

The Evolution of Price Modeling: From Billing to Dynamic Transaction Management

Executive Summary

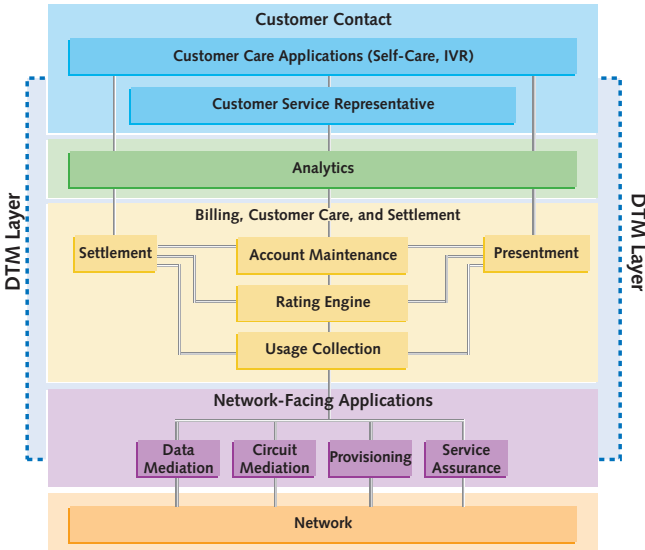
Today's communications marketplace is a quagmire of delivery networks, support infrastructure, and often disparate technologies that can limit a service provider's flexibility in today's economy. As businesses and consumers flock to next-generation services, and demand quality at a price point that demonstrates value for services, today's service provider is under more pressure than ever to deliver based on those value points. However, in today's economy, replete with intangible services with various price points, suddenly the importance of a dynamic pricing capability becomes more important than ever. Particularly in the wireless communications sector, carriers face a technology challenge of being able to bill for services based not just on value, but also on how well the service was delivered from a quality perspective. Whereas quality of service is a concept that has been discussed but never required in the voice segment, the emergence of data services delivery, particularly over less-than-stable delivery networks, reopens the discussion more intensely than ever before.

Enter the concept of Dynamic Transaction Management (DTM), whereby the service provider looks at each individual service as a type of transaction, and regards the delivery as the end point, but has the ability to be flexible in the way the service is rated, priced, and ultimately billed (see Exhibit 1).

As carriers move toward the delivery of complex, next-generation services, the quality of those services can be affected by numerous internal and external factors, which in turn can (and often will) affect the delivery of those services. Simple ratings and set pricing for these types of services will not be viable in the long term. Customers will likely expect real-time pricing adjustments based on the service delivery.

Exhibit 1 Dynamic Transaction Management: Unifying Front and Back Office to Create Greater Flexibility

Source: the Yankee Group, 2002



This Report outlines the current changes from the traditional business models toward the unknown expectations of newly formed business models in future market environments. It also outlines the academics of how pricing models are changing, and how Dynamic Transaction Management will probably play a significant role in the future of not just billing and customer care but also of how businesses are set to operate in the new economy.

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I. Introduction

In today's new economy, businesses, consumers, end users, and anyone who touches a product or service assign a certain level of value to what product they get or what service they receive. Thanks to the ever-changing information age, end users now have access to both free and fee-based products and services that were never even imagined as recently as 10 years ago. Since the end of World War II, the defining trend of developed economies has been toward the intangible product. Charles Goldfinger, a well-known European economist and consultant, has written much on the changing nature of global economies and the concept of intangible economies. In his paper, "Intangible Economy and Its Implications for Statistics and Statisticians," Mr. Goldfinger states:

The defining trend of the modern economy is the shift to the intangible. The economic landscape is no longer moulded by physical flows of material goods and products but by intangible streams of data, images and symbols. The source of economic value and wealth is no longer the production of material goods but the creation and manipulation of dematerialised content. We live in the intangible economy.

The economic landscape, particularly in the telecommunications sector of the present and the future, is no longer shaped by physical flows of material goods and products, but by ethereal streams of data, images, and symbols. On the demand side, we consume more and more content-based services that provide us with information and entertainment. On the supply side, intangible assets such as brand, human capital, intellectual property, and knowledge have become major determinants of companies' performance and value.

