FROST & SULLIVAN

The Appliance Based Approach for

IT Infrastructure Management

This white paper examines the key issues faced by IT managers in managing the IT infrastructure of their organizations. A new solution using the appliance-based approach is evaluated by Frost & Sullivan with respect to its effectiveness in addressing the above issues.

Introduction

Information technology (IT) has become a critical component of the enterprise today. E-commerce and websites are empowering business with 24 X 7 availability and five nines (99.999%) level of reliability. Internet Banking, for instance, is transforming the banking industry from branch-centric model to "anytime, anywhere model"

Given the increasing demand for IT services, the infrastructure [1] for IT is increasingly getting complex. It calls for the development and deployment of new systems and applications from multiple vendors working seamlessly often at multiple locations. With 'mobile workforce' becoming more pervasive, more employees are accessing the corporate database and resources through multiple devices than before. Further, organizations are also enabling their IT infrastructure and services to reach beyond their enterprises. All these factors pose enormous challenges for the IT manager to get various infrastructure elements work together with high reliability.

The most important task for the IT manager is to ensure maximum IT infrastructure availability in order to avoid any business loss from any possible downtime. The IT manager also needs to track application performance in order to prevent customer dissatisfaction from performance degradation. This essentially demands the use of IT infrastructure management tools that may be able to identify and isolate the root cause for IT downtime or performance degradation.

Traditional Approach to Manage IT Infrastructure

In the traditional IT infrastructure management, the environment is divided into different compartments with specialized software components to monitor and manage each element separately. IT infrastructure management is broadly classified into three elements:

1. Network management: monitoring of network nodes (routers, switches and firewalls) and their connectivity.
2. System management: monitoring of servers, system services, CPU, memory, disk space, etc.
3. Application management: monitoring of database (table space, response time, cache-hit ratio etc.), middleware, Web server, email server, etc.

Most of the traditional IT infrastructure management tools were designed a few years ago. Vendors have kept on adding features and customizations over the same core design to keep pace with changing IT requirements. However, the traditional approach has some inherent limitations as discussed below.

Limitations of Traditional Approach

> It is often complex to deploy the traditional solutions due to the integration issues involved

The traditional approach attempts to integrate the standalone infrastructure components but the silos between vendor teams focused on their respective areas makes integration difficult. Network vendors focus on node management features; system vendors focus on adding more functionality to system management while application vendors focus on optimizing application response and monitoring. Even in the integration of best of breed products, the differences in data formats, content duplication and mismatches in files or database entries create a significant bottleneck in both performance and information-flow. It

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[1] IT infrastructure for all practical purpose includes network elements, servers, systems, database, software and applications.

is often complex to integrate monitoring software at three different levels, without performance tradeoff even if they come from a single vendor.

> The total cost of ownership is high due to expensive licensing and deployment

Complete IT infrastructure management, requires the customer to purchase multiple dedicated suite of software resulting in added licensing costs. Many global enterprises have to pay license costs for IT management software that reaches up to seven figures. Deployment and system administration of these proprietary systems is the most expensive part and costs typically five to eight times the license costs of software. The high cost of ownership is a barrier for many small and medium sized enterprises (SMEs) to start deploying these tools.

> The traditional approach demands intensive staff training

Users need to be trained to perform various functions such as configure the tool, associate management tools, create and enhance policies, set up and administer operators and perform troubleshooting etc. The need for the trained professionals to operate the monitoring software creates dependency on employees with specialized skill sets.

> Defining a business view can be quite challenging in the traditional solutions

This view helps IT managers and CIOs to find out which business services or customers are affected, even by an individual fault, and determine the extent of the problem. Increasingly having a business view is highly desirable as it provides the business impact of any IT failure. Many of the current solutions do not provide easily definable business views or are too expensive to buy.

New Emerging Approach: An appliance approach

NetGain Systems, a Singapore based company has developed an appliance-based IT infrastructure management solution called NetGain Enterprise Manager. It is a plug and play hardware-based solution that unifies the management of the organization's entire IT infrastructure rather than managing the networks, systems and applications separately. The appliance monitors the entire IT infrastructure through its connection to the existing local area network (LAN) of the organization.

The monitoring could be done in either of the two modes:

1. **Notification** - Every user with a user account can create custom rules to specify various ways and methods of notification about the creation or changes in the status of service level agreement (SLA) and alarms. Such notifications can be in the form of e-mails, SMS, popup-window or sound.

