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Mobile Device Costs

UNIVERSITY of GUELPH

CHANGING LIVES
IMPROVING LIFE

Executive Summary

Request

The 2009 ISC Community Survey identified the rapid growth of wireless mobile devices including cell phones with data functions such as mail and calendaring and wireless connectors for laptops. The rising cost and support of these devices were concerns.

This investigation responds to recommendation 1c of the ISC Survey Report and summarizes an investigation of current costs and support effort at the University and identifies potential cost savings. Recommendations focus on an enterprise management solution that not only reduces cost but enables enterprise support of these productivity tools to maximize their value to the University mission.

This phase 1 report summarizes initial findings and recommends strategic directions. Phase 2 will address more detailed analysis and specific next step recommendations guided by adoption of strategic policies.

Findings

The University currently spends in excess of **$650,000** on mobile devices and services annually[1]. There are few practices to audit and control monthly fees and expenses. Savings of about **$200,000** are possible if the university adopts appropriate use policies to define which employees qualify for businesses of mobile devices and appropriate procurement and reporting processes are implemented to control costs. These savings can be directed towards an asset management solution that provides financial controls, optimizes support, and permits service planning.

Given the diffuse effort, it is not possible to estimate administrative costs in Financial Services, Purchasing, and local departments to review and post monthly billing, exacerbated by paper invoice processes. Some users and departments do periodic checks on billing accuracy, however more effort would be required to actively manage costs. Integration with the University Gryph Mail email and calendaring system is a valuable business productivity feature of mobile devices. Users with personally-managed devices are currently responsible for configuring and supporting their device connection to Gryph Mail. As mobile technology and the Gryph Mail system, continue to evolve rapidly, there is a continuing effort for users, departmental support staff, and central IT (CCS) support services. The large variety of mobile devices significantly increases the complexity of central systems and the support effort.

Security of sensitive information on portable devices is not explicitly handled by the current policy for encryption of data on portable devices. Some smartphone devices require specific integration with campus security. Without a specific security policy for these mobile devices, personally managed devices could pose a risk to University IT security.

Data devices incur additional support effort in CCS due to lack of device asset management information and lack of a specific University policy on mobile device support.

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[1] This does not include ongoing support costs.

Recommendations

University Strategy

Recommendation 1 – Policy on University-funded mobile wireless devices

that the University, recognizing the rapidly growing cost of mobile device services and their support, will adopt policies and administrative processes to clearly identify, track and manage these costs.

Recommendation 2 – Policy on University-funded mobile wireless devices

that a University policy be developed to identify faculty and staff roles/responsibilities which qualify them for university-funded mobile devices and wireless service, distinguishing a limited number of levels of service for voice-only and for productivity device support. Individual department heads would be responsible for implementing the policy. This policy would be assigned to CCS (part of telecommunications support) to review and revise regularly in conjunction with Financial Services and Purchasing.

Business Use Allowance

Recommendation 3 – Business Allowance for personal mobile devices

that, since personal use cannot be separately accounted, the University fund personally-owned wireless service to qualified employees through a <u>Business Use Allowance</u>*. Further investigation of an allowance plan is necessary to establish a policy (example in appendix 4) and rates.

Provision of Advanced Productivity Tools

Recommendation 4 – Productivity Device Support

that the University fund the provision of selected, fully configured, and secured, mobile devices to qualified employees. CCS would administer the program, working with Purchasing to obtain best service contracts. Cost of the device and service plan would be changed to the departmental budgets of the users.
The plan could provide three levels of service *(for example)*.

- Light email/calendaring use - low data volume; lower cost general purpose commodity cell phone; mostly user configured and managed; CCS limited support.
- Moderate email/calendaring/internet use – higher data volume; enterprise quality smartphone (e.g. BB); centrally supported/managed (e.g. BES server)
- Heavy/Specialized Data service use - higher data volume; smartphone with enhanced features (e.g. iPhone); co-managed by user and CCS – more personalized service.

