# Benchmarking VoIP Performance Management

March 2008

Aberdeen*Group*
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# Executive Summary

Aberdeen surveyed 159 organizations to identify best practices for managing Voice over Internet Protocol (VoIP) performance. This report reveals the impact Best-in-Class strategies and capabilities are having on availability and quality of VoIP service.

## Best-in-Class Performance

Aberdeen used three key performance criteria to distinguish Best-in-Class companies:

1. Average improvement in VoIP service quality

2. Average improvement in VoIP service availability

3. Improvements in the ability to troubleshoot issues with VoIP performance in a timely manner.

Best-in-Class organizations reported the following performance improvements:

- 93% average improvement in VoIP service quality

- 95% average improvement in VoIP service availability

- All improved ability to troubleshoot issues with VoIP performance in a timely manner

## Competitive Maturity Assessment

Survey results show that the firms enjoying Best-in-Class performance shared several common characteristics. They are:

- Twice as likely to have tools for troubleshooting call failures in place as compared to Laggards

- Twice as likely to be measuring call quality on a per-call basis as compared to all others

- Nearly twice as likely to have the ability to asses the impact of other business applications on VoIP performance as compared to all others

- Four-times as likely to have alerts for issues with VoIP performance in place as compared to Laggards

## Required Actions

In addition to the specific recommendations in Chapter Three of this report, to achieve Best-in-Class performance, companies must:

- Deploy tools for troubleshooting call failures

- Define thresholds for normal VoIP performance and issue alerts when performance reaches these thresholds

- Manage VoIP and overall network performance holistically through an unified platform

"Once you combine voice, video and data, on the same network, the bandwidth consumption will explode."

~ Network Architect, Financial Services Firm

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# Chapter One:
# Benchmarking the Best-in-Class

## Business Context

Aberdeen's May 2007 benchmark report, *Network Transformations: Managing Transitions for Growth*, revealed that 63% of organizations surveyed have either completed the transition to IP enabled networks or are currently in the process of making this transition. Since transition from old-fashioned dedicated, analog telephony to VoIP is a major initiative at many organizations, managing performance of VoIP services is becoming increasingly important. Managing the performance of voice services delivered over IP networks is possible through execution of variety of strategies; but the challenge that organizations face is in identifying the right strategy and developing capabilities needed for a successful execution of that strategy,

### *Strategic Importance of VoIP Performance Management*

Aberdeen's research shows that the top pressures driving enterprises to focus resources in managing VoIP performance are:

- The need to optimize cost of telecommunication services (51% of all survey respondents)

- The need to improve employee productivity (41% of all survey respondents)

Figure 1 shows the top strategic actions that organizations are taking to address these pressures and achieve optimal levels of VoIP service availability and call quality.

**Figure 1: Top Strategic Actions Taken**



| Strategic Action | % |
|---|---|
| Create strategic plan for managing VoIP | 51% |
| Justify benefits of VoIP deployments | 41% |
| Conduct assessment of network performance | 39% |
| Improve accessibility of customer-facing employees | 28% |
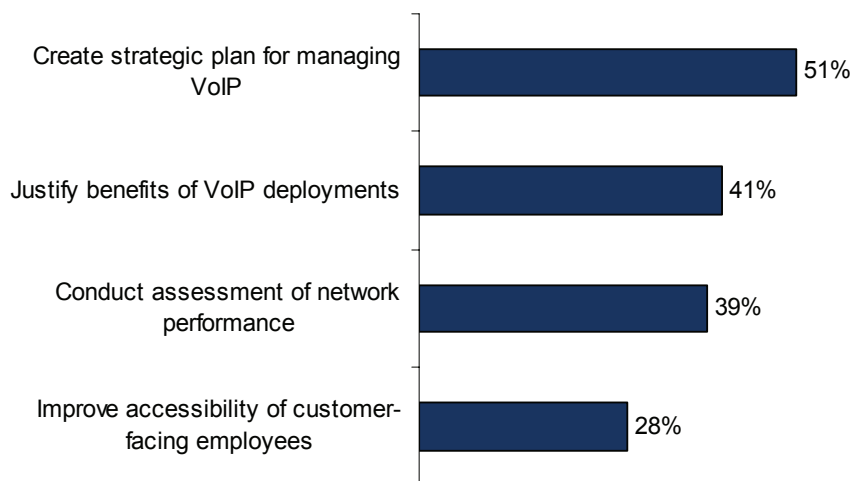
Source: Aberdeen Group, March 2008

Interestingly, 61% of organizations surveyed reported that conducting a detailed assessment of network performance prior to deploying VoIP is not one of their top strategic actions. Without performing this type of an assessment it becomes very difficult to estimate the impact of VoIP rollouts on overall network performance as well as to determine if the network is ready for VoIP.

