

AdventNet Web NMS

Filling the Gap between Point Solutions and Frameworks

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Abstract

Traditional management frameworks provide enterprise IT managers with custom management solutions that integrate multiple management functions with their existing IT infrastructure. However, the high cost and lengthy implementation cycles have made these solutions unsuitable for many businesses. Many of these enterprises have turned to management point products to meet their needs. Point products provide lower costs and implementation times, and make it easier for business to buy and implement these products. However, these products do not easily integrate with each other and into existing environments, and do not provide the ability to customize solutions for specific business needs.

AdventNet Web NMS provides solutions for those seeking the lower costs, risks and implementation times of point products, with the ability to deploy custom integrated management solutions that are focused on their specific business needs. Unlike traditional management frameworks based on legacy technology and proprietary development methodologies, Web NMS is based on recent open standards including Web Services and J2EE technologies. This makes Web NMS solutions less expensive to license, as well as much faster and less expensive for each implementation. Custom management solutions with Web NMS leverage standard management technologies like SNMP, as well as emerging standards like JMX for application management.

AdventNet Web NMS includes a comprehensive set of functions for management of networks, systems and applications. It includes health and performance management, configuration and security management, service management and policy management. A rich set of capabilities are provided out-of-the-box for all common management tasks. Based on specific business needs, additional capabilities to monitor and manage specific processes and systems can be added very quickly and efficiently. The entire set of tools is designed to work with your business specific needs and help you tailor the management solution to meet business objectives. At a time when enterprise IT needs to ensure high value for their investments, Web NMS enables cost-effective, integrated management solutions focused on business specific needs.

1. Introduction

The information technology industry, and specifically enterprise IT management, has undergone significant changes in recent years. Enterprise IT has had to adapt to many changes wrought by the Internet and related developments. Among these developments are new technologies, higher personnel costs, reduced budgets, etc. Enterprise IT has responded by looking for more effective use of IT resources, and more efficient ways to use management software.

Management applications address the need to monitor and manage IT resources. Given the many kinds of IT resources, including networks, systems, and applications, as well as the diversity of IT environments, its no wonder there is such a wide array of management applications. However, many of these generic applications do not hold sufficient value for many enterprises, where the emphasis is on their business specific IT management needs. For example, enterprises are more often interested in tightly managing their mission-critical applications, rather than the underlying infrastructure.

There have been two basic approaches available to enterprises looking to manage their IT resources. One is using a management framework to integrate management applications, customize the solution to their specific needs, and integrate the solution into their environment. The other is using management point products for focused needs, e.g. managing WAN performance and utilization.

The industry has long recognized the efficiency to be gained by leveraging a management framework, with common functions upon which management applications could be delivered quickly and efficiently. Furthermore, the framework could enable a consistency of management application behavior and interfaces, which would make applications easier to use.

Traditional management frameworks have tried to meet this promise, and provide the integrated management solution desired by enterprises. The major framework vendors include CA, Tivoli, and HP. The framework vendors provide a range of management applications for the framework. Each customer can customize and extend the framework to suit their specific business needs. The management solutions can be integrated into existing IT environments. In many corporations, these frameworks were deployed and IT operations built their management processes around these frameworks.

However, after a decade of pursuing this strategy many enterprises consider the management framework strategy a failure. For many enterprises, frameworks proved to be too expensive and difficult to deploy and manage. The number of management applications available for each framework is limited, and each application is expensive to license and deploy. The promise of a strong set of management applications, especially third-party applications, never fully materialized.

The expensive solution model of delivering enterprise management consoles and applications adopted by the framework vendors was seen as too heavy for some enterprises. Another burden was the high cost and delays in customizing and integrating management solutions with the framework. Consulting fees alone would be overwhelming for many enterprises. This led to the overall value proposition of large management frameworks to be questionable for many enterprises.

Management point products arrived to fill this need for less expensive, faster-to-deploy management solutions. The point product vendors include Micromuse, Concord, and Visual Networks. Many enterprises found point products gave them the management function they needed at a much lower risk than frameworks. This led to wide adoption of point products for focused management functions that were commonly needed by enterprises.

Unfortunately, these point products were unable to deliver an integrated management solution. Most customers need an integrated management solution rather than isolated tools that do not work together. Today few management point products support management platform integration, and focus initially on selling their point products independent of the platform. The vendors of these applications build stand-alone applications, and in a few cases offer loose integration with one or more platforms. Reasons for this include lack of cost saving and value in building on the platform, and business model issues with adding the cost of the platform to a sale. The problem of application integration has been another reason for the failure of this approach. Enterprises found it hard to integrate these applications with the platforms, including keeping up with different versions of the application, OS and the management platform.

