

Purchasing Telecommunications Services: Insights Into the Marketplace

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A key to successfully purchasing and implementing telecommunications is an understanding of the telecommunications marketplace. Unlike many other commodity markets, the telecommunications market has undergone varying degrees of regulation and both significant horizontal and vertical operating and ownership restructuring. The legacy of regulation, and then deregulation, in combination with industry restructuring, obscures how the market operates, and encumbers how information on the market can be obtained and affords some advantage to providers. This paper provides a potential telecommunications buyer/implementer with a basic understanding of the marketplace by discussing how the largest providers in the marketplace are organized, what determines the price of the commodities purchased, and how to effectively accumulate information on providers. The paper concludes with a discussion on how to put the different pieces together in order to achieve the end goal of effectively implementing telecommunications.

Information is “buying power”

Common adages in our lexicon exclaiming “the power of knowledge and information” take on a special meaning when applied to the relationships between consumers and service providers. *Buying or purchasing power* in economics refers to the quantity of a product or service buyers can purchase for a given amount of money or resources and is directly linked to attained wealth or value earned. However, the amount of resources required to purchase a set quantity of product or service is not always a known variable. [1] How can buyers ascertain that they are being offered the lowest and best price for telecommunications services and in turn maximize their purchasing power?

In some industries, services and products are standardized and prices are directly observable and comparable. This is typically not the case in the telecommunications industry. Although engineering specifications and costs for many component hardware elements are standardized in the telecommunications industry, the final instantiation of service delivery to the end user or buyer of enterprise-level telecommunications services is typically a customized configuration based on many different network elements. [2]

Gone are the days of a highly regulated telecommunications landscape where buyers limited price validation to little more beyond verification that offered prices conform to published tariffs across like-kind networks. The economic and price validation required to support acquisition decisions in today’s market are surrounded by wider parameters of risk. However, buyers of telecommunications services today do have an abundance of information to help them evaluate price. Independent insight into industry supply and competition char-

acteristics, product demand, and other sources of industry information provide buyers with the resources to enhance their enterprises’ purchasing power and value.

Determinates of price

A fundamental economic principle observes that prices are based on supply and demand. An understanding of the supply and the demand of a market structure enables consumers to formulate expectations for relative price trends based on factors such as changes to supplier production chains and consumer reactions to new product and services. In some markets, as is the case in telecommunications, consumers constitute multiple vertical tiers, with each tier having a different impact on demand. In most cases, a consumer within a preceding tier is also a supplier to a successor tier. This tiered supply and demand structure corresponds to the wholesale (or resale) and retail operations segments of the telecommunications industry. Thus, focusing on the enterprise end user’s perspective, the following discussion denotes the supply and demand characteristics deriving from the telecommunications industry’s structure and strategy for service delivery to the enterprise end user. [3]

The supply side

Key to elevating an organization’s purchasing power is an understanding of the structure and operations of the suppliers. All large purchasers of telecommunications should read the annual shareholder reports and 10-K Securities and Exchange Commission (SEC) filings for telecommunications providers (sometimes these are the same, as companies do not wish to duplicate effort). These reports provide, at a minimum, cursory-level insight into how suppliers view their position and role within the

market place. Shareholder reports and SEC filings also describe how suppliers divide their operations to meet different consumer demand segments. The level of detail provided is a function of how transparent a company wishes to be with its investors, while also meeting required SEC disclosure rules. [4] A question that a telecommunications buyer should ask is “where does my system fit into the provider’s overall strategy ... how important am I?” A comprehensive reading of SEC filings and annual reports can provide guidance to the telecommunications buyer in this regard. This requires some substantial research, yet a simple starting point involves seeing how similar companies view themselves within the marketplace.

- AT&T: “We rank among the leading providers of telecommunications services in the United States and the world. We offer our services and products to consumers in the U.S. and services and products to businesses and other providers of telecommunications services worldwide.” [5]
- Qwest: “We provide voice, data, Internet, and video services nationwide and globally. We operate most of our business within the 14-state region of Arizona, Colorado, Idaho, Iowa, Minnesota, Montana, Nebraska, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming.” [6]
- Sprint: “We are one of the three largest wireless companies in the United States based on the number of wireless subscribers. We own extensive wireless networks and a global long distance, Tier 1 Internet backbone.” [7]
- Verizon: “Verizon Communications, Inc. (Verizon) is one of the world’s leading providers of communications services.” [8]
- Level3: “We are a facilities-based provider (that is, a provider that owns or leases a substantial portion of the plant, property and equipment necessary to provide its services) of a broad range of integrated communications services.” [9]

This paper focuses on the largest of the suppliers of local and long distance telecommunications: AT&T, Qwest, Sprint, and Verizon. Level3 is also included in order to provide a degree of contrast versus the carriers that have entered the market by initially focusing on large enterprise consumers. Generally, providers divide their business into wireless and wireline operating segments. The wireline segment usually involves data and voice communications. One organizational element common to the major providers involves divisions amongst wholesale business units and retail business units.

The wholesale business unit plays a key role in how a telecommunications provider can operate beyond the footprint of their physical plants. Unbundled network elements (UNEs) [10] are often leased from other providers in order to broadly

extend the reach of services. Interoffice channels, local loops, and multiplexing are all examples of UNEs.

The wholesale business unit purchases network elements in bulk from another entity (either internal or external to the provider’s corporate ownership structure) and resells the elements to a retail business unit (again, either internal or external to the provider’s corporate ownership structure). This retail business unit can combine the components purchased with existing infrastructure to provide an end-to-end service. Both wholesale/resale and retail business units typically operate as profit centers responsible for maximizing the return on investment to the corporation.

The wholesale unit within a provider is the primary seller of these UNEs. The wholesale unit may also be the primary purchaser, depending on the role established for the wholesale unit within a company. These roles can vary dramatically. Consider the case of a large government user interacting with Verizon. Government users could interact with: Verizon (the company, its network, and wholesale operations); the Verizon Business Division (responsible for oversight of the overall enterprise customer relationship); the Government Markets business unit (end service provider) within the wireline segment which will handle the business with the customer. In between the company and the provider, the Verizon wholesale telecommunications company group (wireless or wireline) operating as a profit center offers terms to providers (i.e., divisions within Verizon, such as Verizon Business) for infrastructure services such as special access or long haul transport. Based on these terms, the business unit offers terms to the customer. However, for a firm that is organized differently, such as Level3, the wholesale division may handle business directly with the customer.

