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## Unified Computing System- PC without CPU

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**Abstract:** Unified computing system is designed in this project. The main server is also known as a data center with x86 intel xenon processors is used in this project along with switches, routers with CISCO Proprietary Protocols and models. Computing devices for virtual distribution of computers. This project is a combination of networking (Including Classless and classful Routing, Switching, Tunneling), compute, storage access, virtualization, and cloud computing and web server. It allows users to use many computers with personalized operating system but without any CPU configuration, the terminal will only contain input and output devices which will be connected to the N computing devices through LAN Network specifying different IP's to each and every terminal.

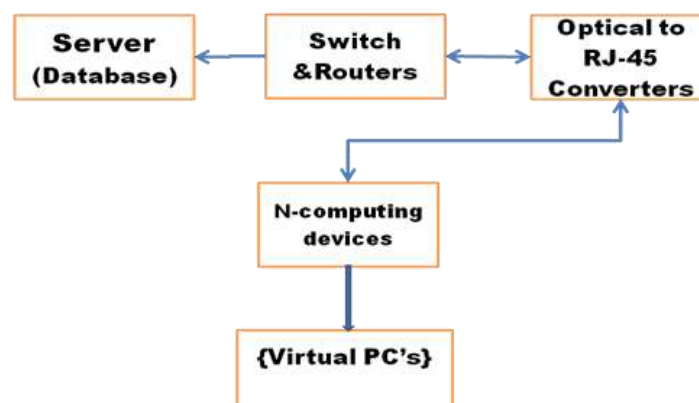
**Keywords:** Virtualization, N-Computing Devices, Networking, Switches, and Routers.

### 1. INTRODUCTION

The unified computing system can be implemented to reduce the costing of computers in an institute, organization, or company and increases user convince is a next-generation data center platform that Unites compute, network, storage access, and virtualization into a cohesive system. It is designed to reduce total cost of ownership (TCO) and increases the organizational and user convenience. The system integrates a low-latency; lossless 10 Gigabit Ethernet unified network fabric with Enterprise-class, x86-architecture servers. The system is an integrated, scalable, multichassis platform in which all resources participate in a unified management domain

The UCS involves sharing of hardware resources such as RAM, Hard disk, and many software through virtualization. The main of this project is to make a CPU Free world. Every user will have a separate terminal, separate operating as well as storage but the terminal will be virtual and all the real resources will have shared from the main data center. The entire terminal will work like a real system with all virtual resources

### OVERVIEW BLOCK DIAGRAM OF UCS



## 2. METHODOLOGY TO BE EMPLOYED

The Methodology of the unified computing system is given below; it is next-generation data center platform that unites compute, network, storage access and sharing of real resources with the help of VM-Ware Virtualization software. It consists of various components such as server, switches, routers, optical to RJ-45 Converters and N Computing device which contains a VGA, LAN USB, and Sound Card.

### 3. Server (Database) [Data Center]

**Hardware:** - A X86 Architecture Xenon Processors, 10TB HDD, 128GB DDR4 RAM, optical fiber card, Switches, Routers, Optical to RJ-45 Converter, CAT 5e Cables and general hardware components.

**Software-** Windows 7, V-Box/VMware, GNS3

The data center will have all the real high-end hardware as well as software as mention above, which will be shared virtually with help of VMware

### 3. Switches and Routers



**Fig: Diagram of a Real Switch**

**Switch:-** A network switch (also called switching hub, bridging hub, officially MAC bridge) is a computer networking device that connects devices together on a computer network, by using packet switching to receive, process and forward data to the destination device. Unlike less advanced network, a network switches forwards data only to one or multiple devices that need to receive it, rather than broadcasting the same data out of each of its ports.

A network switch is a multi-port network bridge that uses hardware addresses to process and forwards data at the data link layer (layer 2) of the OSI model. Switches can also process data at the network layer (layer3) by additionally incorporating routing functionality that most commonly uses IP addresses to perform packet forwarding; such switches are commonly known as layer-3 switches or multilayer switches.



**Diagram of a Wireless Router**

**Routers:** A **router** is a networking device that forwards data packets between computer networks. Routers perform the "traffic directing" functions on the Internet. A data packet is typically forwarded from one router to another through the networks that constitute the internetwork until it reaches its destination node.

A router is connected to two or more data lines from different networks (as opposed to a network switch, which connects data lines from one single network). When a data packet comes in on one of the lines, the router reads the address information in the packet to determine its ultimate destination. Then, using information in its routing table or routing policy, it directs the packet to the next network on its journey. This creates an overlay internetwork.

The most familiar type of routers is home and small office routers that simply pass data, such as web pages, email, IM, and videos between the home computers and the Internet. An example of a router would be the owner's cable or DSL router, which connects to the Internet through an ISP. More sophisticated routers, such as enterprise routers, connect large business or ISP networks up to the powerful core routers that forward data at high speed along the optical fiber lines of the Internet backbone

### 3. OPTICAL TO RJ-45 CONVERTERS



Diagram of a Fiber Media Converter

A **fiber media converter** is a simple networking device that makes it possible to connect two dissimilar media types such as a twisted pair with fiber optic cabling. They were introduced to the industry in the 1990s, and are important in interconnecting fiber optic cabling-based systems with existing copper-based, structured cabling systems. They are also used in metropolitan area network (MAN) access and data transport services to enterprise customers.

### 4. N-COMPUTING DEVICES



N-Computing is a desktop virtualization device that is a hardware which is used to fetch virtual desktops which enable multiple users to work on multiple operating systems or maybe a different operating system having their own specified software and application.

We are using this device for just connecting our output devices for each and every terminal.

As mentioned above, we are providing a separate operating systems and software's through the real hardware but we are using real LAN Card.

## **5. VIRTUAL PC'S**

**These will be the output source for my project.**

This may contain many terminals as per user requirements in many groups and sectors, each group may have as many as computers.

Every group will have different priorities, operating systems and hardware virtually

Each terminal will just be connected through n computing devices containing a keyboard, mouse and a monitor.

## **6. FEATURES**

- It reduces the total cost of ownership
- No CPU is required only and only the main server (data center) will high have hardware configuration
- The UCS is an integrated, multichassis platform, in which all resources participate in unified management domain
- The UCS integrate Network, Compute, Storage Access into a single cohesive system
- There will be different sectors or groups containing many computers each having their own priority and rules
- Every terminal will have its own operating system
- We can increase the hardware configuration of any group or terminal without any physical changes or addition of components
- We can provide different internet to each group through a single internet connection
- UCS is made to reduce the total cost of ownership and increases organizational and user convenience
- It can be implemented in any organization, school, college, institution, and company
- It provides a security of data as the data will be saved only in the data center and can be accessed by the terminal user only

## **7. BIBLIOGRAPHY**

This project "UCS" is being started and is a very large-scale work, I am working on advanced stage.

In future, we will try to manufacture the connecting device with automatic IP Access Control So that each terminal will start automatically