Determining needs and developing solutions.

Proposal for
<redacted> Database and Web Application
Maintenance, Hosting, and Development
Version 1.0

1. Executive Summary

<Developer Company> appreciates the opportunity to present this proposal to <redacted> regarding the transfer of their <redacted> Database and Web Application Maintenance, Hosting, and Development services into our care. We are confident that our approach, which is outlined within this proposal document, shall provide substantial business benefit to <redacted> in the future and will serve as a foundation in defining a mutually beneficial relationship between both organizations.

In 2009, at the official start of the <redacted> program in Ontario, IBM was involved in developing a web-based solution for <redacted>. Currently this solution, including any databases and servers, are hosted by <redacted> and IBM is providing all necessary Production Support and Professional Services. <redacted> would like to migrate the current solution to a hosted "cloud" environment, as well as retain an organization that can provide continued development, bug fixes, and enhancements to the solution.

Based on the above, <Developer Company> would like to submit this proposal with a One-Stop solution providing

- migration of the entire existing solution to a hosted "cloud" environment
- on-site resources for continued support (including bug fixes, enhancements etc.) and new development to the solution as required.

## 1.1. Company Overview

Launched in April of 2001, <Developer Company> is a provider of consultation, development, and outsourcing services to large and mid-size organizations. <Developer Company> specializes in workflow and productivity applications as well as advanced web development strategies with a focus on increasing performance and productivity for our clients. Working with our sister companies in the <redacted> group we can offer our clients a true One-Stop solution.

1.2. Our Methodology

<Developer Company> has the expertise and experience to understand and manage the dynamic link between business strategy, technology, and methodology with project management, to deliver quality projects in a cost-effective manner, on time and under budget.

1.2.1. Quality Standards

<Developer Company> offers products and services that meet the needs of the customer. Customer satisfaction and product delivery based on standards and quality are key issues in the minds of development engineers and the
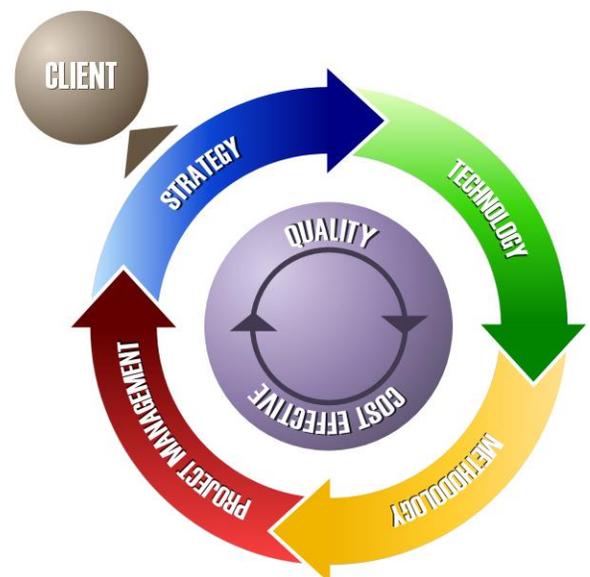
management at <Developer Company>. <Developer Company> follows strict standards and norms of the industry during all software development phases and provides turnkey solutions to customers worldwide as well as maintaining an on-going total quality management system in its process and services that meet or exceed customer requirements.

Project Management at <Developer Company> is accomplished through a series of planning steps on the part of management. Controls are monitored via various audit functions during the development phases and results are maintained using the Quality Management System that has been developed and maintained to accomplish the company's objectives and policies. Each element of the <Developer Company> policy is based on sound management principles for its products and services. To achieve maximum effectiveness in product efficiency and to satisfy customer expectations, all <redacted> companies vigorously follow a quality management system. Some of our quality elements include:

- Quality Systems Principles
- Quality In Specification and Design
- Quality Documentation and Records
- Quality In Production/Software Development
- Product Verification

- Corrective Action
- Quality Records
- Quality Audits
- Personal Training
- Service After the Sale
- Comprehensive Management Plan

1.3. Company Profile

<Developer Company> (in conjunction with <redacted>) currently has offices in Canada (Mississauga, London), and the USA (New York) as well as data centers in Canada (Toronto) and the U.S. (California). <Developer Company> specializes in workflow and productivity solutions as well as advanced web development strategies with a focus on increasing performance and productivity.