2. **Status reports** − Users can login to the web-based view and retrieve the status of any IT component of the organization. This mode is particularly useful for proactively monitoring the IT infrastructure, lest there should be any problem.

NETGAIN ENTERPRISE MANAGER

Source: NetGain Systems

VARIOUS TASKS PERFORMED BY NETGAIN ENTERPRISE MANAGER
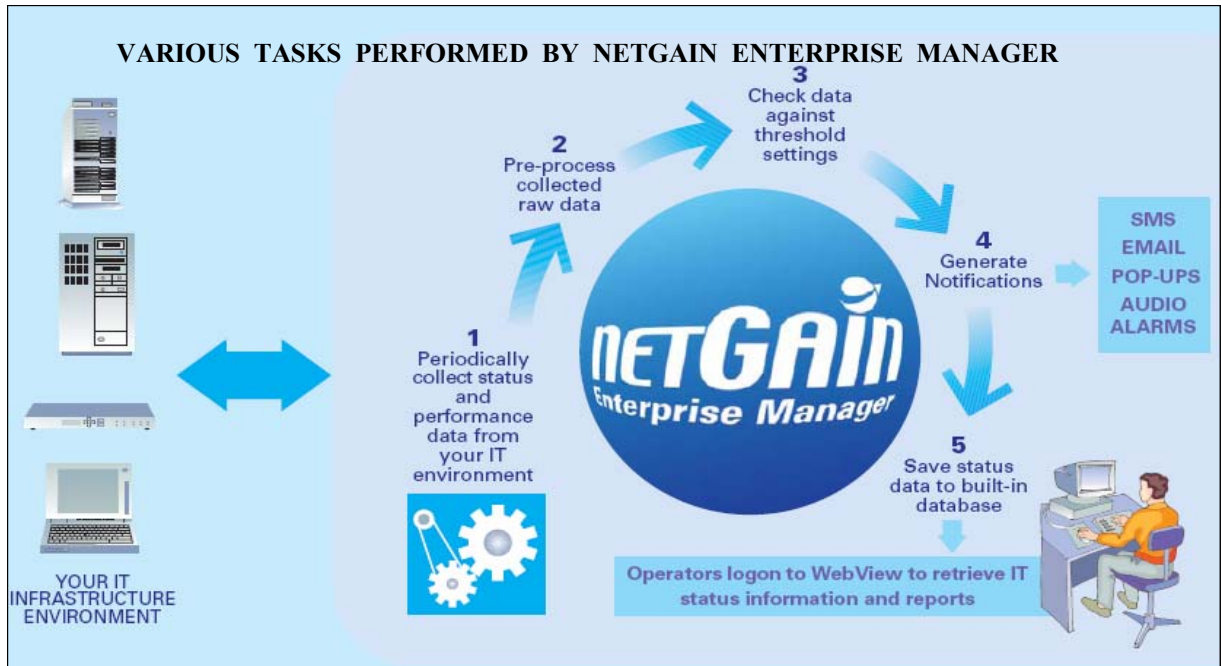
Source: NetGain Systems

KEY FEATURES OF NETGAIN ENTERPRISE MANAGER

- Fully web-based - Provides completely web-based, multi-user interface to perform a wide range of management tasks.

- Auto-discovery - Auto-discovery of a wide range of network devices, services, systems and applications enables efficient handling of IT infrastructure changes.

- Central event and alarm console - Alarms from disparate sources such as varied network devices, service disruptions and degradations are mapped to standard alarm format and displayed in real-time on the alarm console.

- Notifications and auto actions - Notifications are sent to relevant persons in the form of e-mails, SMS, sound or pop-up windows when a fault or service level violation occurs. Similarly, automatic actions such as scripts can be configured.

- SLA monitoring – Monitors and reports any SLA violation. Enhances IT manager's view of the health of the infrastructure and the customer's perception of the service.

- Knowledge base - Faults are presented along with expert advice on how they can be fixed by leveraging the knowledge base that stores historical actions performed to fix similar problems.

Benefits of Appliance based Approach

The key merits of an appliance-based approach are as follows:

> The appliance can be simply deployed without introducing complicated integration issues

The IT manager does not have to integrate multiple software suites if he purchases a single appliance for IT infrastructure management. The appliance provides out-of-the-box integrated functionality across various functions using shared information and data model. This implies that the IT manager does not have to deal with complicated integration issues such as data formats differences, content duplication and file mismatches during its deployment. Another significant factor is the appliance architecture that allows additional, software components to be easily 'plugged-in' to the system. As such, the appliance can be easily customized for the local environment by adding software components.

