



# VALUE-BASED IP BILLING

## **THE HTRC GROUP**

P.O. Box 2087

2245 Mills Ct.

San Andreas, CA 95249

**[www.htrcgroup.com](http://www.htrcgroup.com)**

***About The HTRC Group***

The High-tech Resource Consulting Group focuses on service provider networking, providing consulting, custom market research, and market research studies to service providers and product manufacturers.

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## **Value Based IP Billing**

Internet products and services are being developed and deployed so quickly that providers of Internet Protocol (IP) services reference product cycles in “Internet years”—very short product development cycles measured in weeks and days rather than years and months. A service provider’s very survival hinges upon its ability to maintain a continual influx of new customers, as well as its proficiency in retaining existing profitable ones. Service providers will quickly lose market share to faster, nimbler providers who capitalize on implementing value based IP billing with their business infrastructure in order to be first to market with innovative IP based applications and services.

What is value based IP billing? Value based IP billing is a practice which includes gathering customer service usage information that flows through an extensible framework—one that supports the creation and deployment of integrated operational and business support applications, and provides customers dynamic pricing options and billing models.

Even as we witness an explosion in data traffic, generating high-margin revenue and creating unique customer value from selling pure bandwidth remains a challenge. IP service providers continue to seek ways to generate additional revenue by differentiating services while remaining focused on core competencies. The delivery of advanced IP services and outsourced applications to the enterprise market—a foreseeable result of the next IP services revolution—will bring about a scramble to capitalize on a multi-billion dollar high margin revenue opportunity. Since these new advanced IP services (for instance, IP collaboration and applications rental) will require a value-based business infrastructure that can provide intelligent real-time information, IP providers must utilize an actionable, real-time, usage-based billing system or fall behind faster, more nimble providers.

***the next IP services revolution will bring about a scramble to capitalize on a multi-billion dollar high margin revenue opportunity***

The purpose of this paper is to explore trends and opportunities in value based IP billing. In the first section, “The Need for Business Infrastructure,” we document current trends in service provider operations. The second section, “Industry Comparison,” is an examination of value based billing in consumer retailing with a specific focus on the grocery industry, and an evaluation of similar potential for the service provider market.

## ***The Need for Business Infrastructure***

### ***Current business operations***

IP service providers face many business and technical decisions, the most important of which involve the deployment of new services to maintain their competitive edge. IP services are dividing naturally into transport services and the delivery of advanced IP services over the transport network infrastructure. Differentiating traffic by user and application, IP services can be assigned guarantees on many levels of service—enabling a variety of pricing models and flexible packages.

Most IP providers are experts in transport services, that is, the ability to manage the day to day network operations and network expansion – ensuring customers of quality network access and performance. The level of quality and reliability of public IP networks today is the result of millions of dollars of investment for the specific purpose of creating a sophisticated networking infrastructure. IP providers have built amazing networks and now have an incredible opportunity to increase IP services revenue.

***competition has become a function of the value propositions of competing business models***

## ***IP providers require a business infrastructure that gives them the ability to deliver on the changing value proposition of IP services.***

IP providers urgently require a flexible business infrastructure that collects detailed IP information, enables intelligent real-time billing, and resides on a modular framework in order to deploy IP services effectively in a rapidly changing market. It is imperative that the IP provider has detailed access to customer usage, behavior, and preferences.

This flexible business infrastructure is critical, as competition has become a function of the value propositions of competing business models, not of the quality of network performance or the uniqueness of the latest technology.

***any competing service provider with capital can replicate that successful service***

Competitive strategies based on business models are changing almost daily. PC manufacturers are offering "Free PCs" to customers who sign multi-year Internet access agreements with selected IP providers. Yet another strategy provides free Internet access to customers who purchase a computer from that manufacturer. A wide range of new models are introduced rapidly into the Internet market, with no clear definition of success. Creating a robust business infrastructure gives IP providers the strategic agility necessary to react to these fast-changing market conditions and to refine the arsenals of IP services that bring value to customers.

IP service flexibility is critical to moving forward, as IP providers introduce new IP services in the network. The value in being first-to-market with a successful IP service is short-lived as other providers will quickly replicate any successful service. But time remains an essential factor, and the IP provider who can decrease the time it takes to develop, deploy, and deliver new IP services has an important competitive advantage. IP providers must have the capability of being first-to-market with a new service, as well as the capacity to resolve competitive threats. Business infrastructure is paramount in bringing usage-based IP services to market. IP providers require a business infrastructure that gives them the ability to deliver on the changing value proposition of IP services.