Observations

Unobservable

"You can't manage what you can't measure."

Procurement and expense data from Purchasing and Financial Services is used to support general statements about mobile device use on campus. However, with missing information and different coding practices, the data required a lot of interpretation   Better asset management procedures would allow for a more detailed picture.

Unmanaged Costs

Currently mobile devices are considered personal productivity tools with individuals selecting their own equipment and service plans, paid for by the University. However, University administrative processes do not define appropriate use policies, support optimal procurement decisions, use policies nor track costs for accountability. In many cases, users are not aware of their actual usage and costs. Personal use is not distinguished. Departmental administration does not have the expertise and information to interpret and manage the costs.

- The result is a large and unmanaged cost to the University.
- Overall the University could reduce its **$650,000** expense by **$200,000** through active asset management and controlled procurement.

Unrealized Value

Although voice services could be user supported, many mobile devices are supported with data services.   The limited understanding of user devices and configurations makes it difficult to plan integration with campus IT productivity tools, especially mail and calendaring. With a large number of device models, users must figure out their own devices. Central support for integration is very fragmented because of the number of vendors, device models, and configurations.

- Optimal value as productivity tools is not realized.
- Support costs are large with limited returns.

Security Issues

Smartphones with data service have the capacity to download and store information. In a business environment, this raises security concerns.

Devices with mail and calendaring connectivity do not increase security risk because email is inherently insecure. Policies concerning transmission of sensitive information via email would cover use of smartphones for email. Similarly transmission of sensitive information via web applications would be covered by institutional security policies.

However, the introduction of applications designed specifically to provide access to sensitive information from smartphones (including personal and financial information and some research data) can create security exposures unless managed "end-to-end". i.e. security controls need to be applied to the smartphone.

Currently only BlackBerry devices, managed with the BlackBerry Enterprise Service (BES) is considered secure for business use. Personally managed iPhones have an exposure risking sensitive data on a lost phone to a knowledgeable hacker (Apple has promised a solution). Exposures are also noted for personally-managed Windows Mobile devices.

Implementation of smartphone applications for business use needs more investigation to support policy development.

Information Analysis

Costs

The University spent about **$650,000** on wireless service in FY 2008/09.

- About **75%** of that expense was handled through the Rogers Government Plan, providing discounts for the voice portion only. For the rest the University pays commodity retail.
- **70%** of wireless phones now have data features and data service. The University is paying for data service at the full commodity price.
- Based on the Rogers Plan, **22%** of the phones are paid from trust funds; **4%** from ancillary.
- Many users are unfamiliar with roaming charges, for both voice and data. As a result plans are not appropriately selected and large bills appear after the use. User and departmental support staff education and cost control measures are required.

Savings

Because of the limited amount of data available, specific total savings cannot be calculated. However, from sampling, significant savings are possible through

- policies identifying appropriate devices for various business roles that need these productivity tools,   *Estimated savings: 15-30%*
- control of the complexity and variety of devices, targeting business systems integration and supportability, and   *Estimated savings: 20%*
- contracting for best enterprise service rates.   *Estimated savings: 15-20%*

Some Ontario Universities (e.g. Windsor, Waterloo) have reported considerable savings on wireless service through recent competitive procurement processes. Clear documentation of current assets and anticipated growth are key factors to consider. Several institutions have indicated interest in a consortial procurement approach, aggregating use for better pricing and reduced administrative effort. A common desire is to press the carriers for a suitable electronic billing system to reduce processing overhead and improve analytics and reporting. In order to participate in any consortial opportunities, we need to ensure we have a good understanding of our existing assets.

Accountability

- Although Purchasing has arranged enterprise pricing from a vendor, procurement decisions, including vender selection and plan configuration are left to the users and local administrator who have limited knowledge of cost optimization.
- There are no University policies on who is provided with a wireless device.
- There is no auditing of service pricing. When the vendor changes rates or plans, the savings are not automatically reflected in the billing.

