Generating New Revenue with Fixed Mobile Convergence

The Business Case for Service Provider-Managed Wireless IP Communications Mobility Solution.

Executive Summary

Many businesses around the world are extending their wireless networks to support voice services in addition to data communications in an effort to improve cost efficiency and employee productivity. To meet market demand for next-generation fixed-mobile-convergence (FMC) services, major service providers around the globe are beginning to realize that it is possible to improve customer loyalty and grow customer base while deploying profitable FMC services.

Partnering with world's leading wireless technology companies, business end users, and service providers, Cisco® is helping to transform the design, profitability, and ease of deployment of voice-grade wireless networks, making the vision of FMC a reality. The Cisco Unified Wireless Network allows the corporate workforce to make and receive wireless phone calls and access LAN-based wired networks anywhere on campus. The increased mobility and flexibility can help workers become more productive and responsive to internal and external customers—and deliver new products and services faster.

This paper first defines the concept of FMC with regard to service provider-managed Cisco Unified Wireless Communication service. It then discusses expertise from the Cisco Internet Business Solutions Group (IBSG)—the global strategic consulting arm of Cisco—regarding (1) the business factors behind the move by business end users and service providers to FMC and (2) the service provider business case for offering managed wireless IP communication services. In addition, the paper summarizes the Cisco Unified Wireless Network solution and introduces complementary services from Cisco, including strategic consulting as well as technical and marketing resources.

What Is FMC?

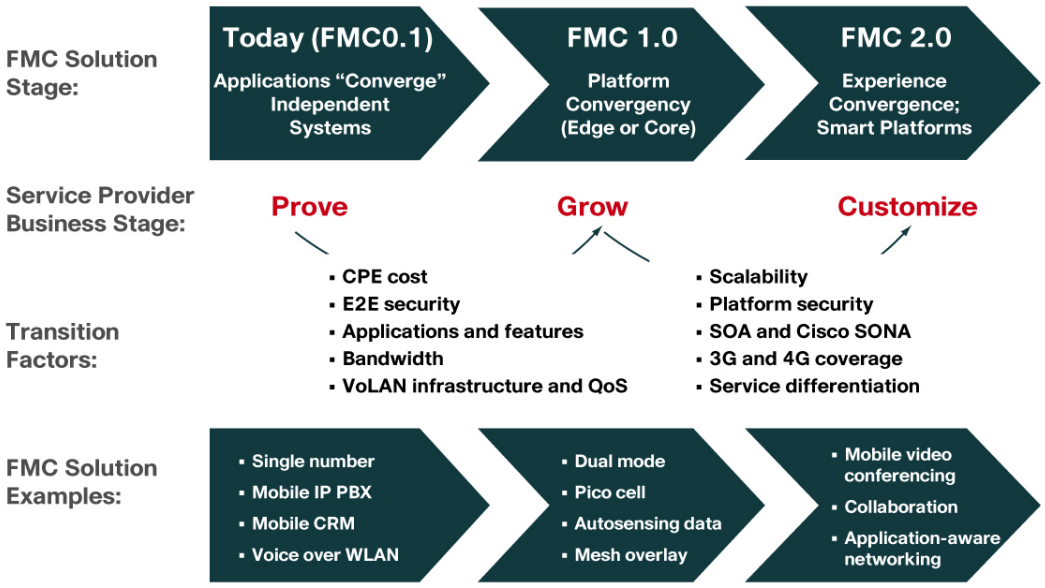
Fixed Mobile Convergence Broadly Defined

The concept of fixed mobile convergence is broad, multifaceted, and evolving. Convergence is happening across devices, applications, service-control mechanisms, and networks. Converged devices range from mobile picture phones to computer telephony integration. Applications such as e-mail and customer relationship management (CRM) are being mobilized. At the service-control layer, platforms for policy, identity, and billing management are converging, creating an open framework to enable quadruple play (data, voice, video, and mobility). Network convergence has taken place at the service provider core, and is now also converging at the edge where technologies such as Wi-Fi and wireless mesh are becoming prevalent.

