

# REVIEW ON SHARING OF EMBEDDED DEVICES IN LAN

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## Abstract

Various design for sharing the data in the LAN is designed. As per our requirement memory can be utilised from the other machines. Either virtual memory concept is also used for this where the memory is virtually present but not actually but, it helps us for the storage. In this survey, we have seen the various concept for the sharing the data in LAN. It is either by exchanging or by sharing. Some mathematical formula is also used in virtual concept to reduce the number of host in the network. Using this survey and concept used in it we have come across with the new concept of sharing this devices. In this paper we have mentioned some survey which initiate to work on this this area.

**Keywords:** - Local area network

## 1. Introduction

With the continuous development of computer technology, the performance of CPU and main memory of system has been greatly improved, but it still cannot meet the growing needs of applications. Distributed system architecture consists of a collection of workstations and servers connected by a local area network and distribution middle ware. The clients or the users can access these workstations at the same time and doing the computation at there own end. They can also share the remote resources provided by the servers and the workstations. This kind of distributed computing environment has many advantages like heterogeneity of the network components, availability of the resources etc. A virtual port is a software emulation of a port which normally would be present in hardware. This is most commonly used with modems and printers. The main goal of Virtual Serial Port Driver by Eltima Software is creating virtual COM port pairs. Virtual serial ports created in VSPD behave as if they were real ports and are taken for the real ones with the serial applications. Via these ports serial applications can communicate with each other and transfer data via virtual null-modem cable. The data written to one virtual serial.port can be instantly read

from the other. Virtual serial ports created in VSPD support all serial port settings, strict baudrate emulation, HandFlow control and signal lines. After virtual COM port pair was created, one can see these ports in Device manager, moreover these ports are available automatically at system startup, even prior to logon. Virtual Serial Port Driver is available in a GUI version as well as a driver version with API for those who are going to use it in their own product.

## 2. Literature Review

Design and Implementation of A Distributed System for Transparent Remote Memory Accessing [1] In order to improve the system memory utilization this technique is discovered. Here, the data is transferred in LAN and the swapping technique is used between the client and server to transfer the data or to share it. It increases the paging speed, and capacity of memory to store the data. The continuous development of computer technology, the performance of CPU and main memory of system has been greatly improved. In this paper, the technique used is swapping. Where, the memory is utilized as the request is generated from the server to the client. Due to this memory utilization ratio and I/O performance is improved. To improve its swapping capacity and improving paging speed client server interaction is made for each node for the utilization of memory.

Virtual Machine Re-Assignment Considering Migration Overhead [2] We introduce a mathematical model formulation for scheduling virtual machine (VM) migrations in data centres. The model is aimed at minimizing the number of active physical host servers over time. Our goal is not only to avoid overload situations resulting from aggressive consolidation mechanisms but also overload situations caused by overhead-intensive VM migrations. Although various VM scheduling approaches

have been proposed in the literature, so far predictable resource demands caused by VM migrations are not directly considered in mathematical scheduling models, which can easily entail unplanned overload situations and resulting performance degradation. We propose a new model formulation, which explicitly takes the migration overheads into account while recalculating and executing VM allocations over time. Experimental results based on VM resource demand time series from a data center show that the model allows for significant server savings compared to a static assignment of VMs to physical hosts, while avoiding overload situations. We introduced a mathematical model for scheduling VM migrations in a virtualized data center aimed at minimizing the overall energy consumption while avoiding server overload situations due to migration overheads. Outcomes of numerical experiments based on real world workload traces show that around 50% of operational server hours can be saved using the proposed scheduling model compared to optimal static VM allocations. These outcomes are based on numerical experiments with deterministic workload behaviour of rather small sets of VMs. The outcomes are promising, in particular as the majority of VMs we analysed exhibits a well-predictable, repetitive pattern on a daily and weekly basis.

An Efficient Shared Memory Based Virtual Communication System for Embedded SMP Cluster[3] we design a virtual communication system called SMVN, which extends the shared memory mechanism typically used in intra-node case into the inter-node case. The SMVN utilizes the HT inter-chip interconnect interface in Godson-3A SMP nodes to build a mesh topology. It is Ethernet compatible by simulating bottom layers of TCP/IP protocol. With the design, the node interconnection can get rid of NICs, cables and switches. Furthermore, we exploit the zero-copy scheme and other optimizations to improve the performance. We port the MPICH2 library by socket channel and formulate its process allocation. a cluster with nodes of embedded processors connected by commodity high-volume low-cost networks is called embedded cluster, which is somewhat like the Blue- Gene/L cluster but with lower processor density. They both use moderately powerful but power-efficient processors as nodes.

