Choose carefully
Some value-added services are hotter than others

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No substitutions?

Value-added services are becoming a telco specialty. But as customers develop gourmet tastes, CPE vendors may be poised to duplicate some popular menu selections.

Michael Weinigarten
and Dart Stuck

Like chefs who mix regional cuisines to create unique dishes, telcos are attempting to create value-added services that will differentiate them from their competitors in what increasingly is becoming a commodity market. Often the key ingredient for telco value-added services is middleware—database hardware and software solutions residing in the middle of the network.

But a number of new technology developments—especially the move toward packet-based networks and a higher level of intelligence in customer premises equipment—may enable service providers to duplicate value-added services with CPE-based offerings.

While value-added services likely will play an important auxiliary role in telcos’ strategies, attempts to convert side dishes and sauces into the main course ultimately may fail. Instead, telco chefs need to learn to develop “plain vanilla” menus and learn to make a profit on the basics.

Definitions and possibilities

What are value-added services beyond services that add value? A reasonable definition might incorporate several important concepts:

- The service should be a basic service add-on, sold at a premium price.
- It should generate a profit in its own right and ideally should increase customer demand. If it simply generates a profit or stimulates demand for the underlying basic service and itself is a loss leader, it cannot offset the trend toward basic service becoming a commodity.
- It should not be some new form of basic service. If it becomes a basic service itself, it too may become a commodity.
- It should not cannibalize basic services unless the effect is clearly favorable.
- The service should be built on intrinsic network properties, requiring knowledge of all the links, switches and end points in the network. By this definition, services not requiring central network intelligence are not value-added services.

Potential value-added service growth opportunities might include growth in current value-added services, toll bypass facilitation, centralized x-mail (a service that allows customers to dial into one num-
her to receive all personal and professional messages), seamless wireless/wireline switching, packetized service with differentiated quality-of-service (QOS) and class-of-service levels, multicasting/conferencing, systems integration and Web hosting.

**Growth in existing value-added services.** The public network, using switching system-based functionality or an adjunct computer system to a switching system, already provides a range of value-added services. These include global title translation services—such as 800-, 900-, 700- and 500-number services—virtual private networks (VPNs), call forwarding, call waiting, speed dialing, auto redial, call return and caller ID. Value-added services already have contributed to overall local exchange carrier profitability. This set of services has potential to grow in importance.

**Toll bypass facilitation.** Approximately two-thirds of current added value for U.S. local exchange carriers and interexchange carriers comes from minutes of use. One opportunity to divert toll traffic onto lower-cost alternative networks such as the Internet. To serve customers without computer equipment, network functionality can be created that accepts calls from ordinary POTS phones, converts them to Internet protocol (IP) for Internet transmission, reverses the process at the destination end and connects to a POTS receiver phone.

**Centralized x-mail.** During the past decade, voice mail, e-mail and faxing have become ubiquitous in medium-sized and large companies. In the next decade, telcos potentially could use centralized x-mail to extend these capabilities to small office/home office and mobile wireless customers.

**Seamless wireless/wireline switching.** Today's wireless and wireline networks mostly are separated. However, as wireless minute-of-use prices fall toward single digits and "caller pays" pricing is established, more people will use their mobile phones any time, anywhere. To facilitate this, seamless interworking will allow calls to be automatically directed to low-priced POTS wireline locations or higher-priced mobile service, depending on user requirements.

**Packetized service with differentiated QOS and class of service.** As we transition from POTS to packetized voice and data, service providers will be able to provide a range of different QOS or class-of-service levels. QOS prioritizes each packet at each router location, while class of service establishes separate first class, business class and coach queues for each service class. To the extent that some customers may be willing to pay extra for higher QOS and class of service, this could be another value-added service.

Multicasting/conferencing. Using IPv6, the new version of IP that currently is being defined, new forms of communication such as multicasting and conferencing should become possible.

**Systems integration.** With voice and data convergence, systems integrators need to put together the necessary network elements for businesses and outsource information technology operations.

**Web hosting.** With the growth of the Internet, companies will need to establish Web servers as a vehicle for communicating with customers. For many companies—particularly smaller ones—this is most economically done using a hosting service.

**The taste test**

In determining whether the services described above truly are value-added services and in gauging their potential to reverse the trend toward telecom services becoming a commodity, carriers should consider the maturing of value-added services, cannibalization of basic services, reliance on basic service revenues and whether a service is built on intrinsic network properties.

**Maturing of value-added services.** The fact that current value-added services have been around for some time suggests a limited upside. Customers have been buying a variety of value-added services for years and currently spend an average of 30% extra for value-added services.

According to FCC data for 1996, the average local service customer pays $18.94 a month for basic service plus an average of $5.63 a line for other "local" services. The second figure does not include additional dollars spent on SS7-based value-added services, which averaged $4.76 a line per month.

Although value-added service revenues could grow, the "low-hanging" fruit of value-added services likely have already been picked—with the possible exception of VPNs. Each additional percentage point of penetration must come from groups less likely to adopt value-added services, and thus each one will be harder to achieve.

Furthermore, value-added service margins for current services could come under attack partly because of the FCCs local competition order that the Eighth Circuit Court upheld. In that order, the FCC ruled that the switching unbundled network element includes value-added service functionality at no additional charge. Depending on how the litigation dust settles,
the use of switching unbundled network elements by IXCs and competitive LECS could put substantial downward pressure on value-added service price premiums.

*Cannibalization of basic services.* Several value-added service candidates fail to meet the proposed definition because although they generate profits, they cannibalize basic services without any clear demonstration that there is a net telco gain.

For example, toll bypass undoubtedly will be a large opportunity until regulatory disparities disappear or competition reduces current price disparities. Judging by the price elasticity we have seen in the telecom market to date, the net effect most likely will be to reduce telecom service provider revenues because the price reductions probably will not be offset by proportional volume increases.