### ***If You Can't Measure It, You Can't Bill For It***

Pricing is a fundamental factor in differentiating between IP providers. The majority of service providers tender IP connections and account for throughput, but offer little more. Most Internet access business and residential customer connections are flat rate, with no standard tools to determine individual customer usage and profitability. Without the tools to track and maintain accounting of customer IP usage, differentiating between IP services by anything other than price and performance is reduced to trial and error. IP providers are boxed in when it comes to access services, seeking ways to differentiate "all-you-can-eat" flat rate services.

In order to price services, IP providers must be able to measure and track those services: if you can't measure it, you can't bill for it. If a service provider cannot bill for a service, then it is not a service. Tracking online IP behavior allows IP providers to break out of the confines of traditional flat-rate billing and determine individual customer usage, billing, and profitability. By tracking the details of customer behavior, IP providers can use the collected information to bill for specific IP services.

### ***Services***

IP providers operate in a competitive environment that makes it difficult to maintain Internet or IP service differentiation. When a service provider successfully deploys a new Internet or IP service, any competing service provider with capital can replicate that successful service by purchasing the same network equipment.

Not long ago, the only IP services offered were dial-up Internet access and email. As recently as 1995, most Internet users employed cutting-edge 14.4-kbps modems to connect to fewer than 200,000 Web sites. Businesses were just beginning to understand the value of business-to-business communications using email, the first universal IP based business service.

## ***business customers can reduce operational costs and scale network services with company growth***

IP services have changed dramatically over the past several years. In most industries, email is a fundamental business communication tool, and it is rare to find a business card that does not include email and company Web site addresses. Internet access and Web hosting services provide online resources that offer competitive advantages for any business.

Advances in broadband access technology, such as DSL, cable, and wireless, are making important contributions toward delivering IP services. These broadband technologies lower access prices through cost-efficient service deployments and enable providers to offer IP based applications in addition to Internet access. Broadband access services are also enabling providers to offer a range of IP based applications. Users can subscribe to a number of services ranging from renting applications to scheduling videoconferences as needed.

### ***Sticky Services***

Advanced IP services such as IP Telephony and IP videoconferencing can be deployed as usage based applications designed to attract new customers. To combat competition and churn, IP providers can sell "sticky services," and not just bandwidth. Essentially, sticky services are advanced IP services with a strong potential for retaining existing customers as well as attracting new ones. By enabling guaranteed services in their networks, IP providers will have the advantage of being able to offer or partner to offer high-margin, latency-sensitive applications, including IP Telephony, H.323 conferencing, audio/video on demand (and other forms of premium content), IP Fax, and applications hosting.

Applications Service Providers (ASPs) are developing IP based application services, and we are just seeing the first volley of hosted applications by IP providers. Broadband access technologies play a key role in enabling new services such as renting software over the network. IP based applications can be bandwidth intensive and may require an important service differentiation. Traditional business service applications

such as enterprise resource planning (ERP) are currently offered, and new, exciting applications that have not yet been thought of will soon follow. IP providers are in the process of locating the best avenue to deliver IP based applications. ASPs have been outsourcing information technology (IT) applications for some years and are now developing partnerships with IP providers to deliver IP based applications.

By subscribing to application services as needed, business customers can reduce operational costs and scale network services with company growth. This outsourcing of applications thus frees capital that would have been spent on in-house infrastructure and allows business customers to focus on their core competencies.

For example, a small to midsize company that needs to use an advanced Computer Aided Design (CAD) application once or twice during a product development cycle will now have choices. The company can purchase, install, support, and maintain a CAD application, or it can simply rent the application through its service provider. Depending on the amount of usage, renting a CAD application for \$50 an hour may cost significantly less than purchasing the license and installing, supporting and maintaining the application on an in-house server.

One challenge the ASP market faces today is how to efficiently capture usage information in a way that is beneficial to the ASP, the customer, and the software company that created the application. In our CAD application example, IP providers must measure customer usage and behavior in order to provide customers dynamic pricing options and billing models that promote sticky services.

### ***Industry Comparison***

#### ***Consumer Retailing***

Every mature industry has developed the tools needed to gather important customer behavior information.

