White Paper

Preparing the OSS Back Office for New SMB Services & Bundles

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TABLE OF CONTENTS

LIST OF FIGURES

I. Introduction: Tackling the SMB Market

For the past several years, increasing numbers of cable operators have hungrily bit into the huge, appetizing market for commercial telecom services. And for good reason. Despite the Great Recession, the commercial telecom market continues to grow at a remarkable clip. In fact, the latest estimates are that U.S. companies now spend upwards of $140 billion a year on voice, data, video and related services.

Despite their relatively small size, small-to-medium-sized businesses (SMBs) make up the bulk of the commercial telecom market and account for a large chunk of this spending. Estimates are that these small (up to 50 employees) and medium-sized (50 to 500 employees) firms spend upwards of $50 billion a year on data, voice and video services in the U.S. Further, SMBs are steadily increasing what they spend on telecom services as they grow larger and more sophisticated, and as their service needs continually evolve.

Fortunately for cable operators, they already pass many of these businesses with upgraded hybrid fiber-coax (HFC) networks and, in a growing number of cases, all-fiber lines. In fact, it's estimated that cable lines directly pass as many as three quarters of all SMBs in the U.S. What's more, it's estimated that many other smaller companies sit within a mile or less of their local cable provider's wired reach.

Yet even with this great reach, cable operators still take home no more than $5 billion of the overall business telecom services haul in the U.S. each year. That amounts to a measly 4 percent of the $140 billion total – up from 3 percent at the end of 2009, but still a relatively meager sum. With larger enterprises accounting for a portion of this take, the SMB revenue haul for MSOs is even smaller.

Clearly, there is plenty of room for cable operators to expand their penetration of the SMB market. Sensing this opportunity, such leading U.S. MSOs as Comcast, Time Warner Cable, Cox Communications, Charter Communications and Cablevision Systems are aiming to sign up at least 20 percent of the SMBs in their areas. Other, medium-sized cable providers – such as Bright House Networks, Mediacom Communications, Suddenlink Communications and CableOne – are hoping to follow suit.

Cable operators are seeking to fulfill these ambitious goals by introducing new commercial telecom services, such as Ethernet, cellular backhaul, hosted VoIP, SIP trunking, data backup, remote storage and wireless broadband. They're also expanding into fresh vertical markets, such as health care, government services, education, hospitality and financial services. In addition, they're stepping up their capital spending on commercial infrastructure and equipment, even as they continue to slash their residential capex. Plus, they're increasing their sales and support staffs and forming new or stronger relationships with value-added resellers (VARs).

But as cable providers set their sights higher and wider in the commercial market, they will face stronger resistance from the incumbent telco providers, which are more deeply entrenched in the middle market. In the U.S., for example, major phone companies such as AT&T and Verizon Communications are already responding to the cable incursion by offering sharp discounts on new longer-term contracts to their commercial customers.

More significantly, cable operators will face far greater technical and operational challenges in meeting the increasingly demanding service needs of SMBs. Instead of providing the "residential-plus" services or cookie-cutter solutions that they now offer to many firms, cable operators must adapt to the growing demands of the ever more sophisticated SMB market. This means MSOs must develop and deploy full suites of next-generation communications products, including unified communications, fixed/mobile convergence (FMC) and SIP trunking.

The rapid rise of software-as-a-service (SaaS) vendors and solutions also offers both a great opportunity and a major challenge. The big question is whether MSOs can successfully channel and package SaaS solutions to the SMB market, or if they will end up being simply bypassed by SMBs.

Drawing on real-life MSO examples, this white paper will highlight the new business services and features that cable operators must deliver to compete more effectively in the SMB space, as well as the next-gen offerings that operators should consider adding to their commercial portfolios. This paper will spell out how to build an effective plan for the back-office support and management of next-gen SMB services and bundles. And it will show how some proposed best practices can help providers meet the major billing and provisioning challenges head-on.

II. The SMB Market Opportunity

The SMB market opportunity for cable is large, ripe and steadily growing. In the U.S., cable operators now pass nearly 4.1 million very small U.S. firms (those with one to nine employees), up from about 3.8 million just two years earlier, according to the latest estimates from SNL Kagan. Similarly, U.S. cable providers now pass about 600,000 medium-sized companies (those with 10 to 99 employees) in the U.S., slightly more than double the number of medium-sized firms passed just two years ago.