The wholesale business unit must also be viewed in the larger context for how providers interact with one another. Business relationships will generally not be based on incremental negotiations for UNEs. Such incremental negotiations would serve to dilute the purchasing power of any purchaser. A provider will generally not act as an agent for a particular customer by only purchasing specific UNEs; rather, the provider will establish purchasing arrangements with other providers. In addition to establishing purchasing arrangements, providers will “own” already purchased UNEs. The elements purchased will usually involve large bandwidth transmission paths which are not fully utilized by a single customer or group of customers. Thus, opportunities for profit and/or additional revenue exist by utilizing economies of scale. Since a provider has already purchased large bandwidth network elements within a region, smaller segments of the bandwidth can be resold to customers at a higher unit price—Figure 1 illustrates this concept.

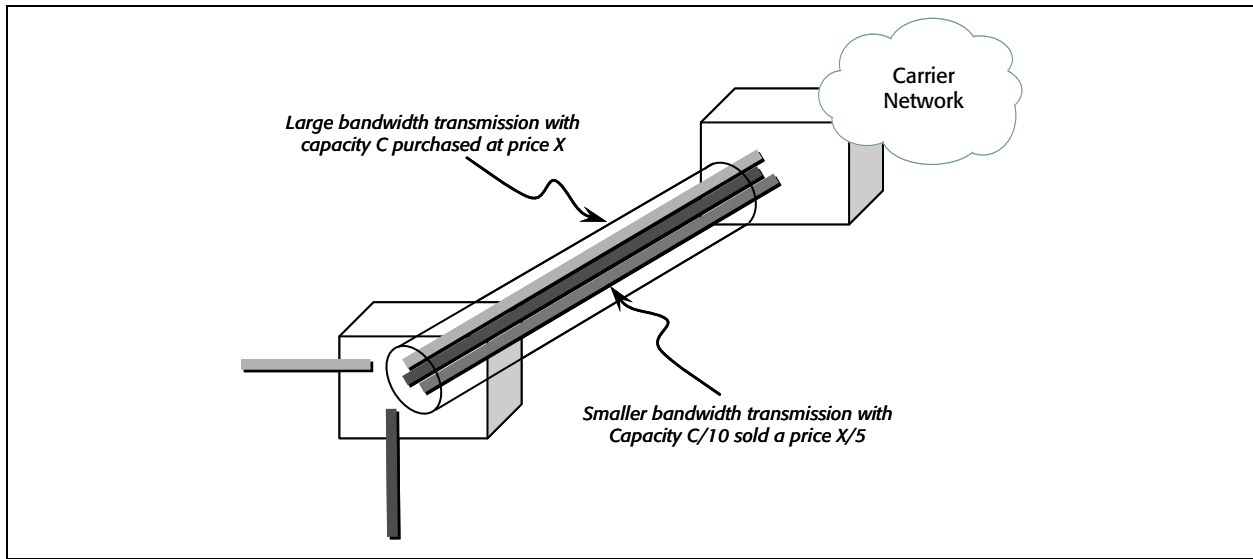


Figure 1. The reselling diagram

Opportunities for efficiencies can be rare (in a competitive market among limited backbone carriers) and complete information on the customer base is hard to come by. Consequently, there will be situations in which the efficiencies from purchasing arrangements or the use of purchased infrastructure will be hard to obtain. Verizon's latest 10-K SEC filing illustrates some of the problems faced when selling UNEs to other entities, but it also illustrates how while general information can be accessible, but specific information is difficult to accumulate.

“As a result of the Telecommunications Act of 1996, which requires us to allow potential competitors to purchase our services for resale, or access components of our network on an unbundled basis (UNEs) at a prescribed cost, competition in our local exchange markets continues to increase. Our telephone operations [i.e., wholesale groups] generally have been required to sell their services to competitive local exchange carriers (CLECs) at significant discounts from the prices our telephone operations charge their retail customers. The scope of these obligations going forward and the rates we receive, are subject to ongoing review and revision by the Federal Communications Commission (FCC) and state regulators. See “Regulatory and Competitive Trends” in the 2007 Verizon Annual Report to Shareowners.”

Service provider strategies that leverage new profit maximizing technologies over legacy technologies also have a supply side impact on pricing. Pricing research conducted by

Noblis over the last 18 months indicates that legacy private line and packet (frame relay and asynchronous transfer mode [ATM]) prices have increased on a bandwidth-per-unit basis versus Internet Protocol (IP)- and Ethernet-based transport services. This is consistent with the classic pricing strategy intended to stimulate customer transition to services in which vendors are investing and is represented by a product service life cycle curve where marginal profits initially increase at a higher rate prior to stabilization and decline. This has recently been seen in the bundling of residential services in order to increase revenue per customer. It is important to overlay the principles of supply and demand on this environment. Since users are migrating toward a new service the supply of legacy services has gone up, so prices should go down. Efforts by providers to encourage this migration through pricing policies that indicate increased expense can be offset by the customer with a willingness to change provider.

A service provider's use of intellectual property is another supplier characteristic to consider. The degree to which providers control intellectual property has an influence on market prices [11] and should be a consideration when evaluating price reasonableness during negotiations. A market segment where intellectual property will likely be a significant factor to consider in the near future is that of handheld enterprise wireless exchange services enabled devices, e.g., new entrant Apple iPhone versus established provider RIM Blackberry. In the case of the iPhone, Apple apparently has full control over their intellectual property and may thus attempt to command higher prices as opposed to the Blackberry, for which RIM does not have complete intellectual property rights. Telecommunications buyers in the enterprise handheld segment should not be

too surprised when premiums are demanded by providers for one device over another with seemingly similar functionality.

The supply side of telecommunications utilizes business relationships in the form of purchasing arrangements which, in combination with existing physical plant (both owned and leased) and intellectual property, are the elements that determine the cost of providing telecommunications services to a customer. Large providers will always grapple with leveraging pricing strategy, delivery of service, and their organizational structure. The regulatory side of the telecommunications market also plays a role in prices (more on that later); however, a provider can restructure some of its costs in order to reflect additional value provided through other elements. A recent phenomenon in the residential telecommunications market is the bundling of services, including voice, Internet, and media content (most recently television programming and music). Converged network solutions [12] (e.g., applications, data, and security) offer a similar appeal to the commercial and enterprise-level consumer. Figure 2 illustrates the path from a commodity UNE industry view to that of enterprise convergent layers and components.