Support

- **85** different models are noted on the Rogers plan, representing a wide variety of features and data functionality, including at least 11 different ways of connecting to Gryph Mail.
- There is no central registry of users and device types.
    - CCS is aware of the devices only if problems are reported.
    - Service planning occurs without knowledge of resources.

- Data Service costs are volume sensitive. Optimizing data traffic between device and University service can reduce costs. Careful configuration of devices is required.
    - Newer smartphones, if appropriately procured and configured, can utilize the free campus (or even home) WiFi wireless network to reduce cost.
    - Newer smartphones applications access on-demand public information, including radio and TV channels via streaming. These services can result in large data service bills.

Optional Strategies

Appropriate Use
Appropriate use means provision of a university resource resulting in value to the institution. Mobile resources should be provided to employees in positions which demonstrate productivity value from their use. The University should not pay for personal use.
For voice services, the value to the institution is associated with "reachability" for senior decision-makers and for on-call support staff, as well as for personal safety of staff working alone. The type of device is not as important as the quality of cost of the voice service.
For mobile voice and SMS messaging, two alternatives are used at other higher ed. institutions.

- Business Use Allowance   Qualified employees get an allowance to cover estimated costs of use of their personal wireless phone for business purposes. The employee selects an appropriate device and manages costs. Besides payroll administration there is little cost to the institution. Service costs expenses are clearly allocated and tracked. However costs are based on retail prices available to the user. Some institutions provide guidelines and best practise resources.
- Managed Assets   Qualified employees are provided with an institutional cell phone appropriate to their role. The institution procures, configures and tracks the device and costs, with enterprise contract prices. Users are to avoid or reimburse personal use. This strategy minimizes University cost at the expense of additional asset management effort.

Providing a cell phone which can be used for personal calls may have taxable benefit implications. (Currently the CRA does not deem it a table benefit but with increasing data service personal use, this could change). The tax implications of an allowance needs to be investigated further.

Optimizing Productivity Value
Access to digital information, including the University email and calendaring system provides significant productivity value for certain job roles. This value is optimized though solid end-to-end integration of the service and the user device providing improved usability and reduced institutional service support.
The goal of any plan is to reduce complexity by controlling the number of device models and the incremental evolution to newer products. This not only reduces the University's integration and support costs but optimizes procurement processes to reduce costs (e.g. bulk purchases).

- Although Business Use Allowance could be modified by requiring specific devices, this does not provide optimized procurement nor permit controlled configuration.
- Managed Assets is the better way to provide optimally-integrated smartphone productivity tools for qualified employees.

Managing Security

Currently use of personally managed smartphones with applications accessing sensitive University information present a security risk of data stored on portable devices, but they do not work under the current encryption service for portable devices.

Until smartphone encryption can be shown to meet the University security policy for data on portable devices, they should not be used to access sensitive information. BlackBerrys with BES service are an exception.

Appendix 1   Project Outline

Description

Supporting the ISC Community Survey Report and discussion, this investigation will identify the opportunities and savings accruing from enterprise management of the cost of Mobile Devices. The work would include assembling a snapshot on campus use and costs, investigating mobile device support at other universities, an overview of some key service plans from vendors, and analysis of TCO. The report would include recommendations for enterprise management of Mobile Device costs and a draft business case for such action.

Goal

to propose an enterprise plan to reduce University costs of providing mobile device solutions to faculty and staff.

Objectives

1. Prepare a report for the CIO estimating overall annual University spending on mobile devices.
2. Prepare a document on current enterprise pricing plans of key vendors. This document could service as a guide for Purchasing and staff.
3. Develop a Business Case based on estimated current costs and current enterprise pricing plans by key vendors.
4. Develop recommendations on how CCS and Financial Services could support an enterprise management approach to mobile device use and procurement.