As FMC continues to evolve discretely across each of these dimensions, service providers will introduce solutions that meet the needs of their subscribers. These solutions will, in fact, follow a traditional software development lifecycle model that incrementally adds functionalities. For example, FMC 0.1 is the earliest example of converged services. Quite simply, solutions in this phase are mobilizing traditionally fixed applications using a single-mode phone. Examples include mobile e-mail extensions, availability of the corporate directory from the cell phone, and mobile

access to private-branch-exchange (PBX) features. As the infrastructure in access networks such as Wi-Fi, mesh networks, public hotspots, and pico and femto cell technologies becomes prevalent, the industry will begin to move toward FMC 1.0 solutions. The best attributes of each access network can be made available to users, bringing them incremental value. Finally, in FMC 2.0, users will want their services to be customized based on their own personal preferences, creating a unique and meaningful customer experience with the service provider (Figure 1).

Figure 1. Convergence Value Proposition



With this broad definition, it is clear that FMC is not new to the industry. Successful examples have already begun to materialize, and the industry is progressing toward the next phase in a journey for the enterprise mobile user. Dual mode is the next step, and there are clearly facilitators and inhibitors to its success.

Enterprise Dual-Mode Communication Service as an Operator-Managed Service

This paper examines the enterprise dual-mode communication service in the context of device and application convergences, as elaborated previously. Based on the Cisco Unified Wireless Communication solution and dual-mode (cellular and Wi-Fi) devices from leading handset manufacturers, dual-mode telephony service allows business users to make and receive calls, send and receive messages, and gain high-speed access to data applications with a wireless connection anywhere, while on or off the corporate campus.

This paper also addresses the enterprise dual-mode service as a service provider-managed service. Collaborating with service providers, enterprise IP communications may take numerous forms in terms of ownership, management of premises-based equipment, and communication platforms. Unlike operator-hosted communication services, operator-managed wireless communication services assume that wireless IP communication infrastructure is located within an enterprise site, owned by the enterprise, but potentially managed by an operator. In addition, service providers may provide additional services such as resale of handsets, enterprise unified wireless communication customer premises equipment (CPE) and infrastructure equipment, cellular services, managed LAN services, and data connectivity services.

Why FMC Makes Good Business Sense for Business End Users

Business End-User Drivers

Businesses around the world are embracing the concept of FMC 'anytime, anywhere, over any device' with increasingly prevalent mobile applications. Based on a 2005 study by Forrester Business Technographics, major enterprises in North America and Europe have launched mobile applications including wireless e-mail, sales force application, and customer-facing applications. Business end users are also increasingly demanding dual-mode devices. According to a study by Sage Research in 2005, more than 50 percent of large and medium businesses surveyed in Western Europe planned dual-mode trial within the next 12 months.

For business end users, FMC benefits fall into three categories: productivity, cost savings, and business agility. Productivity can be defined as the ability for a solution to enable end users to produce more output and faster. FMC improves workforce productivity in two ways. First, mobilizing horizontal applications such as e-mail, supply chain applications, sales quoting, and inventory tools can save as much as 3 to 5 hours per week per employee. For example, checking e-mail between business meetings, in the airports, and at home is now possible through the introduction of a smart phone through a FMC solution. Mobilizing sales tools can increase business responsiveness and customer satisfaction. In addition, FMC can simplify the user experience and save time by allowing users to check one application versus the many they are checking today.

Cost savings are the second major benefit of a converged solution and can best be defined as the total telecom bill for comparable service before and after introduction of the converged solution. Cost savings can be generated by shifting minutes from the mobile network to the fixed voice-grade wireless LAN (WLAN) network, which carries a lower cost structure. Here, the shift can be significant. According to a study by Strategy Analytics in 2005, for business mobile usage on campus, nearly 40 percent of all business cellular users' time is spent away from the desk or primary work area; nearly 50 percent of this time is on-premises; and 22 percent of the workforce use their mobile phones while at their desk. Moreover, in companies that have multiple corporate locations, that number not only could be higher because of travel and collaboration, but also could carry a much higher tariff structure and associated savings when migrated off the cellular network.