1.3.1. Office Locations

Canada – Toronto	**Canada – London**	**USA – New York**
<redacted>	<Developer Company>	<redacted>
123 Primary Road, Unit # 55.	123 Secondary Avenue	123 Third Street
Toronto, ON A1B 2C3	London, ON 4C5 D6E	New York, NY 00000
Canada	Canada	USA
Tel: +1 905-555-1234	Tel: +1 519-555-1234	Tel: 1-800-123-4567
Fax: +1 905-555-5678	Fax: +1 519-555-5678	Fax: +1 555-123-4567

Data Centers

Canada – Toronto	**USA – Santa Clara**
<redacted>	<redacted>
123 Datacenter Place	123 Datacenter Avenue
Toronto, ON A1B 2C3	Santa Clara, CA 11111
Canada	USA

1.3.2. Partial Client List

- <Valued Client #1>
- <Valued Client #2>
- <Valued Client #3>
- <Valued Client #4>
- <Valued Client #5>
- <Valued Client #6>
- <Valued Client #7>
- <Valued Client #8>
- <Valued Client #9>
- <Valued Client #10>
- <Valued Client #11>
- <Valued Client #12>
- <Valued Client #13>
- <Valued Client #14>
- <Valued Client #15>

2. Managed Application Solution

2.1. Our Understanding

The current web solution being utilized by <redacted> is called <redacted>. The database used by this solution is on a MySQL platform. The customer-facing web application (www.<redacted>.ca) which accesses the database is on a Linux server running Ubuntu with Apache and utilizes PHP scripting. The backend <redacted> application runs on a Windows server running IIS and ASP.NET. The backend <redacted> application is accessed by staff through a Citrix Desktop environment.

2.2. Our Solution

Starting mid November 2011, or as per <redacted>'s decision, <Developer Company> will provide the following resources:

- **One [1] Program Manager:** (Responsibilities include the overall liaison with the client, discussing future strategies and manage the requirements and expectations to deliver a seamless migration from our support for the production environment, responsible for any escalations or any major changes in the scope of the program.)
- **One [1] Project Manager**: (Responsibilities include liaison with the client and internal team members. The PM will also be responsible for coordination with all stake holders, documentation, follow through on milestones, and delivery of specific projects.)
- **One [1] Project Leader**: (Interact with the client/client personnel to understand their needs, hands on senior programmer analyst, accomplish tasks with the team, prepare required documentation as well as project status reports, etc.)
- **Two [2] Application Developers**
- **One [1] BA/QA Analyst**

The Project Leader and all Technical Staff will be made available on-site at <redacted> premises at the start of the project. The Program Manager and Project Manager will be available on-site as required.

The tasks of the above team will include but are not limited to:

- Participate in the Knowledge Transfer meetings (during the first month)
- Fix existing bugs and implement existing enhancement requests
- Fix new bugs and implement new enhancement requests
- Improve the user interface of the system for both program participants and <redacted> staff
- Administer database and web access, add/remove/modify users
- Build and provide reports based on <redacted> staff needs
- Develop version 2.0 of existing modules

- Develop new modules to the solution (Potential Stewards, MoE tracking, Sub-collectors, Penalties/Adjustments/Interest calculations)
- Provide database backup and recovery services
- Google analytics reports

Any other task as agreed upon between <redacted> and <Developer Company> Project Manager assigned to <redacted>.

2.3. Your Commitment

To successfully navigate this project <redacted> will be required to:

- Provide our consultants with all available documentation (Technical, End-user etc.) on the existing solution
- Make sure that IBM resources are available to answer our questions during the knowledge transfer period (first month) and the hand-holding period (second and third month)
- Provide User/Administrator access to the existing solution
- Provide workspace, workstation, telephone access etc.

