

# The Changing World of Convergent Provisioning



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## Introduction

The trend towards convergence has been accelerating, fueled primarily by the need to support new products and services, often on heterogeneous networks, including partner products on "foreign" networks. The rationale behind this trend is simple, yet ambitious—customer retention. Another seemingly contradictory goal is cost reduction. Fixed wire providers struggle with disparate provisioning systems today, suffering repetitive order fall out, which results in higher costs and impacts customer satisfaction.

Fixed wire and wireless providers are facing an avalanche of new products and services. In the fixed wire sector, the introduction of new IP based products and services comes with a promise to offer customers more for less. 3G is likely to significantly increase the complexity of provisioning in the wireless sector, introducing convergent packages that cover voice, data, entertainment (including gaming), content and location-based services.

Successful provisioning is key to the introduction of new products and services, increased competitiveness and, in some cases, an operator's survival. The pace of change over the next two to three years is likely to be unprecedented, as a new telecom landscape emerges. No market position is guaranteed and both incumbents and new entrants must work smarter to remain in the ball game. A new approach is needed to solve the challenge of implementing more complex provisioning faster and cheaper. What options do today's cash strapped providers have?

This Q&A examines trends in the area of operational support systems, their impact on provisioning and innovative approaches to support the new world of convergent provisioning.

### **Q: Providers have been doing provisioning for some time. What has changed?**

The market landscape has changed significantly due to the use of IP networks for both voice and data. This, in turn, has forced a change in how provisioning is done. Probably the most visible change is in the fixed wire sector. It wasn't that long ago that IP traffic was dedicated purely to data. Voice traffic on IP networks was the domain of geeks. Today, it's hard to find a provider that doesn't support, or has not yet announced support for, VoIP.

Just as we now see cable providers offering phone services, we will soon see telecom operators offering entertainment. Newcomers to the market will compete not only on price, but also on new services. As an example, virtual phone numbers are now available. A business in Denver with a 303 area code can set up a virtual phone number in California with a 408 area code. When a customer calls from San Francisco, he can dial the local 408 number, yet the call will ring in Denver, providing the business with a virtual local presence in the 408 area code. Other examples include "follow me" voice mail, "call broadcast" to different numbers, voice mail checks from phones and computers, etc. Customers can also turn their devices—laptop, computers, etc.—into phones and their phones into messaging devices. In addition, the role of content is increasing, and broadband providers will benefit from the popularity of gaming. VoIP is only the first step towards IP based products and services. Video phones have also been announced.

In the wireless sector, the debate is over. All traffic is IP based, starting with 2.5G. Different types of products and services are the norm. In 2003, more than \$2.6 billion worth of ring tones were downloaded, currently accounting for 80-95 percent of the phone personalization market, which was worth \$3.2 billion in the same year.

Japan seems to be leading the way. Approximately one third of downloaded ring tones were in Japan. Similarly, more than three million customers signed up for 3G in Japan, although rollouts are happening both in Europe and the U.S. We are likely to see a significant increase in convergent 3G products, as 3G capability combined with increased competition drives up product introductions. We are also seeing a blurring of lines between fixed wire and wireless

services, and, in time, the distinction between phones, computers, TV and gaming stations will fade away. Hopefully, this illustrates at a high level the functionality provisioning systems will need to support in the future.

**Q: What impact is this going to have on order fall-out?**

There will be a significant impact. Order fall-out, defined as an "unplanned manual touch," is already an issue today, costing incumbent providers with multiple provisioning systems millions of dollars every year. Some providers are experiencing between 20-50 percent of order fall-out depending on order complexity. When they try to quantify the cost per each percentage, they find that it can be as high as \$1 million per year.

Think about it—these are costs directly impacting the bottom line and recurring every year. Consider how many improvements a carrier could make using such funds. On top of this, customer satisfaction is affected. Order fall-out generally means that the elapsed time of the order is impacted, decreasing provider competitiveness and the ability to meet commitments on time. Invalid orders from competitive local exchange carriers (CLECs) can get into the incumbent local exchange carrier (ILEC) systems, aggravating the situation as the order falls out. As a result, there is both the additional ILEC cost and, in the worst case scenario, a penalty to be paid to the Federal Communications Commission when the ILEC misses its provisioning deadline. Last, but not least, order fall-out can cause revenue leakage.

As the complexity of operational support systems grow, there is a high probability that the current provisioning situation will further deteriorate unless providers take steps now.

**Q: Sounds like some providers are between a rock and a hard place?**

First, we need to understand that VoIP isn't the end goal. With long distance and international calls between one and five cents per minute, margins are very thin. While VoIP is getting a lot of attention now, it's just the first step on the way to convergent IP products. There is a flood of different voice and data services coming, enabled by IP technology. Providers need to be able to innovate and offer IP products to become competitive, or even survive, requiring a significant upgrade of their operational support systems. And this upgrade needs to happen seamlessly. It's almost like trying to build a new plane from the parts of other planes and new parts while in flight and, at the same time, migrating passengers to the new aircraft without them noticing. All of this needs to be done with minimum cost and maximum inventiveness and creativity, while at the same time positioning the upgraded provisioning system for products and services that are yet to be defined. And while we are at it, let's not forget the goal of minimizing order fall-out.

