



INTEGRATED GREEN TECHNOLOGY SOLUTIONS

Green IT Infrastructure Solutions

Reducing Energy Consumption from the Desktop to the Data Center



Agenda

- Introduction to EcomNets
- Green IT Solutions
- Microsoft Solutions
- Software Development
- Future Plans



Green IT Solutions Provider

ECOMNETS



EcomNets

- A CMMi Level 3 Company
- VMWare Technology Alliance Partner
- VMWare Enterprise Partner
- Microsoft Gold Certified Partner 2009
- Ranked Top 50 Technology Employers by Washington Business Journal 2008
- Deloitte Technology Fast 500 2005, 2007, 2008, 2009
- Deloitte Technology Fast 50 2005, 2007, 2008, 2009



Partners





Today's IT challenges when it comes to the enterprise:

- **Energy Efficiency:** inefficient data centers and computing environments.
- **Management:** supporting corporate machines and assets day-to-day.
- **Security:** assuring data and machine security independent of location.
- **Compliance:** ensuring that machines are compliant with corporate and regulatory requirements.
- **Access/Changing Workforce:** providing users “anytime, anywhere” access to data and applications.
- **Disaster Recovery/Business Continuity:** ensuring continuity in the event of machine loss, disaster, or workforce interruption.

The State of the Data Center

- **Twin Challenges in the Data Center:**
 - **HIGH COSTS:** Data center facilities spend (CapEx and OpEx) is a large, quickly growing and very inefficient portion of the total IT budget in many technology intensive industries such as financial services and telecommunications. Some intensive data center users will face meaningfully reduced profitability if current trends continue
 - **GREEN HOUSE GAS EMISSIONS:** For many industries, data centers are one of the largest sources of Greenhouse Gas (GHG) emissions. As a group, their overall emissions are significant, in-scale with industries such as airlines. Even with immediate efficiency improvements (and adoption of new technologies) enterprises and their equipment providers will face increased scrutiny given the projected quadrupling of their data-center GHG emissions by 2020



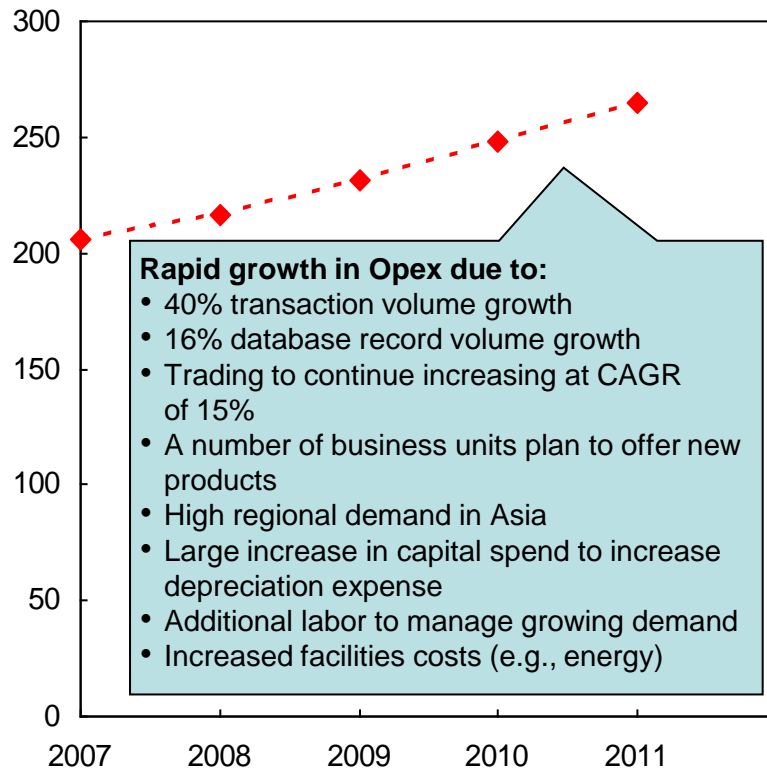
“Data Centers are burning cash and the smoke is polluting the air!”

