Winning Strategies for Back Office Integration

Here's what a good operations support system should have to wow customers and make providers' lives easier

By Kevin J. McCarthy ■ *IntraMeta*

Every company in America has an operations support system (OSS) – the collection of procedures and resources required to make a sale. Because of their complex, ongoing customer relationships, service providers depend heavily on the efficiency of their OSS. For example, a company with 10,000 employees may have an annual IT budget of $50 million, whereas an ISP with 10,000 subscribers will have a budget closer to $2 million and have to do much of the same work. Additionally, service providers must deal with constant turnover, network attacks, service upgrades, staffing difficulties, technology failures and even the weather.

Every service provider knows the importance of streamlined operations, but time and budgetary constraints often thwart best intentions. The usual mix of off-the-shelf products, custom scripts and manual processing is historically the quickest way to market. Unfortunately, this combination typically results in data inconsistencies, irreplaceable staff (the people who created the systems in the first place), wasted resources, inability to scale and unhappy customers.

IntraMeta developed BOSS to address these issues with a cost-effective, scalable and efficient platform. We're hardly the only company doing this, but our approach will give you an idea about what to look for. Most back-office products perform one job really well, but do not address the bigger picture. Our product is designed to model, orchestrate and monitor entire workflows, end to end.

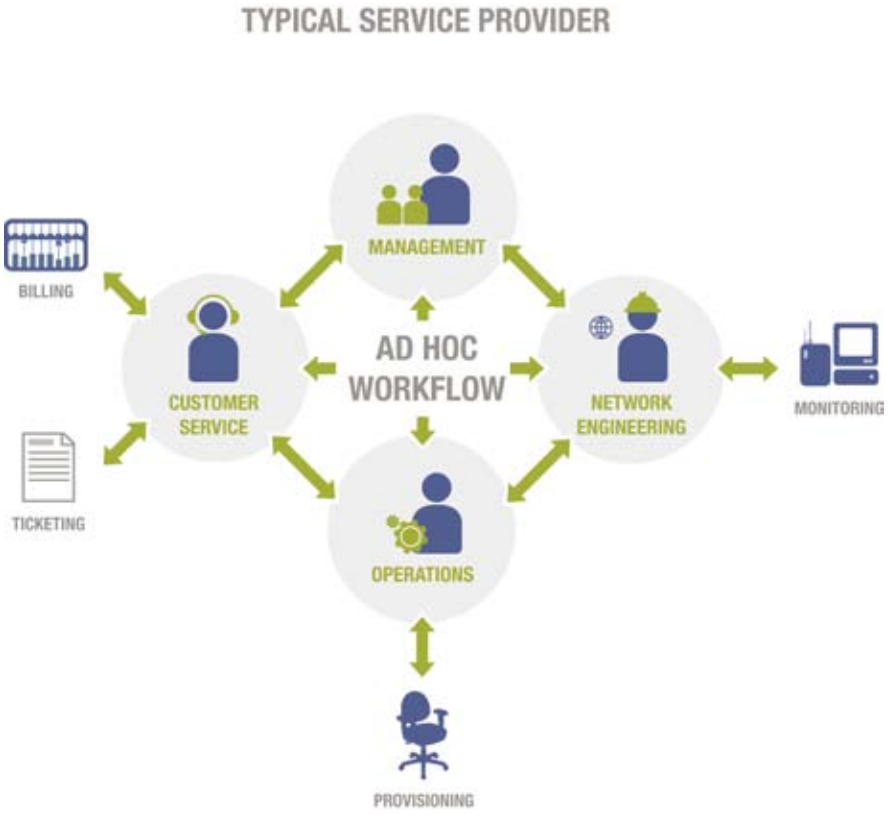

Figure 1. Ad hoc solutions tend to require a great deal of manual entry to coordinate databases.

The key to our solution is a management layer that sits above various OSS components, enabling a single point of view for individuals and other applications.

Flexibility is the key to success. The BOSS product suite contains several components that can be used independently or together. The modular design allows our customers to choose the right solution at the right time. The primary components in BOSS are IP Services, Provisioning Engine, Subscriber Management, Ticketing and Workflow.

