Integration of “Virtualization with Enterprise Content Management System” which impose “Green Computing”

Dr Parimalendu Bandhyapadhya, Raiganj Govt. College
Joydeep Chowdhury, Associate Project, Cognizant
Yogendra Patil, Sr. Software Engineer, Bank of America

ABSTRACT
Virtualization is a software technology that provides the virtual division of a available “Centralize”, “Huge Processing Capability” full resource into a “Client-Server” model base interface or machine or some time resources. The “Virtualization” is used to provides support to “enterprise Development environment” and also provides supports to “Support of modules or Application” which is in general “Web based”, ”Portal Application”, ”Distributed Data Base System” or any application run upon “Client-Server” architecture”. The “Enterprise Content Management System” also a “Portal Collaboration Technology” that generally build upon and run on “Virtualization”. Even the development environment of “Enterprise Content Management System” provides the distributed, virtual development environment which is also one face of “Virtualization”. The advantage is that- 1] Since “virtualization” use the concept of virtually use the resources with “Client-Server” model or “Distributed Computing”. It use to consume less power and consume less energy to make the server cool. 2] The “Enterprise Content Management” system use to store the distributed “Documents” in to a single –centralized and “Virtually” distributed and accessible across any part of “Privilege Network”. It reduce the use of “Paper” and “Paper based model” inside organization. 3] Help to easily implement “Green Computing”. 4] Consolidation of server technology helps to reduce the uses of electricity and provides a stabilize “Back-up” possibilities. 5] By increasing the “Carbon Credit” and reducing the “Carbon Footprint” it helps organization to observe its responsibility towards society.


INTRODUCTION
How general “Client Server” approach is critical for a “Organization “ to observe its responsibility towards society:
There are lots of areas where the “Client Server” model cause harmful effect for the organization. The areas are the “E-waste Generation”, “Consuming of More Power”, “ lack of distributed computing approach prone to failure of processing and loss of data”, “ Difficult to implementation of Back-up and Recovery Process”, “ Lack of Full Distributive” ability initiate the use of Paper based Model”, “ Different and Distributive environment of Development and Support require lots of resources and machine power that leads to consumption of more electricity”, “Consumption of more resources and machines use to be the cause of generation of more E-Waste”, “ Rare accessibility in between the system also keeps other devices (such as mobile) not to be involve in access of centralize system which again leads difficulties to access and user started to relay on Paper Model”. The following are the basic draw backs that our research finds out:

Generation of E-waste
The general “Client-Server” system or the system with out the implementation of “Virtualization” use a set of “ Server” such as 1] Production Server 2] Development Server 3] Backup Server 4] Support Server and this all server are accessible directly or from client machine with “Remote Connection Facilities”. When this client machine used for development- 1] a copy of the “Development Environment” use to be installed in client machine and the machine should have “Independent processing power”. The same scenarios for “Support Clients” also. These all machine contains lots of wires, disk and other equipments which increase “E-waste”. 2] On the other hand at the time of development and support the different servers are also generating loads and “E-waste” for organization.

Consuming high Volume of Energy
The different Servers and the clients with “Independent Processing Capabilities” not only consume more electricity for the processing but also the “Monitors of clients system” and the
“Cooling mechanism of server” also consume a big amount of energy.

**Consummation of Paper increase because of lack of proper “Back-up” system**

Since the general “Client-Server” model has poor back up capabilities and even it rarely has the capability to holding “History of any instant such as task list, record of documents” etc and “Manage of Document Life”. People use to depend on only in “Paper based Model”.

Even it is very difficult to and tedious to make a “Connective Environment” of a “Central Document Management” system which will be accessible by people inside or outside organization with privilege. This again leads the use of “Paper Based Model”.

**Access of Document from different devices**

The client-server model generally not encapsulated with the ability to access by any other devices except computer such as “Mobile”, “Note-Book”, “Pager” etc. Which not only leads a unnecessary use of computer but also leads the use of paper base models.

Research finds how Virtualization and Enterprise Content Management System helps organization to achieve “Social Responsibility”:

**Reduce the production of “E-waste”**

Since the virtualization provides one server which will have partitioned areas to be operated as 1] Development Server 2] Support Server 3] Production Server, its requires only “Single Power Supply”, “Single Cooling Mechanism”, “Single Synchronized Processing System which approach reduce the “Generation of E-waste”.

The client machine either connected with server generally by wire or with wireless will not be halving “Centralize Processing System” rather it will be connected with server and “Virtually” it will be getting either development, support or production environment.

If the Enterprise Content Management system will be on role this “Virtual Server System” will be access by two way: 1] With Remote Connection Manager 2] With “Web Services”.

