Virtualization using .NET CLR Concept
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Abstract—now days for any implementation time, cost and energy are important factors which affect a lot on performance. Virtualization is very momentous discernment in computer design. Virtual Compilation provides the utilization of computer network to the highest level. Virtual Machines are used to boost system impregnability, software interoperability, and raised area versatility. So for this problem, projected solution is to do compilation based on of centralization, to provide harmonizing of load, to provide allotment of tasks, provide accomplishment of client/server structural design using distributed system. For providing single platform for number of languages .NET is used because it is superior known as the runtime. A virtual machine used to prop up individual processes or a absolute system even to provide high-quality consistency, good scalability and good tune-up facility over the existing systems which depend on the pensiveness level where virtualization occurs. Principally this project helps to shirk number of types of compilers in system by supporting number of language languages with great performance.

Key words: Virtualization, Virtual Machine and Virtual server, IP Tunneling, .Net CLR

I. INTRODUCTION

To begin with virtual machines, these are defined as an expert, isolated replica of an authentic machine. But as we know at present, virtual machines have no throughout dealings/interaction to any of the genuine hardware [10][13]. A virtual machine (VM) is software that emulates objects machine in squat physical machine. For this we are using Virtual Compiler Server which is outstandingly scalable and reachable server. This server is built on a group of real servers which consists the load balancer running on the working system.

The Virtual Machine can provide an instruction set architecture (ISA) that is vaguely unique from that of the real machine. These compilers lend a hand to partition hardware and software which are astonishing and massive to use. End users relate as it were a particular high-performance virtual server so that is because the architecture of this server cluster is abundant translucent to end users. Basic aim of project is escalating the thought supplementary by using IP Tunneling and implementing the identical on WINDOWS Operating System.

Virtual machines have two types of categories which are based on develop and extents of association to any authentic machine like:-

Process Virtual Machine and System Virtual Machine

A Process Virtual Machine (PVM) is also known as Application Virtual Machine which is intentional to run a only program with a solitary process. Process Virtual Machine runs as a habitual application within a host operating system and shackles a single process. The virtual machine is produced so as to time when a process is initiated and smashed when the procedure exits or dies.

E. g. Java Virtual Machine (JVM)

A System Virtual Machine is openedhand absolute virtual hardware platform providing support for implementation of a inclusive operating system .This system provides several operating system environments which can run in akin on the same part of a set of hardware in tough isolation from each other. This system even helps to afford frequent language runtime with .Net platform and it helps to provide highest performance computing [13][14].

Applications that run on these VM are self-governing of the assets of the obligatory hardware. For example, a computer running Microsoft Windows Operating System may host a virtual machine that runs a Linux Operating system like Ubuntu[9][10]. Network Virtualization provides Virtual network environment for communication purpose. Ex.VLANs. The generalization provided by VLANs has made it doable for companies to detachment physical connections to define and create less restricted and pliable networks to meet the enduring business demands [10][6].

A. Traditional Server Model Vs Virtual Compiler Server Model:

In traditional server system only introverted operating system present per machine but in virtual server system hardware sovereignty of OS and applications is present. Conflicts construction will occur in traditional server system because of running several applications on same machine. In virtual server system operating system and applications are managed as distinct unit by doing encapsulation.

Fig. 1: Traditional Server vs. Virtual Compiler Server

Virtual machines can prerequisite to any system and virtual server is exceptionally scalable and accessible server.

II. PROBLEM DEFINITION

Virtual Compiler have plus point to use of Computer network to the upper limit. It is software which helps evade to have various types compilers in a system. This system helps us to accumulate programs which are coded in any languages irrespective of the compiler being available in our system. The client software is there which provides the
client an interface where he can type the code in several language. Client has to save the file with a appropriate extension.

For example if the code is written in Java then he has to save it in “.java file”. The major intention of this study is to provide centralized compiling. In this, we provide authentication to user and personalized task distribution to deal with Load Balancing. It describes the inspiration, plan, and internal accomplishment of Distributed Virtual compiler Server.

This system is projected to provide a vital framework to build exceedingly scalable and highly accessible network services using a huge cluster of commodity servers. To put into practice this system, we have to employ client/server design manner using distributed system perception.