Organizations surveyed have spent, on average, $1.6 million on VoIP rollouts so far. Therefore, it doesn't come as a surprise that 41% of organizations reported that justifying the benefits of these investments is one of their top goals for VoIP performance management.

Aberdeen's research shows that on average, 48% of end-points have been IP enabled. Additionally, 39% of organizations reported that 75% or more of their end-points have been IP enabled. As organizations move to a 100% VoIP environment, it is important to create a strategic plan to manage all aspects of VoIP deployments. Figure 1 shows that the creation of this kind of plan is the top action that organizations are taking to facilitate VoIP performance management.

## The Maturity Class Framework

Aberdeen used three key performance criteria to distinguish the Best-in-Class from Industry Average and Laggard organizations. These Key Performance Indicators are:

- Average improvement in VoIP service quality

- Average improvement in VoIP service availability

- Improvements in ability to troubleshoot issues with VoIP performance in timely manner

**Table 1: Top Performers Earn Best-in-Class Status**

| Definition of Maturity Class | Mean Class Performance |
|---|---|
| **Best-in-Class:** **Top 20%** of aggregate performance scorers | • 93% average improvement in VoIP service quality<br>• 95% average improvement in VoIP service availability<br>• 100% improved ability to troubleshoot issues with VoIP performance in timely manner |
| **Industry Average:** **Middle 50%** of aggregate performance scorers | • 55% average improvement in VoIP service quality<br>• 58% average improvement in VoIP service availability<br>• 27% improved ability to troubleshoot issues with VoIP performance in timely manner |
| **Laggard:** **Bottom 30%** of aggregate performance scorers | • 0% average improvement in VoIP service quality<br>• 0% average improvement in VoIP service availability<br>• 0% improved ability to troubleshoot issues with VoIP performance in timely manner |

Source: Aberdeen Group, March 2008

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## The Best-in-Class PACE Model

Using VoIP performance management solutions to achieve corporate goals requires a combination of strategic actions, organizational capabilities, and enabling technologies that can be summarized as shown in Table 2.

**Table 2: The Best-in-Class PACE Framework**

| Pressures | Actions | Capabilities | Enablers |
|---|---|---|---|
| ▪ Need to improve employee productivity | ▪ Justify benefits of VoIP deployments<br>▪ Improve accessibility of customer-facing employees | ▪ Ability to monitor availability of back up devices<br>▪ Defined thresholds for normal VoIP performance<br>▪ End-to-end view into VoIP inventory<br>▪ Ability to create customizable reports regarding VoIP performance<br>▪ Escalation pathways for issues with VoIP performance<br>▪ Ability to assess impact of other business applications on VoIP performance | ▪ Tools for prioritization of network traffic<br>▪ Tools for troubleshooting call failures<br>▪ Alerts for issues with VoIP performance<br>▪ Unified platform for managing VoIP and overall network performance<br>▪ Tools for auto discovery of VoIP configuration changes |

Source: Aberdeen Group, March 2008

## Business Benefits from VoIP Deployments

On average, organizations in Aberdeen's survey reported 21% decreases in spending on telecommunications service since deploying VoIP. Also, 59% of all organizations that have VoIP in place are leveraging solutions for videoconferencing, 36% of them are using presence, and 34% of them are deploying unified messaging solutions. It is apparent that organizations that are converging voice and data traffic on their networks intend to the reduce costs of telecommunications services while enabling their networks for the deployment of new collaboration tools. With that said, 40% of organizations are deploying solutions that will allow them to simultaneously manage performance of VoIP, video, and Unified Communications (UC) solutions while 31% of organizations have solutions that enable them to manage VoIP performance only.

Figure 2 shows that Best-in-Class organizations are ahead of Industry Average and Laggard organizations when it comes to progress made in converging voice and data traffic on the single network. As VoIP becomes one of the key enterprise technologies, organizations are taking strategic actions to manage performance of their VoIP solutions. Additionally *The 2008 Aberdeen Report* reveals that 53% of organizations report that VoIP deployments are an infrastructure project that is having the strongest impact on overall network performance. The challenge of managing VoIP performance becomes even more complex when combined with the challenge of achieving a high level of other business critical applications while simultaneously deploying VoIP.