3. Private Cloud Solution

3.1. Objective

<redacted> currently runs their Application Infrastructure on a set of dedicated hosted servers that are currently being hosted by <redacted> – an external hosting organization. The internet facing public web site and the relevant applications run on dedicated hardware servers that are in the <redacted> hosted infrastructure and are also managed and monitored by <redacted>. <redacted> would like to move this application infrastructure to a Private Cloud in the near future and has issued a Request for Proposal (RFP) for the application infrastructure hosting in addition to application development and management. <Developer Company> would like to propose a solution that would meet the <redacted> requirements.
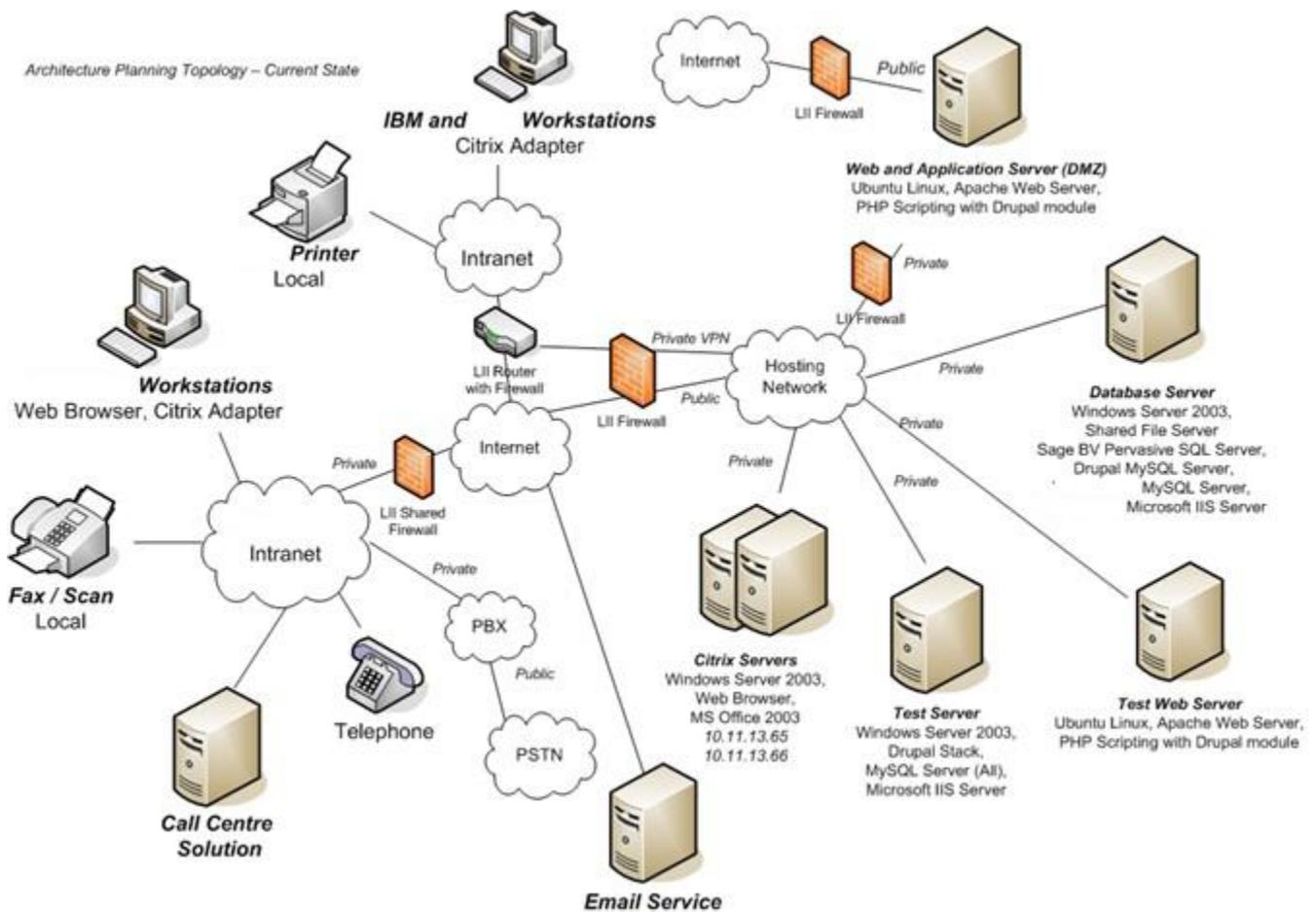
3.2. Current Infrastructure

