

# Developing a New IT Funding Model for Campus-wide Infrastructure and Services

## Interim Progress Report to the Provost - DRAFT FOR DISCUSSION

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### Executive Summary

An IT funding model based on sales can no longer generate the revenue required to meet the demand for necessary IT infrastructure and services at UBC. The cost of existing campus-wide IT infrastructure and services exceeds available funding by \$6.4 M per year. This figure assumes continued fee-for-service (sales) income at current levels. For the past decade central IT revenues have remained unchanged and have declined in real terms when inflation is taken into account. During this same period there have been significant increases in the scope and scale of key infrastructure and services that are used by virtually all UBC stakeholders. In accord with University financial policy, these necessary costs have been covered by the department's unrestricted reserves while such reserves existed. UBC IT has now exhausted these reserves and urgently requires funding to cover the cost of existing campus-wide services at current levels.

IT managers in academic and administrative units have expressed the need to enhance some services, notably the UBC Data Network, beyond current levels. In addition, a preliminary list of possible new services is being developed but is incomplete and has not yet been reviewed by the IT Steering Committee (ITSC). High-level cost estimates for these new or enhanced services total \$5.7 M and could go higher.

The UBC Data Network illustrates the University's ability to operate large scale IT infrastructure that meets end user needs and is both flexible and cost-effective. Applying a similar model to other services – such as server virtualization, storage, software licensing, and others – should result in efficiencies in units across campus. A feasibility analysis to determine the potential for direct cash savings, increased efficiencies, and flexibility in units across the University is underway but incomplete. However, preliminary estimates of the direct and indirect savings through server virtualization are \$3.4 M over three years, not including a reduction in carbon footprint and other potential benefits.

The recommendations in this interim report address urgent issues and lay the groundwork for ongoing consultation to develop a sustainable IT funding model for campus-wide infrastructure and services. Our goal is to have the new model in effect for the 2010/2011 academic year.

### Highlights of IT Funding and Service Delivery at UBC

Starting in the mid 1980s, UBC distributed most of its central computing resources (many of the staff and most of the money) to academic and administrative units. The remaining central computing operation was converted into an Ancillary unit, defined by the university as an operation that is “fully self-sufficient and receives no direct or indirect subsidy from the University.” Departments had some freedom to allocate their IT funds as they wished, although in some cases there was no practical alternative to spending them with central IT.

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### Central IT in 1999/2000

Ten years ago the central IT department's approved budget included \$22 M in annual revenue, most of which came from the sale of services such as telephones and network backbone connections. The unrestricted reserve was \$5M. Total staff headcount was 160.

During this period the demand for new campus-wide IT infrastructure and services was increasing at colleges and universities across North America. UBC was no exception. However many of the emerging needs could not be met through the sale of services. The central IT department allocated a portion of its existing reserves to self-fund several new services on a pilot basis. Key indicators of the success of a pilot included the level of its adoption and feedback on how well the pilot service met end user needs. The expectation was that successful pilots could be developed into sustainable campus-wide services that would be eligible to receive adequate central funding based on their demonstrated value. Among the successful pilots were:

- The e-Learning service, based on WebCT Campus Edition
- The myUBC web portal, based on the community source software product uPortal
- The Campus Wide Login (CWL) authentication service, which was developed internally

At the start of the decade the UBC data network comprised approximately 10,000 active data ports. There was no wireless connectivity. The central IT organization retained responsibility for the university backbone network with no central funding. A "backbone" fee covered the cost of connectivity between buildings but not within them. Units wishing to connect to the backbone were required to pay a one-time connection charge plus this annual fee. Departments made independent decisions about local networking infrastructure technology. They determined the type of equipment they would use and who could connect to their local network. Some departments invested heavily in local networking while others did not. Some units were unable or unwilling to pay the annual backbone fee. These factors resulted in poor campus-wide connectivity that had increasingly negative impacts on the research, learning, and administrative activities of the University. To address these problems with campus connectivity, the University Networking Program was launched in 2000.

### Central IT in 2004/2005

Five years ago, the central IT department's budgeted annual revenue was \$22 M. The unrestricted reserves totaled \$3.5M.

The University Networking Program (UNP) - a four-year \$30.6 M capital project to upgrade or install 25,000 data ports – had been completed on budget and six months ahead of schedule in September 2003. Originally scoped as a "wired network" project, most of the program's contingency funds were reallocated to launch a campus-wide wireless network of 1,000 access points. At the time it was the largest university wireless network in the world and was cited by new students as an important contributing factor in their decision to come to UBC. From 2000 to 2003, the central IT department allocated approximately \$6 M from reserves and operating income to UNP. Other funding sources

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included CFI (\$8M with matching funds), Minor Capital (\$3M), a Faculty contribution (\$2.6 M) and an internal loan (\$11 M) that was authorized by the University executive group.

