**Kevin Bruce IT Requirements Template**

*The following are all things that should be documented and discussed prior to the IT equipment being procured for your prototype. Remember that you are securing IT equipment for a prototype only, but you could / should capture the requirements as best you can from the Admissions client for what will eventually become the final project. This will help ensure your project has a better chance of being selected as it will show forethought and insights for the eventual developers (if that’s not you).*

1. Server Platform (for each “server” required)

**We decided to go with Linux Ubuntu 14.04 LTS as the server operation system as it would work better with the database and what we are using on the front end.**

* 1. Physical system requirements

**Our images will easily fit within a single physical Server, but will need to think about physical equipment requirements for the final version after the prototype is accepted.**

* + 1. Storage capacity

1. **Maximum amount of Memory - 4GB**
2. **After meeting up with Chris and deploying the Virtual Servers, he explained to me that since this is a Virtual environment and not the real world, we shouldn’t worry about too much memory. (App/Database/Backup - Roughly 4GB of storage memory each)**

Speed requirements / response time parameters

**Reducing Traffic – Improves Server Response Time**

1. **Our Servers runs in a Virtual environment (VMware VSphere Client). Which is also running on a physical server downstairs of Hancock.**
   1. Virtual system requirement

**Application/Database Server - Virtual Linux Machine (Ubuntu 14.04 LTS) 4GB memory**

**Backup Server - Virtual Linux Machine (Ubuntu 14.04 LTS) 4GB memory**

* + 1. Number of images expected

**Our thoughts on the Virtual Images**

**5 in total. 2 for the Web Server, 2 for the Application Server, 1 Backup Server**

**More than 1 Server for each mainly for redundancy - only 1 Server for Backup.**

**After meeting with Chris we came to a conclusion that 1 image for each VIrtual Server is all we need. I will set up the Backup Server to take redundant snapshots. These snapshots will be taken daily, weekly and monthly at specific time frames and stored in a backup folder on the server.**

* 1. Connectivity
     1. Network considerations

**The Server Platform should be able to communicate with any TCP/IP connected devices using the Network Requirements that I will set up during the deployment of the server.**

1. **After the Network Requirements are in place we will be able to access the Servers even through third party softwares such as Putty. Putty is a program that helps a user get access to an operating system (OS) they created through a command-line interface terminal.**

* + 1. Interconnection to what other systems

1. **The benefits are broad in scope. The IP addresses can be used since we wish to connect the Application to the Database Server, as well as accessing the Application Server from the web. And to store snapshots of the App/Database to a backup folder the Backup Server. This is why the Network Requirements are crucial to this entire project.**
2. Reliability
   1. Service Level Agreements
3. **Redundancy and Multi-site (Servers – Virtual)**
4. **1 Virtual to host the Application/Database Server**
5. **1 Database Virtual Server - Redundant Snapshots**

Uptime requirements

1. **We didn’t exactly know how big this project was going to be. But if we applied uptime requirements to the real world, the servers should be up and running majority of the time. There should and will be maintenance hours for specific time frames.** 
   * 1. Response time requirements

**1. Expectation - Less than a second response time for user satisfaction while browsing.**

**2. After a few weeks into the projects issues arose regarding the database server. There were a lot of problems that we tackled but we weren’t successful at resolving the issue. The team ended up agreeing to host both Application and Database on the same server. Great things ended up happening like response time, and less work to get the app to talk with the database.**

1. Recoverability
   1. Where are things backed up? How often?

**Application/Database Admin (IT) – Data will be frequently backed up to Backup Server**

* + - 1. **Snapshots - The Backup Server will be configured to take snapshots which will be saved in a folder called backup.**
  1. Access to backups?

**(IT major) – Anyone can access the backups and view the backups, but I will have full admin rights to the backups. It is my job to see that there is that the server are back and running again when something goes wrong.**

* 1. What data is transient and doesn’t need to be stored longer term?

**(Student Data) – Potential transfers will be deleted from the database once the admission process is over. After their final decision to transfer to Marist or not. This will make space for potential students for the next term.**

1. Security and Privacy
   1. Database

**Who should have admin access?**

**7 admins to reply to emails/ students questions and submissions**

**1 important admin that overlooks everything at admissions**

* + 1. Access controls by userid / roles

**1. Are we going to use LDAP? Lightweight Directory Access Protocol**

**(LDAP servers can look up entries in a wide variety of ways. LDAP servers index all the data in their entries, and "filters" may be used to select just the person or group you want, and return just the information you want.) - Yes we can consider implementing this protocol into our database.**

**2. What code will run on what server to let users create accounts and login? (Apache, Mysql)**

* 1. Update vs. Access

**Roles of users, and what will each be able to perform? Edit, update, read only, reports, database admin, etc.**

* + - 1. **Admins – edit, update, (1 database admin)**
      2. **Super users / Admission users – answer questions, lookups, read only**
      3. **Students – submit questions / enter transferable credits for feedback**
  1. Account information
     1. User data

Personal / registration

**User data will be kept in the database and retrieved when needed.**

* + - 1. Saved courses information
    1. FERPA considerations

**Student information will be stored since this is just a prototype, but student sensitive data will have to be addressed before the prototype can become a production system.**

* 1. Admin access controls

**Same as FERPA considerations.**

* + - 1. **What data should various admins and super users have access to?**

1. **Amins - edit, update, (1 database admin)**
2. **Super users / Admission users - answer questions, lookups, read only** 
   * 1. Adding new users, deleting old

**IT System Admin will use (Active Directory) as a tool to add and delete users**

1. Maintenance
   1. Planned down time requirements

**How often will the system be down for maintenance?**

* + - 1. **Potentially it will probably be down from midnight to 1 am nightly window. This will Improving user satisfaction/ eliminating frequent unexpected down times while a student is browsing the web.**
      2. **It only applies to the servers that need to. Let’s say backup failure for instance.**

**What happens if a CS member messes with the some of the code and happens to cause down time?**

* + - 1. **This issue will be looked at during the downtime window.**

**Also a CS member can notify the IT guy downstairs when they want a downtime to polish up some code that will cause some issues. This shouldn’t happen frequently but is acceptable. (This will be a service level agreement with joint study lab owner – Chris Ahmed/planned outages).**

* + - 1. **Professor Algozzine will be on the list so we can give him heads up not to mess with the prototype at this time frame.**
    1. Database maintenance

**Database Admin - will provide technical support for the Database maintenance and disaster recovery. Available during school hours.**

* + 1. Updates to course information

**This will be done by the Database Admin**

* + 1. Times of year when IT does maintenance

**1. IT Maintenance Plan - will be designed to save us time and money by preventing system downtime.**

**2. IT staff (Joint Study / Chris Ahmed) will be available on school hours to provide support /repair if something unexpectedly breaks down.**

* + 1. Times of year when Admissions systems are not available?
       1. **Once a semester for maintenance**
       2. **We should work out a time frame that's convenient for Admissions.**