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Meeting the Network Connectivity Challenge

A Report on the Global Technology Trends for the Physical Layer of the Enterprise

SYSTIMAX® Structured Connectivity Solutions

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Contents

1 Introduction

This report aims to capture the trends in enterprise networks and connectivity by looking at the user preferences of LAN infrastructure and users' intentions on upgrading their network technology and applications. During the research, commissioned by SYSTIMAX® Solutions, information from 2,165 network and IT professionals in 48 countries was collected and analyzed. The respondents, employed by organizations of all sizes across a wide range of industry sectors, gave details of their current and planned connectivity, with particular reference to 10-gigabit networking, intelligent infrastructure management and wireless connectivity. In addition to these technology areas, the needs of the data center were given a focus in the survey.

The research findings give an insight to the connectivity needs and expectations of IT professionals worldwide. They also offer a clear picture of worldwide LAN connectivity trends across key industry sectors. This will help network and IT managers measure their own installations and upgrade intentions against the norms globally and within their industry sectors.

2 Context for the Research

Over the past few years, LAN connectivity has continued to advance rapidly, in anticipation of growing demand for end-to-end network bandwidth. For example, the standard for data transmission at 10 Gb/s over UTP copper is rapidly proceeding towards completion as network-intensive applications, such as voice- and video-over-IP, are reaching maturity. At the same time, new applications, such as grid computing, are emerging to make even greater demands on the physical layer of LAN infrastructures.

The business need for fast, reliable network communications is illustrated by the recent *Personal Productivity Survey** sponsored by Microsoft. Completed in March 2005, this includes responses from 38,000 workers in 200 countries. It was found that people work an average of 45 hours a week, but consider about 17 of those hours (two days a week) to be unproductive. Nearly a third (32 percent) of those questioned said poor team communications was the major cause of poor productivity and over 60 percent mentioned inability to access electronic documents quickly as a factor.

* The Microsoft Office Personal Productivity Challenge (PPC), March 2005

High performance connectivity clearly has a role to play in reclaiming the two days of lost productivity each week. It is the foundation for faster communication that improves collaboration and information flow throughout an organization. Without reliable, high bandwidth connections, networks cannot channel the rising tide of data traffic, or deliver information without delay. High quality network infrastructure is essential if new applications designed to improve productivity are to give a full return on investment.

To meet a growing need for 10-gigabit connections within data centers and to the desktop, the Augmented Category 6 (Category 6A) copper cabling standard is targeted for publication in 2006. This will provide a cost effective alternative to fiber for support of the proposed 10GBASE-T data transmission standard, otherwise known as 10 Gigabit Ethernet. It offers network and IT managers an important new option when planning and building network infrastructure.

Other technologies having a growing impact on network infrastructure are wireless connections, laser optimized multimode fiber, zero water peak singlemode fiber, Power-over-Ethernet and intelligent infrastructure management. These all have potential to cut network connectivity costs over the life of a network.

3 Methodology

IT professionals in 48 countries (see Appendix 1) were invited to participate in the survey via a Web portal during March and April 2005. They were asked a set of questions designed, in the light of experience from previous SYSTIMAX Solutions™' research, for clarity and simplicity. Contributors to the research could view the questions in any of 13 languages. The 2,165 IT and network managers who completed questionnaires were a representative sample of both customers and non-customers of SYSTIMAX Solutions.

The respondents came from organizations with between 50 and 10,000+ network users in sectors ranging from Education to Finance, and Government to Media.

Comparisons are made throughout this report with global data gathered in 2002 from 2,047 network and IT managers, and published by SYSTIMAX Solutions in a report titled "Cabling Infrastructure, Ready for Tomorrow's Network Traffic or Heading for Congestion?" a report on the global status and direction of LAN connectivity.

4 Summary of Key Findings

4.1 Network Cabling and Technology Trends

For many years cabling has been seen as a cost to the business, but the important role cabling plays within the network is being recognized by network managers, and high performance cabling is viewed as a good investment for the building infrastructure. This is demonstrated by 72 percent of respondents to the survey who would select Category 6 or 10 Gb/s Augmented Category 6 copper cabling for a new installation. Over half (56 percent) of respondents would install Category 6 cabling, while 16 percent would opt for Augmented Category 6 cabling, showing a likely rapid shift towards this new type of 10 Gb/s copper cabling despite the fact that development of the Category 6A cabling standards has only recently commenced and market awareness of Category 6A is still fairly low.

As well as indicating rapid acceptance of new, faster cabling technology to lay the right foundation for the network, the results also confirm industry perceptions that Category 5e is fast approaching obsolescence with only 17 percent of respondents selecting this option.

Where fiber cabling is required, 51 percent would choose multimode fiber and a further 28 percent would install laser optimized multimode fiber (OM3). This acceptance of OM3 fiber shows a rapid advance over the situation in 2002 when only four percent of respondents were using the new fiber technology.

Within 5 years, most respondents expect to be running primarily 1 Gb/s (53 percent) or 10 Gb/s (30 percent) over their horizontal cabling. In 5 years time, 61 percent expect to be running 10 Gb/s and 26 percent 40 Gb/s in their backbones. This demonstrates a continued increase in data rates from the 2002 SYSTIMAX Solutions' survey, and an indication of why high performance cabling is being deployed to protect against obsolescence.

To further illustrate this, when asked to select the single most important factor in making their cabling investment decision, 30 percent of respondents cited *Technical Performance of the Solution*. *Total Life Cycle Cost* was rated second with 15 percent of respondents selecting it, and *Quality of Product* was rated third with 14 percent. A *Total Solution Offering* and *Initial Cost* were rated fourth and fifth with 13 percent and 11 percent respectively.

Respondents who consider *Total Life Cycle Cost* as their priority are more likely to choose higher performance cabling solutions, indicating a better understanding of cabling solutions as a long-term investment. It is notable that respondents who would choose lower performance cabling rate *Initial Cost* as the most important factor far more often than those who choose Category 6 and Category 6A cabling, suggesting a short-term strategy that may not factor in future technology developments that could impact the cabling infrastructure.

4.2 Data Centers

More than half of all respondents (54 percent) have responsibility for their organizations' data centers and rated the top three issues faced when implementing a data center as *Security* (16 percent), *Network Performance* (15 percent) and *Redundancy* (15 percent).

For a new data center installation, 48 percent of respondents would select Category 6 cabling and 30 percent would select Augmented Category 6 cabling, almost double the Augmented Category 6 figure for general installations (16 percent). This confirms the industry predictions that 10G on copper cabling will be deployed in data centers first before migration of desktop connections. Again, the strong showing of Augmented Category 6 is a likely indicator of a rapid shift towards this new type of 10 Gb/s copper cabling despite the fact that development of the Category 6A cabling standard has only recently commenced and market education takes time.

When installing fiber cabling in their data center, respondents would select multimode fiber (47 percent) or laser optimized multimode fiber (OM3) (32 percent). Only 18 percent would select singlemode fiber. This shows that data centers are also adopting cost effective 10 Gb/s OM3 fiber.

These findings are further supported by 45 percent of respondents anticipating they will implement 10 Gigabit Ethernet in their data center horizontal (server connections) within 2 years, while ten percent have already implemented it in their backbone (switch-to-switch connections) and a further 54 percent anticipate they will do so within 2 years. This rapid adoption of 10 Gb/s technology in the data center supports the gradual trend to 10 Gb/s seen in the office environment, as the data center servers of today are the desktop workstations of tomorrow.

4.3 Wireless Networking

Fifty-nine percent of respondents use wireless technology in their networks, eight percent use it throughout while 51 percent use it in part, and a further 19 percent plan to use it in new installations. Eighty-one percent of respondents see wireless technology as an overlay or extension to their cabling infrastructure compared with just 14 percent who see it as a replacement for a cabling infrastructure.

4.4 Intelligent Infrastructure Management

When asked about the importance of effective cable and patch cord management within the rack and cabinet environment, 87 percent of respondents rated this as very high or high. This highlights the need for adequate space and management provisioning in the cabinets and cabling racks that house the connectivity solutions.

Forty-nine percent of the respondents have not yet considered intelligent patching to help manage their infrastructure. However, 19 percent currently use intelligent patching in either part or all of their network, and a further 26 percent plan to use it in new installations, signaling a move towards faster adoption of

intelligent infrastructure management. Thirty-six percent of respondents rated their knowledge and understanding of intelligent patching as low or said they had no knowledge of it at all, indicating that increased awareness of the benefits of intelligent infrastructure management is likely to further accelerate the adoption of this technology.

4.5 Building Automation Systems

When asked to compare the current situation to three years ago, 61 percent of respondents felt that there has been an increase in the inclusion of low voltage building systems on the network infrastructure, and over half (59 percent) are considering this type of integrated network infrastructure.