Deliverables

This project will deliver:

- A Phase 1 report with initial findings and recommendations on strategic directions.
- A Phase 2 report including estimate of current cost, business case for enterprise management approach, and specific recommendations for next steps.

Appendix 2   Notes from Analysis of Acquired Data

Data Sources

<u>From Purchasing</u>: Roger's custom report generated for billing period 2009/08/02 – 2009/09/01
- UoG Rogers Account 3   (4 accounts)
- Subscriber phone number
- User Name: various / combination of billing code & partial name
- SIM / IMEI & Phone model description

A number of individual bills form other departments (CCS, Library) were reviewed for detail billing information to determine the reason for variance of the monthly billing amounts.

<u>From Financial Services</u>: FRS report on specific billing codes for FY 2008/09
- o Transaction Month
- o Reference (invoice #, etc. – must be unique)
- o Amount Paid (less GST rebate)
- o Billing code
    - 63002 - TELEPHONE - EQUIP RENTAL
    - 63003 - TELEPHONE - INSTALL & SERVICE
    - 63004 - TELEPHONE - LONG DISTANCE
    - 63005 - HIGH SPEED CONNECTION
    - 63006 - CELL PHONES – EQUIPMENT
    - 63007 - WIRELESS DEVICES – FEES
- o Vendor name (those linked to Wireless services)
    - Telecom Carriers
        - o ROGERS WIRELESS INC
        - o BELL MOBILITY
        - o TELUS MOBILITY
        - o Bell Canada
        - o BELL WIRELESS ALLIANCE
    - Other Wireless Vendors
        - o LINK WIRELESS COMMUNICATIONS
        - o C & I TECHNOLOGIES INC
        - o JON'S JACKS BUSINESS SYSTEMS
        - o York Wireless Solutions
        - o ROGERS BUSINESS SOLUTIONS
        - o Rogers Cable
        - o Telus
    - Other Payees
        - o US BANK NATIONAL ASSN
        - o AMEX BANK OF CANADA
        - o 386 individuals (expense claims)

Key Information from data

	Estimated Devices		Wireless Service Costs
	Voice only	Voice/Data*	
Bell	30	12	$ 28,000
Telus	3	12	$ 38,000
Rogers	140	510	$ 555,000
Reimbursements	50	15	$ 34,000
Procurement Card?	21	1	$ 3,400
Total	**244**	**550**	
	794		**$ 658,400**

*Both "smartphones", with voice service, and "USB wireless modems", supporting only data communication. About 8 USB modems were noted on the Rogers equipment list
Notes:

Rogers subscriber report:
1. Because most of the "smartphones" phones are subscribed to the Rogers Government Voice Plan, the processing of those bills provides an accurate picture of these expenses.
2. Purchasing maintains a mapping: phone number → billing code indicating which program, department and trust fund where the phones are used. Current users are not individually identified.
3. The monthly billing amounts for these phones, obtained from the FRS FY2008/09 extract, indicated a range of billing amounts and significant variance from month to month. Overage usage charges would account for the variance but base rates were significantly different.
4. A sampling of bills in a few departments indicates that the phones subscribed to the Rogers Government plan are actually paying different rates for service. This is likely the result of existing subscriptions not being updated as plan costs change – the carrier updates rates on old subscriptions only on subscriber request.
5. From the sampling, it was also noted that some users pay significant overage costs because their subscriber plan is not appropriate for their current use. Regular checking is required to ensure the appropriate plan configuration.
6. In August 2009, the Rogers Plan had 534 phones listed. The FRS 08/09 data indicates about 650 wireless service subscriptions.   The larger number is partly the result of churn (replaced services) but also suggests service purchased outside the UoG procurement contract with Rogers.

