ANALYSIS OF GROWTH AT COMPANY A THROUGH CLOUD COMPUTING

by

Karen Pambrun
Bachelor of Mathematics, University of Waterloo 2001

PROJECT SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF BUSINESS ADMINISTRATION

In the Management of Technology Program
of the
Faculty
of
Business Administration

SIMON FRASER UNIVERSITY

Summer 2011

Approval

Name: **Karen Pambrun**

Degree: **Master of Business Administration**

Title of Project: **Analysis of Growth at Company A through Cloud Computing**

Supervisory Committee:

_____

Dr. Pek-Hooi Soh
Senior Supervisor
Assistant Professor

_____

Dr. Sudheer Gupta
Second Reader
Associate Professor

Date Approved: _____

Abstract

Company A is a small software consulting firm located in British Columbia. The Vancouver Business Unit (VBU) is one of Company A's business units, which offers both new-project and maintenance service offerings for business intelligence, customer relationship management (CRM) software and software systems integration. The VBU has been mandated to increase its revenues by 100% and increase its maintenance services profit margins by 3% over the next three years. It has identified three approaches to meet its mandate including attracting new clients, increasing its maintenance services revenues and decreasing the cost of its maintenance services. This project analyzes how the VBU can use these three approaches to meet its mandate and discusses why introducing cloud computing is critical to achieving its mandate.

Executive Summary

Company A is a small software consulting firm located in British Columbia. The Vancouver Business Unit (VBU) is one of Company A's business units. Over the last two years the VBU has produced the highest profit margins of all five of the Company A's business units, but the lowest revenues. Because of its high profit margins and low revenues, Company A has identified the VBU as the source of growth for the company and has mandated that it increase its revenues by 100% and it increase its maintenance services profit margins by 3% over the next three years. The VBU has identified three methods to meet this mandate including attracting new customers, increasing its maintenance services revenue and decreasing its maintenance services costs. To meet this mandate, the VBU must take advantage of a new technology called cloud computing, that allows the VBU to lower its costs and take on more clients by outsourcing the servers and software that the solutions are deployed on. By taking on cloud computing, the VBU can double its client base for new projects and grow its maintenance services business while decreasing its operating costs and increasing its profit margins.

Dedication

This project is dedicated to my husband Chris. I wouldn't have started this program without your encouragement and I couldn't have finished it without your support.

Table of Contents

List of Figures

List of Tables

Glossary

Cloud Computing: Cloud computing involves providing hardware and software on-demand via the internet as opposed to on a local computer.

COTS software: Commercial Off-The-Shelf (COTS) software is a ready-made software that is available for sale, defined by market need, significant functionality and complexity and is self-contained (Wikipedia).

CRM: Customer Relationship Management (CRM) is a software for managing a company's interactions with customers, clients and sales prospects (Wikipedia).

RFP: A Request for Proposal (RFP) is when potential clients invite sellers to bid on providing a product or service.

Software Consulting: Providing consulting services to clients who are requesting advice on which software solutions will solve their business problems.

Software Partners: Software partners are COTS software manufacturers who work with software consultants so that their software can be included in the software solution provided to software consulting clients.

Software Solution: A series of software packages that solve a business problem when deployed and grouped together with appropriate hardware.

VBU: The Vancouver Business Unit is a business unit of Company A that provides business intelligence, CRM and systems integration solutions.

1. Company A Overview

1.1. Introduction

Company A is a software consulting firm, headquartered in Victoria, British Columbia, with a second office in Vancouver, British Columbia. Its focus is on delivering business consulting, system integration and managed services solutions to corporate customers in private industry, government and education.

The firm is divided up into business units based on area of specialization and geographic location. The current business units are Corporate Services, Post-Secondary Education, British Columbia Government, Alberta Government, and Vancouver Information Technology. Each business unit is responsible for finding its own clients and delivering software solutions that meet clients' needs. The executive team ensures that the business units are aligned with the corporate strategy so that they are not competing for the same clients and that the solutions delivered are in line with company's corporate vision.

Company A has partnered with major software providers such as Microsoft, Information Builders and Sugar to deliver solutions to customers. The partners provide Company A with two major benefits including being a source of customer leads and determining the method of solution delivery to customers. Company A has an agreement with partners so that the partners provide a certain number of qualified customer leads and in exchange Company A will follow-up on those leads and sell a pre-determined amount of

partner software to those leads. When Company A sells software to those leads it also sell software consulting services to them. As a result, the solution method that Company A delivers is determined by the partner that provided the original lead.

Over the next three years, Company A would like to increase its revenue as well as its profit margins. To determine where to focus its expansion, Company A reviewed the growth potential of each of its business units. The Alberta and BC Government Business Units have seen declining business over the last few years and this trend is expected to continue, due to government budget cut-backs. Gaining new business for these two business units would be costly and time consuming because the government sector has long and competitive sales cycles. The Corporate Services Business Unit is made up administrative staff and the executive team. This business unit provides direction and management to Company A but does not generate any revenue from outside sources. The Post-Secondary Business Unit has seen stable but moderate growth over the last few years. Though this business unit is profitable, the post-secondary industry also has long sales cycles and significant increased sources of revenue would be costly and time consuming to obtain. The Vancouver Business Unit (VBU) focuses on private industry clients where the sales cycles are short and gaining new clients is less costly than in the other business units. The VBU also has the highest profit margins and lowest revenues of all the business units. Because of its high profit margins and strong potential for fast future growth, Company A has selected the VBU as the focus of its revenue and growth expansion. This chapter will provide background on Company A and the VBU then

discuss the growth objectives of Company A in more detail. The remainder of this paper will provide an analysis of how the VBU's growth objectives can be met.

1.2. Existing Customers and Service Offerings

Company A has approximately 80% of its customers in the government and quasi-government sector and about 20% of its customers in the private sector. The VBU is responsible for the majority of the private sector customers and the remaining business units focus on government-related work.

Regardless of the sector, Company A offers three major services. They are new-project, maintenance, and consulting services. New-project services consist of building new software solutions to meet client needs. These may consist of custom development work or integration of multiple commercial-off-the-shelf (COTS) software packages. Maintenance services are offered to clients who wish to have on-going support for their software systems. Company A will monitor these systems and provide updates as required. Consulting services provide clients with an in-depth analysis of their software systems and recommendations on how they can be improved. This includes business intelligence software, which enables clients to better understand how their resources can be leveraged to gain a competitive advantage.

New-projects and consulting services produce higher profit margins than maintenance services. By taking on new projects and providing consulting services, Company A is able to increase its customer base and expand its revenue growth. However maintenance services are longer-lasting and more stable sources of revenue. If Company A goes through a period where new projects are difficult to procure, such as when the economy is in a downward slope, maintenance contracts are the ones that produce the revenue to stay in business. For Company A to both survive and grow, it needs a combination of all three services.

Since the VBU is the focus of this paper its services are examined more closely here. Over 90% of the VBU's projects fall under new-project and consulting services, with the remaining 10% being in maintenance services. Within these services, the VBU specializes in business intelligence, customer relationship management (CRM) software, and systems integration. The VBU customers typically take advantage of all three specializations. For example, for a customer seeking a new customer-service call logging system, the VBU will deploy a COTS CRM, integrate it into the customer's existing software infrastructure so that the information in the CRM is shared with their other applications, and provide business intelligence so that management will understand when and why their customers are calling the service center. This solution is deployed at the customer's site, using server hardware purchased for the project. After the project is complete, the customer must maintain the new servers and software solutions to ensure they continue to run as expected. If they require access to their

servers from outside of their physical office, to be able to view CRM information from home for example, the VBU must also implement web and security features to enable this and then the customer must maintain that as well going forward. The VBU's customers view having to purchase and maintain servers within their office space as cumbersome and they would prefer not to have to take this on themselves, however they also have found that outsourcing the server setup and maintenance to be too expensive, given the small size of their business.

Most of the VBU's customers are small to medium-sized Vancouver-based businesses, in the insurance, financial and education industries where technology and software are not part of their core competencies. These customers may have had negative experiences with software integration in the past, or may have shied away from integrated software products due to cost. The VBU was able to attract these customers by providing affordable solutions that added immediate value to their businesses.

1.3. Company History

In 1988, three independent contractors created a company in Victoria, British Columbia. The company was primarily formed so that the three founders could personally provide hourly technical contract work to the B.C. government. In 1992, one of the three founders saw an opportunity to grow the business. The other two founders were not interested in taking on the risk of growing the business and left the company. At this

point the one remaining founder began hiring junior developers to handle the support and maintenance for the software programs he created.

In 1994, the founder saw a trend towards Windows software within the B.C. Government. He hired additional staff members to lead the new Windows initiative as well as business development and client management.

In the late 1990's the company expanded into Vancouver and Edmonton. The Vancouver office was established to support local governments in the lower mainland and Edmonton's was setup to attract customers within the Alberta government. At this point they supported two major streams of business; new software development and maintenance. When the founder came across a hardware company called Group X that was looking to purchase a consulting firm, they were well positioned for the sale.

The sale resulted in the company becoming the consulting arm of Group X and changed its name to Company A. However, in 2002, when the technology industry was collapsing, Group X could no longer maintain all of its divisions, and five senior members of Company A, including the original founder, purchased the division. Company A was now an independent company.

In 2003 and 2004, Company A made 2 acquisitions of its own, both in the Victoria area. One was a development company that brought in significant custom software

development projects. The other was a division of a government-run organization called that focused on post-secondary education technology services. As a result of these acquisitions, the Victoria office doubled in size.

In 2007, Company A created a formal board of directors and hired a new CEO. Over the next two years, business units and service lines were formally established. As a result of this re-structuring, the Edmonton office was closed and the Vancouver office became the focus of new private-industry growth. In 2010 and 2011, the Vancouver office focused on growing its software vendor partner relationships.

1.4. Company Organization

1.4.1. Owners and Shareholders

Company A has five shareholders and owners who also make up the board of directors. One of them is the current CEO and another is a current owner-employee. The other three shareholders were all once employees of Company A, but have since left the company and are no longer a part of its day-to-day operations. However, as shareholders and owners, they are consulted on issues involving strategic direction, such as making the VBU the focus of growth for Company A. All five shareholders select the executive team. The currently appointed executive team has five members, in multiple locations as outlined in Table 1.

Title	Location
Chief Executive Officer	Vancouver
Chief Financial Officer	Victoria
Chief Technology Officer	Vancouver
Vice-President Post-Secondary	Victoria
Vice-President	Victoria

Table 1 - Company A Executive Team

1.4.2. Staff

Company A is a small-business that is made up of approximately 50 staff members, of which 40 are based in Victoria and 10 are based in Vancouver. All staff members based in Vancouver are part of the VBU. The staff in Victoria are divided among the remaining business units. Hiring practices include looking for staff who meet certain character criteria, have specific skills, and will fill a specific function within Company A. These are outlined in Table 2.

