

**APPLICATIONS OF SUPPLY CHAIN CONCEPTS  
TO  
IT SERVICE MANAGEMENT**

**A POSITION PAPER**

**PRESENTED BY**

**KEN BALLOU  
VICE PRESIDENT**

**WORLDWIDE SALES AND BUSINESS DEVELOPMENT  
N(i)<sup>2</sup> INC.**



[www.ni2.com](http://www.ni2.com)

**July, 2012**

**TABLE OF CONTENTS**

- 1 EXECUTIVE SUMMARY ..... 3
  - 1.1 SYNOPSIS..... 3
  - 1.2 MANAGING THE IT-BASED SUPPLY CHAIN..... 3
- 2 TECHNOLOGY INTRODUCTION ..... 6
  - 2.1 THE N(i)<sup>2</sup> PLATFORM – ENABLING THE IT BASED SUPPLY CHAIN ..... 6
  - 2.2 INTEGRATION AT THE DATA LEVEL ..... 7
  - 2.3 MULTI-VIEW TECHNOLOGY: ADVANCED VISUALIZATION AND REPORTING ..... 9
  - 2.4 V5 DEVELOPMENT PLATFORM ..... 10
- 3 ABOUT N(i)<sup>2</sup> ..... 11



# 1 EXECUTIVE SUMMARY

## 1.1 Synopsys

N(i)<sup>2</sup> is an enterprise management software company that provides a range of integrated software solutions specifically designed for IT Service Providers, System Integrators, and Enterprise consumers of IT Services.

These solutions leverage a seamlessly integrated view and management of all enterprise services and infrastructure resources across domains (Compute, Network, Facilities, Cloud, Virtual/Physical Capacity, etc.) to help design, deliver and manage Services across silos in a faster, more consistent, economical, and reliable manner.

Today, as Service Providers are increasingly being called on to deliver new services faster, the demand for innovations supporting accelerated service design, delivery and management are becoming increasingly relevant and essential.

When you consider that IT Services are comprised of numbers of individually managed elements (i.e. compute, storage, network, physical capacity, etc), the analogy and application of an “ERP<sup>1</sup>” based approach to IT Service Delivery becomes a concept requiring additional consideration.

Decades ago manufactures applied technology in the form of ERP solutions to improve their understanding of the often complex relationships between raw materials, assembly time, inventory, cost, logistics, and customer demand. Although manufacturing is very different from IT Services Management, the fundamental concept and application of these principles are entirely relevant and applicable in today’s IT Service Delivery paradigm.

N(i)<sup>2</sup> is pleased to offer the following prospective to any Services-focused enterprise that is engaging the technology community seeking IT infrastructure management solutions to help deliver outstanding levels of service and value to their clients.

1 – ERP – Enterprise Resource Planning

## 1.2 Managing the IT Based Supply Chain

Most IT professionals today recognize that we are in the midst of an increasingly transformative shift in the global IT infrastructure industry. Today we, as technology providers, are all witnessing dramatic changes in the ways in which data is both presented and consumed, the ways in which enterprise IT organizations invest in technology, and the increasingly important role of the Service Provider community in fulfilling the global need for accelerated information service delivery.

As technology advances continue to materialize and reshape the IT industry landscape, the role of the Service Provider is increasingly being elevated as an essential component of the global fabric of information access and delivery.

We at N(i)<sup>2</sup>, clearly understand the increased importance of the Service Provider in the global IT ecosystem . We also understand that in order to increase competitiveness and differentiation in an increasingly crowded and complex market segment, Service Providers will need to view IT infrastructure in ways similar in concept to the ways in which a manufacturer views its supply chain -



As service delivery is ultimately based on the composition of many individual and often complex elements and relationships.

The need for this type of evolutionarily thinking in the IT industry today is pronounced. Historically, IT has been managed in silos with little seamlessness or communication between departments such as IT, networking, storage, facilities, etc. In order for the Service Provider to increase competitiveness and value, this historical approach to managing infrastructure has to evolve in very dramatic and fundamental ways. Service Provider organizations will need to understand the bigger picture of service composition and asset inventory from a seamless and complete perspective – a single, holistic view into their IT “supply-chain”, depicting assets, locations, complex relationships, and most importantly, how all of these elements comprise to deliver a required service.