The highest rated primary objection to combining all low voltage systems on one infrastructure was internal resistance due to differing owners of the various systems, as selected by 32 percent of respondents. In 42 percent of the respondents' organizations, each low voltage system in use owns its own infrastructure, while in 31 percent of the organizations IT owns the entire infrastructure making an integrated network infrastructure, and its associated cost savings, much more achievable.

5 Results and Commentary

5.1 Network Cabling and Technology Trends

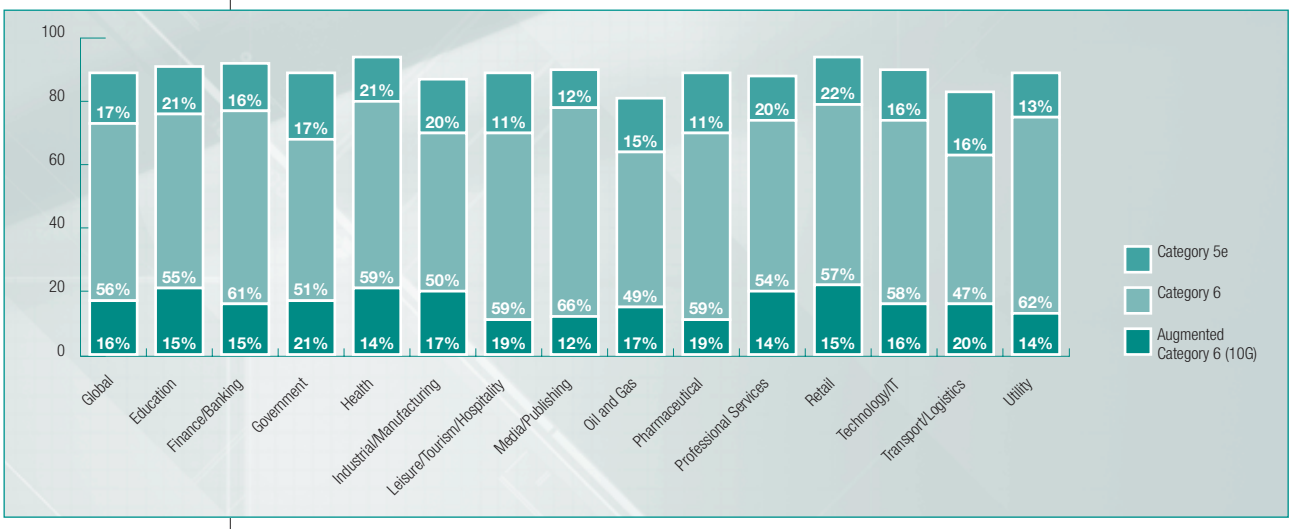
5.1.1 For a new installation, what copper cabling would you choose to install?

The most noticeable finding from responses to this question is the rapid acceptance of 10 Gb/s cabling. With the development of the Augmented Category 6 (Category 6A) standard still at an early stage, 16 percent of respondents already see the advantages of this technology and selected this option.

More than half (56 percent) of the respondents said they would install Category 6 cabling, in addition to the 16 percent who would opt for 10 Gb/s Category 6A copper cabling. In comparison, just 28 percent of respondents to the 2002 survey had installed Category 6 cabling. Typically acceptance and installation of new cabling technology dramatically increases once a standard has been ratified, as demonstrated here with the figure for Category 6 doubling since 2002. This would indicate that the same is likely to occur for Augmented Category 6 cabling once the standard is finalized.

Confirming industry perceptions that most users think Category 5e is moving to obsolescence, only 17 percent said they would install Category 5e cabling.

The trend towards Category 6 and Augmented Category 6 was seen most strongly in the Finance/Banking, Media/Publishing and Utilities sectors. In the Finance/Banking sector, for example, those intending to install a Category 6 or Augmented Category 6 solution out numbered those who would install Category 5e by almost five to one.

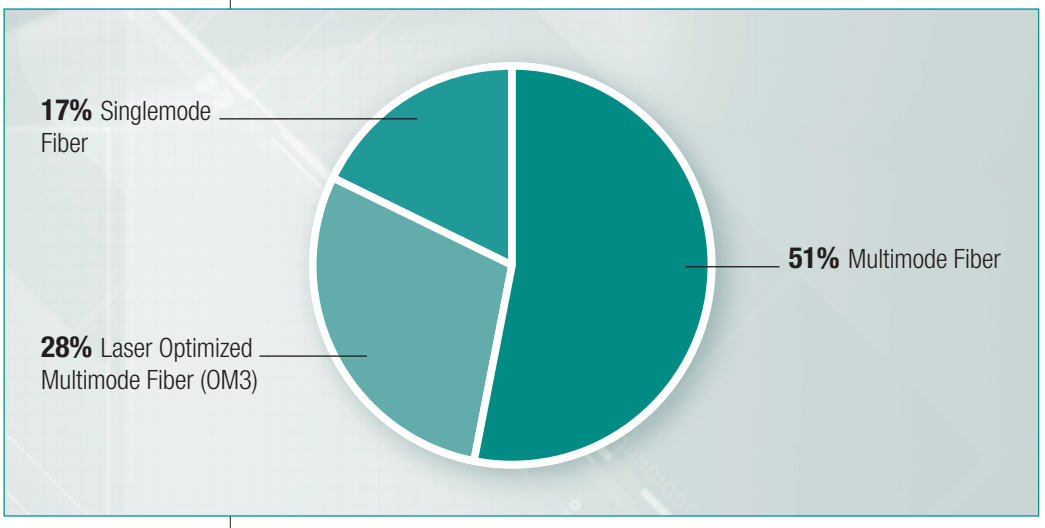


Among regional differences, it is notable that more managers in EMEA (Europe, Middle East and Africa) and CALA (Caribbean and Latin America) would choose Category 6A cabling for new installations. Managers in Asia Pacific and the North American Region are more likely to choose Category 6 cabling than their counterparts in other regions.

There was no clear correlation between company size and choice of cabling type. However it is noticeable that medium size companies show a more even spread of cabling choice, with the numbers choosing Category 5 and Category 6A above average, and those choosing Category 5e and Category 6 below average.

5.1.2 For a new installation, what fiber cabling would you choose to install?

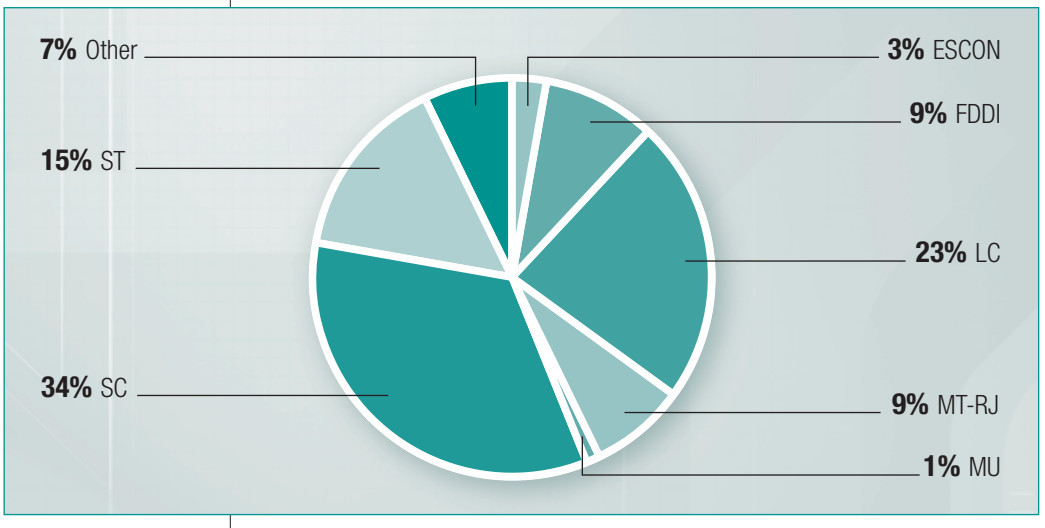
To meet fiber cabling needs, 51 percent would choose multimode fiber and a further 28 percent would choose optimized multimode fiber (OM3). Use of OM3 fiber was far higher than average among companies that specified Augmented Category 6 cabling (51 percent vs. 28 percent), showing that managers selecting advanced copper solutions also choose better fiber technology.



The survey shows more managers in the North American Region than in other regions intend to use OM3 fiber for their next fiber installation. Across industry sectors, choice of OM3 varied from 21 percent in Manufacturing to 33 percent in Pharmaceutical. Managers in large companies are also more likely to specify this type of fiber than those in smaller ones.

5.1.3 What fiber connector would you choose to deploy in new cabling installations?

When choosing fiber connectors, 34 percent of all respondents said they would use the SC connector and 23 percent would select the LC for small form factor connectors. Nearly twice as many respondents chose the LC connector as chose any other small form factor connector.