Figure 1: Number of SMBs Passed by Cable Plant

	2008	2009	2010	2011
Small Businesses	3,792,000	3,933,000	4,071,000	4,168,000
Medium-Sized Businesses	295,000	455,000	606,000	706,000

Source: *SNL Kagan*

With other SMBs, such as small office/home office (SOHO) firms, added to the mix, the SMB market potential is even greater. Based on the latest figures from the five largest U.S. MSOs, *Heavy Reading* calculates that they collectively have at least 10.5 million SMBs within their reach. That represents a collective revenue opportunity of more than $40 billion.

Overall, based on the figures provided by the five major MSOs, *Heavy Reading* estimates they collectively have at least 11.1 million companies of all shapes and sizes within their reach. That represents a revenue opportunity of nearly $100 billion, not including the companies covered by such other, medium-sized MSOs as Bright House, Mediacom, Suddenlink, CableOne and Insight Communications.

Figure 2: Size of MSO Commercial Market Opportunity

MSO	Number of Firms in Region	Market Opportunity in Region
Comcast	5.2 million very small firms 5.6 million total	$11.5 billion – very small $49.8 billion – total
Time Warner Cable	2.5 million-3 million SMBs	$17 billion-$21 billion – SMBs $25 billion – total
Cox Communications	1.3 million	$7 billion – wireline $4 billion – wireless
Charter Communications	1 million	$5.5 billion
Cablevision Systems	685,000 SMBs 60,000 larger firms	$3.5 billion – SMBs $2.4 billion – larger firms

Source: *Heavy Reading,* company reports

Pursuing their current strategies, the five leading U.S. MSOs have already made significant strides in recruiting business services customers. Comcast, Time Warner Cable, Cox and Charter all closed out 2010 with at least 250,000 to 260,000 business customers across their footprints, while Cablevision Systems finished with at least 140,000 to 200,000 customers. That adds up to a total of more than 1.2 million business customers. With medium-sized and smaller MSOs thrown in, the U.S. cable industry now boasts at least 1.5 million commercial customers.

Not surprisingly, all five major U.S. MSOs have enjoyed healthy annual commercial revenue hikes of at least 10 percent to 15 percent over the past few years. Largely as a result, Cox, Time Warner Cable and Comcast all scaled the $1 billion mark in annual commercial revenue for the first time last year, while Charter zeroed in on the $500 million mark, as indicated in **Figure 3 below**.

To be sure, no cable operator is generating huge piles of revenues from commercial services quite yet. Now that they've hit the $1 billion revenue mark, the three U.S. MSO leaders are easily doing the best, averaging about $4,000 a year per business customer. But the rate of growth is still very impressive, driven by surges in such areas as Ethernet services, cell backhaul, VoIP and managed services.

Figure 3: MSO Commercial Services Revenues 2007–2010

MSO	2007	2008	2009	2010
Comcast	$394 million	$558 million	$828 million	$1.3 billion
Time Warner Cable	$660 million	$775 million	$915 million	$1.1 billion
Cox Communications	$740 million	$853 million	$985 million	$1.1 billion
Cablevision Systems (Optimum Lightpath)	$215 million+	$249 million+	$256 million+	$284 million+
Charter Communications	$341 million	$392 million	$446 million	$494 million

Source: *Heavy Reading*, company reports

III. The Rapidly Evolving Needs of SMBs

When they first entered the SMB market a few years ago, cable operators did not really have to change their high-speed data, voice and video offerings much to fit the market's needs. "Residential-plus" packages – consisting of their typical residential service offers, plus perhaps voice hunt groups and multi-port embedded multimedia terminal adapters (eMTAs) – sufficed to meet the simple, utilitarian telecom requirements of most SOHOs and tiny mom-and-pop firms.

But as they have started to expand beyond this initial group of very small, relatively unsophisticated firms, cable operators are finding they must offer much more than plain-vanilla residential-plus services. Smaller and medium-sized companies with 20, 50 or more employees are looking for features that used to be available only to larger enterprises, such as multiple group features, numerous line features, different feature packages, self-service Web user portals and outstanding service performance and reliability.

SMBs are also looking for far more customization than ever before, as they try to adapt to the growing challenges of the rapidly changing business environment and seek ways to cut operational costs, manage an increasingly mobile workforce, cope with technological complexity and boost service reliability. Like larger enterprises, they're pressing for innovative new services and specially tailored service bundles, including combinations of such next-gen offerings as unified communications, cloud-based services and SIP trunking for hosted VoIP. As a result, the old cookie-cutter solutions that worked for residential data and voice services won't satisfy their commercial telecom needs.