The third benefit to the end user is with respect to business agility—the ability for users to conduct business with their suppliers and customers more efficiently—translating into higher revenue and operating margin per employee. Although this factor may be the most difficult to quantify, it represents a tremendous advantage for the organization and may bring the greatest potential returns. Business agility is measured through two basic metrics: the ability to be reached by end customers and the speed at which customer needs can be addressed. FMC enables this agility through mobilization of important vertical industrial applications such as CRM and other sales and inventory tools, as well as through single-number services, which assure that the employee can be reached regardless of location and physical device in use at the time.

Clearly, when combined these three categories—productivity gains, cost savings, and business agility—make an attractive package for the enterprise to consider. To understand the full business case of business end users adopting dual-mode voice-grade WLAN service, please refer to the Cisco white paper 'How Cisco Mobility Solutions Can Reduce Costs'.

Why FMC Makes Good Business Sense for Service Providers

Across the world, fixed-to-mobile substitution and a new generation of service providers are drastically changing the traditional voice communication model. To succeed in today's competitive voice market, fixed service providers must find ways to mitigate declining fixed voice lines. Mobile providers must find ways to manage subscriber turnover while preserving average revenue per user (ARPU). Finally, integrated service providers with both wireline and wireless assets need to create differentiated services in the market to further preserve their leadership position. For each type of service provider, FMC is being considered as a means to address their disparate challenges.

The analysis of FMC is not always straightforward. In many cases the strategic value of deploying an FMC solution will outweigh the short-term return on investment generated from FMC. It requires service providers to evaluate the FMC business case with a balanced view combining both strategic and quantitative value propositions. In an effort to assess the overall economic effect for service providers to offer managed dual-mode communication services, this paper examines the effect of a comprehensive set of factors, including incremental revenue, potential revenue loss, capital expenditures (CapEx), and operating expenses (OpEx). Based on initial studies Cisco made with European operators, the overall business case is positive.

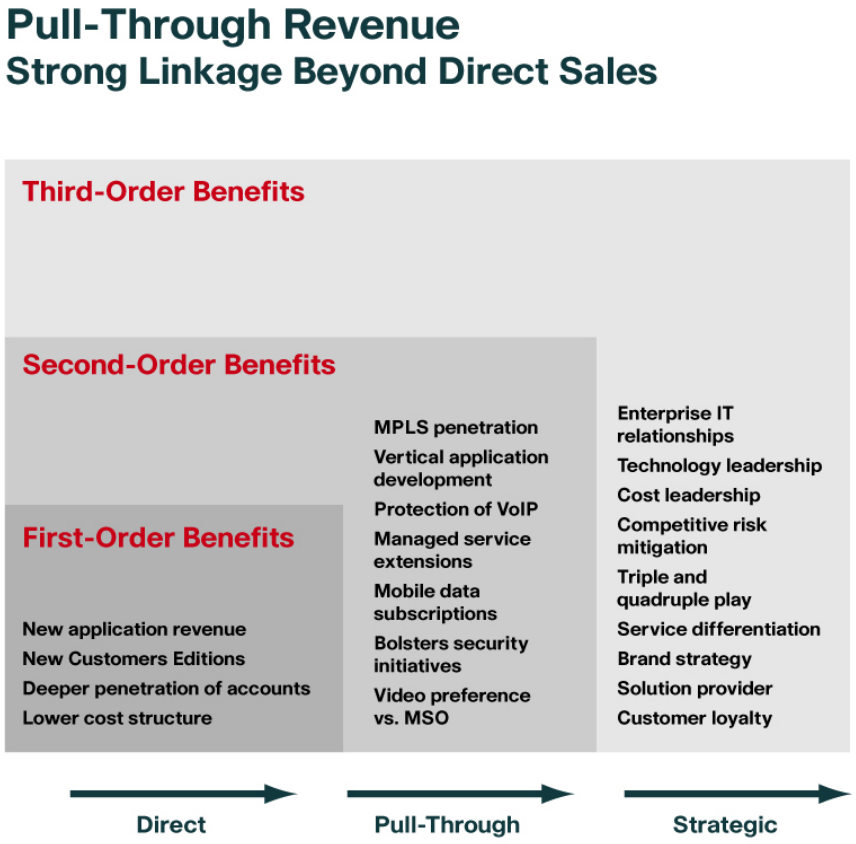
Service Provider Revenue Pull-Through Model

