Drupal 8 & VCE Velocity

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Virtual Charity Events

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# **Executive Summary: Drupal 8 & VCE Velocity**

Virtual Charity Events is dedicated to helping charity organizations, individuals, and corporations by providing assistance and management with online registration forms for charity events. However, the issue of payment processing fees has greatly impacted the number of funds that are being raised for charity organizations with their use of third-party online registration platforms. Therefore, with the collaboration with a partner, we proposed that we create an online registration platform for Virtual Charity Events using the Drupal 8 Content Management System.

We proposed the following for phase one:

Phase One:

* Complete Documentation for Maintenance/Administration purposes
* Complete Documentation for Companies who will be using the platform
* Landing Page with a secure Login Functionality and Registration Functionality
* Neat and Organized Custom Registration Page Builder
* Functional PayPal Payment Gateway

Our recommendations for the continuance of the project would then move into 3 more phases. Phase two would be the integration of other payment processors in order to locate one with the least or no fees. Phase three would be that of creating the drag-and-drop interface for the creation of online registration forms. Phase four would then include the possible expansion of the V.C.E. Velocity brand. All phases remaining flexible and agile for any challenges or changes that may arise.

# **Introduction to Virtual Charity Events**

Virtual Charity Events is dedicated to helping charity organizations, individuals, and corporations by providing assistance and management with online registration forms for charity events. They help to increase awareness of charity organizations’ causes and improve involvement to create a greater sense of community through helping to engage supporters. Individuals are then in turn participating in fun events while learning about different charity organizations and are able to participate in healthy activities (*About Virtual Charity Events, 2014)*. Corporations are also able to encourage and support a charitable lifestyle amongst their own employees and customers. All while publicly promoting and supporting philanthropic initiatives.

Virtual Charity Events is an organization that is run and owned by David Willard. Mr. Willard has expertise from years in corporate sales, marketing, and leadership. He had to opportunity to work with charity organizations including the United Way, local hospitals, school and church groups, and large universities in which he worked on awareness campaigns, funding initiatives, event organization, and management, as well as serving on their boards and in leadership positions (*About Virtual Charity Events, 2014)*. Virtual Charity Events is a combination of these with his passions for sports, healthy living, and helping others and was created after he left the corporate world.

At the beginning of the summer of 2020, Virtual Charity Events had an online presence on several social media platforms and had its own website (*Virtual Charity Events, 2014)*. However, the online registration forms were being created and hosted on other third-party platforms like that of Red Podium. However, what many registrants and even organizations are not aware that there are fees involved in multiple steps of these third-party platforms. Some are much less than others however, these fees still can greatly decrease the funds that are being raised for that charity. Virtual Charity Events and Mr.Willard has been searching for a solution for this issue. The most obvious answer would be to create their own online registration platform, however, it can be very expensive to create and maintain. It would also require a specific skill set that Mr.Willard does not possess, like that of website design, and working directly with computer code. Therefore, He outsourced an internship to computer science students at Cairn University with the intent to have them create an online registration platform for Virtual Charity Events.

# **Foundations**

As the internship began there was much background and foundational knowledge necessary to complete the goal at hand and generate a solution and further recommendations. The first foundation was Drupal. Drupal is an open software content management system (*Buytaert, 2020*). Open software means that this is software available for free to anyone who wishes to use it. A Content Management System is a software platform that allows its users to create, edit, and save information (*Spilotro, 2018*). It also allows for collaboration, reporting, and distribution of said content, all while maintaining a user-friendly interface between the website and the database (*Spilotro, 2018*).

Drupal, originally known to its creators as Dorp, was created in 2000. Dries Buytaert and Hans Snijder were university students who needed a reliable internet connection, so they teamed up and combined resources (*Drupal, 2018*). However, they realized that they wanted to be able to communicate and talk to one another online as well. So, they created a small news site with a web board so that their group of friends could post notes and share information. Upon graduating they decided to move their internal site online, originally operating under the domain drop.org (*Drupal, 2018*). Once drop.org was online the audience changed and attracted many new members who began talking and exploring new web technologies. Slowly dorp.org turned into a personal experimentation environment that was pushed forward by discussions from the wealth of ideas that were being exchanged (*Drupal, 2018*). All of which soon became the software running drop.org. In January of 2001 Dries decided to release the software behind drop.org making it open software (*Drupal, 2018*). He called this software “Drupal”. As of August 2020, Drupal version 9 (Drupal 9) has been published and released (*Drupal, 2018*).