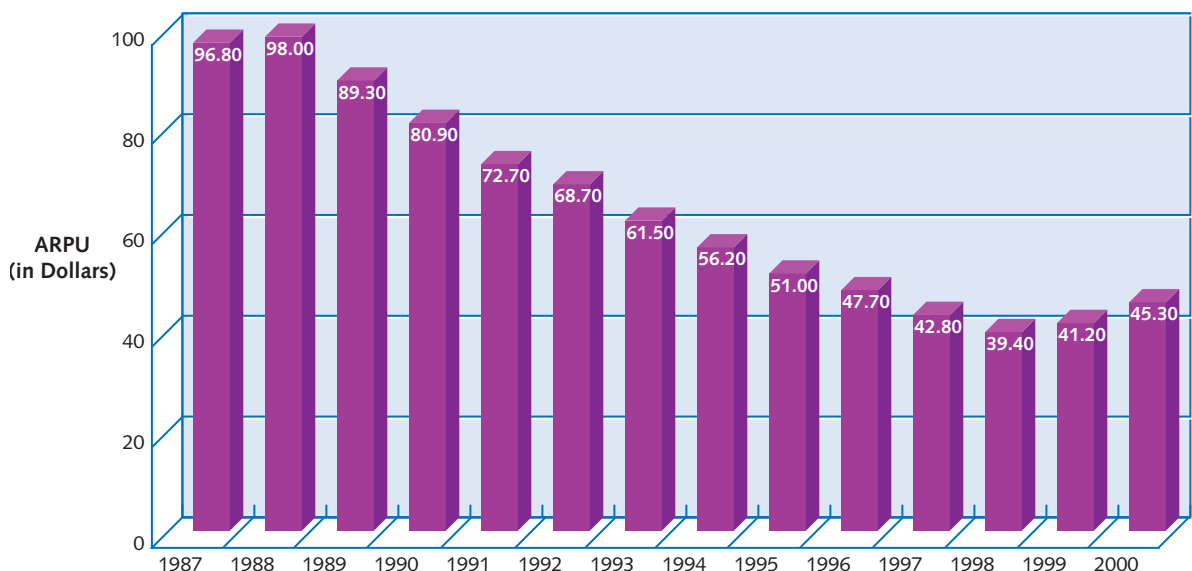
Prices of new product services have fallen, particularly in the telecom/IT sector, whether in computing or telecom hardware, software or services, or even in communications services. As an example, the ARPU of mobile phone operators decreased throughout the 1990s, while usage increased (see Exhibit 2). In 2001, the communications sector was hit by some of the strongest pricing pressures yet, and software vendors found themselves selling products at anywhere from 15% to upward of 80% less than previous sales price points, just so deals could be closed and shareholders' revenue expectation could at least be partially met.

If we look at new technology sectors, the capability of the technology is certainly there; however, the overall profitability of new sectors remains dubious. Content delivery is a key area that everyone is watching closely, particularly since current types of content are considered to be free. Take Yahoo as an example: 200 million viewers and no subscription fees for basic services. Yet this is not as unique as it seems. It almost parallels the state of the newspaper industry: readership is four to ten times larger than the paid circulation.

Exhibit 2

Decline of Wireless ARPU in the United States

Source: FCC and the Yankee Group



As businesses focus on forming new relationships, let us not forget to add the new confusion that emerges as supply-chain members try to determine their current role in the relationship: Who is the supplier and who is the buyer? In many cases, each party plays the role of both in economic markets, and each party will have a different perception of price based on market conditions and prices. It comes as no surprise that in the late 1990s, we saw the emergence of new intermediaries acting as exchanges to facilitate the flow of products, services, and financial transactions between parties. While those exchanges may have been ahead of their time in terms of their own revenue-generating expectations, they did help bolster a whole new philosophy tied to billing and pricing. Economic transactions were no longer based on a single contract between a provider and a buyer. People and companies were linked via a business ecosystem designed to create greater efficiencies through exchanges that essentially combined skills and assets. In effect, those markets become transaction networks.