## ***knowing your customers' behavior patterns is knowing your business***

Grocery stores, for example, track customer purchases for numerous reasons, one of which is to determine where to place grocery items. The most sought-after items can be placed some distance apart so that customers must walk through as much of the store as possible, with the expectation that customers will see and purchase additional items. Most grocery chain stores offer discount membership cards that track personal purchasing histories. They can then use this information to offer “specials” unique to the customer. The retail grocery industry has placed great emphasis on acquiring knowledge about their customers, because knowing your customers' behavior patterns is knowing your business.

In addition, the grocery store can generate substantial revenue from product manufacturers seeking to increase market share. For example, armed with the knowledge of what customers are buying, grocery stores can produce unique coupons. When a customer buys 5 liters of Pepsi, Coca-Cola can pay to have Coke coupons printed on the back of the receipt.

### ***IP providers face slim margins on bandwidth services***

Some chains can offer real-time discounts based on what or how much a customer is buying. Those stores with their own brands of products would obviously generate more revenue by increasing sales of those products through their own distribution channels. Hence, they have a competitive advantage based on billing through product bundles such as two-of-the-same items for the cost of one. Another value based, real-time billing offering, designed to retain high volume, quality customers, consists of giving percentage discounts on future purchases when customers spend over a certain dollar amount.

Grocery stores operate on slim margins and continually seek ways to increase revenue and reduce costs. The grocery business infrastructure started with the cash register, then added significant and beneficial improvement such as the adoption of standards-based bar codes, resulting in reduced labor costs for tasks such as inventory, price changes, and check-out. The

business infrastructure advanced further by utilizing customer databases that enable customer affinity cards that anticipate customer buying behavior and customized product offerings to meet the individual needs of customers. The business infrastructure increases revenue by meeting the individual needs of customers, and reduces costs by introducing operational efficiencies.

### ***Service Provider Industry***

As Internet traffic increases over time, traditional, lower-speed access technologies become congested with a variety of traffic ranging from email and Web-surfing to mission-critical ERP traffic. The common solution to congestion is to increase bandwidth. Broadband consumer access technologies have only recently begun to emerge as viable services. Last-mile technologies such as Digital Subscriber Line (DSL) and cable modems are providing solutions to the traditional access bottleneck—the telecommunications connection from a customer's location to the service provider. Use of broadband business access technologies, such as DS3 and OC3 deployments, is increasing with enterprise demand for bandwidth. Broadband access services are enabling new, advanced services, which can increase revenue to IP providers.

Some grocery store market characteristics parallel those of service providers. IP providers face slim margins on bandwidth services, just as grocery stores contend with selling commoditized products. And, much like grocery stores, IP providers at times have surplus inventory—an excess of bandwidth, for instance—during non-peak traffic periods. With value based billing, a service provider can offer immediate discounts on non-peak bandwidth usage, much like a grocery store can dispose of excess soda inventory by offering two-for-one bundles of soda. The liquidation of surplus can attract customers, make room for higher margin products, and retain existing customers. Value-based billing enables the store—or an IP provider—to gather information on the buying habits of its custom-

***The liquidation of surplus can attract customers, make room for higher margin products, and retain existing customers***



ers for evaluation and analysis. Are they daily shopping customers, convenience shoppers, or budget conscience shoppers? Do they buy all or most of their items at one site? Understanding the differing values and preferences of these groups helps the grocer, like an IP provider, better customize product, services, and promotions to attract and retain profitable customers.

IP providers can benefit from the grocery industry's example of adopting the business infrastructure that enables it to adapt and refine

### **IP providers... can offer discounts or bundled incentives for house brand IP based applications**

business strategies based on changing market demands. Today's dynamic IP services market requires real-time billing (proactively at the point of consumption) capabilities of the business infrastructure. Just as gro-

cery stores can give their customers a percentage discount when purchasing over a dollar amount, IP providers can offer similar pricing programs based on bandwidth and IP service usage.

IP based application services can be offered by a service provider or through an ASP partnership. IP providers, much like grocery stores, can offer discounts or bundled incentives for house brand IP based applications, versus premium brand IP based applications such as videoconferencing.

Without an intelligent business infrastructure, such as the model we have described, IP providers have absolutely no means of gathering detailed customer information and using that information to create, deploy, and modify IP services. The old piecemeal IP business infrastructure, analogous to a grocery store charging customers a flat fee to enter the store and then allowing them to take whatever they want, is not practical.

