

# **Today's Consolidation Trends in the Data Center**

October 25, 2006

Data Center Decisions - Chicago

**Clay Ryder, President  
Sageza Group, Inc.**

# Agenda

- Introduction to The Sageza Group, Inc.
- The state of the datacenter
- Motivating factors in the marketplace
- A vision of the new datacenter landscape
- Real-life infrastructure simplification example
- Summary
- Discussion

# The Sageza Group

- Independent market watch firm
  - Fact-based forward-looking analysis
  - Focused on enterprise behavior and business productivity
  - Provides services to Vendors and Enterprises
- Founded in 2001 -- management start-up with key personnel from Zona Research
  - Headquartered in Silicon Valley, CA
  - European offices, London, England; Milan, Italy;

*Sageza – the inside story*

*“Sageza” from Italian word “saggezza” meaning “wisdom”*

## The State of the Datacenter

- During the late 1990s there was a bevy of IT investment
  - The allure of emerging Internet technologies
  - Enterprises of all stripes did not want to get “left behind”
  - Y2K was a convenient excuse to spend and vendors aplenty capitalized on the panic and euphoria
  - Investment was rarely strategic and often resulted in computing fiefdoms with minimal corporate leverage and ROI

*Y2K = excuse = budgetary excess = build it because you can = wasted efforts = IT hangover  
and oh, the problem of enterprise IT demands didn't go away*

## The State of the Datacenter

- The vision of n-tier computing led to today's infrastructure
  - The implementation of this vision resulted in a distributed collection of IT resources; both hardware and software
  - This collection of distributed resources led to the reuse of data in ways that were not previously considered possible
- However, *IT operations* became the leading IT expense
  - The physically distributed n-tier solution is inefficient and led to wasted CPU cycles, fragmented storage, complex cabling, a massive "raised floor", and never ending demand for resources.
  - Corporate growth = more boxes = more people = more cost

*In other words, excess overhead, underutilization, and an expensive operational nightmare*

## The State of the Datacenter, cont.

- Nevertheless, the notion of n-tier computing remains sound
  - N-tier computing is a logical concept, not a physical description
  - Past attempts at realizing n-tier were mistakenly focused on H/W
  - Today's consolidation efforts are largely about virtualization
- IT/datacenters are under political pressure to justify everything they do and every expenditure made
  - Resources are expensive and demand continues unabated
  - Inefficiency is wasting considerable amounts of energy, human resources and corporate capital
- Reporting on resource consumption is increasingly essential
  - Provides a budget justification for IT as well as the mechanism for cost allocation through charge backs and building LOB support for IT services

*What is n-tier?*

*It's the 3-tier and 4-tier (or more) distributed computing solutions in place today*

## What is the Data Center Seeking?

- Cost reduction ( ↑ ROI)
- Better utilization
- Business continuity
- Disaster recovery
- Resiliency
- Enhanced Services
- Enhanced Manageability
- Security and Compliance
- Ability to make the data center work for the enterprise, not the other way around
- Flexibility to respond to market challenges
- Leverage of untapped or underutilized corporate assets
- Delivering applications and data efficiently, effectively, if not entrepreneurially

*IT really just wants it to work; IT staff want do more interesting things, like create new applications, improve ROI, and make more money*

# Motivating Factors in the Marketplace

- Networking advances
- New architectures: grids, blades, more use of SANs
- Regulatory compliance
- Linux and open source
- Business imperatives
- *True* business alignment
- Applications are abstracted from the operating system and underlying hardware
- The dynamic reallocation of IT resources is becoming a reality and user expectation
- **The basic economics of IT are changing**



# The Result: A New Datacenter Landscape

- This confluence of customer needs and marketplace forces is dictating a new approach to datacenter implementation, maintenance, and management
- Physically mapped IT resources will give way to logically or virtually deployed IT services
- Managed services and SOA will increasingly become the norm and goal
- The concepts of the “remote office” or “remote network” will become historic anachronisms

## A Vision of the New Datacenter Landscape

- Massively distributed networks & IT resources will be consolidated into three centers of gravity
  - Resources that **scale out**:
    - Blades, grids, massively parallel, & small scale dist. computing
  - Resources that **scale up**:
    - HPC, single image SMP, mainframes, virtual blades
  - Resources that are **virtual**
    - CPU power, storage, management, data, applications, access, and most everything else!