A new data network funding model was approved by the Deans and Executive. The purpose of the new funding model was to ensure appropriate life-cycle management and sustainability of the infrastructure, including local or “edge” equipment. Some GPO funds were reallocated from UBC units. However, those funds did not cover the full cost of the data network, necessitating a continued internal subsidy from sales revenue.

During this same period, the Organizational Effectiveness Program (OEP) was underway within the central IT department. Its goal was to increase effectiveness and efficiency. Among the outcomes of the OEP were:

- Closure of the central printing service (imPress)
- Headcount reduction of 25 (from 160 to 135)
- Organizational restructuring to improve service delivery
- Internal process improvements, notably in project management and change control

The central IT department also completed a successful program of 35 projects to support the launch of UBCO. One-time GPO funds were provided for this program, but total costs exceeded funding. The balance was self-funded by IT using available reserves.

The e-Learning service had grown to 1,500 active courses and 25,000 active accounts. Central funding of \$60 K per year had been allocated. The total cost to operate the service was approximately \$300 K per year. The current generation software had reached the end of its life-cycle and had become increasingly unreliable due to the high level of usage. A special task force was formed to address future directions in course management systems. (The task force became a standing committee, now known as ECMA.)

By 2004/2005, the myUBC portal was being accessed by 15,000 people per day. CWL authentication services had been deployed to major information systems. IT security issues had become very challenging. SPAM and computer viruses were a growing problem at UBC and elsewhere. The central IT department negotiated a campus-wide license for the leading antiSPAM/virus software (Sophos) which has proven highly effective in dealing with SPAM and viruses. The department self-funded the \$130,000 annual cost of the license.

### **Central IT in 2009/2010**

This year, UBC IT’s draft budget submission projects revenue of \$21.8 M (assuming sales revenues based on the current pricing model). Costs are projected at \$33.9 M, leaving a shortfall of \$12.1 M.

The shortfall is the result of three major drivers, the first two of which reflect the cost of existing services at current levels: \$2.75 M to sustain the UBC Data Network (the funds that were committed for this purpose have not been provided) and \$3.65 M for necessary infrastructure and services that cannot be funded through sales. (These include myUBC, CWL, AntiSPAM/Virus, virtual storage, virtual servers, VPN, directory services, security firewalls, and others.) The third driver is the need for new services that

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have been proposed as useful or necessary (but not yet reviewed by the IT Steering Committee). Preliminary cost estimates for these possible new services total \$5.7 M. The list includes improvements to IT security and Identity Management, campus-wide Microsoft software licensing, converged communications, project management services, architectural roadmaps for UBC's major information systems, events calendar, business continuity planning, and a feasibility assessment for a possible campus-wide data warehouse.

The department's unrestricted reserve, which had been used for operational funding, has been exhausted and will be in deficit by the end of the 2009/2010 budget year. Total headcount remains at 135.

Today, the UBC Data Network comprises 50,000 active data ports and 1,700 wireless access points. Central staffing to support the network has declined by 1.5 FTE since 2004. A major upgrade of e-Learning services (WebCT Vista) is nearing completion. The service supports 3,000 active courses and 42,000 active accounts and continues to grow rapidly. CWL authentication service supports 110 systems with approximately 262,000 accounts. A new Campus Events calendar was launched in 2008 and is widely used across campus.

UBC is leading the development of a next generation student system (Kuali Student). UBC has approved a \$9 M investment that is leveraging \$30 M from other institutions and \$2.5 M from Andrew Mellon Foundation. Other campus-wide information systems are in varying stages of their life-cycle and will require ongoing investments as well as improved governance to ensure they deliver expected end-user benefits.

### Summary of Highlights

In the decade since the 1999/2000 academic year, the central IT department's annual revenues have declined in real terms. Today, the department supports a data network that is five times larger and significantly more complex than it was ten years ago. Fully 25 fewer people are providing highly-scaled services that the campus community relies upon to do their daily work. These services mirror those that are available at other universities in North America. However, a cost-recovery model based on sales can no longer generate the revenue required to meet current demand for key IT infrastructure and services.

### External Review of IT at UBC

Recognizing the strategic enabling role of information technology and the disabling effect of UBC's funding model for campus-wide IT infrastructure and services, the Provost commissioned an external review of Information Technology at UBC. The review, which was completed in August 2008, identified some serious systemic IT issues. These included the need for a new funding model, improved governance, and a redefined the role of the CIO.

