

Designing Your Virtual Landscape

Using PlateSpin Solutions to Assess and Refine Your Virtual Data Center

Server consolidation is a hot topic these days. According to industry reports, it's not uncommon for companies to see less than 20 percent processor utilization in their data center. Clearly, everyone wants to get more from their existing data center resources while avoiding costly hardware purchases and saving power, reducing cooling requirements and preserving precious data center space. But no one wants to push their data center to the brink of failure either.

While the concept of server consolidation is a no-brainer, practical implementation requires careful and thoughtful analysis—and an actual plan—to ensure its success. This three-part series will focus on how to best assess, deploy and refine your virtual infrastructure using PlateSpin Recon and PlateSpin Migrate products.

- Article One: Consolidation Planning

The first article in this three-part series provides tips and tricks for consolidation planning in your virtualized data center using PlateSpin Recon 3.7. At the end of this exercise, you'll have an executable plan that can be imported into PlateSpin Migrate to accelerate implementation of your virtualized data center.

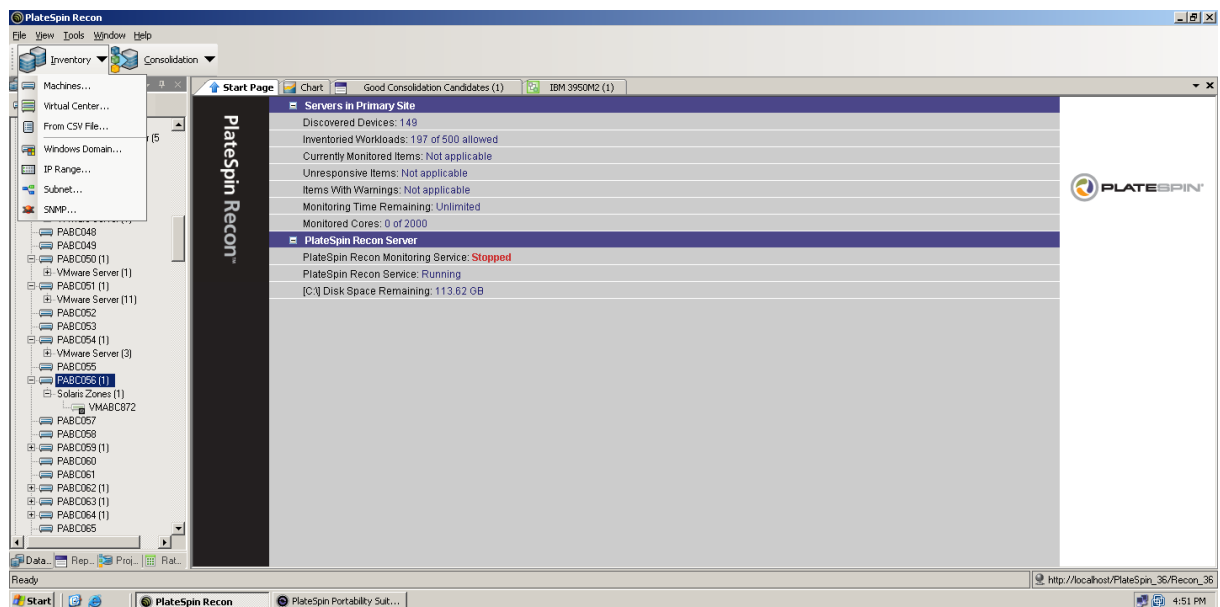
- Article Two: Resource Allocation: Implementing and Testing Your Virtualized Data Center

The second article in this series will focus on automating the actual implementation process using PlateSpin Migrate. It will also discuss the vital role that testing plays in ensuring successful implementation.

- Article Three: Sustainability: Optimizing Workloads and Automating Chargebacks

The third and final article in this series will examine how ongoing performance optimization of your virtual infrastructure helps minimize risks and achieve maximum ROI. Many competitive products only focus on initial data center design, leading to virtual sprawl and diminished returns over time. Using PlateSpin Recon, you can continually optimize ongoing workload performance and perform departmental chargebacks.

Figure 1: Physical hosts can be inventoried by host name, CSV file, Windows domain, IP range, subnet or by using SNMP.