Providers are facing a stark choice—adopt new technologies and remain competitive, or be left standing on the platform after the IP train leaves the station. To illustrate this in the U.S. market, think of the following statistics: RBOCS lost 28 million lines (about 18 percent) since 2000. The annual line attrition rate today is about four percent. There are a number of reasons for the loss—wireless competition, economic downturn, upgrade to broadband, etc. These numbers illustrate that standing still is not an option. Note that VoIP has caused only a small portion of these losses—the full VoIP impact has not yet hit. The competition will intensify and price wars have begun in already low cost VoIP areas despite the already low margins.

**Q: What should a new operational support system (OSS) offer?**

It should be elastic, easily supporting new products and services. It should support far more than "bill stapling": convergence is a must, as providers introduce new voice and data products on heterogeneous networks. This also means the OSS needs to be dynamic with real-time capabilities—able to adjust a provisioning need quickly to customer needs. The

OSS should be more customer oriented, understanding customer buying patterns, offering upsell capabilities based on customer usage patterns, and providing self service.

It also needs to be modular. No provider wants to change billing and customer care systems if their real need is just a provisioning system upgrade. Modularity also gives the option of introducing "best of class" service activation systems from different suppliers. In short, the system should be able to manage all services seamlessly across channels, product lines and organizational boundaries, leveraging "best in class" modular solutions from different providers.

As the pace of innovation increases, providers will look for such "best in class" systems from different providers while, at the same time, try to increase their speed to market and decrease costs. Of course, this goes well beyond provisioning and needs to include billing and customer care. It's like going through a tunnel and opening different doors—customer care, provisioning, billing, enterprise product catalog, etc. A provider can only succeed in introducing new convergent products when all of these doors are open. Convergent products may contain different services (time based, data based, context based), support different networks (wireline (PSTN, IP) and wireless), and new parameters (class of service, quality of service). Yet even without this new wave of services, providers are facing fines due to their inability to provision within time frames dictated by public utilities commissions, as well as out-of-court settlements due to their inability to meet customer commitments. Provisioning will need to support new devices (routers, switches, firewalls, servers, gateways, gatekeepers) and seamlessly work both on and off providers' networks and systems, presenting partner solutions to the customer in the same easy way as if these were all offered by one provider.

The wireless sector has been leading the way in introducing new products and services. Who would have thought that ring tones would translate into billions of dollars in revenue? Other examples from the wireless sector include multimedia messages (sending photos and video clips created by new camera phones), Web surfing, e-mail, EBPP, etc. Entertainment (TV, gaming, music) is also available. Different content (both free and paid) was key to the success of products like i-mode from DoCoMo. Location based services can be supported in 3G and sometimes combined with a quick price negotiation online. Voice is becoming a commodity with rapidly decreasing profit margins. Wireless providers need to "sweat the assets" to recover their 3G investment. It's a hard sell to convince a consumer he should upgrade to a premier 3G price plan if he uses just voice or text messaging, which are available on older generation phones. Just as SMS increased profits in 2G, innovative new data based product introduction will be key to 3G commercial success.

We are now seeing a trend in Europe where fixed wire providers are introducing similar products to wireless providers. After all, there is no reason why someone shouldn't be able to download a customized ring tone or send an instant message from his (IP) phone. (How many users prefer using IM from their computers even if a handset is nearby?) As cable providers compete in telephony, we will likely see telecom providers branching into entertainment. Music downloads are popular and many providers, including Apple, Walmart, RealNetworks and, most recently, Microsoft, are tapping into this growing market. Fixed wire providers have advantages over wireless providers when it comes to broadband, and their challenge is to capitalize on it.

IP is often tagged as "disruptive technology". There are new business and legal rules, and a real potential to define new markets and audiences. The rewards and penalties are huge. The vision of providers and the execution of that vision will define tomorrow's winners and losers.

**Q: Lots of issues—so where is provisioning headed?**

First, the days of monolithic systems are over. Second, as operational support systems become more complex, provisioning systems will need to handle increased provisioning complexity for convergent products. Third, it's unlikely that Microsoft provisioning will emerge. After all, there are numerous disparate provisioning systems in the current "simple" (PSTN) paradigm, with all of the issues and order fall-out already mentioned. One has to think of a system that builds on existing legacy capabilities to minimize capital outlay, an approach that doesn't require a total replacement of everything. The provider needs to be able to identify the largest "problem systems" in the provisioning maze and either fix or replace them. As the OSS evolves, the ability to incrementally add new capabilities, as well as the intelligence to "get around" flaws in existing legacy systems is needed.

**Q: What will providers be looking for?**

Providers will be looking for a modular approach—a system that doesn't want to "own" all data (e.g., customer, product catalog, etc.), just the data necessary for provisioning. This will enable providers to execute faster and cheaper upgrades and provisioning system replacements. What's really needed beyond modularity is the intelligence to weave it all together. Legacy systems need to work with new IP provisioning and service activation systems in such a way that a convergent order consisting of different services can be shepherded through the labyrinth of different legacy and third-party systems both on provider networks and on partner networks and systems.

