Summer Information Technology Proposal

Engineering Society of Queen's University | Summer 2016

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Robert Saunders – Director of Information Technology
Tyler Bennett – Vice President (Operations)

Consultation
Eric McElroy
Richard Hum
Dave Mayo

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Introduction

The Engineering Society of Queen's University (EngSoc) is a completely student run organization that caters to every student at Queen's University studying Engineering. With that comes a huge responsibility to be available and accessible to everyone. Over recent years EngSoc has lacked coherency and sustainability with respect to it's IT infrastructure. It has come to attention that what the EngSoc needs is to allocate a certain amount of funds or dedicate a paid summer position to work on it's IT infrastructure. Doing so would create the sustainability and coherency within it's IT infrastructure an organization such as the EngSoc should have.

Director of Information Technology

The Director of Information Technology (DoIT) oversees all of the EngSoc's IT infrastructure, including maintaining websites, emails, and other IT related aspects. The DoIT would manage the summer work to make sure that it was being done with a degree of acceptable professionalism and that deadlines are met. The DoIT would work closely with the summer development team to design and choose an appropriate route to take in terms of IT infrastructure.

Background

Over the past few years the EngSoc has been transitioning their servers from a local store to a cloud based solution through a service called Rackspace. The transition has been quite seamless but has had its difficulties resulting in websites going down. Transitioning the websites over to the new servers can be difficult and time consuming and due to the time constraints previous IT members had something's could not get done, or done correctly.

Current System

The current system is primarily on Rackspace but a few sites are yet to be transitioned over to the new servers. Below is a good representation as to what the EngSoc is currently maintaining in terms of their IT infrastructure:

Hard Infrastructure

Hard infrastructure being physical items that the EngSoc either maintains or pays for:

- Clark Hall Lounge Server – currently there sits a server in the Clark Hall Lounge that was previously used to maintain a large amount of the websites that are maintained by EngSoc, however most of the sites have been transitioned to the new cloud based servers their still remains one or two websites on it. It would be great to decommission this server as part of the Summer IT work portfolio, to use the room for storage and remove clutter within the system.

- Engineering Society Lounge – currently the EngSoc manages seven computers in the lounge. These computers are used for people to print documents from or generally use.
- Rackspace Servers – currently the EngSoc has three servers on Rackspace that all have different websites on them, and although there is a little structure between the three of them there isn't a great sense of coherency or exact structure. This is something that needs to be worked on and be documented. The servers manage roughly thirty websites and a small amount of file space. Although most of the sites are operational the structure within the servers themselves is poor and could be better designs to eliminate vulnerability's.

Soft Infrastructure

Soft infrastructure being software based applications that the EngSoc manages:

- Engineering Society Website – The EngSoc website is the only website that the Engineering Society solely manages by themselves. All other websites or applications are a joint effort that are mostly spearheaded by the webmasters of the respective group.
- Design Teams and Clubs (See Relationship)
- Services (See Relationship)

Relationships

The DoIT works closely with many groups to ensure that things run smoothly because most of the EngSoc's IT infrastructure is a joint effort between groups.

Alma Mater Society (AMS)

The AMS is currently the group that is responsible for maintaining and development of EngSoc Apply, however the web application is hosted by ITS on their "webapp" server. The AMS are also responsible and manage the EngSoc's emails, if anybody within the EngSoc needs to create/update/delete an email a ticket is filed with them.

Information Technology Services (ITS)

The ITS is a great resource that works with the EngSoc to make sure the standards that are set by Queen's University are met, in particularly they are great consultants in regards to security and privacy. See next heading.

Privacy and Security Constraints

With student information being used for certain aspects of the IT services that are offered by EngSoc it is important to maintain the high level of privacy for any web application that EngSoc develops, any web application created is mandated to go through a security test through ITS.

Rackspace

Most of the servers that the EngSoc operates are Rackspace servers. Our relationship is purely that they host our servers for them, they are a service. However, detailed later in the document Rackspace could be a potential provider of contract work in the summer. Rackspace also offers very good costumer support.

Design Teams, Clubs and Conferences

Most of the clubs, design teams, and conferences choose to develop their own websites and hire a webmaster rather than having a page on the EngSoc website. The DoIT meets with them when they need to update their website and acts as a middle man between the server and them, however it is important to know the development is individual.