As we shall see in the next section, neither of the two approaches is suitable for some enterprises. In such cases, business specific management is needed, but the higher costs and risks of the traditional frameworks cannot be justified. These enterprises are only willing to invest in the right solution at the right price and risk level. They need a solution that caters to their need.

This paper describes why AdventNet Web NMS is the right solution for such enterprises, giving them the means to achieve the specific management solutions they need at an appropriate cost and risk level. In section 3, we illustrate the kinds of business specific management needs that cannot be met by generic management products. Section 4 describes the advantages of the Web NMS solution, including technologies and standards that make the difference. Section 5 describes the specific features of Web NMS useful in providing a management solution. Section 6 describes the key benefits of the Web NMS solution.

2. Between Point Solutions and Traditional Frameworks

Given the choice between point products and traditional frameworks, enterprises are typically forced to pick one and sacrifice the benefits of the other. In a few cases, both approaches are used simultaneously, leading to high costs in licensing and operations. This may be acceptable in some cases, but for some neither point solutions nor traditional frameworks are appropriate.

A number of industry trends are making it harder for many enterprises to live with the choice of point products or traditional frameworks. With the advances in technology, and the maturity of different product families, enterprises are seeing less and less value in the generic management solutions. For example, proactively managing desktops or LAN bandwidth is often seen as not the best use of IT resources, given the advances in desktop usability and bandwidth availability. In this climate, many enterprises do not see much benefit in the generic management functions, which are designed to serve the least common denominator. These businesses simply do not see much value in purchasing such products, unless they have more direct features that relate to the business functions and processes.

In many cases, enterprises have a need to do very specific management based on business needs. For example, an enterprise may require in-house applications used heavily in mission-critical operations to be monitored for specific failures so IT can respond very rapidly to problems. This requires custom management capability not provided in off-the-shelf point products. The real need therefore, is for a custom management solution to monitor the required applications, and provide pro-active management based on the business needs.

For such needs, point products are too generic and do not lend themselves to customization and integration into the existing infrastructure. Some enterprises find it a case of an abundance of features, but missing the few functions really needed by the business. The difficulty of customization and lack of extensibility, make it very hard to achieve the specific capabilities and integration needed to achieve the business goals.

Meanwhile, frameworks can provide the specific functions and integration needed to meet the business goals. However, the expense and lengthy implementation cycles rule out this option for many situations. The investment and level of risk and commitment needed in implementing a traditional management framework solution, often vastly outweighs the overall IT management outlay for managing the business processes in question. This often rules out going to a traditional management framework solution for a department level project in even the largest enterprises.

Even in cases where existing frameworks in the enterprise could be leveraged to provide business-specific management solutions, it is often difficult to implement the specific needs for mission critical business process. Given the productivity limitations and outdated, proprietary technologies used by the traditional frameworks, as well as the difficulty of coordinating a large-scale system implementation across projects, the costs and risks are very high for such solutions.

Thus, many enterprises find themselves with unacceptable choices in trying to meet their real management needs, and achieve their business goals. They need the lower cost and risk of point solutions, while being able to achieve a custom management solution that is targeted at their specific needs.

3. Business Specific Management

As noted earlier, enterprises are not seeing enough benefit from generic management tools. They are increasingly reluctant to invest in management as a checklist item, i.e. the need to invest in management tools just because it provides some management functions for devices, systems or applications being used in the enterprise. They are looking for more direct business benefit from the investment in management solutions.

The kinds of management needed by IT are as diverse as variation in business processes seen across enterprises. The business process, and its priorities as determined by the business managers, drives the real management needs. Often these needs change as the process evolves, and applications evolve and adapt to the business. The only constant is change and the fact that managers continue to look for improved visibility and control of the processes and underlying applications.

To better understand the kinds of management needs that arise from mission-critical applications deployed in support of business processes, let's look at some examples. Each business is different, and

determines its needs and priorities differently. Let's first look at some examples that directly focus on the business benefits.

Many enterprises have customer response centers and applications used by the staff in doing their work. Business specific management in the case of a mission-critical system being used in a customer response center, may help managers monitor the processes and efficiency of the staff, as well as monitor the systems and applications themselves. The management solution could monitor how long an operator spent between steps in the process, e.g. between pulling up a customer record and closing the record. A management solution that manages more than the systems infrastructure helps the process manager keep track of business productivity, become quickly aware of productivity problems, and otherwise detect the business impact of planned or unplanned changes in the processes and infrastructure.

