

Market Opportunities for Voice over IP and Enhanced IP Telephony Features

Lucent primary market research
can help you gain a competitive edge

Explore actionable go-to-market recommendations
to accelerate a network-hosted Voice over IP business
and consumer market launch.

This white paper:

- Links primary market research with market dynamics to present an assessment of business and consumer VoIP market opportunities
- Identifies specific pricing and bundle strategies for VoIP services
- Examines customer specific segments and their willingness to pay for VoIP services
- Provides actionable go-to-market recommendations to stimulate demand and capture market share



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RESEARCH FIRST CONSULTING, INC.

Research First, Inc. is a market research and consulting firm specializing in new telecommunications needs and technologies. This firm conducted the Enhanced IP Telephony Primary Research on behalf of Lucent Technologies, and additionally, has reviewed and endorsed the key findings and go-to-market recommendations that follow.

Introduction

Although Voice over Internet Protocol (VoIP) has been available for years, it has just recently gained momentum in the consumer and business markets as a viable service alternative to the public switched telephone network (PSTN). A key driver for acceptance of VoIP services is decreased cost due to a single IP network which can support both voice and data services. Although cost is an important factor, service parity to the PSTN continues to be a top requirement. Customers, especially business customers, will not tolerate inferior service quality compared to their experience with their existing service. In the past, VoIP services did not meet that quality of service (QoS) requirement. That has changed and VoIP QoS is approaching similar levels to the PSTN, thus breaking down that barrier to purchase.

VoIP services have evolved over the past several years where the customer focus has expanded to features and functionality. It is now critical to the success of service providers that they are able to deploy value-added and high-margin features. Consumer broadband VoIP services and business network-hosted IP voice services are two emerging opportunities for service providers to build new sources of revenue and compete for increased share in these markets.

To help accelerate service provider success in network-hosted VoIP market launches, Lucent Technologies commissioned an industry-leading market research firm to gain insight into VoIP and enhanced IP telephony services. This study helps to answer basic questions and provide detailed market intelligence including projecting end-user demand, quantifying customer willingness to pay for enhanced features and prioritizing those features, which hold the greatest demand and revenue potential. Additionally, Lucent validated and aligned the results with published market data and distilled them into a set of go-to-market recommendations.

A few key findings from the study include:

- Customers are willing to pay for enhanced IP telephony features and those features provide pull-through for traditional VoIP services. Customers want VoIP service because of the features.
- Distinct business market segments hold the most promise for VoIP migration (38% surveyed would replace their existing phone service to save on infrastructure and long distance bills).
- Both consumers and businesses expressed an interest in service bundles of preferred features.

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VoIP Market Overview

VoIP is beyond the early adopter stage and is now a legitimate service offering and viable alternative to the PSTN. Like many telecommunications solutions, the first significant VoIP sales were to relatively large (100+ users) businesses that were seeking significant telecommunications cost reductions. Now consumers and small- to medium-sized businesses are also buying VoIP to take advantage of cost savings and the enhanced functionality, which IP-based services provide.

Business Market: At the end of 2003, In-Stat/MDR estimated US service providers had 40,200 IP Centrex/Hosted PBX seats in service. By mid 2004, that forecast had grown to 1.6 million seats in service by the end of 2008 (In-Stat/MDR July 2004). This equates to a CAGR of over 100% per year. This number does not include IP-PBX or Centrex-IP (VoIP-enabled via a Class 5 IP gateway) numbers which are already in the range of 3 million seats.

Consumer Market: PrimeZone reported,

“at the end of 2004 that Skype has just confirmed 2 million users in North America, Vonage now has over 300,000 subscribers, Free World Dialup has at least 300,000, and voiceglo of Ft Lauderdale announced that almost 2.75 million people were now using its service worldwide of which 40% (1 million) were domestic, and these figures exclude over 400 other service providers already active in North America”.

Although many of these providers' services are limited and offered over peer-to-peer networks in PC-to-PC packages similar to e-mail and instant messaging, these subscriber numbers underscore the popularity of consumer VoIP service. For consumer voice offers over broadband, not including peer-to-peer subscribers, Stratecast Partners forecasted in August 2004 that the US would end 2004 with 1.165M VoIP residential subscribers.

A key factor for this growth is the increased availability and market penetration of broadband access, which provides the access infrastructure required to support a facilities-based VoIP service. Research First estimates that the US ended 2004 with over 32 million residential broadband subscribers. The current penetration of VoIP service is only 4% (1.2M). This presents a substantial embedded base of VoIP-ready consumers to target.

Since it is evident VoIP has emerged as a valid alternative to the PSTN, a clear plan of action with respect to pricing, packaging, bundling and offer development has become increasingly important. To gain a better understanding of these market segments and to provide a closer look at how the marketplace perceives VoIP and enhanced IP telephony features, Lucent commissioned Research First Consulting, Inc. (RFC) to examine consumer, Small Office Home Office (SOHO), Small Medium Business (SMB) and business interest in, and willingness to pay for both VoIP services and enhanced IP telephony features.

Since it is evident VoIP has emerged as a valid alternative to the PSTN, a clear plan of action with respect to pricing, packaging, bundling and offer development has become increasingly important.

Lucent VoIP Primary Research Overview

Methodology

The research included two stages:

- 1. The qualitative stage included 12 focus groups** held in four different cities to gain insight into end-user and decision maker attitudes across consumer, SOHO, SMB and business segments in various regions of the United States. The results of the qualitative study were used to develop an online quantitative survey.
- 2. The quantitative stage included completion of over 1,200 residential and 1,680 business surveys.** This volume ensured a maximum number of statistically valid responses with a 95% confidence level and a $\pm 5\%$ margin of error.
 - Three consumer segments were segregated by age (18-25, 26-44, 45+).
 - The business survey responses were collected from nine different vertical NAICS¹ classifications for each of four business segments (SOHO, small, medium and large). Among the business responses, 424 were obtained from decision makers and the remainder from end users. The decision makers provided purchase intent and willingness-to-pay information, and the end users provided interest level information on the enhanced IP telephony features.