Faculty

The faculty is related to the EngSoc as the faculty we represent, they dictate very little in terms of the IT solutions we use, however they could have the potential to halt our development if it infringed on some of their policies or they didn't like it

Current Costs

A brief cost breakdown of the current system can be seen below. The only relevant information would be the server cost; the server cost could change dependent on IT infrastructure changes.

Table 1 - Current IT Infrastructure Costs

Item	Cost
Website Management	$452
Servers	$6000
Software	$1350

Evaluation

Below is a brief evaluation of the current IT infrastructure used, due to time constraints to prepare this document some things could be missing.

Table 2 - SWOT Analysis of Current IT Infrastructure

Strengths	Weaknesses
• Rackspace • Operational • Transition Period Started • Tasked Based Servers (Independent)	• Unorganized + Broken • Zero Documentation • Sustainability • Professionalism

Opportunities	Threats
• Reduce Costs w/ Better Design • Organize • Documentation • Professional Level	• Website Downtime in Summer • Costs to Develop

Summer Development Plans

IT Infrastructure Development

EngSoc needs a coherent and sustainable IT infrastructure. The current design works most of the time but is not ideal, hiring someone to work on designing a new solution adhering to professional standards would put the EngSoc in a stable and sustainable place in terms of IT infrastructure. The job would include, redesigning the IT infrastructure with a degree of professionalism, documentation for the entire system, and on-call support for any IT related problems.

Paid Summer Position

The first of two options for IT infrastructure work to happen over the summer would be to hire a paid summer position at the executive rate to stay and work in Kingston to develop a new solution. Benefits of this would be accessible knowledge throughout the year and summer, the cons of this would be the lack of professionalism and the time of development.

Value Breakdown

Below is the value breakdown for a potential paid summer position. *It is important to realize that if a paid summer position was feasible the cost would be calculated from an entire summer of work at the executive rate, this could potentially allow for the position to jump into other development plans.

Table 3 - IT Infrastructure Summer IT Position Value Breakdown

Time Estimate	Estimated Cost
4 Weeks	$9500*

Contract Work

The next option for IT infrastructure work could be to outsource it to a professional company or person as contract work. The benefits of this solution is that it would adhere to professional standards and the timeline could be guaranteed. The cons of doing this could be cost.

Value Breakdown

Below is the value breakdown to contract work to a professional to work on the EngSoc's IT infrastructure.

Table 4 - IT Infrastructure Contract Work Value Breakdown

Time Estimate	Estimated Cost
2-3 Weeks	$4000-5000

Software/Applications Development

Another area within the EngSoc's IT infrastructure is the software and applications help operate the IT environment. Below is a list of the applications/websites that we feel would benefit/need an update or even be made (Member Portal). Read into each in detail below.

Engineering Society Apply (EngSoc Apply)

EngSoc apply is a web application that allows users to apply for jobs within the Engineering Society and was originally developed by AMS and is currently maintained by them. Essentially their system was customized for EngSoc by AMS, something to note is that they are developing a new solution to the AMS apply and have offered for us to use it. This could lead to the same problems we are having now with it. Which are, numerous bugs which we as the EngSoc cannot fix because it is managed by AMS. It has become quite apparent from numerous people that the web application needs a refresh for the coming 2016/2017 year. This application could be developed internally or by the Summer IT position, and could also be made contract work. Each of which have their own pros and cons.

Value Breakdown

Below is the value breakdown for the potential development of EngSoc Apply:

Table 5 - EngSoc Apply Development Value Breakdown

Time Estimate	Estimated Cost
7-8 Weeks	Contract Work: $7500 Summer IT Position: $9500* Internally: Free (Unknown)

Engineering Society Member Portal

The EngSoc Member Portal is a vision that the current DoIT (Robert Saunders) has come up with. The member portal would incorporate all of the components any members in the Engineering Society would ever need while also acting as a place of the Executive team to manage their own portfolio using a suite of custom tools built into it. For a better overview of the member portal and vision please look at the "Goals" heading.

Value Breakdown

Below is a value breakdown for the member portal development proposal. It is important to note that even if the DoIT wants to take this upon himself as his portfolio it could incur costs.

