

Chapter 1

Introduction to Telecommunications Cost Management

Nothing comes amiss, so money comes withal.

— William Shakespeare, *Taming of the Shrew*

Telecommunications is the second highest nonoperating expense for the average Fortune 1000 firm. Most organizations can reduce these expenses by three to fifteen percent; some can cut costs by 30 to 40 percent. The key to achieving and maintaining lower telecom expenses is to understand industry drivers, technical alternatives, and effective telecom procurement and processing techniques.

Many organizations pay above-market prices, buy too much capacity, do not detect billing errors, and use less-than-optimal technologies. Compounding the problem is the extreme conservatism of most internal telecommunications organizations — there is only modest reward for cost management but extreme punishment for any service interruptions. Hence, the “if it ain’t broke, don’t fix it” mind set. Employees expect dial tone virtually 100 percent of the time and are intolerant of any changes that risk downtime.

The chapters that follow outline technologies and techniques that, if applied with management support, can certainly reduce expenses. Large firms today often operate with minimum analytical staff and do not generally look at costs in nonoperating areas (the “plumbing”) as carefully as one would expect. While it may be theoretically possible for an organization to be without telecom waste, the authors have never seen a single example. Like fishing at a trout farm, the potential to reel in significant savings is extremely high.

How to Reduce Telecom Expenses (The “Cliff Notes” Version)

At the most general level, there are only a limited number of ways to reduce telecommunications costs:

- Reduce usage (make fewer calls, use fewer trunks, etc.)
- Outsource telecommunications management (cost savings occur only if this is done properly and will not apply to every organization)
- Find less-expensive suppliers
- Restructure contracts/agreements with existing suppliers
- Monitor and correct errors (a Windfall Associates report shows that billing errors occur in approximately 45 percent of all bills, and generally the errors are in the carrier’s favor)
- Use more efficient, less-expensive technology
- Decrease tax payments
- Use more efficient internal processes
- Increase security (prevent losses through toll fraud, for example)

The general steps above are influenced by many trends in industry and the workforce. Examples include:

- Increasing importance of telecommunications in general. Reliance on communications for services continues to increase rapidly. From telecommuting to Web-based procurement, the importance of electronic communications continues to monotonically increase.
- Continuing penetration of the Internet as a dominant force in the telecommunications industry.
- Proliferation of dozens of new technologies, including wireless services.
- Increasing levels of technical standardization counterbalanced by high levels of complexity in the telecom architecture (at the provider and customer level).
- Change in the marketplace from supply-driven (“build it and they will come”) to a more conservative market-driven environment (“if you are willing to buy it, we will build it”).
- Coexistence of old technologies (copper connecting the customer at the last mile) with many new ones.
- Old technologies that work will remain in the telecom infrastructure for decades.
- Continuing maturity of the outsourcing model.

The last bullet, outsourcing, deserves special treatment. As of this writing a number of firms, such as QuantumShift and ProfitLine, offer comprehensive management of telecommunications functions. The client hopes to receive lower prices and avoid devoting management effort to non-core activities. The outsource provider, sitting between the carrier and the consumer, consolidates resources over multiple clients and earns appropriate management fees for the services. Many of these services directly affect expense management. Examples include:

- Bill payment and auditing
- Consumption report generation (including chargeback)
- Implementation of telecom projects
- RFP development
- Procurement, monitoring, and disconnect of services from carriers
- Contract negotiation on behalf of the client (or directly supply services to client as a reseller/aggregator)
- Network implementation

[Exhibit 1](#), adapted from a business plan developed by Hala Fadel and Sunanda Narayanan at the MIT Sloan School of Management, shows features and benefits that could potentially be provided by a telecom outsource firm.

Outsourcing is not a panacea. If agreements are improperly structured, the savings may not accrue. Also, some organizations may have highly effective internal resources that can achieve the same result without the “middleman.” The decision to outsource should be reviewed carefully.

