Convergent Billing: It's Not Just About the Bill

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In the 1970s, many electric and gas utilities in the United States sought to increase the size of their revenue streams by expanding into another line of business: home appliances. From the point of view of the utility suppliers, the connection between the two businesses seemed natural, especially during the 1970s energy crisis. Who better to buy from than the energy experts?

A related idea has emerged among European energy suppliers looking to add convergent billing as a way to enhance profits in the face of deregulation. The parallel is this: What appears to be a natural extension of the business in reality might not be. Convergent billing is the practice of providing a single bill to the customer for multiple services, such as electricity, gas, telephone, Internet, water and cable TV. On the surface, the logic of convergent billing is self-evident. A single statement is more convenient – both for presentation and payment. Furthermore, such services have common characteristics that lend themselves to convenient billing. The services are all virtually indistinguishable from one supplier to the next. They are all metered. They all arrive over a pipe. They all lend themselves to volume or time-of-day based billing plans. Billing on a single statement would be more convenient to the customer. It would also create the possibility of offering volume discounts across product boundaries (for example, if you buy enough gas you'll earn a discount on your electricity).

During a time of declining profit margins, convergent billing would seem like an obvious way to turn an overhead expense into a profit center – adding value to service, taking a greater share of the wallet and, in effect, "owning the customer" by becoming the customer's single point of contact. This, in turn, would erect psychological and practical barriers against any competitors not already part of the bill. A retailer might even be asked to pay a fee to occupy space on the bill. Conceivably, that could even include advertising space.

Finally, convergent billing would be of particular benefit to industrial and large commercial customers that have multiple points of presence in various countries. A company such as Peugeot, for example, might find significant value in a single bill covering all the countries in which they operate – particularly if such a bill were delivered online and accompanied by analytical tools that mapped the most economical billing options against the company's particular usage patterns.

Not So Fast

If convergent billing is such a good idea, one could reasonably ask the question, "So why hasn't it happened yet?" Well, it is happening to a limited degree. Case in point: Shell Energy Services Company (SESCo), a provider of both gas and electricity in several states of the U.S. The company could provide a single bill to customers who buy both gas and electricity from SESCo. On the international scene, convergent billing is happening in telecommunications, where telecommunications companies and cable television operators increasingly send customers a single bill for phone, cell-phone and Internet service – again with all services almost always coming from a single provider, who is also the provider of the bill. A trend that will take longer to become established is a single bill that represents multiple retailers, only one of which (or none of which) also happens to provide one of the services for which the customer is being billed. Like the appliance business, the convergent billing business has its own operational requirements that make the scenario difficult to execute. For example:

- How do you capture usage information for different services from different providers?
- How do you capture different units of measure (for example, kilowatts, cubic feet and call minutes) in a single system?
- How do you apply different rate plans across service types (for example, long distance calling plans versus energy usage plans)?
- How do you manage the meter routes that could be different for each commodity?
- How do you apply different sets of business rules that reflect different rate plans, service types, political jurisdictions, tariffs, tax codes, customer classes and so forth?
- How do you do convergent billing when the industries involved are becoming less convergent – for example, when electricity transmission, generation and distribution become separate entities that can send out their own bills?
- How do billing companies facilitate the resolution of billing disputes for services they don't provide themselves?
- How do you manage partial payments? Who gets paid off first?

There is a lot more at stake here than just the bill. The bill is the primary channel of communication between customer and service provider. Real incentives must exist for a provider to hand it over to an outsider. The outsider must perform the billing service much better and for much less cost than the energy provider could for itself. Factors to consider include timeliness, accuracy and value-added features such as analytics. Unless demonstrable differences exist between what an organization could do for itself and what an outside party could do, convergent billing will become one of those interesting ideas that never really catches on.

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What It Takes

Looking at the factors in the preceding list makes it clear that the one requirement they all have in common is the existence of robust information technology (IT) capabilities. Billing services must be able to handle information in many different forms and interchange information easily with many different kinds of entities. Indeed, from an IT requirements standpoint, what is needed for convergent billing is not unlike what is needed for billing in a deregulated market in general. Fundamentally, deregulation requires the efficient exchange of information among market participants, both horizontally across a market and vertically between suppliers and consumers. The horizontal dimension is illustrated by the exchange of information between retailers, such as when a customer who is already buying electricity from retailer A decides to switch to retailer B. Retailer B must request and obtain usage information from retailer A; namely, the quantity of kilowatt-hours this customer consumed each hour over the past 12 months. Retailer A must then receive the request, compile the

information and send it back in a form that retailer B can apply. That information exchange allows retailer B to propose a pricing plan that conforms to the customer's usage behavior. The plans might be any of the following or some combination:

- Variable guaranteed: Price varies based on time-of-day or volume usage, but rate schedules do not vary over a specified number of months.
- Fixed guaranteed: Rate schedules do not vary over a specified number of months.
- Floating rates: Price is indexed to published market prices.
- Caps and collars: Customer pays a floating rate guaranteed to stay below a certain point (cap) or within a specified range (collar).
- Shared savings/risk: Customer pays a floating rate. If market price goes below a certain point, the difference is applied to a "savings" account. If the market price goes above a certain point, the customer can draw from the savings account to pay the difference, potentially resulting in a negative balance. Retailer receives half of any leftover savings and contributes half of any leftover negative balance.