II. Traditional Business Model Conundrum: Out with the Old, Not Yet in with the New?

Many people perceive that in the new economy, old business models no longer work reliably. Whereas in the past, selling high-quality durable products was all that was necessary, this no longer works as successfully in the marketplace, as it assumes a fixed notion of quality. However, in the digital world, the ability to deliver the same product at potentially different quality levels became an emerging trend that was essentially ignored. As quality and price have become directly proportional to each other, competing on price has created treacherous “price wars” and can ruin an entire marketplace. The billing and customer care marketplace saw the warning signs of this in early 2001, as telecommunications spending decreased significantly; and the only way many billing solutions providers could solidify a sale was to drop their prices to more “affordable” levels. Regardless of improving economic conditions, the price points set in a previous market stance become more locked in than ever before.

In the new business models being tested in today’s market, many businesses are using the Internet as a pricing laboratory. The Internet provides a testing ground for various pricing schemes for software and service. This allows for broad pricing structures related to bundling, unbundling, and billing that is access-based, usage-based, and service-based, as well as price points through sponsoring or bartering—even though in today’s economy, the perceived value of a service does not necessarily correlate to the price that is presented to the customer (see Exhibit 3).

Organizations that deliver content and services via the Internet must follow four key business-driven paradigms:

- Establishing a perception of value.
- Delivering quality of service that meets expectations, and ensuring an understanding of that QoS technology.
- Delivering a price point that is billed to the end customer accurately and correctly.
- Integrating a new payment and collection system.

Exhibit 3

Comparing Service Value with Billing Value: It Doesn't Always Add Up!

Source: *the Yankee Group, 2002*

| | Perception of Value | Quality of Service | Pricing Model | Billing Model | Payment Model |
|--------------------------------|---------------------|----------------------|-----------------|-------------------------|---------------|
| Napster/File Sharing | Very High | Connection Dependent | Free | N/A | N/A |
| Voice over Internet (PC-to-PC) | High | Poor | Free | N/A | N/A |
| Online Retail | Medium | Very Good | Per Product | Shopping Cart | Credit Card |
| Online Stock Trading | Medium | Good | Per Transaction | Deduct from Transaction | N/A |
| Video-on-Demand via Internet | High | Not Possible | N/A | N/A | N/A |
| Video Streaming | High | Poor | Free | N/A | N/A |
| Instant Messaging | Very High | Very Good | Free | N/A | N/A |
| Dial-Up ISP | High | Mediocre | Flat Rate | Bill to Customer | Credit Card |
| Broadband ISP | Very High | Good | Flat Rate | Bill to Customer | Credit Card |

This newfound instability of service delivery is definitely structural in today's "new economy," and as a result creates a new economic paradigm: the "intangible" economy. As the intangible economy undermines traditional frontiers and distinctions, the technology community sees the overlap of telecommunications, information, and media/entertainment. Technologically advanced societies are also finding that time-honored separations between work and leisure, home and workplace, intermediate good and final output, and consumer and producer are becoming blurred. At the same time, it is the producer that must become aware of the flexibility needed to support the delivery of products and services to the end user. What one user perceives as value at one time may not be perceived as value by another user later in the product's life cycle. As seen in the Yankee Group's Technologically Advanced Family® (TAF®) Survey, it is the enthusiasts and early adopters who are the initial buyers regardless of the barriers. At the first stage of development, price tends to be less of a concern; but as the technology reaches the mass market, price pressures clearly increase and suddenly price management becomes a paramount concern to the supplier, as the technology is rolled out to a more generalized audience. This is not a one-off effect of transition to a new environment but a core trend. An intangible economy does not follow the rules of binary logic of exclusivity but those of fuzzy logic driven by supply and demand, and of the underlying logic of price management that parallels the supply/demand curve.

III. The Academics and Analytics of Pricing

In any economic environment, value is captured through pricing policies, though these differ considerably in traditional and intangible economies. In a product-oriented economy, prices are rigid, based on very few parameters, and are often imposed by governments, buyers, and vendors that are tightly interlinked. If people do not like a product or service, they generally will not buy it. Prices generally do not vary that greatly, and in an economic transaction the value is transferred from one agent to another. The relationship is fairly simple: the buyer and seller are the only players, and the transaction is managed by traditional billing systems.

