Cloud?" (Budget Committee, 2010).
  - Establish what lies behind the question (cost of meeting capacity);
  - Define metrics (total data (1PB); data transferred per day (7TB); versions (3)...);
  - Define price metric common to in-house and cloud;
  - Using recurrent service costs, price at GB per month (£0.15);
  - Compare with external services using published prices (ULCC, £1.50 per GB per month; Amazon, $0.095 per GB per month + transaction/bandwidth charges ($0.10 per GB per month);
- In reality case is about comparing quality of service and e.g. technological approach.

Case study: Shared Data Centre

- New data centre offering colocation and virtual infrastructure services on cost-recovery basis
- Efficiency gains (70%) when fully occupied (saving ~£55k on 125KW IT load in 50% efficient centre)
- Baseline opex: £124K translates to £382 per rack/month (50% use), to £200 per rack/month (100% use) + energy. VI has additional hardware & licensing fixed costs.
- Colocation: estimated £4,900 per m^2 – small 5 rack facility >£118k. Fully occupied data centre saves >£1.2M (so long as university-wide view taken)
- Challenge is to find credible cost comparisons between central and local facilities and a price the 'market' will bear.

Case study: Shared Data Centre

- Not sufficient to compare monthly costs for colocation or virtual infrastructure with e.g. Eduserv or Amazon
- Therefore, subsidy options being considered to reach efficiency gains quickly:
  - Option 1: Just the base cost to run the room (with nothing in it) - all other costs recovered from users;
  - Option 2: The base cost plus the cost of cooling the room leaving just the electricity used to run the IT equipment to be recovered;
  - Option 3: The total cost - a "free" facility;
  - Option 4: The base cost with energy subsidised to 1.5x (i.e. efficiency of room when full).
- Similar discussions within e.g. UMF/JISC-funded shared services and cloud programme.

Challenges

- Knowing purpose of costing is key (to decide what to include/exclude, identify risks)
- Service dependency is ubiquitous and thus costs for one service are often hidden within the costs of another
- What should change about the existing costing model, and how?
- Greatest benefit derived from model if widely used, not just for central IT service

Opportunities

- Toolkit enables greater transparency of costs (including 'overhead' costs, dependencies and other 'shared services')
- Using familiar methodology and formulae
- Has potential to compare costs between central, local and external services (and pricing – as supplier or consumer)

Report

http://projects.oucs.ox.ac.uk/costingIT/

Questions?