We at N(i)<sup>2</sup> further understand that specialization limits the ability of any one individual technology vendor from being able to support you in every aspect of your infrastructure requirements. We see that our role and proposed value, is in bringing the essential increases in seamlessness via a unifying architecture that will bridge the complex disparities between the complete range of new or pre-existing management tools and major business applications, and that will also support your evolving requirements for accelerated service delivery. In essence, we at N(i)<sup>2</sup> see our role as being very similar in concept to that of an ERP system in the management of a manufactures supply chain.

Through the delivery of these advanced capabilities, Service Providers of every size and focus will be able to design, model, and deliver new services faster, more effectively, and with much greater cohesiveness across all silos and major business applications (Such as billing, service desk, service activation systems, and more).

In the context of this discussion, Service Providers will need to seek solutions that embrace this “new” approach to “management” and look for solutions that initially support the following capabilities and value:

- The ability to view your enterprise infrastructure holistically via advanced visualization and an interactive system – Not static report data;
- The ability to rapidly correlate and visually represent assets and relationships across all physical and virtual domains (Facilities, networks, compute, storage, and Cloud/Virtualization);
- The ability to manage the full lifecycle of Service Delivery - Assessment, Design/Modeling, Release Planning and Task Assignment, Project Planning and Enforcement;
- The ability to separately manage the lifecycles of both “Assets” and “Services” as well as their intersection related to specific deliverables;
- The ability to incorporate current and anticipated cost data into all planning and design efforts;
- The ability to realize seamlessness via the ability to leverage data from a range of pre-existing sources into a single repository/working environment that is not dependent on product to product or vendor to vendor integration – Instead leveraging advanced bi-directional communication and the capability to deliver integration at the data level;
- The ability to assimilate new entities faster via platform, databases, hardware, and operating system independence. This capability is also essential in being able to insulate users from vendor specific dependencies and knowledge requirements;

- The technology must be easily customizable to enhance and extend pre-existing investments in business applications, tools, technology, processes, procedures, best practices, and training
- Must be able to support a range of client transformation initiatives (Data Center, Cloud, network, location, etc);
- Must be able to more effectively represent the relevance, timing, and cost/value of transformation services – Both in business and technology terms;
- Must be able to provide pronounced differentiation in an increasingly competitive business environment;

In conclusion, in an industry segment where your ability to quickly and efficiently manage your IT-Based supply chain is one of your most important and essential competitive differentiators, we believe that the adoption of these concepts can be one of your most important, and strategic decisions. We hope you agree, and we look forward to continued participation in this global, industry-wide conversation.

The pages ahead offer a more practical and technology specific depiction of these concepts.

## 2 TECHNOLOGY INTRODUCTION

### 2.1 The N(i)<sup>2</sup> Platform – Enabling the IT Based Supply Chain

It starts with the Architecture. N(i)<sup>2</sup> is a platform technology designed to bring seamlessness and consistency in addressing the very complex challenges that can slow the IT industry’s ability to design and deliver consumable Services and meet the increasing rate of client demand. In the context of the Service Provider industry, where the delivery of new Services directly correlates to new customer acquisitions, revenues increases, and long term customer satisfaction, N(i)<sup>2</sup> becomes a “commerce” platform. Its capability to provide solutions to these challenges stems from its architectural design and advanced functionality. In the context of this document it represents a unique capability to apply the ERP concepts discussed in the Executive Management section of this document.

N(i)<sup>2</sup> address a significant gap that has emerged with the evolution of virtualization and cloud/converged computing technologies. Traditional network and infrastructure resource management tools, such as CMDBs and IT Service Management (ITSM) solutions, were designed to help organizations manage a single-domain, post-deployment. Such solutions were ideal for understanding configurations/settings of internal resources, comparing standards with actual implementations, the static mapping of services to resources and enforcing governance. However, the requirements of next-generation data centers (including both cloud service providers and enterprise data centers) are far greater. To efficiently manage a cloud or virtualized environment, data center managers now require: a holistic view of all assets and services across multiple domains, a services view to enable the modeling and mapping of infrastructure resources to services based on ITIL and eTOM best practices, the ability to conduct predictive analysis by designing and modeling changes through "what-if" scenarios and the ability to quickly design and provision/deploy new services. N(i)<sup>2</sup>'s solutions meet all of these next-generation requirements.

