The Real Challenge of Virtual Desktops
Create a real-time, end-to-end view of virtual desktop health, performance and cost drivers with Novell Operations Center.

by Bill Tobey and John Woodard

In concept, the virtual desktop is understandably attractive to the thrift-minded executive. Any sane manager faced with the high costs of provisioning, managing and maintaining a conventional fleet of thick-client desktops would be duty-bound to consider a practical, centralized alternative. Virtual desktop infrastructure (VDI) technologies have been aggressively promoted as exactly that alternative—more economical, manageable and defensible by nature—and pilot-scale results have been very promising.

Production deployments, though, have often failed to deliver the promised goods. Costs have been higher than expected. Storage requirements have grown uncontrollably. Performance has been underwhelming and the user experience uninspiring. Nevertheless, new deployments continue as organizations look past the challenges and reach for the short-term hardware savings. Needless to say, far better results can be achieved by baking in the management at the outset.

> The Challenge: Many Moving Parts, No Single Management View
The roots of VDI under performance lie in the complexity of most solution architectures. While there are several variations, a typical VDI environment includes a thin-client device on each user’s desktop, a desktop system image running on a virtual machine, associated storage in a central repository and all the connecting networks. Because data and execution resources are always remote, VDI performance is highly network dependent.

In short, a VDI is exactly the type of mission-critical business service that demands service-oriented management, beginning with an end-to-end view across all the infrastructure elements, components and systems that contribute to its delivery.

In addition to these core elements, a production-scale VDI requires support services from a variety of management tools, most of which will already be present in any enterprise environment. These include:

• A provisioning orchestration service to automate user provisioning in response to role and employment status events
• An identity management service to provide central user authentication and role-based access management
• A virtual systems management service to monitor VM health and performance
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- Physical systems management services that provide the same health and performance monitoring functionality for the servers, storage and network resources that support the virtual environment
- A service desk system for reporting and troubleshooting service problems
- A user experience monitoring service to measure and track VDI performance from the end user’s perspective

All of these services are provided through separate, siloed management environments, each with its own data set, repository, administrative console and system view. Individually they provide little or no visibility into problems that may develop across and between the service layers, which is exactly where the problems that undermine VDI cost and performance typically arise.

> The Solution: Manage VDI as a Service with Novell Operations Center

In short, a VDI is exactly the type of mission-critical business service that demands service-oriented management, beginning with an end-to-end view across all the infrastructure elements, components and systems that contribute to its delivery. Creating those integrated views across multiple domains and management environments is precisely the purpose of Novell Operations Center, the business service management component of our WorkloadIQ solution stack.

As a Connection reader, you probably know that Novell Operations Center provides management, monitoring and measurement of key business services across physical, virtual and cloud environments. It monitors service performance and availability, maps the relationships between services and the underlying infrastructure, and provides automated real-time measurement. It integrates the outputs of existing management tools with business context, creating a business-centric view of the most complex IT environments.

By using Novell Operations Center to create a dedicated real-time management dashboard for your VDI, you can gain an integrated, correlated view of all significant events that affect its health and performance, prioritized by their business impacts, no matter where in your IT environment they occur. You’ll be able to identify and address emerging issues quickly and effectively, before they can inflate costs or degrade performance.

> First Assess, Then Integrate

Before a service-oriented view of your VDI can tell you anything useful, a variety of management data feeds need to be available for integration. So your first order of business should be a high-level assessment of your environment and the issues you face. What management tools are already in place? Do you have everything in the service stack we discussed above? What data streams do those tools offer? What issues are you experiencing with the VDI? Are there gaps in the instrumentation you’ll need to understand them?
Once you’re satisfied the management stack is complete, use Novell Operations Center to integrate and correlate the data streams from your technology-specific tools. Create a model of your VDI service and its dependencies on the IT infrastructure, then build customized views of its health and performance that update automatically in real time. You’ll find a discussion of how to construct business views quickly and easily in the March 2010 issue of Connection here (http://www.novell.com/connectionmagazine/2010/03/building_a_business_view.html)

> **Using an Integrated Service View to Manage VDI Performance**

Here’s one example of how an end-to-end service view can help you manage the health and performance of your VDI.

