IPV6READINESS OF SERVER

Executive Summary Document

Client: Dr.Sebastian Zander

Team IT08 Ltd.

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Version 2.0

Project Executive Summary

Project Title

IPV6Readiness of Server

Description of Project

The main goal of this Project was to develop prototype software which would be able to determine the readiness of IPv6that is available to the general public. The software performs specific functional requirements such as Probing Servers (manually and automatically-by using command line), Processes the raw data and stores it into a database, representing the stored data graphically and diagnosis towards IPv6unavailable networks. The prototype also compares the results of IPv4 (available servers) performance against IPv6and displays the various results by country or continent. The software runs only on Microsoft Windows Platforms.

Present and Future Practical Application

The outcome of this project provides the client, industry and Government with information on what percentage of servers are IPv6 ready. So companies that are willing to roll out IPv6 can use the data collected from “IPv6 performance analyzer” to determine whether or not to use IPv6 for their networks. Since the number of companies using IPv6 has been low, it is expected to increase in the near future as IPv4 addresses have been depleted. In addition to this, the team members of this project will have gained programming skills by creating the “IPv6 performance analyzer”, to work under supervision and intense deadline orientated documentations. Since the software is developed by use of open source applications, it is right to offer it for free to the general public for use, that way the students or anyone doing research can have access to it.

Innovation

The use of open source applications ensured that the IT08 Ltd team did not have to budget for resources, which was a major positive outcome. The major technologies that were used are C# which is a programming language that runs on .NET FRAMEWORK and can be used to create windows applications such as web services and code editor, xammp a cross platform web server solution that consists of MYSQL database and “gogoCLIENT” an IP application that provides full connectivity of IPv6. The “IPv6 performance analyzer” offers a number of services that other IPv6 test programs do not provide in one package. Whilst other technologies offer one form of test service such as the performance of IPv6 on browsers, the “IPv6 performance analyzer” combines a number of services such as to test the performance, speed, compare data from different countries and continents, being able to store that in a database and displaying the percentage of servers that are IPv6 ready in the form of charts and tables.

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Effectiveness of the Solution

The requirements provided to IT08 Ltd team by the client have all been met and all forms of documentation have been provided on how to install and use the “IPv6 performance analyser”. Most of the challenges that were faced in the development of the software have been overcome and bugs that were discovered have been fixed. Thus, the IPv6 performance analyser prototype is fully functional.

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Methodology and Documentation

The methodology used for the project was a rapid prototyping. The approach used by our team was to gain a collective knowledge and understanding of the project as it progressed. The documentation presented as part of this project include the Requirements and Analysis document, Project Management Plan, Design Document, Test Plan, and the Installation and User manual.

Rapid prototyping method used 6 stages which are as follows:

- **Initial investigation –** investigation through the use of questions gave us an idea of what the project was about.
- **Requirements Definition –** the client provided the requirements of the project; thus providing us the necessary information of what the software should contain.
- **System Design -** defines the elements of a system (e.g. architecture, modules and components) and the data that goes through that system.
- **Coding test –** various stages were performed to ensure that the code is bug free, these stages that the IPv6 performance analyser was tested are unit testing, integration testing , system testing and user acceptance testing.
- **Implementation –** once everything has been tested the prototype is sent to the client for review.
- **Maintenance –** if the software encounters a problem the programmer will rectify the problem and the team documents it into the test plan.

The IPv6 performance analyser meets all the requirements mentioned in the Requirement and analysis document.

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Complexity

The project is challenging to a certain extent because it is dependent on the devices that it is used for. The system designed was developed to work only on Microsoft windows devices. What made the project more complex is the number of servers that were needed for testing whether they are IPv6 ready or not is almost 12,000 servers. The majority of servers found were not IPv6 available and this made it challenging to compare. Another challenge was that we could not connect to IPv6 using the Murdoch University network as it was blocked, so we had to find a tunnel broker that will ensure that we get connectivity of IPv6.

Summary

To summarize our project, we have developed a software that will probe the internet and store the information in a database. All of this is achieved using open-source software and technologies which save the costs if this was to be deployed on a large scale. In addition to this, the members of the team gained a lot of valuable knowledge and experience in the area of coding using C# which is a refresher to all team members and intense deadline orientated documentations. The success of this project is a result of the hard work and team work put into it.

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Deliverable Task Breakdown Statement

Deliverable Name: Executive Summary Document

Project Team Name	Team Number
IPv6 Readiness of Server	IT08 Ltd.