**Q: Is that like EAI?**

EAI can be used for integrating such systems. However, EAI alone does not provide the level of intelligence needed for complex provisioning. The goal here is to "insert" provisioning intelligence, enabling new systems to be deployed while capitalizing on existing legacy systems. This maximizes the value of the new systems in a way that doesn't require legacy system changes. From the legacy system communications perspective, this is like point-to-point communication between two legacy systems. In other words, legacy system #1 doesn't need to be aware of the results of legacy system #2—the intelligence layer takes care of such interdependencies in order flow. Ideally, the legacy systems will not require any changes with the insertion of this layer. This "brain" behind it all then acts as a traffic cop, shepherding orders through. Where possible, it provides self-correction of orders that fell out and, where such auto-correction is not feasible, it sends alarms to technicians to initiate a manual intervention. An industry analyst I spoke with drew the analogy of an intelligent octopus with tentacles to different third-party and legacy service activation and provisioning systems. This "octopus" then takes care of all the dependencies and intricacies of complex provisioning.

Another difference is that of the end user. With EAI, a technical person programs the intelligence and maintains it thereafter. With a new generation provisioning system, an SME with no programming experience is in control and sets up the provisioning logic. This decreases time to market and costs, which are both key to a provider's competitiveness.

**Q: What about workforce management?**

This is another area where significant improvements can be made. There is a real need for fixed wire and cable providers to improve both intelligence and the timeliness of scheduling. There are many real-time systems that have a long way to go before they can manage the complexities involved with the different handling of telco orders, workforce skills, workforce geographic distribution, critical paths, etc. I've seen real-time systems that place all telco

orders into one "project" and then schedule the task that slipped the most first, with no understanding of separate orders, which tasks were on the critical path, or customer value and priority. That may work well for scheduling a cab fleet, but it won't do for a telecom provider.

There are systems that handle the telecom complexity but work in batch and don't provide an up-to-date view of workforce utilization. If a provider has thousands of technicians, one can guarantee that, in the first few hours of business, things will change—tasks will get completed late or early and orders will get cancelled at the last minute. Key strategic business customers may place an urgent order on condition it can be provisioned quickly. And with the large number of orders, the intelligence in such systems also needs to be implemented in a way that would enable most of the tasks to be done in an automated way, while giving the SME/manager a chance to manually update an order, if appropriate. In unusual situations—for example, natural disasters—the system needs to be able to reschedule everything based on the latest priorities.

Such a system also needs to understand different skill types and levels. That way a more senior resource can be scheduled to handle more difficult technical or customer situations, and a technician with skills in only one domain can be scheduled ahead of a colleague with several skill sets to avoid idle time. Ideally, such a system would take into account customer value—the same order from a gold or "standard" customer is scheduled differently. However, the system also needs to avoid a "perpetual slip" where, with too many gold and silver customers, the standard customer never sees his order fulfilled.

Last but not least, dependencies (e.g., appointments) need to be handled correctly. The system needs to offer customers the right choices for appointments and, if items get rescheduled, it needs to understand agreed upon appointments. How many times has a customer waited in vain for half a day for a technician to show up? How many times has the marketing department rolled out products with little understanding of the capacity to fulfill the order swiftly? And who says the appointments need to be in half-day commitment increments. Why not an hour? For large business orders, the workforce system needs to understand that workforce groups in physically different locations will fulfill an order, possibly with cross-dependencies.

Modularity is also key. Workforce management from the order fulfillment perspective is more important for fixed wire providers as wireless products get activated from the handset.

**Q: How do order management and workforce management relate to each other?**

It should be a complementary relationship. An order is managed by an intelligent layer, and it reaches to the workforce management system, as it would reach to a service activation system. This can happen during standard scheduling and optimization or in exceptional cases (e.g., when an order falls out and an alarm is generated, and a technician needs to fix it). One doesn't want a "tug of war" between the old and new workforce management system schedulers.

**Q: Any parting words?**

Operational support systems are changing at a very fast pace in both the fixed wire and wireless sectors. With new entrants to the market—cable providers and companies specializing in IP products—competition is increasing and the pace of change is accelerating. To stay competitive, new products will need to be rolled out quickly. Now is the time to figure out how to cut order fall-out, decrease costs and support new services. The old way of provisioning for relatively "simple" products and services had too many problems to assume it could handle the increased provisioning complexity of IP products and services. Therefore, a new approach is needed. The train is leaving the station and survival is at stake for those left behind.



### **About CGI**

CGI specializes in delivering high-volume, high-performance billing solutions to communications providers of all sizes around the globe. Through our management consulting, outsourcing, systems integration and solutions development services, we help providers reduce costs while maintaining superior customer service. CGI also delivers the market's leading rating, billing and order management application suite—CGI-AMS Tapestry®—to facilitate the entire billing cycle. Together, our products and consulting services meet providers' needs to build a more cost efficient business, minimize risks and provide a consistent customer experience across channels and functions. For more information on Tapestry, visit [www.cgi.com](http://www.cgi.com).