¹ The North American Industrial Classification System (NAICS) is more commonly used instead of Standard Industrial Classification (SIC) codes, which apply just to the US.

Definitions for Respondents

- **VoIP** was defined as a telephone service technology that enables phone calls to travel over the Internet as data.
- **Enhanced IP telephony** capabilities such as Click to Dial, Web Voice Mail Access or Call Logs, which are enabled by IP-enabled voice services combined with data technologies, were defined as enhanced IP telephony features. The majority are portal-based services, which the user can access from any PC with a broadband or LAN Internet connection. The capabilities are defined primarily based on the Lucent Communication Manager.

Enhanced IP Telephony Features Reviewed

Feature	Description
Click to Dial	Click on a phone number on your computer to initiate a call or feature
Find Me/Follow Me	Control how inbound calls are handled on a user-definable profile
Presence	View when another user is available for communications
Contact/Call Logs	Web-based view of all calling activities
Instant Messaging	Initiate text chat and group text meetings; includes file transfer capabilities
Speed Dial	Build lists of frequently dialed number on Web portal screen
Web Voice Mail Access	View and listen to a list of received voice mails on a personal web page
Email Access	View and read e-mail on a personal web page
Wireless Internet Access	View information from a personal web page via an Internet capable device
Web-Based Softphone	Make and receive phone calls on computers using a headset and microphone
Video	Real-time video conferencing and non-real-time video instant messaging and voice mail

Key Findings

The research found there is interest and willingness to pay for VoIP, which is increased with the addition of enhanced IP telephony features.

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- **Business Willingness to Pay:** The willingness of business decision makers to pay for an enhanced IP telephony features bundle is in the \$14 - \$15 range in addition to the charge for core voice, long distance, broadband access and the Internet connection. This is based on the business expectation of productivity improvements associated with these features.
- **Consumer Willingness to Pay:** Consumers indicated they were willing to pay an average of \$38.87 for VoIP to replace their local and long distance service and \$21.21 for the enhanced IP telephony features bundle for a total of \$60.08 per month.

The research found the most compelling features, by market segment were:

- **Business End-Users:** Directory Search, Click to Dial and Web Voice Mail
- **Business Decision Makers:** Call Logs, Click to Dial and Web Voice Mail
- **Consumers:** Web Voice Mail, Directory Search and Call Logs

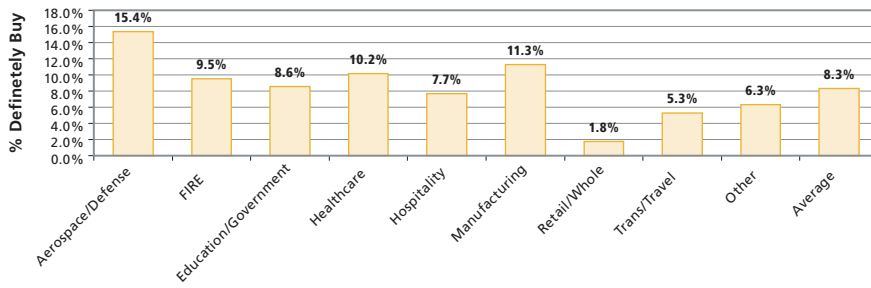
Enterprise – Targeting and Purchase Propensity

Based on the survey results from the decision makers, Lucent developed a Propensity Matrix Model. The model provides relative rankings of the business' predicted propensity to purchase a feature bundle. In addition, it introduces a methodology to implement an effective target-marketing program.

The percentage reporting a "definitely buy" intent for enhanced IP telephony feature bundles follows:

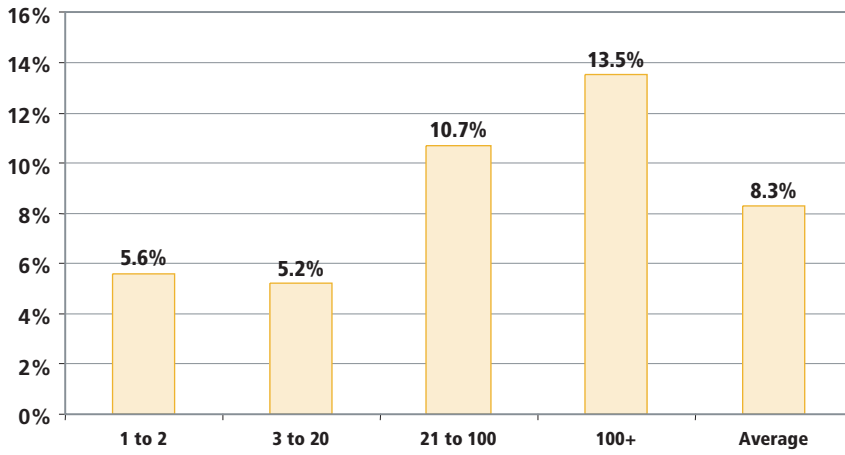
- With respect to Industry Segments, the highest propensity was in the Aerospace/Defense segment, followed closely behind by Manufacturing, Healthcare and Finance/Real Estate (Graph 1).
- With respect to company line size, the highest reported interest is in the 21+line segment group. This is consistent with the market dynamics being reported by In-Stat/MDR (Hosting VoIP for Dollars, July 2004), "Service providers... report the sweet spot, or average size of site for selling the service, to be 40 to 60 seats per site... vendors... are reporting greater interest from businesses needing service for 100 or more seats." The earliest offers targeted larger businesses therefore larger customers are more educated on the value of hosted voice services than smaller businesses (Graph 2).

