



**The Eastern Management Group**  
One Crossroads Drive  
Bedminster – NJ – 07921  
T: (908) 306-8800  
F: (908) 306-9595  
[www.easternmanagement.com](http://www.easternmanagement.com)

## Cable and Telecommunications Carrier OSS

**By Chris Talbott, Director  
The Eastern Management Group**

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### Managing Costs While Building Growth Engines

Cable and telecommunications managers face a challenge. Capital expenditures and operating expenditures both need to decline. But considering that some of the more promising opportunities for reducing operating costs require newer OSSs, the OSS manager faces a conundrum. How do you reduce op ex without losing control of cap ex?

How can these conflicting goals be reconciled? How do you live between a rock and a hard place? At The Eastern Management Group, a management and IT consulting firm that focuses exclusively on the converging world of communications businesses, we are in constant conversation with both cable and telecom service providers and the OSS vendors that supply them. Recent work has revealed the subset of the OSS value chain that advances the cause of cost consciousness and the need to prepare for the next phase of economic growth.

Based on what you read here, you may test your firm's current approach to this issue and find you're already on the right path. Or you may discover that either more or less investment in OSS—or just different kinds of investment—is warranted.

## **OSS MANAGEMENT**

OSSs are so vital to a service provider's health that it has some immunity to any across-the-board budget trimming.

However, in today's environment, all costs must be reduced. It makes no sense to build the best OSS in the world for a company that no longer exists once the system is complete. Understanding this, the astute OSS manager searches for projects that can pay back investments quickly.

These days, the business case for an OSS investment almost always includes cost savings through reducing headcount. Achieving flow-through, the ultimate goal of OSS development, is so attractive because it reduces both errors and the number of people required. For example, we estimate that an RBOC could reduce headcount by 1—1.5 employees for every \$1 million in revenue.

In the current service-provider economy, however, even these sorts of strategies may not produce results quickly enough. Some types of systems—for example, provisioning—can take well over a single annual budget cycle to integrate and bring into production. Even then, they're so vital to the business that the force reductions they promise aren't likely to take place until after the new system is in, thoroughly tested, and found to be highly reliable for some time. In union environments, the force adjustment process may be even longer. Altogether, the time to acceptable ROI may be more than today's fragile balance sheets can bear.

OSS managers must also weigh the risks of any large IT project. Cost overruns of

100% and more are common, and completely failed projects are frequent. No one can afford expensive mistakes these days.

Add to the risk equation that spinouts, consolidation and strategy shifts are rampant at OSS vendors, as they too cope with the harsh economic climate.

Many companies are in the position of having an old car that's costing them a fortune to repair, but not being able to afford a new car right now.

## **TELECOMMUNICATIONS OSS**

These companies would like to get greater return on assets through new services, but that requires OSS upgrades, and the new management processes that go with them. Today's value-added services in the voice world, for example, while not bringing in the bulk of the revenue, constitute 80% of the profits. But these premium margins are fading rapidly. With growing numbers of users opting to replace their landlines with wireless service (which comes with many of those premiums for free), or even with cable telephony, the junkyard looms for current business models. Investments in broadband, IP services, and 3G will all require bigger OSS engines.

In the case of VoIP, for example, the enterprise is now convinced that it can be a cost-saving strategy. Enterprise customers are pressuring large service providers to converge their internal networks for them, hence announcements from AT&T and others to "add VoIP" to existing ATM and Frame Relay nets. The providers themselves can now see clearly that

while they won't rip out their TDM networks next week, it makes economic sense to build future capacity on IP to flexibly absorb demand for either data or voice. Supporting these converged networks, including making them platforms for IP service creation, bandwidth-hungry entertainment content, and so on, clearly will require significant OSS investment.

### **CABLE OSS**

The same is especially true for cable operators, who are accelerating the addition of high-speed data, cable telephony and Video on Demand to their current model. They've been tooling around on the side roads. But now that they're getting ready to take it out onto the highway, they realize their OSSs don't have the horsepower. For example, the number of broadband CPE devices they manage will increase by five times in the next 4 years.

The allure of future highway is strong. Look at voice over cable as just one example. Cox and AT&T have circuit-switched overlay voice networks in production now. The rest of the cable industry is ready for pure VoIP rollouts.

