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| **Requirements Specification**  **Project Data Center Automated Drawing** |
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| **Revision History**   |  |  |  |  | | --- | --- | --- | --- | | **Name** | **Date** | **Remarks** | **Version** | | Project introduction | 22/03/19 | Initial Requirements Specification | 1 | | [AuthorName] | [Date] | [Remarks] | [#] | |  |  |  |  | |  |  |  |  | |
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**Background Information.**

There is a huge need to store data. Every day 2.5 Quintillion bytes of data is getting produced by varied sources and it is necessary to store this coming data in some place . So, here data centre works as the inventory or warehouse of data. Data center houses the coming large amount of digital information that can be accessible by us even after years and decades.

The objective of our project is to develop an automated computer assisted drawing module to represent visually all the racks in a Data centre with all their servers or storage units visualized from information stored in the CMDB database. The graphics we are going to generate with Visio.

We are in a process to add an extension of 3D visualization in our datacenter.

**Vocabulary.**

**Datacenter** - It stores the enormous amount of data coming from different sources.

**CMDB** - CMDB stands for Configuration Management Database. Every organization has it’s own CMDB where there store the data about their hardware and software assets.

**Racks** -A Rack is an IT equipment organizer like servers, network switches and all other electronics for making efficient use of space, proper airflow and standardized resources. Picking up the right rack and configuration with respect to your needs will ensure smooth functioning of IT equipments thus making them more reliable and efficient, also the organized resources will ensure to save on needless expenses.

There are three primary types of racks:

open frame racks, rack enclosures and wall-mount racks.

**Servers** - Servers are the units of the data center who actually handles the data & its processing.

**Switches** - Switches are used to connect multiple devices on the same network within the data center.

**ITIL** - ITIL is a framework of best practices for delivering IT services. ITIL’s systematic approach to IT service management can help businesses manage risk, strengthen customer relations, establish cost-effective practices, and build a stable IT environment that allows for growth, scale and change.

**Stencil :** Stencil is usually a thin sheet of material, such as paper, plastic, wood or metal, with letters or a design cut from it, used to produce the letters or design on an underlying surface by applying pigment through the cut-out holes in the material.

**Visio :** Microsoft Visio is a diagramming and vector graphics application and is part of the Microsoft Office family

# Product overview

Data center automated drawing tool is a product which allows 2D or 3D visualisation of data centers in order to manage their infrastructure.

This is the 2D Visualisation of data center. Problem supposed to solve:

● Data quality issues

● Enclosure drawing with the bays and the right stencils for the blades in the bay

● Integrate the Data center room Visio , start from the Data center map and link the DC map objects with hyperlink to the Rack visio slide

● Same “look and feel” as the manual Visio slides for the rack

**Target market and users**

● The technicians who manage the Data Centers.

The end users who are capable enough to deal with Visio and physical objects of Data centers.

● The general sectors as public, private, business, education, government who want to safeguard their hardware and software assets.

# Detailed product description

## Content / Data

The application takes the input data from CMDB in Excel format. It could either be .xls or .xlsx format. The number of field/columns and data type could be founded in the Annex. One of the important thing with the input data is the accuracy. It should not contain duplicate data/incorrect information

Based on user’s preference, the output will get displayed in 2D or 3D format. In the visio, the user can select the stencil view or neutral view.

## Software

## The software is a Windows application. It visualize the data in 2D and 3D, and allows the user to manage effectively the data center infrastructure physically and virtually.

The application provides an interface for the user to select the file needed, then the 2D or 3D visualisation of the servers and racks, and the number of racks in each page (1,3 or 5). It also allows to decide the type of the image, stencil from the front part, stencil from the rear, or neutral (colored servers depending on the specs).

## Back-office (editing and administration) tools

The application can be edited and managed by the visual basic code on Excel or the Visio file containing all the visual details about the application. Sketchup file is used for the 2D and 3D visuals.

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## Graphic design guidelines

For the design part, the user will have to select the number of racks needed (1,3 or 5), the design of the racks and servers ( stencil front, stencil rear or neutral with colors), and if he needs the design in 2D or 3D.

## Accessibility

The software is usable on any windows device. It requires Microsoft Excel and Visio.

## Target platforms and configurations

The application is limited to work on Windows machines. The technology is advancing and the mac users are increasing day by day. So, the further developments are made in such a way that mac users can also able to use it. For 2D visualization the application requires no configuration to use. In order to increase the quality of visualisation in 3D it might require configuration.

## Performance

The performance of the application depends on the configuration of the PC where it is installed. The further development in application will increase quality as well as scope of the tool.

# Testing and acceptance

Since we have to work on the existing source code provided by the team that worked on the project last year, the testing strategy will have be divided into two main directions:

● Non regression testing in order to keep safe the work that has been already done

● Testing the new features:

* Unit testing: Each function that will be added have to be tested in order to

confirm the I/O coherence and define the limits of the function. This work has

to be done by the developers.

* Integration testing: After developing a new module, it will naturally be

combined with the existing ones. Therefore, a test suite will be executed in

order to confirm the specified interaction between the different units.

* System testing: Since the project is dependent on Visio (Microsoft product),

we have to make sure that the software is working on systems with Windows

as an OS with corresponding Visio version.

* Operational acceptance testing: Previous testing step is sufficient since

development and production environment would be similar

## 

# Delivery medium and installation

**Software Interfaces**

This project involves **MS Visio, SketchUp (**3D visualization tool**)** and Excel sheets.

· 3D Animated files are delivered as Mp4 formats and Style formats.

· 2D, Racks and Servers information, design and planning in MS Visio.

· Data in the Excel Sheets.

· To implement the project we have chosen C# language for its more interactive support.

**Hardware interface**

We have chosen Windows operating system for its best support and user-friendliness.

# Processes and logistics

· C# is one of the programming languages designed for the Common Language Infrastructure and it is object-oriented programming language.

· The main objective for choosing C# is to connect easily with the tools Visio and SketchUp.

· 3D visualisation tool SketchUp will help us in showing the servers information in the Data centre with the help of administrator.

# Documentation and source code

Requirements Specifications by the project owner concerning documentation of the software and documentation for administrators, webmasters, technical support personnel and users.

The transfer of ownership of the source code to the project owner upon completion of the project.

# Training

As we all are started training and implementing the required methodologies for this project that improves our skills in the tools which we tend to use like Visio and SketchUp and ready to start implementing the Agile SCRUM methodologies and to gain knowledge on CMDB in our project.

## 

# Schedule and milestones

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| --- | --- |
| Milestone Description | Schedule |
| Detailed Specification Description by Mr.Olivier | 09/03/2019 |
| Understanding the input Excel data file | 11/03/2019 |
| Market research-I | 12/03/2019 |
| Visio Tool Hands-on demo | 14/03/2019 |

# Risks, dependencies and other issues

* Increasing the number of racks per view may leads to changes in the existing design which in turn affects the representation of the racks

* Creating/altering the existing code for the 3D model of the Data Racks

* Creating a menu on the view page allowing the user to select the front stencil or rear stencil or neutral view of the racks

# Conclusion

Creating the appropriate KPIs and measuring the efficiency of the racks, will make the product best in the market and helps to attract more customers.