*Hmm...this all sounds very simplistic.*

*Hasn't technology taught us that simple things are too good to be true?*

## Blades, Grids & Mainframes: A New Flexibility

- These examples of dynamic scaling offer a new model for dynamic scaling and application of IT resources
  - Virtual blades are dynamically allocated in a centralized context
  - Physical and virtual blades are tied together through grids
  - Blades can be repurposed as needed or by schedule
- Economics work in favor of shifting CPU workloads to free up otherwise “unavailable” resources
- The economics of datacenter operation can change too

*By the way, you can think of that mainframe LPAR as blade too.*

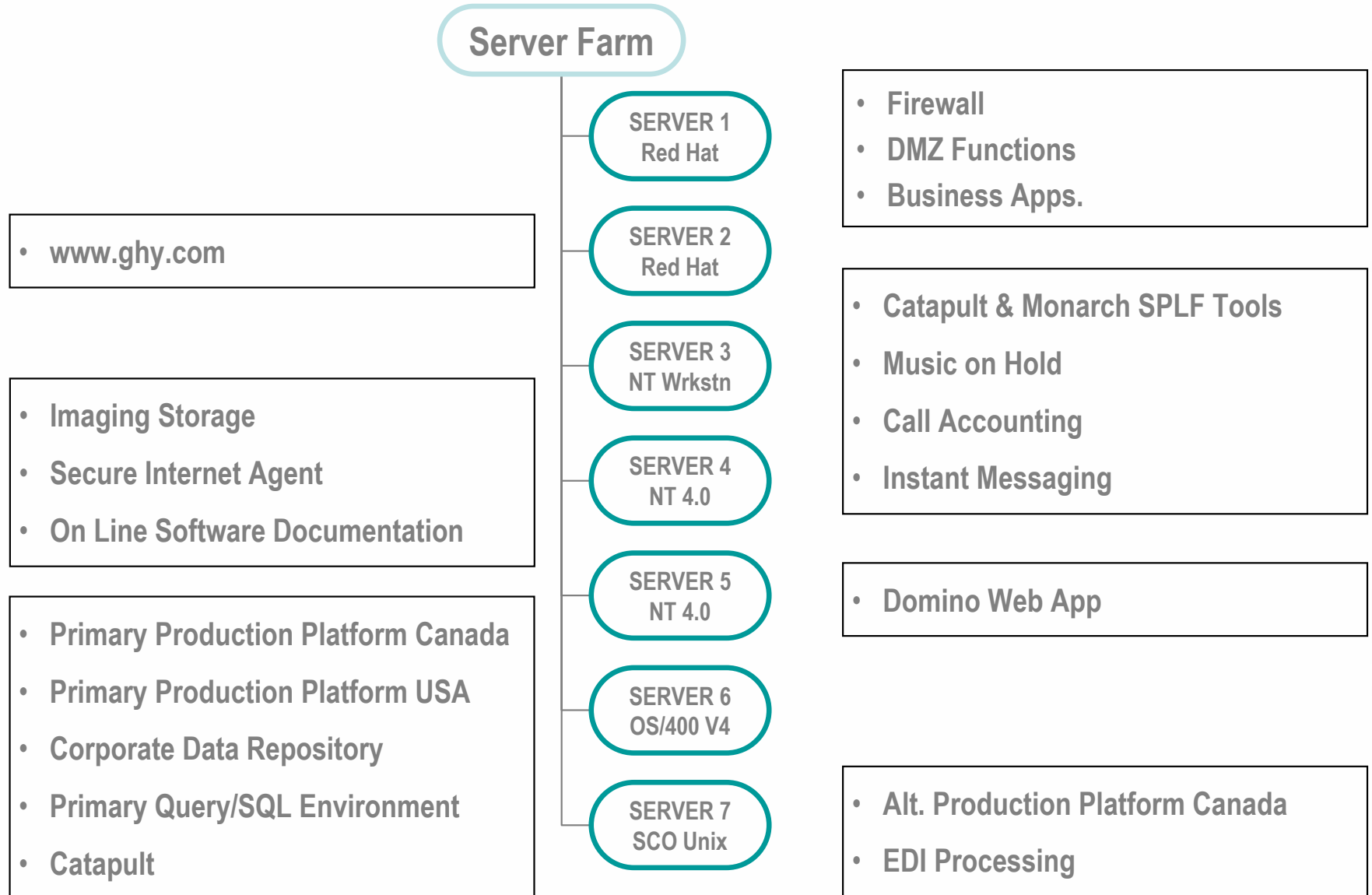
*Remember, it is a logical world in the future, not a physical one.*

