

Annual Report 2010

Relationships
strengthened over time
and in exchanges

Belnet
dedicated connectivity

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Relationships
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Who are we?

Since 1993, Belnet has been working on the development of knowledge and network infrastructures for higher education and Belgian research. The organisation supplies a high-speed Internet connection and associated services to universities, university-level institutions and administrations.

In 2000, Belnet acquired the status of public service under separate management within the Federal Science Policy. This structure gives it increased autonomy and flexibility to adapt to changes in the area of telecommunications and the Internet.

Within the framework of its activities, Belnet is also responsible for operating the BPIX (central platform for the exchange of Internet traffic in Belgium), managing and monitoring the FedMAN (the network of federal administrations) and developing CERT.be (the Belgian team for prevention and intervention for internet security).

Currently the network meets the needs of 200 institutions representing more than 700,000 users.

Our mission

- Promote scientific development by supplying and maintaining high-quality innovative network structures, as well as associated services, in order to meet the needs of higher education and research in Belgium.
- Speed up the growth of the knowledge and information society thanks to our expertise, our unique position on the market and our economies of scale.
- Develop activities aimed at making the Internet in Belgium more dynamic and implementing telematic projects and networks for administrations and public institutions.
- Belnet is also responsible for the operation of the BPIX, the management of the FedMAN and the development of CERT.be.

Our strategic objectives

- Optimally meet the needs in network infrastructure and associated services of the educational and research establishments and their end users.
- Supply innovative applications and networks, in phase with tomorrow's needs.
- Be a solid and visible organisation that reaches all the educational and research establishments.
- Make use of our financial and human resources in an efficient and effective way, within an optimised structure.

A portrait of Pierre Bruyère, a middle-aged man with a shaved head, smiling. He is wearing a white polo shirt with thin blue vertical stripes and a blue patterned bow tie. The background is a blurred outdoor setting with a building and some greenery.

Pierre Bruyère
Director

*Reliable and
high-performance
services at
all levels*

What do the customers and the users of Belnet's services and networks expect? That they be secure and available at all times. For 2010, the organisation thus took care to supply them a high-quality service as well as a guarantee of the best possible level of security. Explanation by Pierre Bruyère, Director of Belnet.

What was your priority for the year 2010?

Pierre Bruyère: Because from now on our systems and services will be part of the critical infrastructure of the most important public institutions, the continuity of our activities constitutes a concern every minute of the day. In 2010, we put the finishing touches on our Business Continuity Plan (BCP) in order to guarantee the continuous availability of our networks and services, even under extreme conditions.

An audit initiated in 2009 clearly showed that our infrastructure benefited from all possible guarantees in terms of reliability.

It also revealed it is up to us to control from end to end to ensure its continuity. In response to this study, we set up a series of emergency plans that are able to mitigate all the potential risks. The appointment of a BCP Manager tasked with the organisation of this continuity allows us to envisage a future without worries from now on.

Is security still one of your major priorities?

P. B.: Although continuity was at the heart of our concerns in 2010, security also remained topical in the course of this financial year. At the request of the Federal Public Service for Information and Communication Technology (Fedict) and in collaboration with the Belgian Institute for Postal Services and Telecommunications (IBPT), we set up the Belgian team for prevention and intervention for internet security (CERT.be) in 2009. Tasked with protecting the internet and the critical economic sectors of transport, energy and telecommunications, this service was strengthened in 2010.

For Belnet, security does not come down only to the aspects of CERT.be, however. Raising the awareness of the organisations connected to the Belnet network also remains an absolute priority.

“Our strong points: the reliability of the services offered, the quality of the infrastructure equipped with a high bandwidth, and the attention that we give to cost control.”

This is why we once again offered initiatives such as workshops and the Belnet Security conference. By means of these annual meetings, we hope to make our customers aware and to engage in a real dialogue to debate the current trends.