> **Consolidation Planning**

Performing upfront planning and analysis is the best way to ensure successful data center consolidation. A well-conceived consolidation plan not only helps you achieve a healthy ROI, but it also helps to ensure success by mitigating associated risks.

In setting out to create your plan, you need to understand two important concepts:

- First, everyone wants to maximize their return on investment and achieve optimal use of their data center resources. However, keep in mind that effective virtualization is an ongoing process of refinement, not a one-time event. If you view consolidation as a one-time event, you'll often overestimate the capabilities of your infrastructure. The goal should be successful technology adoption (from the perspective of both IT staff and end users) as well as sustainability. When virtualizing non-critical test or development servers, you can be more aggressive than when dealing with business-critical servers.
- Second, think outside the box—beyond servers—to consider your environment and eco-friendly design. While maximizing server utilization is a key consideration, also consider power, cooling and rack space as part of your planning criteria. A green design can save you plenty of green over time.

PlateSpin Recon provides insights into both of these areas.

Tip: Harvest the lowest-hanging fruit through multiple rounds of virtualization.

Figure 2: Collected inventory data is related to the platform on which the workload is running, operating system processes, disk drives, network adapters and installed applications

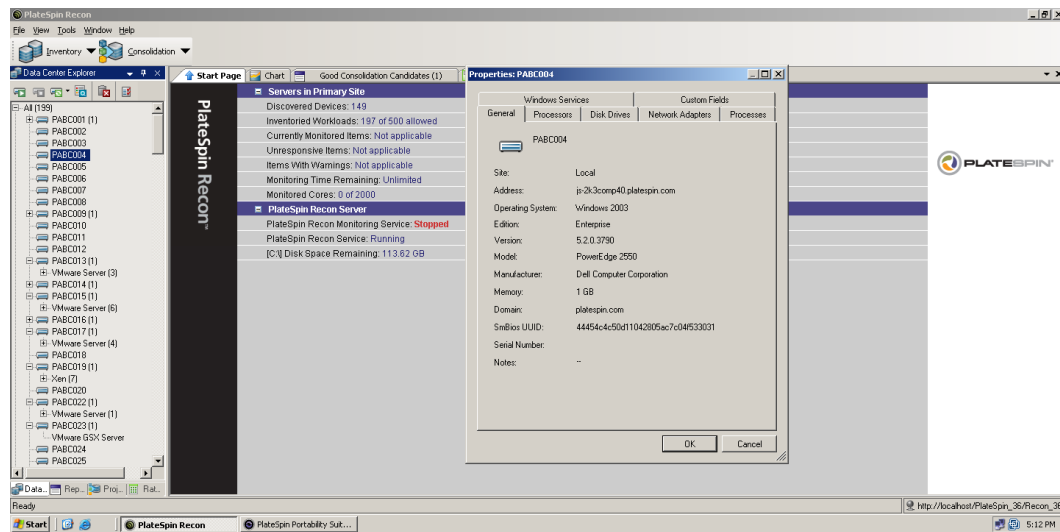
PlateSpin Recon

PlateSpin Recon (formerly PowerRecon) has been around since 2005. Version 3.7, released in mid-October of this year, is a sophisticated workload profiling and analysis solution that provides new levels of intelligence, visual analysis and forecasting for planning and continually optimizing the physical and virtual infrastructure in your data center. Its ability to quickly and accurately collect actual workload inventory and utilization data makes it ideal for virtualization modeling and analysis, capacity planning, ROI consolidation calculation, ongoing performance optimization and departmental chargeback.

> **Preserving Your Environment**

With broad support for Windows, Linux and UNIX, PlateSpin Recon keeps your data center options open. It greatly simplifies multiplatform server consolidation of the following:

- 32- and 64-bit Windows, Linux and NetWare servers, as well as Solaris and AIX servers (Note: PlateSpin Recon 3.7 now gathers inventory and utilization data for AIX, which can be used for consolidation planning.)
- All leading hypervisors: VMware ESX and ESXi, Microsoft Hyper-V, Citrix XenServer and SUSE Linux Enterprise with integrated Xen hypervisor



Getting Started: Creating Your Consolidation Plan Using PlateSpin Recon 3.7

While PlateSpin Recon can be used in many ways, this article focuses on the solution's ability to inventory and monitor your data center resources to improve server utilization. The goal is to create the most efficient plan for consolidating workloads on the fewest number of servers, while maintaining performance and minimizing resource contention.