IP Services

The success of the Internet can be attributed to its protocols. Protocols are

Figure 2. Integrated systems feed off a common database.

in a sense "contracts" that precisely dictate how a transaction should take place. These contracts allow users to mix and match products from different vendors. There is no room for interpretation (or improvement) because all products must follow the rules.

In a world with fixed protocols, what makes a "good" product better than a "bad" one? The main features to analyze are *provisioning*, *management*, and *performance*.

Provisioning is the process that ensures customers get what they pay for.

A company with 10,000 employees may have an annual IT budget of $50 million, whereas an ISP with 10,000 subscribers will have a budget closer to $2 million and have to do much of the same work.

Most broadband subscribers require many IP services: e-mail, Web hosting, IP address management, domain name services, authentication and file access, to name a few. With so many services, and so many customers joining and leaving each month, the ability to turn these services on and off becomes a primary concern.

Many open-source products do a wonderful job of adhering to the Internet protocol, but require highly trained staff and continuous attention to operate correctly. Each time a customer is added, several configuration files may need to be changed by hand and services may have to be restarted. Some cable operators require router log-ins in order to add and remove modems. In addition to the time and money, manual provisioning is far less secure and far more susceptible to human error.

Management gives operators visibility into the health of their services. For many products, the definition of visibility is a cryptic log file. These files are difficult to understand, contain limited information, and are automatically deleted after a short time. Having full visibility enables better troubleshooting, better performance, and the ability to spot problems before the customer can. In addition, accurate historical information may be required by law enforcement.

Performance is a broad term that encompasses the overall user experience. Customers have come to expect services that are always on and always fast. Entry-level software products often run very well when they are not heavily loaded, but quickly sag when subscriber counts increase. Of greater concern is the possibility of an outright service failure. Well-configured servers have features that reduce the likelihood of machine failure, but the best IP services are installed in clusters that perform well even if some machines are down.

BOSS has addressed these concerns. We provide a complete line of IP services designed around automated provisioning, fully exposed management functions, and heavy-duty performance. Most of our IP products have the option of being installed on site or being

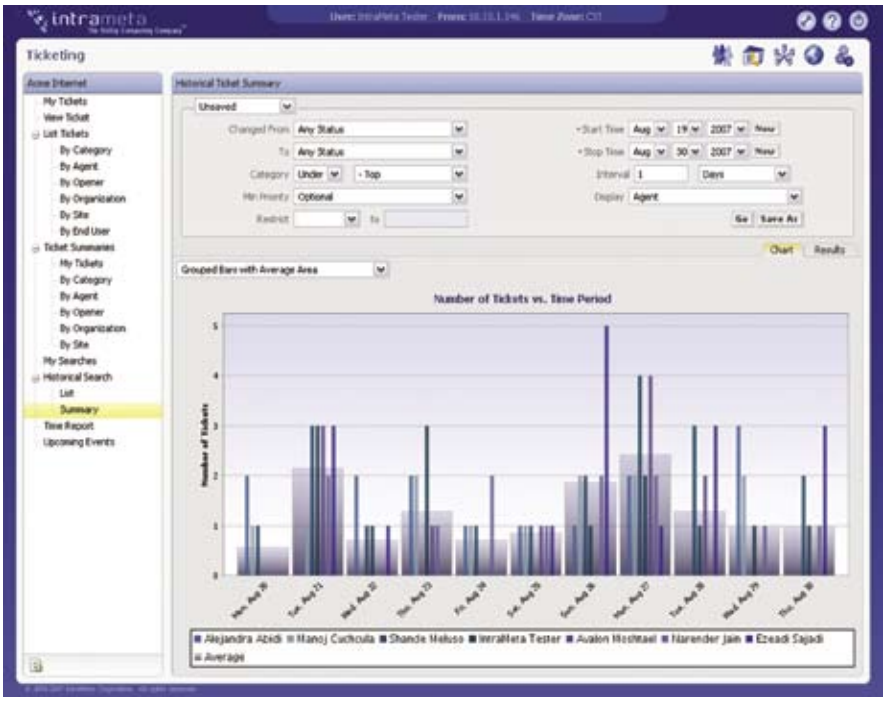

Figure 3. Functionality such as historical recordkeeping can help detect trouble patterns – and satisfy law enforcement demands.

delivered as managed services from our data centers. Either way, our customers can choose any number of services and pay only for the actual usage.