Character	Skills	Function
• Curious • Intelligent • Caring • Loyal • Motivated • Reliable • Trustworthy	• Analysis • Communication • Leadership • Learning • Listening • Problem Solving • Technical	• Business Analyst • Systems Architect • Business Intelligence • Subject Matter Expert

Table 2 - Hiring Criteria

With the exception of the administrative staff and the executive team which make up approximately 20% of the employees, all staff members are expected to be 80% billable. This means that 80% of their time must be spent on project-related work that can be

billed back to clients. If there is a spike in work that cannot be met by the existing staff, work is sub-contracted out to other local software consultants that are not in direct competition with Company A.

1.5. Distribution Partners

By partnering with specific software vendors, Company A has become an expert in deploying their solutions. The VBU focuses on partners where the relationship has strong, mutual benefits. This means that the partners understand the VBU's goals and provide sales leads that fit within those goals. In return the VBU agrees to provide a minimum amount of project revenue to those partners. As a result, the VBU is able to leverage the marketing and sales capacities of its partners to obtain new customers and increase revenue for itself and its partners.

1.6. The Project

Company A's corporate strategy is to continue to grow and develop its existing business units, with a focus on the VBU and its private sector business. Though the VBU has the lowest revenue in terms of dollar value of all the business units, it is the most profitable business unit. By increasing the VBU's market share, Company A will be able to take advantage of the private sector's higher returns.

Company A has mandated that the VBU achieve the following goals over the next three years:

1. Increase its revenue by 100%, where 20% of the revenue comes from maintenance services.
2. Increase its profit margins on the maintenance services by 3%, from 2% to 5%.
3. Maintain its existing 15%-20% profit margins on new-projects and consulting services.

The VBU has chosen to do this by focusing on the following areas:

1. Attracting new clients
2. Increasing maintenance services revenues
3. Lowering the cost of its maintenance services

Success in all three areas is critical to the future growth and stability of the VBU. The VBU has further identified that using a technology called cloud computing to implement customer solutions for both new-projects and maintenance services will be critical to its success. Cloud computing will enable lower cost project implementations and remove the need for clients to purchase and maintain their own servers. This paper will analyze the new corporate plan for these areas, discuss how cloud computing can be leveraged to help meet these goals, and propose some plans of action for how the VBU can meet its mandate.

1.7. Summary

Company A is relying on the VBU's private sector focus to grow the business. The VBU will meet Company A's mandate by continuing to focus on its three core areas of competency (business intelligence, CRM, and systems integration) to increase its revenue and profit margins over the next three years and has identified three methods and an underlying technology to do this. It is extremely important for the business to meet these objectives otherwise the VBU will not be able to develop the margins it needs for continued business success.

2. New Corporate Plan for the VBU

The VBU will work to increase its revenue and profit margins by attracting new clients, increasing its maintenance services revenues, and lowering the cost to deliver its maintenance services. Each of these three areas requires different plans of action. The Plans of Action section below discusses the plans in more detail then the following section introduces cloud computing as a way to meet the goals.

2.1. Plans of Action

2.1.1. Attracting New Clients

By attracting new clients, the VBU will obtain additional projects and increase revenues due to a higher volume of project revenue. Once projects are completed, the VBU can offer maintenance services on those projects, thus increasing maintenance services revenue as well. The VBU's current method of attracting clients does not rely on responding to publicly issued Request for Proposals (RFPs) in the hopes of gaining a new client or contract. Instead, the VBU focuses on growing its business via partner leads and existing client referrals. Therefore, when the VBU takes on a new client, that client must consider the VBU's project critical to their business. As a result, the client will devote time and effort to work with the VBU and provide the support needed to ensure the project's success. Once the project is complete, the client can boast about their increased business success and be an excellent referral for the next VBU project. The VBU is not interested in taking on large clients where the VBU's solution will only be a

small component in the large client's business. Larger clients typically cost more to attract and provide fewer referrals and less benefits to the VBU than smaller clients do.

Larger VBU projects are considered to be approximately six months in length. Depending on the client, a project that is considered large by the VBU may or may not be considered large by the client. This can lead to unequal relationships and hinder the growth of the VBU. If, for example, the VBU worked on a project with one of the top five Canadian banks, the project would be considered large to the VBU but very small to the bank. The success of the project would not be critical to the bank's business and would not be given their full attention. As a result, the project may take longer to implement with no increase in the VBU's project revenue, and at project completion, the bank would not be an excellent reference for the VBU's next client. Therefore, it is extremely important for the VBU to attract clients that view the VBU's project as critical to their business in order for the VBU to grow its business through referrals. This leads to a mutually beneficial and strong relationship between the VBU and its clients.

To continue growing the VBU business through referrals and recommendations, new clients must have a critical business problem that the VBU can help solve using its three areas of specialization. Potential VBU clients must be struggling with maintaining their market share and seeking a solution to sustain their competitive advantage. For example, a good potential VBU client would have a well-established position in the

marketplace, but may begin to see their competitors taking over their market share. To continue to grow, the VBU client must better understand their existing customers, their changing needs, and how they can respond to those needs. The consulting services of the VBU can show that by implementing a CRM solution that stores all customer information in one place and that provides business intelligence reports on their customers, the VBU client can regain their competitive edge. By providing a business case, the VBU can show the client their return on investment for the recommended solution. Using this business case, the VBU's customers are able to justify a higher budget for the project. As a result, the VBU wins a bigger contract and the VBU customer obtains a solution that gives them the information they need to grow their business. Subsequently, the VBU client then does not hesitate to refer other businesses to the VBU.

Other than referrals, the VBU also generates new business through qualified leads provided by partners. A qualified lead is one where the potential customer meets certain requirements set out by the VBU. The VBU calls all qualified leads provided by the partners and negotiates a project with them. If the project is won, then the VBU uses the partner's software in the solution. The VBU has agreements with each of its partners outlining the number of qualified leads they receive and the total partner software sales the VBU will generate in return. By using partners, the VBU is able to attract new customers without needing to spend a significant expense tracking target

customers and marketing to them. All this is paid for by the partners, and the VBU then only needs to close an already qualified lead. This leads to short, profitable sales cycles.

To attract more new clients going forward, the VBU must expand its referrals and increase the number of qualified leads it receives from its partners. To expand its referrals the VBU must look for clients that have high networking capabilities. Those clients typically speak at events and would be willing to openly discuss their projects and the success the VBU provided them. As the VBU attends many networking events, clients meeting these criteria must be actively sought out. To increase its qualified partner leads, the VBU must prove to its partners that it can further increase its partner's software sales revenue by receiving more leads. As a result, agreements can be altered, giving the VBU access to more potential clients. To be able to network with a greater circle of new clients and follow-up on more partner leads, the VBU will require more staff. Today there are two VBU staff members who spend approximately 50% of their time following up on potential new business. A third full time staff member would need to be hired to respond to the increased volume of leads. The increase in salary expenses will be off-set by the new project revenue, thus having little to no impact on the profit margin, while still increasing overall revenue.

2.1.2. Increasing Maintenance Services Revenues

Maintenance services provide a stable stream of revenue. Maintenance services are provided by staff members who ensure that client systems remain functional and

available, as required by the client. Clients pay a flat monthly rate for these services. Unlike new projects, which can be terminated by the client without facing immediate business repercussions, existing services cannot be easily removed and therefor always require maintenance services. During times of economic hardship, clients will continue to require maintenance services; otherwise their entire business can fail. For example, a client that has a CRM that they use to track their customers' insurance policies cannot stop supporting that CRM or they will lose information that is critical to their business.

Maintenance services revenue from a particular client provides a constant revenue stream for the duration of the service contract. Adding more clients increases the constant stream of revenue to the VBU. This is an excellent complement to the new-project and consulting services revenue obtained by gaining new clients. The revenue received by new clients plus the higher level of constant revenue from maintenance services will increase overall revenue.

Figure 1 illustrates how the VBU's overall revenue will increase if new project revenue is complemented by increased maintenance services revenue. The left-most chart shows revenue streams and minimal growth for the VBU over the next three years if there are no changes in the current corporate direction, given the that 10% the VBU revenues come from maintenance services. The middle chart shows growth for the VBU if it meets its mandate for new project growth but does not increase its maintenance services revenue. The right-most chart shows how meeting the mandate of increasing

maintenance revenue to 20% of overall revenue will complement the revenue growth from new projects. In this chart, the VBU has increased its revenue from by 100%, as desired, where 20% of the revenue comes from maintenance services.

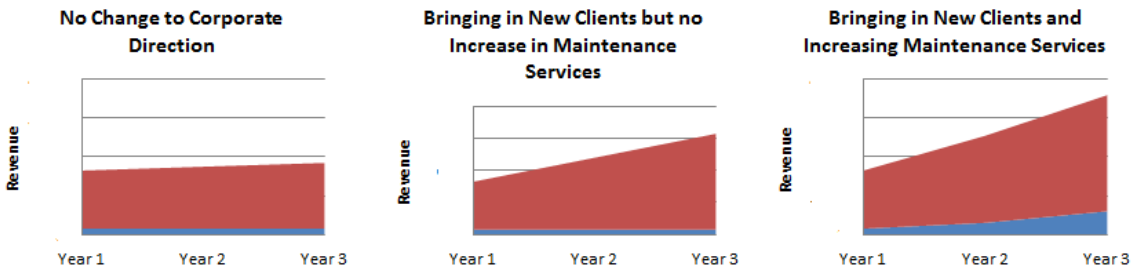

Figure 1 - Growth Charts for the VBU Based on Revenue Streams
Source: by Author

Currently the VBU has very few maintenance services contracts because its past focus has been on growing the new project aspect of the business. With its new mandate, the VBU must leverage its knowledge of new projects to sell on-going maintenance services contracts to customers once a project is complete. By providing maintenance services to new-project clients, the VBU will be able to grow its maintenance services revenue and gain repeated business from these clients. In addition to selling maintenance services to new-project clients, the VBU can also target previous clients who have been maintaining their own systems. In the past, once a project completed, the VBU transitioned the maintenance of the project to the customer. Now, customers can take advantage of the VBU's service offering and do not have to maintain software as it is not part of their core competencies.

No new staff will be required to attract new maintenance customers; however, new information technology staff will be required to maintain their systems. The cost to the client of maintaining the system must be carefully balanced so that the VBU can both offer a competitive service and meet its required profit margin and revenue growth goals.

2.1.3. Decreasing Maintenance Services Costs

The VBU is mandated to increase its maintenance services profit margin by 3%. To remain price competitive, the VBU will not increase the price of maintenance services. Therefore, maintenance services costs must be reduced for the mandate to be met. Maintenance services costs are made up of hardware costs, software costs, staff training costs, and staff themselves. Some clients own their own hardware and host the software solutions themselves and other clients expect the VBU to host their systems. Either way, the VBU needs to train staff to maintain these systems and be on call to repair them at a moment's notice. As the VBU is small, it is not able to achieve economies of scale on maintenance contracts and the costs are high. To offer maintenance services at competitive prices, the VBU must outsource this service to companies that are able to do it at a lower cost and then re-sell the services to its clients.