The external review report stated that:

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“UBC must position information technology as a key element in its strategic thinking, planning, and implementation. In the process of so doing, the University’s central unit, UBC IT, must be viewed as a “strategic enabler” not only for the success of information technology, but also in order to ensure the achievement of the University’s overall strategic objectives.”

After outlining the negative consequences of the current IT funding model, the report stated, in Section 3, Funding of Central IT Infrastructure, Applications and Services:

“The degree to which there is a lack of adequate funding to sustain the IT infrastructure of UBC, and the negative consequences of the current funding model have reached a critical point. Serious system failures and security intrusions will occur that will damage UBC’s ability to achieve its mission, as well as damage its reputation and ability to attract top quality faculty, students, and staff, or to be considered a reliable partner to peer institutions.

“UBC is already behind in a very high-risk area and given that major changes in administrative policies, processes, procedures, and practices take years to fully implement, we recommend that the UBC administration:

- ***“Recommendation 6: Immediately restructure and/or completely replace the current funding model for UBC IT and other central information technology infrastructure and services.”***

### Developing a New IT Governance Framework

In September 2008, the UBC Executive and the UBCV Deans endorsed a governance framework to create a new funding model for campus-wide IT infrastructure and services.<sup>1</sup> Two working groups were established to develop the new model and create a transition plan. A strategically focused IT Steering Committee (ITSC), whose members were nominated by their Dean or administrative head, now provides senior level oversight to the process. These teams currently are meeting frequently in order to provide useful and timely input to the 2009/2010 budget and planning process, including this interim report.

Good progress has been made in a few short months, but the process of fully developing a new IT funding model will not be complete until later this year, and will require ongoing oversight by the ITSC to ensure the new model continues to result in high quality, flexible, scalable IT infrastructure and services. Although their current focus is IT funding, these groups can and should play broader roles in IT governance at UBC, including information systems and architectures.

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<sup>1</sup> Attachment I - Terms of Reference

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### Guiding Principles

The Financial Working Group has developed a set of principles<sup>2</sup> to guide the development of the new funding model. The principles are under review by the IT Steering Committee and are expected to evolve in concert with the development of the funding model through 2009 and from time to time thereafter to reflect future needs.

### Benchmarking and Best Practice Review

UBC is fortunate in having excellent relationships with universities across Canada, with many of the major research universities in the United States, and several in the UK and Australasia. These relationships are being leveraged to obtain accurate detailed information about the costs of IT infrastructure, services and systems at a select group of institutions. This information, some of which is sensitive or confidential, is enabling UBC to compare our IT costs with those of other universities. We intend to develop an ongoing program of regular benchmarking and reporting to the ITSC. Benchmarks will be posted on a public website while respecting the confidentiality of our partners' data.

Establishing meaningful benchmarks requires care due to variations in the ways that different institutions allocate their costs. However, we are confident that we can work through those details to report relevant and accurate comparative information. This process is of as much interest to the other universities as it is to UBC.

Early results of benchmarking the costs of UBC's Data Network show that we compare favourably to our peers.

We will also work with select partner schools as well associations such as the Canadian University Council of CIOs (CUCCIO), EDUCAUSE, and the Research University CIO Conclave (RUCC) to complete targeted best practice reviews. This will be particularly important in areas where UBC is not aligned with best practice.

### The IT Service Catalogue

A preliminary list of campus-wide IT infrastructure and services – called the IT Service Catalogue – is being developed. Using non-technical language, the catalogue lists the services that are provided today, and others that are necessary but are not presently available.

From an end user perspective, the service catalogue will become a searchable on-line resource that describes IT services that a person may wish to request or use. If the request requires approval or other service management steps, it can be routed accordingly. The person requesting the service can check its status and overall metrics on how well the service is being delivered. One example is the process to provision a new employee with a telephone, network connection, computer, CWL identification, and group permissions to information systems or security credentials.

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<sup>2</sup> Attachment II – Guiding Principles, Draft for Discussion

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From an IT funding perspective, the catalogue will identify: services that should be provided centrally and funded centrally; services that should be provided centrally and funded on a fee-for-service basis; and services that should be provided locally. It is also a tool to assist with priority setting and, when appropriate, reallocation of funds between services based on evolving needs and infrastructure life-cycles.