The above approach really reduce the “Production of E waste” by reducing the wires and internal equipment of “Client and Server machine”.

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**Processing between Client and “Virtual Server” using ECM**

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**Less Consumption of Paper**

The “Enterprise Content Management” (ECM) system has the capability the be a centralize repository of all document to be manage for organization. It can has the following module for document management-1] Scan or generate basic or customaries feature based “Content Type Document inside “ECM”. The scan copy of the document may be saved inside. 2] The life cycle of the document can be management. 3] The history or different of the document can be manage. 4] The different version of the document can be manage 5] The back up can be manage automatically by
activating inbuilt feature of the document management system or through “Back Up Server”. This all reduce the need of paper in all extent.

**Consumption of less energy**
Since all the processing is going to happen in the server and since the server contain the single equipment in most of the cases( Exception: For multiprocessing system we may implement ‘n’ number of processed and external memory depending on capacity of sever), hence it reduce the “Consumption of Electricity”. The client machine since it doesn’t responsible for processing the consumption of power is less.

**Access of Document through different device**
Since the documents and data inside Server are access by Mobile and other devices with the “ECM View Management”. There is less need of paper for carrying document even laptops when people are outside the organization. This not only reduce “Paper base Model” but also reduce consumption of Electricity”.

**Some Practice**
Popular “Virtualization Products are; 1] VMware 2] Microsoft Hyper-V 3] Virtual Iron 4]Xen .Today most cases the practice is depicting that the use of “Virtualization” technique under “ECM”. Many organization such as HP, Microsoft stated to use this.

**The Advantages are**
ECM provides business-critical services to organizations worldwide. ECM deployments are multi-tier and rely on multiple servers and services, and often grow explosively as workgroups learn to harness capabilities for collaboration, workflow, content management and publishing. Virtualization facilitates rapid growth, and offers built-in capabilities that ensure high availability and rapid disaster recovery. A ECM infrastructure implemented on Virtualization based virtual machines offers the following advantages over a traditional physical deployment:
1. Much more flexibility in design, deployment, and adaptation to growth
2. Performance at parity with physical implementations
3. Ensure dynamic scalability and rapid provisioning into your internal cloud
4. Eliminate constraints on scaling ECM services as demand grows

Research on ECM work upon Virtualization:
For the research SharePoint which is a famous ECM and VMware which is implemented with “Virtualization Technology” have been considered. The statistic shows: Our Virtualized SharePoint server infrastructure farm out-performed the physical SharePoint farm by 4%. But only used 26% of the electrical power (watts) required to power the physical server infrastructure - put another way, that’s a 74% power saving over physical, put yet another way, going physical means 380% more power.

**Market of Virtualization and ECM**
Virtualization services largely revolve around supporting customers’ initial software implementations, education and training, IT consulting and systems integration are expected to garner faster growth in virtualization services over the coming years. An increasing number of virtualization software makers are entering the market, posing a greater competitive threat to market leader VMware. Virtualization services are expected to turn into an $11.7 billion market by 2011, more than double its current level. Whereas ECM emerges as the fastest growing enterprise applications segment and are expected to top $2 billion in 2008 and reach $3.5 billion in license revenues by 2012. Following are the scenarios of “Virtualization Market”:

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenu Generated by Virtualization in Market($ Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>5.7</td>
</tr>
<tr>
<td>2007</td>
<td>6.1</td>
</tr>
<tr>
<td>2008</td>
<td>7.7</td>
</tr>
<tr>
<td>2009</td>
<td>8.1</td>
</tr>
<tr>
<td>2010</td>
<td>12.03</td>
</tr>
<tr>
<td>2012</td>
<td>12.6 Till August</td>
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Conclusion
The virtualization is a technique or rather then the approach. It use to be combined with ECM to reduce not only the power supply but also “Increase the revenue of the organization”. The main advantage are the ECM are pretty much effective tool which used to built to think upon the organization need. On the other hand “Virtualization” is a technique which make easy the organization development and support stuff for such as a tool. Emotionally this not only reduce the use of electricity but also helps organization to reduce the “Carbon Footprint” and achieve social responsibility towards to achieve the goal of “Green Organization”.

Research Methodology
We have closely worked with an MNC on its “ECM” implementation and studied new technology -“Virtualization”. During these periods we tried to find out the benefits of ECM such as reducing of “Paper Base Model” and many more and also benefit of “Virtualization” and its other devices such as “Sand Box” etc. Here our researches are mapping the benefit of “ECM and Virtualization” to organization social responsibility.

Reference
[1] Applied Virtualization Technology: Usage Models for IT Professionals and Software Developers (Strategic Technology) (Hardcover) ~ Sean Campbell (Author), Michael Jeronimo (Author)