The demand side

In addition to understanding the constraints and objectives of telecommunications providers, understanding the current and changing demand for telecommunications is important. Demand for those services in short supply (both the newly emerging and retiring) will generally drive prices higher.

As described in the supply section above, service providers can utilize economies of scale in order to purchase or invest in bulk transmission and then sell smaller segments at higher unit prices. While understanding the physical plant of the providers can aid the purchaser, understanding the external demand is also useful. For instance, if a provider has made a significant investment in bandwidth in a particular location, the provider must seek customers to offset the expense of the investment. Problems arise if demand forecasts are off, as was witnessed during the bursting of the 1990s *dot-com* bubble. Predictions of large increases in demand for telecommunications infrastructure did not adequately account for the high risks assumed in aggressive business planning nor the significant barriers to last-mile broadband connectivity. The industry “built it,” but not enough people came. [13] Obtaining specific information regarding excess capacity is difficult to obtain, but the absence of demand influences price significantly. Sprint provides some insight into the glut of supply in its commentary on competition within its 10-K SEC filing.

“Some competitors are targeting the high-end data market and are offering deeply discounted rates in

exchange for high-volume traffic as they attempt to utilize excess capacity in their networks.”

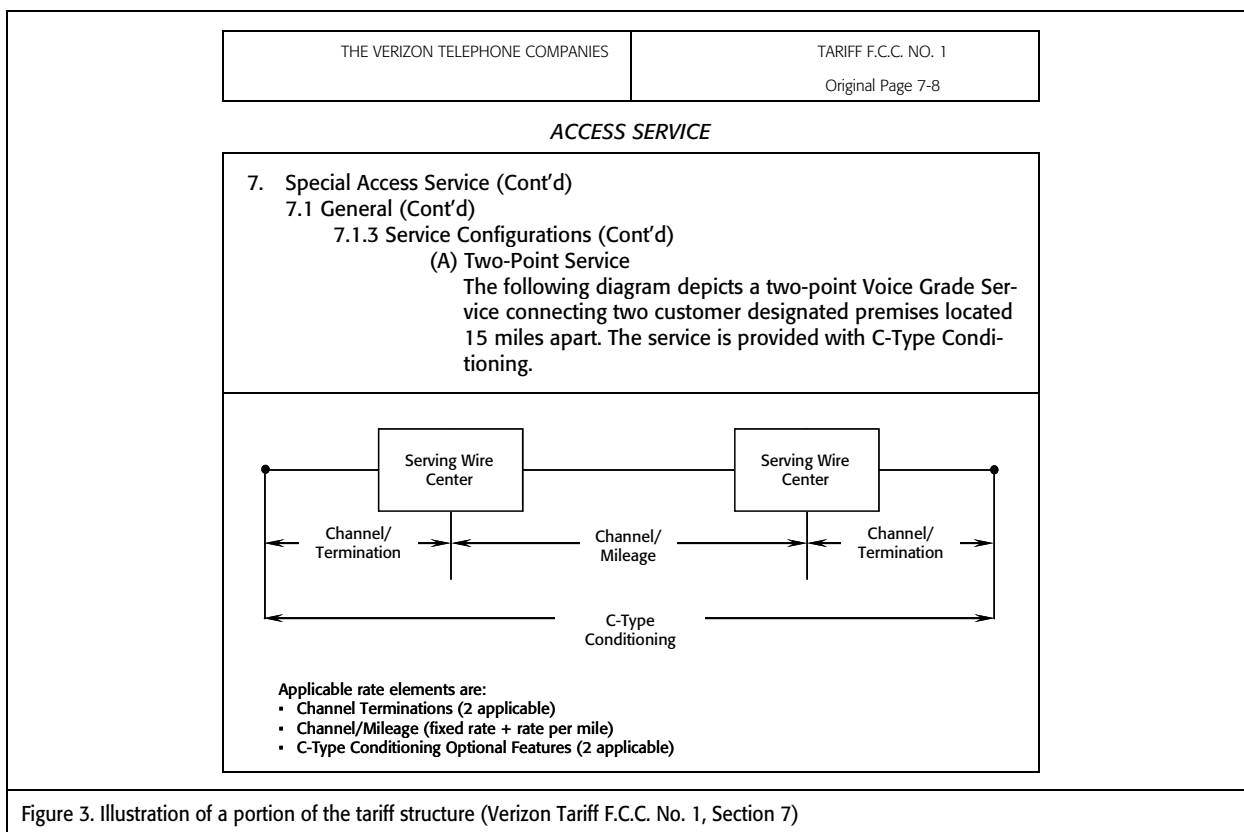
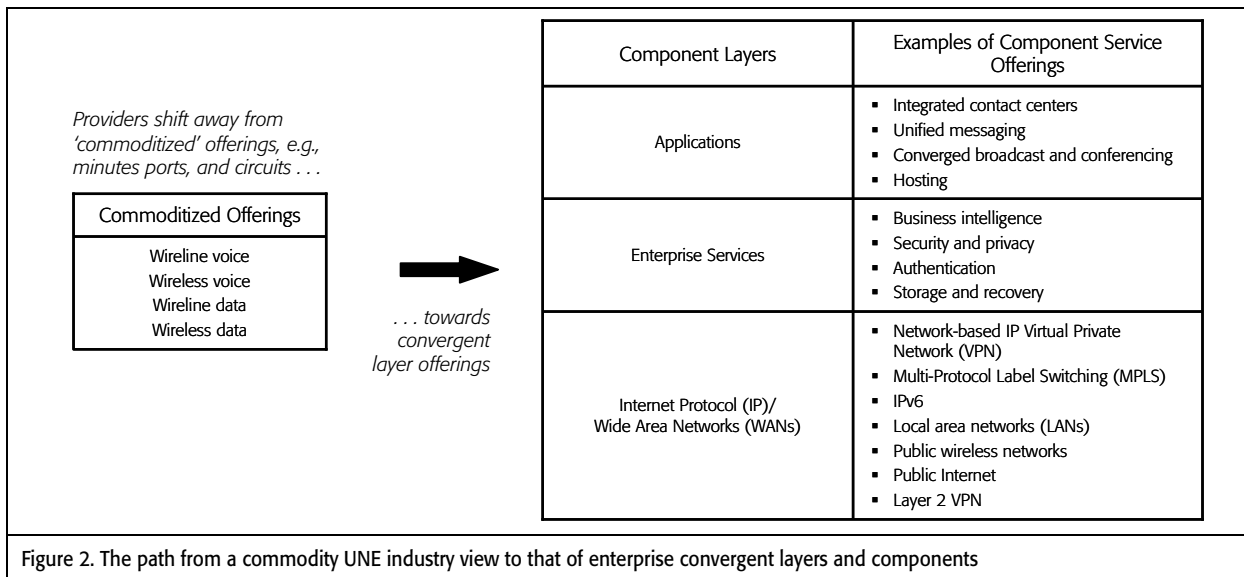
When providers claim that their price is \$Z for single T-1 line service, the buyer needs to remember that it is more likely that the provider pays \$X for a DS-3 connection and is dividing up that bandwidth (and the cost) to deliver the T-1 service. What the enterprise end user needs to understand is how that cost is divided up and how much of that cost the end user should pay. Further, in cases where transitioning to service-based IP infrastructure platforms is under consideration (with the expectation that ongoing network operating costs will be reduced and services enhanced), enterprise end users need to carefully evaluate savings benefits based on provider expectations claiming higher legacy prices in order to determine if there does exist a fair and reasonable basis for higher legacy prices. Customers should include total implementation life cycle costs for the new service platform in their unit pricing estimates. Leveraging knowledge of the relative market—i.e., knowledge of product life cycle characteristics when considering mature versus new product entrants and premiums for exclusivity driven by intellectual property rights—will more favorably position a buyer during competitive negotiations.