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**Figure 2: Best-in-Class are Monitoring More Than a Half of Their IP Phones**
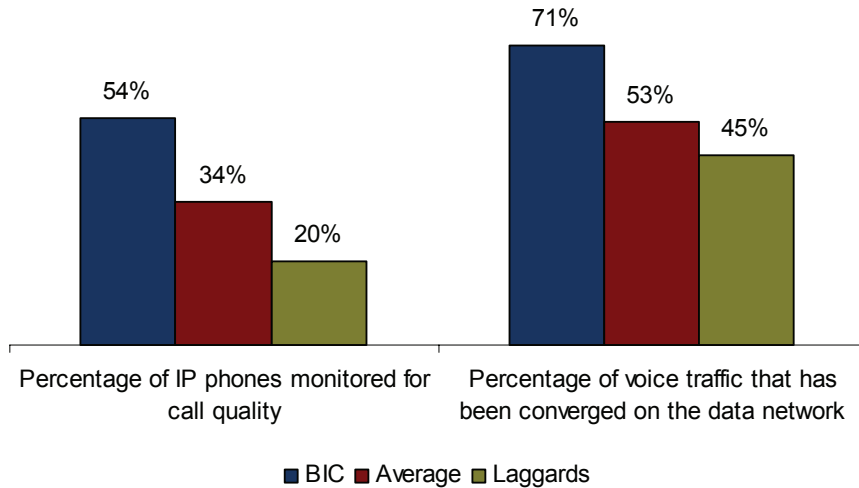
Source: Aberdeen Group, March 2008

VoIP is a business-critical technology, and any issues with availability or quality of VoIP service could cause a significant disruption of key business processes. Figure 2 shows that Best-in-Class organizations are monitoring more than half of their IP phones for call quality. The ability to monitor, analyze, and troubleshoot VoIP performance is critical for fully achieving goals for VoIP deployments and VoIP performance management. Organizations have already spent an average of $1.6 million for VoIP deployments, and in order to get optimal return on these investments they need to ensure that they have the right tools in place for managing VoIP performance.

**Aberdeen Insights — Strategy**

The effectiveness of managing VoIP deployments is correlated with the organizations' ability to achieve full visibility into network performance prior to deploying VoIP as well with visibility into bandwidth consumption per application on the network and the ability to measure and analyze VoIP performance. As organizations move toward the implementation of 100% VoIP environments, the ability to take a full control over VoIP performance is becoming increasingly important. At a strategic level, organizations need to not only justify the benefits of current VoIP deployments, but also must be proactive and gain full visibility into their networks prior to deploying VoIP.

In the next chapter, we will see what the top performers are doing to achieve these gains.

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# Chapter Two:
# Benchmarking Requirements for Success

The selection of VoIP performance management solutions, and the integration with business intelligence and business process management systems, plays a crucial role in the ability to turn these strategies into profit.

## Case Study

When a US-based financial organization transferred its existing telecommunications systems to a nearly 100% VoIP environment, it successfully managed unanticipated technical and logistical problems.

Initially, the organization experienced a seamless transition from its existing systems based on traditional, Time-Division Multiplexing (TDM) to VoIP. However, midway through the deployment, the organization's IT Director stated that major challenges emerged which impacted daily, mission-critical business transactions.

"[W]e experienced issues with performance of some applications that are critical for our branch locations. Also, we experienced a high percentage of dropped calls and the quality of VoIP service was lower than expected. We had technology tools in place for monitoring bandwidth consumption per application, but these products were not allowing us to get a high level of granularity and to really be able to understand where the bottlenecks [were]."

To deal with these problems, the IT Director had to make a strategic decision. In the overall network traffic, which digital voice streams would be given precedence?

"Apparently, a significant amount of bandwidth capacity was used by so-called "recreational" traffic and VoIP and business-critical applications and were "competing" for bandwidth with these applications. [So] we deployed two types of solutions that enabled us to completely resolve this issue."

"First, we deployed a solution for managing bandwidth that enabled us to set up (Quality of Service) QoS policies and make sure that a sufficient amount of network capacity is always dedicated to VoIP. The same solution allowed us to control the amount of recreational traffic and improve bandwidth utilization. Secondly, we deployed a solution that allowed us to troubleshoot performance issues that were specific to VoIP only. That allowed us to make more educated decisions about upgrades that we needed to make to our network to ensure that VoIP and other business applications are performing at optimal level."