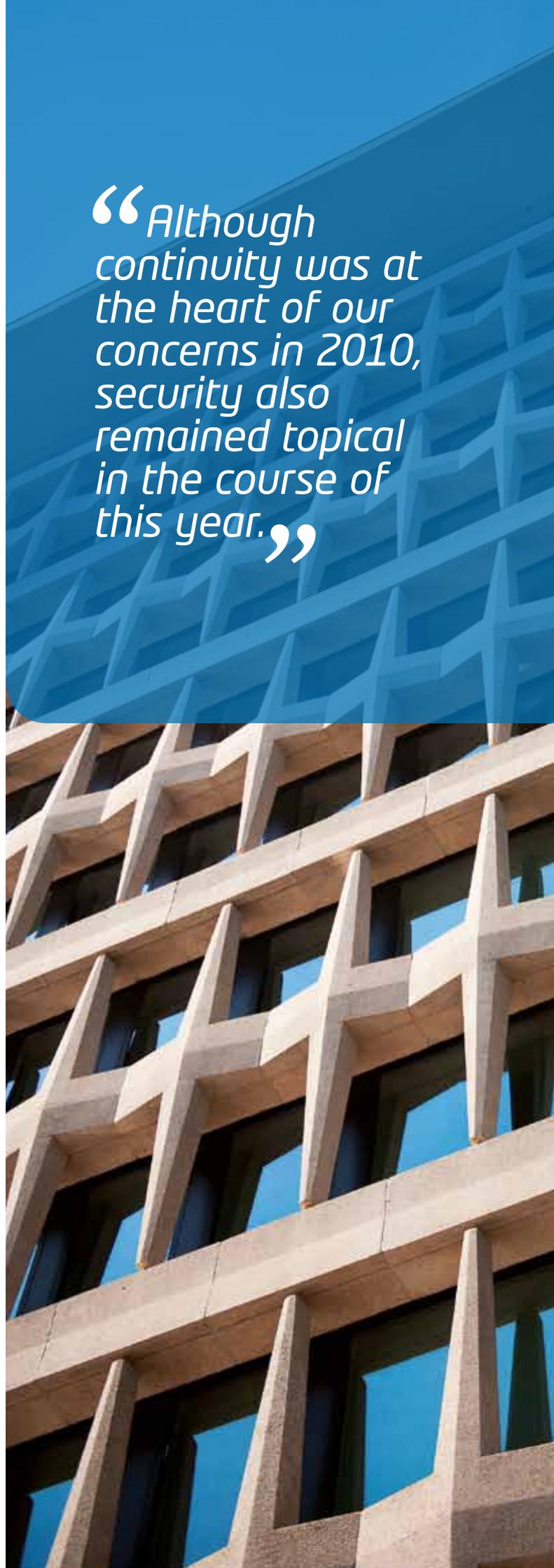
In this spirit, our customers also benefited from a number of services that contributed to making their networks and computers secure. Among the most representative of them is the Vulnerability Scanner by Belnet, which detects weaknesses in our customers' networks. Our Digital Certificate Service allows them the access to their web sites secure.

Have services become the cornerstone of your activity?

P. B.: Although in the past our investments were devoted to the development of our network infrastructure, from now on we will be concentrating more on the development of network services such as the Belnet R&E Federation, the Videoconferencing service, Belnet Leased Lines, the Vulnerability Scanner and Antispam.

Although our attention concerns the development of our services, it also focuses on the operation of the BPIX (Belgian National Internet eXchange) and the new FedMAN3, the network of the federal institutions.

“Although continuity was at the heart of our concerns in 2010, security also remained topical in the course of this year.”



Are your customers still as satisfied with your range of services?

P. B.: The results of our last satisfaction survey carried out in 2010 revealed that our customers are still as satisfied as in 2009 – or even more. Our strong points: the reliability of the services offered, the quality of the infrastructure equipped with a high bandwidth, and the attention that we give to cost control. Like in the past, the points for improvement will be taken up in a new detailed action plan.

To allow our customers and users to gain access to our wide range of services more easily, we have completely revised our communication tools. A dynamic showcase of our institution, our new graphical identity (graphical chart, logo, baseline, etc.) is strengthening our image with our customers, users and partners. A new Internet site (more ergonomic, rich and consistent) replaces our former version, which had become obsolete.

Inspired by the same concern for transparency and effectiveness, our Product Manager continued the mission undertaken in 2009. Its objective: make our services known and develop new services in line with the needs of the market. In order to preserve the special relationships that we entertain with our customers, in 2010 we continued to offer a series of workshops and conferences, in spite of our busy schedules due to the preparation of our move to the present site.

“A dynamic showcase of our institution, our new graphical identity is strengthening our image with our customers, users and partners.”

Did your staff increase in 2010?

P. B.: The attention given to our offer of services was expressed in 2010 by an increase in the number of employees, which went from 39 to 46 full-time equivalents. This increase in staff members did not only allowed us to optimise the quality of the services we provide, it also pushed us to strengthen the professionalism of our internal organisation. Our ambition to be a leading employer is expressed in particular through our attentive management of professional careers. Being able to depend upon solid skills constitutes an essential asset for responding to the expectations of our customers and supporting our development prospects.

