



Application Quality of Service – VIEO Delivers Assurance with its AAIM Product

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Management Summary

We are all aware of the importance of quality of service (*QoS*) in our personal and professional lives and the satisfaction or discontent it gives us when the level of that service is either good or bad. We may not be able to define *QoS*, but we certainly know how to measure it, especially when it is poor. Let's take an example of what we have all experienced in that great cloud of unknowing: the customer service toll-free number. We dial in and we are instructed to *dial "1" if you are a present customer, dial "2" if you know your account number, dial 3, dial 4 ... dial 8 if you are completely frustrated.* Having successfully stumbled down that road, you now have another hurdle to overcome: *All of our operators are busy, please hold on, your call is important to us.* You have met quality of service head on, and you know that it's poor. Other than hanging on, you know that your only alternative is to change your service or product provider and, possibly, not think or care why the quality of service is unacceptable.

On further thought, those of us in the IT world know that what goes on in that cloud that results in poor levels of *QoS*: inadequate or improper utilization and/or management of IT and personnel resources. Even over provisioning of resources many times does not resolve the problem of poor *QoS*. Over time, many advances have been made to improve the *QoS* that an enterprise provides to its users through its IT resources, but much still remains to be done. Storage networking and virtualization, plus systems, storage and network management solutions have all contributed to gains in improving the *QoS* that an IT organization provides.

One company, *VIEO*, has introduced an approach that goes beyond these and promises to achieve more in *QoS* gains. The approach, called *Adaptive Application Infrastructure Management (AAIM)* helps to improve *QoS* by taking it to the next level above what these other solutions offer. That next plateau is at the application level and the improvements measured are what *VIEO* calls *Application Quality of Service (AQoS)*. **Where other solutions monitor and provide some control over resources (servers, storage, middleware, etc.), *VIEO* raises the quality of service to better meet the demands of the business by improving the way critical applications are processed.** *VIEO* has stated that not only does *AQoS* improve but, with *AAIM*, it can be achieved in a more simple manner and at a lower cost than previously experienced. The product holds great promise for those IT executives who are attempting to find ways to improve service to their users. If this strikes a responsive chord in you, read on.

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The Need for Better IT tools

The current state of managing IT resources is, for the most part, similar to herding cats. As soon as IT administrators believe they have their arms around the problem, another uncontrolled activity takes place. That process - of containing one problem while another one arises - continues, making the task of the administrator frustrating.

The reasons behind this lack of total control are obvious to IT management. Distributed applications have become more and more complex because of n-tiered architectures and the increasing number of heterogeneous servers, storage, switches, and routers. Layered on top of that are the variety of management tools for applications, systems, storage and servers, many of which are point products or are difficult to integrate with other products.

Whether it comes from enterprises attempting to consolidate IT resources, or from uncontrolled growth, the problem of managing IT resources comes with increasing difficulty for its administrators. Increasingly, the tools that are available are inadequate to meet the greater complexity of the distributed architecture. **As a result, the quality of service, from applications in the system to the IT users, suffers and degrades to the point where this condition can lead to lost opportunities for the enterprise.**

What is needed is a solution that will give more relief to the IT department whose function is to provide IT services at a level that meets the business goals of the enterprise. Traditional quality-of-service (QoS) management tools are insufficient because they focus on the resources (hardware, networks and middleware), and not the applications on which an enterprise does its business.

A proper and more meaningful solution must go beyond the level of the various hardware components: servers, storage, and the network. It must rise to the application layer where customers and users meet and interact with the system – where the proof point of the level of application QoS resides. And, that solution must do it with greater ease, which is to say, with automation or simplification of the process that eliminates or minimizes human

intervention, and do it with a quick, positive payback that is easily measured and understood.

It cannot be emphasized too strongly that **any solution that addresses this problem must have, as its goal, the improvement to IT services as seen by the users and customers accessing the IT infrastructure.** Making life easier for the IT department may be a laudable goal, but unless a product has a positive impact on the enterprise in its business operations, it fails its real purpose. **The measurement of the quality of service as expected in a service level agreement – which reflects the real life IT experience of an enterprise – is the criterion by which it must be goaled and measured.**

VIEO's Response to the Challenge

VIEO¹ has addressed the application infrastructure as the logical viewpoint for improving IT service to users. They have named their approach *Adaptive Application Infrastructure Management (AAIM)*. This methodology raises the management of quality of service to the application level, identified by VIEO as *AQoS – Application Quality of Service*. In this view, **the application is at the top of the other elements of the IT infrastructure with the servers, the network and its complement of switches, directors, storage, and middleware, all subservient to the needs of the application.**

This makes perfect sense since the meeting of Service Level Agreements (as measured by the quality of service) is dictated by business policies whose goals are to provide application satisfaction to users. Current products in the market, although useful to improve performance, fail to fully meet the demands on IT to achieve higher levels of quality that will satisfy the business needs of the enterprise.