The demand case is strong, even based on the circuit-switched overlay experience, where costs are theoretically higher than the yet to be tested pure-VoIP model. Cox and AT&T have rolled out cable telephony to 35% and 28% of their footprints, respectively. By discounting RBOC prices by 10-20%, they have achieved 30-40% penetration in early markets. The average revenue per user (ARPU) is about \$50 a month,

and they have 50% second-line penetration<sup>1</sup>.

Cox's EBITDA margin was 20% in 2001, and growing. In older markets, the margin is 50% now.<sup>2</sup>

The other big news from the cable-telephony highway: Bundles work. Cox says 89% of their telephony subscribers also get video and/or high-speed data. Churn can be reduced by half. It's at 1.7% per month for those with video only, but drops to 0.8% for those with voice, video and data from the cable company. AT&T reports telephony bundles reduce churn 10%—20%.<sup>3</sup>

While the cable guys are testing their voice engines for the upcoming convergence race, the telecom service providers realize they have little in the way of experience or systems to handle the delivery of entertainment content or value-added services for their growing broadband clientele. To ramp that up quickly enough, they'll need to get ready for content and services partnering. With the price of bandwidth in what seems like a permanent skid, they also have to focus on becoming an IP service-development platform for enterprise customers. All of this requires the latest model OSS.

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<sup>1</sup> *Cable Signals: The Golden Era Faces a Crisis of Confidence*, Deutsche Bank, April 1, 2002.

<sup>2</sup> Ibid.

<sup>3</sup> Ibid.

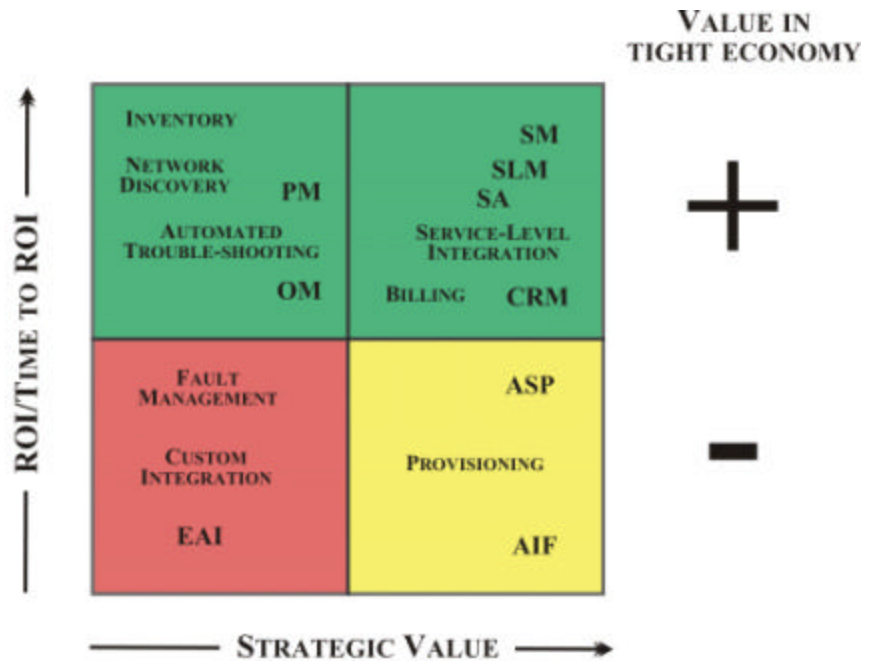
And both telecom and cable service providers need OSSs for the inevitable consolidation, acquisition, and partnering that will be the service-provider experience over the next several years. But even as the crunching begins, the OSS managers need to start building platforms *today* for the service offerings that they plan to roll out 18-24 months from now.

“second but equal” emphasis in the current climate.

The strategies service providers choose will naturally depend on the OSS capabilities they currently have. For example, if you have a staff experienced in maintaining mainframe-based legacy systems, it may be more cost effective to extend the life of those systems.

### OSS VALUE MODEL

The two colliding factors—cost savings and new-services support—actually suggest the structure of the solution to the service providers’ dilemma: Use different models for different parts of the OSS stack. We can borrow a concept first developed at the end of the era of conglomerates, in the 1970s, when freshly minted MBAs were trying to help ITT, GE and others decide how to pare down large collections of unrelated businesses. How industry leaders are making OSS investment decisions can be mapped as follows, with ROI/time-to-ROI on the vertical axis, and strategic value—preparing for growth-engine services such as broadband, wireless data, and IP services—on the horizontal axis. Thus, Service Management and Service-Level Management, with both rapid ROI and support for strategic services, get top priority. Inventory, which promises rapid returns by uncovering unused assets, but has no direct link with specific strategic services (it supports all services), gets



### OSS DECISION MAKING

Since service providers vary in the OSS areas they’ve invested in so far, the best strategy varies with service provider, depending on what those areas are. However, in talking with service providers and OSS vendors in both telecom and cable, we hear similar stories.