2.2. Adopting Cloud Computing

A technology that allows for sustainable growth of projects without increasing costs is cloud computing. Cloud computing takes advantage of servers and applications hosted by cloud hosting providers such as Rackspace (Rackspace, 2011). Cloud hosting providers can set up servers and applications instantaneously and on-demand with no lead time. Cloud computing will reduce the operating costs for the VBU's client projects as hosting of client systems can be outsourced and economies of scale can be achieved. Cloud computing also allows the VBU to charge a reseller's fee on all cloud-based maintenance services, while staying cost competitive. Integrating cloud computing into client solutions will help the VBU attract more new clients by finishing projects more quickly, due to reduced lead times, thus speeding up the referral process. The VBU will also be able to handle more projects with the same staff over the same time period, thus increasing its project revenues and decreasing project costs. Cloud computing also allows the VBU to outsource some of its maintenance services business for a lower cost than doing it internally, thus reducing the cost of maintenance services.

In the past, without cloud computing services, the VBU had to order and set up new servers to host each new project. Depending on the complexity of the servers required, ordering and setting up server hardware took several months. By using cloud computing the VBU and its clients will no longer need long lead times to set up servers. This means the cost associated with waiting for server delivery and physical setup is

eliminated. Servers are readily available from cloud hosting providers and can be accessed on-demand via the internet. No in-house physical location is required for the servers, thus freeing up office space as well.

Cloud computing also allows server capacity to grow as needed. Without cloud computing, when a new project starts, the capacities of the servers required to host the new-project must be established. This includes making sure that the server can handle all of the applications being installed on it as well as the number of users accessing it. Furthermore, the hardware must be able to handle future demands of the system. This means that the expense for new servers with excess capacity must be incurred presently, even though the capacity need does not exist yet. When the server is eventually retired, it will have only spent a percentage of its lifespan working at full capacity. However, with cloud computing, servers can be initially set up to handle only current capacity demand, thus saving cost. When capacity requirements increase, the server capacity can be increased on demand and only paid for at that time (Ammers, 2011).

Once servers and applications are set-up, they must be maintained on an operational level. Without adopting cloud computing, the VBU or its clients must hire specially trained, full-time employees to maintain and upgrade the systems, and to resolve systems issues as and when they arise. In contrast, such operational services are

provided 24 by 7 by cloud computing service providers, who already have a large number of trained employees to manage all their servers in the cloud.

Given the above benefits of cloud computing, the total implementation cost for each client project will be significantly lower. A typical VBU client will save $52,000 over five years by using a cloud-based solution. Table 3 summarizes the differences in cost.

Service Offering	Cloud-based results	Non-cloud-based results
Server set-up lead time	No lead-time	1 – 6 months of lead time
Server capacity requirements	Only initial capacity requirements are required at outset	High capacity requirements are required from outset
Operational requirements	Minimal maintenance requirements paid to cloud host	Full maintenance requirements
Total Cost Differences	No lead time + No physical Server space required + Only pay for required server capacity + Minimal maintenance requirements	Lead Time + Physical server space required + Pay for full server capacity for the lifetime of the server + Full maintenance requirements
Sample Cost Differences on a Typical VBU Project	$0 lead time + $0 server space + $400 month for server and maintenance Over the course of 5 years, this totals $24,000	$5000 lead time + $100 per month for server space + $5000 server + $1000 month for internal maintenance Over the course of 5 years, this totals $76,000[1]

Table 3 - Cost Comparison of Cloud-Based and Non-Cloud-Based Project Implementations

[1] All costs are based on staff billings of $100/hr. $5000 lead time includes three months of following up with server vendors at 3 hours per month plus 40 hours to set up the server (3 hrs * 3 months * $100/hr + 40 hrs * $100/hr = $4900 – rounded up to $5000 for calculation simplicity). $5000 is the cost of the average server hardware for a VBU client. $1000 includes 10 hours a month of maintenance time (10 hrs * $100/hr = $1000)

2.3. Current and Future Customer Implementations

Today, a customer receiving a CRM solution with a business intelligence back-end must contract the VBU for the project, develop the server and solution specifications, order the servers, wait several months for them to arrive, set them up in their office space, implement and deploy the project, then determine how they will maintain the project. The VBU provides little support once the project is deployed as it is not cost-effective for the VBU to do this. In the future, the CRM solution will be deployed in the cloud. Once the customer contracts the VBU for the project and the project requirements have been established, the project can begin implementation and deployment right away. Once the project is complete, the VBU can then maintain it by sub-contracting the work to a cloud hosting provider, while staying cost effective.

In the future projects will cost less for the VBU to implement, be implemented more quickly, and take the maintenance burden off the customer. Customers who have existing non-cloud-based solutions can also easily move to the cloud, meaning that previous VBU customers can benefit from this new technology as well. Once their solutions are in the cloud, they too can be maintained by the VBU.

2.4. Summary

As the VBU increases its revenue by attracting new clients and increasing its maintenance services contracts, it risks increasing its cost overhead required to support the new corporate plan if all else remains equal. Costs include the lead time to setup new servers, the cost to store and maintain servers, and the cost to train staff. These

costs increase the risk of not meeting its profit margin goals. Additionally, as the number of projects increases, the VBU needs a way to support the new projects, given its limited staffing. If it cannot provide its new clients with the attention they deserve, the new potential sources of revenue will be lost.

3. Cloud Computing Overview

3.1. Introduction

In 2006 Eric Schmidt, the CEO of Google, first discussed the concept of "the cloud" (Sullivan, 2006). The cloud refers to all data, applications, services and servers that are accessible via the internet, and are not dependent on the hardware device the user is using to access them. For example, a call-logging application would now be hosted "in the cloud", and customer service representatives would access the application via a web browser. Information entered by other representatives would be visible to them, giving them access to the most up-to-date information in real-time. This means that if a customer phoned the service center and spoke with a customer service representative, then called back shortly-thereafter and spoke with a different representative, the second representative would have access to all the information the first representative recorded about the call. Managers can also tell immediately if call volumes are changing and make staffing decisions accordingly. Because the application is hosted "in the cloud", all of this information is available, regardless of the location of the user, on any internet enabled device they are using, be it a laptop, desktop or smartphone. Critical business decisions can be made by the manager while they are anywhere in the world. If staffing levels must be increased, the manager can take action right away, and customers will receive better service as a result.

Some firms continue to believe that cloud computing is just a fad, and decisions around its incorporation should be placed within the IT department. However cloud computing

is much bigger than that. It has the potential to disrupt not just the computer software and hardware industry, but many industries that rely on computer software and hardware. Because cloud computing enables faster software solution deployments and enables the software to be accessed from anywhere, software clients not taking advantage of this will not be able to compete with their competition that does. Instead, they will be left with higher cost software solutions that are not as flexible and accessible as their competitive counterparts.

Organizations that choose to keep these methods of software deployment are likely to fail in the future. Cloud computing is a disruptive technology that warrants full executive attention (Hagel III & Brown, 2010). Customers who may have purchased expensive custom-built software, maintained in-house hardware, and had a staff trained to support the software system can now take advantage of cloud computing for a fraction of the cost. Software consultation firms can take advantage of cloud computing by making them a part of their service offerings. This will reduce the cost of the software solution to the client, leading to a strong business case for the client to take on the new technology. In the past, these clients may have wanted large solutions that smaller consulting firms did not have the capacity to deliver; however with cloud computing, these clients are a potential new revenue stream for these firms. This chapter will discuss the types of cloud computing technologies and relate them to the

VBU's mandate for growth. For additional information on the features of cloud computing please see Appendix 1.

Figure 2 - Cloud Computing Concept
Source: by Author

3.2. The Future of Cloud Computing

CIOs' interest in cloud computing has grown from 5% in 2009 to 37% in early 2010 (Harvard Business Review Magazine, 2010). Major vendors such as Amazon, Microsoft, Google and VMware are competing in multiple cloud computing service levels. Though these vendors have not released the percentage of their business stemming from cloud computing, it is obvious based on their wide range of products that they are competing heavily in this area. Google is offering several end-user based services such as Google Docs and Google Calendar as well as a platform service called Google App Engine (Google, 2011). Amazon launched EC2 to compete in the platform industry and Amazon Web Services (AWS) to compete as an infrastructure vendor (Amazon, 2011) . UBS analysts estimate that Amazon has the larger cloud hosting provider market share for infrastructure services, taking in an estimated $500 million in revenue in 2010, with

Rackspace following at $100 million (Sourya, 2011). Amazon's CEO Jeff Bezos has stated that its Amazon Web Services could become as big as its retail business (Dignan, 2010). IDC predicts that, "By 2020, a significant portion of the Digital Universe will be centrally hosted, managed, or stored in public or private repositories that today we call cloud services" (IDC, 2010). IDC also reports that spending on cloud services will grow from $16.5 billion in 2009 to over $55 billion in 2014 (Gens, 2010). They further predict that by 2014, those who have not already started using cloud computing will begin to lose market share. There is no doubt that this industry has crossed the chasm and is quickly becoming the new way to deploy information technology services.

3.3. Cloud Computing Use in Software Consulting

Software consultants will offer cloud computing solutions to their clients. Consultants will sell the benefits of cloud computing as an answer to their clients' current information technology issues, including high costs for new project deployments and high expenses for software systems maintenance. Those with the best reputation for implementing these solutions will gain the most clients and benefit the most from this new technology. For the VBU to continue to grow, it must understand what its clients' needs will be several years from now, and poise itself as a knowledgeable implementation leader for those needs. Customized, in-house information technology solutions will no longer be required in many cases and new clients can be attracted as a result.

Today, the VBU and its clients pay employees and contractors to manage their software and hardware. This can be an expensive and time consuming process. With cloud computing, these services can easily be outsourced to a cloud computing service provider who can deliver a faster, higher-quality service for less cost. By taking advantage of cloud computing, the VBU can offer the above services as built-in features of its solutions to clients that could not previously afford them.

All of the service models are managed by third-parties, such as Google, Rackspace and SalesForce. However, they all offer levels of customization that were previously unavailable in COTS products. The VBU can market these previously unavailable, highly customized, lower cost solutions to new clients that would have previously been required to pay for custom development. Because cloud computing requires less time to implement and deploy, the VBU will not need any additional staffing to offer this service. The current staff will need to be trained in cloud computing technology, but this training is part of the on-going need the VBU has to ensure its employees remain up-to-date in technology offerings.

Cloud computing offers complete security and privacy options. Users can enjoy accessing the information in the cloud from anywhere without sacrificing security. The VBU can provide solutions that give clients extreme flexibility in where they work and access their data that would have previously cost significantly more to achieve.

