

TECHNOLOGY AUDIT

# nworks version 5.0









Veeam Software




## OVUM BUTLER GROUP VIEW

### ABSTRACT

*Veeam's nworks enables organisations to manage their VMware virtual environments, with the option of using ubiquitous infrastructure management tools from HP and Microsoft. Many organisations have been disappointed to incur significant management costs additional to their investments in virtualising infrastructure, in large part due to the lack of integrated management tools available. Organisations that nworks is aimed at include those using VMware VI3 or vSphere and managing the IT environment with HP Operations Manager for Windows/UNIX, Microsoft System Center Operations Manager 2007, or Microsoft Operations Manager (MOM) 2005. nworks enables the management of the VMware infrastructure from within HP's or Microsoft's management console, gathering an extensive range of over 300 metrics and events without incurring the use of agent software in the infrastructure, and publishing the data to the relevant management solution. Any organisation with systems management solutions from HP or Microsoft, and a sizable VMware investment, would be well advised to evaluate nworks.*

### KEY FINDINGS

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|--|---|
|  Enables agentless gathering of virtual machine performance metrics/events.     |  Deep integration with the Microsoft and HP systems management tools.          |
|  Supports centralised management of a distributed data collection architecture. |  Veeam is a veteran in the virtualisation tool market and has 8,000 customers. |
|  Provides a free add-on that enables grouping VMs based on business needs.      |  Currently only supports VMware technologies.                                  |
|  Monitors over 300 specialist VMware-related metrics/events.                    |  Certified 'VMware Ready Optimized'.   |

Key:  Product Strength  Product Weakness  Point of Information

### LOOK AHEAD

Veeam plans to release a VMware PRO Pack for System Center Virtual Machine Manager (VMM) early in 2010, enabling management, administration, and configuration of VMM-managed VMware environments.

## FUNCTIONALITY

The benefits of server virtualisation are often realised to a lesser extent than is possible, due to the management challenges of the new paradigm tending to use up some of the cost savings (in acquiring new tools and corresponding skills), and additional risks becoming apparent. Across the virtualisation marketplace, the capabilities within management tool sets have remained inferior to the advances within the base-level technology. Hence, virtualisation platform vendors provide different implementation approaches with various benefits and trade-off profiles (such as 'bare-metal' hypervisors, and paravirtualisation), and virtualisation for different server platforms. However, the challenges of deciding what to virtualise, how to manage the virtual infrastructure such that capacity usage, application scalability, and flexibility are addressed without increasing service disruptions, and how to govern the virtual infrastructure in an economically sustainable way have not been adequately addressed in most cases.

The 'what to virtualise' problem requires analysis of compatibility across applications, hardware, and platform operating system, as well as any business unit ownership issues and a history of workload profiles. Day-to-day management of the virtual environment requires analysis of metrics related to the guest virtual machines (VMs), lineage of the VMs, underlying hypervisor, host hardware, entire data centre topology, connections to storage systems, network interface cards, and power metrics – many of which are the same sort of metrics as pertain to the equivalent issues relating to non-virtualised infrastructure. One of the central problems of the server virtualisation paradigm is the need for a management solution that provides all the relevant metrics and alerts and presents them within the context of management technologies that the average systems administrator is familiar with.

## Product Analysis

VMware, still by far the leading server virtualisation vendor, has built-in interfaces with its management systems that allow third-party solutions access to detailed information about the state and performance of the virtual environment. Using the APIs in VMware vCenter, nworks provides metrics, alerts, and events on the state and performance of the guest operating systems (OSs), ESX hypervisor, hardware, power infrastructure, data centre, cluster, host and VM topology, and storage infrastructure. nworks converts the data collected from vCenter (VMware's management technology) into a form usable by the broadly implemented solutions HP Operations Manager (HP OM), Microsoft System Center Operations Manager 2007 (Microsoft SCOM), and SCOM's predecessor, Microsoft Operations Manager 2005 (MOM). It publishes this information via the agents of each of these management solutions, so that administrators have a common management view across their virtualised and non-virtualised server infrastructure.

