White Paper

Empowered by Innovation

NEC

Optimizing the Higher Education Data Center with Fewer Resources

NEC Corporation of America
www.necam.com

Introduction

Higher education IT leaders today are faced with two conflicting sets of issues: shrinking budgets and on-campus pressures to increase computing capacity, availability and services.

Competing campus constituencies – administrators, academics and various departments – are forcing consolidated data center resources into a multi-tenant environment. This brings a significant set of challenges, including security and risk management, business continuity, consistent IT service levels, training and ongoing replacement of aging infrastructure.

As a result, many institutional IT departments are reevaluating how they approach the data center, looking for ways to optimize and improve IT service levels, and exploring ways to make education resources more available with less available budget.

Competing IT Priorities

Senior IT leaders in higher education ranked the following strategic personnel and data center issues among their highest priorities in a 2010 survey by the Campus Computing Project.

Initiative	*Score
Server consolidation	6.1
Server virtualization	6.3
Storage management	6.0
IT business continuity	6.0
IT personnel staying current on new technologies	6.4
Developing budget to routinely replace aging equipment	6.2

*Scored on a scale of 1 (low priority) to 7 (high priority)

Source: "Campus Computing 2010, The 21st National Survey of Computing and Information Technology in American Higher Education," Kenneth C. Green, The Campus Computing Project

Higher Education IT Trends

These drivers are shaping the decisions that senior IT leaders must make, and virtualization of data center resources has begun to take center stage. Consider the following trends:

- Budget challenges
  - Limited funding – Forty-six out of 50 states have flat or reduced budgets for higher education in the 2010-2011 school year.
  - New IT priorities – Customer facing projects or money saving projects pushed to the front of the list.
  - Process improvement – Anything involving process optimization is being considered.
- Education availability
  - Resource consolidation – Shrinking budgets are forcing IT to do more with less via virtualization of data centers and learning environments.
  - Mobility – Students expect the ability to learn, communicate and collaborate from anywhere on or off campus.
- Security
  - Motivated hackers – Economic challenges have increased motivation and profitability of data breaches, while simultaneously limiting campus IT resources.
  - Risk – The costs of cleanup from data breaches and fines related to lost Payment Card Information data can be significant.
  - Compliance – State, local and federal regulations are growing more complex and stringent.