**Enterprise Decision Makers Purchase Intent
Enhanced IP Telephony Features**



Graph 1 – Propensity to Purchase by Industry Segment

**Enterprise Definitely Buy Purchase
Enhanced IP Telephony Features
(Decision Makers)**



Graph 2 – Propensity to Purchase by Line Size

Table 1 is a Propensity Matrix, which cross tabulates industry segment (Graph 1) and line size (Graph 2) survey results. The integration of the two results deliver a view of those businesses that hold the greatest relative promise for VoIP sales.

Segment/Line Size	Industry Segment/ Definite Buy	3-20 Lines	21-100 Lines	100+ Lines
Aerospace & Defense/Security	15.40%	8.008	16.478	20.790
Finance/Insurance & Banking/Real Estate	9.50%	4.940	10.165	12.825
Education, Local/State/Federal Government	8.60%	4.472	9.202	11.610
Health Care	10.20%	5.304	10.914	13.770
Hospitality/Entertainment/News/Media/Publishing	7.70%	4.004	8.239	10.395
Manufacturing	11.30%	5.876	12.091	15.255
Retail/Wholesale	1.80%	0.036	1.926	2.430
Transportation/Travel	5.30%	2.756	5.671	7.155
Other	6.30%	3.276	6.740	8.510
Average	8.30%			
Line Segment/Definitely Buy		5.2%	10.7%	13.5%

Propensity Key	
High (11+)	
Medium (5-11)	
Low (0-4)	

Table 1 – Propensity Matrix by Industry Segment and Line Size

The highest value customers are in Aerospace/Defense, Finance, Insurance/Real Estate, Education/Government, Health Care and Manufacturing segments. Within those sectors, businesses with over 100 lines show the greatest short-term potential. Their propensity score is 11+ and is shaded the darkest.

This analysis uses the two key variables of line size and industry segment. Refinements to this scoring matrix can be achieved by integrating further demographic variables such as geographic location, predicted telecom spending, and acquisition success rate. If these variables are available in the service provider’s business database, the propensity scoring can be overlaid on the database and the high potential sales prospects can be extracted through a simple data base query. These variables are also available with commercially available business databases.²

Leveraging a propensity score or index to support target-marketing will:

- Better arm the service provider to locate new customers in markets that provide the strongest growth potential
- Support accurate business cases assumptions
- Strengthen sales and marketing campaign planning and optimize resource deployment

² GeoResults provides a scored telecom database, which can be leveraged for propensity scoring. This business database is populated with over twenty categories of estimated telecom voice and data demands at the per business location level. In addition, each data record is geo-coded, and as such, can be spatially analyzed to determine where opportunity densities reside.

Enterprise – Pricing, Packaging and Recommendations

Introduction

The quantitative VoIP research concluded the willingness of business decision makers to pay for a feature bundle is in the \$14 - \$15 range, in addition to the charge for core voice, long distance and broadband access (including the Internet connection).

The business segment sent a clear message that quantifiable cost savings is a main determining factor in communications decisions followed by improved productivity. The go-to-market recommendation should be built upon pricing assumptions that are attractive with respect to market alternative and status quo cost comparisons as well as a customer willingness-to-pay perspective.

Lucent analyzed published market data and industry average revenue per user (ARPU) reports to assess pricing for VoIP and status quo offers and to compare business alternatives. The analysis supported the go-to-market recommendations and provided the opportunity to validate the willingness-to-pay results.

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Enterprise – Offer Themes

Although business VoIP is offered in many flavors, three themes emerged when evaluating the existing market offers:

1. **Voice over Broadband (VoBB)** is marketed to the very small business customers as dial tone replacement. VoBB offers basic Class 5 voice features and long distance plans less costly than a PSTN alternative. Features (i.e. click to dial, remote worker) are kept to a minimum. The over-arching theme is “same but cheaper”. Two leading VoBB service offerings are Vonage Small Business and Packet 8 Business 2000. These offers are generally sold on a per voice line basis, mostly to business DSL or cable subscribers.
2. **IP integrated access** is marketed to the mid-size traditional T1 target business. Simplicity, flexibility and, most of all, compatibility with legacy premises equipment is stressed. These offers can include value-added features such as corporate dialing plans and voice mail; VoIP and the associated features are not typically emphasized. Service providers can offer IP integrated access as a complement to a more robust suite of VoIP solutions, and as such, this offer is marketed as the first logical step in the evolution to a fully featured network hosted VoIP solution. Three leading offers in this space are the CBeyond BeyondVoice™, Z-Tel Z-LineBUSINESS®, and ICG VoicePipe™. IP integrated access is packaged similarly to the traditional integrated TDM T1. Bundled components include Internet access with committed levels of bandwidth, voice lines and long distance minutes of use packages.
3. **Fully hosted network IP Centrex** is targeted to businesses, generally from 10 plus to 250 seats (with the sweet spot in the 40-60 seat range). Bundles come with robust sets of basic and advanced features, along with generous long distance calling plans. Capability and productivity enhancement is emphasized and reinforced with quantitative and qualitative total cost of ownership (TCO) value propositions. Two leading market offers in this space are the Covad GoBeam™ vPBX™ and the SBC PremierSERV Hosted IP Communication Service (HIPCS).