Figure 1.0

The current application has multiple components. The major components are database servers, web servers and Citrix servers for secure external remote access. Multiple databases run on dedicated

hardware servers and play the database backend role of the application. In addition, there are Web Servers running Microsoft IIS and Apache and act as the front end of the application. The entire application is made available through the internet by using Citrix Servers to facilitate secure remote access. The Citrix servers are also dedicated hardware servers located at <redacted>.

In addition, there is POP3/SMTP E-Mail service for the application that is also hosted from the <redacted> infrastructure.

In the diagram below the existing infrastructure is further clarified –
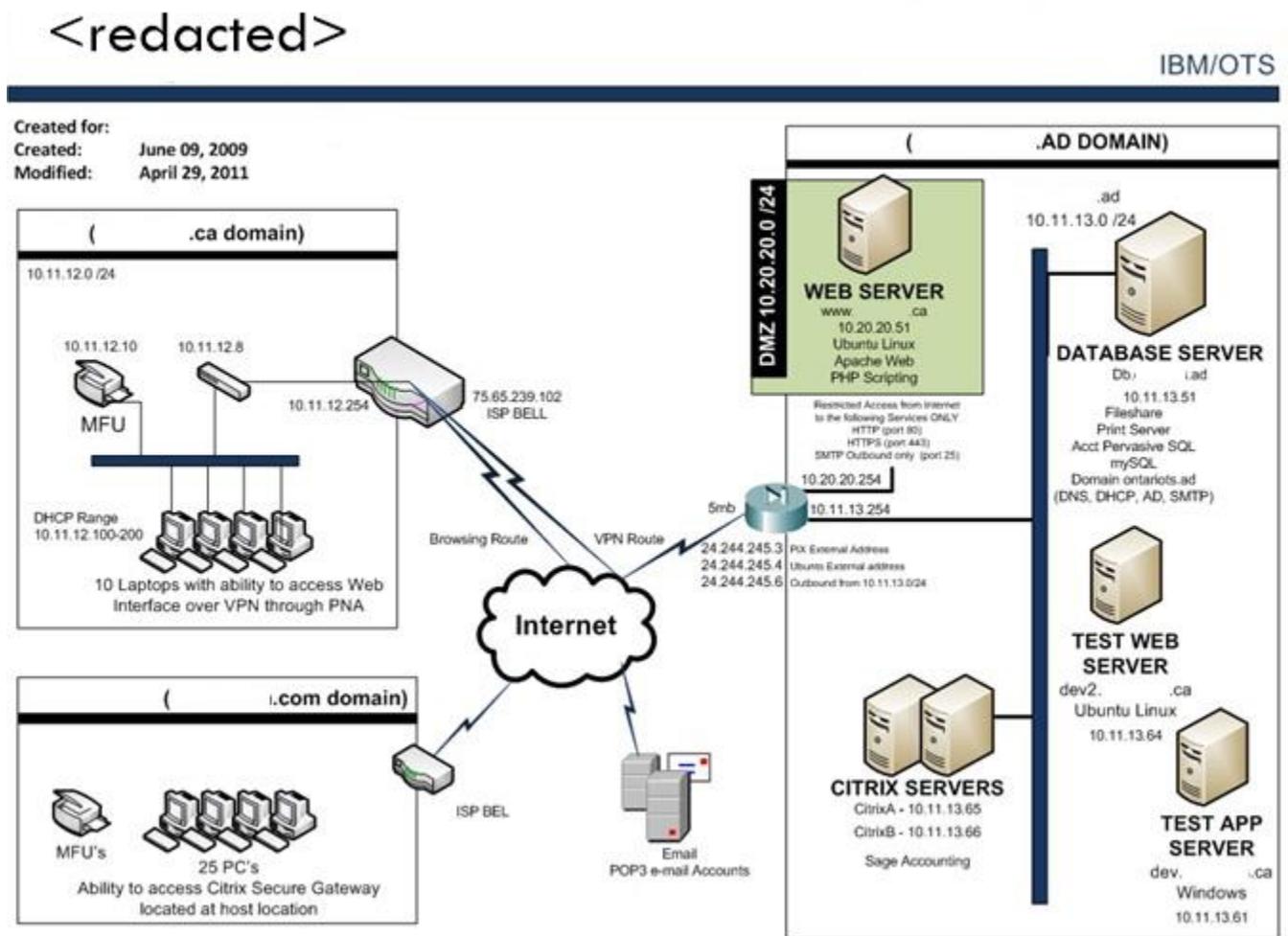