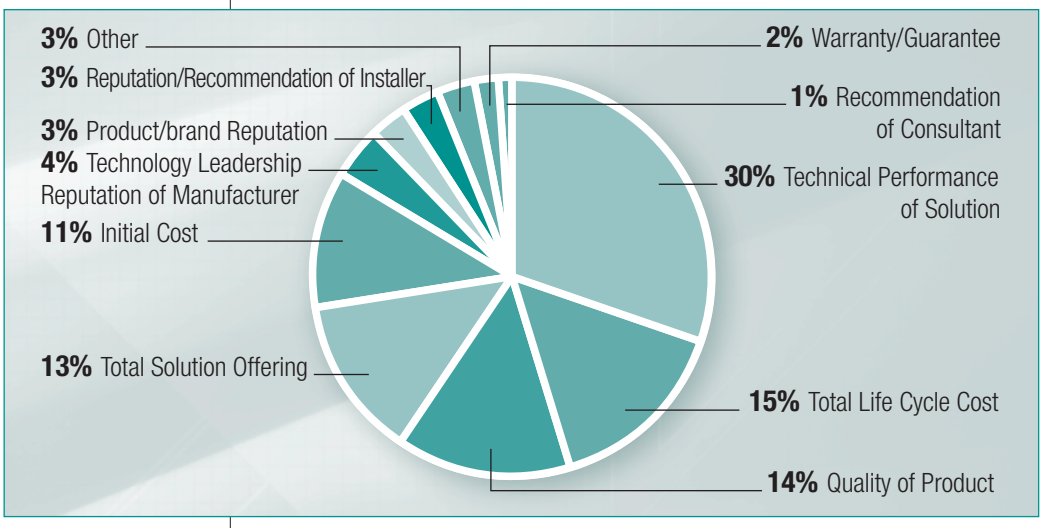
Over two and a half times as many respondents said they would choose the LC (23 percent) as would choose the MT-RJ connector (nine percent), placing the MT-RJ on a similar level with other application-specific connectors such as Fiber Distributed Data Interface (FDDI).

The continuing popularity of SC connectors indicates lack of awareness of the direction for most high-speed optical equipment interfaces, which is predominantly LC, especially for the data rates commonly used in backbones (1 and 10 Gb/s) as well as Storage Area Networks (2, 4 and 10 Gb/s).

In the Asia Pacific and North American Regions, adoption of the compact LC connector format has been more rapid, and in both areas more than 30 percent of respondents said they would use it in new installations. However, in North America, the SC connector still remains the most common choice with 38 percent of respondents saying they would use it in new installations.

5.1.4 Please select the single most important factor in making your cabling investment decision

When asked to select the single most important factor in making their cabling investment decision, 30 percent of all respondents cited *Technical Performance of the Solution*. *Total Life Cycle Cost* was rated second with 15 percent of respondents selecting it, and *Quality of Product* was rated third with 14 percent. A *Total Solution Offering* and *Initial Cost* were rated fourth and fifth with 13 percent and 11 percent respectively.



Technical Performance was most often given as the top priority in every business sector. In Health, *Product Quality* comes close (21 percent vs. 25 percent) and in Transport/Logistics, *Total Lifecycle Cost* was most important to 27 percent compared with 33 percent for *Technical Performance*.

Initial Cost was not a top three priority in any sector. In the Oil and Gas and Pharmaceutical sectors it was only given as top priority by five percent and four percent of respondents respectively.

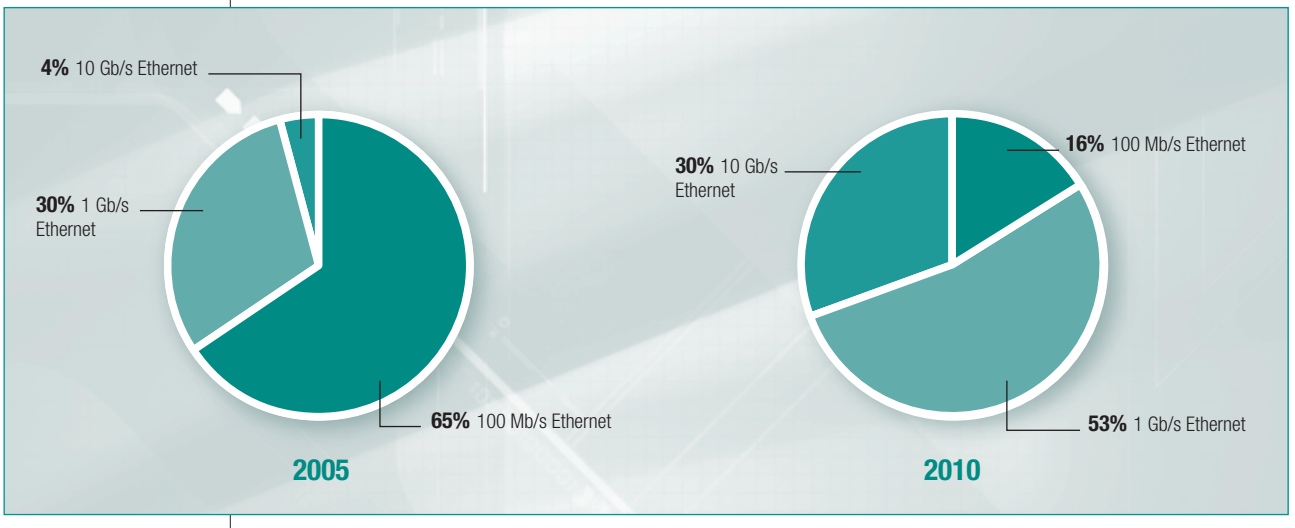
Throughout the regions, *Technical Performance* was rated as the top priority across the board. In Asia Pacific the second most commonly mentioned factor is *Total Solution Offering*, mentioned by 23 percent. In CALA, the second most often mentioned criterion is *Total Lifecycle Cost*, which was top priority for 20 percent of respondents. This factor was also the second most commonly given as top priority in EMEA. For respondents in the North American Region, *Product Quality* was the second most commonly mentioned key factor (16 percent) after *Technical Performance*.

Initial Cost and *Total Lifecycle Cost* tended to be most important to more respondents in small companies than in large ones. It is also notable that users of lower performance cabling such as Category 5e were more likely to have *Initial Cost* as a priority. Respondents choosing Category 6 and Category 6A cabling were more likely to cite *Total Lifecycle Cost* as a consideration.

5.1.5 What is the main network type/technology that you are planning to run over your cabling?

Horizontal

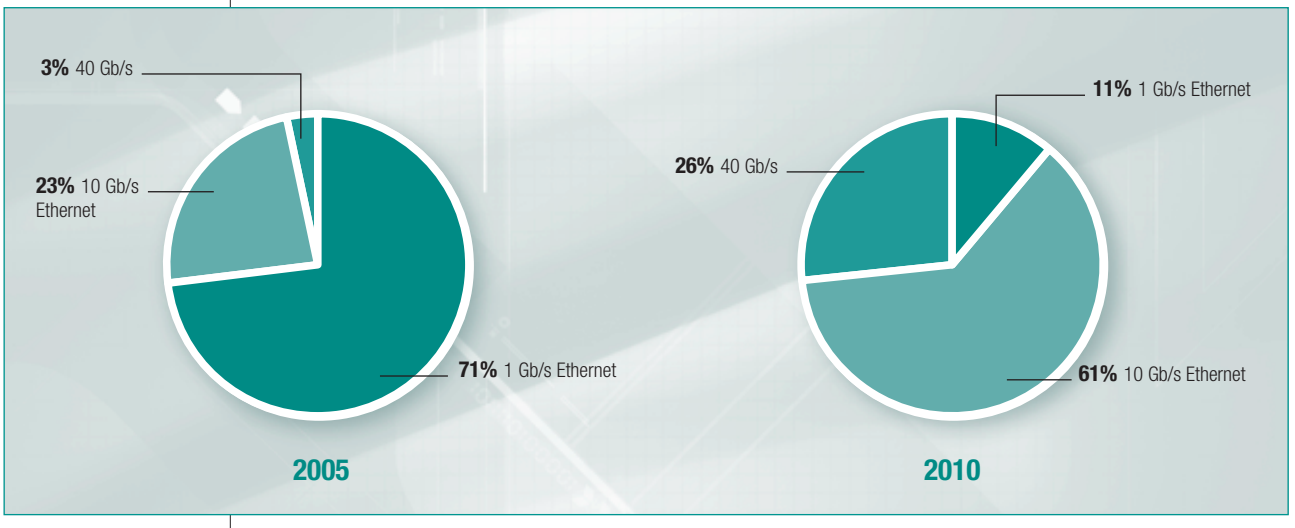
The dominant networking technologies for horizontal cabling are 100 Mb/s, run by 65 percent of respondents, and 1 Gb/s run by 30 percent of respondents. Within 5 years, most respondents expect to be running primarily 1 Gb/s (53 percent) or 10 Gb/s (30 percent) over their horizontal cabling.