-by Terrell Jones

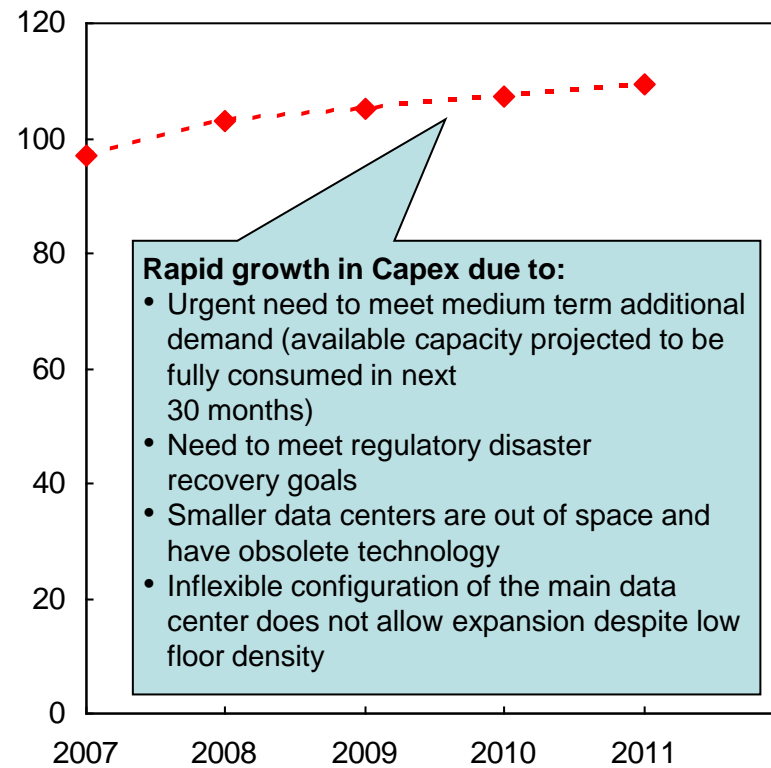
Large Data Centers Face Reduced Profitability

DISGUISED CLIENT
EXAMPLE

Opex projection



Capex projection



- Data center cost as percent of total revenue all time high
- Data center cost growing twice as rapidly as revenue
- Data center construction investment significantly affects profitability for next two years

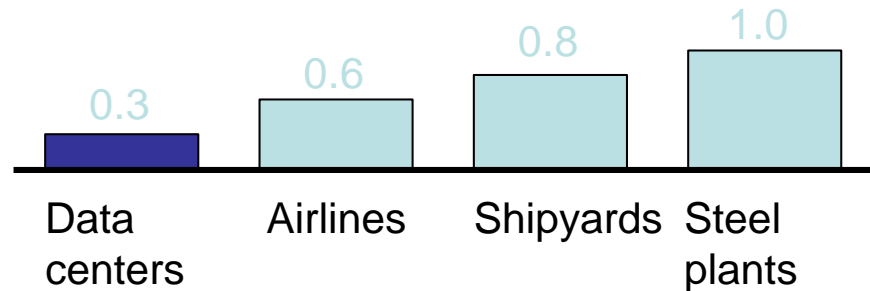
DUE TO HIGH ENERGY CONSUMPTION, DATA CENTERS' CARBON FOOTPRINT IS ALSO HIGH AND GROWING

Key points on data centers' greenhouse gas emissions

- Data center **electricity consumption is almost .5% of world production***
- Average data center consumes energy equivalent to 25,000 households
- Worldwide energy consumption of DC doubled between 2000 and 2006
- Incremental US demand for data center energy between now and 2010 is equivalent of 10 new power plants
- 90% of companies running large data centers need to build more power and cooling in the next 30 months

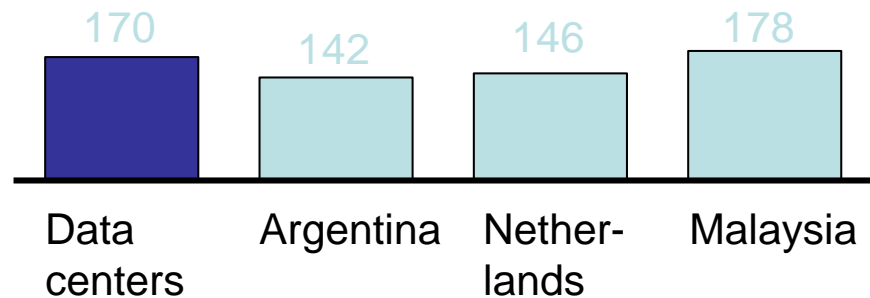
Carbon dioxide emissions as percentage of world total – industries

Percent



Carbon emissions – countries

Mt CO₂ p.a.