Figure 2.0

The existing hosting environment consists of:

- A single Web Server
- A single Database Server
- Two Citrix Servers

- A single Test Web Server
- A single Test App Server

The database server runs pervasive SQL and MySQL databases and plays the role of a file server share. The database server also acts as the Active Directory Domain Controller, DNS, DHCP and SMTP Server.

- The Web Server runs Ubuntu Linux Operating System and Apache Web Services.
- The Test Web Server runs Ubuntu Linux and Apache Web Services.
- The Test App Server runs Microsoft Windows Server 2003 Standard Edition.

3.3. Private Cloud - Hosting Requirements

The hosting requirements as specified by <redacted> are as follows:

Current State	Future State	Comments	Priority
Dedicated hardware server for public web application. (<redacted> PaaS)	Private cloud for public web application, with high performance SLA. (<redacted> PaaS)	Future could include public cloud SaaS such as Acquia Drupal hosting, although there are integration hurdles.	High
Dedicated servers for internal business applications. (<redacted> PaaS)	Private cloud for internal business applications, with medium performance SLA (Commodity PaaS)	Future could include public cloud PaaS for <redacted> and SaaS for financials such as NetSuite, although there are integration hurdles.	High
Dedicated servers for Citrix Workstations. (<redacted> PaaS)	Private cloud for Workstations Server, with high performance SLA) Public cloud for collaboration (<redacted> PaaS)	Likely requires strict <redacted> control of platform and software images within a Citrix environment thus difficult to use SaaS offerings.	High
Dedicated servers for non-Production servers. (<redacted> PaaS)	Private cloud for non-Production servers with low performance SLA. (<redacted> PaaS)	Opportunity to save costs for Development, Test, Service server with lower SLA requirements.	High

As seen from the requirements table, the current dedicated hardware servers for all roles are to be replaced by Private Cloud Servers. Some Citrix Servers would need to be available in a public cloud for collaboration.

The Web Servers, Database Servers and the Citrix Servers roles would require a high-performance SLA while the internal business applications would require medium performance SLA and the non-production servers would require low performance SLA.

The high performance, medium performance and the low performance SLAs are yet to be defined and agreed upon, however, it is assumed that in the near future they would be clearly defined.

3.4. The Proposed Solution

The proposed solution from <Developer Company> is conceived and designed with the requirements provided by <redacted> in mind. The objective of <redacted> is to not only relocate from <redacted> to another hosting provider but to convert the existing hosting model into a cloud-based model for greater flexibility and to take advantage of Public Cloud Services such as SaaS and PaaS offerings that may be available in the future. With this objective in mind, <Developer Company> would propose utilizing various targeted technologies such as Physical to Virtual (P2V) conversion, server and application migrations, database migrations etc. to convert the existing hardware-based servers into cloud-based virtual servers. Since <redacted> has also specified a parallel requirement to move away from the existing Linux based platform to a Windows based platform, it may be possible to go through the OS platform conversion during the migration as well.