Although this exercise focuses on creating an initial deployment plan to determine the optimal number of virtualized workloads on your physical server inventory, the same process can be used for ongoing data center optimization. For example, you can use the described process to determine hardware purchase strategies to better allocate your existing virtualized resources or even relocate your data center.

> Step 1: Install PlateSpin Recon

PlateSpin Recon requires the Recon client, Recon server and an SQL database. Recon ships with the open-source PostgreSQL database. However, it is recommended that you use a commercial SQL database such as Microsoft SQL Server 2000 or 2005 for maximum performance.

Installing PlateSpin Recon:

1. Ensure the Recon server has enough disk space for the number of workloads you wish to monitor.
2. Download PlateSpin Recon.exe. (Refer to the e-mail

instructions you received after placing your PlateSpin Recon order.)

3. Double-click PlateSpin Recon.exe. The PlateSpin Recon InstallShield Wizard is displayed.
4. Type a location to save PlateSpin Recon files or browse for a location by clicking the Change button. By default, the PlateSpin Recon files are extracted to a temporary folder.
5. Click Install. PlateSpin Recon files are extracted and saved to the specified location.
6. The PlateSpin Recon Installation Launcher is displayed.

> Step 2: Discover Potential Host Servers

To inventory your physical hosts:

Pull down the Inventory tab.

Select your inventory method. Recon includes standard inventory options, such as individual machines, virtual center, Windows domain, IP range, subnet and SNMP.

Most customers prefer to collect inventory data by IP range, subnet or CSV file.

> Step 3: Monitor Your Environment

Figure 3: Report attributes can be edited by right clicking on the selected report and selecting edit.

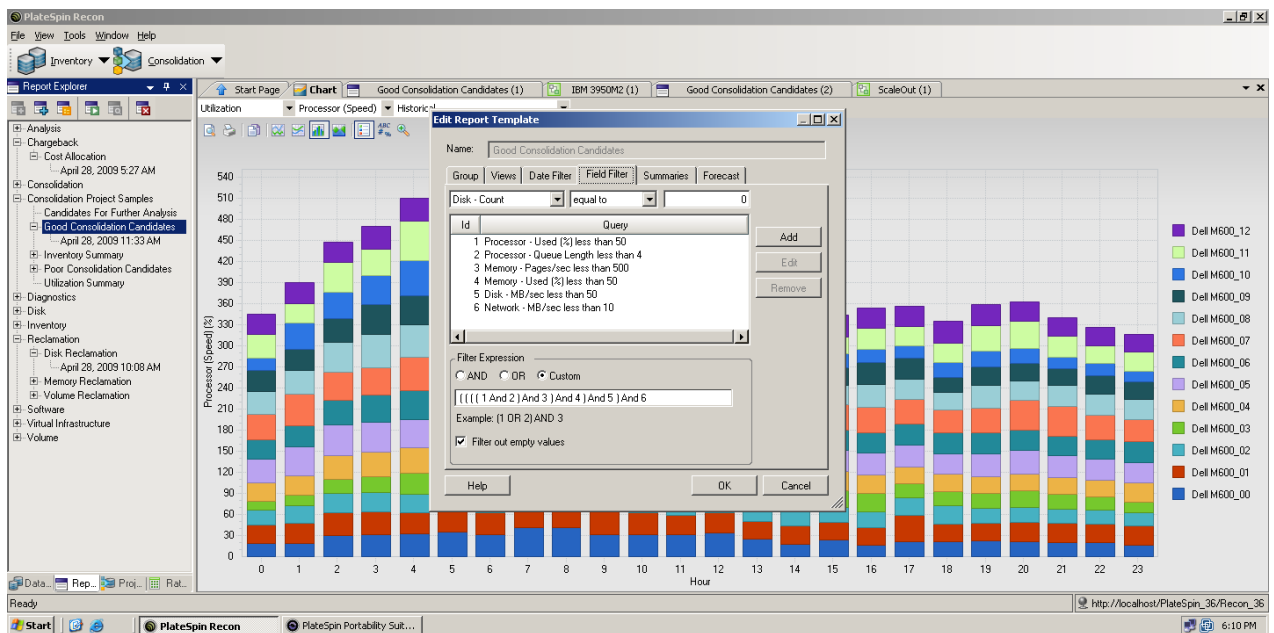
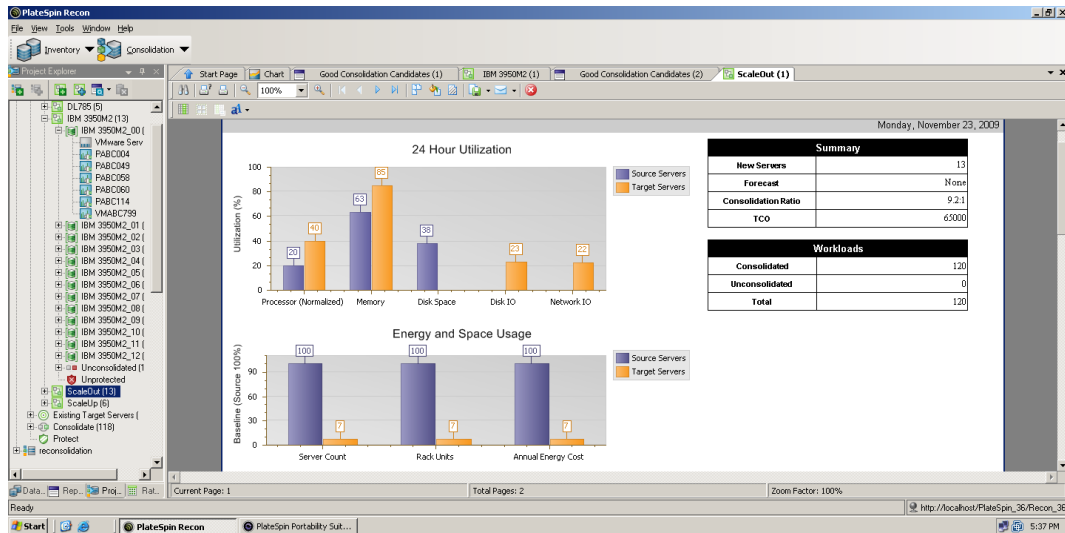