A service provider's decision to invest in FMC is not an easy one. Some benefits, such as return on investment, are quite clear. Others, such as strategic value, are softer and more difficult to attribute directly to the launch of the FMC solution. Moreover, many benefits can vary significantly, depending on the variables being considered. In fact, it becomes quite complex depending on regions served, customer base, competitive pressures, and breadth of services being offered. As illustrated in Figure 2, one proven model to evaluate the business case is with respect to first-, second-, and third-order benefits offset by investment requirements and revenue shifts between access networks. First order refers to the direct incremental revenue created by the launch of a converged solution to the service provider. Examples could include resale of IP telephony systems, WLAN access points and controllers, and the required miscellaneous switching and routing. In addition, first-order benefits can include management fees for design, installation, and maintenance of equipment and recurring monthly fees from the converged service itself. First-order revenue opportunities also include further penetrating enterprise customer accounts that are currently being shared with another service provider, as well as an overall market share gain when using FMC as a differentiator in competitive bid situations.

Second-order benefits include revenue associated with sales of adjacent services that are accelerated because of a FMC sale. Sales of FMC services can also improve the pull-through of adjacent services such as mobile data plans and managed VPN service, creating up to 6 to 8 times the revenue generated by the managed service alone (based on a Cisco IBSG study). Another important aspect of FMC is its ability to reduce customer turnover by migrating personal cellular accounts to corporate-sponsored accounts. Because the devices are now integrated with data center applications, IT managers will insist on application and device convergence, translating to company ownership. Finally, FMC solutions will lead to additional mobile data subscriptions and fixed broadband capacity. Mobile users' access to corporate applications will require mobile data services. In the fixed environment, increased adoption of voice over IP (VoIP) accelerates usage of the broadband network. Although difficult to quantify, second-order benefits can be significant and should not be overlooked.

Third-order benefits are strategic. A few examples include customer loyalty, analyst valuation, and brand positioning. In summary, third-order benefits could determine whether FMC will help their business customer retention, the stock price, and the technology leadership position—all critical to the operator's CxO suite.

Figure 2. Service Provider-Managed Voice-Grade WLAN: Incremental Revenue Pull-Through Model



Furthermore, to get an accurate assessment of market opportunities, the business end-user market needs to be segmented both horizontally and vertically. Horizontal groups include large enterprises, medium-sized enterprises, small and medium-sized businesses (SMBs), and small offices or home offices (SOHOs). In addition, the horizontal view also demonstrates variations in infrastructure investment in critical components such as IP telephony and WLAN. Although there may be some successful solutions that can cut horizontally across industry segments, most will require a deeper understanding of the specific characteristics of users within industry segments. Typical vertical industry segments include financial services, manufacturing, government, and healthcare. Each of these industries has highly mobile, occasionally mobile, and stationary users. The mix of users within any particular industry will determine the overall savings potential, cost, and final return on investment of an offering. When combined, the vertical and horizontal view can offer an accurate assessment of the individual companies within the service provider footprint and the likelihood of purchase. The usage profile of enterprise FMC service may vary and is affected by numerous factors, including the mix of mobile users within a company, the specific industry, and the geographic locations of a market. Based on a Cisco IBSG study, healthcare, high-tech manufacturing, financial services, and government have characteristics suitable for FMC and thus present opportunities for service providers.