In the Cloud Services offered and hosted by <Developer Company>, the existing Web Servers will be brought in as virtual servers. The servers may be brought in "as is" – such as Linux/Apache hardware servers to Linux/Apache virtual servers and then go through the migration to a Windows based server platform. The other option is to build a Windows based virtual web server first and then only migrate the application to the Windows based virtual web server. Both options are open and can be done based on further discussions with <redacted>.

In the same manner, the database server can be converted into a virtual server and hosted in the <redacted> Private Cloud.

The <redacted> Private Cloud will also build a dedicated Citrix farm for <redacted>S where the Citrix roles would be installed in cloud based virtual servers. This creates a scalable Citrix solution that can be expanded as necessary when the additional load might require additional members in the farm. Some of the farm members would be exposed publicly for public collaboration as the <redacted> requirements table states.

Finally, virtual servers in the <redacted> Private Cloud would host the Test Web Server and the Test App Server role.

Each of these roles, such as application servers, non-production test servers etc., would run in different types of cloud segments that can offer the appropriate level of SLA for <redacted>. For example, the application servers would run in a high performance and high available cloud segment while the non-production test servers can run in a low performance cloud segment.

The underlying technology for the Cloud Services will be VMware vSphere running on a set of blade servers in a dedicated blade chassis for <redacted>. It will also use dedicated SAN storage to meet the storage needs for the cloud. Using various combinations of server blades, NICs, storage options etc., three different levels of cloud segments will be built (high, medium, and low) for hosting various server roles. The appropriate virtual servers would then be placed in the respective cloud segment.

<Developer Company> intends to use a CloudSystem Matrix Converged Infrastructure platform to deliver the benefits of cloud services. With its application-centric design, it provides the ideal foundation of a Private Cloud environment. It provisions complex infrastructure and applications in days instead of months, reduces total cost of ownership and reduces application provisioning. The system will be designed to simplify the deployment of applications and business services by delivering IT capacity through pools of readily deployed resources. The goal of the Matrix operating environment is to accelerate provisioning, optimize IT capacity across physical and virtual environments and to ensure predictable delivery and service levels.
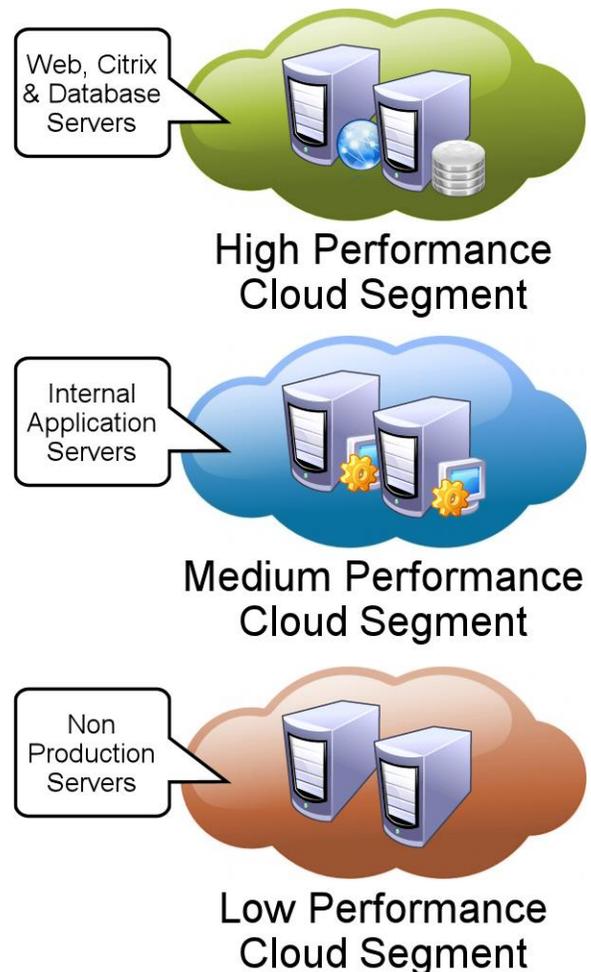
3.4.1. Salient Features

