# From OpenView to Open Source

"Open source software is a catalyst that will restructure the industry, producing higher-quality software at lower cost."

**Gartner Research, "Positions 2005: Open Source Solutions Will Restructure the Software Industry", February 23, 2005**

"...If I continue my Tivoli license, I'm looking at about a $1.5 million-a-year contract. I can probably get away with 80 percent of what Tivoli does; we can just develop our own applications to do the other 20 percent."

**IT executive of a multinational biotech company, 2005**

## INTRODUCTION

IT teams have long recognized that an enterprise-class IT management system is absolutely essential, especially given the mission-critical nature of most corporate IT networks. Yet for many years, IT executives resigned themselves to a frustrating reality: In order to fulfill their need for robust IT monitoring and management functionality, they had no alternative but to use a proprietary solution—even though these commercial platforms (such as HP OpenView and IBM Tivoli) have been widely criticized as being expensive, overly complex, and difficult to deploy and manage.

Today that picture is changing rapidly. While the need for an enterprise-class IT management solution is more acute than ever, today's IT teams now have a dramatically expanded set of options to meet this critical need. The change has come in the form of open source IT management solutions, which have rapidly matured to a level of robust functionality and reliability, much like Apache's explosive rise to dominance in web servers. In fact, in an effort to cut costs and simplify their IT management systems, companies like Cingular Wireless, TimeWarner Cable, Siemens, and TicketMaster have already embraced and now rely on open source IT management products. Successful adoption by high profile firms such as these provides concrete evidence that IT teams now have a viable and market-tested open source alternative to closed commercial systems.

IT decision-makers now have an opportunity to avoid the bitter pill of high cost, slow deployment, and complex management which typically comes with the territory in a commercial monitoring system. Instead, companies are transitioning in large numbers to open source IT management systems that deliver comparable functionality combined with greater technical agility, faster deployment, and far more management simplicity—all at a fraction of the cost of proprietary products.

## COMMERCIAL TOOLS COMPLAINT: FUNCTIONALITY OVERKILL

One of the core criticisms associated with proprietary IT management tools is functionality overkill. The four vendors that now collectively control more than 60 percent of the market (BMC, Computer Associates, HP, and IBM) were all designed, first and foremost, for the upper echelon of the Fortune 100. The result, according to many users, is an overload of capabilities and features that the majority of companies do not want or need. Many Global 2000 firms now pay license costs for IT management software that reach seven figures. Deployment and system administration of these proprietary systems is more expensive than that, typically costing five to eight times the initial software licensing fee.

**COMPANIES USING OPEN SOURCE IT MANAGEMENT TOOLS**

- TimeWarner Cable
- Charles River Associates
- Citizens National Bank
- Dairyland Power
- Linksys
- DHL
- Shell
- Cingular Wireless
- Siemens
- TicketMaster

A typical complaint of IT teams using commercial IT management tools is the inherent difficulty in installing and configuring these proprietary systems. Getting a product such as HP OpenView or IBM Tivoli configured and deployed often takes months, even years in many cases. Once the system is installed, the closed nature of the technology and the costly investment in training and consulting result in rigid vendor lock-in scenarios. As every IT veteran knows, configuring and deploying an IT management system is never a one-time effort. Corporate networks are constantly changing in dynamic ways, which forces IT teams to maintain deep expertise in proprietary systems as their networks expand—or hire consultants on a semi-permanent basis.

Another lament concerning commercial tools is that too often they are either over deployed—resulting in burdensome maintenance—or they're under-deployed, resulting in wasteful shelf ware:

**The over-deployment dilemma**

This common scenario occurs when companies succumb to the temptation to turn everything on. Unfortunately, aside from the Fortune 500, most organizations don't require the extra functionality included in proprietary packages. And even if they could utilize all of that functionality, most companies simply don't have the staff to maintain it. This frequently results in poorly tuned alert and notification schemes, which can overload IT managers with false alarms and even alarm storms.

**Under-deployed shelfware**

Under-deployed systems don't produce the same headaches as over-deployed systems. However, the unfortunate reality in this scenario is that companies waste precious budget paying for what amounts to unused shelfware. IT executives facing the frustration of this situation are quick to point out that these are not one-time charges. Companies continue to incur costs on a recurring basis because they are forced to pay annual licensing fees for functionality they don't use.

## OPEN SOURCE: A PROMISE OF GREATER TECHNICAL AGILITY

At the same time that enterprises have been grappling with the shortcomings of proprietary IT management products, open source solutions have evolved rapidly to a more mature state. Like Apache in the web server space, open source IT management solutions are now capable of delivering functionality that is comparable to commercial products, but with the promise of greater technical agility and at a significantly reduced cost.