Service Provider Deployment Costs and Risks

On the other side of the economic assessment are the costs and risks of deployment. Among the primary concerns for mobile operators to offer managed enterprise dual-mode communication service is the potential cellular minute loss to the enterprise WLAN. Based on current assumptions of on-campus mobile usage, the mobile service provider will likely lose airtime revenue in the short term. If we assume an average of 700 peak minutes per user at a rate of $.10 per minute of use and a 30-percent shift off the mobile network, approximately $20 per month of ARPU within those accounts could potentially be shifted. However, as shown in Figure 3, mitigating such cellular revenue losses are increased incremental revenue from unified communication CPE resale, managed FMC service, increased subscriber base, and increased mobile data usage—all of which contribute to a positive net revenue effect.

On the capital investment side, service providers may need to add elements such as IP Multimedia Subsystem (IMS), IP hardware, and backbone convergence throughout the network to support FMC. Although dual-mode services can come to market prior to investment in IMS, when IMS is deployed new features and capabilities will appear to make the service more robust. Examples could include the addition of real-time video into a voice session, improved voice call continuity, or push-to-talk sessions while in a local hotspot. The business case challenge with IMS specifically is that IMS is also being deployed for other non-FMC solutions that should bear part of the investment. Another challenge is determining the split between enterprise-purchased versus service provider-hosted components of the solutions. For example, will WLAN hardware costs be covered by the service provider as part of the solution, or will the enterprise fund the investment separately? Finally, allocating investments required to upgrade and converge IP infrastructure can be difficult to estimate. On balance, big-ticket CapEx investment in the IMS and transport network can reap long-term benefits resulting in lower average unit cost per bit, slower build-out of cell sites, and the ability to take advantage of existing fixed broadband backhaul and to decrease long-term CapEx commitment by consolidating multiple networks. In addition, service providers will benefit from faster service delivery capability for FMC and other future services.

From an OpEx perspective, there are two considerations. First, OpEx reductions can come in the form of lower operating costs for pure IP networks where deployed. In a dual-mode environment, equipment is mass-produced, fairly standardized, and it carries lower costs for installation, maintenance, and network than traditional cellular services. Second, although in the short term service providers will incur additional customer service costs to handle the newly complex end-user concerns, OpEx reductions can also take the form of longer-term organizational and process changes that support a converged network. Examples include one care center for both fixed and mobile needs, one engineering department for a single, collapsed network platform, and one product organization to develop new features and capabilities. Operations cannot be overlooked, because the success of the service depends on a good customer experience. If ‘underwhelmed’, the enterprise will quickly grow dissatisfied and could jeopardize the potential of convergence, and all of its benefits to the service providers.

Cisco IP Factory Helps Operators Realize OpEx Savings

Partnering with some of the largest operators in the world to address the operational problems associated with next-generation network deployment and new service introduction, Cisco IBSG has created a factory-based service production approach, called Cisco IP Factory, which combines all internal elements of the service production value chain—including network and organizational elements—into a single, integrated process. Based on a Cisco IBSG white paper ‘IP Factory: Next Generation Mobile Operations’, this ‘Lego block’ approach of building modular processes improves

the efficiency, quality, and flexibility of the service operation. Ongoing support costs for the converged infrastructure are also reduced as a result of this more efficient approach to complexity management. As a proof point, a major global operator working with Cisco IP Factory methodology can achieve a significant 20- to 25-percent OpEx savings per year.

Overall Service Provider Business Case Is Positive

Initial research has shown that through advanced modeling of some first- and second-order attributes, the overall business model appears to be attractive for service providers. When third-order 'strategic' benefits are included, the case can be compelling. Unfortunately, third-order benefits are fairly complex to model, and service providers need to rely on first- and second-order analysis. However, the third-order benefits should not be trivialized because the executive team may perceive them to be strong enough to make a marginal case positive.