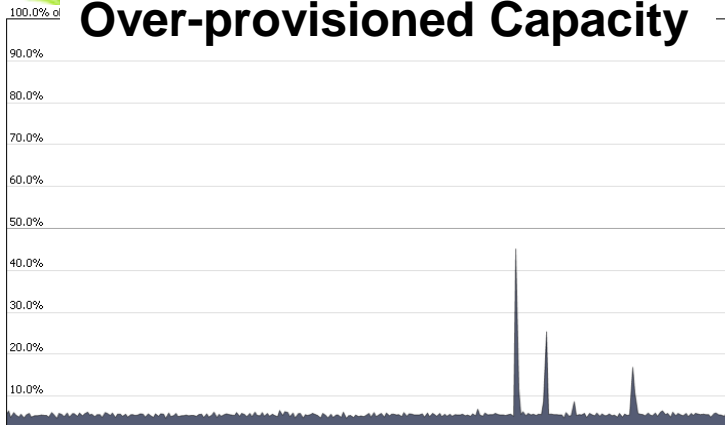


* Including custom-designed servers (e.g., Google, Yahoo)

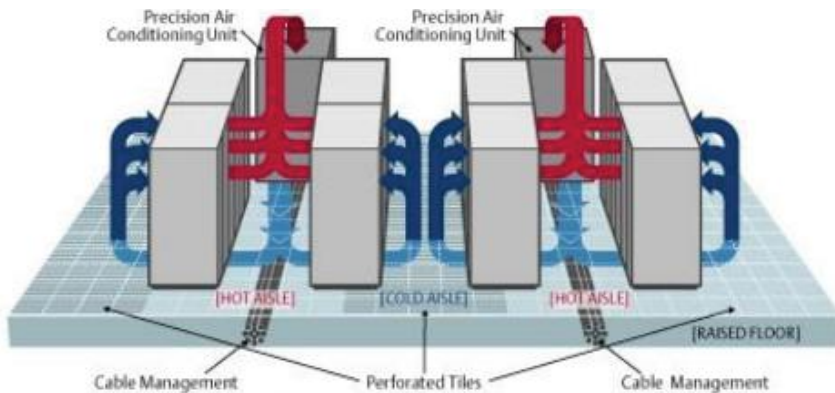
Today's Model is Broken

- Poor forecasting + low flexibility = excess capacity
- Typical datacenter: 3 years excess server capacity
- Servers consume >50% of average power when idle
- Datacenters are outdated and hugely inefficient
- Cooling servers often requires 2x the power consumed