In the telecommunications marketplace, two factors of demand can greatly influence providers—term commitment and volume. Term commitments involving the purchase of telecommunications for an extended period of time (three to seven years) will naturally lead to discounts, since the stability of cash flow provides an inherent value to the telecommunications provider. Similarly, larger relative dollar and traffic volume also attracts attention from providers. The key for a customer is then to gauge how their demand, in terms of both volume and term commitment, will influence a provider.

List price

To illustrate how volume and term influence price, this discussion needs to review the sources of price information. Telecommunications carriers are required to post tariff and price information on their Websites for non-networking services, i.e., services carried via special or switched exchange facilities. These Websites generally contain list prices under the nomenclature of *services guides*; however, with some detailed knowledge, a customer can find information on market prices. This section covers how to find list prices.

Federal and state laws generally require that a telecommunications provider make price information publically available. Finding this information on a company Website can take a little searching, but a starting point is usually the “About Us” page of a Website (see references 14, 15, 16, 17, or 18).



Deciphering the information contained within these Websites is often a challenge. Consider the following example: a customer wishes to purchase telecommunications (specifically a private line solution) to connect its facility with a network provider's point of presence (PoP). If the private

line crosses local access and transport area (LATA) boundaries, a Federal Communications Commission (FCC) special access tariff will apply. Figure 3 illustrates for a point-to-point service how the different network elements are combined to form an end-to-end service.

In addition to deciphering the information within a tariff, just finding prices and other important information within the tariff is no simple task. Figure 4 illustrates the prices associated with some of the network elements from the previous figure. This particular tariff section (Verizon Tariff F.C.C. No.1, Section 7) contains 784 pages. Price information is only one component of the tariff. There are many services on a particular tariff and there will be a large number of pages devoted to price information, but descriptions of the structure of the prices, e.g., options available, will also entail significant space within the document. High level technical specifications of the services offered will also be provided.

The tariff in Figure 4 indicates the influence of term commitment on price. This particular example indicates that by committing to a three-year term, a user can receive approximately a 15 percent reduction on prices. By moving to a five-year term, this reduction increases to approximately 20 percent. It is important to note that this still is list price. This is not a product of negotiations, nor has volume influenced these prices. [19] Joe Q. Public can walk in off the street and get these prices, for even just one service.

Market price

The concept of a “market price” for long haul telecommunications is relatively new. Prior to the detariffing process which was completed in May 2001, providers were required to publish the prices for interstate non-networking services as tariffs. Price changes for these services required FCC approval. As a result of detariffing, prices are no longer directly regulated by the FCC. Providers are still required to publish some price information, including discounts and service-level arrangements, negotiated directly with their customers. This information is contained within business service guides and contract options which are agreements between providers and particular users. While supply and demand drive the market price at a macro-economic level, the price a particular user pays is a function of contract term duration, customer spending volume, and knowledge.

Contract options and business service guides are filed by providers to meet the FCC detariffing requirements. There are no established requirements dictating the format and level of detail to which contract options must adhere. Formats and information vary across services and providers. Typically, negotiated contract options reference the services and prices listed in the service guides (see Table 1). Note that the nomenclature for service guides and contract options can vary across vendors.

The following excerpt from AT&T Special Order Attachment 35188 (Figure 5) shows what can be gleaned by using service guides and contract options to obtain a point of refer-

ence for a range of prices related to a recent AT&T ATM packet service offering. The Service Order Attachment depicts, as is typical in telecommunications agreements, how discounts

THE VERIZON TELEPHONE COMPANIES		TARIFF F.C.C. NO. 1 6th Revised Page 7-230 Cancels 5th Revised Page 7-230	
ACCESS SERVICE			
7. Special Access Service (Cont'd) 7.5 Rates and Charges (Cont'd) 7.5.3 Voice Grade Service (A) Channel Termination --per point of termination			
(1) Payment Plan	USOC	Monthly Rates (\$)	
Two-Wire: Basic (month-to-month)			
N-MSA	T6E2X	23.28	(I)
Price Band 4	T6E2X	31.45	
Price Band 5	T6E2X	31.45	
Price Band 6	T6E2X	31.45	
Two-Wire: 3-Year TPP			
N-MSA	TZ4SA	17.80	
Price Band 4	TZ4SA	27.03	
Price Band 5	TZ4SA	27.03	
Price Band 6	TZ4SA	27.03	
Two-Wire: 5-Year TPP			
N-MSA	TZ4GA	16.36	
Price Band 4	TZ4GA	24.83	
Price Band 5	TZ4GA	24.83	
Price Band 6	TZ4GA	24.83	
Four-Wire: Basic			
N-MSA	T64EX	46.03	(I)
Price Band 4	T64EX	62.88	
Price Band 5	T64EX	62.88	
Price Band 6	T64EX	62.88	
Four-Wire: 3-Year TPP			
N-MSA	TZ4SB	36.42	
Price Band 4	TZ4SB	55.28	
Price Band 5	TZ4SB	55.28	
Price Band 6	TZ4SB	55.28	
Four-Wire: 5-Year TPP			
N-MSA	TZ4GB	34.51	
Price Band 4	TZ4GB	52.38	
Price Band 5	TZ4GB	52.38	
Price Band 6	TZ4GB	52.38	

