

# Smart Box

This article first appeared  
in the January 2009 issue of  
*Novell Connection* magazine.

*Simplify Remote Location Management with Novell Satellite Site Appliance*

Organizations with several satellite offices often face a number of challenges in providing IT services to those sites, especially if they have limited or zero staff at those locations. Other challenges include:

- difficulty in enforcing build standards for servers and workstations
- remotely managing user accounts and hardware
- effectively administering patch management
- implementing and executing effective disaster recovery procedures
- and dealing with limited or unpredictable WAN bandwidth.

**Satellite Site Appliance is a smart box you can customize centrally to meet the standard needs of your organization. Anyone at your remote locations can then physically build it into a low-touch server that is easily managed from your central location, regardless of bandwidth constraints.**

Novell created the recently released Satellite Site Appliance to address these challenges, effectively simplifying the deployment, support and management of several remote sites from a central location over low bandwidth connections.

Typical appliances are characterized as dumb boxes, but the Satellite Site Appliance is a smart box you can customize centrally to meet the standard needs of your organization. Anyone at your remote locations can then physically build it into a low-touch server that is easily managed from your central location, regardless of bandwidth constraints.

The idea for the Satellite Site Appliance grew from the need of the UK's National Health Services (NHS) to manage the IT needs of more than 1,000 remote health care locations spread across the country. Headed by Novell lead engineer David Shepherd, a Novell consulting team devised a solution for NHS remote locations that provides the following:

- streamlined appliance deployment
- centralized user provisioning

- application provisioning
- local file and print services
- encrypted management connections between the local appliance and the central IT authority
- DNS forwarder
- Web site proxy services
- asset management
- and policy enforcement.

The solution components are comprised of SUSE Linux Enterprise Server 10 SP1, Novell Open Enterprise Server Version 2 (SP1 will be available shortly), and ZENworks Configuration Management.

## > How Does it Work?

Key to facilitating the deployment and day-to-day management of the appliances is the central management directory, which is basically an eDirectory instance that has certain schema extensions. One of the schema extensions in the central management directory is an appliance object that can be used when you want to deploy a new appliance at a new site. The creation of the appliance object process will direct you to configure items specific to that site, such as server name, IP address, whether it's a DHCP server or not, where it should get its DNS, application license keys, and even integration with an on-site active directory server if desired. Once all of the site-specific information has been configured, simply click the *Generate Config* button and it will build an ISO file for that site appliance.

**To facilitate day-to-day management and provisioning, once an appliance is built at a satellite location, it communicates at scheduled intervals back to the central management directory for updates regarding its settings, users and applications.**

You can burn the ISO file, which contains an automated and unattended installation, to a DVD that a local user can simply insert into an on-site hardware box and walk away. The automated installation leverages AutoYaST and some custom scripts to install the server

software. It then sets up and configures the server services; Novell Storage Services volumes, applications, users and policies. When it finishes, the server is ready to use.

---

## The solution's design enables you to not only centrally manage backup operations easily, but also to perform online backups to a central repository in a way that accommodates low bandwidth scenarios.

### > Simplified Day-to-Day Site Management

In addition to containing the appliance object, the central management directory also contains user and application objects for the appliance. To facilitate day-to-day management and provisioning, once an appliance is built at a satellite location, it communicates at scheduled intervals back to the central management directory for updates regarding its settings, users and applications.

An important point to understand is that you don't need a persistent connection between the appliance and the central management directory. In fact, the solution has been designed specifically to accommodate environments or scenarios that don't have a constant connection or might have a low bandwidth connection. The appliance doesn't require a time synch between the central management directory. It can operate for as long as you need without a connection, allowing you to schedule update intervals to occur hourly daily, weekly, monthly or whatever time frame fits your needs. It only requires a connection when provisioning a remote device. If the connection is down, the provisioning can retry later.

As mentioned earlier, users or identities are housed in the central management directory. But the user objects can be fed from somewhere else, including an Active Directory directory. Once they're in the directory, assign them the same way you would make a user a member of a group. You can assign users to an individual appliance or an appliance group. An appliance group basically has two parts: a list of users and a list of appliances. When you assign a user to an appliance or an appliance group in the central management directory, it automatically builds a provisioning request. This provisioning request is a very small file—about 100 bytes per user, including its encrypted password. The provisioning request is placed in the central management directory's output queue where it waits for the appliance's next scheduled check-in. When the appliance checks in, it takes the provisioning request and leverages local LDAP

provisioning templates to properly add the user to its local directory.