Another example of business specific management would be the management of customer service for online applications, e.g. an online store. Here the management solution would manage the systems and application components, and also the customer experience as measured by responsiveness of pages, and efficiency of common tasks. For example, the number of clicks needed to get to a commonly requested item, combined with how frequently it was requested, would be used to improve access to popular items. Such an ability to leverage the management system beyond simply reporting on health of the infrastructure, allows IT to derive tangible business value from the management solution.

In other situations, the focus of the management solution may be limited to simpler monitoring of application performance and health. In such cases, measuring transaction performance for critical application tasks may be needed. Again, this is very specific to the application and how it is used, rather than what is provided by generic management tools. The instrumentation and reporting needs to be custom to ensure the right aspects are being measured and reported.

As the above examples showed, business specific management needs more than generic monitoring of infrastructure elements, and needs to get to the heart of mission critical applications. Each case is different, and the business needs are different, making a custom management solution necessary. However, even the tangible business value derived cannot justify a huge investment fraught with risk, and the management solution must be cost-effective and deliver results quickly.

Thus for many enterprises, neither point solutions, nor traditional frameworks, are the appropriate solution for these business specific needs. A management solution that combines the lower cost and faster implementation of point solutions, with the custom management capabilities of frameworks is needed.

4. The AdventNet Web NMS Difference

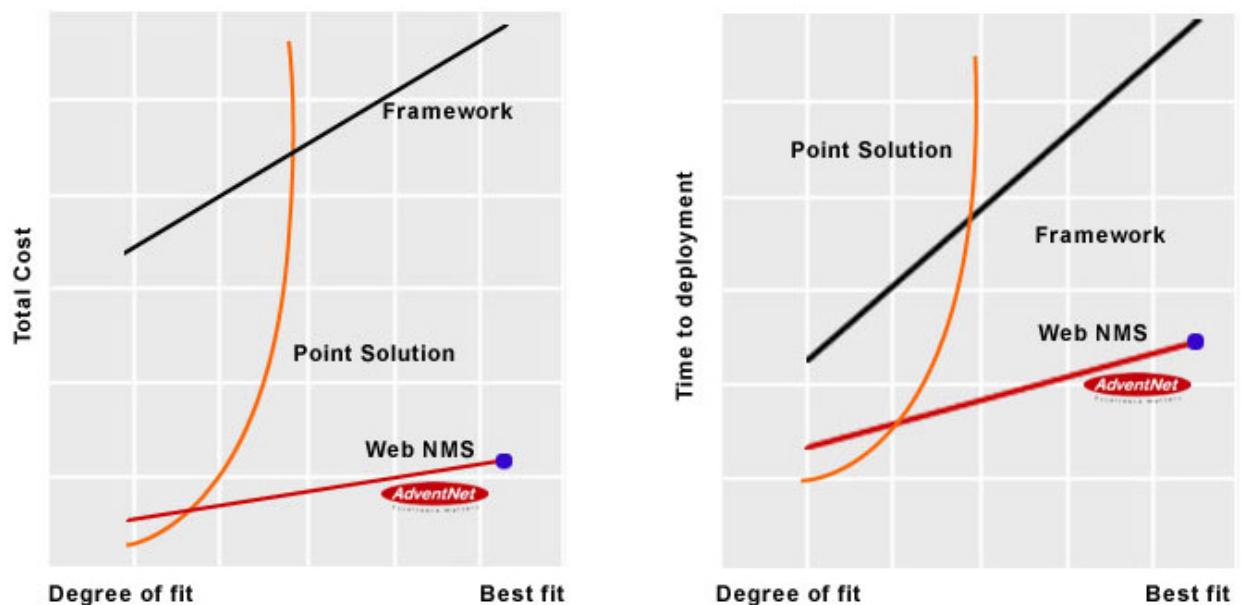
The software industry has seen significant changes in recent years driven by the Internet, and the emergence of technologies like J2EE and web services. Productivity and improved effectiveness have resulted from new software development practices based on newer technologies. Unfortunately, many of the management software products are yet to take advantage of this significant revolution in software, and are still based on decades-old technologies. Furthermore, emerging standards like Java Management Extensions (JMX) have yet to be adopted by many of the legacy product vendors, who are unable to provide the resulting application and business management benefits.