FRS FY 2008/09 Data:

1. The FRS data was a challenge to interpret because of inconsistencies in the posting of wireless service costs.
    a. Costs are attributed to various *object codes* because of different local interpretations of cost allocation and because the *object code* descriptions are not clear … *does "wireless devices – fees" actually mean Wireless Service?*
    b. Identification of Wireless Service was made from the *object code* and the vendor name only. In most cases, repetitive billing confirmed a subscription service.
    c. Posting of payments is not done regularly for some services. Thus, especially on re-imbursements, duration of service and monthly rate were difficult to determine. In some cases, a single annual payment might not be identified as a wireless service.
    d. Each *object code* had entries that were obviously miscoded (e.g. payments to Union Gas).   Along with the misallocation of costs to a variety of codes, it is not possible to use *object code* report summaries to identify wireless service costs.
2. Although the 3 carriers: Bell Mobility, Telus Mobility, and Rogers Wireless are the major vendors noted, Bell Canada provides wireless service under two payee names. Bell Mobility is the payee for commodity, retail wireless service; Bell Canada is the payee for enterprise business services, including wireless.
Although not yet investigated, it appears that Telus handles business customers differently as well.

3. Also noted (telecommunications other than wireless services)
    a. The University reimbursed about $100,000 for employee high speed network connections and paid about $20,000 directly to ISPs. Enterprise procurement or affinity plans could substantially (20%) reduce this annual cost, though the savings would likely just cover the administrative costs. More investigation of potential would clarify value.
    b. CCS negotiates significant savings on PSTN (wired) and long distance services for the Guelph campus phone system. However the regional campuses and research stations are do not get these discounts because of distributed procurement. Potential savings from the $500,000 (all sites) spent on these services should be investigated.
    c. Departments spend about $20,000/yr on conferencing and paging services. These costs could be reduced through the use of more integrated services.
        i. Paging can be integrated onto cellphones using SMS Text Messaging as significantly lower cost with only a slight increase in risk.
        ii. Conferencing can be provided with web conferencing solutions, VOIP, and internet multimedia at lower cost, or with enhanced multimedia meeting services. Enterprise contracts can control costs with flat rate pricing.

Appendix 3   Interpretation of pricing of current Roger's UoG plan
Rogers Wirless Plan Rates for the University of Guelph *(Link Wireless)*

Government Voice Plans	11913YR	11923YR	11773YR	11943YR	11953YR
Activation fee (one time)	**Waived**				
System administration fee	**$6.95 / Month**				
911 Service fee	**$0.25 / Month**				
Pre-paid air-time – per second billing	**$18.00**	**$30.00**	**$40.00**	**$55.00**	**$80.00**
Anytime Minutes	200	325	450	625	900
	Unlimited free weekends 8pm Fri. - 8am Mon.				
Include free evenings 6pm–8am Mon-Fri	**$5 /Month**				
Cost of additional air-time	**$0.18 / Minute**				
INCLUDED	Voicemail, Call Display, Call Waiting, Conference Calling, Incoming Text Messages				
Long Distance Calls from Canada					
to Canada	**$0.10 / Minute**				
to U.S.	**$0.15/ Minute**				
411 Directory Assistance	**$1.25 / Call**				
Voice Roaming Without appropriate *Plan Additions, a*ll calls made on phone while out of country are charged at roaming rates.	USA **$1.45/min.** Some EU countries **$2.00/min.** *((Note: Some Canadian locations near the border may be served by US carrier, incurring roaming charges)*				

Text Messaging	*Unlimited incoming while phone in Canada*	Monthly
SMS 250	Send 250 Text Messages per month	**$5.00**
SMS 2500	Send 2500 Text Messages per month	**$10.00**
SMS Overage	per additional outgoing message (while phone in Canada)	*$ 0.15*
SMS Roaming	Outside Canada, all text messages (in and out) charged	*$ 0.75*

