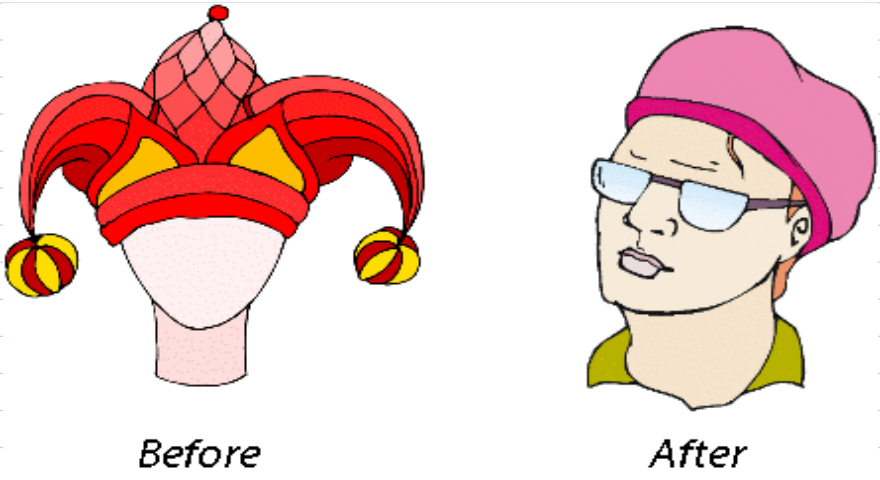
Sun's N1 Remodel

an Analyst Notebook by Gordon Haff

In early 2002, Sun CTO Greg Papadopoulos brought forth N1 amid the wreckage of the Internet economy. It was to be a new way of imagining "the network is the computer," Sun's long-time slogan. In effect, N1 was to transform the datacenter into a sort of higher-level computer controlled by a higher-level operating system—a meta-operating system if one were inclined to wax philosophical. It would abstract or encapsulate switching, computing, and storage elements—and the connections between them. The vision may not have been wholly Sun's, but Sun recast it in its own characteristically bold language and claimed it for its own.

N1's grandiosity was also a major stumbling block—especially in the context of slow and conservative IT spending. Dramatic rethinkings of "green field" computer deployments were out; wringing incremental efficiency improvements out of existing gear was in. And whatever N1's paeans to heterogeneity and supporting already-installed equipment, it was always more about rip and replace than retrofit.[1] As a result, N1 progressed fitfully at best. Various Sun executives associated with N1, such as Steve McKay, quickly departed. And, indeed, Sun even mulled junking the N1 brand that it had been gratuitously slapping onto various management and virtualization products in an attempt to display progress when, in fact, there had been little.

However, with its May 2005 quarterly Network Computing event, Sun has, in effect, relaunched N1. Its ambitions are now much more retrained. And the product that will ship in the near-term is even more so. But, for all that, Sun has done something important. It has reframed N1 into something that's specific, useful, and achievable. It takes the form of two products: Sun N1 Service Provisioning System (SPS) and Sun N1 System Manager.[2]



SPS is a new version of the product that Sun formerly called Sun N1 Grid Service Provisioning System.[3] SPS is the result of one of Sun's more successful management acquisitions of recent years—

1. Sharing a note with HP's Utility Data Center (UDC). The similarities between N1 and UDC—which has since been dismantled, at least as a discrete product—shouldn't be surprising. UDC used technology from Terrapring, a company that Sun later bought to accelerate N1 development. See Illuminata report "Sun Accelerates N1 Development with Terraspring Acquisition" (November 2002).
2. Sun has also been rethinking and rationalizing its overall branding strategy. Sun, Solaris, Java, and SPARC are now Sun's top-level brands, while terms like "N1" are sub-brands.

CenterRun—which gave Sun a working product that could handle tasks such as multi-tier provisioning, configuration comparison, version control and rollback, and role-based access control. Fundamentally, SPS takes a higher-level view of the computing environment than more traditional provisioning products from companies such as Altiris.[4] Thus it's closer to looking at business services than merely bits on a disk. It can perform tasks like checking for differences between two installed application instances or recording every action taken by administrators across applications and managed servers—and thereby rollback to a known state if there's a problem.