Across the regions, it is notable that today 45 percent of managers in CALA chose 1 Gb/s and 10 Gb/s horizontal connections. In the other three regions, less than 35 percent of managers chose these higher speeds. However, looking ahead five years, this difference is reversed with, for instance, 88 percent in EMEA choosing faster technologies and 66 percent in CALA.

Backbone

In the backbone, 71 percent of respondents are running 1 Gb/s and 23 percent 10 Gb/s. In five years time, 61 percent expect to be running 10 Gb/s and 26 percent 40 Gb/s. This demonstrates a continued increase in data rates from the 2002 survey, when just seven percent of respondents said they were running 10 Gb/s Ethernet in their network backbone.

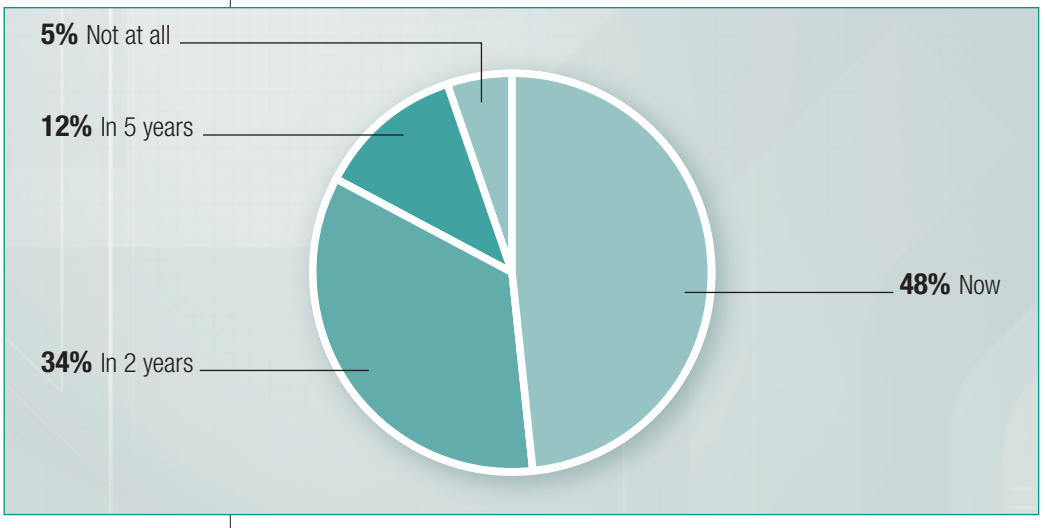


Managers in EMEA are currently slightly less likely to choose 10 Gb/s or 40 Gb/s backbone connections than managers in other regions. However, by 2010, they are more likely to choose these faster options.

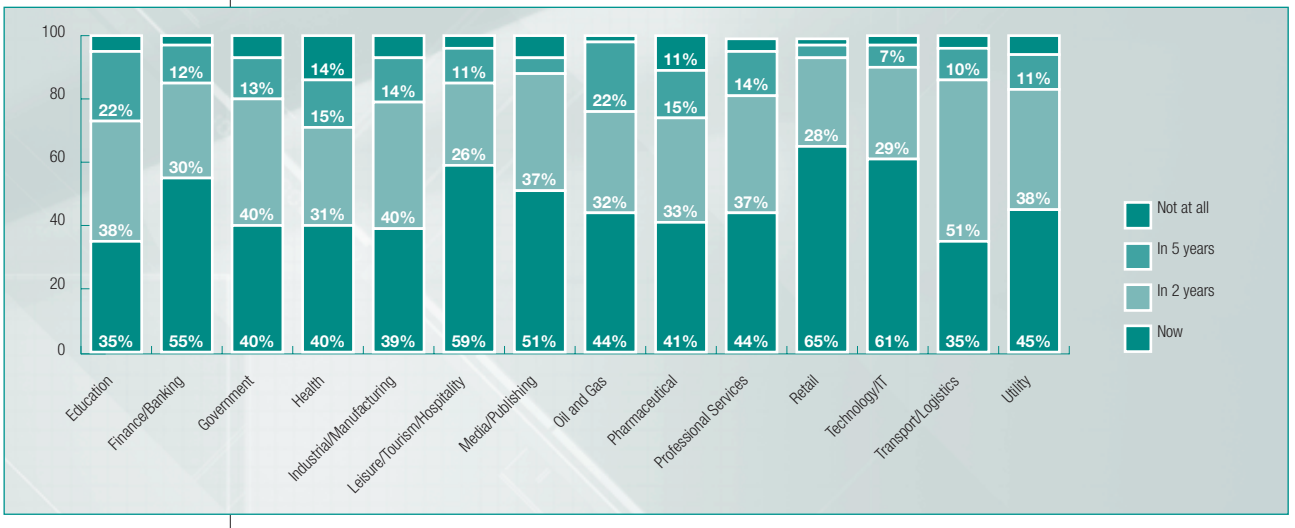
The percentage of respondents choosing 10 Gb/s for the backbone tends to be within five percent of the 23 percent average across most industry sectors. Notable exceptions are Logistics/Transport, where only ten percent chose this option compared with 86 percent for 1 Gb/s. At the other end of the scale, 32 percent of respondents in Professional Services chose 10 Gb/s and 65 percent chose 1 Gb/s.

5.1.6 Are you seeing a move towards Voice over IP (VoIP)?

Of all respondents, 48 percent see a move toward VoIP happening now, and a further 34 percent see it happening in two years. These figures are consistent across the regions except for slightly faster adoption seen in CALA, where the comparative figures are 50 percent and 40 percent.



Among business sectors, Retail and Technology/IT rate the adoption of VoIP as further ahead than the norm with ratings for current use at 65 percent and 61 percent respectively. A notable result is that nearly 14 percent in the Health sector do not see VoIP happening ever, compared with a global average of just five percent.



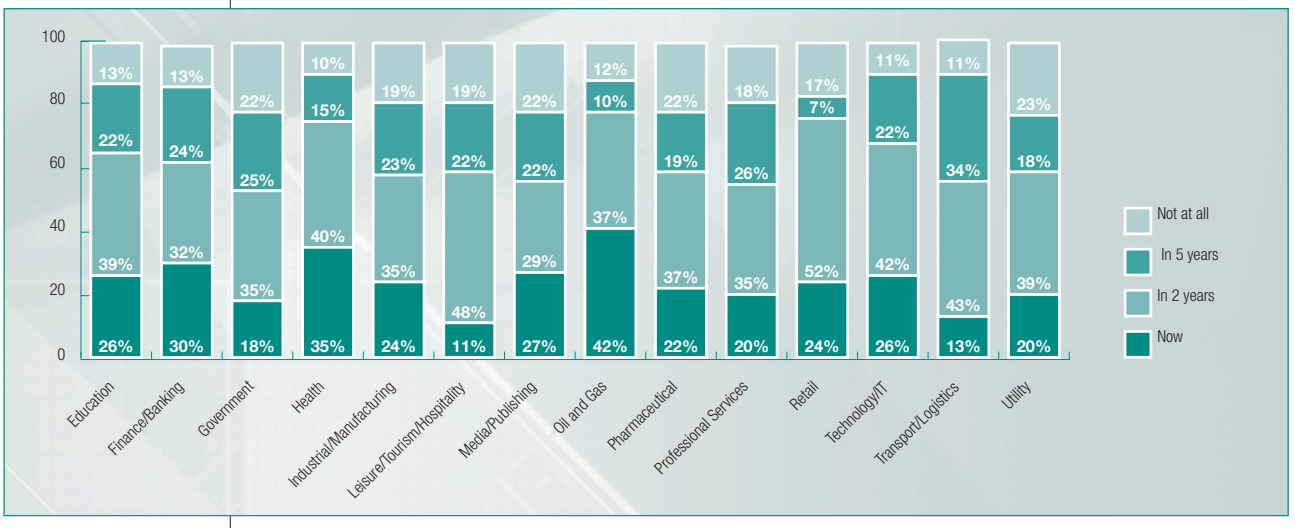
Respondents in global companies were more likely to see VoIP happening now: 52 percent compared with 45 percent in non-global companies.

5.1.7 Are you seeing a move towards VIDEO over IP?

Video over IP is seen as being further away than VoIP. Only 25 percent of respondents saw it happening now and 38 percent in two years. Nearly 22 percent saw it as being five years away. Notably, an average of 15 percent saw it as never happening, three times as many as were skeptical about VoIP (five percent).

In the North American Region, 32 percent saw Video over IP happening now compared with the global average of 25 percent. Unsurprisingly, those respondents who would select Category 5 cabling tended to see Video over IP as a more remote possibility with only 18 percent seeing it happening now and 21 percent not expecting it to happen at all.