### **Industry Maturation**

A sign that the IP services industry is maturing is the introduction of new tools that track the user's online behavior. When these tools are

combined with standards based billing architecture that includes easy-to-integrate service components, IP providers can develop a complete flexible service platform that scales with service growth.

### **Customer Focus**

Historically, IP providers have been limited in the services they could offer. IP services, with the rare exceptions of those providers who built their own equipment, were generally dependent on the functionality of networking products. The Internet access market has been fairly elastic with mild competition. Access, however, has become increasingly commoditized, resulting in more competition and narrow margins.

In offering services to the customer, most IP providers have used an approach which focused on network and technology. Increased competition and new IP service-enabling technologies, such as QoS, broadband, and value based IP billing facilitate a shift in service focus from the network to the customer.

### **Quantity to Quality**

For most IP providers, growth is defined by the increase of paying subscribers, with the value of a service provider's subscribers roughly determined by a factor (generally influenced by the amount of subscribers) times annual revenue. The goal has been to increase the number of subscribers as fast as possible, thus increasing the value of the provider. There has been no economic way to identify the value of individual subscribers.

With value-based billing, IP providers can determine the value of individual customers by identifying customer purchasing and usage details. Not all customers are created equal. Some cost more than others, depending on network resources used, such as a small percentage of dial-up users who consistently tie up modem

**growth is defined by the increase of paying subscribers**



ports for lengthy periods of time. IP providers can also identify the good customers and focus resources to retain the “Value added” customers.

Mechanisms that gather detailed attributes of customers’ IP behaviors arm the provider with the ability to make intelligent account decisions. A customer, for example, who abuses email by sending out unsolicited commercial email (UCE), can quickly be identified. IP providers can take immediate action by terminating the customer’s account or by offering a usage-based email service. IP providers can segment their subscribers into groups based on IP usage attributes, focusing on retaining profitable customers, and taking action on the marginal or abusive accounts.

### Billing

Relative to the delivery of advanced IP services, new IP providers can learn from previous generations of service providers who are enmeshed in an inflexible proprietary billing system into which it is difficult to integrate new services and pricing options.

The IP service environment is changing as previous business practices become obsolete and make way for new service architectures. Margins on basic Internet access have been chiseled away, forcing providers to expand IP services or generate additional revenue. A service provider’s survival will rely on the rapid deployment of IP services in response to the marketplace. A major influence upon the growth of these services will be the billing architecture

### **The value based IP billing architecture promotes faster service integration**

that IP providers adopt. The new billing architecture must create advantages through dynamic deployment of new and bundled services that can parallel changing business models and embrace changing pricing models.

The time involved in bringing a service to market has always been a competitive factor in developing successful services. As we discussed

earlier, IP providers quickly replicate successful service deployments. Time is critical when integrating customer care, operations software (OSS), business software systems (BSS), service management, and billing software. The efficiency of IP-based service deployments affects marketshare and revenue.

The effective value-based IP billing architecture will include an extensible framework that supports the creation and deployment of integrated operational and business support applications. The development of standards based “interface compatible” components that comprise the building blocks of value-based IP billing will enable IP providers to integrate everything from simple to very complex services quickly.

The value based IP billing architecture promotes faster service integration through standards-based interfaces, much like grocery stores have adopted bar code systems to introduce new products. Standards-based interfaces are

### **A service provider’s survival will rely on the rapid deployment of IP services**

less expensive than time-consuming custom integration of applications. This architecture enables IP providers to adopt plans quickly, such as real-time billing, as they become available.

IP providers can use the value-based IP billing architecture to offer flexible pricing plans based on individual customer service usage. The customer IP usage information provides the market intelligence to adopt new pricing structures designed to promote more service usage. Such pricing programs have been successful with the local exchange carriers (LECs) that offer a multitude of value-added voice services such as call waiting, caller ID, and three-way calling. IP providers can promote any number of value-added IP services to customers—for instance, IP videoconferencing and hosted applications. Tracking online IP behavior will assist in determining which IP services it would be most advantageous to bundle.

## **Conclusion**

Value-based billing results in tremendous gain for IP providers, including a flexible business infrastructure that collects detailed IP information, has intelligent real-time billing, and resides on a modular framework. Customers can leverage the latest IP service, such as networked applications in an on-demand, pay-as-you go format, with virtually no incremental investment. IP providers can generate high-margin revenue from selling value-added IP services rather than just bandwidth. The combination of IP services generates customer loyalty and reduces churn.

***Value-based billing results in tremendous gain for IP providers***





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