Open source IT management solutions have three core technical characteristics that users claim make them agile and thus well-suited to the task of monitoring and managing today's heterogeneous IT environments: First, they are standards-based and provide open interfaces; second, they are built on component architectures that are modular and configurable; and third, their source code is transparent and designed to be easily modifiable.

These characteristics give IT staffs—as well as open source vendors and service providers—greater flexibility to design management systems tailored to complex IT environments. This increased flexibility is particularly useful in managing home-grown applications and, increasingly, service oriented architectures (SOAs).

**LEADING OPEN SOURCE IT MANAGEMENT TOOLS**

- **Nagios** (network monitoring, management)
- **JFFNMS** (network monitoring, management)
- **OpenNMS** (network monitoring, management)
- **Big Sister** (network and systems monitoring)
- **Netdisco** (network management)
- **Zabbix** (network monitoring)
- **MRTG** (network traffic monitoring)
- **Ntop** (network traffic analysis)
- **Syslog NG** (log file analysis, consolidation, and filtering)
- **RRDtool** (analytical graphing)
- **Cacti** (network and systems performance graphing)
- **Nmap** (network discovery)
- **NeDi** (network discovery, management, and inventorying)
- **Cfegine** (network configuration)
- **Nessus** (remote security scanning)
- **Snort** (network intrusion detection)
- **Kismet** (wireless network detection, sniffing, and intrusion detection)
- **Webmin** (Unix system administration)

**Managing home-grown applications**

Companies that rely on a custom-built Web application to run their business simply cannot find out-of-the-box monitoring solutions for these applications from the likes of HP, IBM, or BMC. In fact, no matter which management tool used, it will need to be configured to each application's specific operating parameters. For companies running custom applications, the open interfaces and source code inherent in open source tools represent an ideal fit, because they allow companies to custom tailor an open source-based management system that precisely matches their needs.

**Easier integration and manager of managers functionality**

These technical characteristics cited above also make an open source solution well-suited to playing the role of manager of managers. The reality is that most companies already have several different IT management systems in place, each monitoring different aspects of the network at any given moment—one system monitoring application performance, for example, while another focuses on databases and still another manages routers and other network devices.

A growing number of companies have seized the opportunity to deploy an open source solution as their master IT management system, capable of tying disparate monitoring and performance management systems into a single, cohesive whole. By providing a consolidated view across the entire IT infrastructure, this manager of managers approach enables better IT performance and timelier IT decision-making.

At the same time, many users report taking a more traditional approach, simply integrating their open source solution into the network as a peer to an incumbent IT management system. Because they are highly compatible with existing enterprise technologies, open source solutions have proven their ability to mesh tightly with legacy solutions without requiring major infrastructure modifications. This means companies are able to incrementally embrace open source without making any significant (and costly) changes to their environment.

**Collaborative development**

Once installed, open source IT management software has proven highly stable and reliable, in large part because it has been broadly tested and peer-reviewed on a global scale, just like other open source products. Bugs tend to be fixed quickly for two primary reasons: First, the individual user can quickly and easily access the source code to get at the root cause of the problem. Second, a worldwide network of IT professionals regularly submits their fix or enhancement back to the open source project where it is vetted by open source project leaders. If it passes the test, the fix or enhancement (sometimes with modifications) makes its way into the next release. In the commercial software world, bugs may be identified by a product's community of users, but they are slower to be addressed because there is only one company working on fixes.

"...the manageability of open source has become a key consideration for commercial open source investments. Decisions are not made simply on the basis of what is cheaper to acquire, but more so the long-term financial consequences and benefits of ownership."

**Delphi Group, 2004**

The collaborative development dynamic is one of the core tenets of the open source philosophy and movement. In effect, companies are offering up their software enhancements to the open source community free of charge and for general use. Of course, not all companies (or individuals) are as motivated and committed as others to submit and share their work. Nonetheless, a critical mass committed to this collaborative approach is already firmly in place on a global basis, and the momentum and scope of this collective effort continues to grow with time. For companies that have migrated to open source IT management, the concrete results of this collaborative development are easy to measure. Most companies report that when they need add-on functionality—such as a bug fix or specific software enhancement—there is a high probability that this functionality is freely available online via the open source community. Indeed, in many cases the wide array of open source functionality now available surpasses that available in commercial products.