AAIM is an approach and a new type of solution that not only focuses on the improvement of the management of applications. It is designed to optimize application processing by adapting to the changes in the utilization of IT resources. Applications with

¹ VIEO, a Latin word, meaning: to weave together, stitch or plait. Readers will see the relevance of this meaning in the *VIEO 1000 AAIM* product.

the most sensitive need for processing to meet business policies are automatically allocated the resources needed. **AAIM virtualizes all of the elements of the IT architecture, making applications the focus of optimization.**

The AAIM Appliance – Provider of Application Quality of Service

The VIEO family of AAIM Appliances consists of two models. The *VIEO 1000B Base Unit* contains a controller blade (C-Blade) and two management blades (M-Blades). Each M-Blade has 12 Ethernet ports for direct connectivity to the servers and network components in the managed application infrastructure. Two 1Gb ports on each M-Blade may be used for up-links to core routers. The *VIEO 1000E Expansion Units* contain up to four M-Blades, and connect directly to the VIEO 1000B to provide management capability up to 144 ports in the current generation of the product. To accurately measure and control in real-time both the host and the network components of the application infrastructure, the VIEO 1000 resides in the data path and performs layer 2 switching and layer 4 classification functions.

The VIEO 1000 AAIM appliance interconnects the various elements making up the application infrastructure, e.g., web, application, and/or database servers, storage, routers, and firewalls through base agent technology on each host and management control functions on the C-Blades and M-Blades. **Unique in this approach is in the VIEO 1000's ability to virtualize these elements such that there is truly an abstraction from the physical resources of the elements in the IT infrastructure occurring.** In virtualizing these elements, the VIEO 1000 can measure and control each of them in conformity with the application quality of service required by the various users of the system.

With its ability to communicate with all of the various components of the computing infrastructure, the VIEO 1000 provides performance visibility not generally available today. It uses a system of “gauges” (performance, load, and resource-measuring instruments) and “knobs” (resource-controlling instruments) to tune the system to the needs of the enterprise. The gauges provide metrics and the status of

each element of the system, and the knobs are used to make adjustments. The knobs are used to control hardware and software resources, such as network bandwidth, number of servers allocated to an application tier, number of user connections to a web server, size of the Java Data Base Connectivity (JDBC) connection pool to a database, etc., to optimize AQoS in conformity with business policies. The gauges and knobs provide essentially a real-time capability of modifying and allocating resources to those applications that are defined as most critical to meeting demands of the business.

A prominent feature of the VIEO 1000 is its ability to learn the profiles of the applications being processed, adding greater strength to its adaptability. The inputs from the gauges are fed into a dynamic neural-networks model that learns the behavior of applications, including what physical and logical resources they use, and how much, as business cycles change. This self-learned knowledge of the application environment is then integrated with the enterprise's business policies into a knowledge base, enabling the VIEO 1000 to continually assess whether any infrastructure changes are needed to maintain critical application quality of service levels. Recommendations made by the VIEO 1000 may be enacted manually or automatically. **The circular route from input gauges, to analysis, to update of the application profiles, to making changes to assigned resources is made on a continuing basis, and maintains AQoS at prescribed levels.** The data in the knowledge base can be used for accounting, chargeback or capacity planning, as well as dynamically tuning the performance of the IT infrastructure.

VIEO 1000 AAIM Appliance Benefits

There are several benefits of an offering such as the AAIM appliance. Among them are:

- **A solution with very low overhead**, so that applications are not affected by it.
- **Ease of implementation**, requiring no changes to application code and operation thus requiring less staff involvement in the optimization of resources. Additionally, because of the ability to learn, the system can

make adjustments faster than humans, and with fewer human errors.

- **Direct control of all of the managed elements in a more simple inter-connect**, eliminating individual server, network, database and storage management software as has been done traditionally.
- **Ease of scalability** so that the appliance can grow and perform in a manner consistent with the growth in application workload and type, and changes in the IT infrastructure.
- **Direct connection** (one-hop with no intervening network components) from the appliance to each of the elements in the IT infrastructure, eliminating network problems that can impede conventional, host-resident management tools.
- **Automated discovery and tracking of the hardware and software resources** utilized by each of the web-enabled applications, enabling more complete and integrated information about the system.
- **A simple pricing scheme** in which the user pays only for what is being managed.

Each of these benefits help to provide higher levels of Application Quality of Service to the enterprise in a straightforward, simpler manner than previously experienced.

Conclusion

Improving that quality of service in the open systems environment has traditionally been focused on using point products to manage the network, servers, and storage devices. At best, these products gave some relief to the problem of improving service to users of the IT system. The downside was that they required personnel to be experienced in the various management products, often from different vendors. Frequently this has meant increasing staffing levels to maintain the system. What has been needed is an integrated product that would replace the somewhat cumbersome and complex methodology and directly improve the quality of service to the application. Although

these point products improved the manageability of the IT infrastructure, they lacked features that would be simpler to operate and features that would directly raise the quality of service to the application level.

With AAIM, VIEO has introduced a methodology that improves the performance from heterogeneous application infrastructures. **From its non-disruptive implementation to its ease of operation, the VIEO 1000 AAIM appliance helps IT organizations improve the service to users.** It has been architected from a direct application perspective so that monitoring and management would directly influence the performance of business applications.

By virtualizing the elements of the IT infrastructure, VIEO has simplified the process of managing the disparate elements in the open systems environment. For those whose responsibility is to improve the application quality of service to the end user, the VIEO 1000 AAIM product should be examined closely. It very well could be what you have been looking for.



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