In intangible economies, prices are flexible and are based on multiple parameters. The markets themselves are free, and people are interconnected in business networks aimed at providing the best bundle of services at the lowest cost. Prices are complex and highly variable, and during the economic transaction the value is often shared between participating parties. The buyer–seller value chain becomes increasingly dependent on intermediaries and their products/services, creating complex relationships within transaction networks and complicating the billing and customer care relationship. New accounting systems suddenly gain importance, as billing and customer care becomes more closely tied to third-party payment, such as loyalty programs, mileage programs, bundling of services, and traditional advertisement. Similar interest was raised once the concept of electronic payments began to emerge. While larger payments were easily understood and supported by EDI and ACH transactions between banks, and through payment processors like CheckFree and First Data, the marketplace saw the emergence of micropayment schemes (eCash Technologies, CyberCash, MilliCent), though none achieved any strong degree of success. Much of this was probably because the value of intangible goods was not proportional to the number of bytes they contain; there was often a free alternative; and there was poor aggregation of consumers and merchants. Measurement of consumption, no matter how precise, provides limited guidance to value determination.

Shifting Economies: From Products to Services

Customer demands, on both the consumer and the business side, have become much more individualistic, creating a new requirement for customized delivery. Add the fact that North America, particularly in the technology sector, looks to mitigate technology risk more often than not, and the marketplace sees a shift away from product-driven and in-house–supported solutions, and more toward services-driven and outsourced-based solutions.

This move in the telecommunications industry is quite visible: it has been shifting from a product-oriented to a service-oriented economy. In a product economy, the pricing structure was simple (15 cents per minute), the variation of the price was almost nonexistent, and the relation between the buyer and the vendor was direct (you were an AT&T customer). Now we are in a world of services: the cost structures are more complex, services are bundled, price plans are customized, and there are multiple intermediaries between the service provider and the end user.

The telecommunications sector has seen a big push toward a services-driven marketplace. On the billing and customer care side, even in the wake of customer ownership and customer loyalty, many service providers look to outsource many of their OSS/BSS technologies to vendors like EDS, IBM, or other systems integrators, thus creating a robust services business for the vendors responsible for hosting and supporting the solution.

It is fascinating to see that the consumers readily agree to pay their phone bill on a per-use basis, but demand that the content on Yahoo (or other portals) be free. The online services, including Internet and wireless, are a result of the confrontation and combination of three worlds: the media world, which includes multimedia content and news; the IT world, which brings with it interaction; and the telecommunications world, which provides links between people. **For the digital media market to blossom, all systems and processes *must* work together.**

Still, the right mixture of business models has yet to be found and it will take time for the ideal pricing models to evolve (see Exhibit 3). Before the Internet, online services were accessed through dial-up connection to the BBS. Two companies, AOL and CompuServe, understood that it was in their interest to take a part of the value from the telcos, and they built a network of POPs so that dial-up access would be a local call for everyone. Initially, ISPs billed using time-based charges. Then AOL gained decisive advantage by introducing a fixed monthly rate, independent of use, while other ISPs such as Prodigy continued to use the time-based pricing model. AOL won, but it is now looking for ways to extract higher value. Mobile operators currently face similar challenges of capturing value, and they have so far been successful. One of the reasons for the success of wireless services in Europe was Calling Party Pays (CPP). This process, where the person being called no longer pays for incoming calls (as is still the case in the United States), helped drive the massive adoption of the wireless phone. The value was hidden in the fixed-to-mobile price.

European GSM operators were also successful in introducing price discrimination based on perceived customer value. For instance, the range of short messaging services (SMSs) was enlarged to include higher-priced premium SMS. An SMS message that says, “Your car has been repaired and is ready” has more economic value than a “Have a good day” message. However, new challenges are emerging as UMTS and GPRS require an always-on mode, and thus their deployment is likely to spell the end of pure airtime-based pricing.

IV. Introducing Dynamic Transaction Management

There is an opportunity for the creation of a new space, which we call “Dynamic Transaction Management,” whose goal is to fill the important gap between the product economy and the intangible economy.

DTM can be defined as a comprehensive framework that can capture, measure, and share the value of an intangible product or service, regardless of its complexity, velocity, and volume. DTM is the space where a technical solution plays a critical role in managing the value in an intangible economy paradigm.