There are two main solution elements: nworks Management Pack for VMware, and nworks Smart Plug-In for VMware. These provide integration of system information from the VMware infrastructure to the management functions within Microsoft SCOM or MOM, and HP OM, respectively, as well as a command execution capability that enables the administrator using HP OM or Microsoft SCOM or MOM to manage the VMware environment from those tools. The net result is to enable the management of a mixed physical, and VMware-based virtual, infrastructure using the HP or Microsoft management consoles that many systems administrators are familiar with. Currently, nworks supports only VMware's server virtualisation technology, although support for Microsoft's Hyper-V is planned in a release in early 2010.

Veeam has been focused on providing management tools for virtual infrastructure environments since its inception in 2006. Complementary tools for nworks include the company's other specialist products:

- Veeam Backup & Replication, a specialist backup and replication solution for VMware environments.
- Veeam Reporter Enterprise, which offers an automated approach for discovery and documentation of VMware virtual server environments – i.e. the virtual network and storage structure, its components and configuration settings for change management, resource utilisation tracking and chargeback.
- Veeam Configurator, a tool that can scan all VMware ESX servers and group all those with matching configuration.
- Veeam Monitor, which provides key performance metrics and capacity planning for the virtualised environment, and can do so across multiple vCenters.

The solution's nworks Collector component remotely gathers virtual infrastructure events and alerts using VMware's API. The entire process is agentless, which we believe is a distinct advantage in terms of ownership and operational overheads. nworks provides Organisations with full visibility of all vSphere 4 components including vCenter, ESX hosts, and VMs. It analyses over 300 metrics, including data points relating to VMs such as CPU, memory, disk, and network usage, and also accesses VMware-specific health and performance metrics such as CPU ready time, balloon memory, host memory swapping, and cluster memory pressure.

Also, nworks Collector can provide VMware topology and configuration information, and dynamically update service maps of the virtual environment. nworks can graphically represent all relationships and dependencies (such as between VM and host, or host and storage). It can be used as a stand-alone management tool, and provides all the capabilities expected of an enterprise management system (EMS) for data centres, including graphing and historical reporting, thresholds for performance metrics, and monitoring of vCenter events. Standard EMS group-based rules and policy settings, and escalation rules are also provided. In addition, nworks provides a knowledge base that facilitates root-cause analysis of events. To extend its capabilities beyond those which come out-of-the-box with HP OM and Microsoft SCOM and MOM, organisations and software providers may use the software development kit (SDK), which allows nworks to integrate VMware product management with other data centre management solutions.

Another noteworthy capability of nworks is Veeam Business View, a free add-on that allows organisations to group, view, and manage all VMs based on user-defined criteria reflecting organisational structure. It supports dynamic, automated grouping of VMs based on configurable requirements and priorities (for example, based on business unit, department, or other business criteria reflecting the need to charge back usage, or monitor with varying SLAs). Veeam Business View allows categorisation of VMs based on VMware-defined attributes that are relevant for business. As an example of how this is used, an automated rule could add metrics of any VM that has 'retail' in its name into a 'retail banking' category. It also supports manually editing of attributes of single or multiple VMs at the same time, or doing so automatically based on predefined rules.

Overall, Ovum sees nworks as providing an excellent set of capabilities that enables effective management of VMware-based virtual environments from the well-understood enterprise management tools supplied by HP and Microsoft. However, we would point out that Veeam needs to widen its support for additional virtualisation platforms to be relevant to as many customers as possible, given the increasing variety of virtualisation taken up in enterprise data centres. Useful progress towards this end will be made when support for Microsoft's Hyper-V becomes available – which is planned for the first half of 2010.