Table 6 - EngSoc Member Portal Development Value Breakdown

Time Estimate	Estimated Cost
DoIT Term	Free (Unknown Cost)

Engineering Society Website

The EngSoc is needing a refresh. This could be a project for the IT Team however it is important to be put on people's mind.

Value Breakdown

Table 7 - EngSoc Website Refresh Value Breakdown

Time Estimate	Estimated Cost
DoIT Term	Free (Unknown Cost)

Goals

A brief overview of the current DoIT's (Robert Saunders) vision for the EngSoc's IT infrastructure in terms of their website hierarchy an orientation. This has no information as to what the server layout would be but the purpose of the diagram is to show that with this particular solution there is very little clutter and could be very easily maintained.

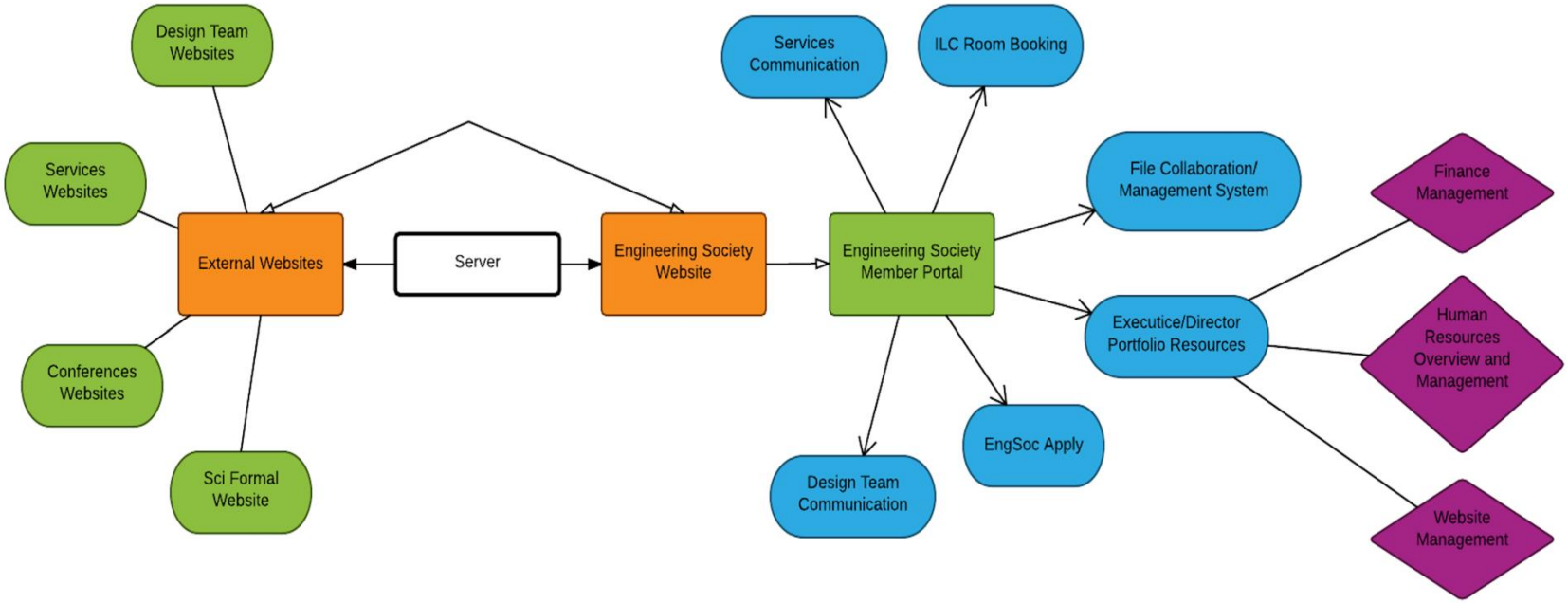

Figure 1 - Vision IT Infrastructure (Websites)

Conclusion

Concluding, it is apparent from the information mentioned above that resources should be allocated toward development of a new IT infrastructure within the EngSoc.

Contact

Any questions regarding the content within this document feel free to contact:

Robert Saunders – Director of Information Technology – doit@engsoc.queensu.ca
Tyler Bennett – Vice President (Operations) – vpops@engsoc.queensu.ca