Based on the requirements listed in the previous section, DTM has four core components:

- **The Pricing Engine:** Covering the full range of pricing approaches:
 - Imposed prices by public authorities.
 - Calculated prices: specific formulae.
 - Negotiated prices.
 - Derived prices.
- **The Transaction Modeling Engine:** Supporting various models, including auctions and negotiations.

- **The Behavioral Database:** Containing data on customer behavior and responses, which brings feedback to the models.
- **The Integration Framework:** Tying in with other systems such as CRM, payment systems, accounting, mediation, and ERP.

With all the components mentioned above, Dynamic Transaction Management is the set of technical solutions that allows fast definition, test, and implementation of pricing policies; performs compensation between all kind of values; manages the proper repartition in the transaction network; and procures feedback for next pricing policies.

Understanding the Three Imperatives

The challenge for any communications carrier, e-business, or other new economy business is to capture, benchmark, and share all the value generated by these new services. Transactions are the only vector that allows such treatment of value. In turn, each transaction is based on a contract, which structures the relationship.

A pricing methodology for managing these transactions should reflect three imperatives:

- Value should be captured.
- Value should be benchmarked.
- Value should be shared.

In complex delivery chains, the value of a certain content or service is no longer generated by exclusive ownership. It becomes a function of widespread sharing and should be allocated to all parties—those that participated in value generation and capture, and those that share through multiple contract implementation and revenue distribution formulae.

How does today's new economy address these imperatives? Systems that manage multiple relations (i.e., payment networks such as Visa or MasterCard, or equity settlement systems) focus on value sharing. Systems like auctions, yield management, and traditional billing systems capture or measure the value, but their scope is usually limited to one or few techniques or approaches. Today, it is difficult to find functional comprehensive technical solutions that can satisfy all three imperatives, especially under conditions of high transaction volume. Having infrastructure that can support dynamic pricing policies, innovative accounting mechanisms, and transaction networks will be key for capturing, measuring, and sharing the value:

- Capturing value through an increase in the range of pricing approaches: flat fees, pay-per-use, value-based pricing, and so on.
- Benchmarking value through new forms of usage tracking and accounting: loyalty schemes, digital bartering.
- Sharing value through new transaction mechanisms: third-party payment, bartering, peer-to-peer, and so on.

V. Core Functions of a DTM Platform

Information technologies are, of course, the basis for any successful implementation of a functional DTM system; however, the organizational principle of DTM can only be achieved through the successful integration of several aspects around any service provider's infrastructure. The three aspects of DTM consist of the following functions.

Design of the Transaction Network

When building a DTM system, the platform must have the ability to design, build, or change all contractual relationships among partners in near real time, whatever the topology of the transaction network (forward value chain, bundle, settlement, commissioning, sponsorship, etc.), and to manage multiple accounting systems (standard money, loyalty scheme, bartering, roaming, clearing, etc.). Similarly, any DTM system must also have the capacity to design or change all price plans in near real time, whatever the complexity, and for any type of convergent service (voice, data, application, content, etc.). Lastly, the platform must have the capacity to simulate profitability of services on the network, and to run different scenarios in order to test the revenue-generating success of a service.

Value: Capture It, Benchmark It, Share It

At all levels of the value chain, parties will expect fast implementation of all contractual relations between partners in the network. Real-time rating of all convergent transactions in the network will also be expected for each of the different accounting units, as well as over the whole network. Of equal importance will be the efficient management of high data volumes.