## Product Operation

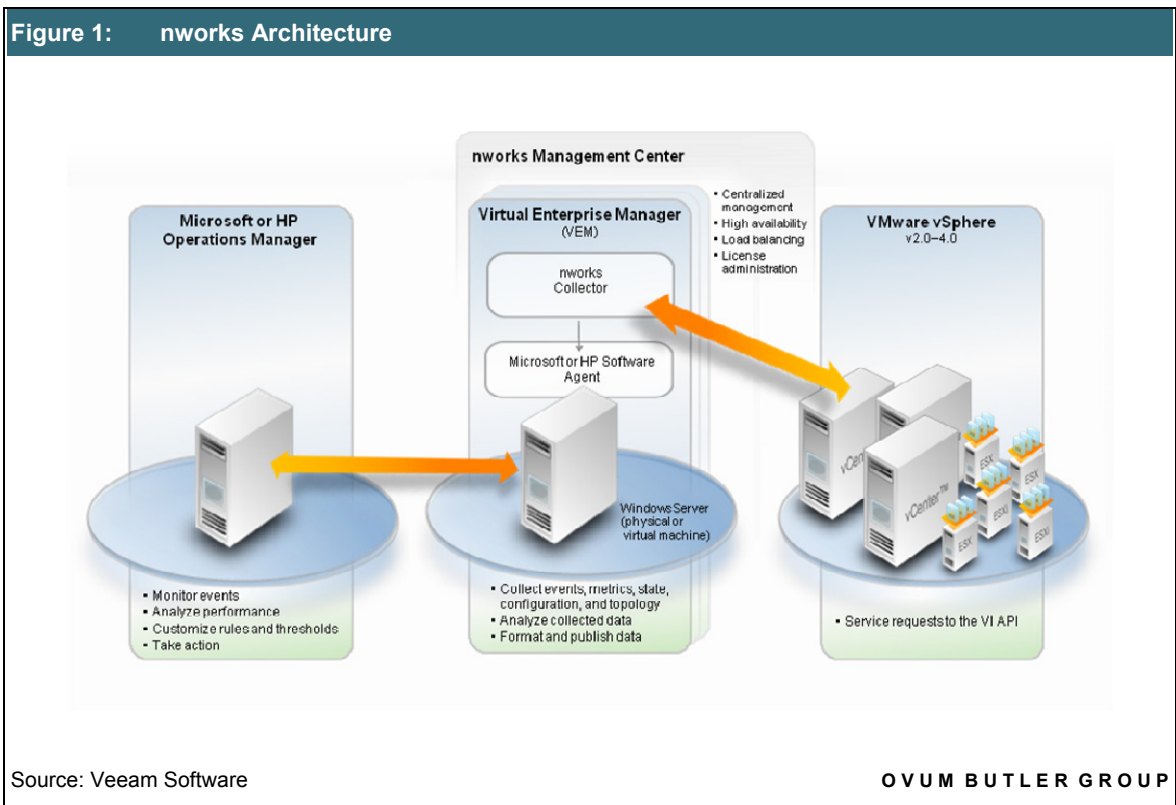
nworks Smart Plug-in for VMware, and nworks Management Pack for VMware, enable visibility into full alerting and performance monitoring status of the VMware infrastructure. The distributed architecture of nworks Collector enables gathering of very granular performance and event data for VMware ESX hosts and VMs. It also facilitates collection of events and alerts of different types such as those relating to security, status or state change of the virtual environment, or licensing and other administrative actions that occur at the vCenter level. The software modules also help to represent and manage virtual infrastructure topologies, in that nworks Collector can reorganise the topology by grouping VMs and ESX hosts based on the vCenter custom attributes driven by business criteria.

All the gathered events and metrics can be used later for reporting or alerting purposes. The in-built event management capabilities of the HP or Microsoft EMS can be used to aggregate and generate events, and can also route events related to status changes to the administrator. The data can be filtered and viewed at different levels, such as data pertaining to the resource pool, cluster, ESX host, VM, or VirtualCenter server.

Performance monitoring metrics and thresholds can be configured via nworks, using the standard methodologies of the EMS platform which, in turn, define events. For example, when a threshold is breached, an event is generated and the system health status is changed. Rules can be assigned to automatically take remediation measures when health status changes. nworks also provides a knowledge base that contains a wealth of technical information used for reference, for analysing the root cause of events, and for taking the right remedial measure. The knowledge base would provide information on the underlying metric, the importance of an alert, troubleshooting data, and possible resolution steps, as well as links to potentially helpful external resources, and can help organisations to improve response times to problems and ensure that correct escalation routes and resolution steps are in place.

Veeam nworks solutions generate a topology map that helps visualise a high-level vSphere view and also an assembled image of the overall vSphere health model. From this graphical illustration of the VMware infrastructure topology, the systems administrator can drill down to the exact object in question. Performance data can also be represented graphically, and organisations can optionally archive these details onto the reporting repository of their HP or Microsoft EMS.