Over-provisioned Capacity



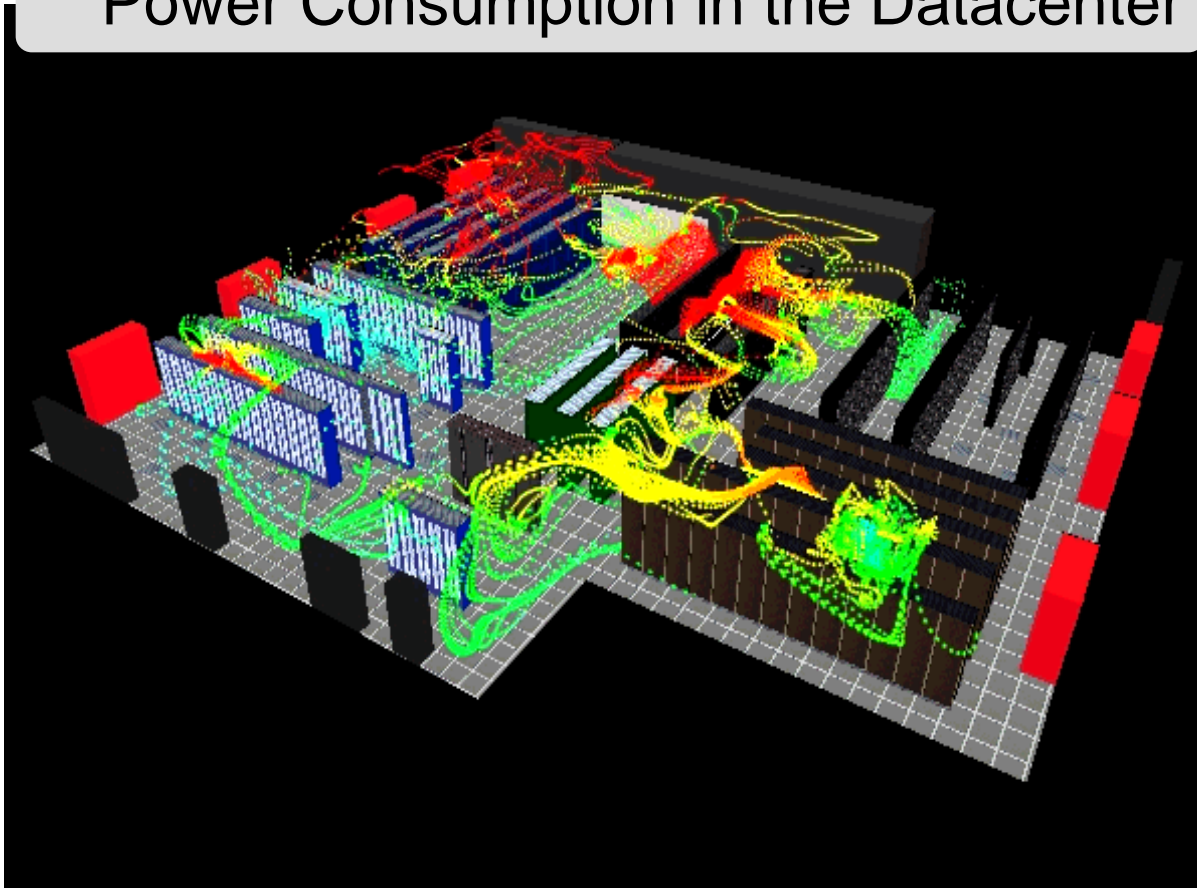
Inefficient Datacenter Design



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Where Does the Power Go?

Power Consumption in the Datacenter



Server/Storage	50%
Computer Rm. AC	34%
Conversion	7%
Network	7%
Lighting	2%

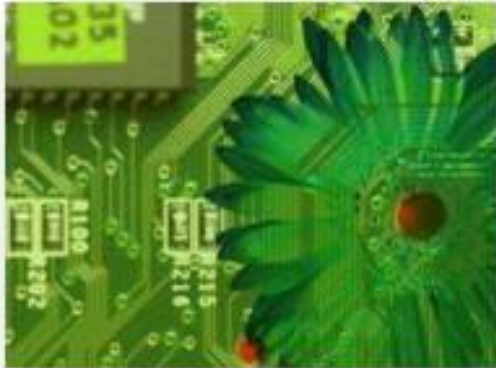
Compute resources and particularly **servers** are at the heart of a complex, evolving system!



Energy Efficient Computing

GREEN IT SOLUTIONS

Top 10 Green IT Solutions



1. Server Virtualization & Desktop Virtualization
2. Cloud Computing
3. PC Power Management
4. Storage Data De-Duplication
5. Energy Efficient Hardware (Verdio)
6. Telecommuting / Teleconferencing
7. Paperless Solutions
8. Carbon Accounting/Mgmt.
9. Data Center Optimization
10. Energy Waste Management

Top Green IT Solutions with Rapid ROI (6-12 Months)



1. Verdio Green PC
2. Server Virtualization
3. Desktop Virtualization

Verdio Green PC

- Our goal is to provide affordable PCs to organizations committed to climate change.
- Released on 09.09.09 for as low as \$299 virtualized!
- Small carbon footprint
- Highly recyclable case
- Powerful
- Virtualized and Standalone




www.Verdio.net



Verdio is Compliant



verdío



More to come...

verdío

- Verdio Green PC 2.0
- Verdio Green Server
- Verdio Thin Client
- Verdio Green SAN



1000 Verdio Green PCs

1000 Green PCs	State of Virginia	
	Current Environment	With Verdio Green PC
Annual Energy Usage	602,800.00 kwh	180,840.00 kwh
Annual Power Costs	\$6,202,812.00	\$1,860,843.60
Barrels of Oil	355 Barrels	106 Barrels
CO2 Emissions	725,096.06 lbs	217,528.82 lbs

Estimated Savings		
Energy Savings	421,960.00 kwh	70.00%
Cost Savings	\$4,341,968.40	70.00%

Environment Impact	
Trees Planted	12,139 Trees
Cars of Highway	18 Cars

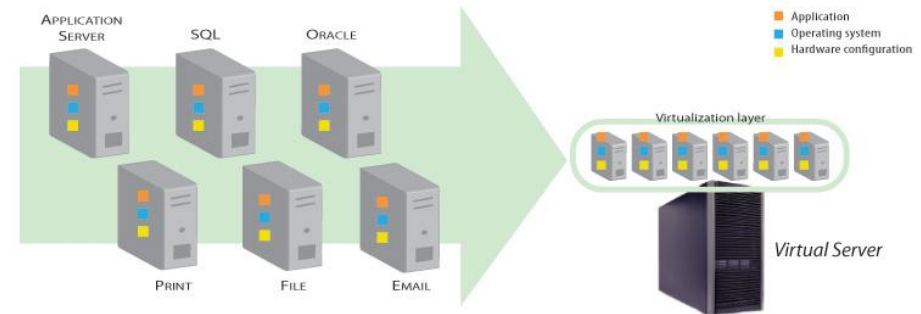


Server Virtualization

- Saves money on power and cooling.
- Increases security
- Increases Manageability
- Increases Flexibility