Even if toll bypass as value-added service makes money, it comes at the expense of basic service revenues. The same is true for QoS and class-of-service priority calling solutions. They are value-subtracting services compared with current toll services.

The substantial growth of systems integration for business customers using VPNs likely will be a growth area. MCI Systemhouse now generates 9% of MCI revenues, and AT&T Solutions was expected to generate revenues of $1.8 billion in 1997, according to Lehmann Brothers.

Such growth ultimately may contribute to telecom services becoming a commodity, however, as integrators

tomer base averaging about 150 minutes of use per customer per month—vs. 1400 minutes for POTS—this makes complete sense. This practice shifts the economic proposition from making money on value-added services to relying on profits from the basic underlying service.

Similarly, seamless wireline/wireless is a good way to encourage greater wireless subscription and greater wireless usage. However, it does not generate value-added service revenues by itself.

*Services not built on intrinsic network properties.* Some potential value-added services, including Web hosting and systems integration, focus on the network edge. As such, they do not fit the proposed definition of value-added services. Instead, they represent a diversification strategy.

Systems integration, for example, uses basic services without adding intrinsic network functionality. A sign of this is that the service could just as easily be done by someone without a telecom network, such as EDS or Andersen Consulting. For the same reason, telcos entering CPE manufacturing or alarm services are diversifying rather than adding value to existing network services.

*Copycat offerings*  
In the future, value-added functionality likely will move from the telecom network core to the edge of the network. Some have called this the dumb pipe/intelligent terminal model.

As the industry moves toward packetized networks—such as those based on IP—voice or data transmissions sent across public networks will be able to contain information that can be read by intelligent equipment such as PCs or Internet telephones. This essentially could nullify value-added services such as call forwarding, call waiting, speed dialing, auto redial, call return and caller ID because people wouldn’t need to order anything special from the phone company to obtain those services.

An important contributor to this change is the open nature of IP software used in edge equipment, as opposed to the quasi-closed nature of SS7. The customer information that ultimately may supplant many value-added services is contained within the header for each datagram in a packetized network.

Value-added services that involve intrinsic network functionality are less likely to be displaced. Such services include call routing and virtual networks, such as 800-, 900-, 700- and 500-number services, and virtual private networks.

Intelligent edge devices and software also may displace some new value-added services that are still in the planning or early introductory phases.

An example of this is PhoneMizer, which sells PC

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**TABLE 1**

**POTENTIAL VALUE-ADDED SERVICES**

<table>
<thead>
<tr>
<th>Maturing market</th>
<th>Basic service cannibalization</th>
<th>Give-away to support basic services</th>
<th>Shift to Edgeware</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current AIN-based services</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toll bypass</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Seamless</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Voice mailbox</td>
<td></td>
<td>✓ (used for toll bypass)</td>
<td></td>
</tr>
<tr>
<td>Web hosting</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

buy broadband access lines and use them to provision intranets and extranets that lower basic telecom prices.

Web hosting also may be a good incremental business. But to the extent that a Web site will reduce customers’ reliance on toll-free customer service lines, Web hosting cannibalizes existing businesses.

*Reliance on basic service revenues.* Mobile voice mailboxes are important because they meet real customer needs. However, most digital mobile providers give them away for free, on the basis that they generate network traffic.

From the standpoint of a mobile provider with a cus-
software with a phone link that automatically selects the lowest-cost dial-around service for any particular day and time, effectively eliminating the need for carrier-provided toll bypass service.

Similarly, Microsoft is providing its NetMeeting and NetShow software for free, potentially reducing demand for telco-provided conferencing services.

Another example is the use of CPE-based voice and messaging systems as an alternative to those telcos provide.

Some telcos sell centralized voice mail and messaging services using systems from Octel, Wildfire or competing vendors. Mobile phones, in particular, need centralized messaging for obvious reasons—the user moves around and wants to access messages remotely.

However, business users in an office often have a voice mail system on premises. And as the cost of intelligent terminals declines, an increasing number of companies likely will purchase such systems.

Someday people may buy sophisticated wireline/wireless voice mail and messaging systems in the same way that they purchase simple answering machines today. And there are indications that Wildfire will be incorporated into the next revision of Windows so it, too, will move to the edge.

The situation is analogous to centralized Centrex systems losing out to edge PBXs.

Even when intrinsic centralized functionality prevents CPE from displacing telco value-added service offerings, offsetting considerations may prevent those services from becoming "house specialties."

Toll bypass, or transparent POTS-to-POTS phone service over the Internet, for example, initially will require network protocol conversion. But over the longer term, intelligent edge PCs and smart phones that are IP-capable will reduce substantially the need for protocol conversion.

QoS and class-of-service offerings intrinsically require network call routing optimization but also cannibalize current network margins. Even if they catch on, they represent a rear-guard action at best—the QoS and class-of-service premiums are destined to drop as the cost of bandwidth decreases and network reliability increases.

Seamless wireline/wireless networks are another potential value-added service that requires call routing capabilities. Such services also require seamless billing, another network function. But, as mentioned previously, seamless wireline/wireless service depends on the profitability of the underlying basic wireline and wireless components.

Unfortunately, the most interesting value-added services tend to be the ones that are most easily duplicated through the use of IP headers (Table 1). As Federal Express discovered when it tried to offer a value-added fax service, intelligent CPE eventually may displace many key telco value-added services (see sidebar).

In the short term, telcos should avoid over-committing to middleware investments that don't have a relatively near term payoff.

For the longer term, telcos should develop a business model that is sustainable in a dumb pipe/intelligent edge environment. As technology visionary George Gilder puts it: "It takes a smart man to build a dumb network."

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