### Potential Savings and Efficiencies

A high level analysis suggests that UBC spends approximately \$150 M per year on information technology. Further analysis is underway to identify potential savings in areas that were suggested by the Financial Working Group, including:

- Infrastructure, specifically servers, that can be consolidated in a “virtual” environment
- Software licensing, such as Microsoft products, common statistical packages, etc.
- Consolidated Email Service
- Maintenance contracts
- Professional fees (IT consultants)

We currently estimate that there are approximately 700 servers housed at UBC. In addition to the annual cost of depreciation and staff to support these servers, each device contributes disproportionately to the University’s carbon footprint. The University should be able to reduce overall costs – including direct cash-out-of-pocket and indirect savings realized through productivity gains – by “virtualizing” many of these physical servers.

A preliminary analysis of potential savings through virtualization of approximately 55% of the existing physical servers in academic and administrative units estimates \$1.190 M direct and \$2.189 M indirect savings over three years. This report has not yet been reviewed by our IT governance committees. The figures provided here are intended to indicate the generally expected level and nature of savings, subject to that review.

Another area of potential savings is professional fees. Financial records show that UBC spends approximately \$40 M annually on professional fees. However, it is difficult to determine precisely what portion of the total is spent on IT. A reasonable estimate, developed by manually sifting through transactions, is that the University spends \$6 M on IT consultants and contractors. We speculate that a substantial number of those contracts are for project managers and business analysts, in addition to more technical roles. Ironically, the ongoing need for these skills is easily identified, yet they are in short supply among the 480 professional IT staff employed by the University.

The average cost of an IT contractor is roughly double the average cost of an employee. It should be possible to reduce overall professional fees while investing in staff to perform the same or better quality and quantity of work. Annual direct savings of over \$1M per year appear to be well within reach, and

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would be accompanied by indirect benefits including fewer changes in project management staff over the course of projects, and staff with key knowledge remaining at UBC when projects are complete.

Analysis of these and other areas of potential savings is ongoing.

### Recommendations

The following list of seven recommendations is being submitted for review and the approval of the IT Steering Committee.

**1. *Change the financial status of UBC IT from an ancillary unit to a centrally funded unit.***

Funding for all campus-wide IT infrastructure and services should be based on the documented life-cycle costs necessary to ensure that each service provides the expected benefits to end users and that it can be sustained at the required level over time, until the service is retired. Many campus-wide services should be funded centrally. Some should be offered on a fee-for-service basis, with fees set to the lowest level that will cover all life-cycle costs. The level of central funding should reflect both the need for campus-wide infrastructure and services and the priority given to these needs by the IT Steering Committee. A framework to ensure transparent accountability, including key performance indicators and benchmarking, should be developed.

**2. *Sustain and enhance IT governance.***

Two working groups that were created to develop a new IT funding model (the financial working group and the IT managers working group) should become standing advisory committees within an evolving IT governance framework. Similarly, the IT Steering committee should become a standing committee to provide ongoing senior level oversight and advice on the need for campus wide services and infrastructure, and the priority that should be given to them. Other standing committees should be established to address other campus-wide IT infrastructure and services, such as information systems.

**3. *Develop an accountability framework to ensure campus-wide IT infrastructure, services and systems meet or exceed the needs of end users.***

The framework should evolve over time based on changing needs, starting with ongoing benchmarking and best practice reviews, and an annual report to the campus community.

**4. *Provide immediate continuing funding to support the UBC Data network.***

Additional sustained fund of \$2.75 M is required to sustain the UBC data network at current levels. This amount assumes the continuation of existing annual sales revenues of \$1.8 M from UBC ancillary units, students in residence, and external stakeholders, plus the current GPO allocation of \$2.1 M.



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**5. *Provide immediate continuing funding to support other existing campus-wide infrastructure and services.***

Annual funding of \$3.65 M is required to sustain existing services at current levels (in addition to the funding for the UBC Data Network in recommendation 4).

**6. *Continue to review and prioritize the need for new or enhanced services and infrastructure***

**a. *Improve the security of the UBC Data Network.***

Necessary security improvements such as virtual networks, virtual firewalls, and VPN service will require additional continuing funds that have not yet been estimated.

**b. *Develop a comprehensive online IT Service Catalogue that describes the campus-wide IT infrastructure and services, their costs, service levels, and how they can be accessed.***

The IT Service Catalogue will be developed and maintained using best practice principles such as those described in the ITIL<sup>3</sup> service management framework.

**7. *Develop a strategy for moving some services from fee-for-service to central funding***

**a. *Ensure that all UBC stakeholders have access to appropriate connectivity by eliminating the monthly per-port fees currently paid by UBC ancillary units and setting fees paid by students in residence to match the cost of providing the service.***

The additional cost of these enhancements is estimated at \$1.011 per year.

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<sup>3</sup> <http://www.itil.org/en/>