Virtues of Virtualization

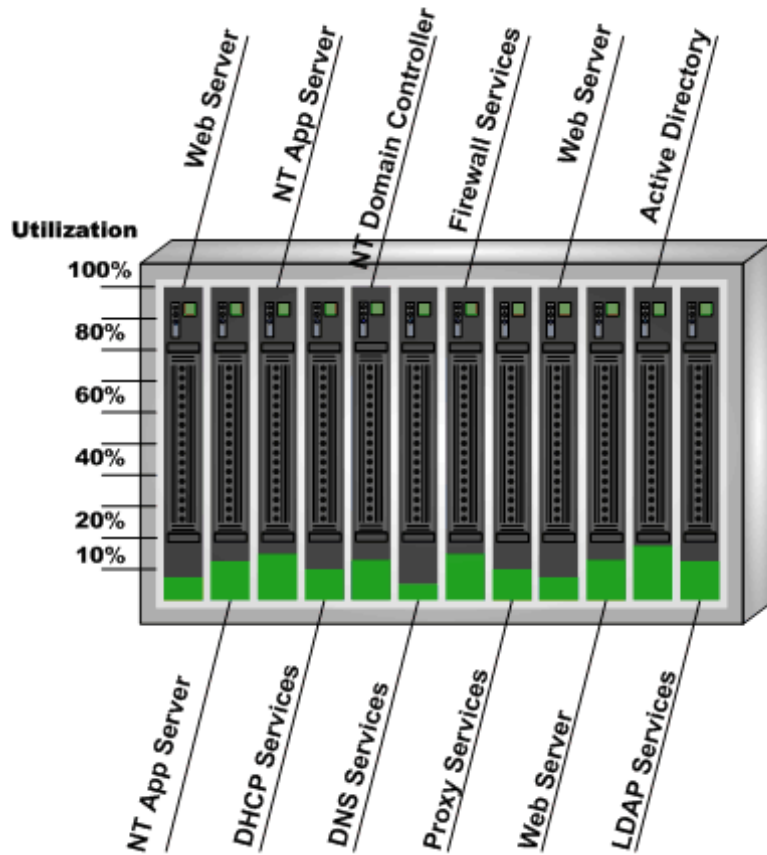
- Optimize your Data Center operations.
- Consolidate your servers down to 15-20%
- Quick ROI (3 to 6 months)
- Reduction of power and cooling by 50%
- Reduction of Carbon Footprint
- Reduction of Real Estate