Target Market	Offer Themes, Value Propositions and Common Attributes	Example Market Offers
Very Small Business 2-10 Lines	Business Voice over Broadband (DSL, Cable) – Dial tone alternative – Priced on a per voice line basis – Same but cheaper, basic voice, limited feature sets	– Vonage Small Business – Packet 8 Business 2000
Small/Medium Business Traditional T1 Target	IP Integrated Access (T1) – TDM integrated access alternative, limited feature sets – Simplicity, efficiencies – Interoperates with existing premise assets using IAD – Priced on Internet speed, voice lines, long distance packages	– Cbeyond BeyondVoice™ – Z-Tel Z-LineBUSINESS®
Medium/Large 10-250 Users	Hosted IP Centrex (T1, DSL for branches, remote workers) – PBX, IP PBX alternatives (“Big Company Features”) – Unified capabilities, Web portal, MAC, TCO, IT outsourcing – IP phones, web soft phone promoted as end points – Priced on a “per seat” basis	– Covad GoBeam™ vPBX™ – ICG VoicePipe™

Table 2 – Target Markets, Offers and Existing Offer Examples

Enterprise – Offer Pricing

Lucent analyzed published market pricing associated with the three offer types above to support market-based strategic pricing recommendations and to validate the willingness-to-pay research results. Additionally, industry ARPU statistics for IP network-hosted VoIP and Centrex were used to establish a common denominator upon which the recommended offers can be compared and then optimally priced.

The IDC U.S. Hosted IP Voice Services 2004-2008 forecast reported that for 2004, ARPU for the hosted IP voice service bundle components was \$65 per user per month. In-Stat/MDR provided consistent findings in a July 2004 report. Both agreed on the revenue contributions between the voice applications (core voice, long distance, enhanced IP telephony features) and access components (Internet port, T1). The following table provides a further breakdown of industry ARPU flowing from common VoIP business bundle components.

VoIP Bundle Component	ARPU per Month (IDC Estimate)	ARPU per Month (InStat/MDR Estimate)
Voice (core voice, features)	\$37	\$45
Long Distance	\$8	\$0 (included in voice)
Access (shared T1)	\$8	\$20
Internet	\$12	\$0 (Included in Access)
Total Bundle	\$65	\$65

Table 3 – Average Revenue Per Line (ARPU) Elements in Bundle

These bundle estimates provided a common benchmark to compare VoIP market offers and to gain insight into current pricing dynamics. Centrex was introduced to insure that a status quo option was considered in the overall pricing recommendations.

Below is the result of an *estimated per user price comparison*. It was assumed that ARPU for bundle components were common across all offers. Further explanation follows.

VoIP Bundle Component	Centrex	VOBB	IP Integrated Access	Hosted IP Centrex
Voice (core voice, features)	\$22	\$35	\$9	\$40 - \$60
Long Distance	\$8	\$0 (included in voice)	\$11	\$0 (included in voice)
Access (shared T1)	\$12	\$12	\$24	\$12
Internet	\$8	\$8	\$0 (included in access)	\$8
Total Bundle	\$50	\$55	\$44	\$60 - \$80

Table 4 – Per User Price Comparison

Traditional Centrex

For the status quo offer of Centrex, Research First provided a general market price of \$30 per user: \$22 core voice and \$8 for access, consistent with the VoIP ARPU report. Centrex is not bundled with long distance or Internet. Therefore, to establish a fair comparison, it was assumed that Internet and long distance per user ARPUs would be consistent to the VoIP ARPU report. Including Internet and long distance, ARPU is estimated at \$50. Enhanced IP telephony features are not applicable for traditional Centrex.

Voice over Broadband (VoBB)

VoBB offers range from \$35 to \$50 per user or voice line, and most offer unlimited long distance packages. For this analysis, the Packet 8 and Vonage offers were evaluated. Both advertise a \$35 - \$40 per month per line charge, and include a bundle of free minutes coupled with basic Class 5 voice features. Vonage provides an introduction to an enhanced IP telephony feature with a downloadable click-to-dial application. Internet and access are billed separately. Assuming the industry per user access and Internet can be applied, the total VoBB business bundle generates an estimated \$55 per month per user.

IP Integrated Access

The IP T1 offer is priced as an access offer, and not per user. A per user estimate was derived with a few assumptions. The basic IP T1 comes with Internet bandwidth, a number of voice lines and a package of long distance minutes of use. The leader in the IP integrated access space, Cbeyond, offers the BeyondVoice™ II Plus at \$1400 per month for a two-year contract. This includes 24 voice lines, 3 Mbps of Internet and 6000 domestic long distance minutes. Assuming this serves an average of 60 employees, the access, Internet and partial long distance per user is \$24 (\$1400/60). Additional long distance minutes beyond the 6000 are charged at \$.07 each. As noted, ARPU data reports an average user incurs \$8 per month in long distance. Assuming an average of \$.03 per minute, this results in approximately 260 long distance minutes per month per user. Supporting 60 employees, after the 6000 minutes are exhausted an additional 160 minutes per user would be charged at \$.07 per minute, resulting in an additional \$11 per month per user.

Additionally, voice features need to be addressed. In this solution, voice features are typically enabled by the key or PBX premises solution. In-Stat/MDR recently reported that the average purchase price for a PBX is \$350 per station. Assuming annual maintenance of 10% of purchase price, and a simple five-year depreciation of the asset, an estimated \$9 per month per user can be assumed for the core voice. Combining these assumptions provides a reasonable integrated IP access per user per month price of \$44.

Clearly, deriving per user pricing for integrated access is an estimate and based on assumptions. Nevertheless, as with the Centrex data, it's helpful to have this estimate to support an offer pricing strategy that is complementary across the complete suite of new and existing services.

