

# Transforming IT Operations To Become Cloud-Ready



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## Introduction

The recent emergence of the various applications of Public, Private, and Hybrid Cloud Computing and the resulting need to provision services faster and in a more elastic manner is forcing a transformation of the current IT management paradigm. As the relationships between “business results” and “the effective application of technology” continue to be increasingly linked, today’s business savvy IT organizations will be ever more challenged to achieve new levels of speed and efficiency, while maintaining service quality.

The effort to run IT as a business requires that IT organizations act in a more flexible and agile fashion. They must not only offer a range of services, but also forecast and anticipate how they will support new and increasing demand. They need to collaborate, support and contribute ideas to enable their “customers” to actively grow the business, as well as keep pace with the ever increasing rate of change.

To address this new reality, technology has naturally evolved and the consumption model now offers more possibilities (virtualization, cloud computing, SaaS ...), which makes the infrastructure more complex and highly dynamic. This forces a redefinition of service delivery models and how IT operates. The matter is further compounded by the fact that traditional IT management tools are not designed to address these service delivery models, nor the operational challenges in implementing them.

More than ever, IT organizations have to be creative and innovate. They need to evaluate and leverage new technologies, partnerships, process management best practices and the right management tools. IT organizations must also transform their management and support model into one that is more proactive and “service-oriented”.

This whitepaper presents how and why IT organizations must transform their mode of operation and what to look for in the new IT Management tools to help them move ahead within this new operational context.

## Transforming IT Operations

So often today, IT organizations are driven to operate in a reactive mode, and are seldom in a position to suitably plan or take actions well enough in advance. It is not unusual to see processes in place that are not completely defined nor properly governed. All too often, IT infrastructure is under utilized as a means of ensuring adequate levels of capacity and performance. This process of managing and delivering services "on-a-need-by-need-basis" often stems from a lack of visibility in the existing infrastructure's capacity and not knowing how the various systems are connected in delivering crucial services.

The compounding effect of poor visibility, lack of proper planning, under utilization, and unnecessary expense negatively affects the effectiveness of the IT organization and impacts the quality of services delivered to the business, as outlined below.

- Inefficient utilization of resources;
- Longer and expensive implementation process;
- Slow service delivery;
- Low customer satisfaction.

IT organizations are increasingly being asked to deliver services faster, on demand, and more often automatically provisioned. The "on-a-need-by-need-basis" mode of operation can no longer satisfy these business requirements. To be responsive, IT organizations must operate in a "service-oriented" mode and build infrastructure capacity that is "ready" for service provisioning, allowing the business to quickly capitalize on technology-enabled business opportunities.

Operational readiness is of the utmost importance. Being "ready" involves analysis, forecasting, design and deployment planning. Designing new infrastructure capacity and properly planning its deployment is a major initiative that needs to be supported by appropriate tools. Being "ready-to-serve" also means knowing what to do when the service is requested and documenting it so it is done in a consistent way.

To operate in a "service-oriented" mode, IT Organizations must implement services catalogs, describe the services, define service levels, standardize the service make-up, and define the delivery processes. As important, they need to determine the rules on how to configure the service in order to maximize usage of the infrastructure and minimize any negative impact. They also need to define new roles such as "service designers", "service implementers", etc. Therefore, operational readiness requires transformation of IT Organizations.

New IT management tools are now available that can support this mode of operation and accelerate the IT Service delivery process.

## Supporting the Management of New IT Operations

Traditional IT Service Management (ITSM) software products have been developed to support the “on-a-need-by-need-basis” operating mode and were not designed for supporting the operational readiness required for dynamic infrastructure in service-oriented IT. As defined in ITIL v.3, having “operational readiness” requires a service design process and a service transition process.

The following table identifies some gaps and the areas not covered through traditional ITSM processes and their supporting tools compared to what is required from a service oriented dynamic IT perspective.