Leaders are investing to solidify their advantages. They’re spending to improve efficiency and asset utilization. ROI is still a factor, but the understanding of it has broadened. The

question is not simply “What’s the time to ROI?” but “Is the OSS investment tied to our strategic direction, and is it linked with a realistic set of business processes?” Then, if the system is deemed strategic, leading service providers leverage their market power with OSS vendors to fit the cost into their ROI and budget needs.

There’s an ongoing debate about whether differentiation comes from OSS—as in the fabled MCI Friends and Family campaign—or from services developed on top of a flexible, industry-standard OSS. Some knowledgeable observers say it may be impossible to deploy a custom OSS fast enough. Will the market window still be open when you’re done? Hence the growing trend toward industry standards and open systems.

The next question is, will the other parts of the business process be able to catch up with the improvements provided by a new or upgraded OSS?

In one case with which we’re familiar, the service provider OSS manager was asked to reduce provisioning time by automating one part of the process. He succeeding in doing that, reducing the time to check inventory and enter a valid order from several days to 30 seconds. The manual installation part of the process still took eight days, however, so from the customers’ point of view, and in terms of time to ROI, little was accomplished. Examining the entire business process can give you valuable insights into which projects are vital and which should wait for other parts of the business to be ready for them.

Another theme we see is the growing need for managing across multiple

infrastructures at the service level as opposed to the network level. Investing in OSS solutions that don’t allow this is clearly a short-term measure. This is especially true as bundling is beginning to show value in the market, and the battle shifts to becoming the consumer’s prime integrated content and communications provider.

One of the more compelling responses to the current capital environment we’ve come across is also the most simple: Eliminate annual OSS budgets; use pure per-project ROI business cases. In some organizations, this has simply arisen from the de facto reality and then become the established policy. One OSS vendor we work with sees this at “more than half” the companies he deals with.

As we illustrated with our matrix, above, ultimately, it comes down to focusing on the functions and applications with either short-term incremental revenue or a combination of that and long-term revenue generation. We’ll look at the telecom service providers and the cable companies separately.

## **THE TELECOMMUNICATIONS CARRIER OSS FOCUS**

OSS component areas with the greatest attraction are, naturally, the ones in the upper right quadrant of our matrix, the intersection of rapid return on investment and support for strategic services. In our experience, these are the OSS applications and component types in which the projects are proceeding despite the current environment:

### **SERVICE ASSURANCE**

Service assurance (SA), a \$3 billion market, is predicted to grow to \$5.3

billion in 2004. Although data services is a driver in the near term, the attraction of this tool is its broad application to growth-engine services. Heterogeneous networks due to consolidation, growing intercarrier networks, and combinations of IP and TDM networks require tools that encompass them all. Service assurance also shares benefits with Service Level Management (SLM), which we will discuss below, and both address the issue of managing service levels across multiple hardware infrastructures.

#### SERVICE LEVEL MANAGEMENT

The market for Service Level Management (SLM) will grow to \$4B 2004. SLM's primary function is to enable Service Level Agreements. As with service assurance, the growing reality of multi-service, multi-vendor networks creates the need for an overarching tool to monitor the situation from the customer's point of view. The competitive environment demands more and more stringent service-level agreements. However, providers have come to realize that SLAs have other benefits. They help quantify capacity needs, and bring greater understanding of customer requirements.

In addition to this, SLM is relatively easy to cost-justify in the short run, because it offers short-term savings by providing visibility into networks. Areas of previously invisible overcapacity as well as capacity bottlenecks come to light. The need to over-provision—with scarce capital—is reduced.

Add to this a reasonable getting-started price (SLM can be introduced for as little as \$250,000, with the ability to scale later), plus long-term savings through the ability to justify premium services with higher margins, and you

have the kind of investment a CFO can love.

#### PERFORMANCE MANAGEMENT

Performance Management holds similar appeal, since it too tends to uncover immediate opportunities to fine-tune the efficiency of networks, identifying areas with too much or not enough capacity or equipment, thus avoiding unnecessary capital expense. It is, of course, more directed toward the overall network rather than the point of view of individual services or customers, although it supplements those efforts.