## Fast Facts

√ Best-in-Class organizations are 79% more likely than Laggard organizations to have defined thresholds for normal VoIP performance

√ Best-in-Class organizations are nearly three-times more likely to have tools in place for prioritization of network traffic as compared to Laggards

√ Best-in-Class are twice as likely to be measuring call quality on per-call basis as compared to all others

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## Competitive Assessment

Aberdeen Group analyzed the aggregated metrics of surveyed companies to determine whether their performance ranked as Best-in-Class, Industry Average, or Laggard. In addition to having common performance levels, each class also shared characteristics in five key categories:

1. **Process**. Ability to assess impact of other business applications on VoIP performance; end-to-end view into VoIP inventory; defined thresholds for normal VoIP performance

2. **Organization**. Escalation pathways for issues with VoIP performance

3. **Knowledge management**. Ability to monitor availability of back up devices; ability to create customizable reports regarding VoIP performance

4. **Technology.** The selection of appropriate tools and effective deployment of those tools

5. **Performance management**. Ability to measure call quality on per call basis.

These characteristics (identified in Table 3) serve as a guideline for best practices, and correlate directly with Best-in-Class performance across the key metrics.

**Table 3: The Competitive Framework**

| | Best-in-Class | Average | Laggards |
|---|---|---|---|
| **Process** | Ability to assess impact of other business applications on VoIP performance | | |
| | 58% | 41% | 13% |
| | End-to-end view into VoIP inventory | | |
| | 67% | 27% | 12% |
| | Defined thresholds for normal VoIP performance | | |
| | 70% | 44% | 39% |
| **Organization** | Escalation pathways for issues with VoIP performance | | |
| | 61% | 48% | 22% |
| **Knowledge** | Ability to monitor availability of back up devices | | |
| | 75% | 52% | 25% |
| | Ability to create customizable reports regarding VoIP performance | | |
| | 52% | 31% | 16% |

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| | Best-in-Class | Average | Laggards |
|---|---|---|---|
| | VoIP performance management technology currently in use | | |
| **Technology** | ▪ 76% tools for prioritization of network traffic<br>▪ 70% alerts for issues with VoIP performance<br>▪ 60% tools for troubleshooting call failures<br>▪ 53% unified platform for managing VoIP and overall network performance<br>▪ 48% tools for auto discovery of VoIP configuration changes | ▪ 49% tools for prioritization of network traffic<br>▪ 38% alerts for issues with VoIP performance<br>▪ 39% tools for troubleshooting call failures<br>▪ 38% unified platform for managing VoIP and overall network performance<br>▪ 18% tools for auto discovery of VoIP configuration changes | ▪ 27% tools for prioritization of network traffic<br>▪ 17% alerts for issues with VoIP performance<br>▪ 28% tools for troubleshooting call failures<br>▪ 19% unified platform for managing VoIP and overall network performance<br>▪ 4% tools for auto discovery of VoIP configuration changes |
| **Performance** | Measuring call quality on per-call basis | | |
| | 68% | 39% | 17% |

Source: Aberdeen Group, March 2008

## Capabilities and Enablers

Based on the findings of the Competitive Framework and interviews with end users, Aberdeen's analysis of the Best-in-Class reveals significant operational and business benefits associated with deployment of these capabilities. The research shows that the implementation of these technology solutions and internal capabilities are vital for identifying, troubleshooting, and resolving issues with VoIP performance in a timely manner.

### *Process*

Table 3 shows that Best-in-Class organizations are nearly twice as likely as all other organizations to have the ability to asses the impact of other business applications on VoIP performance. New technology rollouts can often be detrimental to VoIP performance and the ability to measure this impact is a crucial aspect of proper technology integration. Additionally, having this capability allows organizations to identify root causes of VoIP performance issues much more quickly. As a result, Best-in-Class organizations are six-times more likely to improve the ability to troubleshoot issues with VoIP performance in timely manner as compared to all others.

"Carefully consider the skill sets you have in house before selecting a new network. Match your skill sets to the pace of your convergence migration because the move to a new network is an extension that builds upon what you currently have."

~ Paul Bristow, St George Bank

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Best-in-Class organizations are also three-times more likely to have an end-to-end view into VoIP hardware as compared to all others. This capability enables organizations to have complete visibility into the performance of network hardware as well as allows for faster troubleshooting of VoIP performance issues. Having this capability in place contributed to Best-in-Class companies reporting an average of 89 fewer minutes of VoIP service downtime compared to all others.

Additionally, Best-in-Class organizations are 79% more likely than Laggard organizations to have defined thresholds for normal VoIP performance. Allowing for more proactive management of VoIP performance, this capability will enable an organization to issue an alert every time network traffic reaches a threshold. Consequently, organizations that have this capability are able to identify root causes for potential issues with VoIP performance before they disrupt the quality of VoIP service from the end-user perspective. Having this capability in place resulted in the Best-in-Class being twice as likely as Laggards to improve the ability to resolve issues with VoIP performance before end-users are impacted.