This is particularly true on the voice front. SMBs are increasingly seeking to adopt such new IP-enabled voice technologies and capabilities as hosted PBX and IP Centrex to lower their expenses, increase their service flexibility, manage their increasingly mobile workforces and increase their reach and effectiveness.

As a result, aggressive cable providers are expanding briskly into managed or hosted services. For instance, Cox is now starting to offer managed PBX services in its franchise areas. Plus, Cox is looking to offer IP Centex service to its clientele in the near future.

Besides expanding into more advanced voice services, SMBs are showing rapidly growing interest in cloud-based services, just like larger enterprises. These cloud services, including data backup, remote storage, Web hosting and calling apps integrated with popular software-as-a-service (SaaS) tools such as Salesforce.com, are catching on strongly in the business world.

In an IDC study conducted last year, for instance, more than 25 percent of small firms and 12 percent of medium-sized companies reported that they were already using cloud-based services. What's more, a whopping 82 percent of SMBs said they would like support from their telecom provider to manage their on-premises equipment and cloud services together.

Not surprisingly, then, several cable providers are already rolling out a number of cloud-based services, including Web hosting, managed security and remote data backup and security. The MSOs are also scrambling to launch cloud services for commercial customers, as aggressive rivals such as AT&T and Verizon deploy their own cloud-based applications.

For example, Cox is now offering managed services such as online backup, managed security, Web hosting and data network and design. Cox is also branching into managing customer routers and networks.

"You hear the buzz – it's in the press," Roger Crisman, director of data and video management for Cox Business, recently told *Light Reading*. "But we would see cloud services as a piece of managed services that falls under our general, overarching strategy of trying to provide SMBs with telecom solutions that keep employees connected and maximize productivity."

Besides VoIP and cloud-based services, small businesses are flocking to unified communications offerings. The lineup of these services includes FMC, instant messaging, presence and Web and audio/video conferencing. In a recent U.S. study conducted by market research firm Inzenka for Metaswitch Networks, for example, almost 90 percent of the SMBs expressed interest in FMC. What's more, an impressive 70 percent of SMBs said they would be willing to pay something extra for it.

IV. Major SMB Market Challenges

Cable operators face several tricky challenges as they attempt to serve the increasingly sophisticated SMB market and meet these firms' increasingly diverse telecom needs. In this section, we will run through some of the major technical and operational challenges posed by the new service offerings.

The biggest challenge may simply be the growing complexity of commercial telecom services, particularly on the voice side. Due largely to the introduction of more advanced IP technology, there are now many more voice capabilities that can be offered than before, including multiple voice lines, white and yellow page listings, company profiles, feature packages, à la carte features, dial plans, hunt and call groups, multi-port devices and group voicemail support.

Such complexity will only increase. For example, the development of voice services such as hosted PBX and managed IP Centrex will produce a rapid growth in end points for cable operators, especially as phones and other end-user devices evolve from NCS-based to SIP-based. Each end device must be fully activated and provisioned, along with all of the other multiple network components. This is a much more complex process in a commercial, feature-rich environment than in a residential service environment.

Using their existing CRM and billing platforms, many cable operators cannot fully support order capture and service fulfillment for complex commercial voice and data services. These services must all be integrated with the billing system so that providers can properly log, fulfill, provision and activate customer orders.

Business trunking and data connectivity pose a third major challenge for the industry. With SMBs' needs evolving, cable operators must offer a full suite of PRI and SIP trunks to connect to customer PBXs, as well as MPLS VPN and Carrier Ethernet solutions for data connectivity. Providers must also offer various hybrid combinations of these basic solutions as commercial customers move to upgrade their own capabilities and trim operational costs.

The growing crop of SMB cloud-based services represents the latest major operational challenge for the industry. Cable operators must find ways to enable these next-gen services for their commercial clientele so that they can tap into this lucrative emerging market.

For instance, SMBs are adopting various SaaS applications as never before, including Salesforce.com and Webex. Ideally, cable operators would leverage trusted relationships with their SMB customers to select, customize, package and distribute SaaS vendor offerings. SMBs have a particular need for this kind of help, because it can be tough for them to identify which SaaS vendors are "for real" and which aren't.

V. MSO Case Study

Suddenlink Communications offers a telling example of some key technical and operational challenges that MSOs face in the SMB market. In 2007, Suddenlink, now the nation's seventh largest MSO, was eager to expand into the commercial telephony market. So the cable operator, which already had signed up nearly 40,000 commercial high-speed data subscribers, began selling voice service to small "micro-businesses" in its franchise areas.