The Health sector showed high expectations for adoption of Video over IP. In this sector 35 percent saw it happening now and just 11 percent did not see it happening at all. Only in the Oil and Gas sector did more respondents (42 percent) see the technology being adopted now.



Across companies of different sizes, managers in larger companies are generally seeing Video over IP as a more immediate prospect than those in smaller ones. As with Voice over IP, global companies were more likely than non-global ones to see the technology being implemented soon.

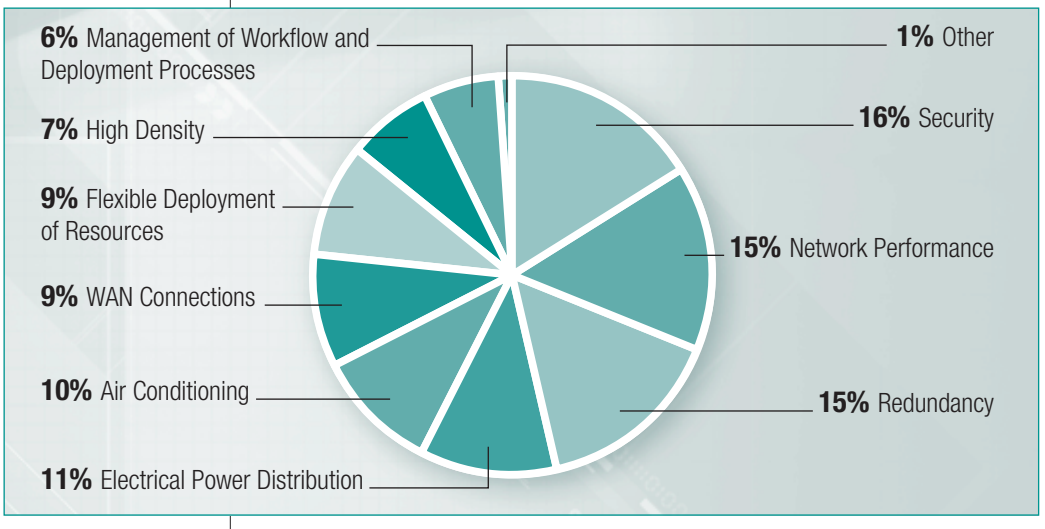
5.2 Data Centers

5.2.1 Do you have responsibility for your organization's data centers?

More than half (54 percent) of respondents said they have responsibility for data centers. This group provided the following responses.

5.2.2 What are the three top issues you face with implementing a data center?

The top issues most often mentioned were: security (16 percent), network performance (15 percent) and redundancy (15 percent). Perhaps one reason why security gets the highest rating is that Insurance companies are thinking twice about paying out on claims for downtime disasters due to poor or inadequate security measures.



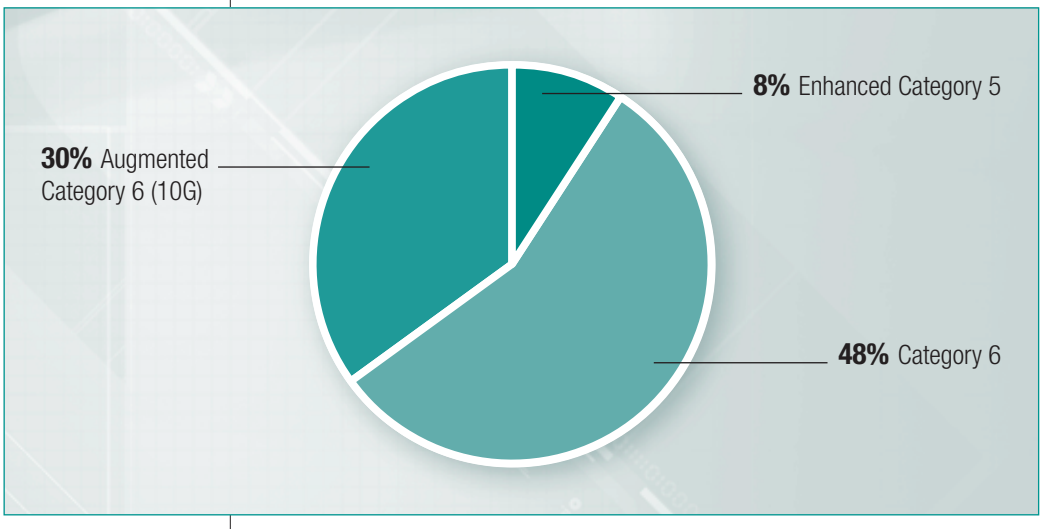
In the Asia Pacific region, concern about network performance and security was especially high with 19 percent and 18 percent of data center managers respectively giving these as their top issues. In contrast, the equivalent figures in the North American Region are 13 percent and 11 percent.

In the Retail sector, network performance was the top concern for 19 percent of respondents. For data center managers in Pharmaceuticals, security was the highest priority with 19 percent of managers putting this top of their list. In the Finance/Banking sector, redundancy was the highest priority with 14 percent of respondents rating this as their top concern.

5.2.3 For a new installation, what cabling media would you install to support your data center?

Copper Cabling

Nearly half of those responsible for data centers (48 percent) would select Category 6 cabling and 30 percent would select 10 Gb/s Augmented Category 6 cabling. This 30 percent figure for Augmented Category 6 cabling in data centers is almost double that of Augmented Category 6 cabling selected for general installations (16 percent). This confirms the industry predictions that 10 Gb/s on copper cabling will see penetration in the data center market at a faster pace than in the desktop market.



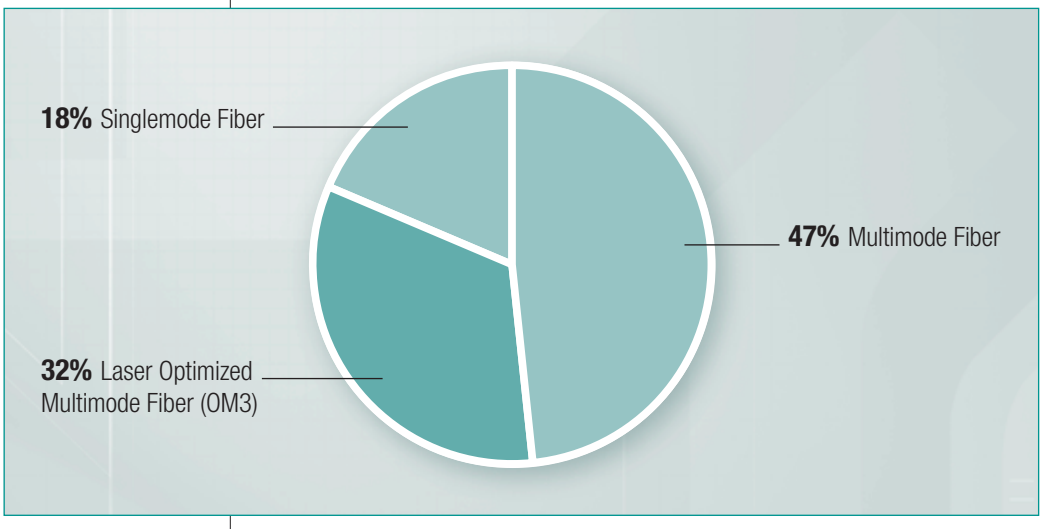
Preference for Augmented Category 6 solutions was highest in the North American Region at 34 percent and lowest in Asia Pacific at 21 percent.

There is little variation in the proportion of managers choosing Augmented Category 6 cabling across different industry sectors. The exceptions with significant departures from the 30 percent average are, Government (40 percent) and Media/Publishing (17 percent).

There is no clear link between company size and choice of Augmented Category 6 cabling for data centers. Neither is there any difference between global and non-global companies, both are exactly average.

Fiber Cabling

When installing fiber cabling in their data center, respondents would select multimode fiber (47 percent) or OM3 laser optimized multimode fiber (32 percent). Significantly more data center managers in Asia Pacific (37 percent) and the North American Region (38 percent) would select OM3 fiber.