### Organization

Aberdeen's research shows that Best-in-Class organizations are 60% more likely to have defined escalation pathways for issues with VoIP performance as compared to all others. This capability allows organizations to shorten the time needed to resolve issues with VoIP performance. As a result, it takes, on average, 39 minutes less for Best-in-Class organizations to resolve issues with VoIP service quality (per incident) as compared to all others.

### Knowledge Management

Best-in-Class are nearly three-times more likely to have the ability to create customizable profiles for monitoring VoIP performance as compared to Laggards. This ability allows IT staff to achieve a full visibility into performance of groups of VoIP hardware that are most relevant for their area of responsibility so they can focus of VoIP equipment that is the most critical to the group of end-users they are supporting. As a result, Best-in-Class are twice as likely to report improvements in productivity of IT staff as compared to Laggards.
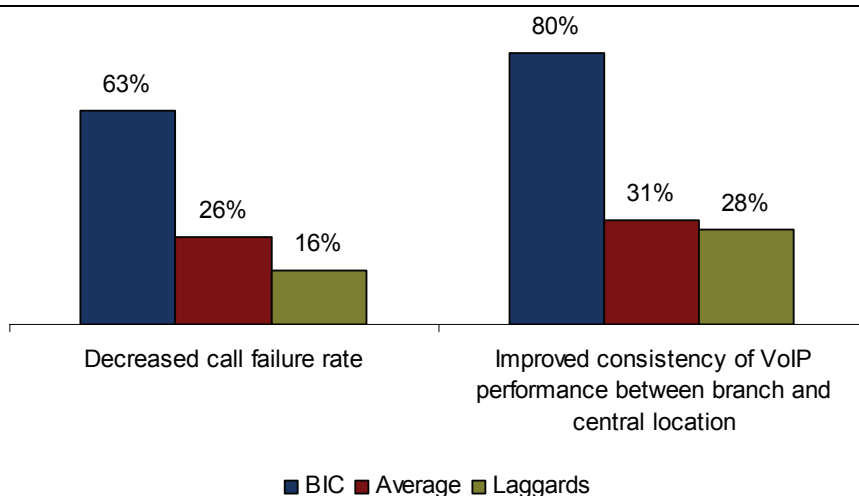
### Technology

Best-in-Class organizations are nearly three-times more likely to have tools in place for prioritization of network traffic as compared to Laggards. This technology tool enables organizations to dedicate a sufficient amount of network capacity to VoIP and other business-critical applications while limiting bandwidth usage for traffic that is less important. Consequently, Best-in-Class organizations are twice as likely to report improvements in bandwidth utilization and 48% more likely to reduce recreational traffic as compared to Laggards. Furthermore, this allowed Best-in-Class organizations to achieve a higher level of VoIP performance while reducing their cost of telecommunications services. That is to say that Best-in-Class

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organizations are twice as likely to improve consistency of VoIP performance between the branch and central network locations and 87% more likely to reduce the cost of telecommunications services (measured as a percentage of IT spend) as compared to Laggards.

The research also reveals that the Best-in-Class are four-times more likely than Laggard organizations to utilize alerts for issues with VoIP performance. Having this ability allows IT staff to be aware of potential issues with VoIP performance, reducing the risk of service outages and poor quality of voice service. Thus, Best-in-Class organizations are five-times more likely to reduce the number of end-user complaints due to issues with VoIP performance as compared to Laggards. That resulted in twice as many Best-in-Class organizations reporting improvements in employee productivity as Laggards.

Best-in-Class organizations are twice as likely as Laggards to deploy tools for troubleshooting call failures. Leveraging this capability allows organizations to better understand VoIP call failures and make educated decisions to reduce future failures. As a result of having this capability in place, Best-in-Class organizations are nearly four-times more likely to reduce call failure rate as compared to Laggards (Figure 3).

**Figure 3: VoIP Performance**



BIC ■ Average ■ Laggards

Source: Aberdeen Group, March 2008

Also falling under the technology umbrella, Aberdeen's research shows that the Best-in-Class are nearly three-times more likely to be managing VoIP and overall network performance through a single platform as compared to Laggards. This ability allows organizations to gain better visibility into the impact of the network on VoIP performance, locate network bottlenecks, and determine what actions need to be taken to improve the performance of VoIP and business-critical applications. Leveraging this single platform, Best-in-Class organizations are twice as likely as Laggards to report a "good" or "excellent" Median Opinion Score (MOS).

Best-in-Class organizations are nearly four-times more likely than all other organizations to deploy tools for auto discovery of VoIP configuration changes.  Using these tools allow organizations to be more proactive about managing the performance and availability of VoIP hardware as well as the overall performance of VoIP services. It also makes it possible to automatically identify the impact of configuration changes of VoIP devices and resolve them in a timely manner. Having this functionality in place resulted in the Best-in-Class being twice as likely as other organizations to improve the availability of VoIP service.