> The total cost of ownership is lowered as the licensing cost is eliminated while the deployment cost is reduced

By selectively packaging important capabilities and relevant features for IT infrastructure management into one single appliance, the need to buy multiple software suites for network, system and application monitoring is eliminated. The costs involved in deployment and integration efforts are also reduced due to the simplicity of deployment.

> The appliance requires minimal staff training to get started with IT monitoring

The appliance provides a real time Web based view that makes IT monitoring simple. Users can login and perform their management tasks, including configuration through their favorite Web browsers. With a training session of only few hours, a novice user can start to use the appliance for IT infrastructure management due to its intuitive Web based interface.

> The appliance provides the ease of defining and monitoring business view

The appliance provides a business view to help the IT manager identify the impact of any IT fault on the business of the organization. The business view is a part of the standard solution and can be defined at any point once the solution is deployed. For example, as shown in the figure below if one of the database servers say DB1 goes down, the tool should let the IT manager know which services: online trading service or CRM system will be affected by this problem so that manager can make informed decision based on his priority. The level of detail can be varied to know even the exact amount of business loss arising from any IT component failure.

ONLINE TRADING SERVICE DISRUPTION DUE TO ORACLE DB1 GOING DOWN
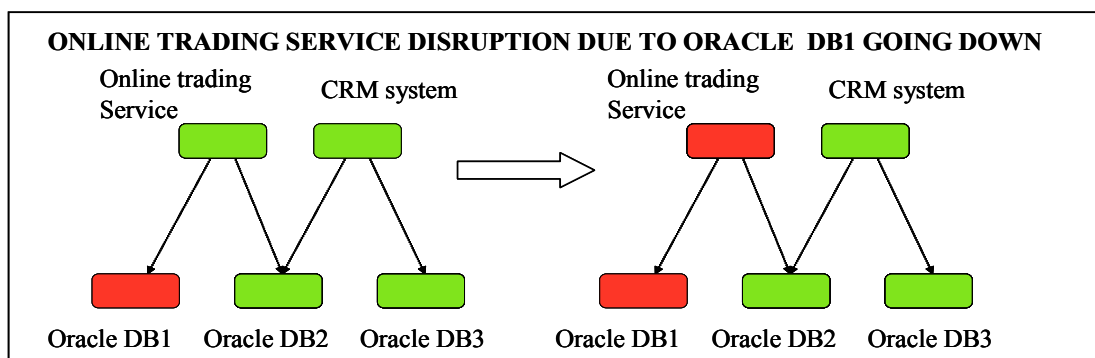
Source: Frost & Sullivan

Key Market Segments

Enterprises of all sizes would find the appliance-based approach quite relevant due to its simplicity and lower cost. SMEs in particular would find it a more compelling approach as a vast majority of them cannot afford to buy the expensive traditional IT infrastructure management solutions.

SMEs especially with heavy reliance on IT infrastructure are the ones who would benefit the most from using NetGain Enterprise Manager. Telcos, service providers, public sector, financial services institutions (FSIs) and utilities companies would be well suited to adopt this solution for IT infrastructure management while minimizing human and capital resource expenditure.

In Frost & Sullivan's view, NetGain Enterprise Manager would certainly help these organizations to improve the reliability of critical IT services and fulfill their service level agreements (SLAs) as the management is seamless across all elements of their complex IT infrastructure.

Conclusion

NetGain Enterprise Manager on virtue of its appliance-based approach takes care of many issues traditionally faced by IT managers in proactively managing their IT infrastructure. It reduces the cost and eliminates the complexity involved in deploying the IT infrastructure management solution. Organizations, especially SMEs stand to benefit the most from this approach, as they lack the resources to deploy the traditional solutions in the current form.

THE COMPARISON BETWEEN THE TRADITIONAL AND THE APPLIANCE BASED APPROACH

Parameters	Traditional Approach	Appliance-based Approach
Cost of Ownership	High	Low
Complexity of Deployment	High	Low
Training Requirement	Intensive	Minimal
Business View	Available as separate module with more cost	Available as part of the standard solution

Source: Frost & Sullivan

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