Provisioning Engine

The provisioning process is an exercise in communication. Marketing, customer service, network engineering, and the customer all must agree on what services should be rendered. Some companies run very well as one-size-fits-all, but more and more providers are pushing for the greatest possible revenue per user. Media services such as voice and video are much more attractive with personalized plans. As online resources such as gaming, telemedicine, software-as-a-service, security monitoring, and video streaming become more prominent, service plans and activation routines will only become more complicated.

Our approach to provisioning begins with establishing common terms. BOSS provides a service catalog to capture all the features that will be sold to customers. This is the point where all interested parties must agree on what exactly is being sold.

The service catalog comes preloaded with all the standard features for triple play services. We also provide full models that include account setup, monthly usage, and performance monitoring for all the major IP services. Using a driver layer, we can write plug-ins for third-party products that allow them to be used directly by BOSS. For example, when it comes to e-mail hosting, a customer can either license our mail server to run at its facility, pay for our hosted e-mail service, or develop a plug-in to its existing mail product. All of our features (user interfaces, provisioning engine, self-help portal, reports, etc.) would run exactly the same way, no matter which choices the user selects.

In addition to the basic services, we have full models for VoIP and IPTV. The primary advantage to using neutral models is vendor agnosticism. It becomes simple to mix and match products or seamlessly scale or migrate services.

Another key benefit of our provisioning engine is the capability to define new services in the product catalog. As those features are added to a user's plan, our platform collects all the necessary information and makes it available to a script. This script can complete the request by accessing remote databases, Web services, directories or managed devices, or by simply opening a ticket.

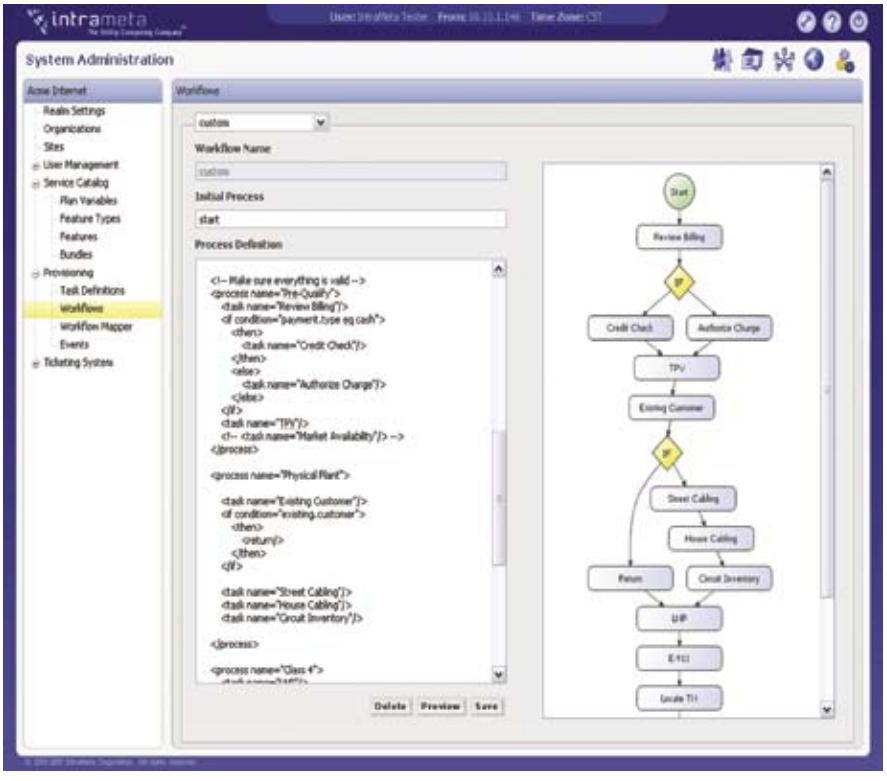

Figure 4. Workflow modeling.