Fast Saving and Restoring Virtual Machines with Page Compression[4] More and more enterprises are moving beyond server virtualization to desktop virtualization in recent years. In virtualization environments, centralized shared storage systems are generally used to take advantage of virtualization features such as VM migration. Network file system (NFS) is considered to be the best choice in small or medium sized LANs due to its flexibility and low

cost. But it becomes the bottleneck when many clients access the server simultaneously, especially when multiple virtual machines access a large amount of data at the same time, such as operation save and restore. In this paper, we present a new method named ComIO to quickly save and restore virtual machines using page compression. Based on the analysis of virtual machines' memory characteristics, we design a fast enhanced characteristic-based compression (ECBC) algorithm. Desktop virtualization aims to separate a personal computer desktop environment from a physical machine. Users access the *virtual desktops* (VDs) and applications from a desktop PC client or thin client using a remote display protocol. Desktop virtualization enables low TCO (*Total Cost of Ownership*), fosters mobility and also provides robust disaster recovery and security. In this paper, we have designed a shared memory based virtual communication system called SMVN, which is implemented in the Godson-3A embedded cluster for both intra- and inter-node communication. Based on the HT chip-to-chip interconnect fabrics integrated in SMP nodes, the SMVN can construct a shared memory pool as the communication buffer with hardware consistency maintenance.

Application of Virtual Port Gate System Based on RFID Technology[5] The construction and application of electronic port gate system, which is vivid application scenario of internet of vehicles, will benefit the entry and exit of vehicles for quick clearance guidance. It is also a great help for the monitoring of comprehensive import the efficiency of entry and exit port is a significant improvement on administrative work.

Research on the Remote Monitoring and Controlling Based on VSP[6] Traditional PLC software about programming and monitoring all were designed in serial port debugging mode based on local. So the remote monitoring and controlling function couldn't be realized in the mode. In the article the virtual serial port(VSP) technology was imported into the system and it turned the PLC serial port software from local control function to remote one. In the system, the real serial port was replaced by virtual one. Here, the client captured the command from the server and the instruction were sent to server through internet. And server program transferred the command to PLC by real serial port of local upper computer and correlation datum backtracked after PLC response. The Cx-programmer (Omron PLC software) was applied in the experiment and the ladder of Cx-p come into being switching on and disconnecting by returning datum. And according to the changes, the running state of local equipments could be known. This system was debugged by the experiment successfully. The introduction of a virtual serial port into the remote system improved the

performance of programming and debugging software of PLC based serial port and expanded the scope of the application. At the same time, the virtual serial port embedded into the remote system was built on the principle of bridge and had nothing to do with plc software type, although the system was developed in the platform of cx-p software.

### 3. Discussion

Sharing of embedded devices has become very important in our day to day life. As various new laptops or tab are not having the various port for the attachment. This technique will be helpful for the connection without having any extension.

### 4. Proposed Work

Here, my work will be related to solve this problem of device sharing. To solve this, a virtual environment will be created on the client side where the laptops or the machine not having the facility to connect the device are connected. And on the client side main pc will be connected where that devices can be connected. Through that machine that device will be shared on virtual environment and through that device is connected on client.

My work will be related to the sharing of embedded device in LAN.

1. Building an physical serial port transmitter over LAN.
2. Server client implementation for network application communication.
3. The main application will be LAN server, LAN client and virtual driver port.

From this my main objective will be to make available all the embedded device to all the guest machine which will be connected in LAN and the drivers or the port for where it is not available.

In our plan, one machine will be connected on client side where the connection is possible. That machine will be connected in LAN and through that the device will be shared on other machine connected on other side of the LAN. But to share that device on other side virtual environment will be created which will be the main aim for sharing devices. This will be implemented in three phases as host development process, guest development process and lan connection.

### 5. Implementation

The above mentioned technique can be implemented in VB .net using the virtual environment on other side. By socket API for interaction. It can be worked on xp operating system or any higher version of it. Hardware required will be only device that will be shared.

### 6. Conclusion

After all the survey, it has been seen that sharing of memory, data, folder can be possible but sharing of some external devices is not possible as there protocol is not available.

But, need of this is very essential. Various sharing is possible like, software, memory, resources but embedded device is not possible. Whenever we want to use serial port or any other port on laptop it is not available. So, to solve that problem this work will be introduced. My work will be related to the sharing of embedded device in LAN.

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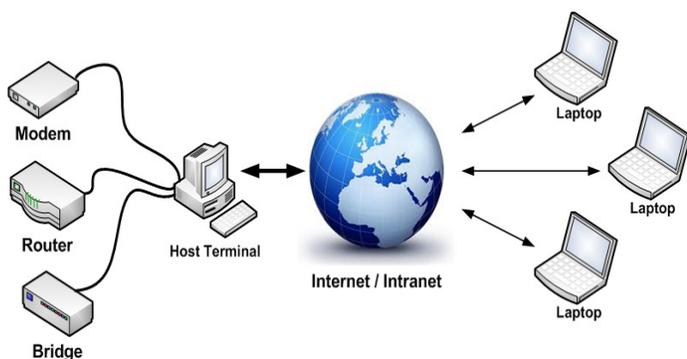


Fig1. Basic block diagram of work

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