Transform into Profit

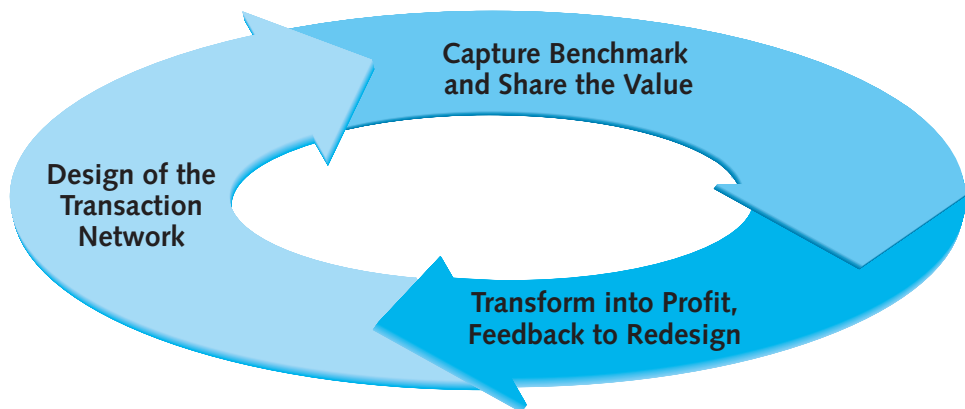
Once a product, a service, or valued content is delivered to the end customer, the next step is to ensure the ability to report efficiently inside the network. Similar to what the Yankee Group expects to see for the enterprise with cost allocation and network capacity planning, DTM gives every member of the delivery chain the capacity to track profit in real time and to use the results to feed back changes in pricing structure.

Today's communications service provider spends a lot of time and effort on revenue assurance. While revenue assurance does focus on fixing leaks in order to recover some lost revenues, it does not capture the value generated by transactions. This is done by profit assurance, which is the way to ensure that profit is generated by transactions.

Profit assurance drives the service provider to find the proper way to transform the value in profits, by creating a chain that starts from the design of a transaction network (including all partner relationships and price plans); then captures, benchmarks, and shares the value from all transactions, finally transforming the value into profit; and then starts the process again, rotating through the systemic loop shown in Exhibit 4.

Exhibit 4**Profit Assurance: A Systemic Loop**

Source: Highdeal and the Yankee Group



VI. DTM in the IT Landscape

The primary components of DTM already exist in today's communications, utilities, financial services, and e-business marketplaces, but the organizational principle around it requires substantial integration of both back-office and front-office systems. Most organizations that would move toward a robust DTM solution would look to integrate the following pieces of infrastructure.

Customer Care and Billing

Traditional customer care and billing (CC&B) systems have been designed to manage the bills that a provider sends to its customers. They manage direct relation between a buyer and a vendor; they manage one product at a time; and prices are usually hard-coded, making it difficult to change them outside a given range. These systems have been designed to manage a product-oriented economy, even though the product itself is immaterial. While billing systems may not perform all functions of DTM, they may perform others, such as provisioning, settlement, support for margin analysis, and other functions directly tied to customer care and revenue management. In a sense, CC&B systems represent a component that places a predetermined price on given customer interactions.

Customer Relationship Management

Customer relationship management (CRM) systems allow carriers and enterprises to efficiently manage all relations between customers and a company, by leveraging existing information with the company. While these systems currently have no overlap with DTM, the evolution from salesforce automation to full-blown CRM follows the same logic as the migration from basic billing to a more robust DTM system.

Financial Management Systems and Payment Systems

As the extension of electronic bill presentment and payment (EBPP) and electronic invoice presentment and payment systems, these systems manage the financial and accounting counterpart of the transaction, when necessary. As the core processes are directly tied to revenue settlement, they are totally complementary to the DTM system.

Operations Support Systems and Mediation Systems

Operations support systems (OSSs) and mediation systems play an integral role in the tracking, processing, and delivery of voice, data, or content services. As a result, they are completely complementary to DTM and play a critical role in the rating aspects. These systems allow the capture of data at a micro-level. However, they cannot transform the data into profit.

The integration of all these systems becomes an essential, although challenging and somewhat daunting, task for any service provider. While many service providers now have system consolidation underway, it is now more critical than ever before to realize that while simplicity of infrastructure may be a key goal, the complexity of services and service delivery will only increase. Thus, it is of great importance that any service provider look at either system enhancements or system consolidation to help provide added functionality and capabilities.

Who's Playing the DTM Game Today?