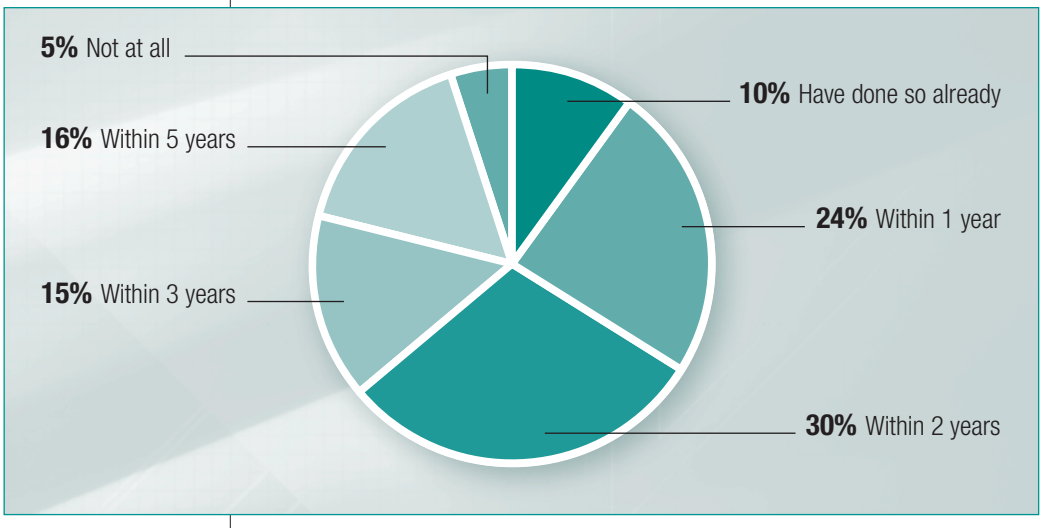


In the Health sector, 40 percent of data center managers said they would choose OM3 fiber and only 11 percent chose singlemode fiber. In contrast, in the Utilities sector, only 17 percent said they would choose OM3 fiber while 27 percent of them chose singlemode fiber (the global average is 18 percent). Choice of fiber cabling type did not vary significantly with the size or global reach of an organization.

5.2.4 When will you be implementing 10 Gigabit Ethernet in the backbone and horizontal areas of your data center?

In the Backbone

Ten percent of respondents have already implemented 10 Gigabit Ethernet in their data center backbone (switch-to-switch connection) and a further 54 percent anticipate they will do so within two years.



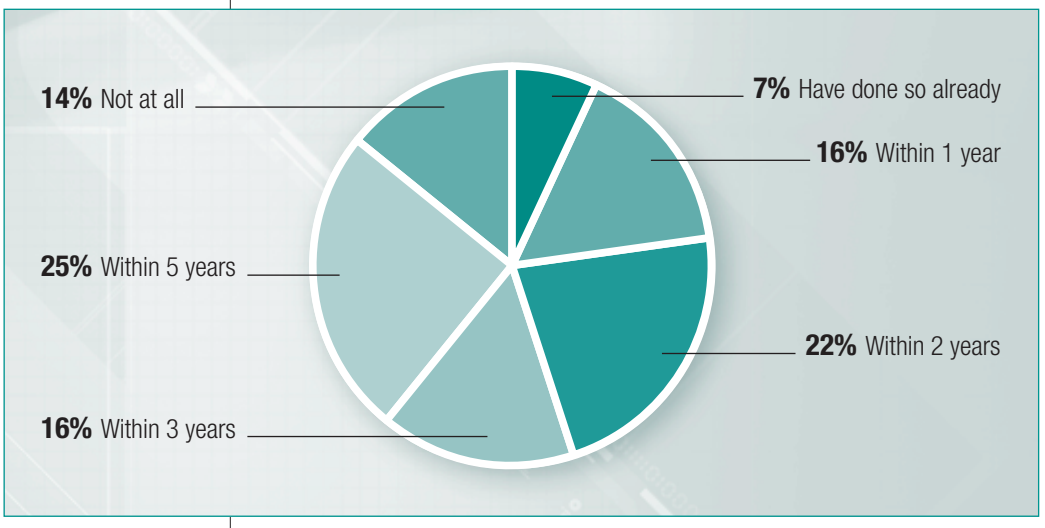
More than twice as many respondents in Asia Pacific and the North American Region said that they had implemented the technology as in other regions. However, more managers in CALA and EMEA intend to install the new technology within the next two to three years.

Leisure and Tourism companies are most likely to have installed 10 Gigabit Ethernet in their data center backbones with 19 percent saying they have already done so, almost twice the level for all industries.

Nearly twice as many organizations with more than 5,000 people have 10 Gigabit Ethernet as those with less than 5,000. Companies with global operations are also more likely to have deployed the faster networking than non-global companies.

In Horizontal Connections

Of those questioned, 45 percent expect to implement 10 Gigabit Ethernet for horizontal (server) connections in their data center within two years. Seven percent of all respondents say they already have the technology in horizontal connections.



Nearly twice as many organizations in Asia Pacific and the North American Region already have 10 Gigabit Ethernet in the data center horizontal as in other regions. Nearly 82 percent of managers in North America expect to have deployed it within five years, with a further ten percent already having done so.

Again Leisure and Tourism is the leading sector in this area, with 14 percent of data centers already running the new technology over horizontal connections. Within two years, a further 62 percent of respondents in this sector expect to be doing so. In the Retail sector, only 32 percent expected to have it within two years.

Organizations with 5,000-10,000 employees are notably quicker to adopt the faster networking with nine percent already running it. A further 26 percent expect to do so within a year giving a total of 35 percent. The comparable figure for companies in both larger and smaller size categories average only 20 percent.

5.2.5 What speeds are you running to your servers?

Sixty-nine percent of all respondents are currently running 1 Gb/s to their servers and a global average of seven percent are running 10 Gb/s or higher. In the North American Region, 13 percent (nearly twice the global average) are running 10 Gb/s or faster connections.

Among the industry sectors, Media and Publishing companies were most likely to be connecting servers at 10 Gb/s or higher. The proportion in this sector is 14 percent, contrasting with Manufacturing, which has just five percent.

Across the different company size categories, the proportions running 10 Gb/s or faster connections to their servers is variable. There is no clear link with the number of employees, or whether or not they are global businesses.

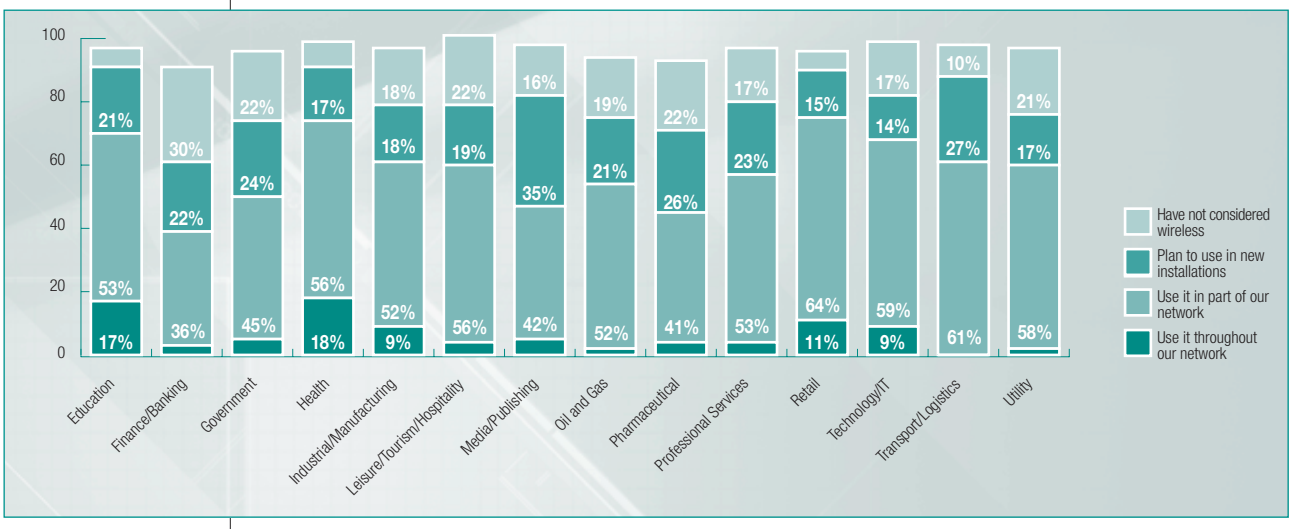
5.3 Wireless Networking

5.3.1 Do you use, or have you considered, wireless technology in all or part of your network?

Among all respondents, 59 percent use wireless technology in their networks; eight percent use it throughout and 51 percent use it in part. A further 19 percent plan to use it in new installations.

There are marked differences in the extent of wireless network connections found in different regions. In the North American Region, nearly 20 percent of those questioned use wireless throughout their networks, while in the other regions the figures are significantly lower and range from two percent to nine percent. The percentages in each region who use wireless connections in part of their networks are much more balanced, with the highest rating in EMEA at 54 percent.

Education and Health stand out as leaders in the use of wireless networking. In Education 70 percent of respondents were using wireless in all or part of their networks, and in Health the figure is 74 percent. Both are well over double the global average rating for using it throughout their networks with ratings of 17 percent and 18 percent respectively.



Larger organizations are more likely than average to use wireless throughout their network. Fewer respondents in organizations with less than 1000 people said they already have wireless throughout their networks, but more of them are planning wireless connections.