Dynamic provisioning from test and development to production

- Faster time to business value by provisioning services within days instead of months
- Improve utilization by enabling users to check out / return resources from a central pool

- Streamline test and development processes by easily converting servers from virtual to physical and back

Ongoing optimization and consolidation with energy awareness

- Unified tools to freely move and balance workloads across physical and virtual servers
- Built-in capacity planning for all servers, giving best-fit advice for utilization of capacity
- Accelerate and standardize your process for migration from rack servers to blades
- Instantly adjust to dynamic business demands in days not months
- Provision and modify complex infrastructure and applications in days not months

3.4.2. Provision Infrastructure Quickly

Our Private CloudSystem Matrix lets us create a complete infrastructure environment ready for your applications in minutes -- by automating the provisioning of servers with their storage and networking connections. The new Storage Provisioning Manager interface puts server and storage managers on the same page when it comes to storage needs for infrastructure.

3.4.3. Optimize Infrastructure Confidently

Our Flexi-Private Cloud maintains deep insight into the infrastructure and lets you quickly adjust your environment over its lifecycle so that you can predictably make changes without time-consuming analysis. Key data points like power draw, CPU and network utilization are captured constantly (more than a thousand data points per server per day) and are used to generate best-fit consolidation scenarios. When combined with built-in rebalancing tools, this can eliminate weeks or months of tedious planning and implementation.

3.4.4. Optional Protect Continuity of Services

Protect and automatically recover workloads with a range of integrated solutions for availability and disaster recovery. Fail over workloads in as few as 15 minutes, including dynamic physical to virtual recovery. Recover server blades in minutes, not days, with integrated cost-effective disaster recovery. Matrix lets you simply move workloads to other servers or sites, improving disaster recovery time by 80% or more.

3.4.5. Transform the Economics of Your Data Center

Double productivity of administrators, reducing your operating expenses

Server management and administration personnel costs can represent over 80% of the costs of a typical IT organization today. With our Matrix approach, our staff can configure and manage a thousand servers or more as a single domain reducing the time required for routine tasks. Compared to a rackmount environment, the time needed for routine server administrative tasks,

such as performance and capacity assessment can be decreased by 60 percent or more and pass the benefits on to the end user. By eliminating manual coordination between server, storage, and network administrators for everyday tasks, and automating resource-intensive manual tasks, our administrators can install, deploy, and reconfigure server connections to storage and networking in 90% less time compared to traditional infrastructure and thus enable us to pass the savings back to you.

3.4.6. Integrated by Design

Integrated by design, built on the industry's leading blade architecture

Highly flexible, scalable architecture for private cloud environments built on proven technologies. We only work with Tier 1 manufacturers with a proven architectural approach for environments ranging from small business to the most mission critical enterprise applications. Using standard components that can be dynamically changed, you get the efficiencies of standardization without sacrificing flexibility.

- Virtual Connect: wire-once and change data center connections on the fly.
- Thermal Logic: dynamically adjust power and cooling, infrastructure management to unlock the potential of your infrastructure.

Integrate seamlessly into your existing environment

The Private CloudSystem Matrix is designed to work with the common technologies and processes used in data centers today. This open design approach ensures that Matrix integrates seamlessly with most storage and network fabrics (HP StorageWorks, HP Networking, EMC, Cisco, Brocade, Hitachi, 3PAR, Equalogic). It connects to industry-leading IT service management platforms, aligning with your existing processes. It runs any application out of the box and is integrated with the leading virtualization technologies. Matrix manages virtualization for the entire infrastructure, across servers and storage as well as network connectivity.