## Performance Management

In terms of performance measurement capabilities, the Best-in-Class were twice as likely to be measuring call quality on per-call basis as compared to all others. This ability enables organizations to have a better understanding of the quality of VoIP service that end-users are experiencing regardless of their location. It also allows IT staff to have full visibility into the level of VoIP performance and the frequency of issues with the quality of service.

Figure 4 shows that the Best-in-Class are more likely to be measuring VoIP service availability and voice quality in real-time as compared to Industry Average and Laggards. Having this capability in place resulted in Best-in-Class organizations being nearly three-times as likely to improve the quality of voice service and twice as likely to improve VoIP service availability as compared to all others.

**Figure 4: VoIP Performance Indicators Measured in Real-Time**
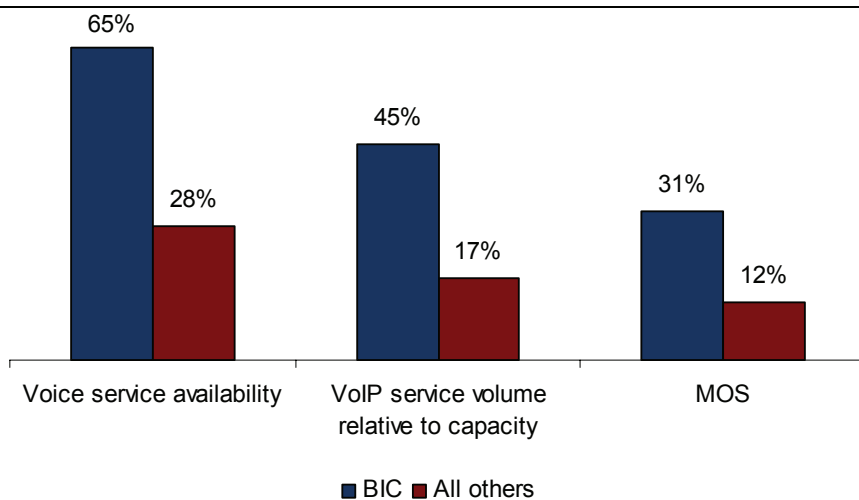


Source: Aberdeen Group, March 2008

VoIP is time-sensitive technology and it plays a very important role in supporting key business processes in the enterprise. The ability to effectively manage VoIP performance is critical for justifying the investment. Aberdeen's research shows that not only were Best-in-Class organizations able to outperform their peers measured by performance indicators such as voice service availability and voice service quality, but these organizations were able to achieve significant business benefits. These benefits include

improvements in end-user productivity, improvements in productivity of IT staff, and decreases in the cost of telecommunications services. There is a strong correlation between the ability of Best-in-Class organizations to achieve these benefits and the mix of capabilities and technology enablers that these organizations have in place.

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**Aberdeen Insights — Technology**

Organizations are investing more than a significant amount of resources in rolling out VoIP, and these investments have already enabled them to save 21% in telecommunications costs and to deploy new functionalities for enterprise-wide collaboration. However, the business benefits associated with VoIP deployments could be easily diminished if the performance of VoIP solutions is not being properly managed. Aberdeen's research shows that organizations that do not have technology tools for managing VoIP performance are experiencing significantly greater amounts of VoIP service downtime than are those who are deploying tools for visibility into VoIP performance, prioritization of network traffic, and troubleshooting and resolving potential issues with VoIP performance. More importantly, the research shows that there is a strong correlation between the ability to avoid issues with VoIP performance and improvements in employee productivity, especially productivity of customer-facing employees and IT staff.

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# Chapter Three:
# Required Actions

Whether a company is trying to improve its effectiveness in managing VoIP performance from Laggard to Industry Average, or Industry Average to Best-in-Class, the following actions will help spur the necessary performance improvements:

## Laggard Steps to Success

- **Develop capabilities for identifying the impact of other business-critical applications on VoIP performance**. Eighty-seven percent (87%) of Laggard organizations do not have capabilities to assess the impact of other business-critical applications on VoIP performance. Development of this capability will allow organizations to better understand how VoIP is interacting with other business critical applications and to understand how available bandwidth is being used. This will allow IT staff to more accurately set up QoS policies and ensure optimal levels of VoIP performance concurrently with high performance levels of other applications.