Figure 4. Verizon Tariff F.C.C. No. 1, Section 7—month-to-month mileage rates

Provider	Price List/ Service Guide	Contract Options
AT&T	AT&T Business Service Guide [20]	AT&T Service Order Attachments [21]
Verizon	Verizon Business Service Publication and Price Guide [22]	Special customer arrangements [23]
Sprint	Sprint schedules [24]	Custom network service arrangements [25]

are negotiated and structured separately across volume and term. The maximum discount increases as both term and annual revenue commitment rise. Furthermore, again typical of options contracts, one cannot determine the exact net price agreed on between the customer and provider. Although base option

prices are listed by private virtual circuit and port capacity the discounts are disclosed as broad ranges. Thus, a user would need to determine which range of discount(s) would be most applicable for acquisition. A rough estimate could indicate for

The rates, discounts and other provisions in this Pricing Schedule are contingent upon signature by both parties on or before AUGUST 1, 2008.				For AT&T Administrative Use Only					
				Master Agreement No. Pricing Schedule No. 35188 Original Effective Date: March 15, 2008 Amended Effective Date: May 30, 2008					
Option Prices									
Domestic ATM Symmetrical VBR NRT PVC CIR Type/Speed					Domestic ATM Symmetrical VBR NRT PVC Monthly Charge				
2 Mbps					\$1,983.00				
3 Mbps					\$2,091.00				
4 Mbps					\$2,790.00				
5 Mbps					\$3,486.00				
6 Mbps					\$4,184.00				
7 Mbps					\$4,880.00				
8 Mbps					\$5,577.00				
9 Mbps					\$6,275.00				
10 Mbps					\$6,971.00				
15 Mbps					\$10,064.00				
20 Mbps					\$13,418.00				
25 Mbps					\$16,772.00				
30 Mbps					\$20,112.00				
35 Mbps					\$23,480.00				
40 Mbps					\$26,835.00				
Domestic ATM Port Type / Speed					Domestic ATM Port Monthly Charge				
DS1 (1544 Kbps)					\$1,758.00				
5 M					\$4,000.00				
10 M					\$5,600.00				
15 M					\$6,400.00				
20 M					\$7,600.00				
25 M					\$8,000.00				
30 M					\$8,400.00				
DS3 (44.736 Mbps)					\$9,600.00				
Option Discounts									
MARC Range Initial Year		MARC Range Subsequent Year(s)		12 Month Discount %		24 Month Discount %		36 Month Discount %	
				MIN	MAX	MIN	MAX	MIN	MAX
\$5,000	\$9,999	\$6,000	\$11,999	0	49	0	59	0	60
\$10,000	\$19,999	\$12,000	\$23,999	0	51	0	61	0	62
\$20,000	\$49,999	\$24,000	\$59,999	0	53	0	63	0	64
\$50,000	\$99,999	\$60,000	\$119,999	0	53	0	63	0	64
\$100,000	\$179,999	\$120,000	\$215,999	0	54	0	64	0	65
\$180,000	\$249,999	\$216,000	\$299,999	0	54	0	64	0	65
\$250,000	\$499,999	\$300,000	\$599,999	0	54	0	64	0	65
\$500,000	\$749,000	\$600,000	\$899,999	0	55	0	65	0	66
\$750,000	\$999,999	\$900,000	\$1,199,999	0	55	0	65	0	66
\$1,000,000	\$1,200,000	\$1,200,000	\$2,999,999	0	56	0	66	0	67

Figure 5. An excerpt from AT&T Special Order Attachment 35188

a telecommunications buyer, assuming a \$3M per year guarantee for a DS-1 capacity port, that prices approaching \$773.52 per month for a 24-month term or \$580.14 for a 36-month term have a greater likelihood of being deemed reasonable. [26] The degree to which the price should converge to the minimum pricing level will be a function of the supply and other demand factors discussed above.

Now let us compare the ATM option prices above with list prices from the AT&T Business Service Guide (Table 2). The price for the same domestic ATM DS-1 capacity port is \$4,109 per month. The price is nearly 2.5 times over the negotiated price, before applying discounts. [27]

In the real world practice of cost estimating, this type of contract option and list price search and review would be done multiple times in order to arrive at a reasonable sample of prices based on numerous different contract options and business guides across different providers in the commercial enterprise sector.

Table 2. ATM prices from AT&T Business Service Guide				
<i>P-4.2.2.9 Rate Table ATM-P-US: ATM US Domestic and US Global Ports</i>				
<i>Section effective date: 20-Apr-2008</i>				
Port Speed	U.S. Domestic Port Monthly Charge	U.S. Global Port Monthly Charge	Port Monthly Surcharge	Notes
1.544 Mbps	\$4,109.00	\$5,568.00	\$0.00	

Government enterprise telecommunications contracts

Government customers tend to pay less on a usage per unit basis than commercial sector customers. There is business rationale supporting this. This rationale surrounds risk (cash flow predictability) and scale.

Risk

Relative to the commercial market, the government is slower to take action with regards to changing service providers and migrating from one system to another. Telecommunications systems initially implemented to support finite duration programs tend to continue long beyond expected life cycles. Most often, this is because the underlying programs utilizing the system take longer than expected to implement or experience “scope creep,” i.e., requirements are augmented to the scope of the program requiring additional or longer duration of services. An additional factor is the Federal Acquisition Regulations (FAR) imposed on federal acquisitions, which cause federal acquisitions to take much longer than commercial equivalents. Thus

providers capable of reasonably managing (i.e., lowering) their marginal cost of service delivery over time can expect to maintain favorable cash flow experience even if price declines are pre-negotiated over an extended period of performance. Contrast this to the commercial sector where infrastructure planning and development are closely linked to integrated operating plans aimed at maximizing profit. In the commercial sector, multi-million dollar infrastructure development projects or services can be terminated as quickly as a few senior managers can send instant messages from their PDAs. It is no surprise that infrastructure business analysis cases typically assume early termination disposition penalties as part of baseline costs when evaluating benefits.