3.4. Benefits and Drawbacks of Cloud Computing

As a consumer of cloud computing services, the VBU and its clients should consider the following benefits and drawbacks of cloud computing. Major benefits include consumers only paying for what they use, having built-in support when problems arise, quick deployment of new servers and services, and little upfront capital investment. Drawbacks include the fact that someone else (such as Rackspace) owns the infrastructure which the consumer relies on, auditing and security concerns, monthly operational expenses payable to the cloud services providers, difficulty of Software as a Service (SaaS) integration with other software (see Appendix 1 for more details on SaaS), and reliance on internet connectivity. These benefits and drawbacks are discussed in more detail in Appendix 2.

Though there are some drawbacks to cloud computing, they will likely not prevent its adoption, as the cost-savings and benefits are too significant to ignore. Software consulting firms that choose not to take on cloud computing will continue to see high computing costs and charge higher prices for their solutions. On the contrary, their competitors who do take on cloud computing will experience lower computing costs and be more competitive in their offerings. Eventually, those that do not incorporate cloud computing into their solutions will lose significant market share.

3.5. Summary

Cloud computing is the future of the information technology industry. Businesses must use it to stay competitive and software consultants must include it in their solution suites to survive. If the VBU does not incorporate cloud computing into its service offerings it risks having increased costs and losing its market share. It is recommended that the VBU incorporate cloud computing into its software deployments or risk implementing solutions that clients do not find sustainable over the long term. With non-cloud based solutions, clients will be unhappy with their loss of market share, and the VBU will not be able to grow its client base.

4. Strategic Analysis of Software Consulting Firms

4.1. Five Forces Analysis

For the VBU to be able to attract new-project and maintenance services clients, an understanding of the software consulting competitive landscape in British Columbia is required. Porter's Five Forces (Porter, 1979) is used to analyze the competition, the clients, the partners and vendors, what the barriers to entry are, and what the possible substitutes are for the software consulting industry. Each section is discussed in more detail below, and includes an analysis of how the VBU should respond to that force to meet its growth mandates.

4.1.1. Competition

In British Columbia, there are several large software consulting firms, such as Sierra, Fujitsu and MDA, which provide large, full-scale software solutions to customers willing to pay hundreds of thousands of dollars or more per project. There are also hundreds of small and medium-sized software consulting firms operating in the Lower Mainland. These smaller firms dominate the industry and account for almost 90% of the revenues collected (Statistics Canada, 2008). Software consulting firms in the Lower Mainland are starting to announce that they will be competing in the cloud computing space. Fujitsu announced in March, 2011 that it is launching cloud consulting services and is investing over $1.2 billion globally into developing this capability (Cloud Computing Software Development, 2011). Some of Company A's main competitors, Habanero and TP

Systems, are also starting to offer cloud services. Habanero is based in Vancouver and has been named one of British Columbia's top 100 fastest growing companies (Habanero, 2010). They offer cloud-based solutions and provide clients with methods to improve their business through cloud computing (Jeff Bacon, 2010). TP Systems focuses on innovative, cost-effective software solutions and is starting to provide cloud computing based solutions to help in the delivery (TP Systems, 2011).

Cloud computing enables easier and faster business intelligence solutions for customers (Mullich, 2011). Since business intelligence is part of the VBU's core competencies, delivering this service to customers will become more streamlined. However, it also means that new competitors may enter the market and compete in business intelligence solutions. Studies have shown that firms that offer cloud solutions along with standard infrastructure, data management and business processes are better positioned (Aral, Sundararajan, & Xin, 2010). Therefore, competitors offering cloud computing services must also ensure they offer a high level of standard services in order to grow in this field. The VBU must ensure that its consultants maintain a high level of knowledge, not only in cloud computing, but also in its areas of focus, including business intelligence, systems integration and CRM implementation.

4.1.2. Bargaining Power of Clients (Buyers)

As software projects are long-lasting and involve significant face-time between the client (buyer) and the software consulting firm, those purchasing software solutions typically look for long-term relationships with firms they can trust. Trust in a firm is

usually developed as a result of an excellent recommendation via word-of-mouth or high satisfactory previous experience with the firm. Though clients must stay within a pre-defined IT budget, the cost of a project is less important than the relationship they will have with the software consulting firm. Clients are usually willing to take on fewer projects at a higher cost than to pay less and work on more projects, if it means they get to work with a preferred vendor. As a result, the price sensitivity of clients is relatively low.

In repeated project work with a client, the client typically becomes even less price sensitive. For example, once the VBU completes a CRM implementation project with a client, the client may request a business intelligence project that takes advantage of the knowledge captured within the CRM. The client has the option of starting the business intelligence project with the VBU or with a competing firm. Since the client already has a trusted relationship with the VBU, they are more likely to request that the VBU work on the business intelligence project, even if the competing firm offers to complete the project at a lower cost.

As cloud computing becomes more prominent, the types of clients attracted to the VBU's services will change. Previously smaller-sized buyers may have only been interested in non-integrated, lower-cost COTS products. However, with cloud computing, the cost of deployment is reduced and more clients may be interested in

working with a systems integrator such as the VBU. Additionally, mid-sized clients who may have been willing to pay for custom software in the past may now be willing to purchase integrated COTS products because cloud computing gives them capabilities they never had before.

Clients will also start to expect more from their software solutions. They will expect software problems to be fixed in a timelier manner, to access their work from anywhere in the world using any device, and to have seamless virtual team collaboration (Mullich, 2011). Though their expectations of cloud-based solutions increase, clients may also be confused and unsure of how they will benefit from them. Cloud computing is going to generate waves of disruption within the information technology industry and for those that rely on information technology. Clients will see shifts in their competitors' value propositions as cloud computing grows (Hagel III & Brown, 2010). Competitive clients will want to stay ahead of the curve, and look for software consulting firms that have the capacity to support them in this process. Because clients will want to take on cloud computing, but will be unsure of the new and more differentiated service offerings, their buying power will be further reduced. The VBU must show clients why cloud computing is necessary for the future of their business and how they can increase their return on investment by taking advantage of CRM software and business intelligence through cloud computing.

4.1.3. Bargaining Power of Partners (Suppliers)

The VBU and many other software consulting firms rely on sellers (vendors and partners) for complementary product modules. Partner relationships are extremely important in the software consulting industry. Software consulting firms that include partner products in their service offerings are able to obtain the products at a lower cost and receive higher levels of support. Partners are also typically a source of sales leads for smaller consulting firms such as the VBU. As a result, firms with strong partner relationships have access to more customer leads and are able to offer better solutions to customers.

A software consulting firm's relationships with its partners is typically long lasting. Firms must invest time and money into ensuring that they fully understand the products they are selling and market these benefits to potential clients. Partners who offer in-demand and well-supported products to software consulting firms are highly sought out and would be costly to lose.

With enhanced benefits, providers who offer cloud computing solutions are becoming attractive partners to software consulting firms. Because cloud computing sellers rely on economies of scale to offer lower priced services, sellers will grow larger in size in the future. The VBU and other consulting firms must be aware that when they start to partner with larger sellers, they may lose the bargaining power they currently enjoy with

their smaller sellers. Larger partners can impose higher minimum sales figures before granting preferred partner status. As a result, the costs to incorporate products from such partners may increase or they may provide less sales leads to each consulting firm as the leads become more spread out across firms. Consulting firms will also face increased competition from other consultants offering solutions with the same partners. To sustain their business, competing firms may end up undertaking additional expenses to bid on more projects.

Currently, the VBU has three major partners; one for each of CRM, business intelligence and cloud computing. Sugar, an open-source SaaS based CRM manufacturer, is the VBU's most important CRM partner. The popularity of Sugar among software consulting firms has grown significantly over the last two years and Sugar's supplier power is increasing as a result. As Sugar starts to realize its growth potential, the VBU must work to maintain its ability to meet Sugar's sales requirements. Otherwise, it risks losing Sugar as a partner and losing the investment it put in to train its staff on Sugar solution deployments.

Information Builders, the developers of WebFOCUS business intelligence products, has been a major partner with the VBU for the last six years. They have achieved stable, moderate growth in a highly competitive industry. As business intelligence becomes more prominent and becomes part of packaged cloud computing solutions, Information

Builders will see increased competition and their supplier power will likely remain stable or be slightly reduced.

The VBU's major cloud computing partner is Rackspace. Unlike Sugar and Information Builders, the VBU does not have a formal partnership agreement with Rackspace and they do not provide the VBU with any sales leads. Though Rackspace is growing in popularity, there are many major competitors such as Amazon that are looking to take their market share. Rackspace's supplier power will likely be reduced as many large cloud-computing businesses attempt to compete in the market space.

4.1.4. Barriers to Entry

The software consulting industry has very few barriers to entry. The field is dominated by individual consultants and small firms. Anyone can start their own business with a very low initial investment and no regulatory requirements to meet. Once a new software consulting firm obtains a client, there are no barriers to implementing a solution of their choosing. New software consulting firms may not have established partner relationships and therefore may not be able to take advantage of their sales leads however this does not drastically prevent them from entering the market.

Customer loyalty, proven history of project delivery, and switching costs may prevent some customers from using a new firm, but there is a target market of customers who are seeking low-cost solutions, regardless of the risks of engaging new and unproven

consulting firms. These customers request that consulting firms bid on projects, then select the project with the lowest bid, not realizing that they may have chosen a solution that will not meet their business needs. A new entrant who offers a low-cost solution then gains the business, will take away market share from existing consulting firms. Though there are switching costs for customers of existing software consulting firms, these costs may be off-set by the low cost of the project offered by the new entrant. Established consulting firms are not able to compete in the low-cost product market due to higher overhead expenses.

Though there are few barriers to entry into the software consulting industry and in adopting cloud computing as a service offering, cloud computing is simply a means to an end, and not the end itself. Software consulting firms must offer services that increase their customers' return on investment. Cloud computing cannot do that on its own. It must be paired with well thought out business processes that provide business improvements. When software firms are competing for new customers, they must show how these potential customers are able to do better than their competitors by adopting cloud-based solutions. Established relationships with successful customers willing to provide solid referrals are one of the best ways of providing proven business cases. New entrants will initially have difficulty providing these referrals, as they do not have a strong client base, and will be required to start out with small projects and build trust before they can bid on larger projects. During this early adoption phase of cloud computing services, the VBU can take advantage of its established market share and the

high return on investment its projects have generated for its clients. As a result, it can sustain its competitive advantage while continuing to grow its market share, despite the low barriers to entry in the overall industry.

4.1.5. Threat of Substitutes

Software consulting firms offer a service few buyers can do business without: software systems. However, buyers can choose to operate their own information technology division, contract IT services out to individual contractors on an as needed basis, or engage a software consulting firm such as the VBU to manage all their software-based projects.