- **Deploy tools for auto discovery of VoIP configuration changes.** Ninety-six percent (96%) of Laggards do not have tools for auto discovery of VoIP configuration changes in place. Deployment of these tools will enable Laggard organizations to improve the availability of VoIP service. It will also improve the productivity of IT staff by allowing them to manage more users with fewer resources.

- **Deploy tools for troubleshooting call failures.** Seventy-two percent (72%) of Laggard organizations do not have tools in place for troubleshooting call failures. Having this capability in place is critical for visibility into the root causes of issues with VoIP performance and for reducing call failure rate. This is particularly critical for organizations with a high percentage of customer facing employees, as call failures could lead to deterioration in customer satisfaction and lost sales opportunities.

## Industry Average Steps to Success

- **Define thresholds for normal VoIP performance and issue alerts when performance reaches these thresholds.** Aberdeen's research shows that 56% of Industry Average organizations do not have this capability in place. This capability enables organizations to be proactive about managing VoIP performance and allows IT staff to identify and resolve potential issues with VoIP performance before end-users are impacted.

**Fast Facts**

√ Laggard organizations should deploy tools for troubleshooting call failures

√ Industry Average organizations should define thresholds for normal VoIP performance and issue alerts when performance reaches these thresholds

√ Best-in-Class organizations should develop capabilities for measuring VoIP performance in real-time

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- **Establish full visibility into performance of VoIP hardware.**
  Aberdeen's research shows that 73% of Industry Average
  organizations do not have full visibility into VoIP hardware.
  Additionally, Figure 2 shows that these organizations are not
  monitoring 66% of their IP phones. Having this capability in place
  allows organizations to more quickly identify root causes of issues
  with VoIP performance and to take actions to resolve these issues
  in a timely manner. The ability to have an end-to-end view into
  performance and availability of VoIP hardware also helps
  organizations manage changes and upgrades to their VoIP inventory.

- **Deploy tools for prioritization of network traffic.** Table 3
  shows that 51% of Industry Average organizations do not have
  capabilities for prioritizing network traffic. As VoIP is a bandwidth-
  intensive and time-sensitive application, it is important that
  organizations posses tools to ensure that a sufficient amount of
  bandwidth capacity is dedicated to VoIP. Deployment of tools for
  prioritization of network traffic enables organizations to always
  ensure that VoIP and other business critical applications are utilizing
  sufficient amounts of network resources. These tools also allow
  organizations to reduce the amount of network resources that are
  being used by recreational traffic.

## Best-in-Class Steps to Success

- **Manage VoIP and overall network performance through a
  single platform.** In order to achieve a high level of VoIP
  performance organizations need to have a full visibility not only in
  different aspects of VoIP, but also to have a visibility into overall
  network performance and performance of other business-critical
  applications. Having the ability to manage VoIP and overall network
  performance through a single platform allows organizations to have
  a better understanding of the impact that VoIP has on health of the
  network. Also, this capability allows easy access to network
  performance data that is critical for the effectiveness of VoIP
  performance initiatives.

- **Develop capabilities for measuring VoIP performance in
  real-time.** Even though only 31% of Best-in-Class organizations are
  measuring MOS in real-time, an additional 39% of these
  organizations are measuring the quality of VoIP service in near real-
  time (every five to 10 minutes) or daily. The ability to monitor voice
  service availability and quality in real-time is critical for organizations
  that are looking to achieve some of the top goals for VoIP
  performance management, such as to improve employee
  productivity and establish enterprise-wide collaboration. Having this
  capability in place enables organizations to reduce the time needed
  to identify and resolve issues with VoIP performance and therefore,
  mitigate disruption of business processes and decline in employee
  productivity.

"Convergence is complex,
expensive, time consuming and it
requires many resources to
design, install, execute, and
manage."

~ VP of IT, Newspaper Publisher

## Aberdeen Insights — Summary

With the growth in adoption of VoIP in the enterprise, organizations are also increasingly investing in new enterprise applications. Initiatives for managing performance of VoIP and these applications require different tool sets. However, VoIP and enterprise applications are being used on the same network, are competing for the same bandwidth capacity, and have the same role in supporting key business processes. In view of this, strategies for managing VoIP performance should be part of a single, enterprise-wide strategic plan which will allow organizations to plan and execute new technology rollouts in a way that will ensure a high level of performance of business-critical applications. This type of approach requires that organizations manage the full lifecycle of VoIP and application performance, which starts with pre-deployment testing and planning and is followed with ongoing monitoring and analyzing of key performance indicators.

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# Appendix A:
# Research Methodology

Between February and March 2008, Aberdeen examined the use, the experiences, and the intentions of more than 150 enterprises using VoIP performance management solutions.