Like many cable providers, Suddenlink entered the market by offering basic residential voice packages to its commercial clientele. But it quickly realized that residential-quality service wasn't good enough for the SMBs it wanted to sign up, so in 2008 it started offering up to four phone lines, plus such key features as hunt groups, to business customers.

Over the next year, Suddenlink continued adding new features to its commercial phone portfolio. But, as the MSO's commercial voice business began to grow, it started running into some serious problems. Its legacy billing system, an AS400-based system designed to handle order capture and billing for simpler video services, struggled to cope with the far more complex commercial voice orders.

For instance, Suddenlink found that its billing system couldn't capture full customer orders for directory listings. If commercial subscribers wanted to buy white pages or yellow pages listings, the billing system couldn't handle it.

In other words, the existing Suddenlink billing system could not support the correct fields to capture all of the information necessary to support its full suite of commercial orders and offerings. As a result, some phone service orders were lost, while others could only be partially captured, leading to unhappy customers.

It's easy to see why the legacy Suddenlink billing system, inherited from its purchases of antiquated Cox and Charter systems, became so overwhelmed. With the introduction of a comprehensive commercial voice portfolio, the MSO increased the complexity of its voice feature capabilities about tenfold. Instead of offering a dozen or so fairly simple voice features, as it did for residential phone customers, Suddenlink now found itself offering about 130 different voice features and services.

The list of the commercial voice features and services includes such group features as account codes, authorization codes, auto attendant and hunt groups, as well as such line features as call transfer, click-to-call, simultaneous ring and unified messaging. It also includes various feature packages, local number portability, toll-free numbers, calling cards and more.

Further, the greater amount of information and variables on every order means that the chances of error grow exponentially. If a cable operator uses its legacy manual order capture process – even one that works well for residential voice – mass errors are likely to occur. The volume of business customer support calls and order fallout will overwhelm the process, resulting in poor performance, negative customer perceptions and a limited ability to compete with rival providers.

"The complexity is much greater for business services, especially in the area of telephony orders," says Bob Putnam, CIO of Suddenlink. "There are many more features, lines and technology needs for business phone services than residential. Accordingly, the systems have to be more complex and flexible to accommodate business telephony needs."

Like many cable operators, Suddenlink also ran into trouble integrating its new commercial voice service with its CLEC partner, Sprint. Because the MSO doesn't have its own CLEC license, it relies on wholesale services from Sprint for telephone numbers, local number portability, 911 and other requirements. But it needed help integrating and automating these processes with Sprint because it couldn't perform the address validations and 911 compliance by itself, nor manage the provisioning for both ported and new phone numbers.

VI. Meeting the SMB Challenges

Fortunately, cable operators can overcome these operational challenges and help their commercial customers make the next great service leap. Specifically, improvements in OSS service fulfillment can play an instrumental role in the delivery of both traditional data and voice services and such next-gen services as cloud-enabled applications.

In fact, using more advanced operations support systems (OSS) software, cable providers can help SMBs deliver and manage more "traditional" telecom services such as hosted commercial VoIP and SIP trunking. They can also support the back-office rollout of newer, next-gen telecom services such as cloud-enabled applications, including the provisioning of VoIP CPE gear from the cloud, cloud-based Web conferencing services and other unified communications services.

Moreover, with the appropriate OSS solutions, cable operators can integrate their business support systems (BSS) and OSS order management systems to better serve their business customers. Despite the added burden of delivering a mix of new IP and more traditional commercial services to their SMB customers, they can reduce the complexity of their own operations and cut high service order fallout by blending the different order management systems together into one greater whole.

In Suddenlink's case, the MSO made use of an OSS service management platform that could parse out commercial orders, understand the specific requirements of business customers, capture the correct information in the ordering process and then move commercial voice orders automatically through the fulfillment process, including interactions with Sprint. This solution manages order states and workflows. In situations where errors do occur, the platform enables a manual order care process to deal with them and keep the fulfillment process moving forward.

At the same time, with the help of full BSS/OSS order management integration, cable operators can lower order processing costs, improve the accuracy of their orders and eliminate costly, time-consuming swivel-chair processing by their customer service representatives. Such integration also allows providers to institute flow-through automation, virtually eliminating the cumbersome and error-plagued manual processing of orders.

