Hyperconverged Infrastructure Solutions: 

The Natural Evolution of Server Virtualization 

NCI Information Systems, Inc.
The Challenge Today

Traditional server and data center technology is moving away from stand-alone server, network and storage platforms toward converged solutions that combine all of these features into modular systems to lessen configuration and operational complexity. In addition to lessening administrative effort, customers are looking for ways to have the systems manage themselves in an autonomic fashion by:

1. Leveraging automatic management of run-time sessions across the scalable pool of resources based on business rules
2. Facilitating adaptive assignment of resources in the pool — scaling up/down — based on macro-level operational changes in workload/utilization
3. Taking advantage of the awareness of internal utilization metrics to self-optimize configuration based on adjusting fine-grained parameters within a defined resource pool

Lower Costs and Increased Agility

Hyperconverged Infrastructure (HCI) is the natural evolution of server virtualization started more than a decade ago. HCI incorporates memory, storage, compute and networking resources into a “Software Defined Infrastructure (SDI)” that allows the cost-effective shifting of efforts from traditional systems administration to more user-facing services. HCI also offers a way for government agencies to adopt some of the value of cloud-based self-healing services without having to commit to a particular cloud vendor. If an agency is not ready due to security, recovery or migration concerns, they can take steps with HCI to prepare themselves to migrate, transition or transform their mission-facing applications and services to the cloud.

Companies such as Cisco and Nutanix are delivering HCI platforms that logically and seamlessly manage, configure and allocate memory. NCI implements these solutions to meet our customers’ unique environments — simultaneously lowering cost, increasing agility and improving security via SDI-approved system runtime architectures and reusable blueprints.

New Way of Thinking

There are two main implementation models. One focuses on traditional data center services (racks of compute, networking and storage gear) that will be remotely managed and re-configured. The second focuses on virtual desktop infrastructure technology that targets multiple terminal replacement solutions.

With HCI, we’re moving closer to a delivery model that emphasizes NCI’s innovative automation, standardization and knowledge (ASK) services, an approach that leverages software-defined systems administration to reduce implementation time and increase consistency. Also, ASK emphasizes automation across all processes — data standardization and security configurations for the HCI components and knowledge sharing (in the form of best operational practices) across the entire environment. This model lets the
government better realize cost savings, improve data oversight and provide agility to meet dynamic changes quickly.

HCI also changes how network administrators think about setting up and running their environments. Today, administrators can start thinking about a request-fulfillment model — request a set of capabilities and the platform will figure out what it can provide to meet that requirement. HCI gives government chief information officers a new way to think about an agency’s infrastructure — one that easily adjusts and accommodates the changing workloads that are the norm today.

**Value of HCI**

- Drives increasing levels of configuration flexibility and adaptability in modern computing environments
- Offers opportunities to implement software-defined environments in support of Everything-as-a-Service procurement models — the networking, storage, memory and compute elements can be configured and rapidly re-configured based on current needs
- Leverages platforms to autonomously “throttle-up” and “throttledown” hardware elements based on operational demands, easing capacity and service-level management efforts across an enterprise

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The NCI Solution
Starting with virtualization platforms, NCI delivers enterprise-class, HCI solutions across the federal government. Moving beyond traditional virtualization, our focus is on:

- Identifying, qualifying and partnering with leading HCI vendors like Cisco, Dell/Nutanix, EMC and HP to deliver HCI technology
- Providing attractive methods for modernizing existing legacy enterprise applications that can smoothly transition to cloud runtime environments
- Leveraging leading certifications and assessments, such as ISO 20000-1, ITIL and CMMI

About NCI
NCI is a leading provider of enterprise solutions and services to U.S. defense, intelligence, health and civilian government agencies.

The company has the expertise and proven track record to solve its customers’ most important and complex mission challenges through technology and innovation — delivering cost-effective solutions and services in areas such as:

- Advanced analytics
- Agile DevSecOps
- Artificial intelligence
- Cybersecurity and information assurance
- Engineering and logistics
- Health IT
- Hyperconverged infrastructure

Coupled with a refined focus on strategic partnerships, NCI is committed to bringing commercial innovation to missions of national importance. NCI is a mid-tier systems integrator headquartered in Reston, Virginia, and operates at locations across the globe.

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