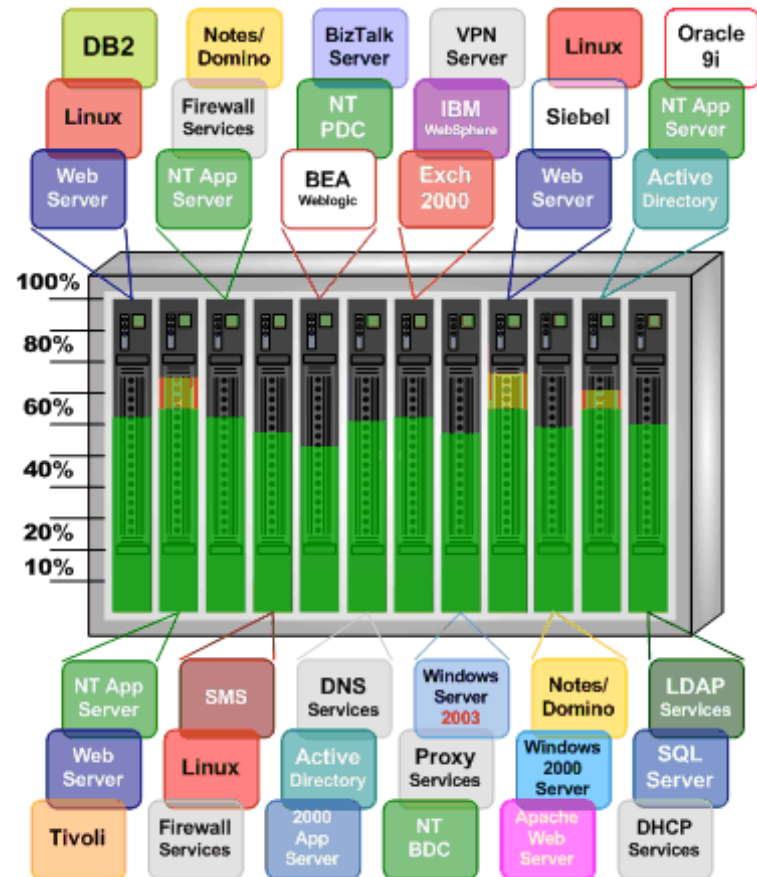


Reduce CPU waste!

Blade Servers without VMware VirtualCenter



Blade Servers with VMware VirtualCenter





100 Servers Virtualized

1000 PCs	State of Virginia	
	Current Environment	With Virtualization
Annual Energy Usage	374,858.32 kWh	263,470 kwh
Annual Power Costs	\$3,857,292.11	\$1,311,479.33
Barrels of Oil	221 Barrels	75 Barrels
CO2 Emissions	450,909.58 lbs	153,309.26 lbs

Estimated Savings		
Energy Savings	247,406.49 kwh	66.00%
Cost Savings	\$2,545,812.72	66.00%

Environment Impact	
Trees Planted	8,555 Trees
Cars of Highway	13 Cars



Definition: desktop virtualization

- ▶ A computing environment consisting of an operating system, applications, and associated data that is abstracted from the user's PC



Today's users fall into three basic categories:

1. Task-Based Workers

- Limited apps and limited performance requirements
- Easiest for IT to manage — require limited customization

2. Knowledge Workers

- Standard office apps and medium performance requirements
- Harder for IT to manage — app conflicts are commonplace

3. Power Users

- Compute-intensive apps and high-performance requirements
- Hardest for IT to manage — require full control of their PCs



Additional attributes to consider when thinking about your users

- **Mobile**
 - Users who are away from their desks more than 30% of the time
 - Typically have limited or no Internet connectivity
- **Remote**
 - Employees who generally work at home or in a branch office
 - Typically have persistent Internet connection; however, connection speed and quality are not guaranteed
- **Third Party**
 - Workers who are “untrusted” or “unmanaged” and don’t use a corporate PC
 - Machines are not provisioned by the hiring organization and can't be controlled by IT



1000 Desktops Virtualized

1000 PCs	State of Virginia	
	Current Environment	With Virtualization
Annual Energy Usage	606,696.52 kWh	206,274.82 kwh
Annual Power Costs	\$6,242,907.19	\$2,122,567.90
Barrels of Oil	357 Barrels	121 Barrels
CO2 Emissions	729,783.11 lbs	248,123.36 lbs

Estimated Savings		
Energy Savings	400,421.70 kwh	66.00%
Cost Savings	\$4,120,339.29	66.00%

Environment Impact	
Trees Planted	13,846 Trees
Cars of Highway	20 Cars



Calculate your Savings Today!



www.WeSavePower.org



Microsoft®

Microsoft Dynamics: ERP and CRM Solutions Provider

MICROSOFT SOLUTIONS



Microsoft Dynamics Solutions

- Microsoft Dynamics AX
- Microsoft Dynamics CRM
- Microsoft Dynamics GP
- Microsoft Dynamics NAV





Other Microsoft Solutions

Microsoft®

- Windows 7
 - Upgrades & Install
- Server 2008
 - Upgrades & Install
- Virtualization
- Cloud Computing
- Exchange
- SharePoint



EcomNets began it's Software Development Practice 10 years ago!

SOFTWARE DEVELOPMENT

Software Development

- Database
- Business Rules
- Business Process Management
- SOA Implementation
- Custom Applications





Coming Soon...

FUTURE PLANS



EcomNets Future Vision


- Green Data Center
- Expand Verdio Line
 - Verdio Green PC v2.0
 - Verdio Thin Client
 - Verdio Green Server
 - Verdio Storage Area Network (SAN)
- Announcement Today!





The End

ANY QUESTIONS?



Green IT ECO:nomic Summit



- 40th Anniversary of Earth Day, April 22, 2010
- Ritz-Carlton Tysons Corner, VA
- Over 20 Speakers from industry and Fortune 500 companies.

www.GreenTEconomicSummit.com



Thank you!

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