#### CRM

Automation of Customer Care/CRM remains a fertile field for cost savings. A large ILEC has between 40,000 and 60,000 customer services staff. Although it has a longer time-to-ROI than SLM, for example, the opportunities for savings in Customer Relationship Management (CRM) are straightforward enough. Given the cost of customer acquisition, investing in CRM makes perfect sense. CRM remains a high spending priority for service providers. By the same token, CRM-related technologies such as speech recognition, automated call handling and web self-service are favorite areas for those with at least some capital to invest.

#### BILLING

Similar to provisioning (see below), billing projects have the potential to be large scale, multi-year endeavors. In that form, they're being eschewed. But targeted projects that enable new services or fix revenue leaks are going ahead.

#### INVENTORY MANAGEMENT

Telecom's hyper-growth in recent years has had effects even beyond the carnage on Wall Street and unemployment lines: outdated information about network assets, including what some describe as a complete loss of control of the area of inventory management. During a time when buying new equipment may be out of the question, it's not surprising that network managers are eager to rummage through the attic *and* the basement to see what they really have.

Given the size of the attics and basements involved, the inventory focus is on automated discovery and reconciliation. This supports the "sweat the assets" strategy understandably popular these days. For the same reasons, NETWORK DISCOVERY is currently popular for data networks.

#### AUTOMATED PROVISIONING/SERVICE ACTIVATION

Large-scale end-to-end projects involving the provisioning process seem to be on hold for now in the telecom world, because of their complexity and longer time to ROI. However, where there are gaps in automating the activation of new customers—notably for relatively new services such as xDSL—service providers are now looking to rationalize their processes following a period of rapid growth. While completely redesigning a provisioning process to maximize flow-through may be a daunting proposition, replacing a manual process with even a basic system can yield relatively quick headcount savings and improve time to revenue.

#### CABLE OSS FOCUS

A seminal event in the cable industry was the demise of @Home, since many major firms relied on that company for their backbone network, content, and in some cases customer service functions. Ironically, the net effect was to accelerate trends that will end up saving the operators money, since the amount they spend on those functions could be reduced from 35% of access revenue to as little as 20% as a result of taking these functions in-house<sup>4</sup>.

Consolidation over the past five years has continued the industry's historical evolution from community-based cooperative antennae to globe-straddling corporations. In the U.S., about 40 cable companies had 75% of the market five years ago; today six firms control roughly the same amount. Calculating the Comcast/AT&T Broadband deal, just three firms control 65% of the market. Achieving company-wide scale efficiencies in the wake of this will be a years-long process.

To keep themselves going in the meanwhile, cable companies are focusing first on completing the take over of order management from @Home. Next, they're tackling the automation of manual systems for fulfillment, to catch up with the rapid growth they've experienced in digital video, high-speed data (HSD), and—in the cases of AT&T Broadband and Cox—cable telephony. This includes achieving service assurance across their organizations, and the ability to monitor all elements of the growing broadband architecture: cable modems, CMTS (the

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<sup>4</sup> Op. cit.

cable equivalent of the DSLAM), DHCP/DNS servers, PSTN gateways, and so on.

Now that the “triple threat”—video/VOD, HSD, and telephony—has become technically and economically feasible, the cable folks are talking about truly going head to head with the ILECs. To do that, they must leverage service activation, billing, and service assurance, plus best-practices processes, across what are now three separate architectures. This means work-force management, element management, and the rest of the network-management layer as well.

They must also cope with the OSS implications of Open Access, achieving the same ability to pass information among partners that traditional telecoms have just begun to get a handle on.

In many ways the cable MSOs are where the RBOCs were in 1993 or 1994. In the current environment, the focus is shifting from capex to opex, as traditionally seat-of-the-pants cable managers work to standardize business processes across their growing empires. Cable firms have made only about half the investment they’ll ultimately need in OSS. Given the magnitude of their operations and the scope of services they plan to offer, this may well be conservative.

CableLabs, the industry’s R&D and standards consortium, has begun the effort of setting standards for back-office infrastructure, as it has successfully done for cable broadband equipment and network architectures, but that’s an ambitious effort.