Hosted IP Centrex

Hosted IP Centrex offer analysis reveals that published pricing falls within the range of industry ARPU. Current Analysis reported that Covad offers flat rate plans priced from \$37 to \$60 a month per user. They also report that SBC offers the Hosted IP Communications Services (HIPCS) with unlimited calling packages in the ranges of \$40 - \$75 per user per month. The higher ranges include more features like unified messaging, voice mail and locator services. In-Stat/MDR reported in 2004 that ICG was charging average service prices that range from \$50 to \$60 per month for their VoicePipe™ service. From these sources, a \$40 - \$60 per user price for voice and long distance is reasonable. Adding \$20 for Internet and access, the overall per user price falls in a range of \$60 - \$80.

Enterprise – Feature Packaging

The primary research found that most business segments prefer a competitively priced bundle of features that includes all of their required telecommunication services at one discounted price. Businesses do not expect to purchase features a la carte.

Businesses say that the probability of replacing their current telephone system with VoIP is 33.8%, given that they would benefit from reduced long distance charges and reduced or free system moves and changes. When asked the probability of buying VoIP if they could get the enhanced IP telephony features with VoIP at a reasonable price, the probability rises to 36.1%. This indicates the positive effect that the enhanced IP telephony features have on optimizing the success of the business VoIP launch, and is reinforced when evaluating recent feature-rich market offers, which have been introduced.

The research found that the most desired features by business decision makers include:

- Web Voice Mail
- Click to Dial
- Directory Search
- Presence
- Call Logs

Depending on the targeted segment, some features appear to have more appeal than others, and this should be considered when developing value propositions.

Minimal requirements of an offer include the normal core Class 5 voice features like Caller ID, Call Forwarding, Three Way Calling. Long term cost savings are also very important, and considered a staple for consideration. The value of enhanced IP telephony features will likely be more evident to customers who have already experienced their functionality, (i.e. Click to Dial) and therefore lend themselves to up-sell opportunities. Additionally, feature preferences varied by market segment.

The following diagram (Diagram 1) illustrates the differences in feature purchase intent between several different market segments:

Market Segments with the Highest Intent to Purchase – Decision Makers	
Aerospace/Defense Soft phone (19%) Wireless Internet Access (15%) Web Voice Mail (15%) Presence (15%) Bundle (15%)	Transportation/Travel Speed Dial (18%) Web Voice Mail (17%) Call Logs (17%) Click To Dial (17%) Presence (17%) Bundle (5%)
Healthcare Wireless Internet Access (17%) Web Voice Mail (16%) Directory Search (14%) Bundle (10%)	Finance/Insurance/Banking/Real Estate Soft phone (15%) Wireless Internet Access (14%) Web Voice Mail (13%) Bundle (9%)

Diagram 1 – Market Segments and Feature Purchase Intent

Enterprise – Bundle and Pricing Recommendation

Combining the willingness-to-pay/feature prioritization research and market segmentation analysis, two offer bundles suggestions were developed:

1. The Basic Bundle

The Basic Bundle should be targeted to businesses migrating from legacy PSTN alternatives but not sold on the productivity benefits derived from a fully featured solution. Key messages include: lower monthly recurring costs, Moves/Adds/Changes (MAC) savings, telecommuter/remote worker, and feature capabilities. Certain features can be emphasized, depending on the business segment being targeted.

The value and usefulness of enhanced IP telephony features are not readily apparent until the user has some experience using them in their day-to-day operations. Offering a few, easily implemented enhanced IP telephony features in this basic bundle will trigger a business to migrate more premium and margin-rich packages.

Basic Bundle price points are recommended to fall in the \$35 per user per month range, and targeted to achieve \$55 in total ARPU, including access and Internet. This pricing will provide enough incentive for a legacy Centrex user (at \$50 ARPU per month per user) to consider migrating, especially if they are heavy long distance users. The price also prevents inadvertent cannibalization of an existing Centrex or PSTN base. Finally, it complements an integrated IP T1 offer (\$47 ARPU per month per user) and as such provides rational cross portfolio pricing that will make sense to the target customer. Although positioned significantly below industry ARPU (\$10 lower - \$55 versus \$65), this offer is important to drive market penetration and attract new users to the network.

The Basic Bundle should be targeted to businesses migrating from legacy PSTN alternatives but not sold on the productivity benefits derived from a fully featured solution.

Basic Bundle price points are recommended to fall in the \$35 per user per month range, and targeted to achieve \$55 in total ARPU, including access and Internet.

2. The Premium Bundle

The Premium Bundle is recommended to address businesses seeking PBX parity and big company features.

The Premium Bundle is recommended to address businesses seeking PBX parity and big company features. Proving in total cost of ownership (TCO) savings over the status quo is important, however, functionality and productivity benefits should be stressed. The overall ARPU is suggested to achieve a range of \$60 - \$80 per user, depending on the bundle of added-value features. The package should include portal features such as Web Voice Mail, Click to Dial, Directory Search, Presence and Call Logs. Enterprises seeking higher value capabilities such as voice virtual private networking and casual call center could be targeted with a la carte packages.

The starting point for a premium bundle per user price is recommended to fall in the \$40 - \$45 per month range, and targeted to achieve \$60 - \$65 in total ARPU.

The starting point for a Premium Bundle per user price is recommended to fall in the \$40 - \$45 per month range, and targeted to achieve \$60 - \$65 in total ARPU. This will provide incentive for the traditional Centrex customer (\$50 ARPU) seeking IP enhancements to consider a migration for a relatively small incremental monthly increase, but is also reasonable with the market average ARPU (\$65). Including additional high value packaging can raise this price point to nearly \$80 in total ARPU and still be sensitive to industry metrics.

Enterprise Willingness-to-Pay Results – Do they hold up to market realities?

\$45 is currently being generated in ARPU for core voice, features and long distance VoIP bundle components. It is reasonable to estimate, based on the Centrex core voice ARPU of \$22, and the industry reported \$8 in long distance that the willingness to pay or difference of \$15 is due to the enhanced IP telephony features.