3.5. Provisioning Considerations

As per the discussions and information provided by <redacted>, <Developer Company> will provision the following infrastructure availability from the start of the contract. As the architecture is highly scale-able, it has been provisioned to grow as per the requirements from <redacted>:

Processing: 96 Cores (2.3Ghz)
Memory: 300 GB
Storage: 8 TB (Based on Different tiers as per SLA's and performance requirements)

3.6. Conclusion

The proposed solution converts the existing hardware-based application platform into a cloud-based application platform running on virtual servers. It also considers the requirements for future flexibility regarding hosting the entire application platform in a PaaS or SaaS based offering from other public cloud services. To meet the various SLA requirements, it builds high, medium, and low performance cloud segments and hosts the server roles in an appropriately built cloud segment. This proposal is based on the most current information available and can be readily modified and improved as additional information and requirements become available through feedback from <redacted>.

4. Costing

4.1. Application Management

Application Management will include all the tasks mentioned in the proposal and will be reviewed Bi-Annually with <redacted> for future Project Scope and technical resource requirements. Below is the costing on fixed price model for a team of allocated resources for the <redacted> application management.

No.	Description	Engagement	Price / Month
1	Program Manager	Expected to be engaged 25% of the time	$6,600.00
2	Project manager	Expected to be engaged 50% of the time	$10,800.00
3	Project Leader	Full Time	$12,000.00
4	Application Developer	Full Time	$9,500.00
5	Application Developer	Full time	$9,500.00
6	BA/QA Analyst	Full Time	$12,000.00
	Total Costing Per Month (Managed Application)		**$60,400.00**

Allocation of resources will be discussed in detail and <Developer Company> is open to adjust the resource allocation depending upon further deliberations with <redacted> team.

4.2. Dedicated Private Cloud Solution

<Developer Company> will provide one time migration services from <redacted> Data Center to <Developer Company> N+1 Data Center based in Toronto at 123 Datacenter Place. Our Data Center is based on the 5th Floor at an industry leading world class Equinix facility with SAS70 certification. The one-time migration will also include virtualizing the existing environment into the cloud solution.

No.	Description	Scope – One Time	One Time Price
1	Infrastructure Migration	Migration of Servers, End to end Virtualization on VMware platform in a high availability environment, Implementation of backup Solution.	$38,600.00

No.	Description	Scope - Ongoing	Price / Month
1	Virtual Private Dedicated Cloud	Enterprise Private Cloud Hosting, Application Hosting, Minimum 96 Cores	$14,800.00

		2.3 GHZ processing, 300 GB RAM, Flexi – Matrix Architecture with clearly defined growth path, 24x 7 Support, Network Administration, Includes all Hardware. **Assumption: <redacted> currently have the software licenses that will be used in the solution. (Non-profit Licenses can be added if required)**	
2	Backup and DR	Enterprise Cloud Backup Service on Asigra or Iron Mountain Platform with 1 year retention. (Minimum 500GB at the rate of $4.25/GB)	$2,125.00
		Costing Per Month (Managed Cloud)	**$16,925.00**

Optional Additional Services Available: Archiving, Hosted/Managed Exchange, Helpdesk.

5. Commitment of Acceptance

<redacted> commits in principle to engage <Developer Company> to undertake both the project and ongoing management solution plan outlined in the preceding proposal. Upon receiving this commitment, <Developer Company> agrees to book this project, schedule staff, and negotiate a suitable project start date with <redacted>.

In agreeing to partner with <Developer Company>, <redacted> acknowledges that the project scope, deliverables, ongoing management, and methodology outlined in the proposal are satisfactory and agrees to accept the initial project cost and ongoing support cost as specified in the proposal. A formal Service Agreement outlining SLA's and management start dates and invoicing schedules will follow later with mutual consent of <Developer Company> and <redacted>. The above pricing is based on a 36-month contract. The contract pricing will be reviewed at the end of every year with a maximum increase of up to 7.5%.

Signature   **Signature**

_____   _____

Name   **Name**

Date: **Date:**

<Developer Company>   **<redacted>**

Confidentiality