The second foundation would be the needs of Virtual Charity Events. Not only the physical things that Mr.Willard would need to research into and purchase for his company but also how this massive project should be scoped to meet the current and future needs and goals of the company. The physical needs that Virtual Charity Events would need to invest research and funds in would be that of a hosting company and a domain name. Web hosting is a service provided by a number of different companies. It allows organizations and individuals to post a website onto the internet without having to maintain or purchase any of the necessary equipment or manual labor. They are businesses that provide the technology and services necessary for a website to be viewed over the internet. Most hosting companies require that one owns the domain name for your site. A domain name is simply the website name or the address where Internet users can find and access your website. A domain name can be any combination of letters and numbers used in conjunction with extensions like that of .com, .org, and the many others that exist.

This project also needed some scope for us to assess the current needs of Virtual Charity Events in combination with Mr.Willard’s desires. Placing the project under the scope simply means to break up the deliverable features into smaller stages to ensure that the project can be completed. It helps to focus energy and effort into the correct features first so that we are able to work without being overwhelmed. Mr.Willard would like a drag-and-drop online registration platform where his customers can come and create registration pages for their specific events. The registrants would also be able to come to the platform to register for any event they desired. This entails many much smaller and complex details even though it sounds very straight forward. Therefore, we had to scope the project down into deliverables that we could achieve in our three month internship period. Thus, the foundations of our internship projects were set, and we were ready with our solution and to begin our project.

# **Our Solution**

With the collaboration of Mr.Willard and Professor Sabal, my colleague and I were able to produce a solution to meet the desires and needs of Virtual Charity Events through our internship positions. Our first assessment was that of Virtual Charity Events’ needs and desires through the eyes of Mr.Willard the owner. He desired that Virtual Charity Events would have its own online registration platform that is simple and user friendly, as Mr.Willard himself does not have much experience with computer programming or coding. The purpose of such a platform was to combat the fees involved with using third-party online registration platforms. Mr.Willard desired a drag-and-drop format be applied to the process of making the registration forms online. He felt that this would be the most user-friendly interface for his clientele. We informed Mr.Willard that this would not exactly be possible to push the project this far in the three-month time-frame of our internship and his solution was that other interns could step in and take our roles once our internship period was over. This was an excellent solution and plays into our solution and recommendations for Virtual Charity Events. We agreed with Mr.Willard that in order to combat the issues that were arising with third-party fees that it was necessary for Virtual Charity Events to have and maintain their own online registration platform. However, since the timeframe allotted to our internship was too short we decided that the project would be done in phases. In these phases, differing teams of interns would work for Virtual Charity Events and work on progressing the phases until the project was completed. Therefore, we were planning and working on completing phase one. In a collaborative effort, the project became known as V.C.E. Velocity, with the hopes that Virtual Charity Events could use this in the future to expand their brand.

# **Phase One**

This phase would be the foundation for the following phases and specific deliverables were proposed. Due to the complexity of creating an entire online platform we were advised to use the Drupal 8 Content Management System in order to reduce the time and energy spent on back-end coding and database creation. The initial deliverables for phase one were as follows but were not limited to:

* The creation of a Landing Page with a secure Login Functionality and Registration Functionality
* Neat and Organized Custom Registration Page Builder
* Functional PayPal Payment Gateway
* Complete Documentation for Maintenance/Administration purposes
* Complete Documentation for Companies who will be using the platform

# **Our Work**

Our work then began, as neither of us had ever done any work with Drupal 8, so we had to learn the basics and intermediates of the Drupal 8 platform. This helped us to generate ideas of what is absolutely necessary for the base model site for phase one. This process also involved us learning how to install Drupal and the use of puTy and FileZilla in order to access and move files and information of the csinfo servers hosted by Cairn University. Once we felt comfortable with our skills while also learning new skills along the way we began to experiment and build. Our largest challenge we realized was that of our payment gateway. In phase one, PayPal is to be the intended payment gateway because it integrates well with Drupal 8 and has many capabilities that are already pre-built. PayPal unfortunately still has some fees involved but they have an increased reduced rate for non-profit organizations like that of Cairn University who chartered the project from Virtual Charity Events. Therefore, hopefully we would be able to use the Cairn University’s PayPal account in order to reduce the processing fees. However, even so, in future phases, a new payment gateway will hopefully be implemented to eliminate fees as much as possible. We set up a [PayPal](https://developer.paypal.com/developer/) sandbox account and installed the Commerce and PayPal modules for Drupal 8 and were eventually successful with the set-up and execution of paying for a registration slot.