Scale

Barriers to entry deriving from bureaucratic and redundant processes on varying levels, which at times can conflict with program mission and technical objectives, make it more challenging to do business with the government versus the commercial sector. However, the demand for telecommunications by the government is large in comparison to the commercial sector when buyer concentration is taken into account. For example, Noblis’ annual telecommunications spending estimate for the FY2009 budget request shows that the government will likely spend \$67.3B on information technology (IT), of which 36 percent or \$24.1B is targeted to telecommunications spending across 27 major agencies or buyers. The concentration of spending among the 10 largest IT spending agencies totals 89 percent or \$21.5B in telecommunications spending. On a simple average per agency basis, that equates to nearly \$0.8B per customer. Summarized agency spending figures are provided in Table 3.

In contrast, revenues reported to the SEC for calendar year 2007 by AT&T, Level3, Qwest, Sprint, and Verizon for operating unit segments representative of enterprise customers totaled roughly \$62.8B. Assuming that there are approximately 5,000 [28] large enterprise customers that trade on the New York Stock Exchange and NASDAQ listed exchanges, the average spending per enterprise customer would be roughly \$12.6M, significantly less than the average spending for government enterprise customers.

So let’s continue with the AT&T ATM DS-1 capacity port example. Up to this point in the example the telecommunications buyer has made a cursory review of commercial market prices and services. Should prices offered to the government differ significantly?

Large enterprise government telecommunications contracts—such as Federal Technology Service 2001 (FTS2001), Metropolitan Area Access (MAA), Washington Interagency Telecommunications System (WITS), and Networx—offer

variable (i.e., indefinite delivery indefinite quantity) term commitment with pre-negotiated prices and revenue guarantees. Tools have been developed to assist agency telecommunications buyers and other stakeholders with conducting independent pricing analyses and research based on released contract price data. The tool for the Networx contract can be found at <https://releasedprices.networx.gov/>. A representation of the tool is shown in Figure 6.

Using the Networx Unit Pricer to query for an AT&T ATM DS-1 port price yields the data shown in Figure 7. The non-duration specific price for a DS-1 ATM port on the AT&T Networx Enterprise contract is \$271 per month. This third data point is less than half of the best minimum price indicated on the contract option. Based on these observations, a telecommunications buyer can estimate a range of prices in order to establish a baseline for determining reasonableness of somewhere between \$271 and \$1,758 per month.

53009: ATMS Port CONUS T1			
Frequency: MRC		Service Level: Routine	Unit Name: PORT
		Quantity: 1	
Type	Start Date	End Date	AT&T (Univ)
price	2007-05-31	2007-09-30	\$270.71
price	2007-10-01	2007-11-30	\$270.71
price	2007-12-01	2008-09-30	\$270.71

Figure 7. Using the Networx Unit Pricer to query for an AT&T ATM DS-1 port price

The regulatory side

The primary objective of regulation is to ensure “... choice, opportunity, and fairness in the development of ... telecommunications services and markets; developing deregulatory initiatives; promoting economically efficient investment in wireline telecommunications infrastructure; promoting the development and widespread availability of ... telecommunications services; and fostering economic growth.” This is the job of the FCC.

“The Federal Communications Commission (FCC) is an independent United States government agency, directly responsible to Congress. The FCC was established by the Communications Act of 1934 and is charged with regulating interstate and international communications by radio, television, wire, satellite and cable. The FCC’s jurisdiction covers the 50 states, the District of Columbia, and U.S. possessions.”

For data communications, the—“Wireline Competition Bureau is responsible for rules and policies concerning telephone companies that provide interstate, and under certain circumstances intrastate, telecommunications services to the public through the use of wire-based transmission facilities (i.e., corded/cordless telephones).”

The FCC influences the market through regulation of competition, provider pricing, and access to service. Competition is regulated by conducting market entry rule-making and regulating interconnection services and the unbundling of local exchange and network features. One recent high impact mechanism for regulation is through the ruling that the FCC makes with regards to corporate ownership changes. Recent examples include the merger conditions ordered by the FCC with regards to the Verizon acquisition of MCI, and the SBC acquisition of AT&T and BellSouth. The FCC’s objectives in a practical sense are an attempt to reduce unfavorable impacts to consumers based on the principle that elimination of competitors through mergers or other forms of consolidation can drive prices higher, limit service options, and reduce quality of service. Thus the FCC ordered several conditions, including prohibiting providers from raising prices on access services and unbundled network elements or offering affiliates services at lower prices via wholesale arrangements to the exclusion of competitors or similarly situated customers. [29] In addition to obtaining detailed ruling information from the FCC, comments from industry regarding proposed or requested actions can also be found. Through the Website http://hraunfoss.fcc.gov/edocs_public/, the FCC provides the public with access to comments from industry and rulings from the agency. Through a very detailed search, positioning of providers and resellers can be seen through comments and petitions filed.

The FCC also impacts competition by collecting detailed operating and financial metrics from the industry. The Industry Analysis and Technology Division produces several reports which can help telecommunications buyers and investors compare provider performance and market metrics. Of particular interest to a telecommunications buyer are the *Statistics of Communications Common Carriers Report* and the *Federal-State Joint Board Monitoring Report*. These reports contain historical data tables on the relative operational and financial position of sellers. Table 4 lists and describes some of the reports available.