The Collector architecture does not require the installation of software on the ESX Server or the VMs but, rather, monitors agentlessly using the VMware Infrastructure API. Instances of the nworks Collector are installed on physical or virtual Windows 2003 or 2008 Server (x86 or x64), with access to vCenter (typically configured as read-only using the nworks Management Center User Interface). The system on which nworks Collector resides is configured as a managed node of Microsoft SCOM or MOM or HP OM. Figure 1 illustrates this architecture.



nworks Collector is a .NET application that runs in either a virtual or physical environment and, for smaller installations, can be sited with the vCenter server or that used by nworks Management Center. Its main purpose is to gather data from the virtual environment using VMware’s API, and publish it onto the local performance agent of the EMS. The entire means used involves no software agents – an approach that, in Ovum’s opinion, maximises the flexibility of nworks.

The Web-based user interface of nworks Management Center enables configuration and administration of nworks Collector instances. The interface is platformed on the Microsoft Internet Information Services (IIS) Web server, and is directly accessible from a stand-alone browser, or within the EMS console, or from integration with VMware vCenter VI-Client. nworks Management Center can provide centralised configuration and management of all distributed instances of nworks Collector, and provides a dashboard view that initially allows administrators to view the overall status of the nworks Collector network. It further provides statistics including the numbers of installed nworks Collector servers, of connected VMware systems, and of monitoring jobs distributed on the nworks Collector instances. nworks Management Center stores these configuration details in various locations such as in the registry of every VMware Enterprise Monitor (VEM) System, and also locally where the user interface is installed. It also provides a centrally managed pool of licences, and is responsible for managing the process of distributing the licensing credentials as they are needed for each nworks Collector.

High availability of the nworks Collector network is handled by providing ‘hot standby’ nworks Collector instances. Each nworks Collector is constantly monitored, and any variation in wellbeing indicators triggers an automatic, even redistribution of all management jobs from the affected instance to those on hot standby. The nworks Management Center load balancing capability ensures automation of the installation and configuration of any nworks Collector instances needed, and assignment of workloads.

## Product Emphasis

Ovum believes the focus of the Veeam nworks solution is on enabling granular management of VMware environments through management solutions consoles that the average systems administrator is familiar with, enabling low-overhead, consolidated management of physical and VMware virtualised environments. The range of metrics is comprehensive and appropriate in terms of providing a detailed snapshot of all the key components in a virtual environment, and scalability is addressed well. Veeam's experience as a key software provider in the VMware ecosystem, along with strong nworks partnerships with the systems management solution providers HP and Microsoft, bode well for the current and prospective nworks customer.

## DEPLOYMENT

In terms of deployment, configuring the nworks solution is relatively simple and primarily involves integrating the solution and associated practices with the existing ESM, and specific systems management practices. Typically, a pilot project involves installation, verification, and initial configuration of the solution components. Veeam nworks implementation involves two sets of skills – VMware vCenter administration, and HP OM administration (Smart Plug-in) or MS Operations Manager Administration (Management Pack) administration. A typical 30-user departmental implementation would require the aforementioned skills, and the deployment process would involve tailoring event responses and severities in support of departmental operational procedures. Finally, for enterprise-level implementation, the effort required depends on overall ESM architecture – the more distributed it is, the more complex the nworks implementation process – and adapting operational processes. However, Veeam claims that this usually does not involve many major changes. Veeam states that a pilot project can typically be completed within a day, while either departmental or enterprise-wide deployment takes up to three days.

Veeam offers two support levels for nworks customers: Standard, charged at 20% of the licensing cost, provides telephone assistance in business hours i.e. from Monday to Friday, 07:00–01:00 GMT, 02:00–20:00 EST/EDT, 23:00–17:00 PST/PDT; and Premium, charged at 25% of the licensing cost, with extended support hours to 24×7×365.

Support is provided by nworks for Microsoft Windows Server platforms (2003 and 2008; 32-bit or 64-bit versions). The solution can be deployed either as on-premises or on-premises managed (wherein the monitoring activities are typically outsourced to a managed service provider). nworks works with either VMware VI 3 or VMware vSphere 4. It would typically be deployed in an environment managed largely by Microsoft SCOM, or HP OM for UNIX or Windows.