Protocols exist to create the ability to mix and match products from different vendors. In essence, there is no room for interpretation (or improvement) because all products must follow the rules. If this is the case, what makes a "good" product better than a "bad" one?

Subscriber Management

For service providers, every customer is an ongoing relationship. BOSS provides a complete subscriber management section to tie all the pieces together into a single, customer-centric view. The administrative interface allows customer service representatives to quickly locate user accounts. Once an account is selected, all its facets are immediately available.

In addition to customer service views, BOSS includes customizable Self Help and Sign-Up portals. These Web applications enable end users to manage all aspects of their accounts, including service plan, trouble tickets, subaccounts and Web mail. These applications are fully customizable to reflect the brand of the service provider.

Our security system models realms, organizations, sites and users. Realms are our direct customers. Realms can create any number of organizations, which may be corporate accounts, property owners, partners and so forth. Sites are physical service locations that may be tied to an organization. Users belong to a site. This organizational structure allows stakeholders to see the information related to them but nothing more.

Ticketing System

Ticketing systems are the quintessential tool for customer service. However, a well-designed ticketing system can quickly become the main hub for *all* workforce management. Internally, we use our ticketing system for everything: customer service, lead tracking, office management and product development.

The BOSS ticketing system is the liaison between end users, customer service, network management, provisioning and workflows. The bulk of operating expenses for most companies is payroll, and it is the job of the ticketing system to make sure that most valuable resource is fully used.

The key feature of the ticketing product is flexibility. All tickets are organized into categories. Each category has its own custom fields, policies, and talent pools. The entire system is designed to be customized by the service provider without any changes to the underlying software. Each ticket collects all the essential information without the process itself becoming a burden.

The system uses e-mail extensively for both inbound and outbound communication. Configurable notification and escalation policies make sure that all the right people are in the loop. Our flexible access model allows limited access to end users and property owners.

Historical trends, summary reports, and time tracking features give managers the essential information from which they can act. The ticketing system is the glue that ties together people and technology, and it is well worth the time to configure it properly.

Workflow

Because provisioning can be quite complicated, BOSS includes workflow management. A workflow defines a common business activity as a series of tasks. For instance, each time a new customer signs up, several things need to happen. If the customer is paying cash, a credit check is required. If the customer is paying by credit card, a pre-authorization must be done. Certain tasks may be fast (like address verification), and other tasks may take days (like site surveys). Some tasks depend on previous tasks, and others can be done simultaneously. The workflow engine allows operators to model these business rules and provides constant oversight as these business events are carried out.

The basic unit of work is a task. Any given task should be simple, with well-defined starting information and end result. Tasks may be automated or manual. The primary advantage of breaking a workflow into tasks is that scaling becomes much easier. Instead of training employees in an entire process, it is possible to start them with simple tasks. It allows the adoption of an assembly-line approach, where people only need to know their part of the process. It enables a seamless mix of automation and manual processing, and allows many steps to be done in parallel. In terms of workforce efficiency, workflow management should be high on the priority list.

Workflow systems are a key missing element for smaller operators. Most small companies simply can't afford a workflow system. Most companies suffer from inconsistent databases as a result of manual provisioning. The workflow engine solves this problem by making sure processes are fully executed or fully undone. The system is able to handle workflows that may occur over days, weeks, or months. All steps along the way are recorded to make sure progress is tracked even if the machine is rebooted. Each task can be attempted several times in case remote systems are temporarily unavailable.

In the event a task can't be completed automatically, the workflow engine will open a ticket. If the ticket can be resolved manually, the workflow will progress as usual. If the staff member detects an irrecoverable error, the entire process can be run in reverse to put everything back the way it was. **BBP**

About the Author

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