The new version 5.0 adds more conventional OS provisioning—basically the same technology as is in the System Manager product, although the two won't fully converge until a future release. This functional overlap eases their mutual integration. Also new are application libraries. SPS can now use these pre-built models to deploy a variety of J2EE application servers, web servers, and databases. It currently supports the Sun Java System Application and Web Server; BEA WebLogic; IBM WebSphere; Oracle Application Server 10g; Oracle9i and Oracle Database 10g; and Windows IIS, COM, and COM+ applications—as well as Solaris Package and Patch and Red Hat Linux RPM files.[5]

By contrast, Sun N1 System Manager is a new product, albeit one based on various prior Sun products—including the Terrapring-based N1 Provisioning Server, the Sun Management Center (SunMC) console still used on SPARC servers, and the Sun Cobalt Control Station.[6]

N1 System Manager provisions, monitors, and manages servers and their operating systems in a similar vein to HP Systems Insight Manager[7] and IBM Director. For example, N1 System Manager can automatically discover "bare metal" systems, allow admins to logically group them, and remotely install operating systems, firmware, software packages, or patches. It then monitors the running systems—both hardware attributes such as temperature and voltage levels and software ones such as swap space and file systems.

The product has an interesting interface twist. The tug of war between graphical user interfaces (GUIs) and command lines is an old one. GUIs can be easy to learn and use, but in production environments, experienced system admins often find that just typing long-ago-learned commands can be quicker than

3. Both N1 SPS and N1 System Manager remain part of the Sun's "N1 Grid System" family of software products together with the high performance computing (HPC)-oriented N1 Grid Engine. Sun *also* refers to its utility computing offering as Sun Grid. However, if Sun doesn't have a tight, consistent definition of grid, it's hardly alone.
4. See Illuminata report "Altiris Beyond Bit-Pushing" (September 2004).
5. RPM is Red Hat's widely used scheme to package together applications and their associated files. RPM's as designed to check that dependencies—such as a particular version of another program or library—are satisfied when installing an application.
6. Cobalt's appliance approach was essentially supplanted by the "soft appliances" that today's provisioning and management products create, but the Cobalt-designed management software continues to contribute. See Illuminata report "The End of Cobalt and the Appliance Era that Never Was" (January 2004).
7. See Illuminata report "HP Systems Insight Manager: One Console to Rule Them All" (April 2005).

digging through multiple menu levels. As a result, even the slickest management GUI almost inevitably has some way to drop down to a text-based view. Sun's approach with N1 System Manager is different from most. It's explicitly a "Hybrid User Interface" that simultaneously displays both a graphical and a text view. Admins can use whichever they prefer, and switch between them in real time. Changes made in one view are immediately reflected in the other. Slick.

Over time, Sun plans to more tightly integrate N1 System Manager with other Sun components. One such component is Sun Management Center (SunMC), its historical platform management tool for SPARC and Solaris. Another is the Sun N2000 Series Secure Application Switch—the layer 4-7 switch that Sun acquired with its purchase of Nauticus Networks. Sun's goal is to make the switch a focal point for routing around failed servers or reprovisioning based on dynamic workload levels. However, this level of integration remains a "future." So is tighter integration with SPS that would allow applications to be viewed in the system manager tool. Heterogeneity is also almost wholly something on the to-do list. Today Sun N1 System Manager supports only a very limited number of platforms: Sun Opteron-based servers running Solaris 8, Solaris 9, or Red Hat Enterprise Linux 3.0. The Sun N1 System Manager also lacks the extensibility—and therefore the ability to easily integrate third-party modules—that HP SIM and, to a lesser degree, IBM Director, exhibit.

This latest reincarnation of N1 may lack the *wow!* factor of the initial N1 visioneering. And today's N1 System Manager may be less complete and less heterogeneous than competing consoles from HP and IBM. That said, it's a competent product with nice flourishes. And, if it isn't heterogeneous, the competition is also more heterogeneous in name and vision than in daily practice.

N1 is finally headed down a practical path. It's been defined and grounded. While somewhat limited in scope and ambitions, that's a necessary tradeoff to make it pragmatic and real. That's progress.