This methodology that the Novell Satellite Site Appliance uses for provisioning users accommodates the needs of remote locations with limited or sporadic WAN connections. Also, since the appliance is not actually part of the central management directory and only has to check in periodically, the central management directory has the ability to scale to easily support thousands of appliances.

The process for deprovisioning users is similar; but because it might have longer lapses between appliance check-ins than desired, the solution also includes a user auto-expire feature. The appliance runs a task every day that checks each users' last login time. If the last login time is more than the time value you've configured, then the user is automatically disabled and moved into an expired container for that appliance. The expired user is not deleted automatically at this time, just disabled.

Policy provisioning is handled similarly to user provisioning. You can centrally configure a group policy, push it out to a specific set of appliances, and have it apply to a specific set of users; however, application provisioning is handled a bit differently than user and policy provisioning because you're typically dealing with large application packages. Because of limited or sporadic bandwidth that you might have going to your remote locations, you would typically schedule applications to be provisioned to your appliance after hours. To facilitate application provisioning in a consistent manner to both your appliance and the clients at your remote site, the solution leverages the automated software distribution and patch management capabilities inherent to ZENworks Configuration Management.

In addition to provisioning, the Novell Satellite Site Appliance also simplifies the day-to-day inventory management of your distributed remote locations. The solution leverages ZENworks Configuration Management to automatically collect inventory data on all the clients the appliance supports and then delivers that data to the central management directory each night. (See Figure 3.) Each appliance you deploy is separated into its own ZENworks Configuration Management Zone, making it easy for you to perform site by site inventory management while also giving you the ability to holistically view and report on client inventory at all your sites.

### > Remote Backups Made Easy

Backing up servers at your remote sites can be a frustratingly difficult endeavor, especially when you don't have local IT personnel onsite to deal with the process. Novell Satellite Site Appliance caters specifically to the backup needs of these remote locations. The solution's design enables you to not only centrally manage backup operations easily, but also to perform online backups to a central repository in a way that accommodates low

bandwidth scenarios.

One of the major design aspects that accommodates centralized online backups is the solution's use of dynamic storage technology. (See *Dynamic Storage Technology - OES 2*.) With Dynamic Storage Technology, you create two independent partitions for your appliance data—a primary partition for your active or important data, and a secondary partition for your static, less active or noncritical data. The technology overlays these separate physical partitions so they appear as single partition to users, but allows you to manage them individually. For most organization, only about 15 percent of their data tends to be active or critical data, meaning that for backup purposes most of your backup efforts will focus on that 15 percent stored on the primary partition. This greatly facilitates backup operations over limited WAN links.

**> Minimal Impact**

To minimize impact at your remote sites, the Novell Satellite Site Appliance does not require the Novell client. The solution ships with SAMBA enabled in NT Domain mode. When you create your appliance object, you also have the option to have it integrate with an existing active directory domain controller that you already own. Not only does this allow your Windows Workstations to join the domain and access resources without any additional software, but it means you also have the choice to

leverage either eDirectory or Active Directory to manage and provision your users, policies and their applications.

Also, the Satellite Site Appliance will soon be able to leverage the Active Directory domain integration provided by the CIFS protocol and Domain Services for Windows that ships in Novell Open Enterprise Server 2 Service Pack 1. In terms of Domain Services for Windows, this means that when this functionality becomes available, you could even configure your appliance to serve as an Active Director domain controller if desired.

While no timetable has been set for the inclusion of this added functionality provided by service pack 1, the feeling at Novell is that the way in which the solution's open design leverages AutoYaST should make it fairly easy to add that functionality. In fact, the whole appliance has been built to easily accommodate new features and functionality based on updates to SUSE Linux Enterprise Server and Novell Open Enterprise Server.

Whether you manage multiple remote locations for health care, schools, retail operations or another vertical, Novell Satellite Site Appliance is designed to simplify the centralized provisioning and day-to-day management of your distributed enterprise. It gives you a low-touch, repeatable process to build standard servers out in the field without deploying people to those sites. It makes it easy for you to centrally manage and keep those servers current and backed up. **N**