Summary

The phrase *Information is Buying Power*, while oftentimes a cliché, is actually erudite within the telecommunications marketplace. The key to purchasing power within the telecommunications marketplace involves the type of information known. A first step to gaining the appropriate level of understanding is to know the role of providers and resellers within the market. This understanding is further developed when one understands how a provider can be both a provider and reseller. In addition to understanding the sometimes dual roles of the market entities, understanding the commodities, or UNES, of the market-

Table 3. FY2008 government IT spending

IT Spending (\$ Millions)	FY2008 Enacted				FY2009 Request			
	Telecom (\$)	Total (\$)	Telecom % of Total	Telecom (\$)	Total (\$)	Telecom % of Total	% Total Telecom Spending	% Total Spending
Department of Defense	14,321	31,502	45	14,887	32,132	46	62	48
Department of Homeland Security	1,407	7,521	19	1,463	7,568	19	6	11
Department of Health and Human Services	729	5,565	13	761	5,588	14	3	8
Department of the Treasury	158	2,958	5	161	2,958	5	1	4
Department of Justice	1,026	2,617	39	1,017	2,647	38	4	4
Department of Agriculture	856	2,232	38	865	2,232	39	4	3
Department of Energy	97	2,089	5	104	2,130	5	0	3
National Aeronautics and Space Administration	898	1,944	46	951	1,983	48	4	3
Department of Veterans Affairs	654	1,859	35	674	1,896	36	3	3
Department of Commerce	517	1,852	28	552	1,852	30	2	3
Social Security Administration	566	1,043	54	598	1,064	56	2	2
Department of the Interior	519	953	54	551	972	57	2	1
Department of State	186	905	20	179	908	20	1	1
General Services Administration	289	538	54	299	549	54	1	1
Department of Labor	215	531	41	200	531	38	10	1
Environmental Protection Agency	40	436	9	33	444	8	0	1
Department of Education	48	431	11	44	440	10	0	1
Department of Transportation	41	417	10	43	419	10	1	1
Corps of Engineers	227	320	71	251	325	77	1	0
Department of Housing and Urban Development	146	305	48	145	311	47	0	0
Office of Personnel Management	2	136	2	4	136	3	0	0
Nuclear Regulatory Commission	86	130	66	83	130	64	0	0
National Archives and Records Administration	39	125	31	45	125	36	0	0
U.S. Agency for International Development	48	96	50	48	98	49	0	0
Small Business Administration	45	75	60	49	75	65	0	0
Smithsonian Institution	31	59	52	32	60	52	0	0
National Science Foundation	23	58	40	25	58	42	0	0
TOTAL	23,212	66,696	35	24,064	67,631	36	100	100

Networkx Unit Pricer

Home | Unit Pricer | Contract Mods | Lookup Tools

Overview

Welcome to the Networkx Unit Pricer. This site allows users to view and compare prices across Networkx vendors as well as some basic prices from FTS2001 vendors.

Capabilities of the Networkx Unit Pricer include:

- Pricing all Networkx CLINs
- Totalling multiple price queries
- Viewing and pricing associated CLINs of a particular service
- Choosing varying date ranges
- Downloading results

Use the Networkx Unit Pricer

[Text-only interfaces](#) for pricing tools are also available for screen readers and for users without JavaScript enabled.

Recent Changes

- 2008-09-02: Integrated Qwest Enterprise mod PS010, Qwest Universal mod PS015
- 2008-08-25: Integrated mods: MCI Universal PS012, MCI Enterprise PS012
- 2008-08-22: Integrated mods AT&T Universal PS016, Qwest Universal PS014
- 2008-08-18: Integrated mods: MCI Enterprise PS011, Sprint Enterprise PS008, PS014, PS015, Qwest Universal PS012, PS013, Qwest Enterprise PS008, PS009
- 2008-08-12: Integrated mods: AT&T Universal PS015, AT&T Enterprise PS009, MCI Universal PS009, MCI Universal PS011, Qwest Universal PS010, Qwest Universal PS011
- 2008-08-08: Added: Text-only unit pricer, SCID lookup tool, SEDS frequency fixes
- 2008-08-01: Integrated mods: AT&T Universal PS011, MCI Enterprise PS009
- 2008-07-31: Integrated mods: AT&T Universal PS013, AT&T Universal PS014, MCI Universal PS010, AT&T Enterprise PS008, Sprint Enterprise PS005
- 2008-07-22: Integrated mods: AT&T Universal PS012, Sprint Enterprise PS003
- 2008-07-17: Integrated mods: AT&T Enterprise PS006, MCI Enterprise PS010, Sprint Enterprise PS007
- 2008-07-17: Integrated mods: Qwest Universal PS009
- 2008-07-14: Integrated mods: Level 3 Enterprise PS007, Qwest Enterprise PS007
- 2008-07-03: Integrated mods Sprint Enterprise PA004
- 2008-06-26: Integrated MCI Universal mod PS008 and MCI Enterprise mod PS008
- 2008-06-25: Integrated AT&T Enterprise mod PS007

Resources

- [Unit Pricer Training Guide](#)
- [Awarded Services by Contractor](#)
- [Acronyms and Abbreviations](#)
- [Glossary](#)
- [Network Program Overview](#)
- [Service Guides](#)

Downloads

This panel allows you to download a complete list of CLINs and a FTS2001 SCID to Networkx CLIN mapping table.

- [Download CLINs](#)
- [Download SCID to CLIN Map](#)

Contact Information

If you have any questions, please contact:

Networkx PMO Helpdesk
networkx.support@gsa.gov
(866) 472-0274

Figure 6. Representation of the Networkx Unit Pricer tool

Statistical Trends in Telephony	http://www.fcc.gov/wcb/iatd/recent.html	Reports released in the past several months.
Local and Long Distance Telephone Industries	http://www.fcc.gov/wcb/iatd/trends.html	Overviews of information available on domestic and international telephone service. It contains the tables and data most frequently requested by the public.
Local Telephone Competition and Broadband Deployment	http://www.fcc.gov/wcb/iatd/lec.html	Local operating companies and inter-exchange carriers topics including revenues, rates, price indices, telephone expenditures, universal service support, market shares, telephone subscribership, state rate cases, and lists of service providers.
Statistics of Communications Common Carriers	http://www.fcc.gov/wcb/iatd/comp.html	Local telephone competition and subscribership to high-speed services.
Telephone Industry Infrastructure and Service Quality	http://www.fcc.gov/wcb/iatd/socc.html	Annual publication containing company-specific and industry-wide information on telecommunications costs, revenues, prices, and usage.
Federal-State Joint Board Monitoring Reports	http://www.fcc.gov/wcb/iatd/infra.html	Physical facilities and service quality of common carriers communications. Topics also include fiber deployment and equal access facilities, as well as information on informal complaints received by the FCC.
National Exchange Carrier Association (NECA) and Universal Service Administrative Company (USAC) Data	http://www.fcc.gov/wcb/iatd/monitor.html	The reports cover industry revenues and contributions; low income support; high-cost support; schools and libraries support; rural health care support; telephone subscribership and penetration; rates and price indices; network usage and growth; quality of service; infrastructure; and revenues, expenses and investment.
International Traffic Data	http://www.fcc.gov/wcb/iatd/neca.html	NECA data containing access charge tariffs filed on behalf of smaller local exchange carriers interstate access revenues paid local exchange carriers. Also includes USAC universal data, reporting minutes of use, universal service funding payments to carriers, counts of local loops by state and carrier, and other items of interest.
Telephone Numbering Facts	http://www.fcc.gov/wcb/iatd/intl.html	Data on international telecommunications service between U.S. points and international points filed pursuant to section 43.61 of the FCC Rules.