III. LITERATURE SURVEY

Virtualization occasionally introduces slender performance impacts depending on the hypervisor type, nevertheless the benefits of such technologies are profound and not all virtualization technologies are identical[2]. Virtual Machine exodus systems athwart physical servers in datacenter which includes its architecture, basic working, movement strategies, design issues and goals. Despite of a range of ongoing researches for more than two decade in this field, variations in migrations dealings, circumstance, upbringing need is still a major challenge faced by it[3]. Just in time is broadly used in managed runtimes.

Yuan Zhang, MinYang, Bo Zhou,Zhemin Yang, WeihuaZhang,Binyu Zang explained in their paper that there has been countless Java Just-In-Time compilers for the desktop and server environment. It allows JIT compilers to generate less significant compiled code without impacting performance. Just-In-Time compiler which can benefit from superior performance without bringing up the rear portability[4].

Virtualization technology use has been amplified spectacularly in the past few years. RMorty Eisen April 28th,2011 presented paper on Introduction to Virtualization in which they described about Virtualization, objective composition of different technologies. Virtualization, in computing, is the establishment of a virtual (rather than actual) version of something, such as a hardware platform, operating system, a storage device or network assets. They have revealed thorough information about virtual machines, their virtual server concept. They have also shown rescompence and disadvantages of virtualization and upcoming scope of the virtualization and virtual compilation [7][17].

Virtual Security about the Security Pros and Cons of Server. Virtualization describes Virtualization is used for enabling resource partitioning, resource pooling, and for executing manifold operating systems or conicking applications on one objective machine concepts which are evidently mitigating the use of virtualization as they provide benefits like diminution of total cost of ownership, supple service allocation scenarios, and ease of administration [8][16].

IV. PROPOSED WORK AND OUR CONTRIBUTION

A. System Architecture:

Virtual Compiler Server is used to provide hardware liberty of operating system and applications so that we can bond number of devices or system through LAN/WAN. This helps to manage operating system and applications as solitary unit through encapsulations of threads or packets generated during process. Isolation is provided in the system where virtual machines operating system is secluded from the host operating system. The security provisions and risks of virtualized IT infrastructures are not an adequate amount of taken into account stuck-up that virtualized systems are sheltered by prevaporation [5] [8].

Fig. 2: Architectural Overview
It allows datagram destined for one IP address to be wrapped and redirected to another IP address. It tapers to assemble a virtual server that the load balancer tunnels the request packets to the different servers (real servers or nodes). The server processes the requests and return the results to the clients straightforwardly as shown.

**B. Software Requirements:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Windows OS</td>
</tr>
<tr>
<td>Database</td>
<td>SQL Server</td>
</tr>
</tbody>
</table>

Table 1: Server Software Requirements

<table>
<thead>
<tr>
<th>Name</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Windows OS</td>
</tr>
<tr>
<td>Client Module</td>
<td>Editor to write and compile code</td>
</tr>
</tbody>
</table>

Table 2: Client Software Requirements

**V. IMPLEMENTATION PROCESS AND EXPECTED RESULT**

In the implementation of virtual compiler, command type packet is forwarded to compiler. The server extracts the expansion and tries to bond with main server. After achievement of connection with main server, main server does compilation on the booming connection. For this development we have need of MS SQL 2005 for the data storage purpose. Safety to data or information is provided by providing validation. It also provides dwindling of total expenditure of possession, pliable service allocation scenarios, and simplicity of administration.

**VI. CONCLUSION**

Now days, modern system have necessity of different compilers according to the program code. For example for c language, c++ language we have necessity of turbo c compiler, for java language we are using java compiler and so on. Hence for completing task we have to install various number of compilers on each machine. Due to this procedure our system is very costly and time overwhelming. To reign above this limitation of current system, we use compiler which are install on solitary machine. Our study and research is going on so that system helps us to compile program coded in any language irrespective of compiler being available in our system. It helps to moderate excess numbers of calamity of the servers for compiling source code.

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**REFERENCES**

[1] Java to .NET migration, Himani Singh, Satya Singh, Sunil Kumar, Department of computer science and engineering, Raj Kumar Goel Institute of Technology for Women Ghaziabad(U.P.), India, himani.rkgitw@gmail.com, singh.satya429@gmail.com, April 2014


[8] Martin Wimmer Virtual Security About the Security Pros and Cons of Server Virtualization Siemens AG, Corporate Technology, CTCERTD80200; 2008; Munich, Germany; martin.r.wimmer@siemens.com;