The second place where our work brought us was to deal with the creation and maintenance of registration forms. Drupal 8 has a pre-build module called Webforms that allows administrators of the site to create and maintain Webforms, which are simply online registration forms. These forms can all be unique and can be customized to fit the organization that is creating them. We then determined that we could establish accounts and provide only certain permissions so that in theory the companies that Mr.Willard works with could have an account that has the capability to create and maintain webforms without providing them with too many privileges. We were also able to implement a login page that allows for users to create an account, but privileges must be given by an administrator. We also included a riddle CAPTCHA feature to help protect the site against bot attacks that try to create thousands of accounts and disable our site. This riddle CAPTCHA feature is and can also be included on any webform to prevent bot attacks as well.

Once the above was completed we knew that we would need to provide accurate and complete documentation as well as instruction on how to use our new platform. Therefore, we created a documentation manual that provides the necessary steps with photos of how to create webforms and maintain them. We also knew that reporting features would be necessary and we include instructions on how to download the webform submissions into an HTML, CSV, or Excel file for the use of the Virtual Charity Events and their clients. We also created a YouTube channel and are in the process of uploaded short videos to help the visual learners with creating and maintaining Webforms.

Unfortunately, we also experienced some last minute bugs with some of our permissions and therefore, had to rebuild the permissions so our plans to have the companies have accounts that allow them to create webforms may also be put on hold till phase two because of the security implications that these bugs have. Therefore, only the administrator account will be able to create and publish webforms until these bugs are fixed or a work-around is found. We also ran into some last minute bugs with the PayPal payment gateway. Due to time constraints we decided to rebuild the site and mirror our best version and most current site. It would only take a couple of hours to install Drupal 8 and recreate the site on the hosting space that Mr. Willard procured from [HostGator](https://www.hostgator.com/). Also, due to time constraints Professor Sabal will be taking the lead on the recreation and will contact us if there is any confusion or issues that arise. Lastly, Mr.Willard may host a virtual and/or in person seminar and training session on the campus of Cairn University once the site is hosted that we will be leading. However, this may be in the future sometime in the Fall 2020 semester.

# **Conclusions and Recommendations**

In conclusion, this project did not come without error on our behalf and we learned a lot from those errors. In the process of creating our site, we have to start from scratch five times because of mistakes that left our site in chaos and nonfunctional. This brought the lesson of having and taking back-ups so that we can restore a site before our mistake occurred. It also taught us the importance of documentation. Drupal is an open software and therefore people are free to create and publish content for other people to use. However, many of these creations have no documentation on how to use and implement them effectively and correctly. We desire to not happen with our site as we want future interns to be able to pick up where we left off. Therefore, we took the time to create documentation for our site and our work so that it would be easier for future groups to work with the base that we have already built. This project also forced us to pick up and learn new skills, specifically command line prompts to help us navigate the server and move and remove information. Overall, greatly beneficial in the areas of learning from mistakes and learning new skills. Also, in light of the COVID-19 pandemic, much was also learned from having this remote internship. I personally had to learn how to motivate myself while working as an essential worker and while working from home on this internship. I also had to learn how communicate and work with my partner Jonathan Risoldi and also contacting Professor Sabal and Mr.Willard. It took some time for me to adjust and also reach out for help when I needed it across the Zoom meeting platform and through email. I believe that this experience will help me greatly as we continue to battle against this pandemic as well as with my future endeavors.

As for recommendations, it is unknown how many internship teams or if the Cairn University CodeNet Club will be needed to complete this project however, there can be a plan for the future phases. I would encourage Mr.Willard to not give up hope on this project as it is quite extensive but will add and aid greatly to Virtual Charity Events.

Building off of phase one, phase two would be to add in additional payment gateways for change payment gateways to one that has little to no fee to process payments. It would also include the possibility to have the payment gateway become completely automated on our site, no moving to an off-site processor like that of PayPal. This may involve interns working on creating their own payment processor and creating a Drupal 8 Module.

Phase three would work to incorporate the drag-and-drop functionality of registration form creation that Mr.Willard envisions for Virtual Charity Events. This process also may include the coding and creation of modules for Drupal 8. This may be a great and lengthy task; however, the Drupal community and open software would greatly appreciate a module with this function.

Phase four would then be the final phase, in which Virtual Charity Events may want to consider using the V.C.E. Velocity brand to create other online resources for their clients. This phase has the most flexibility and can comply with some overlap from other phases in case more time is needed. Software development and web design takes time, especially to work out all of the bugs. Drawing from the work that has been complete this summer it has been an honor to work with and for Virtual Charity Events and Mr.Willard. Much has been learned and experience gained that provides valuable insight for the future.

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