



How to Use Call Accounting in a VoIP Environment

January 2009

Insider's Guide



Executive Summary

Voice over IP has delivered benefits to many enterprises: flexible network design, efficient user change management, combined voice and data infrastructure deployment, and cost-effective communications to name a few. One commonly held misconception about VoIP is that calls are free and, therefore, management and visibility into the cost of calls is not necessary. This misconception is the basis for the belief of some that call accounting is no longer needed or as beneficial to an enterprise when traditional TDM-based PBXs utilizing the public switched telephone network are replaced with VoIP switches.

Upon further inspection, however, call accounting in a VoIP environment offers added benefits as compared to call accounting in a TDM environment. Implementing call accounting software can effectively support cost control, cost optimization, policy enforcement, capacity planning and network design benefits. This research explores the nature of benefits from call accounting in a VoIP environment.

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TDM Traffic vs. VoIP Traffic

Time division multiplexed (TDM) calls traversing the public switched telephone network (PSTN) are common and familiar. This network of public switches, along with private TIE lines traveling through the PSTN, carried telephone traffic until the introduction of high-bandwidth data networks and VoIP systems. It is important to note that while these two networks have many differentiating characteristics, call accounting functions are the same; call accounting systems collect and process call detail records (CDR) from virtually all phone systems.

TDM Traffic	VoIP Traffic
Toll voice traffic is billed using cost per minute (CPM) model	Many billing methods exist including flat fee subscription service, limited free (no per call charge) calling and nominal transactional charges
Voice travels over PSTN infrastructure	Voice travels over public (Internet) and private (VPN) IP infrastructure

The fact that VoIP traffic can travel over multiple IP network configurations allows VoIP more flexibility than traditional TDM-based switched voice networks. Furthermore, VoIP traffic travelling over a private IP network will have no transactional charge attached to it. It is this fact that fuels the misconception that *all* VoIP traffic is free.

The differences between the PSTN and VoIP traffic boil down to a difference in the way the data travels. TDM and IP packetization are two vastly different transfer methods; independent of these differences, call accounting systems share the common goal of providing visibility into call activity.

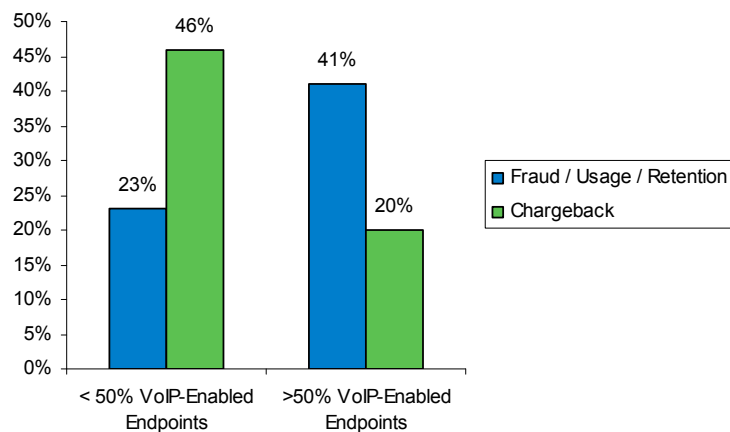
Call accounting continues to be not only relevant, but necessary for enterprises concerned with profit generating activities, budget management and security.

TDM Calls	IP Packets
Require continuous connection between two endpoints	Do not require continuous connection; traffic may travel multiple pathways to reach destination
Traffic is prioritized and appears in a precisely timed order	Traffic is prioritized by external software; packets are assembled at destination
Travel over traditional carrier-based PSTN facilities	Travels over any IP-based network; VPN, Intranet, Internet, etc.

Call Accounting Objectives in a VoIP Environment

AOTMP research has found a significant difference in call accounting objectives based on the number of IP-enabled endpoints across an enterprise. What is most interesting about call accounting trends in a VoIP environment is the shift of perceived value of the practice within an enterprise. As the number of VoIP-enabled endpoints increases, so does the probability that these enterprises will see great value in detecting fraud, trending usage and satisfying records retention requirements. Call accounting continues to be not only relevant, but necessary for enterprises concerned with profit generating activities, budget management and security.