Larger buyers may choose to have their own staff maintain their software. However, for smaller buyers this is rarely a worthwhile option. Software solution employees require constant training on new technologies and benefit from working with many other technical employees. In a smaller firm, this is very difficult to do in a cost-effective manner. Since the VBU focuses on small and medium-sized companies, this substitution threat is minimal.

Some buyers may also choose to employ individual contractors who are often paid on an hourly rate. Buyers are required to manage the contractors, but contractors are responsible for the costs of their own training. Typically, the VBU's clients use the VBU to deploy a new software solution as the individual contractors do not have the capacity

to do this. Once software deployment is complete, the clients will contract the maintenance jobs to the contractors. This method has seen mixed success, because individual contractors may not be as familiar with the solution as the VBU. Hence, to compete with individual contractors, the VBU must offer cost-effective maintenance services to its clients.

With cloud computing, it will also become easier for the VBU's clients to manage software systems using contractors and internal staff. However neither of these methods provide full business intelligence solutions and offer the business advice that the VBU does. The VBU must position itself, not just as a systems integrator, but also as a consulting firm that can help increase clients' return on investment through business intelligence and CRM-based solutions. By doing this, it will reduce the risk of substitutes.

4.2. Internal Analysis of the VBU

With rising demand for cloud computing services, the competitive landscape of software consulting is changing. Competitors face higher threats from new entrants and increased partner power. To meet its mandate, the VBU must develop a strategy for overcoming these industry forces and taking advantage of the growth opportunities that cloud computing provides. This section will do an internal analysis of the VBU in order to develop an understanding of its capabilities and competitive advantages. This will then provide a basis for the next section, where the market and customers are analyzed.

The VBU's internal analysis will be done using the Resource-Based View Theory (Mitchell, 2010), which assumes that a firm's internal resources and capabilities are the primary drivers of competitive advantage. There are four categories of resources, including financial, physical, human and organizational. The first step in the VBU's internal analysis is to evaluate the core capabilities of the VBU and to assign each of them to a corresponding resource category. The next step is to determine if the resources are valuable, rare, costly to imitate, and if the VBU is poised to exploit these resources. From there, the competitive advantages of the VBU can be identified.

4.2.1. Evaluation of the VBU's Core Capabilities

The VBU's core capabilities include a strong focus on its core areas of business, very low overhead, well-trained employees and excellent partner relationships. Each of these capabilities are discussed more in the paragraphs below and then summarized in a table.

The VBU has three core areas of focus, namely, business intelligence, systems integration and CRM. These have been the core areas of focus for several years and the VBU's staff have received extensive training on them. Almost all of the VBU's projects have these areas of focus at their core. As a result, the VBU has strong organizational direction and understands which projects and clients it should take on in order to grow and which ones are of lesser benefit.

The VBU has very low overhead in comparison with the other Company A's business units. They maintain an inexpensive office space, use minimal administrative staff, and outsource anything not related to its core competency to save money. All VBU staff members also maintain a high percentage of billable hours, meaning almost every hour an employee spends working for the VBU gets billed directly to a client. As a result the VBU has a high profit margin and strong financial position that it is able to use to continue to grow its business. With the addition of cloud computing services, the VBU is able to take advantage of even lower cost overheads on maintenance service offerings, thus further decreasing its costs.

The VBU encourages employees to stay current in future trends and has regular discussions around the future of technology and how this can benefit clients. These strong human resources will enable the VBU to take on cloud computing early-on, and ensure it is well-educated in the area. Employees also remain excited about new technology and upcoming projects, thus reducing turnover.

The VBU has performed very well with some of its partners, such as Sugar. As a result, there is an opportunity to expand the existing relationships. The VBU is now in a position to request a higher volume of leads and support from Sugar in exchange for a commitment to increase sales. To take advantage of this organizational opportunity,

the VBU will hire an additional staff member to respond to the increased volume of leads from partners.

The VBU is located in downtown Vancouver, close to many potential clients. By being in the vicinity of so many of its clients, the VBU is able to reduce costly travel time, and be available to meet with its clients almost anytime.

Resources			
Financial	**Physical**	**Human**	**Organizational**
• Low Overhead	• Downtown Vancouver location	• Knowledgeable Employees	• Focus on core capabilities • Strong partner relationships

Table 4 - Key Resources Summary

4.2.2. Resource Exploitation

The VBU's ability to focus on its three core capabilities of business intelligence, CRM and solution deployment is a valuable resource. By staying strategically focused, it will not expend effort on projects that do not cover these areas, thus increasing its ability to receive referrals and continue to grow its business. The VBU's two main competitors do not offer these three core capabilities as a package, thus making a rare offering in the VBU's market space. Habanero focuses mostly on eCommerce sites and enterprise collaboration involving CRM (Habanero, 2010) and TP Systems offers more in-depth custom and CRM solutions (TP Systems, 2011). Both competitors offer CRM and solution deployment services, but do not offer business intelligence solutions in their

core services. However, if they chose to offer this service, they would be able to hire human resources that had business intelligence expertise, undermining the resource advantage of the VBU. Despite this, the VBU has shown that, through the success of its past projects and strong partnerships, it has the ability to take advantage of its core capabilities and exploit this resource.

Having low overhead is also a valuable resource. By keeping the overhead low, the VBU is able to offer competitive project prices and direct a greater percentage of project profits towards expanding the business instead of sustaining overhead costs. It is estimated by the author that, given the present administrative staffing levels and office locations of both Habanero and TP Systems, they do not enjoy similar low overhead costs, making this financial resource valuable to the VBU. To adopt a similar low overhead strategy, the competitors would require a costly and time consuming transformation of physical and human resources, making this option less attractive in the short term. They may also be unwilling to do this because their staffs have become accustomed to more elegant office space and better administration support, and such change will increase staff turnover. Since this resource cannot be easily imitated by competitors, it provides a sustainable competitive advantage to the VBU.

The partner relationships the VBU enjoys are considered extremely valuable. These relationships are the source of many sales leads and are required for the growth of the VBU's business. The VBU has spent many years building up its relationships with two

important partners, i.e. Sugar and Information Builders, and the preferred partnership arrangements cannot be easily surpassed by the competitors, making this resource costly to imitate. Coupled with the VBU's differentiated core capabilities, the partnerships would continue to be a source of the VBU's competitive advantage.

Using Grant's resource appraisal techniques (Grant, 2008), the above resources are summarized in Table 5, along with their importance and the VBU's relative strength.

Resource	Importance[1]	Strength[1,2]	Comments
Organizational: Three core areas of focus	8	6	The VBU has three areas of focus, which helps distinguish its service offerings today. However its competitors can imitate these if they choose, making the VBU's business reproducible.
Financial: Low-overhead	8	10	The VBU has significantly less overhead costs due to its smaller size, less expensive office space and minimal support staff. This enables it to use additional profits to expand its business.
Human: Well-trained staff	5	5	The VBU provides comparable training to its competitors. Training is required to stay competitive, but it does not provide a competitive advantage.
Organizational: Partner relationships	9	10	The VBU has developed strong, personal relationships with its partners. Its competitors do not enjoy the same status.
Physical: Downtown location	5	5	The VBU's office location does not provide a competitive advantage, but no competitor can achieve a better location.

Table 5 - The VBU's Resource Appraisal

[1]Scale ranges from 1 (very low) to 10 (very high)
[2]The VBU is assessed against its two main competitors, Habanero and TP Systems

4.2.3. Strategic Implications

The VBU can use the three main sources of competitive advantage identified in the previous section to meet its three corporate objectives (Section 1.6). This section will discuss how the VBU can do this.

First, the VBU can leverage its low overhead as well as core capabilities to generate better sales leads from its partners for CRM and Business Intelligence-based new projects. The VBU can use its financial resources to expand its key partner relationships and position itself as a strong seller of partners' products in return for more sales leads. Because buyer price sensitivity is relatively low, it is recommended that the VBU spend the majority of its extended profit margins on developing future sales and partner relationships, as opposed to passing on the savings to clients through lower-priced projects.

Next, to increase maintenance services revenue, the VBU can leverage the new clients it attracts through partner relationships. Once the VBU completes a new project, it can transition the client to its maintenance service offerings. Since the VBU will have more new clients, they will acquire more new maintenance service contracts.

To decrease maintenance services costs, the VBU must obtain a discount on the licensing fees from its partners during the maintenance phase of a project. Typically,

once a project completes, the VBU's clients must pay on-going license fees to Sugar and Information Builders, if their solutions are incorporated. If clients engage the VBU for maintenance services, then they will pay the VBU a combination of maintenance and licensing fees. Hence, only if the VBU's partners are willing to lower their licensing fees, the VBU will achieve lower costs of maintenance services and obtain a higher profit margin.

According to the Comparative Advantage Theory of Competition, by leveraging its resources and capabilities, the VBU will sustain its competitive advantages. As the VBU is capable of taking on more new clients, it will sell more of its partners' products, increasing its preferred status with its partners. Partners will then be more likely to further discount the product price that the VBU re-sells, thus further reducing the VBU's project costs. Due to the increased profit margin on each project, the VBU's financial performance will continue to improve (Hunt & Morgan, 1995).

4.3. Summary

Cloud computing will change the landscape of software consulting. For the VBU to continue to gain market share, it must address the problem of low entry barriers and dampen the rising power of some of its partners by leveraging its key resources. By developing its ability to manage low cost, well-implemented projects, it can expand its client base. As the VBU expands its client base and increases partner sales, it will become a more important partner, thus reducing the supplier power.

5. Market Assessment for the VBU

5.1. Introduction

The previous sections discussed cloud computing technology, the competitive landscape for software consulting firms, and the competitive advantage of the VBU in in terms of resources and capabilities. This section will examine the potential new clients that the VBU can attract by reviewing the market potential in British Columbia, segmenting the market, and determining which market segment the VBU should focus on. Once clients are understood, the VBU can ensure it is answering the needs of those clients.

5.2. Categories of Clients

There is a vast range of potential software consulting clients. In today's highly technological world, almost every business requires software solutions. As such, almost any business is a candidate for software consulting. Smaller businesses may only require minimal consulting to help them select appropriate software whereas larger businesses may want highly-customized software solutions. The services required will determine which type of software consulting firm should be used, be it a small systems integrator such as the VBU or a larger firm such as Fujitsu.

Clients can be also categorized based on size, type and location. Client size is based on the number of employees and their revenues. The government of British Columbia defines small-sized businesses as less than 100 employees and less than $1 million of revenues annually, medium-sized businesses as less than 500 employees and less than

$10 million of revenues annually, and large-sized businesses as more than 500 employees and over $10 million of revenues annually. Client type reflects whether or not the client's core competency involves technology or not. Location refers to where the client operates, be it locally in British Columbia, nationally throughout Canada, internationally throughout North America, or globally.