Figure 4: ScaleOut and ScaleUp Scenario reports allow you to determine the most cost-effective hardware systems for running your virtual environment.



There is not much to do during the monitoring step, as PlateSpin Recon performs all the work. To monitor Windows servers, Recon pulls Perfmon data. On Linux and Solaris, the solution runs an efficient shell script to gather performance metrics.

Plan on collecting inventory and performance data for approximately 30 days. Ideally, this time frame should include a significant event, such as end-of-month or end-of-quarter workloads.

Recon collects inventory data for all discovered systems, without requiring agents on those systems. Inventory data includes the platform on which the workload is running, operating system processes, disk drives, network adapters and installed applications. It's possible to monitor all discovered systems, but most

customers prefer to monitor a subset of those systems.

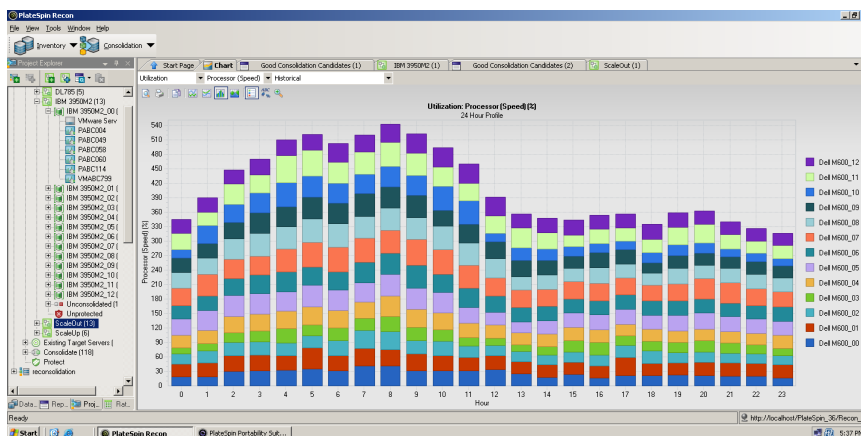
Ongoing monitoring collects performance metrics for disks, memory, processors, I/O and network usage. You can drill down to review system or workload details by simply clicking on each physical or virtual server.