While the concept of DTM has yet to be truly recognized by the service provider community, several companies that have built their platforms around Web-oriented architectures, rating, and price modeling are squarely involved in supporting the concept. The Yankee Group has recognized Highdeal, MetraTech, RateIntegration, and Sepro as front-runners, as they have built billing and customer care platforms designed to support niche markets, using the latest Web-oriented architecture and supporting real-time rating and price management. We expect the concept to become more mainstream in very short order, considering that the thought processes and underlying goals around DTM are valuable to any service provider, particularly as content becomes increasingly important. The Yankee Group expects increasing acceptance and support from all other players in the billing, OSS, and CRM marketplaces, as the underlying principle will help all types of service providers become more efficient in customer management and service delivery in the hope of becoming more profitable.

Highdeal

Highdeal is a France-based billing and customer care software supplier with U.S. presence established in Redwood Shores, Calif. It is one of the strongest believers in the DTM framework concept, and from its product architecture it appears to have the most advanced implementation of the concept to date. Thanks to its history with France Telecom and a close tie to the European marketplace, the company's executives have experience in the wireless marketplace and a core understanding of the requirements necessary to support the content value chain.

Highdeal Software Suite was built to support pricing, rating, and billing for telecommunications and Internet services using a unified set of tools that help facilitate implementation of innovative value-based business models in real time. Service providers can first use Highdeal's technology to simulate service, and then create a seamless loop between the previously created pricing model, production, and the end billing process. The simulation tool also allows for profitability testing with real-life simulations, which helps demonstrate the impact of the entire value chain and allows the service provider to better manage revenue and costs.

Well suited for the wireless, content, and next-generation services marketplace, Highdeal's technology supports pricing and billing convergence for multiservice offers combining postpaid and prepaid accounts. As expected from all vendors in this segment, performance for real-time rating has been benchmarked and supports carrier-grade data volumes, and has been architected for interoperability as an extension to legacy systems.

MetraTech

MetraTech, based in Waltham, Mass., designed a modular OSS/BSS platform for billing, revenue sharing, and settlement, adopting Web standard XML and standard Web technologies as the basis for the architecture. The Yankee Group sees that through its current customers and customer targets, the company already supports the underlying DTM principle by allowing customers to support new and rapidly developing applications, and manage the process in real time. MetraTech launched the first version of its product in January 1999, designing it so that customers could capture and manage all aspects of the billing process, including metering, rating, taxing, and branding, while supporting Web-based bill presentment and payment.

Built using the company's already solid XML foundation, the solution enables service providers to test and launch new high-value, high-margin services quickly. The technology is purely Web-based, and allows customers to "configure, don't code" (i.e., launch creative pricing rapidly and automate the billing process so that they can view, sort, and analyze their charges immediately via the Web). It also provides revenue sharing and settlement as well as customer self-care. Marketing, finance, and billing operations, as well as IT, can not only manage rates but also construct combinations of cross-product services (billed by any vendor) with independent cycles for aggregate rating, discounting, and promotions. The product has been proven to be carrier-grade, as MCI and Bell Canada are current Tier 1 customers, while other innovative content providers in the conferencing space are also core customers. MetraTech hopes to capture the market for out-of-the-box as well as customized billing solutions, and can deliver the solution in both a software license and an outsourced/ASP model.

RateIntegration

RateIntegration, founded in 1999, has developed a true stand-alone transaction and rating platform that can rate complex, multidimensional content-oriented services across diverse network platforms, demonstrating a strong DTM message to those service providers looking to unify their back-office processes.

RateIntegration's PriceMaker rating solution was designed to provide carriers with a price management layer within their existing OSS. While acting as infrastructure that enables pricing as a core business tool, PriceMaker has also been designed to support real-time transaction brokering that can be linked to other systems with a carrier's OSS/BSS. RateIntegration therefore markets its solution to carriers unwilling to sacrifice their existing legacy investment to those seeking to implement new services quickly with minimal investment. PriceMaker is intended to deliver a mechanism for real-time data transformation and transaction management across a host of other business systems in order to provide a more holistic view of a carrier's internal communications-related traffic.

RateIntegration signed its first two customers in March 2001, capturing both a yet-to-be-named wireless carrier and Savannah, Ga.-based HO Systems, a wireless service bureau targeting the North American wireless carrier marketplace. Since then, the company has built up its partnership strategy with numerous convergent and IP mediation solutions providers (including NARUS and Kabira), systems integrators, and next-generation billing vendors.