It is important to note that there are no guarantees the functionality needed will be written and available via the open source community. Yet many users claim that even in those situations where they are the first company to develop open source code to address a specific need or problem, they still have the advantage of utilizing an open, standard protocol instead of a proprietary API (application programming interface). Many CIOs argue that this makes good business sense because it enables them to tap into the burgeoning pool of highly talented open source developers versus relying on specialists who possess rare expertise in a closed API. Additionally, it ensures a return on investment from every dollar spent on training an IT team, because every time the team expands its expertise in open source, those skills will remain valuable and applicable over the long term.

## KEY OPEN SOURCE DRIVER: LOWER COST

While the ability to customize for specific IT needs and integrate easily with incumbent management systems sets open source solutions apart from proprietary offerings, the fact remains that lowering costs is the primary driver in the growth of open source IT management. There are several ways in which open source solutions lower both the upfront cost and the long term total cost of ownership of IT monitoring and management:

**Low acquisition cost**
With open source, the core software is essentially free. Customers pay only for enhancements, services, and support.

**Lower deployment costs—because companies only install what they need**
Because open source solutions don't require the installation of unnecessary features, deployments tend to be completed more quickly and easily. Companies save money by paying only for the features they need. Whereas a proprietary solution may run in the six figures and offer 100 different features, a company needing a targeted subset of that functionality can pay just for those requirements.

**Low system administration overhead—because they only manage what they've installed**
Because they are efficient without being burdened by gratuitous features, open source IT management solutions don't require expensive vendor-specific consulting and training. And as today's IT staffs become increasingly savvy about the standard specifications prevalent in open source software, they typically become increasingly self-reliant over time.

"Open source components keep getting better as a virtual cycle of developer downloads, interest, and contribution make them good enough to challenge commercial alternatives—at a vastly lower entry price."

**Open Source Moves Into The Mainstream, Forrester Research, Inc., March 2004**

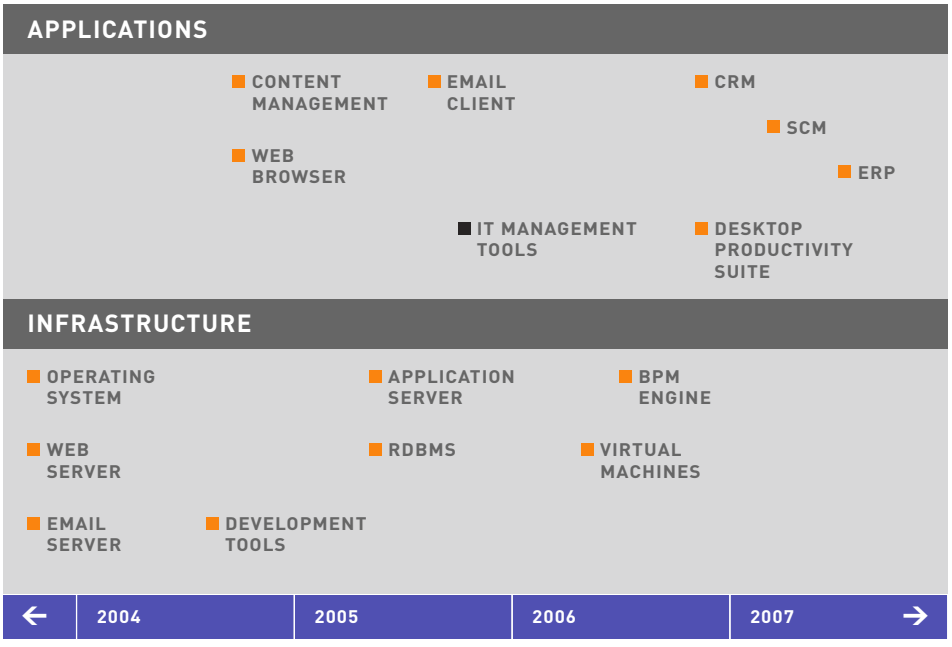
**Low scaling costs**
The typical IT management system, particularly monitoring, requires near constant adjustment as new elements (e.g., applications, servers, and network equipment) are added to the network. Customers of commercial tools quickly realize that as they expand their network, they also need to purchase new management system add-ons (e.g., agents or "SPIs") to manage those new products.

Unfortunately, the cost of those add-ons is often significant. Even more problematic, in many cases those add-on agents or SPIs are not even available. At that point, they can either wait for the vendor or a third party to develop the add-on functionality they need, or invest time and resources to do it in-house by writing code to the vendor's proprietary API.

With an open source solution, these new additions to the network incur no added cost, and more often than not, the add-on functionality is available from the open source community.

**Low hardware costs**
Open source products typically run on inexpensive, industry-standard boxes, further lowering overall costs.