AdventNet Web NMS was designed from the start to address the implementation productivity gap that plagued traditional management frameworks, by taking advantage of recent software industry advances. It has been developed based on the new generation of technologies, and evolved with the powerful new standards and capabilities of recent years. With well over 100 custom solutions implemented by customers supported by AdventNet, Web NMS has been refined for custom implementations. As a result, it has addressed the development productivity challenge and enabled a new level of implementation ease and productivity. This order-of-magnitude productivity gain has opened up opportunities for enterprises to target management solutions to specific needs, at a level of cost and risk not available before. What was heretofore a risky and expensive effort, is now possible at a fraction of the total cost, bringing new value to enterprise management.

The following graphs illustrate the tradeoffs between solutions based on prior approaches, i.e. point solutions and traditional frameworks, and management solutions built on Web NMS. The first graph shows the total cost of a solution based on each of the approaches, versus the degree of fit or custom implementation for a particular solution. Given the need for a custom solution, the degree of fit determines how much business specific capability has to be implemented for the given solution.

As the first graph illustrates, when custom solutions are needed, Web NMS provides the best overall value. Point solutions are not designed for customization and extensibility, making any attempt to customize and integrate the point product expensive. These products are not designed with open interfaces and development tools, and custom solutions will require significant development and expertise, perhaps requiring product enhancements from the point solution vendor. Frameworks can implement custom solutions, but at a significantly higher total cost. Thus, for custom implementations that are targeted at specific business needs, Web NMS has the best return on investment.

Comparison of AdventNet Web NMS, Management frameworks and Point solutions



As the graphs illustrate, if customization capabilities is your top priority, Web NMS offers best bussiness value.

The second graph shows the implementation times for solutions built using the three approaches. Point solutions are quick to deploy when custom capabilities are not needed. However, when customization is required the deployment time rise significantly due to the extensive development without open APIs and tools to ease the development. Frameworks meanwhile, are more suited to custom development providing APIs and development tools. However, given the proprietary interfaces and outdated technologies used by the frameworks, the time to deploy is higher due to the increased implementation effort. Thus, when a custom fit with specific management needs is required, Web NMS provides the best implementation times.

AdventNet frequently surprises customers with the capability to deliver custom implementations more rapidly than they had expected. This high productivity enables AdventNet to offer potential customers custom demonstrations and prototypes in a very short time, to prove the effectiveness of this approach. Customers find these risk-free prototypes are a good way to test the value of a solution based on Web NMS for their specific needs.

The primary reasons for the Web NMS implementation productivity and lower total solution cost are

explored more fully in the next section. The following summarizes a few of the key reasons for the Web NMS advantage in these situations:

- Focus on development productivity and tools for custom implementations.
- Leveraging recent software industry advances like J2EE and web services.
- Use of open standards and APIs, e.g. JMX for rapid application management.
- Large R&D and support staff to support custom implementations.
- Trained partners to help customers implement custom management solutions.

AdventNet Web NMS is therefore best suited for projects where a targeted custom solution meeting specific business objectives is required. Point solutions fit better when generic management capability is required at good value. Traditional management frameworks make sense when you require a comprehensive set of applications with some custom implementation and integration into your IT infrastructure. The key advantage of Web NMS is realized when enterprises have specific needs they understand and want out of their management solution.

5. AdventNet Web NMS Product Capabilities

In this section, we summarize the AdventNet Web NMS product capabilities. The following are some of the many powerful features of the Web NMS product.

- **Powerful Standards Support:** The AdventNet Web NMS supports a wide range of industry standards, including SNMP, JMX, J2EE, XML/web services, SOAP, JDBC, LDAP, SQL, CORBA, TL1, etc.
- **Open RDBMS Architecture:** The Web NMS supports an open database architecture, with support for a wide range of relational databases, including Oracle, MS-SQL, Sybase, Informix, MySQL, etc.
- **Open, multi-tier, scalable architecture:** The J2EE based architecture enables large-scale network management solutions that scale to hundreds of simultaneous users and millions of managed elements, including networks, systems and applications.
- **Event Management and Correlation:** AdventNet Web NMS supports fault management functions, including trap processing, event correlation, and basic workflow functions for managing network faults.
- **Performance Management:** AdventNet Web NMS supports configurable data collection and reporting for performance management. Flexible collection allows storing data in files or the RDBMS, and reporting from the RDBMS using multiple reporting tools.
- **Configuration Management and Provisioning:** AdventNet Web NMS includes versatile configuration engine, with provisioning tools and templates to simplify the configuration and provisioning of multi-vendor networks.
- **Multi-protocol Support:** AdventNet Web NMS supports multiple protocols for managing networks, systems and applications, including SNMP, JMX, HTTP, LDAP, ICMP, TL-1, CORBA, and RMI.
- **Network Topology Database:** AdventNet Web NMS includes a network topology database that models the network data using an extensible model. Developers can use and extend the database for new object types.
- **Auto-Discovery:** AdventNet Web NMS performs auto-discovery of the network, which automatically drives maps, polling, data collection, and other functions using rules and policies setup by XML configuration files.
- **Network Maps:** AdventNet Web NMS provides hierarchical, extensible, completely configurable, network maps with XML configurable menus. These maps are active views of network topology for viewing network status information, and performing operations on network elements.