The Lucent Basic Bundle at \$35 per month per user does not command quite this margin. Applying the same assessment as above, subtracting out the \$22 for core voice and \$8 for long distance from the \$35, only \$5 remains to reflect enhanced IP telephony features willingness to pay. This is reasonable, as the types of features offered in the basic bundle are introductory, and do not reflect the robustness of the features surveyed in our report.

The Lucent Premium Bundle at \$60 - \$80 per month per user commands a wider feature margin. On an introductory Premium Bundle price of \$40, margin for the enhanced IP telephony features is \$10, whereas, as the offer at \$60 drives a \$30 margin.

Bundle Component	IDC ARPU	Lucent Basic VoBB	Lucent Premium IP Centrex
Core voice + Enhanced IP Telephony Features+ long distance	\$45	\$35	\$40 - \$60
Less Long Distance	(\$8)	(\$8)	(\$8)
Less core voice	(\$22)	(\$22)	(\$22)
Margin for Enhanced IP Telephony Features	\$15	\$5	\$10 - \$30

Table 5 – Allocated Margin for Enhanced IP Telephony Features

Consumer Pricing, Packaging and Recommendations

Consumer – Offer Themes

The VoIP offerings in the consumer market today can be classified as Virtual Network Offers, facilities-based or peer-to-peer as displayed in the following table:

Offer Type	Target Market, Value Propositions and Pricing	Example Market Offers
Virtual Network Offer – Non Facilities-Based – POTS Replacement	Primary Target: Second line, home office, early adopters Low prices, long distance bundling, wide range of enhanced IP telephony features Self-install, limited 911 Offered in range of \$14.99 (basic) to \$29.99 (enhanced)	– Vonage – AT&T CallVantage SM
Facilities-Based – Cable/ILEC – Build Value over BB	Primary Target: Primary voice services over DSL/Cable Mid range pricing – incentive to bundle with broadband Company installed, E911 capabilities, basic and enhanced Offered in range of \$35 - \$39 bundled with broadband	– Cablevision Optimum Voice – Verizon VoiceWing SM
Peer-to-Peer – PC Application	Primary Target: Early adopters, heavy international, wireless Free service – not a replication of traditional voice services Sold similar to e-mail or instant messaging Off-net calling is a fee-based service	– Skype – Voiceglo

Table 6 – Consumer Offer Themes

- Virtual Network Offers** are non-facility-based and targeted at early adopters to provide second-line and home office services. Virtual Network Offers can be UNE-P replacement for out of region service areas. Vonage and AT&T CallVantageSM are two offers in this segment. These offers utilize the Internet to transport calls and route call over a data network to the PSTN where calls can be completed to the call recipient. These offers are characterized by low pricing, basic calling features, limited 911 services, long distance calling bundles and are typically self-installed. These services sell for \$15 - \$25 per month (Vonage is \$24.95 with unlimited domestic long distance calling) and typically require the residential customer to have existing broadband access, which is billed separately.
- Facilities-Based Offers** are generally offered by the ILECs or cable companies as the primary dial tone service and as a replacement to a PSTN offer. These services include Verizon VoiceWingSM, Cablevision Optimum Voice or Time Warner Cable Digital Phone service. These are often promoted as part of a bundle, which includes the underlying DSL or cable modem service. The pricing, at \$29 - \$39 per month, is a bit higher than the Virtual Network Offers. When the broadband monthly recurring is considered, this pricing is on par with a traditional PSTN “Super Bundle”. Unlimited local and long distance service, E-911 service and basic calling features plus sticky, enhanced portal features are emphasized. Lower end prices are available when bundled with the same provider’s broadband service. For example, Optimum Voice is offered at \$39.99 when bundled with a cable service, as opposed to a reported \$50 - \$55 when purchased separately.

- **Peer-to-peer services** like those from Skype or Voiceglo require both the calling and called parties to subscribe with an Internet connection. These are free services for calls to other customers on the peer-to-peer network. With upgrades to a premium package like Skypeout, a low per-minute fee of around \$.02 per minute for all other calls to off-net numbers. Although the peer-to-peer services are important players in the VoIP marketplace, we recognize their limitations and the recommendations in this document focus on the market trends triggered by the virtual network and facilities-based offers.

Consumer – Offer Pricing

The consumer and SOHO focus group research indicated a significant interest in VoIP and enhanced IP telephony features. Awareness, however, was low and both required detailed explanations. These features are a new paradigm for most consumer and SOHO customers. The participants favored feature bundles offered at one price. They also expected to buy the feature bundle from the same provider who supplies their VoIP local and long distance service. In addition, they wanted all charges to appear on one bill.

Stratecast Partners observes, “The primary decision point in subscribing to VoIP service today is price relative to traditional circuit-switched voice service from the ILECs.” (Stratecast – “Residential VoIP Services Assessment” – August 2004)

“The most important factor in determining the success of residential VoIP service long term is what will compel users to switch to voice over broadband from circuit-switched phone service. If the compelling factor is only price, in the long term the market will be unable to sustain a large number of service providers. It is important to note in this context that, although many service providers have described in general terms the unique features and applications that will be enabled by VoIP, few if any have developed and deployed those features to date.”

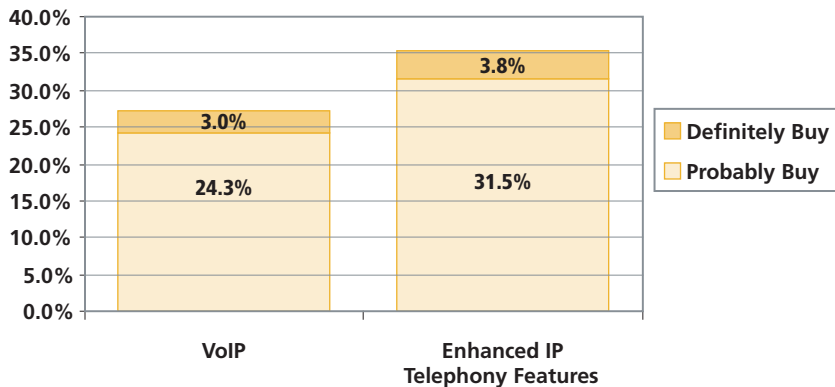
The fact remains that price is a very important aspect of any VoIP service bundle today, but the introduction of new capabilities and features will sustain a profitable service offering.