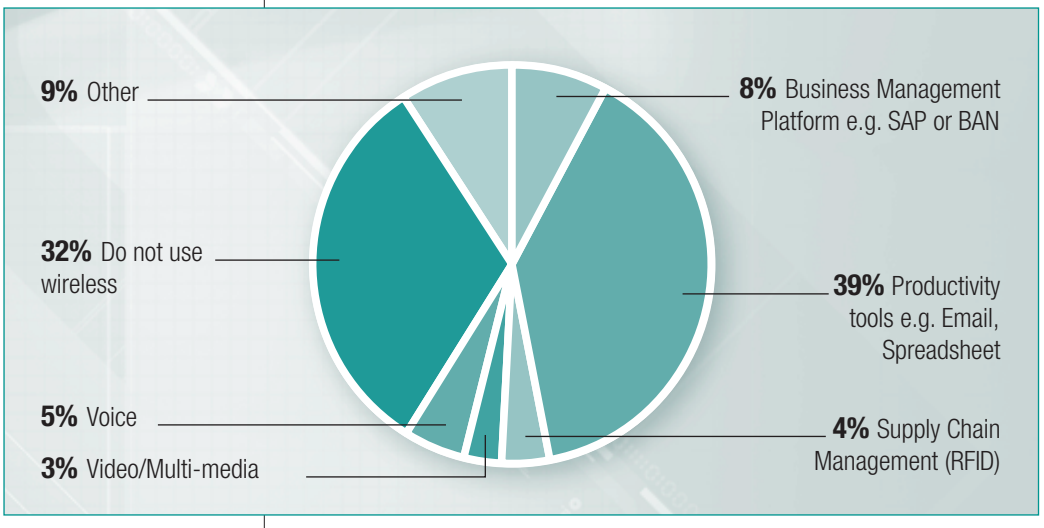
5.3.2 Do you see wireless technology as an overlay to a cabling infrastructure, a replacement for a cabling infrastructure or serving another role?

A large majority of respondents (81 percent) see wireless technology as an overlay to a cabling infrastructure. Only 14 percent see it as a replacement for a cabling infrastructure. In the North American Region more than 90 percent see wireless as an overlay.

Even in the Health sector, which has the highest proportion of networks with wireless connections throughout, only seven percent see wireless as a replacement for cabling.

5.3.3 What is the main application you support on your wireless network today?

An average of 40 percent of respondents using wireless technology use it to support productivity tools such as e-mail, spreadsheet and word processing applications. This figure only varies in the North American Region where it is 52 percent, otherwise there is little variation between regions in the applications supported by wireless connections.



In the Pharmaceutical sector, 26 percent of respondents use wireless for supply chain management. In Retail this figure is 19 percent and in Logistics/Transport ten percent. There is little variation in the applications supported by wireless between companies in different size groups.

5.3.4 What applications do you believe will be supported on wireless in the future?

This question provided the respondents with a free text area in which to give their feedback.
The majority of respondents anticipated use of wireless networking to support all types of voice, video and data applications. Additionally, a number of respondents cited use for roaming users, including use of handheld equipment, and to support remote offices.

5.4 Intelligent Infrastructure Management

5.4.1 How do you rate the importance of effective cable and patch cord management within the rack and cabinet environment?

When asked about the importance of effective cable and patch cord management within the rack and cabinet environment, 87 percent of respondents rated this as very high or high. This was consistent

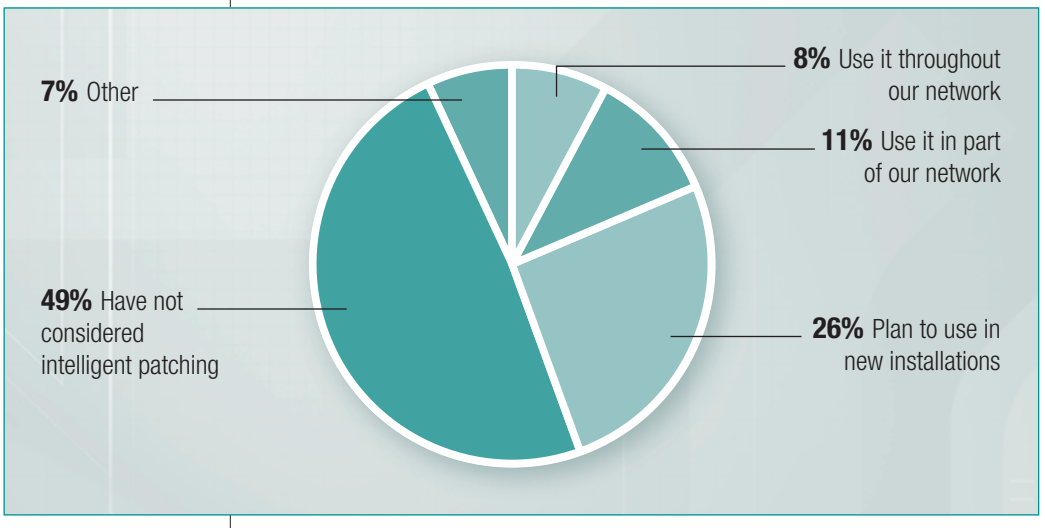
across the regions, except that more people attach "very high" importance in North America - 65 percent compared with a global average of 50 percent.

Two industry sectors attached particular importance to cable and cord management. These were Pharmaceutical, where 74 percent say it is of very high importance, and Retail where the figure is 60 percent.

Generally, more managers in larger companies attach very high importance to cable and cord management. The figures are 62 percent for companies with more than 10,000 people and 47 percent for companies with less than 500 people.

5.4.2 Do you use, or have you considered, intelligent patching in your network?

In response to this question, 19 percent said they used intelligent patching either in part or their entire network, and 26 percent plan to use it in new installations.



Surprisingly, considering how highly respondents rated the importance of effective cable and patch cord management, 49 percent have not considered intelligent patching. Given that 36 percent of respondents rated their knowledge of intelligent patching technology as low or none, increased awareness of the benefits of intelligent infrastructure management is likely to accelerate adoption of this technology.

Use of intelligent patching is highest among respondents in Asia Pacific where 29 percent use it in all or part of their networks, closely followed by EMEA for whom the rating is 21 percent. In the North American Region the figure is surprisingly low at only eight percent.

The Pharmaceutical sector, the industry that rated the importance of cable and patch cord management most highly, also has the highest proportion of users with intelligent patching throughout their networks at 19 percent. Companies with global operations are 25 percent more likely to use it than others.

5.4.3 How would you rate your knowledge and understanding of intelligent patching?

Over a third (36 percent) of respondents rated their knowledge and understanding of intelligent patching as low or said they had no knowledge of it at all. This was fairly consistent across all sectors and sizes of organization. This lack of knowledge about intelligent patching systems and the benefits they provide would explain why so many respondents have not considered utilizing intelligent patching, and could explain the low rate for the North American Region.

5.4.4 What do you use to plan, document and manage your cabling and network equipment/infrastructure?

The primary methods respondents use are spreadsheets (45 percent) and paper records (20 percent). An average of 11 percent of respondents used special software for this purpose.

This was quite consistent across regions and industry sectors with the exception that in the North American Region 15 percent used special software. Larger companies are also more likely to use it than small ones.

5.5 Building Automation Systems

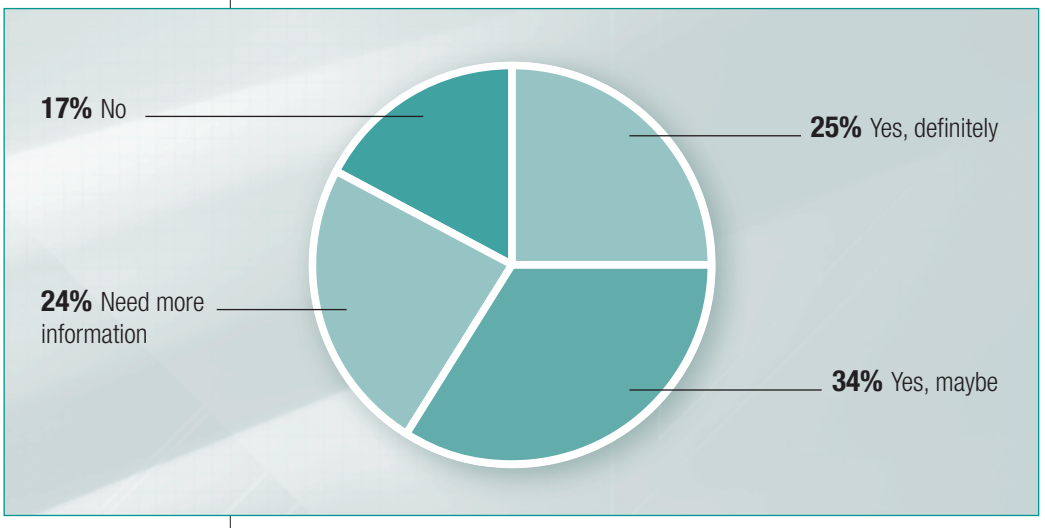
5.5.1 Compared to three years ago, how do you view the inclusion of low voltage building systems on the network infrastructure, e.g. BAS, security, energy management?