The integration of high-speed data and VoIP service creation, ordering and fulfillment from a single platform has already paid great dividends for cable providers such as Suddenlink. The MSO reports that it now automates service fulfillment completely for more than 99 percent of its customer orders. And it enjoys 98 percent flow-through for high-speed data fulfillment and at least 95 percent flow-through for voice fulfillment.

"We went from a swivel-chair, outsourced provisioning platform to doing everything in an automated fashion," says Erick Guzman, VP of information technology for Suddenlink. "For my total cost of ownership, it makes sense to operate one OSS platform for residential and commercial for both voice and data services."

Building on this foundation, cable operators can develop an effective plan for the back-office rollout of next-gen SMB services and bundles. To achieve this goal, cable providers would be well advised to follow the recommended best practices spelled out below.

First, cable providers should **clearly define their target markets** and the services they wish to offer. As part of this process, they should identify the underlying technologies needed to support these services in a cost-effective and scalable manner. Although cookie-cutter solutions may work for the residential market, they won't work for the SMB market because each micro-segment of the market and each vertical category have different telecommunications needs. Thus, the key is putting together a BSS/OSS stack that can flexibly meet each segment's needs.

Next, MSOs should **put together a service fulfillment platform** that allows full automation of provisioning and activation of new services and devices, keeping in mind the customer's need for scalability, reliability and flexibility. The integration with BSS systems should be planned and implemented holistically and together, not in separate steps, to ensure that the order-activation-billing processes are fully integrated.

Third, cable providers should **consider building self-service Web user portals** for their commercial customers to deploy, enabling SMBs to manage and control their own services. In turn, these portals would enable the customers of those SMBs to manage and control their own services.

Finally, cable operators should **thoroughly test these new services and train their operational support teams** to match the rising expectations of their SMB customers. With such constant testing and training, MSOs can meet these service expectations, which will only continue to rise.

Figure 4: Back-Office Operational Challenges & Suggested OSS Solutions

Service Type	Operational Challenges	OSS Solutions
Business VoIP Services	Managing/provisioning the complexity of voice features and the complex array of IP phones/SIP endpoints	Integrating business user administrator control/management
Business Data Services	Providing support for high-speed data fulfillment of VoIP and data services transport; packaging and delivering cohesive voice/data offering at lowest cost	Developing service fulfillment platforms that enable full automation of provisioning and activation of new services and devices
New Cloud-Based & Value–Added Services	Creating "one" image of subscriber, service and device-level entitlements to enable cloud services and applications; orchestrating the rights of SMB users to tap cloud services and applications	Provisioning service entitlements by both customer package and by IP/SIP end device

Sources: *Heavy Reading, Sigma Systems*

VII. Conclusion

Although the companies themselves may be small, the overall SMB market for telecom services is far too big to ignore or neglect. Moreover, these firms are steadily increasing the amount of money they spend and the number and variety of services they purchase as they grow larger, as their telecom needs become more sophisticated, and as they seek ways to cut costs and compete more effectively in a constantly changing business environment.

Due in large part to their proximity to most SMBs, cable operators are in a unique position to meet the service needs of these companies and capture a larger share of their overall telecom spending. As a result, many MSOs are stepping up their efforts to fulfill these needs by delivering a wide array of more traditional and newer telecom services, including Ethernet, cell backhaul, hosted VoIP, SIP trunking, data backup, remote storage, managed security and other managed and cloud-based services.

But in the process of doing so, cable providers are running into operational challenges they may have never encountered before. These major operational challenges include the growing complexity of commercial services and end-user points and devices; the need to support order capture and service fulfillment for the myriad of existing and new services; the need to provide a larger suite of business trunking and data connectivity solutions to customers; the pressure to meet growing customer demand for next-gen wireless broadband and FMC services; and the growing need to deliver cloud-based services and applications to their commercial clientele.

Fortunately, enhanced OSS service fulfillment can help cable providers to meet these challenges and deliver the services that their customers increasingly desire. With the use of the proper OSS software, cable providers can help SMBs deliver and manage both more "traditional" telecom services, such as hosted commercial VoIP and SIP trunking, and newer, next-gen telecom services, such as FMC and cloud-enabled applications. By following the recommended best practices spelled out in this paper, MSOs can stay ahead of the service delivery curve and meet the evolving telecom needs of their commercial customers.

In short, vastly enhanced OSS capabilities are the key to cable success in the hotly contested SMB market. Without these enhanced capabilities, cable providers run the real risk of being relegated to the status of "dumb pipes." With these enhanced capabilities, MSOs can continue developing and deploying the telecom services needed to keep their business customers happy and coming back for more.