Figure 1: Open source software maturity



## FOR MANY USERS, A SENSE OF URGENCY

As is often the case with a new, emerging open source category, some users have a greater sense of urgency than others to make the move to open source IT management, depending primarily on the business imperatives they face, the nature of their technology infrastructure, and their comfort level with open source.

**Common characteristics of companies moving to open source**

The companies moving aggressively today to open source IT management often exhibit the following similar characteristics:

Table 1: When open source IT management makes sense

| IT situation | The open source proposition |
|---|---|
| **Failed implementation of commercial IT management tool**<br>Implementation never delivered on its promise, took a long time and/or requires too much tool-specific training and expertise. | Open source tools may allow companies to bite off less and deploy a management system incrementally. Open source tools also require expertise, but more likely than not an open source-savvy staff will find it comparatively easy to get up and running quickly. And if they need help, there are a growing number of integrators and enterprise-friendly open source-based IT management providers to help. |
| **Multiple IT management tools**<br>An array of management tools has grown with network expansion, but IT managers lack a single point of visibility across the infrastructure. | As noted above, open source tools' open interfaces and general flexibility make them ideal consolidators of data from a diverse array of management systems. The most advanced open source-based IT management solutions even aggregate this data into sophisticated management-level reports and dashboards. |
| **Mission-critical custom application**<br>A custom-written application, critical to the business, requires a tailored and bulletproof management system. | Highly specialized applications written in-house are typically so important to their organizations that any system configured to manage them will need to be robust and bulletproof. Open source management tools often make a good choice for managing these applications because of their high degree of configurability. Typically, IT staffs that have written mission critical custom applications are fully capable of designing management functionality on top of an open source toolkit. |
| **In-house expertise in open source**<br>Experience with open source in other software categories such as web servers (Apache), database (MySQL, Postgress), or application servers (Tomcat, JBoss) has emboldened IT staff to seek similar benefits in the IT management tools arena. | Prior experience with open source tends to demonstrate not only the flexibility and power of open source code, but it also familiarizes IT staff with the ins and outs of interactions with various open source communities. Not to mention that a positive track record in another open source category can often smooth a project's passage through the management approval process. |

"By 2010, Global 2000 IT organizations will consider open source products in 80 percent of their infrastructure-focused software investments (0.7 probability)."

**Gartner Research, "Positions 2005: Open Source Solutions Will Restructure the Software Industry", February 23, 2005**

## CATALYTIC EVENTS THAT DRIVE CHANGE

Often a significant event—either technical, business, or political—provides the catalyst that compels companies to consider open source IT management solutions.

Some of the most common of these catalytic events are:

**Merger or acquisition**
Looking for a simpler, lower cost approach to monitoring and managing a newly merged IT environment. The flexibility and manager of managers potential of an open source solution are attractive attributes amid the complexity of M&A activity.