- **OSS Integration Support:** AdventNet Web NMS supports multiple protocols and APIs for OSS (Northbound) access, including CORBA, RMI, HTTP, and SNMP.
- **Policy Engine:** AdventNet Web NMS includes a policy engine for scalable network and server administration. The engine enables adding new policies that allow administrators to manage any aspect of the network or systems in a flexible and scalable way.
- **Security Management:** AdventNet Web NMS provides a security module for flexible authentication and authorization capabilities. It integrates with an LDAP directory server, and allows authentication and fine-grained control of what individual users are allowed to do on the system or the network in a standard way using the directory.
- **Configurable, extensible, web and Java clients:** The AdventNet Web NMS clients can support a wide range of application requirements, and support a rich set of features including dynamically configurable views for each user.
- **Integrated SNMP Agent:** AdventNet Web NMS includes an SNMP agent to monitor the server remotely, and other tools for remote administration.
- **Device Management:** To support configuration management, and other interactions with network devices, AdventNet Web NMS includes tools for creating device management views and configuration screens that can be integrated into the server and client.
- **Powerful Tools:** AdventNet Web NMS includes a strong set of tools for all aspects of implementation, including database extensions, application development and deployment, configuration management, migration, etc.

These and many other product capabilities based on a new generation of technologies, make Web NMS a powerful tool for building management solutions. Over 100 custom implementations in diverse applications have successfully built and deployed custom solutions based on Web NMS. In many respects, AdventNet Web NMS enables a whole new level of solution for enterprises implementing a custom management solution.

6. Business Benefits

AdventNet Web NMS provides many benefits in situations where business needs drive the management solutions. Some of the important product benefits are summarized below.

- ❑ **Cost-effective Solutions:** Management solutions built on AdventNet Web NMS can be delivered in a fraction of the cost and risk of traditional management frameworks. With the standards-based approach, the availability and cost of expertise is reduced. This leads to lower implementation as well as licensing costs.
- ❑ **Implementation Productivity:** AdventNet Web NMS with powerful infrastructure, tools, and pre-built applications, puts your management solution on sure footing. Solutions can be delivered in the fraction of the time and cost needed by other approaches, making them more timely for business needs.
- ❑ **Business Specific Solutions:** The open, standards-based, flexible architecture make it possible to deliver business value from management solutions. AdventNet Web NMS has been designed from the ground up to be very extensible, allowing solution providers and application developers to add functionality, and extend and customize existing features and functionality.
- ❑ **Reduces risk:** The risk of implementation is reduced considerably by using AdventNet Web NMS, which is widely used by management solution developers. By starting with proven technology that is designed for custom solutions, the risk of not delivering the desired functionality is that much smaller.

- **Investment Protection:** AdventNet Web NMS offers ongoing investment protection due to its open, standards-based architecture. It is an evolving product that integrates useful new standards and technologies as they become available. Solutions developed with AdventNet Web NMS can easily be evolved take advantage of new requirements, standards, and technologies.

AdventNet's network of integration partners around the globe, give customers trained resources to deliver custom solutions on Web NMS. These options and the high level of support and training offered by AdventNet, ensure a high probability of success for customer projects. AdventNet commits to the success of its customers, and works closely with them to make sure the custom implementations are successful.

For enterprises looking to meet business specific management needs, the business benefits of AdventNet Web NMS make it a compelling choice for the development of custom management solutions.

7. Summary

Enterprise IT has been forced to make a choice between traditional management frameworks and point solutions for their management needs. Some enterprises are finding neither of these approaches meets their real requirements. The high cost, risk and lengthy implementation cycles of frameworks have made these solutions unsuitable for them. And point products are not customizable and do not integrate with each other and into the existing environments.

In situations where neither point solutions nor traditional management frameworks are appropriate, AdventNet Web NMS provides a good fit for custom management solutions. It provides the lower costs, risks and implementation times of point products, with the ability to deploy custom integrated management solutions that are focused on business specific management needs. A Web NMS solution is less expensive to license, as well as much faster and less expensive for each implementation. Enterprises that need to control costs, while ensuring any management solution is targeted at their specific needs, would benefit from a Web NMS solution.