

# Enterprise Telecommunications Management for the Network-Centric Organization

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An Industry White Paper on the New Generation of  
Enterprise Telecommunications Management

# Telecommunications Management for Network-Centric Organizations

## Abstract

*A new breed of network-centric organization has emerged whose business processes and telecommunications networks are linked. Reliance on the network as a business enabling and enhancement infrastructure has expanded the traditional definition of telecommunications management for these network-centric organizations to include analysis and optimization of telecommunications networks and assets. The accuracy and allocation of invoices for expense and contract management, which is the focus of current enterprise telecommunications management (ETM) solutions, while still an important expense management tool, is no longer the most important issue for network-centric organizations. Being able to analyze their telecommunications network and use that network to sustain and enhance their organization's performance are now the key requirements.*

*This portends a new generation of ETM solutions that can be used to manage the entire communications environment. This generation is based on customer-owned and -operated software, rather than out-sourced services. These new solutions are based on high-value, information-based processes and software that will ensure availability of an accurate, zero-latency inventory of assets, services, and users that will drive the analysis of the communications environment and support enhancement of the organization's operations.*

*When fully realized, solutions of this new generation will support tuning the capacity and configuration of telecommunications infrastructure to optimize performance, return on investment, and enhancement to business performance. This new generation of solutions will address all stages of ETM need – from accuracy to allocation, through analysis and into overall business enhancement.*

## The Basics

Communications management has never been simple. There has almost always been the need to account for the customer, the service, the equipment, the supplier, and the cost and allocation of the services and equipment.

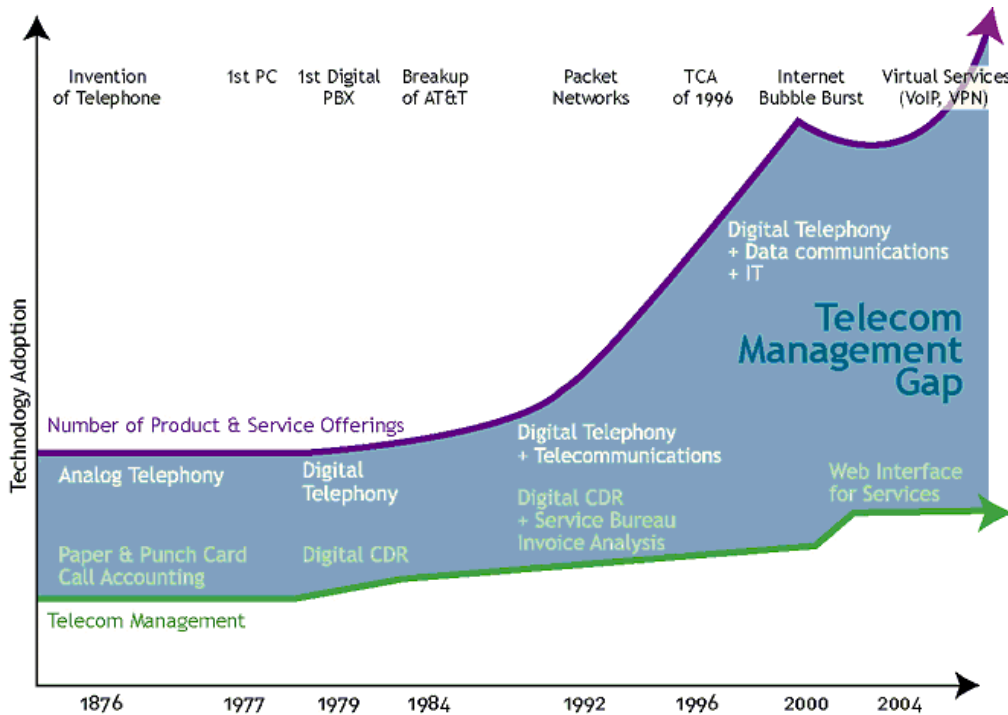
While the technology driving the communications infrastructure has advanced substantially, the basic functions of telecommunications management have remained the same – identify the assets and services that an organization may have, make sure that the bills and invoices for those assets and services are correct, and accurately decide who is responsible for the costs of those

assets and services. The emphasis has been on expense management and cost allocation based on invoice analysis.

While telephony-oriented telecommunications management has evolved incrementally, the capabilities and application of telecommunications have tracked the more abrupt arc of the computing revolution: analog telephony; then digital telephony; followed by the convergence of telephony and data communications; then the roll-out of packet-based networks; and now the emergence of virtual services, such as VoIP.