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About 40%–60% of respondents indicated they were very or somewhat interested in each feature when surveyed about interest during our quantitative phase. In response to our survey, 27.3% of respondents said they would definitely or probably buy VoIP. Interestingly, when respondents were asked about buying enhanced IP telephony features, a higher percentage expressed interest in doing so at 35.3%. This suggests that enhanced IP telephony features could have a pull-through effect upon VoIP.

Impact on the willingness-to-pay results is even more significant:

Consumer Intent to Purchase VoIP and Enhanced IP Telephony Features
More customers are interested in Enhanced IP Telephony Features!



Graph 3 – Consumer Willingness to Pay

Consumers in the survey said they are willing to pay an average of \$38.87 for VoIP to replace their local and long distance service. In addition, they are willing to pay \$21.21 for the enhanced features bundle for a total of \$60.08 per month. In a survey³ for another client, RFC found that consumers pay an average of \$54.88 per month for bundles with local, long distance and value-added features, which is in line with current PSTN pricing. This data suggests that if the market pricing was driven by willingness to pay, an incremental revenue gain of \$5.20 per customer per month could be realized by offering VoIP and enhanced IP telephony features.

³ RFC conducted interviews with RBOC and ILEC product management in August 2004, as well as secondary research for another client to determine the penetration and ARPU for consumer bundles.

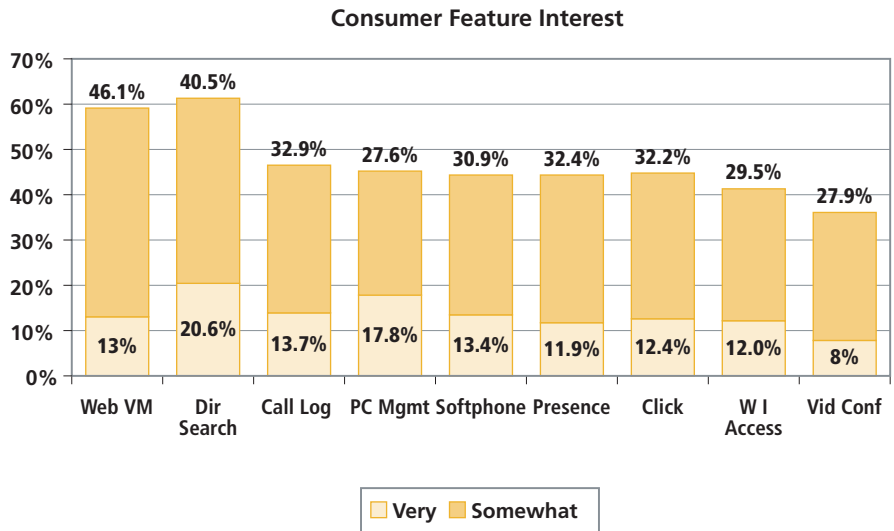
Assuming the local, long distance and enhanced IP telephony feature bundle components would command \$60 per month, a complete package with a cable or modem broadband service (\$30 - \$40 per month) would result in a total bundle price of \$90 - \$100 per month. This price point is at the top end of the PSTN super bundle structure. However, now that Verizon and others are offering VoIP bundles at a prices nearly 30% lower, market dynamics have driven the per month pricing to the \$55 - \$65 range, with the higher fees being commanded for the more robust feature-rich packages. Table 7 compares the PSTN to VoIP alternatives and to the VoIP primary research.

Bundle Component	Legacy PSTN	VoIP Virtual Network Offers	VoIP Facilities-Based	Lucent Research
Example	Telco	Vonage	Verizon VoiceWing SM	General
Voice (core voice, long distance)	\$50 - \$60	\$25	\$35	\$39
Features Assessment	N/A	Minimal	Robust	\$21
Broadband DSL/Cable	\$30 - \$40	\$30 - \$40	\$30	\$30 - 440
Total Bundle	\$80 - \$100	\$55 - 65	\$65	\$90 - \$100

Table 7 – PSTN Compared to VoIP Alternatives

Consumer – Bundle and Pricing Recommendation

Given that consumers are recognizing value, and seem to be paying a relative premium for enhanced capabilities, it is important to understand which features are of most interest to consumers. As displayed below, Directory Search capability, Web-based Voice Mail and Call Logs were the features of most interest to the respondents. However, every feature described was of significant interest to a good percentage of consumers. This interest indicates that including these enhanced IP telephony features in a VoIP bundle could be a significant factor in drawing consumers to VoIP services.



Graph 4 – Consumer Feature Interest

It is recommended that the facilities-based service provider offer two levels of consumer VoIP service:

1. **Penetration bundle** would include unlimited local and long distance, traditional calling features like Three Way Calling, Caller ID and Repeat Dialing as well as a few enhanced IP telephony features like Web-based voice mail, Click to Dial and/or Personal Call Management to whet consumer appetite for a migration to a more robust bundle. This basic bundle should be priced at \$30 - \$35.
2. **Profit bundle** should offer unlimited local and long distance, Calling Features and most or all of the currently available enhanced IP telephony features for \$40 - \$45 per month. In addition to voice capabilities, the Profit Bundle should be used to build on additional value elements such as consumer IP TV or gaming.