Did other changes mark the year 2010?

P. B.: As mentioned earlier, 2010 was also the year of our major removal to the present site. For more than a year, our Logistics department masterfully orchestrated this great migration which led us from our former offices in the Rue de la Science, to our brand-new premises in Avenue Louise. This removal which was carried out during a single weekend (December 2010), continuity oblige, did not cause any disruption for our customers and users.

I am convinced that the formidable spirit of service that motivates all our employees is the source of our success. The constant concern for security, the requirement of availability as well as the search for performance are the mark of the teams and the partners who ensure the reliability of the networks every day of the year.

“Although in the past our investments were devoted to the development of our network infrastructure, from now on we will be concentrating more on the development of network services like the Belnet R&E Federation, the Videoconferencing service, Belnet Leased Lines, the Vulnerability Scanner and Antispam.”

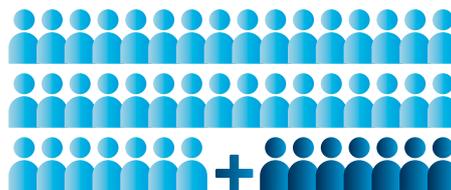
“Being able to depend upon solid skills constitutes an essential asset for responding to the expectations of our customers and supporting our development prospects.”



Key figures

In 2010, the Belnet network met the needs of **191 institutions** representing more than **700,000 users.**

In 2010, the Belnet staff went from **39** to **46 employees.**



47% of the employees make use of telework.

72% of Belnet's employees are **less than 40 years old.**

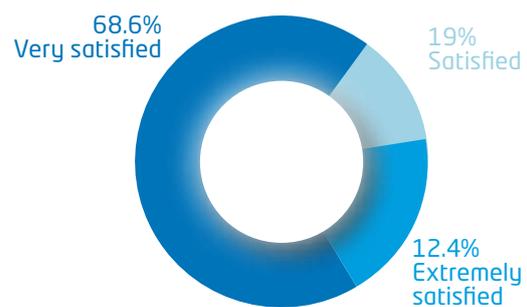


Each month the Belgian CERT handles between **50** and **100** serious incidents.

The Videoconference service was used on **453** occasions.

Belnet invoiced **620,000 euro** for the operation of CERT.be.

81% of the customers were very satisfied or extremely satisfied with the services offered in 2010.



*Belnet budgetary profits of **345,402 euro** in 2010.*

1,746 Digital Certificates were issued in 2010.

Highlights

Unveiled to the public in January 2011, the new graphical identity of Belnet won all the votes.

During the 2010 financial year, the teams of Belnet concentrated on the development of network services such as the **R&E Belnet Federation**, the **Videoconferencing service**, the **Belnet Leased Lines**, the **Vulnerability Scanner** and **Antispam**.