*“...telephony-oriented telecommunications management has evolved incrementally, while the capabilities and features of telecommunications have tracked the more abrupt arc of the computing revolution.”*

### Evolution of Telecommunications and ETM



The key technological shift in the past decade has been the emergence of packet-based networks as the underlying infrastructure of communications. Widespread deployment and availability of an information-neutral network infrastructure has facilitated the emergence of the network-centric organization. The business processes of these organizations are based on the near-real-time movement and availability of information. They are able to effect a global distribution of business operations, while still retaining all the benefits of central management and control of business-critical information, applications, and processes.

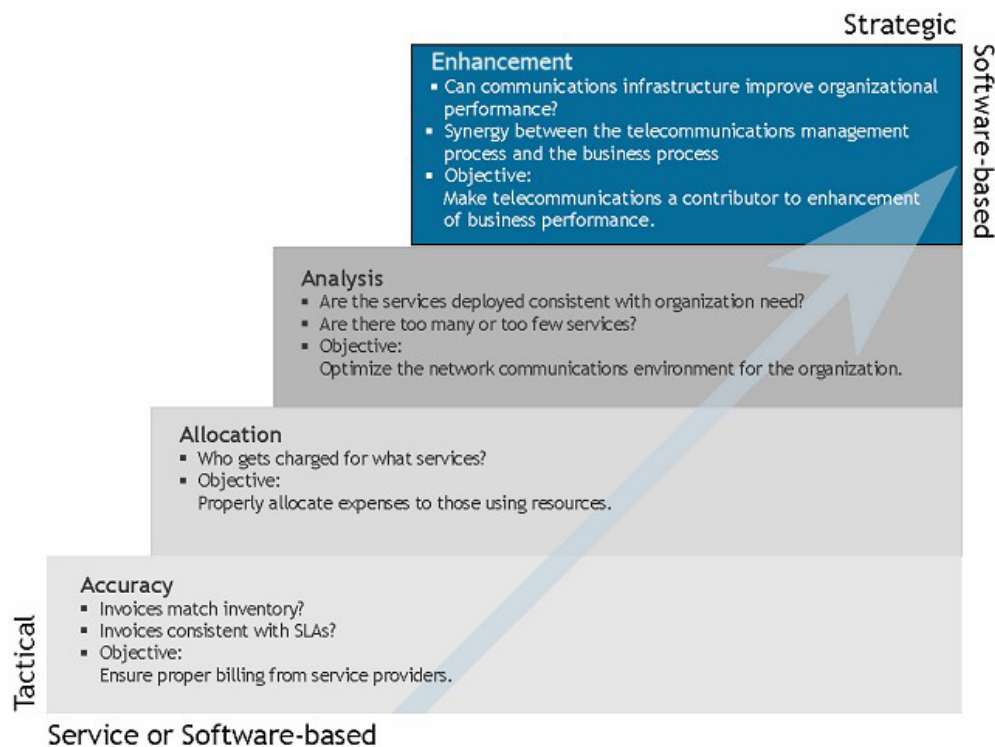
## Telecommunications Management Today

Telecommunications management solutions today tend to focus on accuracy and allocation of invoices driven by traditional call detail reporting and telecom invoice audits. These solutions are invoice-centric – validation and accuracy of the invoice is the primary function. It is generally accepted, and has been documented by numerous research organizations, that there are sufficient discrepancies in the billing process to warrant the need for invoice auditing. The business case is simple – auditing of invoices and bills for accuracy can reduce telecommunications expenses.

*“Telecommunications management solutions today tend to focus on accuracy and allocation of invoices driven by traditional call detail reporting and telecom invoice audits. These solutions are invoice-centric.”*

As customers have grown more sophisticated, however, their telecom management needs have also grown. The phrase “enterprise telecommunications management” has come to describe a set of solutions that help the enterprise manage its telecommunications expenses and functions. Within this general classification of ETM, four distinct stages can be identified. These are shown in the accompanying graphic.

## Stages of Enterprise Telecommunications Management



In the first stage, solutions emphasize validating invoices and bills for accuracy – invoice auditing. The second phase focuses on the proper allocation of those bills across the organization. Many of the solutions that address stage one and stage two requirements are offered as out-source services. Customers send their invoice data to solution providers that compare invoices and billing records against an inventory of assets and circuits, rate

tables, and service agreements. Discrepancies are flagged. Some solutions include a recovery function, wherein the solution provider negotiates a settlement of the discrepancy with the service provider. In many cases, the fees the solution provider receives are directly related to the amount recovered. However, regardless of the specifics of the services offered, the effectiveness of the invoice audit process is highly dependent on the accuracy of the inventory – the better and more accurate the inventory, the better and more accurate the audit.