Processes / Tools	Traditional IT Service Management	Cross Domain Service Management N(i) <sup>2</sup>	Business/Operational Value
Service Design		✓	<ul style="list-style-type: none"> <li>• Model service offerings in line with business objectives</li> <li>• Enforce consistency of the service delivery processes</li> </ul>
Infrastructure Design		✓	<ul style="list-style-type: none"> <li>• Maximize utilization of infrastructure resources</li> <li>• Design infrastructure to introduce new services</li> </ul>
Change Management	✓	✓	<ul style="list-style-type: none"> <li>• Enforce governance</li> <li>• Automate processes</li> </ul>
Deployment Management		✓	<ul style="list-style-type: none"> <li>• Optimize deployment activities</li> <li>• Mitigate risk</li> </ul>
Provisioning	✓	✓	<ul style="list-style-type: none"> <li>• Faster and consistent service delivery through cross domain automation</li> <li>• “Choreography” based orchestration capabilities</li> <li>• Self service portal</li> </ul>
Service Catalog Management	✓	✓	<ul style="list-style-type: none"> <li>• Meet the desired business outcome</li> <li>• Ensure operational readiness</li> <li>• Service integration with the current infrastructure</li> </ul>

Legend    ✓ Covered    ✓ Partially Covered

N(i)<sup>2</sup> is designed to enable Service Providers to transition from a reactive “build-as-you-go” resource provisioning model, to a proactive and flexible cloud-based service delivery model. It is engineered to meet the requirements of cross-domain service automation with a solution that will integrate with pre existing management systems, providing a seamless “manager of managers” capability across heterogeneous infrastructure – whether provided internally or as an externally provided service.



Built on a federated, multi-domain Configuration Management System (CMS) and a process automation and orchestration engine, the N(i)<sup>2</sup> platform enables customers to rapidly design, configure and optimize their virtual and physical infrastructures, thereby substantially accelerating the delivery of flexible, customizable cloud services.

 Multi-Domain Model	Meta-model with predefined set of infrastructure and services classes. Customizable, extendable and virtualization support
 API's	Java and WebServices API's, NQL, Scripting capabilities
 Technical Services	Change Control, Import/Export, Triggers & Notifications, GUI Components
 Application Dev Toolkit	Tools to develop, build and deploy applications
 Multi-Tenancy	Multiple customers managed within a single CMS instance
 SaaS / Customer Interface	Ability to provide external customer access
 Discovery	Discovery platform that overcomes the challenges of scalability, security and extensibility
 License Management	Flexibility to register and control platform usage (user, application, API, time, volume...)

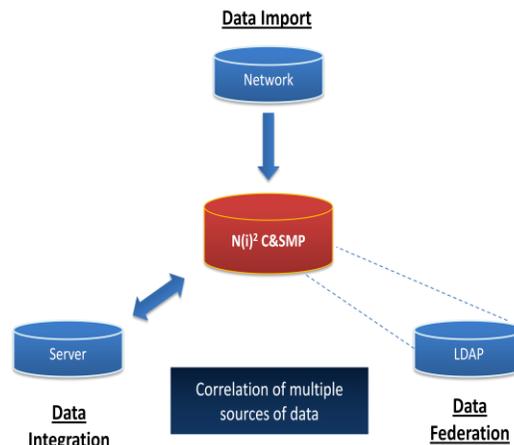
By providing a single system that delivers a cross-domain unified model for managing all network, server, storage, application and facilities resources, the N(i)<sup>2</sup> platform empowers Service Provider organizations to effectively address the management and operational challenges common in provisioning shared resources. Its modular architecture provides for an open, scalable and adaptable platform that integrates smoothly with a company's current processes, workflows, and pre-existing data center and business management tools. The platform includes the following modules and capabilities as outlined below:

<b>Management</b>	 Service Support	Manage incidents and problems based on ITIL best practice industry standards.
	 Service Fulfillment	Automate the service request lifecycle to ensure a controlled and rapid delivery of business services.
	 Service Portfolio	Document current business service portfolio and design future ones to effectively manage the service portfolio.
	 Deployment Management	Manage change and deployment across the entire infrastructure (IT, Network, Facilities and Cloud).
<b>Asset and Configurations</b>	 IT Resource Design	Accurately and rapidly design IT resources, applications and their dependencies.
	 Network Resource Design	Design any type of communication infrastructure through network configuration templates.
	 Facility Resource Design	Design data center facilities resulting in the most efficient use of power, cooling and space.
	 Asset Management	Manage asset portfolio, costs, contracts, locations and lifecycle.
	 Discovery	Gather information from computer systems and devices.

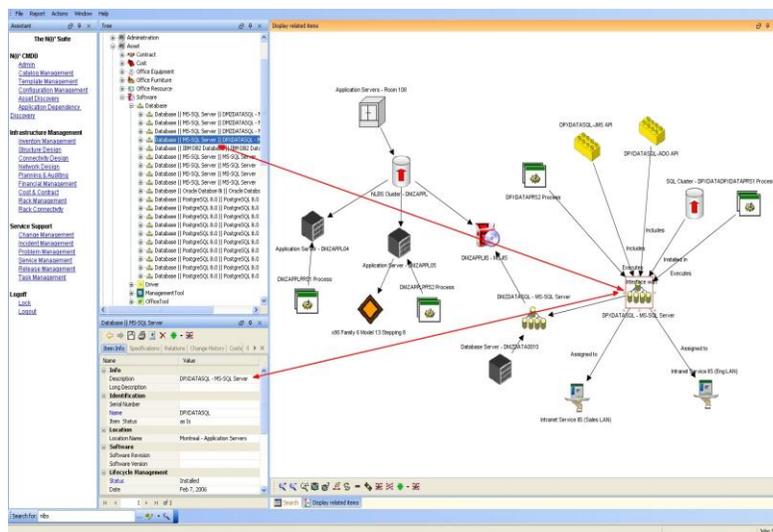
## 2.2 Integration at the Data Level

The N(i)<sup>2</sup> suite is designed to enhance and extend pre-existing investments in IT infrastructure management tools, processes, training, and best practices. The system is not dependant on the industry tradition of product-to-product integration or the use of software “agents” to collect data. Instead, the N(i)<sup>2</sup> platform is designed to utilize the virtually endless abundance of data that already

exist within the enterprise accumulated from a range of pre-existing data sources such as monitors, management tools, discovery products, and other “non-discoverable” data sources such as spreadsheets and Visio diagrams.

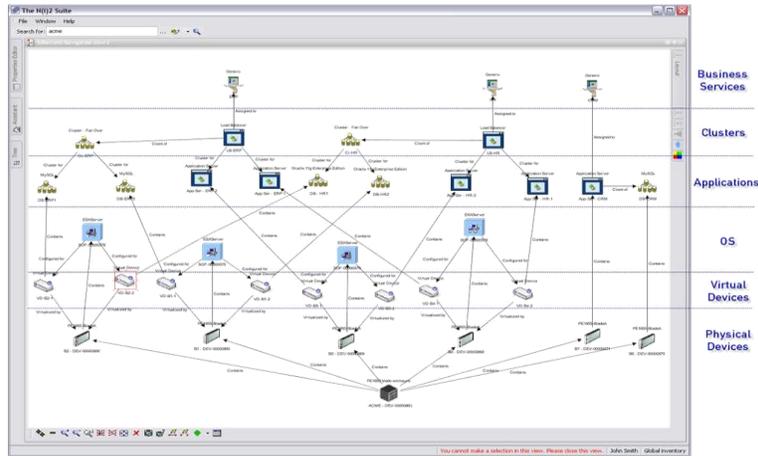


This approach delivers results fast and insulates the user from the complexities associated with the array of vendor or platform specific operating environments and silos that comprise so many data centers today. Further, this approach allows the system to correlate, aggregate, and visually represent information seamlessly and in a manner that eliminates the need to manually sort and connect data from a range of disparate data sources and reports. Once implemented,  $N(i)^2$  becomes a dynamic, evolving, and completely comprehensive system directly aligned to the support of your IT infrastructure goals.