Data Plans (not gov't contract rates)	This will allow you to sync your Data with Gryph Mail and your calender. ***For use <u>anywhere in Canada</u>***	Monthly
BlackBerry Enterprise Service w/ 1 GB	For use with Gryph BES server or Blackberry mail.	**$36.00 Discounted**
Mobile Internet 500MB	Up to 500 MB/month of data traffic. *This data plan is <u>not</u> recommended for frequent e-mail use.*	**$25.00**
Mobile Internet 1GB	Up to 1 GB/month of data traffic.	**$30.00**
Mobile Internet 1GB	Up to 3 GB/month of data traffic.	**$60.00**
Mobile Internet 3 GB	Up to 5 GB/month of data traffic.	**$80.00**
Data Overage:	For data traffic beyond plan monthly limit *If a data plan is <u>not</u> included, data use is charged at*	$ 0.03/MB *$ 0.03/KB*
Data Roaming:	For <u>all</u> data traffic while phone outside Canada (note: locations near the border may be served by US	US $ .03/KB Int'l $ .03/KB

Taxes extra

Examples: Light voice use;   some SMS;   active use of Gryph mail and calendaring; limited browsing.

e.g. Blackberry w/ BES	
200 Minutes/month	**$ 18.00**
Sys Admin; 911	**$ 7.20**
Free early evening calling	**$ 5.00**
SMS 250 msg/ month	**$ 5.00**
1GB/ month for BES traffic	**$ 36.00**
	$ 71.20

e.g. iPhone w "Astrasync"	
200 Minutes/month	**$ 18.00**
Sys Admin; 911	**$ 7.20**
Free early evening calling	**$ 5.00**
SMS 250 msg/ month	**$ 5.00**
3 GB Data to sync iPhone	**$ 60.00**
	$ 95.20

Appendix 4   Example of a Cell phone Allowance Policy

Background

Use of cell phones for University business has become a common practice. This policy will simplify the University cell phone program and result in each user's having both freedom of choice and personal responsibility for his or her cell phone plan. It will also enable *the University* to better control cell phone costs, as well as comply with various financial regulations.

Policy

Employees whose job duties include the frequent need of a cell phone may receive extra compensation, in the form of a cell phone allowance, to cover business-related costs.

Guidelines

1. *The University* will not own cell phones for the use of individual employees.

2. If a department head determines that a university employee's job duties include the frequent need of a cell phone, then the employee is eligible for an allowance to cover cell phone expenses.

3. Department heads are responsible for the annual review of employee business-related cell phone use to determine if existing cell phone allowances should be continued as-is, changed or discontinued. Supervisors should contact Financial Services if there are any changes to the allowance.

4. *The University* will pay the agreed upon cell phone allowance even if the monthly costs exceed the allowance. If the amount of the allowance subsidy needs to be altered because of documented business purposes, individuals will need to ask their department heads to adjust the cell phone allowance and submit a new approved form.

5. The cell phone contract will be in the name of *the University* employee who will be solely responsible for all payments to the service provider. Only one cell phone allowance will be provided per employee. *The University* purchasing cards or departmental accounts may no longer be used for individual employees' monthly service cell phone fees or for related equipment purchases.

6. *The University* will not accept any liability for claims, charges or disputes between the service provider and the employee. Recipients of a cell phone allowance must notify *The University* of the cell phone number and must continue to maintain the cell phone while in receipt of the allowance.

7. Because the cell phone is owned personally by the employee and the allowance provided is taxable income, the employee may use the phone for both business and personal purposes, as needed. The employee may, at his or her own expense, add extra services or equipment features, as desired. If there are problems with service, the employee will need to work directly with the service provider for resolution. *CCS* will support smartphone/PDA users by providing settings for email and calendar functionality.

8. Use of the cell phone in any manner contrary to local, state or federal laws will constitute misuse and will result in immediate termination of the cell phone allowance.

9. Complete details regarding this benefit, including current monthly allowances and user requirements, are found on the … website.

<div align="right">From the website of Furman University</div>