In a stable enterprise where there are few moves, additions, changes, or deletions, most existing solutions may prove adequate. However, because the inventory database that drives the invoice audit is not likely to be well managed, the accuracy of that inventory is likely to diminish over time as the base of assets, services, and users change. While these solutions can be used to evaluate and monitor what has happened, their ability to address the analysis and enhancement needs of stage three and stage four ETM is doubtful.

While some software components may be used, current solutions rely mainly on services to meet the bulk of the customer needs. Any software used is likely to be applicable to a specific function, with the solution provider owning and operating the software. Use of software in current solutions can be generally categorized as software that automates invoice audit functions that were previously done manually. Out-sourced services offered tend to be low-value, addressing issues such as data collection and validation. Once the bill has been audited, higher value mediation and recovery services may also be provided.

As telecommunications management needs become more complex, current solutions address these needs by adding more out-sourced services. This further removes the enterprise from the zero-latency knowledge and understanding of its network that is essential to optimizing and managing the overall telecommunications environment.

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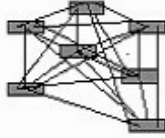
## **Telecommunications Management for Network-Centric Organizations**

A new breed of organization has emerged that has organized its processes and operations around pervasive, persistent connectivity – the telecommunications network. These network-centric organizations not only digitize historically analog business processes and functions, but also create and deploy new processes that would not have been possible without a ubiquitous telecommunications network.

The ease with which telecommunications capabilities and assets can be deployed, modified, tracked, and controlled is a key factor in enabling a fluid, dynamic organization and workforce and the network-centric organization.

This new breed of enterprise has created a compelling need for ETM solutions able to manage all telecommunications devices and services within the context of an overall telecommunications management approach. Solutions that meet this need are more flexible and configurable than current ETM solutions and will address all four stages of ETM.

A key characteristic of this new generation of solutions is they are workflow process based and are offered as software-based solutions owned and operated by the customer. The processes embodied within this new generation of telecommunications management solutions will not be viewed as ancillary to the performance of the enterprise, but will enhance organizational performance, thereby increasing productivity and revenue.

<p><b>On Being Network-Centric</b></p> <p>There are many attributes of a network-centric organization, but the key one is that its business not only uses the network, but also could not exist in its current form was it not for the network. Other key attributes include a reliance on time-critical information transaction, and an inclusive ecosystem that links suppliers into the organization.</p>	 <p><b>Network-centric Organizations</b></p> <p><b>Network Critical For Business Processes</b></p> <p><b>Time-Critical Transactions</b></p> <p><b>Information Intensive Interactions</b></p> <p><b>Distributed</b></p> <p><b>Inclusive Ecosystems</b></p> <p><b>Mobile</b></p>
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Successful solutions will be specially designed for the network-centric environment, delivering zero-latency assessments and reports that can be used to optimize and tune the telecommunications network.

Because they are software-based, this set of telecommunications management solutions is able to work with other software applications and network management solutions, such as network

management monitoring software and human resources systems. They will also be able to link electronically to suppliers and carriers for order and service management, maintenance reporting and tracking, billing and inventory synchronization – the inclusive ecosystem.

In the context of this new generation, all devices, services, and applications that connect to network resources are considered. With the convergence of data and telephony on packet-networks, effective telecommunications management will ultimately manage personal computers and telephones together, since both impact the same communications infrastructure.

Several factors driving the emergence of this new generation of solutions include:

- Explosion of packet-based networks

This has allowed voice, data, IT, and the associated management requirements of those environments to converge. It has also provided a standards-based connectivity infrastructure that can be used to support a nearly infinite variety of assets.

- Limitations of current expense management solutions

Even with the technological advances and convergence of data, voice, and IT, a key objective of telecommunications management remains expense control and management.

The ability of current inventory-centric solutions to deliver additional expense optimization has plateaued since the inventory mechanisms used by current generation solutions are either nonexistent or unstructured. As assets and services are moved, added, changed, and deleted, the accuracy of invoice-centric expense management solutions diminishes.

Further reductions in expenses are difficult without accurate, near-real time inventories. Without accurate inventory, any financial analysis is suspect, and it becomes more difficult to recover incorrect charges and negotiate the SLAs and contracts that are crucial to managing telecommunications expenses.