Aberdeen supplemented this online survey effort with interviews with select survey respondents, gathering additional information on VoIP performance management strategies, experiences, and results.

Responding enterprises included the following:

- *Job title / function:* The research sample included respondents with the following job titles: network or IT manager (35%); senior management (17%); IT or MIS director (15%); engineer (15%), and network or IT staff (9%).

- *Industry:* The research sample included respondents from 21 industries. Some of the largest industry segments were: high technology / software (14%); manufacturing (10%); finance / banking (9%); healthcare (8%); and education (6%).

- *Geography:* The majority of respondents (64%) were from North America. Remaining respondents were from Europe (22%), the Asia-Pacific region (8%), and the rest of the world (6%).

- *Company size:* Thirty-six percent (36%) of respondents were from large enterprises (annual revenues above US $1 billion); 24% were from midsize enterprises (annual revenues between $50 million and $1 billion); and 40% of respondents were from small businesses (annual revenues of $50 million or less).

- *Headcount:* Thirty-four percent (34%) of respondents were from small businesses (headcount between 1 and 99 employees); 19% were from midsize enterprises (headcount between 100 and 999 employees); and 47% of respondents were from large enterprises (headcount greater than 1,000 employees).

Solution providers recognized as sponsors were solicited after the fact and had no substantive influence on the direction of this report. Their sponsorship has made it possible for Aberdeen Group to make these findings available to readers at no charge.

## Study Focus

Responding executives completed an online survey that included questions designed to determine the following:

√ The degree to which VoIP performance management technologies are deployed in their operations and the financial implications of the technology

√ The structure and effectiveness of existing VoIP performance management implementations

√ Current and planned use of VoIP performance management solutions to aid operational and promotional activities

√ The benefits, if any, that have been derived from VoIP performance management initiatives

The study aimed to identify emerging best practices for usage of VoIP performance management, and to provide a framework by which readers could assess their own management capabilities.

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**Table 4: The PACE Framework Key**

| Overview |
| --- |
| Aberdeen applies a methodology to benchmark research that evaluates the business pressures, actions, capabilities, and enablers (PACE) that indicate corporate behavior in specific business processes. These terms are defined as follows: |
| **Pressures —** external forces that impact an organization's market position, competitiveness, or business operations (e.g., economic, political and regulatory, technology, changing customer preferences, competitive) |
| **Actions —** the strategic approaches that an organization takes in response to industry pressures (e.g., align the corporate business model to leverage industry opportunities, such as product / service strategy, target markets, financial strategy, go-to-market, and sales strategy) |
| **Capabilities —** the business process competencies required to execute corporate strategy (e.g., skilled people, brand, market positioning, viable products / services, ecosystem partners, financing) |
| **Enablers —** the key functionality of technology solutions required to support the organization's enabling business practices (e.g., development platform, applications, network connectivity, user interface, training and support, partner interfaces, data cleansing, and management) |

Source: Aberdeen Group, March 2008

**Table 5: The Competitive Framework Key**

| Overview | |
| --- | --- |
| The Aberdeen Competitive Framework defines enterprises as falling into one of the following three levels of practices and performance: | In the following categories: |
| **Best-in-Class (20%) —** Practices that are the best currently being employed and are significantly superior to the Industry Average, and result in the top industry performance. | **Process —** What is the scope of process standardization? What is the efficiency and effectiveness of this process? |
| **Industry Average (50%) —** Practices that represent the average or norm, and result in average industry performance. | **Organization —** How is your company currently organized to manage and optimize this particular process? |
| **Laggards (30%) —** Practices that are significantly behind the average of the industry, and result in below average performance. | **Knowledge —** What visibility do you have into key data and intelligence required to manage this process? |
| | **Technology —** What level of automation have you used to support this process? How is this automation integrated and aligned? |
| | **Performance —** What do you measure? How frequently? What's your actual performance? |

Source: Aberdeen Group, March 2008

**Table 6: The Relationship Between PACE and the Competitive Framework**

| PACE and the Competitive Framework – How They Interact |
| --- |
| Aberdeen research indicates that companies that identify the most influential pressures and take the most transformational and effective actions are most likely to achieve superior performance. The level of competitive performance that a company achieves is strongly determined by the PACE choices that they make and how well they execute those decisions. |

Source: Aberdeen Group, March 2008

## Appendix B:
## Related Aberdeen Research

Related Aberdeen research that forms a companion or reference to this report include:

- Network Transformations: Managing Transitions for Growth; May 2007
- The Real Value of Network Visibility; December 2007
- Optimizing WAN for Application Acceleration; October 2007

Information on these and any other Aberdeen publications can be found at www.Aberdeen.com.

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