place leads to an understanding of how the provider/reseller role is related to the wholesale and retail market. While both wholesale and retail markets are evolving from UNEs to a converged environment, knowledge of these entities and their function plays a still crucial role in discussions with potential providers as well as finding information on market price. There are commercially available tools which provide insight into these market rates. The most readily accessible tools involve the government marketplace, but commercial tools do provide some insight into contract options on tariff. Market price information must be coupled with an understanding of where one is within the market. Volume and term help provide partial information. This is completed with a realization of how well one understands the marketplace. Even with this information, achieving the best market rates is not guaranteed. Success in this arena comes from additionally knowing the strengths and weaknesses of the providers as well as negotiating ability. ■

Notes and references

1. Adam Smith relates wealth and fortune to “the Power to Purchase ... a certain command over all the labour, or over all the produce of labour which is then in the market” ... and that it is measurable “... in proportion to ... the quantity either of other men’s labour, or ... of the produce of other men’s labour, which it entitles him to purchase or command. It is often difficult to ascertain the proportion between two different quantities of labour ... In exchanging indeed the different productions of different sorts of labour for one another, some allow-

ance is commonly made for both. It is adjusted, however, not by any accurate measure, but by the higgling and bargaining of the market ...” A. Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, book 1, chapter 5, paragraphs 3 and 4.

2. For example, there exist in the telecommunications market place numerous price listing services for equipment such as routers, multiplexers, fiber optic cable, etc. In contrast, there is no public record for how much exactly XYZ fortune 100 firms pay for their Ethernet IP service between its headquarters and its regional offices. To the extent that this type of negotiated price information is available publically, it is often vague and garners limited estimation of confidence when used for cost or price estimating.
3. This is in contrast to service delivery to the residential user market where pricing mechanisms differ from that of the enterprise user market.
4. To the extent that more detailed financial disclosure and transparency results in higher quality in earnings estimates by market analysts, a firm’s financial statements are regarded to demonstrate higher earnings quality. As a result, companies also consider the “quality of earnings” that greater transparency of financial disclosure affords shareholder value since the market will price firms with higher earnings quality at a premium relative to firms with lower earnings quality. R. G. Sloan, *Earnings Quality Analysis and Equity Valuation*, CFA Institute, 2006.
5. AT&T 10-K Shareholder Report for 2007; <http://www.sec.gov/Archives/edgar/data/732717/000073271708000012/0000732717-08-000012-index.htm>.
6. Qwest 10-K Shareholder Report for 2007; <http://www.sec.gov/Archives/edgar/data/68622/000119312508027605/0001193125-08-027605-index.htm>.
7. Sprint 10-K Shareholder Report for 2007; <http://www.sec.gov/Archives/edgar/data/101830/000119312508043559/0001193125-08-043559-index.htm>.

8. Verizon 10-K Shareholder Report for 2007; <http://www.sec.gov/Archives/edgar/data/732712/000119312508042027/0001193125-08-042027-index.htm>.
9. Level3 10-K Shareholder Report for 2007; <http://www.sec.gov/Archives/edgar/data/794323/000104746908002075/0001047469-08-002075-index.htm>.
10. Code of Federal Regulations, Title 47, part 51, section 319.
11. McEwen, J., D. Bloch, and R. Gray, "Intellectual Property in Government Contracts: Protecting and Enforcing IP at the State and Federal Level," Oxford University Press, 2008.
12. Miller, H. Gilbert, "Convergence Is Moving Voice Into Data Infrastructure, Converging All Stovepipe Data Networks and Applications Inside a User Organization Into a Single Data Infrastructure, and Then Extending That Into the Wireless Arena," *IT Pro*, June 2005.
13. Figurative reference from the movie *Field of Dreams*, "Build It and They Will Come," screenplay by Phil Alden Robinson, Universal City Studios, 1989.
14. ATT; <http://www.att.com/gen/public-affairs?pid=3181>.
15. Level3; http://www.level3.com/legal/legal_terms_of_use_tariffs.html.
16. Qwest; <http://www.qwest.com/about/policy/regulatoryDocs/index.html>.
17. Sprint; http://www.sprint.com/legal/rates_conditions.html?id8=vanity:ratesandconditions_index.
18. Verizon; <https://retailgateway.bdi.gte.com:1490/>.
19. This illustration shows how term commitment influences price; however, no information surrounding volume is usually provided within the list price sections of tariffs.
20. <http://new.serviceguide.att.com/>.
21. AT&T Service Order Attachments are not available on the AT&T Website; rather, these contract options are filed with the FCC as transmittals and can be downloaded from the FCC; http://www.fcc.gov/Bureaus/Comon_Carrier/Public_Notices/Tariffs. Note however that the FCC tariff database is not amenable to user searches. Third party tariff contract option database service providers offer a better alternative source for searching AT&T (as well as other providers) contract options.
22. www.verizonbusiness.com/us/publications/service_guide/products/.
23. www.verizonbusiness.com/us/publications/service_guide/s_c_a/.
24. www.sprint.com/business/support/ratesTandCschedules.html.
25. www.sprint.com/business/support/ratesTandCschedules.html.
26. Based on these contract options, the minimum price for a 24-month term is DS-1 port at \$3M revenue guarantee level is $\$1,758 \times (1-0.56) = \773.52 and for a 36-month term, $\$1,758 \times (1-0.67) = \580.14 .
27. Negotiated price before discount = \$1,758; list price from AT&T Service Guide = \$4,109; $\$4,109/\$1,758 = \text{nearly } 2.5X$.
28. For purposes of this discussion, the authors classify firms with market capitalization exceeding \$100M as large enterprises. There are roughly 3,000 firms on the New York Stock Exchange and 2,000 firms on the NASDAQ exchange with market capitalization exceeding \$100M.
29. FCC Order 05-183, SBC and AT&T, November 17, 2005 and FCC Order 05-184 Verizon and MCI, November 17, 2005.

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