**Consumer Willingness-to-Pay Results –
Do they hold up to market realities?**

The \$21.21 on top of core voice and long distance features is not sustainable in today’s highly competitive market. From an analysis of the market offers, enhanced IP telephony features appear to be commanding a premium between more in the range of \$5 - \$10. Verizon VoiceWingSM, a feature-rich package, commands \$35 per month, whereas Vonage, a much less robust package is advertised at \$25 per month. Both offer basic call features and unlimited long distance – the key differentiators, which command the \$10 premium are the enhanced IP telephony features, the brand, and the ability for a VoiceWingSM consumer to subscribe to a broadband and a voice package from a single source. AT&T CallVantageSM, advertised at \$29.99 per month, commands a \$5 premium over the Vonage package. Here, the differentiator is the feature set and perhaps the brand.

Bundle	Vonage \$24.99	CallVantage SM \$29.99	VoiceWing SM \$34.99
Enhanced Features	Click to Dial, Simul-Ring (on Net) Web Voice Mail (soft phone +\$10)	Personal Call Manager Web Voice Mail Locate Me (5 options) Call Log (60 day) Speed Dial, Conference (10 port)	Personal Account Mgr. Address Book, Click- to-Dial, Call Logs, Web Voice Mail Directory, Do Not Disturb, Scheduled Call Forwarding
Premium	—	\$5.00	\$10.00

Table 8 – Current Consumer Offers, Enhanced Features , Market Premiums Commanded

It is important to point out there are some distinct differences in the current market offers and the capabilities, which were surveyed during the research. The survey included the complete host of portal features offered by Lucent. The surveyed capabilities were more robust and provided more overall capabilities than what is currently being offered in even the most feature-rich packages.

Call logs are a good example. AT&T’s description of their call logs says it is a list of calls placed and received for the past 60 days. The Lucent feature description states “A Web-based view of your calling activities. Allows users to see records of inbound, outbound, missed and active calls. Enables users to associate notes to calls and manage logs into folders (much like e-mail)”. In the focus groups there was interest expressed in the folders and notes capabilities, and it is likely that this was factored in when determining willingness to pay.

The highest rated consumer features, in addition to Call Logs, were Directory Search and Personal Call Management. Although Verizon offers a version of all three, AT&T and Vonage do not offer Directory Search and have limited versions of Call Logs and Personal Call Management.

The \$5 - \$10 premium, although not the full \$21 per month, is still significant. Consumer offers to date have been advertised with price savings as the key value proposition, with little education on the value of the enhanced capabilities. Service providers may be able to capture additional market share by creating a higher degree of feature and benefit awareness through targeted advertising and education.

The \$5 - \$10 premium, although not the full \$21 per month, is still significant.

Conclusions

Organizations and consumers are increasingly looking to VoIP as an alternative to traditional PSTN. A key issue for both consumers and businesses have been one of service parity. Both consumers and businesses expect the similar quality to their existing telecommunications service. Over the past few years, service and standards have improved to the point where that is less of an issue (expect for consumers where DSL or Cable may impact the quality of service).

Since quality of service is becoming less of an issue for consumers and businesses, pricing, features and bundles emerge as key drivers to purchase. Some of the key takeaways from Lucent's primary research:

- There is a distinct willingness to pay and pull-through for traditional VoIP by offering enhanced IP telephony features.
- The research found the most compelling features for the consumer and business market segment are Directory Search, Click to Dial, Web Voice Mail and Call Logs.
- Both consumers and businesses have expressed interest in consuming these services in bundles.
- The optimal target market for businesses is in the 21+line size and in the industry segments of Aerospace and Defense/Security, Healthcare, Manufacturing, Finance/Insurance and Banking/Real Estate.

Pricing and packaging recommendations, drawn from the market research and aligned with current market dynamics, are as follows:

- Business bundles should be offered in two levels –
 - **Business basic bundles** should be priced at approximately \$35 per user per month and be targeted to businesses migrating from legacy PSTN alternatives but not yet sold on the productivity benefits derived from a fully featured solution. Cost efficiencies and a few easily implemented enhanced IP telephony features should be emphasized.
 - **Business premium bundles** should be priced in the range of \$40 - \$60 per user per month and be targeted to businesses seeking PBX parity and "Big Company Features". Total cost of ownership value propositions and a robust suite of enhanced IP telephony features should be emphasized.
- Consumer bundles should also be offered in two levels –
 - **Penetration bundles** should be priced in the \$30 - \$35 per user per month range and be targeted to compete with the virtual network offers. The package should include unlimited local and long distance, with a few enhanced features.
 - **Profit bundles** should be priced in the \$40 - \$45 per user per month range and be targeted to compete with the facilities-based offers. The package should include most or all of the enhanced features, and be leveraged to drive additional bundled emerging capabilities such as consumer IP TV and gaming.
- Keep it simple – consumers and business users are somewhat confused about how enhanced services would work – educate on a select few services in a bundle.

By partnering with vendors who can provide flexibility and product enhancements, providers can take advantage of the scalability of VoIP and converging networks and focus on meeting the needs and targeting end users for increased revenue and market share.

- The willingness-to-pay results for enhanced IP telephony features for both the business and consumer markets is higher than some of the early entrants are charging.
 - In the business market, the premium for enhanced features appear to be in the \$5 - \$30 range and dependent on the offer components.
 - In the consumer market, the features appear to be commanding a premium in the \$5 - \$10 range.

Service providers want to ensure the solutions they choose are able to address the end user needs addressed in this document. By partnering with vendors who can provide flexibility and product enhancements, providers can take advantage of the scalability of VoIP and converging networks and focus on meeting the needs and targeting end users for increased revenue and market share.

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