Figure 1: Top Call Accounting Objectives



Source: AOTMP, November 2008



Call Accounting Benefits in TDM & VoIP Environments

Call accounting is an established practice for many enterprises. Call transactions are captured and reported upon by call accounting systems. Reports are used for cost allocation, fraud detection, usage trending, records retention requirements and ad hoc investigation.

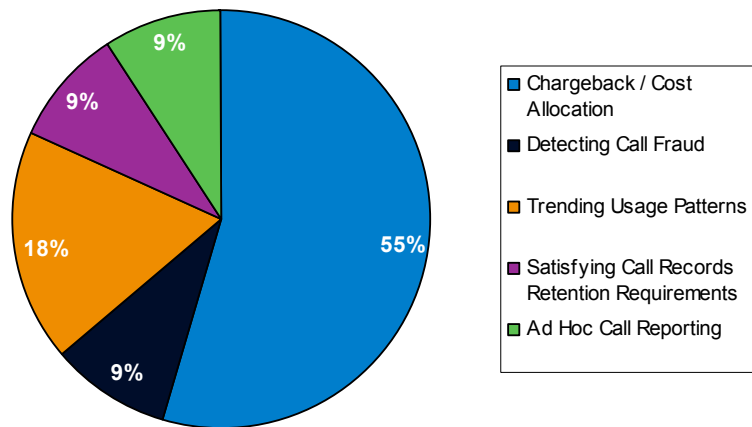
Proper implementation and use of call accounting software enables enterprises to drive excess cost out of the environment, which helps align costs with needs and drive profits.

Call Accounting Benefits	
TDM Environment	VoIP Environment
<p>Visibility: Usage patterns, charges and business processes can be monitored and adjusted accordingly. Visibility into call traffic is available to PBXs connected to call accounting systems.</p>	<p>Visibility: The same visibility as TDM environments with the added benefit of cost effective connection to small and remote/home worker locations through centralized deployment of call accounting operating across the IP network.</p>
<p>Fraud Detection: Non-business related and out-of-policy calls can be identified, monitored, investigated and rectified.</p>	<p>Fraud Detection: The same benefits can be found in a VoIP environment. Additionally, IP networks are vulnerable to hacking and security breaches. Identification of eavesdropped and hacked calls can be supported with call accounting, enhancing network security.</p>
<p>Chargeback Control: Business units can be charged according to the amount of traffic used. Enterprises with billable time practices (i.e., CPA firms, lawyers, consultants, etc.) are supported.</p>	<p>Chargeback Control: VoIP traffic may be flat-fee or nominal fee based, but business units can be charged according to the proportion of total traffic utilized. Charges associated with all calling can be distilled to support enterprises with billable time practices.</p>
<p>Technical Control: Billing errors from errant off-hook calls and misrouted traffic can be identified; traffic volume and pattern analysis can be performed; determination of trunking requirements can be supported.</p>	<p>Technical Control: Misrouted traffic can be identified; traffic volume and pattern analysis can be performed to support IP network QoS and prioritization configuration.</p>
<p>Regulatory & Governance Compliance: Industry, legislative and internal governance requirements for call detail records retention is supported.</p>	<p>Regulatory & Governance Compliance: Records retention requirements can be satisfied.</p>

Call Accounting Benefits in a VoIP Environment

A majority of enterprises view chargeback and cost allocation as affording the greatest call accounting benefit. Even though VoIP-based calls may not endure traditional cost-per-minute charges, maintaining visibility into call transactions remains an important factor in chargeback activity, policy compliance monitoring and assuring that accountability is maintained on a call-by-call basis. To maximize visibility in a VoIP environment, call accounting should be enabled on all VoIP endpoints.

Figure 2: Top Call Accounting Benefits



Source: AOTMP, November 2008

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Call Accounting Reporting

Reporting is a specific feature that enables enterprises to understand the nature of its calling and associated call costs. Reports transform call data into valuable information that can be used to understand call traffic, identify cost optimization opportunities, enforce policy and adjust trunking and modify IP network infrastructure to meet changing enterprise needs.

Trend reporting enables enterprises to predict ongoing changes in call patterns and volume. This reporting may also identify the need to modify policy and influence user behavior to meet call cost and infrastructure capacity demands.