The vertical dimension is illustrated by the need to share information throughout the newly disaggregated layers for producing, transmitting, distributing and selling energy to the customer (the commodity supply chain.) Among other things, this means that a customer might actually receive more bills in a deregulated environment than in a regulated environment, depending on whether the retailer, the distributor or both send out bills. The information shared among market participants is complex and highly variable. Not only can it reflect different rate plans, it can reflect different taxes and special tariffs (for example, for nuclear decommissioning) depending on which jurisdictions are involved and whether a charge applies to generation, distribution or transmission. And not only must all this information – both rules and data – be brought together, it must be brought together quickly enough so the bill reflects current charges.

Data complexity and variability would make information interchange difficult even if everyone involved were to use the same technology and in the same way. What makes it even harder is the existence of multiple technical standards and business rules that vary greatly between companies. Organizations store data in different formats, they use different data definitions to populate their databases and they use different rules for interchanging data in transactions with trading partners. Billing and financial management systems typically can't communicate between companies. Neither can customer information systems (CISs) – the software that provides an "across the organization" view of data located in disparate systems. From an industry perspective, many CIS systems suffer from what might be called "tunnel vision." They can indeed provide an overview of the customer's information – if the information is stored in the same organization and has the same semantics.

Convergence, however, is about merging data from multiple organizations and multiple industries, not just multiple systems, so that you can do things with the aggregate you could not do with the individual pieces. Presentation of the combined information on a single statement is just the start. The convergent billing company should also be able to manage the data as if it

were its own. For example, they should be able to "drill down" to access underlying usage or price data in response to customer inquiries. From a marketing perspective, they should be able to cross-sell and bundle services that link data across companies and commodities.

The special challenge of convergence is that these barriers don't exist only in one industry, but in every industry. Electricity, gas and telecommunications industries have their own stories to tell in terms of deregulation and disaggregation. If allowing multiple electric power retailers to exchange usage data on behalf of their customers is a challenge, so is converging data from multiple electric retailers, gas retailers and telephone companies – as well as across their respective vertical supply chain partners: transmission companies (gas and electric), distributors (gas and electric) and long distance providers (telecommunications). Each of these other domains also presents its own patchwork of business rules that vary across corporate and jurisdictional boundaries. Before we can do convergent billing across industries, we must first achieve convergent billing within industries. Short of replacing all of the billing systems in all these companies, convergent billing will require a new approach to making systems already in place work together.

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A New Approach

Replacing every system with the same system so that everyone's IT infrastructure speaks the same business language is an idea that won't work, and not just because of overwhelming costs. Operating a gas transmission facility is different from operating an electric power generator, which is very different from operating a cable television franchise, and so on. There are very good business reasons why you might not want to replace an IT system that works well in one industry with an IT system that works well in another.

An alternative approach would be to write system-to-system connectors that convert the business rules, data definitions and formats from one system into the native business rules, data definitions and formats of another system. This way, for example, an electric retailer's CIS could read the usage information from a gas distributor's financial accounting system. This approach also would obviously be unworkable since if there were N systems involved, you would need 2^N connectors. Because each system also must be customized to reflect local regulations and tariffs, you also would have to multiply that number by the number of jurisdictions involved. This is obviously a very large number of connectors, each of which would have to be updated whenever one of the systems on either side of the connection was changed.

A third, and more workable, approach is to employ connection technology with high-level configuration language capabilities. Unlike a programming language, a high-level configuration language allows business rules to be expressed using natural language (English, French and so on) similar to how a utility's business analyst would describe these rules to a programmer. The risk of misinterpretation is thus avoided, and the analyst has a direct experience of what the system is actually doing. This means that billing rules are more apt to be implemented sooner and with fewer mistakes. It also means that technology won't get in the way of analysts' decisions about how to construct innovative convergent billing models that have value to the customer.

High-level configuration languages also can dramatically reduce the complexity of translating business rules, data definitions and data formats. That's because these rules never have to be "hardwired" (programmed by hand) into the systems in which they are integrated. Rather than the rules themselves, all that need to be translated are the formats in which those rules are expressed. Integrators can usually be implemented quickly, especially where systems already understand popular data interchange and integration standards such as XML or Microsoft's COM objects. Once the high-level configuration language has been integrated for a system, that system instantly joins a family whose members can talk to each other by speaking the same language. Furthermore, reprogramming an integrator is much easier than reprogramming all the business rules on which it relies. Not only are there far fewer of them, but integrators tend to change much less often. That's because the basic data definitions employed by organizations seldom change. If they did, the change could affect all applications, not just the high-level configuration language integrators.

As the high-level configuration language gains support, many of the integrators the provider needs would become available off the shelf. The remainder could be implemented in a few weeks. Variations in business rules caused by differences in jurisdiction could be handled easily for all systems at the high-level configuration language level.

Convergence is much harder than it looks. There is much more involved and at stake than simply printing multiple companies' bills on a single statement. The good news is this: Electric and gas utilities will have already resolved these issues successfully when they deregulate. By itself, deregulation implies an efficient means of interchanging data and business rules vertically and horizontally. Convergence simply means that the dimensions of those two axes have been extended across industry and political boundaries. However, the central issues of efficient interchange remain the same. Sooner or later, deregulation will lay the technical foundation for convergent billing – an approach to information interchange that involves high-level configuration language capabilities. ■

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