From inception,  $N(i)^2$ 's solutions were designed with a services-first, federated orientation and a clear understanding and differentiation between the service lifecycle and infrastructure lifecycle. These unique attributes and our advanced design and assessment facilities have proven to be significant and unique differentiators in the effort to manage proactive change processes in enterprise data centers on a global basis.

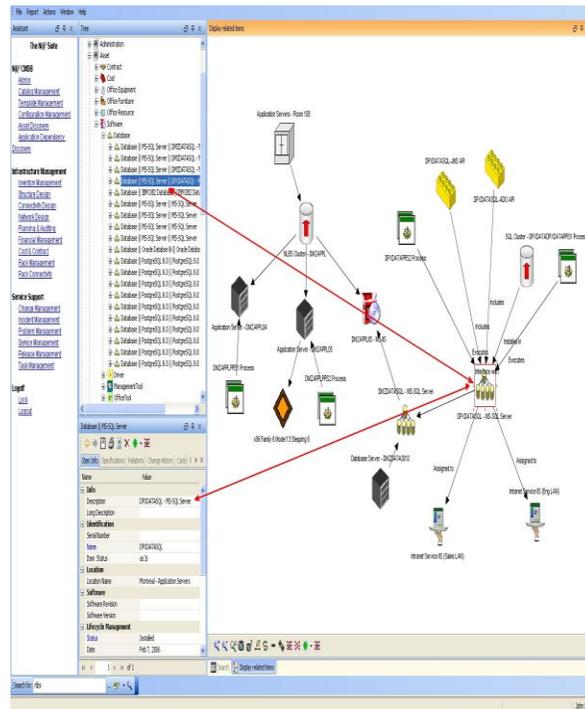




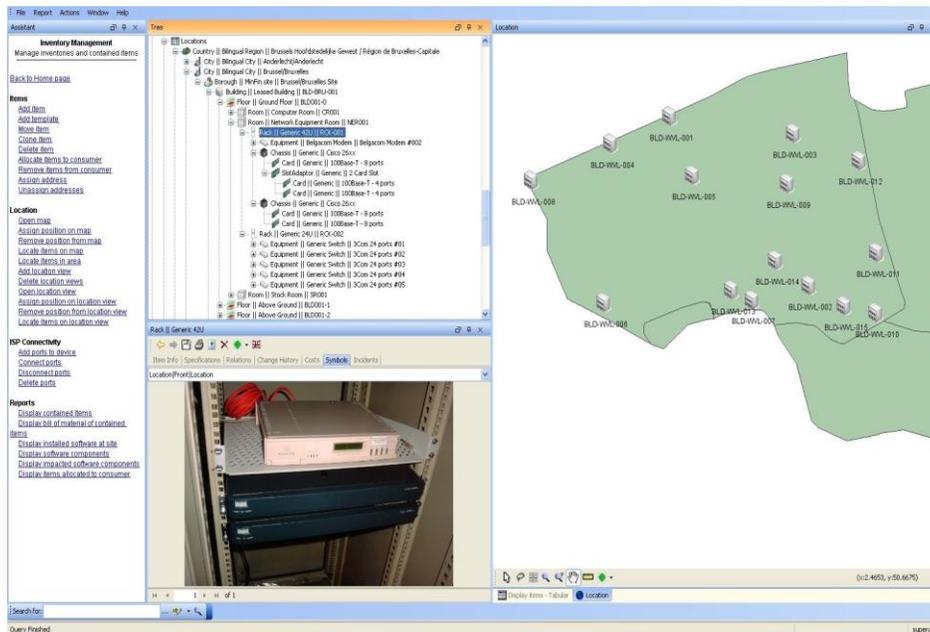
Operationally, N(i)<sup>2</sup> quickly distinguishes itself with advanced design and modeling capabilities to proactively assess the impacts of changes via “what-if” scenarios, allowing you to model your changes before you start moving equipment to insure you have the right equipment, sufficient power and space, and port connectivity to avoid any service disruption. Simply put, by consolidating and sharing knowledge across domain silos the N(i)<sup>2</sup> solution allows all data center staff to know what resources they own, where they are, how they are connected, who is using them, how to change them, and what service depends on them.