Call Accounting Driving Profits

Call accounting offers a competitive advantage to enterprises striving to gain and maintain optimal telecom call cost-to-service performance; visibility promoting informed decision-making is the main element of this advantage. Identification and elimination of out-of-policy calls, fraud and inefficient call routing reduces overall cost of service; call accounting offers a cost effective and efficient method of meeting these objectives. The shift in perceived value with regard to top call accounting objectives in a VoIP environment (figure 1) supports this focus.



Visibility into network utilization offers enterprises the opportunity to modify and right-size network infrastructure. The practice of optimizing infrastructure supports optimal cost-to-service performance.

Proper implementation and use of call accounting software enables enterprises to drive excess cost out of the environment, which helps align costs with needs and drive profits. The result is financial contribution to the enterprise through cost optimization.

Many Systems, Many Methods

Call accounting systems can expand, contract and be modified to fit a variety of business needs. Systems may be web-based, Software-as-a-Service, directly attached to a PBX, run from a personal computer or any combination of the above. Hardware and software solutions exist for any budget and any call volume. Business needs will determine the precise nature of the call accounting installation.

AOTMP Standards & Best Practices for Call Accounting in a VoIP Environment

The following best practice activities for call accounting in a VoIP environment are based on AOTMP expertise, research and analysis.

- **Implement call accounting on VoIP endpoints to increase visibility.** The data collected from call accounting reports can be invaluable when designating chargebacks, identifying fraud, generating effective policies and monitoring end user productivity.
- **Use information from call accounting to actively manage the telecom environment.** Data can be used to assess bandwidth needs, structure policy, determine needed user class of service (CoS) profiles, and optimize IP network QoS and prioritization configuration.
- **Create policies that include call accounting as a metric and a tool for enforcement.** Call accounting information provides visibility into opportunities for cost containment and cost control within the telecom environment. Proper structure, management and active enforcement of telecom policies will help enterprises optimize policies to meet specific financial and technical performance objectives.



Conclusion

Call accounting is a valuable tool for enterprises seeking to gain and maintain control. It enables enterprises to capture the universe of calls across their environment. The misconception that call accounting is not needed or valuable in a VoIP environment keeps enterprises from fulfilling real needs. Benefits from call accounting can be gained independent of voice call technology.

VoIP-enabled environments face many of the same challenges and issues of visibility that TDM environments face, as well as the added issue of network vulnerability. Flexibility of call accounting systems to support all connected locations from a central installation enhances the ability to support small offices and remote/home workers. A call accounting system ensures enterprises have visibility into call transactions, traffic patterns and capacity utilization, which promotes informed decision making ability; informed decision-making leads to realizing hard and soft dollar savings.



AOTMP Research Methodology

AOTMP research is supported through data collected from a variety of sources. Data points are collected through enterprise and supplier benchmarking projects, training and certification events, research surveys, frequent hot topic polls, virtual conference audience polling, live conference audience polling, and AOTMP Access benchmarking events. AOTMP's data point contributors include over 60,000 IT, telecom and business professionals, supporting domestic and international enterprises and industry suppliers. Data points contributing to research are carefully analyzed using advanced statistical methods. Research findings are confirmed through test/retest validity methodology and, therefore, paint an accurate picture of the industry. The clarity and detail of AOTMP research is unmatched in the practice of telecom environment management, and AOTMP expertise translates analysis into actionable findings representative of the industry and all related industry segments.

Research Demographics

Data points for this research were provided by enterprises representing the following markets: Business Services, Consumer Goods, Education, Engineering, Finance, Local Government, Healthcare, Hospitality, Insurance, Manufacturing, Not-For-Profit, Retail, Travel and Wholesale.

21% of enterprises have annual revenues above \$5 billion, 10% have annual revenues between \$2.5 billion and \$5 billion, 27% have annual revenues between \$250 million and \$2.5 billion, 24% have annual revenues between \$50 million and \$250 million and 17% have less than \$50 million in annual revenues.

About AOTMP

AOTMP is the leading provider of information solutions for managing telecom and IT environments. AOTMP's proprietary certifications, benchmarks, standards and best practices deliver measurable improvement in efficiency and productivity for managing wireless, voice, data and network services. From Fortune 50 companies to SMB, enterprises seeking the best return on telecom and IT services turn to AOTMP's industry research, advisory services, events, educational programs and performance management systems to achieve operational and financial efficiency.

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