While some cable firms don’t have the wherewithal to spend on OSS at all right now, there are a number who do. Many of those are investing to fill the @Home gap and automate manual processes that have gotten out of control during the rapid growth of digital cable, HSD, and (for some) cable telephony. This includes reducing the installer’s time on site by 10 to 25% through increased sophistication of automatic configuration (the cable modem calls home to the network). This not only effectively reduces headcount needs at the Network Operations Center and the cable head-end, it increases the velocity of new revenue.

Other MSOs are spending on workforce management to reduce the number of people needed to handle growth, as well as increasing velocity in the business, reducing churn and repeat truck rolls.

Cable OSS and equipment firms have, like their telecom brethren, come to realize that they must adapt their payment terms to the needs of service providers. This means, in essence, allowing them to convert what would have traditionally been capex into opex, offering their wares as a service on a pay-as-you-go basis, or at least breaking their offerings into modules that can fit neatly into a quarterly budget cycle. (It should be noted that the practice of capitalizing software license costs that is prevalent in telecom has not been as common in the cable world.)

Like their telecom counterparts, the cable firms are seeing exponential increases in the number of devices they must manage, making inventory applications very appealing.

Sales cycles have lengthened for all vendors, as due diligence now takes months. Service providers routinely pit vendor against vendor, as well as vendor against “roll your own” solutions.

### **OSS RETURN ON INVESTMENT**

While most firms have seen enough light at the end of the economic tunnel to start planning for life after recession, there’s still enough gloom in telecom that getting a quick payback is the first order of business.

Smaller firms (Tier 2/3) need the fastest ROI; for them, it’s a survival issue. For inventory and other apps that can staunch revenue leakage, ROI can be as short as weeks. Service Level Management and Performance Management might take one to four months to begin to show returns.

In addition to using fast-ROI apps, larger firms can take a relatively longer view in some cases. But even for them, time to ROI has decreased from two years to less than a year, at the outside. The focus is on shorter time frames, Total Cost of Ownership (TCO), and easy integration—nothing that requires wholesale changes in a provider’s OSS. Today, even more than before, you must have packaged adapters for the other major OSS components, open APIs, and professional services teams (either your own or a systems integrator’s) with an excellent track record of getting things done quickly and right the first time.

Despite the tactical nature of many cost-saving approaches, there are strategic angles to play as well. Another cost-related stricture takes the form of moving away from EAI and custom-

integration solutions. Providers are realizing that solutions that address just the plumbing of integration, but don’t allow Service-Level Integration, are not working in the current environment. Applications not only need to exchange data, they need to understand what the data means. Investing now in a solution that doesn’t address service-level integration could mean wasted investment later on.

One trend is converting some capex to opex. In telecom, this is taking an interesting twist. While the ASP trend of a few years ago seems to have died back, at least for a time, the current cost-constrained phase has peaked service-provider interest in something quite similar, under the name “hosted services.” Rather than committing to a multi-year project, providers are more comfortable these days getting the same functionality as a service.

Although this looks suspiciously like the ASP model that never quite made it past security and other concerns, there’s an important difference. Hosted-services providers are hosting only their own applications—not anyone else’s. This business model allows them to offer providers what they need at a price that fits snugly into the quarterly budget. They can do this because, unlike a third-party ASP model, their margins have room in them that a third party would need to survive as a standalone business.

### **AREAS SEEING LESS FOCUS**

#### **FAULT MANAGEMENT**

Fault management is not seeing a lot of new business, according to those with whom we spoke, because it’s mature at

most large service providers—they've bought all they need.

#### PROVISIONING

As noted, provisioning is also on the back burner for now (at the telecoms, versus the cable co's), because both the implementation and the payback in terms of headcount reduction take too long for the taste of the CFO.

Some service providers have invested heavily in their own development organizations, even making them separate P&Ls with outside customers. These firms may find it easier to bring more development work inside, extending development times for some projects in order to handle the work. Long-term, the trend seems to be toward outsourcing most software development, including OSS. There are exceptions, but most feel that sharing the cost of development, and moving to industry standards, represent the way to go. In the short term, however, maintaining the status quo of a successful in-house approach may conserve capital.

*Arrian Shafqat, Senior Analyst at The Eastern Management Group, provided research for this article.*

Chris Talbott is a director with The Eastern Management Group, where he covers OSS, converged networks, PBX, and public policy issues. He can be reached at [ctalbott@easternmanagement.com](mailto:ctalbott@easternmanagement.com) or (908) 306-8800.

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Bedminster, NJ 07921

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