5.3. Analysis of Potential Clients

The VBU must focus its growth efforts on specific categories of clients that can benefit from the services the VBU offers. Otherwise the VBU risks becoming too thinly spread and not reaching its growth potential. The VBU's existing business experience is mostly with local clients and with some clients in other western-Canadian provinces. It does not have the expertise to provide business intelligence and systems integration consulting services to globally-based clients. Additionally, existing partner relationship agreements involve providing sales leads for clients within British Columbia and western Canada and it would be costly to try and sell services to a new sales region without partners and other client referrals. Since partner relationships and low-cost overhead are the two main sources of competitive advantage for the VBU, it is recommended that new clients come from within British Columbia and western Canada. The VBU will also focus on non-technology based clients, as technology-based ones will likely already have in-house software expertise.

Over 98% of businesses in British Columbia are classified as small and medium sized businesses. There are currently approximately 385,000 small businesses operating in British Columbia, and only 13,100 medium sized businesses (Government of Canada, 2010). The average revenue for small and medium sized businesses is $363.9 thousand (Industry Canada, 2008). The average amount businesses spend on information technology is approximately 2 – 7% of revenue (Gartner, 2009). As such, the average amount spent by the average small and medium sized business in British Columbia on information technology projects per year is under $40,000.

The VBU's client base is a hybrid of the small and medium-sized businesses, as defined by the province of British Columbia. Given the statistics of the revenues for businesses operating in British Columbia, these customers are limited in number. The VBU also looks for clients who are willing to spend significantly more than the $40,000 information technology budget available to most companies, which further limits its target market. Instead of attracting firms that simply have high revenues and information technology budgets the VBU looks for clients that are seeking to increase their business value and competitive advantage. Using its skills in business intelligence, the VBU tries to understand where its potential clients' pain points are and show them their potential return on investment for implementing a VBU system solution. For example, a client may be shown that spending 10% of their annual revenue on a new software solution will yield a 15% increase in revenue the following year. This encourages the client to invest more heavily into a software solution and provides a

larger project for the VBU. When the VBU delivers a solution that meets expectations, both the VBU and the client will have won additional market share. These clients will typically be in an industry where having increased, real-time visibility into client and market trends results in increased profits.

5.4. Market Segmentation Process

The "Four Steps in the Segmentation Process" (Mitchell, 2010) will be used to evaluate which customer market the VBU should focus on. The four steps are:

1. Divide the market into groups
2. Profile the customers in each segment
3. Evaluate and select a target market
4. Position the product within the segment

The VBU must stay within western Canada in order to leverage its competitive advantage, so all market groups will be primarily located within this region. Since the VBU provides software consulting, groups are segmented based on their need for software consulting services. Potential market groups for the VBU are summarized in the Table 6.

Group	Characteristics
Group 1	• Very little concern over losing market share • Software is not seen to contribute to or detract from market share
Group 2	• Concern over losing market share • Software is not seen to contribute to or detract from market share
Group 3	• Concern over losing market share • Software is seen to contribute to and/or detract from market share
Group 3a	• Large-sized business
Group 3b	• Small or medium-sized business
Group 3bi	• Less than $1 million in revenue
Group 3bii	• Over $1 million in revenue

Table 6 - Market Segment Characteristics

Group 1 and Group 2 do not see software as a contributing factor to the growth of their business. To win over these customers, the VBU would be required to convince these customers that software improvements are required to maintain and grow their market share. This would take time and effort, which would take away from overall profit margins. Since low overhead is a source of competitive advantage, the VBU must be careful not to expend too much staff effort trying to win over customers who are not ready to change their software solutions. Otherwise, the VBU risks spending its profit margins on potential customers that never become actual customers and does not grow its business as a result. Group 3a is ready to switch their software systems in order to win back their market share. However, because they are large-sized, the VBU is not equipped to handle their entire, large-scale, new software deployment. As a result, the VBU will only be a small vendor in an otherwise large software project, and will not be able to obtain the referrals it requires to continue to grow its business. The agreements

the VBU has with its partners also does not cover this particular group, meaning that contracts would have to be modified and exclusivity agreements altered for the VBU to maintain partnerships as a competitive advantage. Changing these agreements can be time consuming and costly.

Group 3bi and Group 3bii are made up of small and medium-sized businesses that are ready to take on new software systems. They will require very little convincing to take on a software project, meaning the pre-project stage would have low overhead. Group 3bi has less than $1 million in revenue, so their ability to spend money on a software project will likely be less than Group 3bii, which has more than $1 million in revenue. In order to grow its revenues, the VBU requires either many more, smaller software projects or several more, larger software projects. To obtain enough small software projects to meet its mandate, the VBU will have to develop a large number of relationships with potential clients, which can be costly and time consuming. In contrast, potential clients in Group 3bii have the potential capacity to afford a larger software project. The next two sections will examine how to position the VBU's service offerings within this market segment.

5.5. Details on the Target Market

There are 385,000 small businesses in British Columbia, with an average revenue of $364 thousand (Industry Canada, 2008). Based on the author's assumption that the

average revenue of British Columbia businesses follows a standard bell curve, with a long tail, there are 1900 small and medium-sized businesses that have over $1 million in revenue. There are 11 different small business industry sectors in British Columbia, divided as shown in Figure 3 (Small Business BC, 2010).

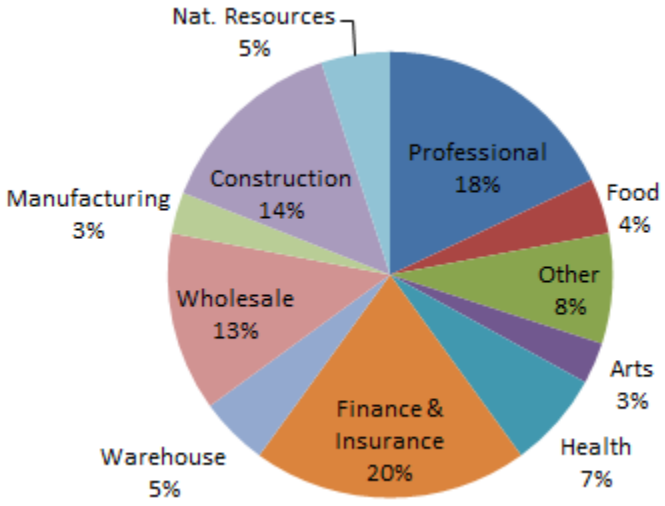

Figure 3 - BC Small Business Industry Types (Small Business BC, 2010)
Source: by Author

Of these industries, based on the author's software industry experience, Finance and Insurance, Health, Warehouse, Wholesale, Food and Construction, which make up 63% of businesses, are the most likely sectors to depend on advanced, up-to-date software systems. The reasons that these industries benefit from the latest real-time business intelligence information are summarized in Table 7.

Industry	Benefit	Reason
Finance and Insurance	Reduced Costs	Knowledge of the mortgage or insurance risk and concentration prior to underwriting means decreased payouts/losses.
Health	Reduced Costs	Medical records are shared across multiple service locations, meaning less time spent per patient.
Warehouses, Wholesale and Food	Increased Profits	Knowing where products are and what shortages may occur means ordering products before they run out and always being able to keep the sales cycle moving.

Table 7 - Industries and Benefits from Business Intelligence

Because cloud computing is relatively new and companies who adopt it late will lose market share, the author estimates that approximately 85% of the businesses within the above listed industries will be initiating cloud-based projects over the next three years. In other words, approximately 1000 businesses in British Columbia fall into Group 3bii's market segment, and are potential customers for the VBU.

5.6. Customer Needs

As the VBU begins to focus on attracting new clients, it must also understand that the needs of these clients may be different from its existing clients. The Customer Pyramid shows how going after new projects means more demanding customers and new

expectations of quality (Zeithaml, Rust, & Lemon, 2001). Though the Customer Pyramid quantitatively proves that the top 20% of customers produce 80% of the profits, to attract and keep those customers, more work must be done. If the VBU wants to increase its revenue, it can focus on adding highly profitable customers, with large pain points, to the top of its customer pyramid, however it must be prepared to handle the new needs of these customers.

As software solution and cloud computing capabilities grow, client expectations on what the solutions can offer will increase. For example, in the insurance industry, it is extremely important to understand the concentration of risk. In the past, for smaller insurance companies, risk concentration took months to calculate, and as a result was only done on an annual basis. As software and hardware became more capable, risk concentration calculations could be done much faster, and given much more quickly to those underwriting the risk. Now with cloud computing, risk calculation will be able to be done in real time, and be made available to any underwriter regardless of their location, for a reasonable cost. The ability to calculate risk prior to the sale of the insurance policy will greatly reduce risk concentration and decrease costs due to loss payouts. Insurance organizations that do not have this ability will not be able to remain competitive and will lose market share due to higher claim losses.

Over the next three years, the needs of VBU clients will change. The VBU's clients will need to change their software solutions in order to remain competitive in the market

place, increase their profits and retain their own clients. To do this they will need advanced business intelligence solutions, ability to access information from any location from multiple hardware devices (laptop, smartphone), and quick solution deployments to be able to respond to the changing needs of their business.

Clients will require advanced business intelligence to be able to analyze the data they have collected on their customers and respond to it in real time. For example, clients must become aware immediately when there is a spike in demand for one of their products or services so that they can respond accordingly in order to maintain customer satisfaction and retention. They must also be able to view long-term market trends and evaluate them against what their competitors are doing. The business intelligence data, as well as its underlying information must be accessible from any location. When the client's sales representatives and managers are travelling for business or simply out of the office, they must still have access to this business critical information. Otherwise, if they are out of the office for several days, they may make a critical decision too late and miss valuable business opportunities. For example, if one of the VBU's clients launches a new service on their website, the customer service team may see a spike in calls as a result of confusion. If the customer service team manager is automatically and immediately notified of this change, regardless of where they are located, they can begin taking steps immediately to reduce the confusion. As a result, less of the VBU's client's customers are confused and more of them are willing to try the new service.

The VBU's customers must also be able to make quick software deployments. Using the above example, the VBU's client's new website may have a spike in popularity that is much higher than expected, causing the website's server to crash. When this happens, a server with increased capacity must be deployed immediately or customers may turn to another website. By taking advantage of cloud computing's "no lead time" feature the VBU's clients can deploy new server capacity instantaneously and ensure the website remains available. Because of cloud computing, all of this can be done without increasing initial project costs.

Since the VBU's core areas of competency are business intelligence, CRM and systems integration, the VBU is well poised to meet its customers' future needs. Advanced business intelligence can be provided by deploying a CRM package that compiles the data to be analyzed along with a reporting and business intelligence tool that will analyze the data in real time. By using an SaaS-based CRM, it can also be easily configured to be accessible from anywhere on any device. If the CRM itself is deployed within the cloud, using SaaS, then as server needs change virtually instantaneous changes can be made to the server. Despite being well-poised to meet its customers' needs through software solutions, this position can be imitated by competitors. The VBU must enhance high quality service offering with the ability to respond to partner-supplied sales leads.