Why Telecom Costs Are So Difficult to Manage

Exhibit 1 hints at some of the industry problems that plague telecommunications services. Following is a generic list of cost management issues faced by most organizations:

- Telecom bills are large (delivered in large boxes or multiple CDs), difficult to read, and often not electronic.
- Telecom vendors (local, long distance, etc.) do not have uniform formats for billing information.
- Correlating consumption (number of minutes used, etc.) to the bill is often difficult.
- Forecasting the organization’s future usage is difficult. Trunks and other services must often be ordered in advance, based on an estimate of future need.
- Internal expertise, especially for the newest available telecom offerings, may be lacking.
- Fear of change hampers some initiatives that, if implemented, could reduce expenses.
- Telecom regulations, while simpler than in the past, are still complex (certainly for the United States and increasingly for the rest of the world). For example, some organizations, such as airlines, are exempt from the U.S. Federal Excise Tax for telecommunications.
- Voice, data, and video integration continue. The billing infrastructure for these three media has traditionally been different (fixed months versus per minute, etc.). As some per-minute costs get merged into packet-based, flat-fee services, confusion over billing will undoubtedly surface.
- The telecommunications environment is dynamic. Technologies, carriers, offerings, and pricing changes are almost constant. A study done in 2000 may not apply in 2002.

Exhibit 1. Potential Outsource Provider Benefits

<i>Client Issue/Need</i>	<i>Products/Features from Outsourcer</i>	<i>Value to Client</i>
Maverick spending on telecom services/equipment	Expense/consumption tracking at all levels; centralized control over orders	Savings from cost tracking and management at every level
No easy bill-back to clients' customers (e.g., consulting)	Cost tracking per client at employee level	Easy bill-back process; savings from accurate bill-back procedure
No centralized source for telecom resources or information	Resource library with telecom contacts, news, information	Time savings from reduced search time for information
Inappropriate solutions/services for given consumption patterns	Web-based monitoring of solutions; automatic RFQ generation	Customized/current solution at best price; comprehensive dynamic market information
Little visibility into spending; impossible to compare bills across carriers, services	Bill aggregation across locations, departments, carriers, and services	Clarity on spending and consumption; aggregated volume for good negotiating
Voluminous, incomprehensible telecom bills	Customized billing reports; easy-to-use software interface	Clear, relevant reports for corporate decisions; daily access to handy telemanagement tools
Complex pricing contracts	Contract integration into system	Clarity into contract terms and implications for re-negotiation
High perceived risk in trying new carriers or services	Rating and references	Minimizes risk trying new providers/services; provides a credible comparison platform
Overstaffed telecom management departments	Most comprehensive, online telecom management tool	Savings from reducing telecom-related human resources; client can focus on core business

Drivers for Customer Demands

Many software applications today require increased bandwidth (e.g., distance learning, telemedicine, interactive video, videoconferencing). Accelerating intranet usage and mobility requirements drive bandwidth needs. Some typical questions raised by management include:

- How are telecom budgets developed, and are they optimal?
- What voice and data circuits are in place, how are they used, and what do they cost?

Exhibit 2. Functional Areas of Concern by “C” Level Executives

<i>Area of Concern</i>	<i>Primary Organization</i>
Telecom cost management	CFO/CIO
Call center (contact center)	CEO/Business units
Service providers	CIO/Facility group (voice services)
Operations	CIO/Facility group
Emerging technologies	CIO
Network convergence	CIO
Customized networks	CIO/Business units

- How can recurring circuit costs be reduced? What processes and tools will sustain the reduction while maintaining adequate service levels? Specifically, how are the following best controlled?
 - Circuits billed for but not used
 - Circuits with disconnect ordered but still billed for
 - Circuits underutilized and billed for
 - Circuit consolidation/restructuring
 - Architectural changes
- How can good (“best”) practices be best implemented?
- How can the network be structured to best match current and future business needs?

Exhibit 2 summarizes telecommunications concerns by “C” level executives. Specific questions from these individuals might include:

- Telecom cost management:
 - Is \$10M being spent for technology that should only cost \$6M?
 - Are vendor contracts competitive?
 - Are supplier invoices correct?
 - Is there overspending on voice and data services?
- Call center:
 - Does the call center provide the company with a competitive edge?
 - How good is the quality of service in the call center?
 - How well have the new technologies been integrated into the “contact center” (e.g., migration to e-mail and Web interaction)?
- Service providers:
 - What circuits/services are there, how are they used, and how much do they cost?
 - Is this the best deal for the business?
 - Is it best to stay with current service providers or to shop around?
- Operations:
 - What is the risk of operational failure?
 - Are changes in the business environment affecting operations?
 - Are the right people, processes, and technologies in place?
 - Is outsourcing a consideration?