Processes / Tools	Traditional IT Service Management	Dynamic IT Service Management	Business Value
Service Catalog Management	✓	✓	<ul style="list-style-type: none"> <li>• Service offerings in line with business objectives</li> <li>• Reduce time-to-market</li> </ul>
Infrastructure Design		✓	<ul style="list-style-type: none"> <li>• Mitigate Risk</li> <li>• Maximize utilization of infrastructure resources</li> <li>• Faster introduction of new services</li> </ul>
Change Management	✓	✓	<ul style="list-style-type: none"> <li>• Enforce governance</li> </ul>
Deployment Management		✓	<ul style="list-style-type: none"> <li>• Optimize human and infrastructure resources</li> <li>• Mitigate risk</li> </ul>
Provisioning	✓	✓	<ul style="list-style-type: none"> <li>• Faster service delivery</li> <li>• Maximize utilization of infrastructure resources</li> </ul>

**Legend**
✓ Covered
✓ Partially covered

## Service Catalog

The Service Catalog is a “must”. “IT cannot offer services without conveying the range of services available!”

In this approach, the Service Catalog plays a pivotal role as it addresses the consistency issue by assisting the business with an understanding of what services they can rely on in order to achieve their desired business outcomes.

Initially, the service catalog included basic services such as e-mail, internet, phone services, ordering a workstation, ordering software, etc. Now that the infrastructure is more dynamic and involves virtualization, private, public or hybrid cloud, the list of services has increased and has become more complex. Services are more sophisticated and include temporary or permanent usage of cloud storage, computing, applications and software, etc.

A Service Catalog must not only be seen as a list of services. Adding a service to a Service Catalog implies knowing how the service is made up, being ready to deliver the service (being ready for business), knowing how to deliver the service in a consistent way, knowing how to configure the service based on the current infrastructure context, including appropriate service levels. This illustrates service design as well as service delivery management. All this information needs to be defined and included in the Service Catalog to ensure processes are conducted in a consistent way, as outlined below.

- To understand how a service is made-up, especially complex ones, one needs a proper representation of its components and its characteristics. The use of templates can maintain consistency. This must be available to the Service designers;

- To be consistent, the delivery process must be accurately detailed and documented and the delivery activities managed and orchestrated by workflows;
- To “implement” the service on the existing infrastructure (install and configure), one needs visibility on the infrastructure and its dependencies as well as any rules to follow or constraints to comply with so it is done in a controlled manner.

Templates, workflows and rules/constraints must be included in the new type of Service Catalog so that services can be delivered in a consistent, repeatable and efficient way, while reducing human errors. This in return accelerates services’ time-to-market and enforces governance.

## Infrastructure Design

*Understand - Design - Compare – Approve - Deploy*

Imagine a real estate developer, or builder, starting a large-scale development project. They would need designs from building architects before they could start construction. Now consider this same approach when building new IT infrastructure or planning large-scale deployments. Before starting such a project, IT organizations should first understand the desired “future state” and then design the optimal architecture to support it.

One can properly design and plan the future infrastructure, by understanding the current infrastructure, its capacity, as well as the current demand for service and forecasts for future need. This is done through the Infrastructure Design process.

Enterprises still need to maximize their resources as they cannot continue to expand their data centers endlessly (more power, more space, more hardware, etc). Better utilization of pooled resources is a challenge in cloud environments. Today, infrastructure is more complex and infrastructure design should be supported by intelligent design tools where future infrastructure can be modeled and evaluated in a separate design environment so that decisions can be made on how to make it evolve.

Building an infrastructure which is ready for services and being proactive about it requires being able to design the future infrastructure and compare various scenarios before choosing the appropriate one to deploy. This requires visibility on infrastructure, capacity intelligence and use of “what-if” scenarios. In doing a proper design, direct costs are reduced, and human or technical errors can be avoided; which can be expensive in large scale projects. In addition, by having an environment where one can “play” with “what-if” scenarios, long term analysis and predictability can be achieved.

In a dynamic IT environment, IT Organizations are also pressured by time. Getting the infrastructure ready must be accomplished as quickly as possible. Using infrastructure design tools can greatly accelerate the process and the introduction of new services including the expansion of existing ones. This can be achieved by leveraging design rules and templates which also contributes to reducing risk and ensuring consistency.

IT Organizations can greatly benefit from the implementation of an Infrastructure design process and the use of an appropriate Infrastructure design tool that includes the aforementioned features and capabilities.

## Deployment Management

In a proactive mode of operation, IT organizations need to design the new infrastructure with proper forecasting in mind. The infrastructure to be deployed may represent a significant change to the current infrastructure, may be more complex and consequently becomes a project. Projects that involve deployment of new infrastructure need to be accurately planned, and managed through proper project management practices and appropriate project plans.