- Increased supplier and carrier options for customers

Since the break-up of AT&T in the early 1980s, the number of companies offering telecommunications products and services has grown dramatically. This has given customers the ability to create attractive agreements for services. But it also makes it imperative that customers be able to monitor and control not only the suppliers' compliance (SLA monitoring and contract compliance) with those agreements, but also their own compliance. This requires the ability to easily reassign assets and services to carriers and suppliers in order to conform to any agreements in place.

## Attributes of the New Generation

Telecommunications management solutions for network-centric organizations represent a new generation. This generation supports numerous foundation applications such as expense management, cost allocation and internal billing, and service order management. Those applications are based on an accurate, controlled inventory of assets, services, and users. As the use of this set of solutions converges with traditional data network management technology, network-centric organizations are able to use telecommunications management as a key business decision support and optimization system, assisting them in analyzing and enhancing their operation.

*“... use telecommunications management as a key business decision support and optimization system.”*

There are several specific attributes of the new generation of telecommunications solutions. Some of these include:

- Business process based

Information technology and telecommunication are now expected to be engines of operational enhancement within the enterprise, rather than overhead services. As such, it is imperative that there be enforceable processes embodied within the enterprise telecommunications management environment and that those processes reflect and support the organizational structure and processes. By combining software with well-defined management processes, enforceable, organizational enhancing, process-based telecommunications management solutions can be created.

- Software technology-based, extensible foundation

The network-centric organization will require more control over its telecommunications management processes than any out-source service solution can provide. The maintenance and availability of zero-latency inventory and configuration information will dictate solutions that are based on customer-owned and -operated software-based solutions. These software-based solutions are so strong and flexible at their core that other applications can be supported and integrated, including general network management applications such HP-Openview, and ERP software such as Oracle and SAP.

- Inventory-centric

The cornerstone of this new set of telecommunications solutions is an accurate inventory of assets, services, and users (users being people, processes, and applications). Inventory-centric telecommunications management solutions are ideal for network-centric organizations that require a timely and accurate inventory.



Ultimately, all functions of telecommunications management can be dramatically enhanced if they are based on a controlled, structured inventory of assets, services, and users. Without an accurate inventory, even invoice auditing for the simplest enterprise will become less effective over time, as inventory of assets and services become less accurate.

- Electronic linkage to carriers/suppliers

This new generation of telecommunications management solutions will recognize that effective service order management applications will be electronically linked to carriers and suppliers. Use of electronic order management will also allow the new generation of telecommunications management solutions to provide customers a single, common, vendor-neutral user interface for ordering and changing assets and services. This also provides customers a high degree of independence, allowing them to more easily switch suppliers and carriers.

Linking electronically to suppliers and carriers for order management, inventory synchronization, and billing, is a key step toward creating an order management process that ensures an accurate, zero-latency inventory of assets and services. Additionally, it makes suppliers a more integrated component of the inclusive ecosystem.

## Summary

Today, most telecom management solutions help the enterprise answer the questions “*What are we getting billed for?*” and “*Are we paying too much?*” The new generation of ETM solutions will help the enterprise answer the questions of “*What does our network look like?*”, “*How can we get it to help make the business better?*”, and “*Are we getting optimal return on our investment?*”

Answers to all those questions will come about with the emergence of an inflectional set of telecommunications management technology based on software and enforced workflow processes.

This new generation of Enterprise Telecommunications Management solutions is based on customer-owned and -operated software, rather than out-sourced services. These solutions will also be based on processes and software that ensure availability of an accurate, zero-latency inventory of assets, services, and users. This inventory supports specific telecommunications management applications such as invoice auditing, cost allocation, service-order management, network configuration and design, and integration with other network-based applications.

For network-centric organizations, ETM solutions centered on the accuracy and allocation of invoices are likely to prove unsatisfactory. The new generation of software-based solutions centered on the inventory of assets and services, can provide those organizations superior expense and financial management, while providing a foundation for sophisticated network analysis and planning, and business enhancement support capabilities

The intertwining of the organization structure and its information-based processes with the network makes ETM critical to enhancing organization performance. The new generation of solutions radically expands the notion of total cost of ownership for telecommunications from one of operational accuracy and efficiency, to one that includes the ability to account for and manage all manner of devices and services. When fully realized, this generation of telecommunication management solutions will support analysis of the infrastructure, thereby optimizing performance, return on investment, and maximizing the enhancement to overall business performance.

This industry white paper was commissioned by Rivermine Software, developers and marketers of software-based telecommunications management solutions for network-centric organizations. The company offers a spectrum of ETM solutions based on a near real-time and self-improving inventory of assets, services and users that are deployed and managed. Specific solutions include financial management, service order processing, and personal device management.



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