# Real Life Infrastructure Simplification

- Geo. H. Young & Co. Ltd. and GHYUSA, Inc.
  - Canadian and USA customs brokerages with trade consulting and compliance advisory services
  - Located in Winnipeg, MB; CDN \$10 million annual revenues, 108 employees, four in IT
  - Complex collection of equipment and engineering, Windows, Linux, OS/400, i5/OS, SCO
  - Had 7 servers, but was going to have to grow to 16 to support the requested workload, now has one

***Infrastructure simplification isn't just for the big guys  
This is a classic SMB organization***

## 2002 – GHY Existing Infrastructure



## 2003 – GHY Simplified Infrastructure

### **IBM eServer iSeries 270**

- One-way processor
- OS/400, Domino, NT workloads

#### **Server Consolidation**

- Primary CDN system
- Primary USA system
- Combines NT onto two integrated xSeries server cards (Win2K)
- Add Domino Mail – web mail

### **IBM eServer iSeries 820**

- Four-way processor
- Linux and AIX workloads

#### **Server Consolidation**

- OS/400 managing partition
- 7 Virtual Linux partitions
- Infrastructure and applications

**Music on Hold Server**

*\*Alternate CDN Production Server*

*\*Alternate CDN Server is currently SCO, and is being ported to AIX to be consolidated*

*Music on Hold Server requires a sound card; something the eServer iSeries does not support*

## 2005 – GHY Simplified Infrastructure

### IBM System i5 550

- Four-way processor
- i5 OS, Linux, AIX, Windows workloads, as well as Lotus Domino

### Server consolidation

- Two i5 OS partitions
- 10+ Virtual Linux partitions
- One virtual AIX partition
- Four integrated xSeries servers
  - One is fail over
- Managing partition
- Primary production system
- Domino Mail – Web mail instance
- Domino same time instance
- Linux infrastructure and applications
- New Primary CDN system (Fall '05)
- Consolidate Windows servers (W2K)

Music on hold device

*Adding another server is pretty simple, just create a new logical partition*

*Music on hold device is now a velcro integrated iPod*



## Before (without new workloads) & after (new workloads)





## Benefits of Simplification & Centralization

- VPN Saving \$66,000/year because of Linux based VPN
- PDF Saved over \$40,000 in licenses with open source PDF creation tool
- SPAM Saving \$30,000/year in labor cost due to SPAM filtering (Mar '05 e-mail volume)
- Bandwidth Blocked Internet radio and bandwidth requirement dropped by a 2/3 in a month
- Forms Open source forms creation application saved \$80,000 for first application
- E-biz Latest form solution (March 2004) saved \$24,000/year in preprinted forms cost
- Time In house developed e-filing Web based application now in client pilot with no extra cost to extend it
- Cost Prior to server consolidation, GHY IT spent 95% of their time keeping systems and network running. Now they spend 5%.  
Three IT personnel not hired saved \$135,000/year in additional IT budget

***For a C\$10 million company, these are some real take to the bottom line savings***

## Take-away Points

1. Existing physically distributed n-tier solutions are inefficient
2. N-tier computing is a logical, not physical concept
3. Organizations want the data center to work flexibly, respond to market challenges, and leverage underutilized corporate assets
4. The basic economics of IT are changing: Efficiency is paramount with demands for resource consumption monitoring and reporting on the upswing
5. Distributed networks & IT resources will be consolidated into 3 centers of gravity: Scaling up, scaling out, and virtualization
6. Open source continues to change expectations
7. Service management and SOA are the future of the datacenter
8. Infrastructure simplification can provide tangible benefits to enterprises of most any size, not just the big guys



# Discussion

# Thank You for Your Attention

If you have any questions,  
opinions, or follow-up discussions,  
please contact me at

[clay@sageza.com](mailto:clay@sageza.com)

or

+1 (510) 675-0700 x251