Building alternate deployment scenarios and project plans by leveraging “what-if” scenarios before selecting the optimal plan should also be considered. In this dynamic service-oriented mode of operation, by combining the use of the new tools in a unified manner, the previous infrastructure design scenarios should “automatically” generate deployment project plans. It provides consistency in the implementation approach and assures changes are in line with business requirements.

Leveraging appropriate deployment management tools, significantly increases the success rate in the deployment of changes to the infrastructure, optimizes resources (human and infrastructure), reduces risk and improves quality of service delivered to the business.

## Service Provisioning

In today's IT environment, service fulfillment has become dynamic. It has been transformed by the customers' pressure for rapid response and the adoption of on-demand services.

Being ready to provision services means having the infrastructure, the processes and the tools ready to deliver the service, as well as understanding how the service will be implemented over the existing infrastructure. Traditional ITSM tools don't enable you to do this and they do not highlight the relationship between the services and the underlying infrastructure. To address this gap, service provisioning should encompass the following features:

- To keep maximizing utilization of the infrastructure, one needs to have visibility on its capacity in order to select the optimal service implementation option;

- To shorten significantly time to deliver services, service provisioning must be standardized and automated as much as possible. To reach appropriate levels of automation of the service fulfillment, one needs to use tools that leverage orchestration;
- To provide autonomy to customers so they can get their services themselves then one definitely needs a flexible, role-based and policy-driven self-service portal.

These features and capabilities help minimize the risks, improve the quality of the services delivered and augment the customer experience.

The following table summarizes solution requirements and tool attributes to look for in Service-Oriented IT operations mode for a dynamic infrastructure:

Processes / Tools	Solution Requirements	Tool Attributes
Service Catalog Management	<ul style="list-style-type: none"> <li>• Enforce consistency and ensure integration of the delivered service package and the delivery process with the current infrastructure and all IT activities</li> </ul>	Service Catalog that encompasses: <ul style="list-style-type: none"> <li>• Service makeup through Templates</li> <li>• Service delivery process with workflows</li> <li>• Service integration with the current infrastructure context</li> </ul>
Infrastructure Design	<ul style="list-style-type: none"> <li>• Better planning to reduce errors</li> <li>• Design Optimal Infrastructure utilization</li> <li>• Faster design process</li> <li>• Predictive</li> </ul>	<ul style="list-style-type: none"> <li>• Design across multiple domains</li> <li>• Modeling standardization through templates</li> <li>• What-if design scenarios</li> <li>• Visibility on capacity intelligence</li> <li>• Massive Modeling through templates</li> </ul>
Deployment Management	<ul style="list-style-type: none"> <li>• Optimize availability of human and infrastructure resources</li> <li>• Better planning to reduce errors</li> </ul>	<ul style="list-style-type: none"> <li>• Management of resource availability (human and infrastructure)</li> <li>• Leverage infrastructure designs to generate deployment plans</li> <li>• Alternate deployment plans</li> </ul>
Provisioning	<ul style="list-style-type: none"> <li>• Activity automation</li> <li>• Optimal Workloads placement</li> <li>• Maximize resource automation</li> </ul>	<ul style="list-style-type: none"> <li>• Orchestration capabilities</li> <li>• Visibility on capacity intelligence</li> <li>• Self service portal</li> </ul>



## Conclusion

Combining the various processes described above in a unified perspective and leveraging the relationship between services and the underlying infrastructure provides the means to a more efficient and responsive way to serve IT customers. It also sustains governance initiatives, improves risk management, increases agility and accelerates decision-making.

Leveraging the appropriate tools provides major benefits:

- Maximization of asset resources utilization;
- Reduction of total cost of ownership;
- Faster implementation of services;
- Improved consistency of service;
- Better alignment of business and services;
- Improved quality of service.

Finally, by leveraging a new generation of IT Management tools, IT Organizations can transform and adapt their operating mode to support today's dynamic service delivery requirements to be Cloud-Ready, Services-Ready and Business-Ready.

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

Network Infrastructure Inventory Inc. - or N(i)<sup>2</sup> - is a leading technology company that develops IT Infrastructure Resource Management software with focus on bridging the gap between IT, Network, and Facilities management in the increasingly crucial area of the enterprise datacenter. N(i)<sup>2</sup> helps IT organizations build and maintain an accurate inventory of all their IT infrastructure resources while allowing them to understand their dynamic relations to cloud computing and business services.

For more information about N(i)<sup>2</sup>, please visit **[www.ni2.com](http://www.ni2.com)**.