![An executive summary view of VDI health and performance data.](image)

**Figure 1:** In this executive summary view of VDI health and performance data, a major alarm condition is seen to be affecting the end users who share the Pilot role.

In this illustration (See Figure 1.) we see a high-level summary of service health and performance information for two groups of VDI users, identified by role as Mechanics and Pilots, together with a summary of open service desk requests initiated by those user groups. It’s obvious at a glance that a major alarm condition is currently affecting the Pilot group, and that a major incident has been reported to the service desk.
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Shifting to a Help Desk view of the same data streams (See Figure 2.) and selecting Roles at right brings up a list of user group properties, including the desktop VM template provisioned to each role. At lower right we also see a Root Cause display of the configuration items associated with the alarm conditions. These include the user AranP and the desktop VM PILOTS-V1-5.

A help desk view of VDI health and performance data.

Figure 2: This help desk view of VDI health and performance data shows key properties of the two user roles, and lists the configuration items associated with current alarm conditions.

Searching for the VDI user associated with an alarm.

Figure 3: This view of VDI health and performance data shows results of a CMDB search for the user associated with an alarm condition.
Searching the configuration management database (CMDB) for user AranP returns a table detailing the alarm conditions associated with him. (See Figure 3.) Clicking the link in his name brings up a list of the key properties and configuration details of his desktop VM, including the major alarm currently associated with it.

If we scroll down on this screen (See Figure 4.), we discover that the alarm associated with user AranP was triggered by the service desk request he called in at 1:45 p.m., reporting that his desktop connection had just seized. Immediately below we see that the alarm associated with his virtual desktop was triggered just six minutes earlier, when it failed an automated test of network latency.

So in just a few clicks these views that integrate virtual desktop service health information from multiple systems and management tools have alerted management to a potentially serious performance problem, and given service desk staff enough detailed information to expedite remediation.
> Using an Integrated Service View to Manage VDI Costs

Novell Operations Center can also help manage the costs that often escalate when VDI projects are scaled to production levels—software licenses, for instance. Opening the Executive Summary view of this VDI (See Figure 5.) we immediately see that there is a critical alarm condition affecting the Pilots user group.

An executive summary view of VDI alarms and service desk requests by user role.

Figure 5: This view of VDI summary view of VDI alarms shows a critical alarm associated with Pilots user role.
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When we tab to the Help Desk view and select All Users at right (See Figure 6.), we can see in the Property Views display that all Pilot users seem to be affected. Meanwhile, the Root Cause display informs us that something [a configuration item] called Pilot Pro PilotHelper Course Track seems to be involved in each case.

A help desk view of VDI user properties and alarm condition root causes.

Figure 6: This view shows that all VDI users with the Pilot role are affected by the current critical alarm condition, and identifies a software configuration item associated with the alarm.

Since Pilot Pro is almost certainly a software package, we can tab to the Software Licensing Reports view via the navigation bar at the top of the screen. (See Figure 7.) Here we can see that despite the fact that only two paid Pilot Pro licenses are available, five copies of the application are currently in use. We now have all the information we need to either subscribe our way into compliance, or hold the line on costs and turn off the illegal users. The decision is ours.
Get Real Control of Your Virtual Desktops

Virtual desktop infrastructure solutions promise real relief from the high costs, management headaches, security shortcomings and compliance challenges of conventional thick client desktop PCs, and it is now possible to hold them to their promises. No matter how large or complex your environment, Novell Operations Center can integrate and correlate the data streams from all your management tools and services, giving you real-time insight on the events that determine costs, health and performance. For more information visit www.novell.com/products/operations-center.