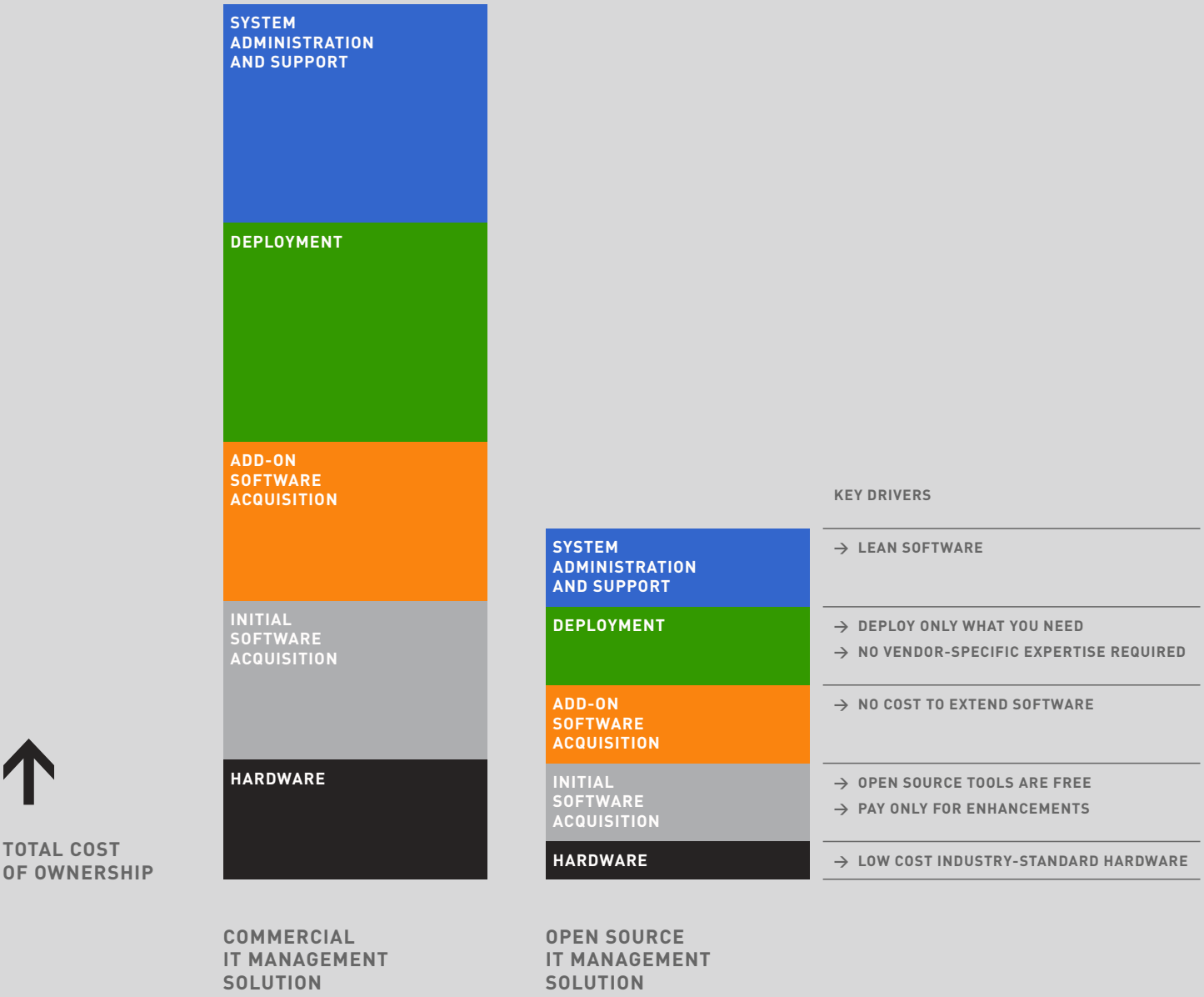
**Facing a corporate mandate to lower IT costs significantly**
Management has determined that the company needs to move aggressively to manage IT assets far more efficiently and pull costs out of IT operations.

**New CIO committed to open source**
A change in IT management brings in new leadership that understands the advantages of open source.

**Subject to an open source mandate**
Required by company policy—or in the case of government, by laws—to include open source products in their software evaluation and selection process either to save cost, or, in the case of some national governments, to reduce reliance on foreign software vendors.

**Experienced a significant crash or failure**
Recently learned the hard way that their existing system is not capable of delivering the price/performance that the vendor initially promised; tends to find the low cost, and high quality of open source very compelling.

Figure 2: IT management solution total cost of ownership—commercial versus open source



## AN EXPANDING ECOSYSTEM OF OPEN SOURCE PLAYERS

There are an abundance of open IT management products gaining traction, including Nagios (660,000 downloads since 2001) for availability monitoring; MRTG (Multi-Router Traffic Grapher) for network device statistics; Nmap for network scanning and discovery; Ntop for network traffic analysis; Syslog NG for log file analysis; and Cacti for SNMP analysis and performance graphing. These products provide strong component functionality for an enterprise-class IT management solution.

For companies that need help either deploying, configuring, or extending open source components—or that simply want a fully integrated, supported solution—there is also a growing number of companies providing packaged open source solutions for IT management, and still more firms offering expertise in integration and consulting services.

## PURSUING THE SAME GOALS

As the market for open source IT management solutions continues to mature, companies will likely move at their own pace to embrace this new category of open source solutions. Some will take a cautious, incremental approach while other companies have already opted for a more aggressive, wholesale switch to an open source IT management system.

While there are clear signs of momentum behind open source IT management, it remains to be seen whether the growing ecosystem of open source IT management vendors can successfully capture significant market share away from the dominant proprietary platforms. Yet one thing is clear: Each enterprise that opts to embrace open source IT management is pursuing the very same goals that every Global 2000 company seeks to achieve: Faster deployment, greater flexibility, and significant reductions in the cost of managing their strategic IT assets.

## ABOUT GROUNDWORK

GroundWork Open Source Solutions, Inc. provides open source-based IT infrastructure management solutions such as network and systems monitoring, service desk management and IT dashboards. GroundWork's solutions enable IT management to leverage the flexibility and low cost of open source tools to achieve enterprise-level availability, performance, and operational efficiency for a fraction of the cost of commercial software.

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