The product is certified "VMware Ready Optimized" i.e. that the solution is stable and readily available to be deployed across all VMware environments. Supported versions of EMS from VMware, HP, and Microsoft include:

- VMware: Virtual Center 2.x and 4.x, ESX 3.x and 4.x.
- HP: OVOW 7.x and 8.x, and OVOU 8.x.
- Microsoft: MOM 2005 SP1, SCOM SP1, and SCOM R2.

## PRODUCT STRATEGY

The nworks solution is primarily targeted at organisations using VMware VI3 or vSphere and managing the IT environment with HP OM for Windows/UNIX, Microsoft SCOM, or Microsoft MOM. With the acquisition of nworks in June 2008, Veeam (which had hitherto focused solely on the SME market, with the rest of its product portfolio) gained a sizeable installed base of about 500 customers in the large enterprise segment, and a number of resellers and partner relationships (including nworks' status as a VMware Technology Alliance Premier Partner, a Gold HP Business Partner, and a Microsoft business partner).

The route to market is mainly through channel partners of Microsoft and HP: through Microsoft Enterprise Partners to Microsoft SCOM/MOM customers with VMware, and through HP Business Software Partners to HP OM UNIX/Windows customers with VMware. Veeam's implementation and distribution partners include Ingram Micro, Lifeboat Distribution, Magirus, Business Generating Software, Infotronics, Dell/ASAP, SHI International Corp, HP, and FCN Technology Solutions, while its technology partners include VMware, Microsoft, and HP. It is also important to note that Veeam is a strong Dell ISV partner and that the Veeam nworks Management Pack is Dell OpenManage certified. Veeam also plans to extend towards Virtual Desktop Infrastructure (VDI) with Dell when market demand makes this appropriate.

Veeam offers nworks via a perpetual licensing model available on a per-socket basis (wherein a single chip houses no more than six processor cores) and, although the pricing is dependent on the size of deployments, with discounts in place for the public sector, the company states that the average deal is around US\$50,000.

The company generally tends to release updates simultaneously with major VMware vSphere, ESX/ESXi, vCenter, HP OM, and Microsoft SCOM major releases. The company is keen to continue its enhancement of scalability and service management within nworks, and future plans also include the release of a VMware PRO Pack for VMM (in early 2010), which would enable monitoring and management automation for VMware systems which are managed by Microsoft's System Center Virtual Machine Manager.

## COMPANY PROFILE

Veeam Software was founded in 2006 by the same team that had grown Aelita Software (a company that focused on providing systems management solutions for Microsoft Active Directory and Microsoft Exchange environments) and sold it to Quest Software in 2004. Veeam Software has its US headquarters in Columbus, Ohio, and also has a European base in Reading, UK. The company is a VMware Technology Alliance Premier Partner, and provides tools that facilitate operational management of VMware environments. In 2008 it acquired nworks, hence adding enterprise management connectors to its portfolio of VMware infrastructure management tools.

Veeam has 200 employees worldwide, a large proportion of whom are engaged in research and development. Although it maintains the privacy of its detailed financial results, the company has more than doubled its total revenues in each of the last two completed financial years, and is profitable. Veeam's total customer base is over 8,000 in number, with over 1000 of those being nworks users. The company's referenceable clients include Johnson & Johnson, the BBC, Macquarie Bank Australia, and Kindred Healthcare.

## SUMMARY

The virtualisation tool market is an interesting space to watch, and at least as dynamic as the underlying virtualisation platforms market. The market is populated with tools that enable capacity analysis, tools for backup and replication, tools for provisioning and dynamic management of virtual machines, and tools such as nworks that enhance and integrate management capabilities. Most virtualisation-related tools are supplied either by virtualisation platform providers or specialist independent solution providers such as Veeam. However, nworks is rare in that it enables management through common EMS solutions. Most major enterprise management vendors are at different stages on the road to unified management of physical and virtual environments, and Ovum believes that nworks is currently well differentiated, and backed by a healthily growing company with a fairly broad suite of virtualisation tools. Ovum believes that nworks will quickly be seen as highly relevant for organisations following up their adoption of virtualisation with consolidated management of mixed, virtualised and non-virtualised server infrastructure.

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