- Emerging technologies:
 - Are there new technologies that improve service levels or reduce costs?
 - Is the technology scalable, and is it flexible enough to adapt to changes in the business?
 - Are new technologies important?
- Network convergence:
 - Is the network design optimized for changing business needs?
 - When will capacity be reached on the network? Will bottlenecks appear suddenly, hampering business activities?
 - Are converged networks a consideration?
- Customized networks:
 - Can the network be tailored to improve service to the users/customers?
 - What hardware/software is available to help?
 - Will business plans force a change in direction?
 - Should any of the following tools be considered?
 - Workflow processing for the provisioning processes
 - Automatic verification of network services inventory and pricing
 - A complete end-to-end process that ensures revenue and expense stream matching and reconciliation
 - An organization focused on value-added analysis rather than score-keeping
 - Electronic invoice feeds from suppliers for network services
 - A central repository for all network service disputes and payments
 - Integrated network inventory management, accounts payable, billing, and planning systems
 - Visibility to all network costs within the organization

Carrier Challenges

Although the focus of the book is cost reduction for the telecommunications consumer rather than revenue enhancement for the provider, it is important to understand the risks and issues faced by the carriers. Some of the more important issues include:

- IP packet services deployment and operational support
- Network convergence (voice, data, and video)
- Competition and deregulation in the local loop (“the last mile,” e.g., wireless/cable)
- Advent of the “super” or “mega” carrier
- Infrastructure rebuilds to support new broadband access technologies (e.g., xDSL, satellite)
- Carrier cost containment efforts
- An antiquated revenue model, characterized by most of the cash coming from voice (slow growth) while much of the buildout (cost to carrier) is for data

From the carrier’s perspective, emerging technologies have not only increased the number of options available, but are also creating customer confusion (e.g., xDSL, VoIP, VoDSL, VPN). At the same time, the large carriers

have started to divest certain business units such as wireless, broadband, and long-distance services.

Carriers must address at least four key drivers of change to enable a successful transition to take place:

1. Customer demand (what services are customers willing to pay for?)
2. Technology
3. Capital markets (available funds allow migration away from legacy systems)
4. Government policies that encourage competition

Also thrown into the mix are segmentation changes and market dynamics. For example, now carriers are competing as niche players in areas such as:

- Internet service provisioning (consolidation is predicted)
- Infrastructure providers (laying of fiber e.g., Global Crossing, Level 3)
- Fixed wireless and cable to bypass local loop
- Global providers (AT&T, UUNET, Equant, MCI, and certain RBOCS), CLECs (e.g., MFS, Teleport)

The delivery or network infrastructure of the local access market is currently segmented into four provider areas:

1. Customer premises provider (requires data access to Internet and other businesses, voice access to LECs and IXCs)
2. Access provider (delivery of services: CLECs, ILECs, integrated communications provider [ICP] that can own, install, and manage CPE)
3. Network provider (delivery of services: connectivity between COs and POPs, ATM, FR, DS-3s, Fiber Rings-SONET)
4. Service provider (“manufacturers” of services such as Layer 2 and Layer 3 VPNs, FR, ATM, TLS, Web hosting from ISPs, LECs, IXCs)

Another competitive pressure item is Multi-Protocol Label Switching (MPLS — routing tags on IP header data). As of this writing, the MPLS standard is nearing approval. When fully implemented, MPLS will allow non-ATM networks to have a measure of QoS (quality of service) and will minimize bandwidth. MPLS networks will be less expensive than frame relay networks of the same bandwidth. All these new technologies present the same questions to carriers: Is this a good bet? Will it pay off quickly enough to justify the capital expenditure?

Many telcos have moved from transport-only providers to providers of data services (e.g., Frame Relay, ATM). The current telco environment is focused on VPN shared services; application-specific services are viewed as a strong future source of revenue. For example, telcos are looking to:

- Support ASPs (application services providers) with QoS guarantees
- Provide Internet broadcast capabilities (audio and video, B2C and B2B)
- Provide VoIP (Voice-over-Internet Protocol) products/services
- Bring together OSS (operations support system) provisioning information — primarily data collected from the switches, including unified billing data and service usage information

Summary

Telecommunications costs can be reduced in virtually every organization. Although changes in technology, markets, carrier issues, demand, and employee requirements seem to escalate continually, there are standard solution sets that can help. By understanding the tools — whether technical, procedural, negotiations, or simply “throwing it over the fence” via outsourcing — the organization can make an informed, best-fit decision.