> Step 4: Analyze Planning Reports

Having a holistic view of the operating system, system age and more is helpful for inventory and auditing. But the real value in PlateSpin Recon is the ability to create customizable reports that provide graphical views of actual performance and projected system performance.

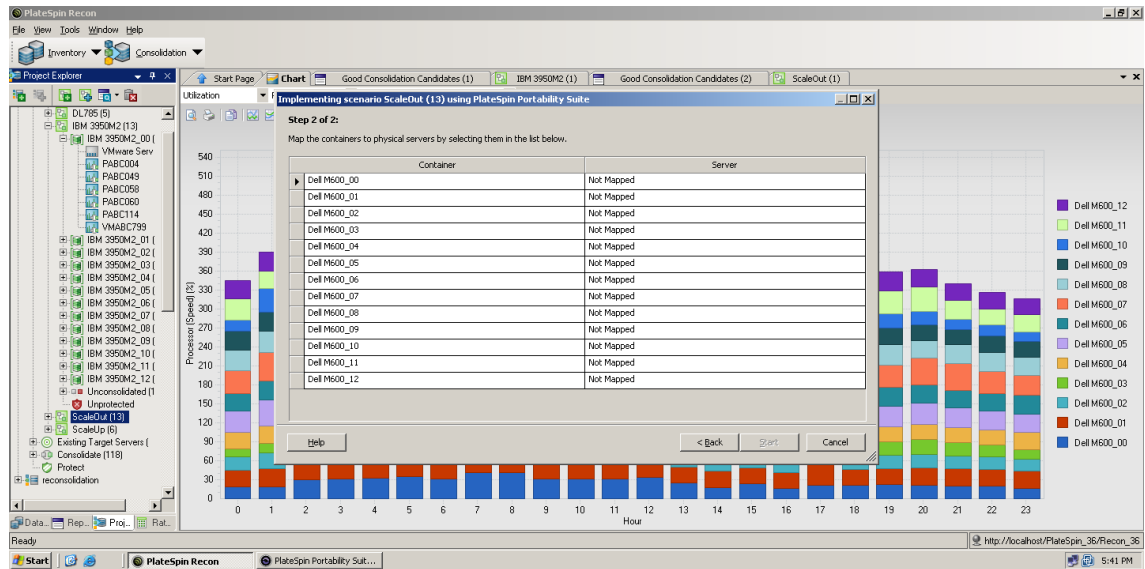
These reports provide an accurate view of the overall usage and peak usage of each server over time, allowing you to determine the best candidate systems for virtual workloads.

Figure 5: PlateSpin Recon can project the 24-hour profile of each type of host being considered.



To plan your consolidation and run what-if analyses, click on the Consolidation Planning module tab in the lower-left of your screen. Here you can define the candidate workloads to be used in the plan, which virtualized platform to be used and the type of hardware under consideration. Recon allows you to set your own minimum and maximum thresholds for performance-metric usage. For example,

Figure 6: Once a scenario is selected, the plan can be easily saved for implementation by exporting it to a PlateSpin Migrate server.



If you are looking to purchase additional hardware, you can build sample scenarios for various hardware platforms. For example, you could build one scenario for HP servers, another one for IBM machines and another for Dell systems—each with specific configuration details.

Note: All PlateSpin Recon graphical report summaries can be easily exported to standard file formats, such as HTML, PDF, Word, CSV, Excel and images.

The Good Consolidation Candidates report determines “underutilized servers,” which can be better used as virtual hosts.

You can view both ScaleOut and ScaleUp scenarios for each platform under consideration. You can also create ad hoc reports for things like projected 24-hour usage profiles of each hardware platform, including specific system resources running various types of virtual machines. This allows you to project system resource bottlenecks such as CPU, memory, disk I/O or network I/O.

PlateSpin Recon also includes standard reports to help build a business case by projecting each scenario’s physical server count, rack space, energy usage, cooling requirements and more.

Once you have decided on a plan, you simply export your preferred scenario into an implementation project for use with PlateSpin Migrate.

Watch for the Next Articles

The second article in this series will show you how PlateSpin Migrate automates the implementation and testing of your consolidation plan. Look for this article in the next *Novell Connection* issue.

For More Information

For additional resources on consolidation planning, check out these tools:

- 5-minute [online demo](#)
- PlateSpin Recon Quick Start Guide