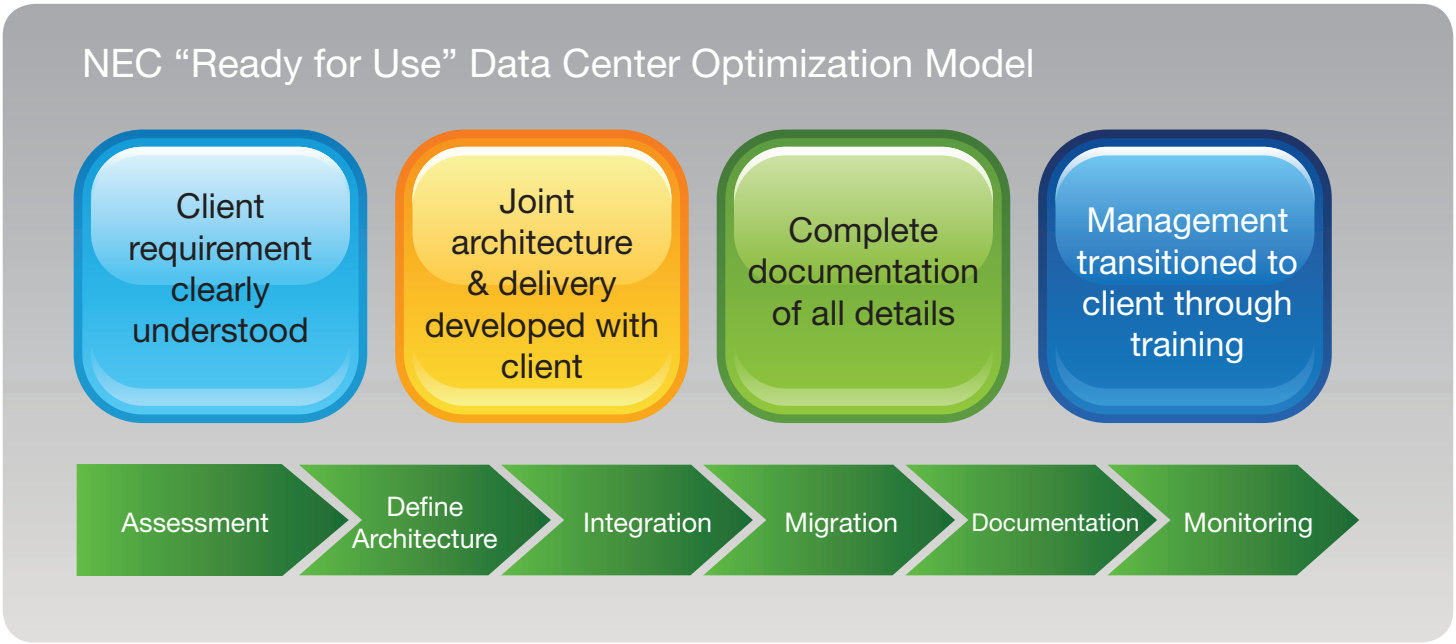
Benefits of Data Center Optimization

- Reduced capital and operational costs over the long term
- Reduced personnel and licensing requirements
- Reduce physical data center footprint by up to 80%
- Reduced carbon footprint for compliance with campus green initiatives
- Reduced storage complexity and diversity
- Faster server and storage provisioning
- Improved disaster recovery and business continuity
- Simplify power, cooling and network infrastructure

Proven Methodology

To best understand our clients' business needs and goals, NEC conducts a detailed assessment of the datacenter architecture, applications and processes. NEC collaborates with all relevant IT administrators and departmental stakeholders during the assessment to facilitate a joint design and a smooth implementation. Proper planning helps to avoid costly project delays and brings forward the best possible virtualization solution for your campus environment.

Our goal is to ensure that each client consistently enjoys the same high level of quality for our solutions and service. For this reason, NEC follows a comprehensive Ready For Use (RFU) delivery model for data center virtualization and integration projects. Upon completion, each data center project is ready for immediate use. NEC offers optional data center infrastructure management services. Alternatively, we will train your staff to manage your new virtualization investment.



Taking the First Step

A data center assessment is the first step in helping an IT organization identify and address the myriad pressures exerted on existing IT staff and resources. Through an assessment from NEC, IT leaders can:

- Identify ways to better leverage your existing investments
- Learn how to enhance data center performance
- Identify the best ways to leverage virtualization for your campus
- Develop plans for secure multi-tenant, shared infrastructure models

NEC Data Center Optimization Service Offerings

Assessment
- Environmental assessment of network, servers, storage, power/cooling, virtualization, OS, applications, and cloud
- Define business goals & processes of all stakeholders
- Provide technology recommendations
- Quantify achievable results & benefits

Design
- Use assessment and analysis to design a new or updated infrastructure
- Develop a disaster recovery & business continuance-ready architecture to implement across geographical areas
- Apply industry best practices
- Leverage latest technology that best meets customer's needs
- Validate data center design with business goals

Implementation
- Cross-discipline, certified NEC Engineers perform efficient installation of multiple technologies
- Anticipate installation challenges with years of experience in the data center
- Includes quality inspection, mounting, interconnection and configuration

Integration/Migration
- Virtualize Microsoft Windows and Linux physical servers on the latest hypervisor platform
- Deliver a virtualized, highly available and clustered infrastructure for migrated servers
- Customize virtualization solutions with a consolidated, efficient & green production environment to protect IT infrastructure

Consolidation
- Leverage assessment tools to identify potential to maximize data center assets and reduce costs
- Power, network, server, and storage consolidation services
- Strategic approach to delivering operational improvements while minimizing downtime
- First step towards private cloud data center

Automation
- Next major step towards private cloud computing
- Integration and automation of scaling the data center private cloud with self-service portals
- Automate processes to shorten cycle times from weeks to minutes

Data Protection
- Penetration Testing evaluates the security posture of Internet-facing systems
- Vulnerability Assessment evaluates the security posture of the internal network and provides recommendations for remediation and meeting regulatory compliance.
- Web Protection Service provides Security as a Service, protects against Web Malware attacks, and enables the safe productive use of the web
- Threat Monitoring & Management provides 24x7x365 monitoring of routers, firewalls, intrusion detection and prevention systems (IDS, IPS) and management of incidents, configurations, patches, upgrades and changes, as well as ongoing trend analysis, threat intelligence and annual security assessments

Data Center Relocation / Rebuild
- Rebuild the data center from cable plant, power and cooling to the server infrastructure with proven green data center solutions
- Support organizations in relocation efforts to another facility, co-location or cloud infrastructure
- Expand data center capabilities to additional sites for disaster recovery or scale out to meet business demands

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