5.7. Summary

Although the potential market for the VBU in British Columbia is quite small, the VBU has not fully tapped into this market. It is recommended that the VBU continue to offer its services to British Columbia based businesses over the next three years to establish its market leadership. The potential client businesses must meet specific needs, including having a business problem that can be resolved through software solutions and business intelligence, and they must be willing to spend a higher than average amount to get these solutions.

6. Recommendations to Meet the VBU's Goals

6.1. Introduction

Now that the VBU's business is understood, its goals have been established, and the competitive landscape has been analyzed, the plans of action for realizing its mandate can be created. Recall that the goals of the VBU are:

1. Increase its revenue by 100%, where 20% of the revenue comes from maintenance services
2. Increase its profit margins on the maintenance services by 3%, from 2% to 5%
3. Maintain its existing 15%-20% profit margins on new-projects and consulting services

These goals will be met by attracting new clients, increasing maintenance services revenue and decreasing the cost of maintenance services. This section will answer the question of how cloud computing can help the VBU meet these goals within the confines of the market and its industry forces, while leveraging the VBU's competitive advantages.

6.2. Attracting New Clients

For several years now, the VBU has been successfully attracting clients with high revenues for their business size, who have a strong desire to increase their competitive advantage. These clients have provided excellent references for the VBU and the low

cost methods used to attract these clients should continue. Using partner relationships and their sales and marketing expertise has also been a major contributor to attracting new clients at a low cost, and this practice must also continue, as it is the VBU's source of competitive advantage.

The VBU's customers are focused on improving their business, not on taking advantage of new technologies. When attracting new clients, it is recommended that the VBU focus on the benefits improved business intelligence can bring to its customers' business, and not try to sell cloud computing on its own. Cloud computing is the underlying technology that allows the VBU to deliver quick, effective, low-cost, accessible-from-anywhere, easy to maintain solutions that clients need, but it is not what is directly attracting the client. The recommended plans of action to attract new clients are:

1. Ensure the clients are looking for a solution that fits in the VBU's three core areas of business in order to create additional referrals. Though having three core areas of focus is not a direct competitive advantage, staying focused within these specific markets lowers costs and the VBU can focus its efforts. The combination of all three areas of focus is also not a service offering that is currently being imitated by the VBU's direct competitors, so the VBU should leverage this service offering while its competitors are not.

2. Increase sales leads volume agreements with Sugar and Information Builders. The agreements must ensure that sales leads continue to be in the existing target market segment. The more sales leads the VBU has access to, the more clients it will be able to attract in its target market.
3. Use the additional profit margins the VBU enjoys through its low overhead to work with partners and expand its ability to generate sales leads.

Now that the methods for attracting new clients have been established, the number of new clients it must attract to meet its goals must be calculated. This is done as follows:

1. The VBU wants to increase its revenue by 100% by 2014, with 80% of that revenue.
2. Based on project revenues, this means that the VBU must have about 24 new-projects per year by 2014 in order to meet its revenue targets.
3. Today the VBU averages about 12 – 15 new projects per year, where 3 – 5 of the new-projects come from two major clients and about five other clients provide the remaining five projects. (Note that major clients provide three to five new projects and regular clients provide one new project per year.)
4. To meet its mandate, the VBU must maintain its existing two major clients, and obtain two more major clients, leading to approximately 16 new projects per year (since the VBU will have four major clients in total, and will expect 4 projects per client, on average). They must also attract 8 smaller clients who will provide one new-project per year. All of the new clients must be willing to provide excellent references, so that the VBU can continue to grow its business.

5. The VBU will be able to expand its client base by focusing on a subset of the 1900 potential small-business clients in British Columbia and western Canada. This subset will be determined based on client referrals as well as the expanded number of partner sales leads.

6.3. Increase Maintenance Services Revenue

Maintenance services revenue must be increased without increasing the cost per client, meaning more clients must sign up for this service. The VBU's clients do not have technology as their core competency, and many of them do not have a technology staff ready to maintain the new systems provided by the VBU. The VBU must deliver strong projects and show clients how its maintenance contracts make financial sense. If the solution the VBU delivered truly is important to the client's business, they are very likely to sign up for the maintenance contract. The recommended plans of action to increase maintenance services revenue are:

1. Give priority to new projects for clients without their own infrastructure, or who are looking to reduce their own infrastructure. These clients are more likely to take advantage of maintenance contracts and these contracts can be provided through cloud computing, which further increases the VBU's profit margins and revenue.
2. When the VBU presents the new-project solution to the customer, maintenance services must be offered up front as a natural transition for the project.

3. For existing clients with non-cloud-based solutions, transition them to the cloud. By transitioning clients to the cloud, the VBU will be able to increase the number of cloud-based maintenance services contracts and take advantage of the expanded profit margins that cloud computing offers the VBU.
4. To compete with cloud computing vendors who may offer their services directly to the client, always show clients the additional consulting and return on investment benefits they will receive if they use the VBU to manage the cloud computing vendors.

Now that the method for increasing maintenance services revenue has been established, the number of maintenance services clients the VBU must attract to meet its goals must be calculated. This is done as follows:

1. Today there is almost no maintenance services revenue. Going forward, 20% of revenues must be through maintenance services.
2. Based on revenues, six maintenance services clients are needed to meet this goal. (Note that these clients can be the same as the new clients discussed in the section above, provided that these clients engage the VBU for both new projects and maintenance services within the next three years)
3. By growing its new client base, the VBU will have more new projects to transition into maintenance contracts and be able to meet its maintenance services growth

targets. Through cloud computing technology, the VBU will have a sustainable, cost-effective method of offering this service.

6.4. Lowering Maintenance Services Costs

Up until now, for the VBU to provide maintenance services, it had to have its own servers and do its own maintenance. With cloud computing, both SaaS and IaaS services can be outsourced to companies such as Rackspace. By outsourcing, the VBU does not need to concern itself with server space, data recovery and system upgrades. Outsourcing also allows the VBU to take advantage of cloud computing's pay-per-use options so it can reduce server requirements when the need is less, which further decreases costs. The recommended plans of action to decrease maintenance services cost are:

1. Analyze the different cloud service providers to understand who provides the best services for the VBU. Items to consider include the base cost of the service, the reliability of the provider and the ability to take advantage of pay-per-use options. The cloud services provider chosen must not detract from the VBU's ability to implement projects with low overhead, or from its partner relationships.
2. Leverage existing partner relationships to reduce on-going licensing costs during the maintenance phase of a VBU-maintained project.

Now that the methods for decreasing maintenance services costs has been established, the rates for how this can be done must be calculated. This can be done

by taking advantage of pay-per-use options. For example, a fully loaded windows server, with managed services on Rackspace costs $1.20 per hour of use. If the server is fully utilized the entire month, this will cost $888 per month (Rackspace, 2011). However, if the client is only using the server for their applications during the business day, then the server is only needed from 6am – 11pm, five days per week, for a total of 20 days per month. If the client takes advantage of pay-per-use options, the total bill will only be $408 per month, instead of $888. Since the VBU is managing the relationship with the cloud computing service provider, these savings will lower the cost of providing the service and increase the VBU's profit margins.

6.5. Summary

To meet the VBU's mandate, the VBU must take on new clients, new technologies and new services. Changing the VBU's corporate plan to provide stronger growth potential must not only be well thought-out, but also be well executed. This paper has shown that attracting new clients, increasing maintenance services revenue and decreasing maintenance services costs will allow the VBU to meet its revenue and profit margin goals. It has also given strong reasons as to why and how cloud computing can be leveraged to achieve those goals. Moving forward, it is recommended that the VBU:

1. Attract new clients through more aggressive partner relationships. Increase maintenance services revenue by considering how new-projects will be maintained from the beginning and by transitioning existing non-cloud-based clients to the cloud.

2. Lower maintenance services costs by taking advantage of the most cost-effective cloud service providers and working with partners to reduce licensing costs.

By implementing these plans consistently across all projects, the VBU can meet its mandates and continue to be a profitable and growing business into 2014 and beyond.

Appendices

Appendix 1 - Features of Cloud Computing

Cloud computing has been defined by the National Institute of Standards and Technology (NIST) (Mell & Grance, 2009) to be, "a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction."

NIST further defines cloud computing to have five characteristics, three service models and four deployment models. These are defined in Tables 8, 9 and 10 below.

Characteristic	Description
On-demand self-service	The ability to automatically increase or decrease server or application requirements, based on pre-defined rules. This reduces costs to the consumers of cloud computing, as they are only paying for what they use.
Broad network access	The service can be accessed by any user with appropriate permissions, regardless of the device they use (e.g. laptops, smart phones).
Resource pooling	The provider of cloud computing services provides shared resources to their consumers. The fact that the resources are shared is transparent to the consumer. This reduces providers' costs, as they are able to take advantage of economies of scale on both hardware and human expertise levels.
Rapid elasticity	Cloud computing consumers are able to request additional capabilities quickly. Consumers no longer need to wait for new hardware or software to be delivered and installed. With cloud computing, their requests are handled almost instantaneously, reducing the need to plan ahead and purchase additional computing capabilities before they are needed.
Measured service	Resource usage is constantly monitored and reported on, allowing both the provider and consumer of cloud computing services to make business and technical decisions based on precise data.

Table 8 - Cloud Computing Characteristics

Service Models	Description
Software as a Service (SaaS)	This service model provides consumer applications via a web-browser instead of an application installed on the consumer's computer. Consumers of SaaS do not need to manage the installation or updates of the application. For example, Gmail, by Google, allows consumers to access their email via the internet (Google). If Google updates Gmail's capabilities, consumers automatically get those updates the next time the use the service.
Platform as a Service (PaaP)	This service model provides consumers, such as an information technology department, with virtual servers where they can deploy their own applications. The PaaS provider will provide a server, complete with an operating system and storage/database capabilities that the consumer can use at their discretion. This means that the consumer no longer needs to manage their own server installations. For example, Force.com, by SalesForce.com, provides a platform for organizations to develop their own inventory, human resource and smartphone apps (SalesForce). Once the organization develops their apps on Force.com, their staff members can access them from any internet-enabled device.
Infrastructure as a Service (IaaS)	This service model provides technical consumers with a network of servers, where they can deploy their own operating systems and storage/database capabilities. Though the consumer is handling the contents of the servers themselves, the IaaS provider will maintain the infrastructure, such as firewall deployment. For example, Rackspace provides Windows and Linux servers to anyone that requests them (Rackspace, 2011). For an additional fee, Rackspace will also monitor your servers, back them up and load balance them as required.