Across the global sample 61 percent of respondents felt that there has been an increase in the inclusion of low voltage building systems on the network infrastructure over the past three years. This figure is higher in the North American Region (71 percent) and Asia Pacific (70 percent).

The industry sector seeing the most growth in this cost saving integrated approach is Leisure and Tourism with 82 percent. Companies in all size groups and global/non global categories are all remarkably close to the overall average of 61 percent.

5.5.2 Are you considering this type of integrated network infrastructure?

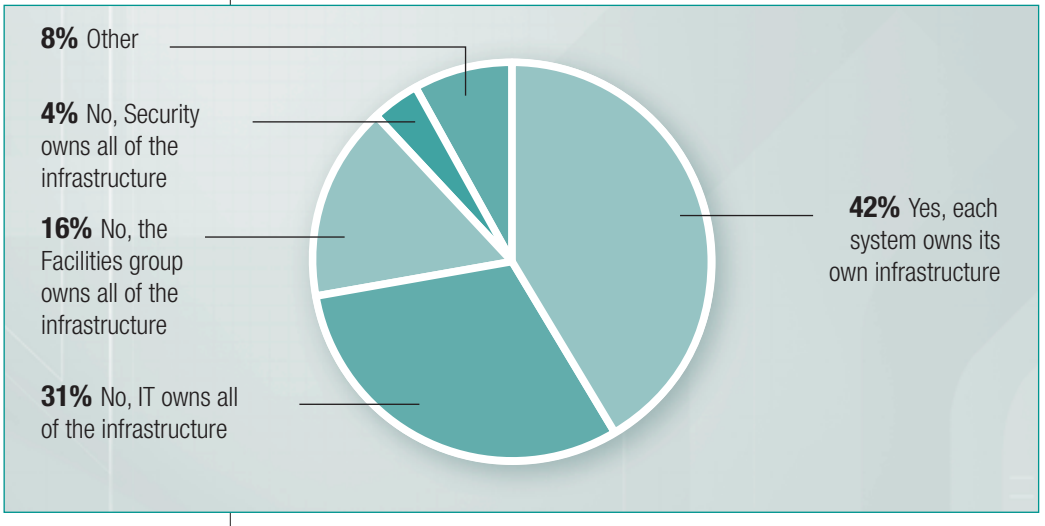
Across all respondents, over half (59 percent) are considering this type of integrated network infrastructure. On average, only 17 percent said they were not considering integration.



In the Asia Pacific region the figure is considerably higher than the global average at 70 percent. Among industry sectors, Health, Oil and Gas, and Technology/IT also had 70 percent of positive respondents, and Leisure and Tourism had 85 percent.

5.5.3 Does every low voltage system in use, own its own infrastructure?

In 42 percent of the respondents' organizations, each low voltage system has its own infrastructure, while in 31 percent of the organizations the IT department owns the entire infrastructure.



In the North American Region the figure for each low voltage system owning its own infrastructure rises to 51 percent, with the IT department owning all infrastructure in just 25 percent of the organizations.

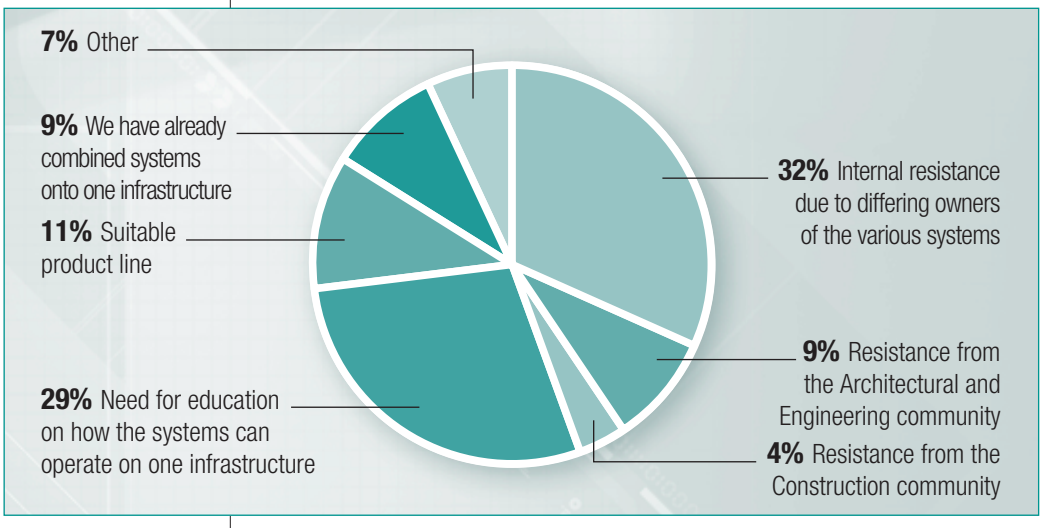
The responses also show that in smaller companies the IT department is more likely to have ownership of the low voltage infrastructure than in larger ones.

5.5.4 Including voice and data, approximately what percentage of your low voltage communications infrastructure is currently IP based?

Nearly a third of respondents (32 percent) said that just ten percent of their low voltage communications infrastructure, including voice and data, is currently IP based. Twelve percent of respondents estimated this figure at 50 percent.

5.5.5 If you could save 10-15 percent of your up front construction costs and up to 25 percent of ongoing maintenance costs, what would you see as the primary objection to combining all low voltage systems on one infrastructure?

Across all respondents, 32 percent said the primary objection to combining all low voltage systems on one infrastructure was internal resistance due to differing owners of the various systems.



Internal resistance was cited as a barrier by 58 percent in the Health sector and 43 percent in the Oil and Gas sector. As might be expected, internal resistance is cited by more respondents in large organizations - 43 percent for those with more than 10,000 employees compared with 23 percent for those with less than 500 employees.

Of all respondents, 29 percent felt that resistance was due to a need for education on how the systems can operate on one infrastructure. The figure was higher in CALA at 39 percent compared with 25 percent in EMEA.

5.6 Network Nightmares

5.6.1 What network issue keeps you awake at night?

Unprompted responses to this question confirmed that network managers still suffer from the same "nightmares" as they did at the time of the 2002 survey. The top rated issue was again network reliability and downtime, with virus attacks and WAN link problems also frequently quoted.

6 Conclusions

As bandwidth demand continues to rise, the key role of connectivity within the network is being more widely recognized. Gigabit desktop connections have become today's norm and 10 Gb/s speeds are seen as the way ahead, so high performance, high quality cabling is now viewed as a good investment rather than simply a cost.

Previous SYSTIMAX Solutions research showed that network and IT managers are willing to adopt new, high performance cabling technologies while standards are still in development. This was the case with the SYSTIMAX® GigaSPEED® Solution, which anticipated the final Category 6 cabling standard by nearly five years. The latest research shows this trend is continuing, illustrated by widespread willingness to adopt 10 Gb/s copper solutions, such as the SYSTIMAX GigaSPEED X10D Solution, before the Augmented Category 6 standard is ratified. Migration to new 10 Gb/s technology will begin in the data center, where cost savings are most immediate, and move on to desktop connections.

In the last three years there has also been rapid growth in acceptance of laser optimized fiber including the SYSTIMAX LazrSPEED® Solution as an alternative to traditional multimode and singlemode fiber. At the other end of the connectivity performance scale, Category 5e cabling is now generally considered to be heading for obsolescence and is likely to be chosen only when low purchase price is an overriding priority.

Wireless networking has become widely accepted as a mainstream technology, but the vast majority still see it complementing rather than replacing cabling. This highlights the need for integrated wireless/cable solutions, such as the SYSTIMAX AirSPEED™ Solution, including features such as Power-over-Ethernet (PoE) to power wireless access points.

While the need for high performance connectivity is widely accepted, IT professionals lack awareness of advanced cable management solutions and their benefits. There is a clear need to ensure IT departments know, for instance, how intelligent patching such as the SYSTIMAX iPatch® System can cut network management costs and downtime.

There is also a need for education on the benefits of integrating communications for IT and building automation systems. Many companies that run parallel networks for data and building automation acknowledge this waste of resources is due to lack of understanding and cooperation across the enterprise.

Appendix 1 - The Survey Sample

The 48 countries represented in this survey are as follows:

Argentina
Australia
Austria
Bahrain
Belgium
Brazil
Canada
Chile
China
Colombia
Denmark
Finland
France
Germany
Guadeloupe
Hong Kong
India
Indonesia
Ireland
Italy
Japan
Jordan
Kazakhstan
Kenya
Korea
Kuwait
Lebanon
Malaysia
Malta
Mexico
Netherlands, The
New Zealand
Pakistan
Peru
Philippines
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Singapore
South Africa
Spain
Switzerland
Taiwan
United Arab Emirates
United Kingdom
United States
Venezuela

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