Sevro

Dublin, Ireland-based Sevro rounds out the companies in DTM profiled in this Report. The company has developed a Value Capture Product Suite, a business-oriented solution that enables telecommunications operators and e-businesses to capture the value and generate revenues from new and existing services comprising voice, content, and data.

The Value Capture Product Suite is made up of:

- **e-Rate Modeller:** Used for price modeling and simulation, with output to a company's decision support systems.
- **e-Rate Rating Engine:** The basis for all core rating of services, which can be embedded or positioned as an adjunct platform for an existing legacy platform.
- **e-Rate Billing:** A real-time rating and billing solution, enabling organizations to simulate price plans, set pricing levels, and charge and ultimately bill for services on a retail and wholesale value chain level.

Currently, Sevro is focusing on the European and North American markets, and the company is aiming its solution toward wireless carriers, MVNOs, and next-generation content providers.

Other Expected Entrants

While the above-mentioned companies have already positioned themselves to take full advantage of DTM, it is only a matter of time before other vendors in the billing and customer care space move to support this idea. As wireless content services emerge first in Europe, the Yankee Group expects to see companies like Smarten, TelesensKSCL, Anite Telecoms/Calculus Solutions, Sofrecom, France Telecom's billing and customer care division, and Geneva Technology (owned and supported by Convergys Corp.)

support this ideology, particularly as wireless carriers focus on 3G services to drive their revenues forward. In the heart of DTM is the ability to support real-time value-based and service-quality-based pricing, two aspects that will be critical to any back-office infrastructure once the end users start using converged voice and advanced data services via their wireless handsets and PDAs.

The Yankee Group expects that the North American market will lag behind the European market in terms of DTM-driven billing and customer care implementations, but only by a short time frame. We expect to see Portal Software (using its Infranet Content Connector) and Abiliti Solutions (with its EventProcessor) add to the existing U.S. vendors mentioned above.

VII. Concluding Thoughts

As organizations focus on bringing new offerings to market, time-to-market for product delivery will continue to shorten while the number of new offerings increase. Add to this the volatility of customer loyalty and the risk of churn, and it becomes apparent that gaining increased control of delivery is more important than ever before.

Because the output of the intangible economy is elusive and fleeting, and its overall velocity is high, the value generated by this economy is much more difficult to measure, capture, and share. This is a structural phenomenon, and not linked to specific circumstances or policy environment. Dynamic Transaction Management has an opportunity to play a significant role in controlling and better managing this overall process.

In today's economy, new firms are agile but also fragile. Their competitive position is precarious, and economic hierarchies are constantly evolving. One can make a direct parallel from this kind of consumer behavior to the traditional business delivery models we also see. Take the billing and customer care industry in general: the marketplace is replete with vendors touting high-quality wares, and as a result, pricing pressures increase and end users often give up loyalty in favor of a better bottom line. Regardless of business type, these time-to-market constraints compel the companies to remodel their business in an object-oriented manner: services are no longer designed from scratch, but result in the proper combination of elementary business components in order to deliver the final services. Partners will be linked in a business ecosystem, and DTM should help provide the backbone of all the underlying processes that will be essential in the delivery of next-generation services.

VIII. Further Reading

“Welcoming the Class of 2001: An Overview of Who and What Are New in Billing and Customer Care,” *Yankee Group Report, Billing & Payment Application Strategies*, Vol. 2, No. 12, October 2001.

“Billing for Wireless Content: Examining the Complexities of the Delivery Chain,” *Yankee Group Report, Billing & Payment Application Strategies*, Vol. 2, No. 10, August 2001.

“Creating Awareness and Usage: A Look at EBPP Consumer Adoption Programs,” *Yankee Group Report, Billing & Payment Application Strategies*, Vol. 2, No. 5, May 2001.

“Convergys Corp. and Geneva Technology: The Sum Will Be Worth More than the Parts,” *Yankee Group Report, Billing & Payment Application Strategies*, Vol. 2, No. 3, March 2001.

“The Acquirer Becomes the Acquiree: Schlumberger Offers to Buy Sema Group,” *Yankee Group Report, Billing & Payment Application Strategies*, Vol. 2, No. 1, March 2001.

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