Modeling within a European large integrated service provider with both wireline and wireless assets demonstrated that not only does the fixed arm see revenue and profitability increases by deploying to a small subset of its most valued customers, but also the mobile arm is able to offset short-term losses with longer-term gains. A sample case study indicates positive incremental revenue pull-through (Figure 3) and accretive profit margins (Figure 4) for both wireline and mobile arms of the service provider. This result is truly impressive considering the concern that is often raised by the mobile branch of the service provider and service providers' previous reluctance to aggressively pursue FMC versus fixed mobile substitution (FMS). In fact, FMC provides the opportunity for these carriers to truly differentiate their position, minimize risk, and grow revenue.

Figure 3. Sample Case Study of Integrated Service Provider: Positive Revenue Effects

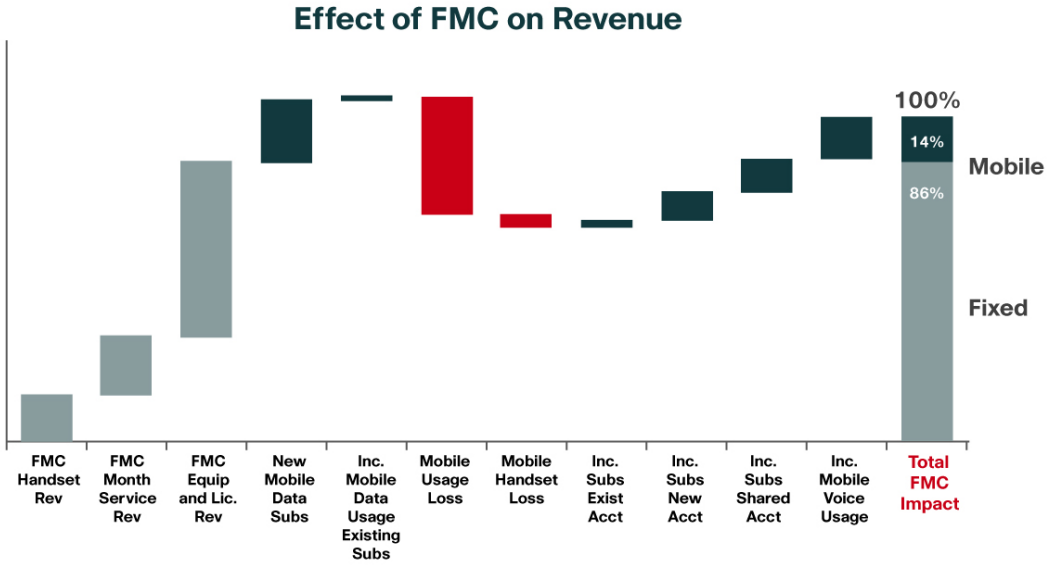
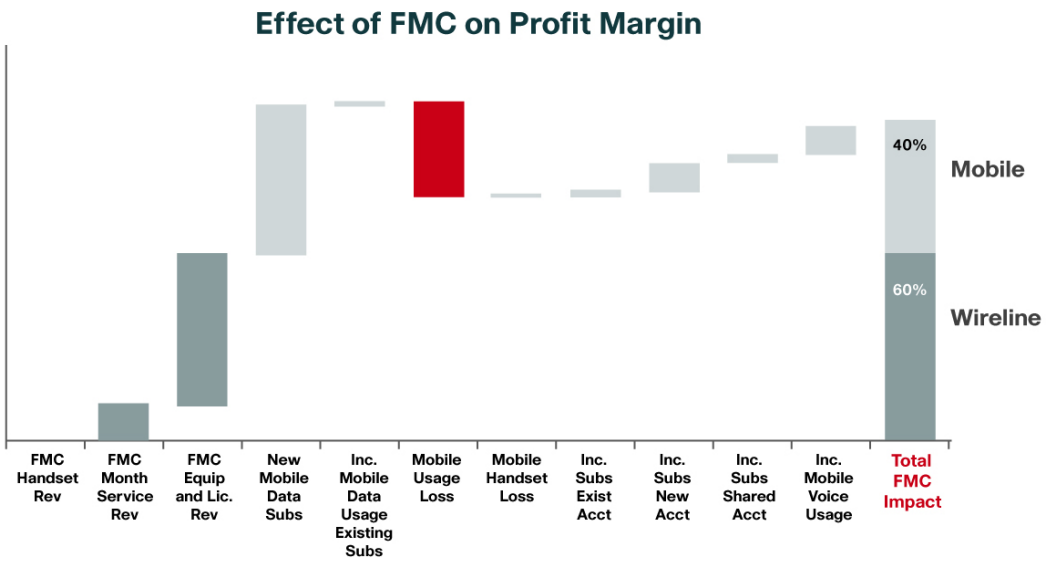