### 2.3 Multi-View Technology: Advanced visualization and reporting

The N(i)<sup>2</sup> Solution comes with predefined reports to display data center assets and their dependencies in relation to others assets in various domain views. These views can be displayed simultaneously and in different formats. Eg. tabular, hierarchical, schematic, floor plan, geographical map, etc.



The N(i)<sup>2</sup> Solution comes with a query engine that provides the user with the flexibility to consult and query the CMS, and to create new “client” specific queries to address particular operational or business requirements.



The N(i)<sup>2</sup> platform also incorporates a reporting tool enabling management personnel to create and generate customized HTML reports in that could be accessed through a Web portal providing oversight over all data center management activities.

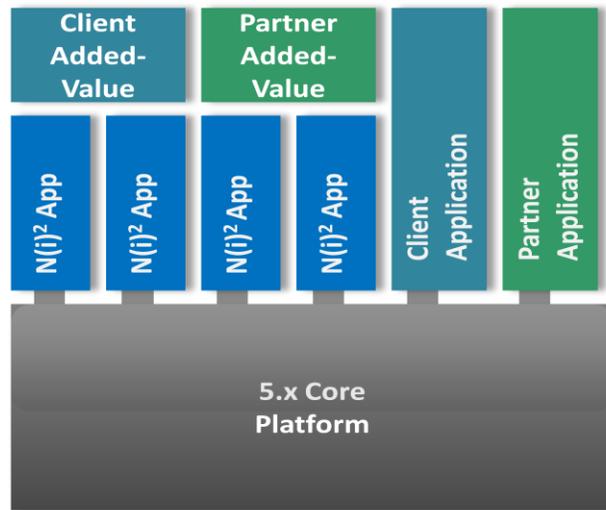
## 2.4 V5 Development Platform

N(i)<sup>2</sup> recently announced the delivery of N(i)<sup>2</sup> Version 5 (V5), offering significant new innovations and technology advances designed specifically to support Cloud Service Providers in the delivery of accelerated cloud and data center infrastructure services. Through the delivery of Application Templates, Service Providers will be able to design, model, and deliver new services faster, more effectively, and with much greater cohesiveness across all silos and major business applications (such as billing, service desk, service activation systems, and more).

With the new capabilities of V5's Development Platform, N(i)<sup>2</sup> will further act as the unifying architecture bridging the complex disparities between the complete range of pre-existing management tools and major business applications. N(i)<sup>2</sup> V5 is comprised of the following:

- A highly modular architecture providing a core platform that exposes API's / technical services, and a web-based application framework that can be leveraged for custom development;
- The V5 architecture enables easy support for SAAS/PAAS applications and mobile device support (tablets);
- Potentially most relevant to Service Providers is the ability to reuse and/or implement open application templates which are intended to accelerate a service provider's ability to achieve

true integration across a range of disparate platforms, silos, and essential business applications.



N(i)<sup>2</sup> V5 Development Platform represents an entirely new architecture and next generation advances in enterprise with integration. It has been engineered in response to the growing demands of Service Providers of all sizes and types who are asking for state-of-the-art management technologies that can:

- Deliver results quickly;
- Be easily customizable to enhance and extend pre-existing investments in business applications, tools, technology, processes, procedures, best practices, and training;
- Support a range of client transformation initiatives (Data Center, Cloud, network, location, etc);
- More effectively represent the relevance, timing, and cost/value of cloud transformation services – Both in business and technology terms;
- Provide pronounced differentiation in an increasingly competitive business environment.

### About N(i)<sup>2</sup>

N(i)<sup>2</sup> is an enterprise management software company that provides a range of software solutions specifically designed for Service Providers, System Integrators and Enterprise customers that reduce cost, increase business agility, and boost performance by enabling infrastructure transformation across all domains: IT, Network, Facilities & Cloud, and by managing the combined lifecycles of hybrid services and supporting infrastructure. Please visit the N(i)<sup>2</sup> website at [www.ni2.com](http://www.ni2.com)