Table 9 - Cloud Computing Service Models

Deployment Models	Description
Private cloud	The server hosting the cloud and its contents are only available to users within a specific organization. For example, an organization may wish to use a service provider such as Rackspace to host their servers. However, the organization does not want Rackspace to share the server hardware they use with other organizations due to security, performance or reliability concerns. In this case, the organization can request that Rackspace or another cloud hosting provider use a private cloud, and dedicate specific servers to them and only them (Rackspace, 2011).
Community cloud	The server hosting the cloud and its contents are available to users within a specific group of organizations. This is essentially the same as private cloud, except multiple organizations are sharing the same server hardware.
Public cloud	The server hosting the cloud and its contents can be used by the general public. This does not mean that the data can be accessed by the public. It means that the server hardware is not dedicated to a specific organization. When an organization uses a public cloud, it means that they requested server space from a cloud hosting provider such as Rackspace. The provider sets them up with the server requirements they requested. That server may be shared with multiple other Rackspace clients however the sharing should be transparent to the cloud hosting provider's clients. Data that is on the servers is secured using firewalls and other cloud security features to ensure there are no security breaches.
Hybrid cloud	Combines two or more of the above deployment models.

Table 10 - Cloud Computing Deployment Models

Appendix 2 – Benefits and Drawbacks of Cloud Computing

Two of the characteristics of cloud computing are on-demand self-service and rapid elasticity. On-demand self-service allows consumers to reduce their usage during down-times. If usage is low on weekends and after-work hours, then consumers can reduce their server requirements during that time, which will reduce their costs. For example, a 30-day month has 720 hours but only 20-days or 240 hours of work (assuming a 12-hour work day where employees require access to software systems), meaning that server usage time and cost can be reduced by 333%. This significant decrease is due to the fact that cloud servers only need to be paid for based on usage, and usage for many servers is quite low in comparison with the number of hours in a month. Rapid elasticity means that consumers only need to purchase the services they require, as they require them. Unlike traditional server models that require consumers to purchase hardware up front, and maintain that hardware level for many years, cloud computing models allow consumers to purchase new hardware as it is needed. Hardware capacity only needs to be paid for when it is needed, and not for the life of the software solution.

Cloud computing providers offer 24/7 support. Consumers do not need to take on the additional expense of ensuring their employees are capable of handling service outages and support. They can rely on their cloud computing service provider to do this.

Because of rapid elasticity, consumers do not have to wait months for hardware or software to be ordered, delivered and installed. Cloud computing providers have hardware and software available, and can provide it to customers on demand. Also, cloud computing services are billed monthly, meaning no upfront, capital investment is required.

Despite all of these benefits there are also some drawbacks. Cloud computing means that the consumer is putting their intellectual property on infrastructure owned by a third-party provider. If something should go wrong with the infrastructure, the consumer is at the mercy of the provider to resolve the situation.

Providers may maintain their servers in any location. As a result, the consumer's information may be subject to the laws of the country the server is based in, even if the consumer does not conduct business in that country.

Though there is no capital investment required to use cloud computing services, operating expenses must be increased to support monthly service payments. Cloud computing customers must take this into account when setting budgets and analyzing revenue. With SaaS, it is easy to share data between users. However, because the data is stored by the SaaS provider, the data may be difficult to share with other unrelated applications. For example, it may be difficult to load consumer contact information

from a SaaS call-logging system into a separate email application. If the internet is unavailable for any reason, productivity will be drastically reduced.

Bibliography

Amazon. (2011). *Amazon Web Services Products*. Retrieved May 30, 2011, from Amazon Web Services: http://aws.amazon.com/

Ammers, A. v. (2011, February 16). *Scalable Cloud Infrastructure Versus the Environment*. Retrieved August 2, 2011, from Cloudified: http://cloudified.net/blog/2011/02/scalable-cloud-infrastructure-versus-the-environment/

Aral, S., Sundararajan, A., & Xin, M. (2010, December 8). *Developing Competitive Advantage in the Cloud: Qualitative Findings*. Retrieved May 1, 2011, from Harvard Business Review: http://blogs.hbr.org/research/2010/12/developing-competitive-advanta.html

City of Vancouver. (2006, May 15). *Economy - Business Sizes.* Retrieved April 18, 2011, from Vancouver.ca: http://vancouver.ca/commsvcs/planning/corejobs/pdf/research/13businesssizes.pdf

Cloud Computing Software Development. (2011, April 6). *Fujitsu Launches Cloud Consulting Service*. Retrieved May 1, 2011, from Cloud Computing Software Development: http://www.cloudcomputingdevelopment.net/news/fujitsu-launches-cloud-consulting-service/

Dignan, L. (2010, May 27). *Amazon CEO Jeff Bezon: Cloud services can be as big as retail business*. Retrieved May 30, 2011, from ZDNet:

http://www.zdnet.com/blog/btl/amazon-ceo-jeff-bezos-cloud-services-can-be-as-big-as-retail-business/35111

Fogarty, K. (2009, September 10). *Cloud Computing Definitions and Solutions*. Retrieved April 20, 2011, from CIO.com: http://www.cio.com/article/501814/Cloud_Computing_Definitions_and_Solutions

Gartner. (2009). *IT Key Metrics Data*. Retrieved May 4, 2011, from Gartner: http://www.gartner.com/technology/consulting/key_metrics_data.jsp

Gens, F. (2010, July 1). *IDC's Public IT Cloud Services Forecast: New Numbers, Same Disruptive Story*. Retrieved May 30, 2011, from IDC Exchange: http://blogs.idc.com/ie/?p=922

Google. (2011). *Google Apps for Business*. Retrieved May 30, 2011, from Web Applications that Increase Productivity: http://www.google.com/apps/intl/en/business/

Google. (n.d.). *Cloud Computing*. Retrieved May 28, 2011, from Google: http://www.google.ca/search?q=cloud+computing+definition&rls=com.microsoft:en-ca&ie=UTF-8&oe=UTF-8&startIndex=&startPage=1&redir_esc=&ei=5EvhTZ3-BIGCsQOs0I3GBg

Google. (n.d.). *Gmail*. Retrieved May 28, 2011, from Google: http://mail.google.com/mail/help/intl/en/about.html

Government of Canada. (2010). *Small Business Profile 2010.* Retrieved May 4, 2011, from http://www.resourcecentre.gov.bc.ca/pdf/SmallBusProfileEngWeb.pdf

Grant, R. M. (2008). *Contemporary Strategy Analysis.* Malden: Blackwell Publishing.

Habanero. (2010, September 14). *Habanero makes Top 100 Fastest Growing List*. Retrieved May 1, 2011, from Habanero: http://www.habaneros.com/newsevents/news/2010/10-09-14/habañero_makes_top_100_fastest_growing_list.aspx

Hagel III, J., & Brown, J. S. (2010, September 14). *Cloud Computing's Stormy Future*. Retrieved May 1, 2011, from Harvard Business Review: http://blogs.hbr.org/bigshift/2010/09/cloud-computings-stormy-future.html

Harvard Business Review Magazine. (2010, June 01). *What We're Watching in Cloud Computing*. Retrieved April 20, 2011, from Harvard Business Review: http://hbr.org/2010/06/what-were-watching-in-cloud-computing/ar/1

Hunt, S. D., & Morgan, R. M. (1995). The Comparative Advantage Theory of Competition. *Journal of Marketing*, 1-15.

IDC. (2010, May). *The Digital Universe*. Retrieved May 30, 2011, from IDC Go-to-Market Services: http://www.emc.com/collateral/demos/microsites/idc-digital-universe/iview.htm

Industry Canada. (2008). *SME Benchmarking Canadian Economy*. Retrieved May 4, 2011, from Industry Canada: http://www.ic.gc.ca/eic/site/cis-sic.nsf/eng/h_00032.html

Jeff Bacon. (2010, May 18). *Seeing Through the Clouds: Hosting ERP Solutions*. Retrieved May 1, 2011, from Habanero: http://www.habaneros.com/mobile/blog/posts/Seeing_Through_the_Clouds_Hosting_ERP_Solutions.aspx

Mell, P., & Grance, T. (2009). *The National Institue of Standards and Technology Definition of Cloud Computing.* National Institute of Cloud Computing.

Mitchell, P. (2010). *We're Getting Close to Figuring Out How to Cross the Chasm.* Vancouver: SFU Business.

Mullich, J. (2011). *16 Ways the Cloud Will Change our Lives*. Retrieved May 1, 2011, from The Wall Street Journal: http://online.wsj.com/ad/article/cloudcomputing-changelives

Porter, M. E. (1979). *How Competitive Forces Shape Strategy.* Harvard Business Review.

Rackspace. (2011, May 18). *Cloud Servers*. Retrieved May 18, 2011, from Rackspace Hosting: http://www.rackspace.com/cloud/cloud_hosting_products/servers/pricing/

SalesForce. (n.d.). *Force.com*. Retrieved May 28, 2011, from SalesForce.com: http://www.salesforce.com/platform/

Small Business BC. (2010, October). *Small Business BC*. Retrieved June 22, 2011, from Small Business Pulse October 2010: http://www.smallbusinessbc.ca/general-business/small-business-pulse-october-2010

Sourya. (2011, February 22). *How Big is the Cloud Computing Market*. Retrieved May 30, 2011, from Cloud Tweaks: http://hostwisely.com/blog/amazon%E2%80%99s-revenues-in-cloud-computing-business/

Statistics Canada. (2008). *2008 Detailed Survey Results.* Retrieved April 28, 2011, from Statistics Canada: http://www.statcan.gc.ca/pub/63-259-x/63-259-x2010001-eng.pdf

Sullivan, D. (2006). Conversation with Eric Schmidt hosted by Danny Sullivan. *Search Engine Strategies Conference.* San Jose, California: Google.

TP Systems. (2011). *Microsoft Cloud Services Contact Form*. Retrieved May 1, 2011, from TP Systems: http://www.tpsystems.com/content/microsoft-cloud-services-contact-form

Wikipedia. (n.d.). *Cloud Computing*. Retrieved June 4, 2011, from Wikipedia: http://en.wikipedia.org/wiki/Cloud_computing

Wikipedia. (n.d.). *COTS*. Retrieved June 4, 2011, from Wikipedia: http://en.wiktionary.org/wiki/COTS

Wikipedia. (n.d.). *Customer Relationship Management*. Retrieved June 4, 2011, from Wikipedia: http://en.wikipedia.org/wiki/Customer_relationship_management

Wikipedia. (n.d.). *Request for Proposal*. Retrieved June 4, 2011, from Wikipedia: http://en.wikipedia.org/wiki/Request_for_proposal

Zeithaml, V. A., Rust, R. T., & Lemon, K. N. (2001). *The Customer Pyramid: Creating and Service Profitable Customers.* Retrieved May 4, 2011, from California Management Review Vol. 43, No. 4, Summer 2001:

http://economia.unipr.it/DOCENTI/PELLEGRINI/docs/files/zeithaml,%20Lenon%20Customer%20Pyramid.pdf