Figure 4. Sample Case Study of Integrated Service Provider: Positive Profit Effects



Within the business case, both first- and second-order benefits are quantified. Specific first-order categories include handset revenue, a monthly FMC service charge, the sale of enabling hardware, and mobile data subscriptions. Second-order categories add mobile data subscriptions, increased voice and data usage of existing mobile subscribers, and new voice subscribers. Also quantified is the direct effect of deploying FMC solutions in targeting accounts in terms of mobile minute losses. Here, it is assumed that 30 to 35 percent of minutes migrate off the mobile network. Therefore, the net benefits of incremental revenue in the first and second order significantly outweigh the airtime losses by the mobile provider.

The advanced Cisco financial model also compares the costs associated with each category of revenue gains. These costs include CapEx and OpEx associated with delivering the managed dual-mode service and connectivity, capital investment in network mobility servers and hand-off infrastructure, as well as potential inventory holding costs associated with reselling handsets and Cisco Unified wireless communication equipment and CPE. Depicted in Figure 4, the overall margin effect is positive with FMC monthly service, CPE and equipment resale and new mobile data subscriber service contributing to most of the incremental profits.

Also worth observing is that a Cisco study of a major integrated operator with both wireless and wireline assets indicated that although the mobile branch generates a smaller share of incremental revenue with a 14:86 split between mobile and wireline (Figure 3), the mobile arm is able to keep a much bigger portion (40:60 split) of profit contribution (Figure 4). This proportionally higher profit contribution at the mobile arm is caused by the higher margin of the second-order services sold by the mobile arm. The more profitable second-order revenue may include more mobile data services usage and managed service extensions. In comparison, fixed-arm revenue gains are largely from first-order benefits, which can be of lower margin than the second-order revenue. This finding should mitigate concerns by mobile operators, especially under an integrated service provider structure when addressing the problem of cellular minutes loss, because the overall business case is positive, and incremental margin contribution is significantly positive.

Cisco Wireless IP Communications Mobility Solution

The Cisco Wireless IP Communications solution offers all the necessary elements for service providers to offer a fully managed IP-based wireless voice and data service to enterprise customers. The solution provides superior security, network and RF management, and mobility platforms (access points) to enable real-time access to core business applications and deliver enterprise-class connectivity. Solution elements include the following:

- Cisco Unified Wireless Network—The Cisco Unified Wireless Network is an integrated, end-to-end solution that includes all layers of the WLAN, from client devices and access points, network infrastructure, and network management to the delivery of advanced wireless services integration and worldwide, 24-hour product support.
- Cisco compatible client devices—A range of wireless client devices can be used to make and receive voice calls sent over the WLAN infrastructure. These devices include IP phones, soft phones, WLAN phones, smart cell phones, personal digital assistants (PDAs), and dual-mode handsets that support both VoIP and cellular calling.
- Cisco Unified CallManager—The powerful, software-based Cisco Unified CallManager server provides call processing and extends enterprise telephony features and functions to packet telephony network devices. Cisco Unified CallManager can be hosted in the service provider's data center or located at the enterprise site and fully managed by the service provider.
- Cisco Unified CallManager Express—This full-featured Cisco solution meets the needs of the small business, branch office, or service provider-managed service solutions; it provides IP PBX functions for up to 240 stations. It offers an integrated voicemail and unified messaging option, as well as integrated video communications.
- Cisco Unified MobilityManager—The Cisco Unified MobilityManager makes Cisco Mobile Connect services available to Cisco Unified CallManager users who want to consolidate all their business calls with a single enterprise IP phone number and immediately connect wherever they are working. Customers need only a single phone number to reach enterprise workers, and the enterprise can provide more responsive service with no additional effort. Users can provision up to 4 remote destinations, and all 4 destinations ring when a call is made to a user's Cisco Mobile Connect number. This product also offers single voice mail box functions and transparent transition from cell to desk phone or from desk to cell phone for the Cisco Mobile Connect calls. In addition, Cisco Unified MobilityManager makes all the major enterprise IP communications features available to workers while they are traveling. For example, an enterprise mobile worker who needs to call one of the enterprise's foreign offices while traveling can use the Cisco Mobile Voice Access line to place the call as if from the enterprise home office. The worker dials the Cisco Mobile Voice Access line from the mobile phone and places the call on the enterprise IP communications network over a tie line. The connection is completed, and telecom costs are kept under control.
- Cisco Public Switched Telephone Network (PSTN) Gateway solution—The Cisco PSTN Gateway provides signaling and call control for calls sent between next-generation IP and circuit-switched networks and cellular networks.
- Cisco Unity® Unified Messaging system—A critical component of the Cisco IP Communications system, Cisco Unity Unified Messaging provides the foundation for bringing unified communications to enterprises.

Why Cisco?

Cisco offers 20 years of experience supporting service providers around the world. By working with Cisco, service providers benefit from:

- Cisco worldwide leadership and innovation in the enterprise IP communications and WLAN market and more than 20 years of experience building large-scale routing and RF networks
- Strategic vision and e-enablement methodologies from the Cisco IBSG
- Cisco Customer Advocacy Advanced Services and Technical Support Services philosophy that extends beyond the traditional support model by reaching across the customer's network lifecycle
- Joint marketing resources from the Cisco Powered Network Program

Cisco Internet Business Solutions Group

The Cisco IBSG, the company's global strategic consulting arm, helps Global 500 companies and public organizations improve customer experience and revenue growth by transforming the way they do business. Cisco IBSG designs innovative business processes and then integrates advanced technologies into visionary roadmaps that optimize business results. Drawing on a unique combination of industry experience, business acumen, and technical knowledge, Cisco IBSG consultants work as trusted advisers to many of the world's leading organizations.

Cisco Advanced Services

Proper planning for voice on a wireless network deployment is essential to ensure that delay-sensitive voice traffic runs successfully and reliably over a wired and wireless IP network infrastructure. Cisco Advanced Services provides customizable offerings addressing all phases of the network lifecycle that help service providers achieve their business objectives. Cisco Advanced Services helps service providers prepare for and manage the migration to wireless IP communications with a full suite of services, including high-level design, detailed RF site surveys, and ongoing performance monitoring and optimization of voice network applications.

Cisco Technical Support Services

Cisco Technical Support Services includes access to the Cisco Technical Assistance Center (TAC), software updates and upgrades, hardware replacement, and access to Cisco online tools and resources. Cisco Technical Support Services allows service providers to create and maintain a resilient, converged network that meets the business needs of enterprise customers today and in the future.

Cisco Powered Network Program

The Cisco Powered Network Program is the primary Cisco membership program for service providers that delivers services over networks built end-to-end with Cisco technology. The program demonstrates how Cisco connects two markets by taking advantage of Cisco carrier-class relevancy in the service provider space and the company's close relationship with enterprise and commercial customers. More than 375 global members take advantage of both Cisco marketing and technical expertise and Cisco market recognition in the promotion of their network services.

For More Information

For more information about Cisco Wireless IP Communications solutions, go to:
http://www.cisco.com/go/unifiedwireless
http://www.cisco.com/go/mobile

Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

Asia Pacific Headquarters
Cisco Systems, Inc.
168 Robinson Road
#28-01 Capital Tower
Singapore 068912
www.cisco.com
Tel: +65 6317 7777
Fax: +65 6317 7799

Europe Headquarters
Cisco Systems International BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: +31 0 800 020 0791
Fax: +31 0 20 357 1100

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