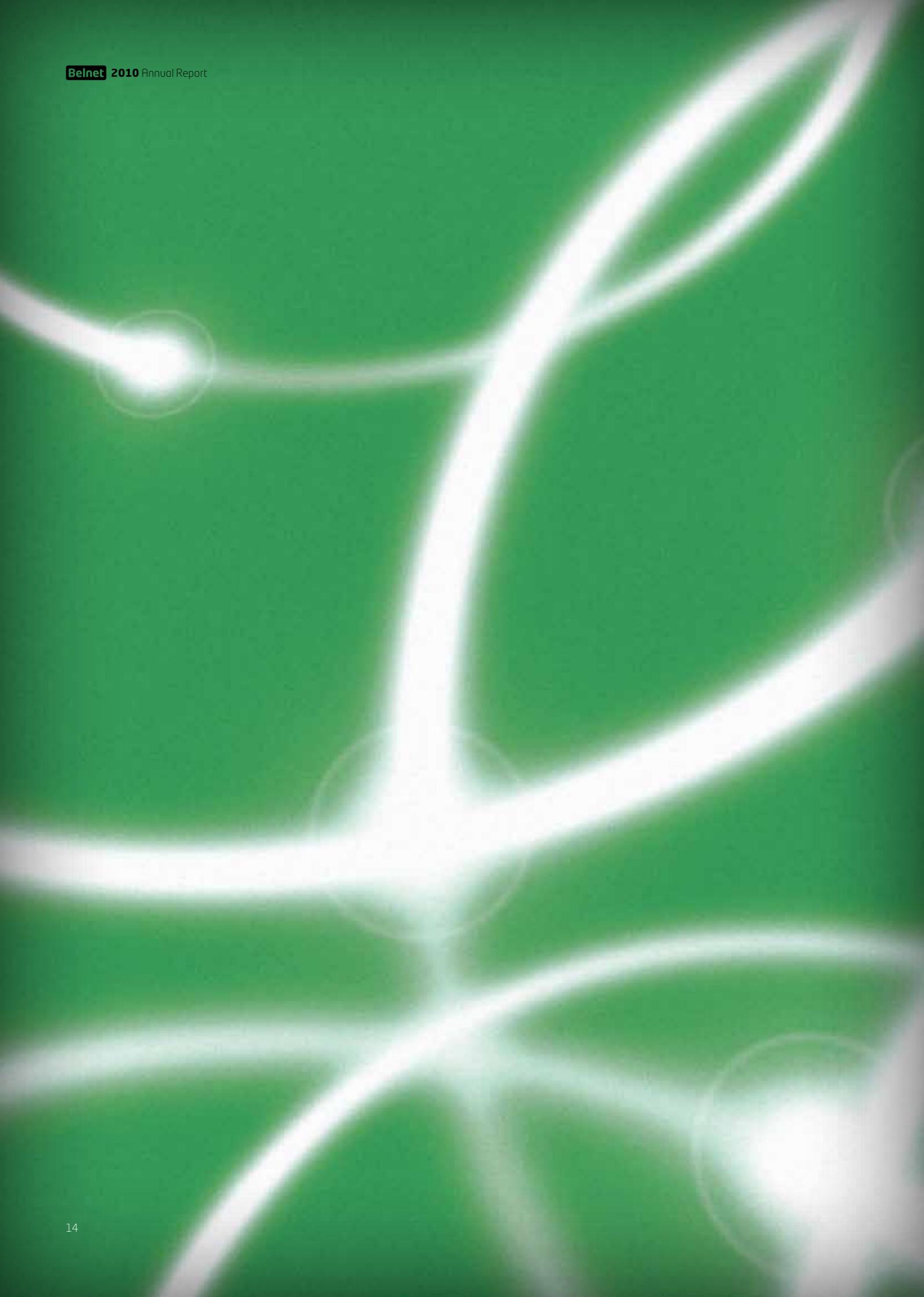
In January 2011, Belnet put the new version of its web site online. It will now meet the expectations of all the customers.

In 2010, Belnet put the finishing touches on its Business Continuity Plan (BCP) in order to guarantee the continuous availability of its networks and services.

The technical team also focused on the operation of the **BNIX**, the Belgian National Internet eXchange, and the preparation of the new **FedMAN3**, the network of federal authorities.

On 6 December 2010, Belnet settled in its **new offices on the Avenue Louise**. Orchestrated by the Logistics department, this removal was completed in a single weekend.

Throughout the year, Belnet offered a series of workshops and conferences to its customers and users. On the programme: services and security.



Stakes and Strategy



Customers and users
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Networks and grids
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Continuity

At the heart of the managerial strategy

Because Belnet's systems and services are part of the critical infrastructure of the most important public institutions, the continuity of the activities, even in the event of a disaster, constitutes a concern at all times. In 2010, the development of a complete and coherent Business Continuity Plan made it possible to further improve the permanent availability of the networks and the services.

"Taking into account the stakes, Belnet cannot allow itself to interrupt the services that we offer to our customers by more than a few minutes". For Jan Torreele, technical director of Belnet, this statement is irrevocable. "Many of our customers use the Internet intensively, and their situation would quickly become intolerable in the event the network were cut. Consequently we must take all possible measures to guarantee the continuity of our services 24/24 and 7/7."

As a supplier of services that are often "critical" for its users, Belnet has thus made continuity one of its strategic objectives. Since 2009, this priority has been put into practice in particular by the use of an enormous study, the Business Continuity Plan. "In terms of continuity, we were focused more on the reliability of our infrastructure. Thanks to the BCP study, we are now considering the problem complex as a whole," explains Jan Torreele further.

Audit and expert report

To analyse and minimise the risks, Belnet called upon Pricewaterhouse Coopers, which is experienced in this type of expert report. Using a proven methodology and tested procedures, the experts carried out a study of the risks and impacts in order to identify the most critical situations and the actions to be undertaken in order to minimise the impact in the event of necessity.

"It is clear that a nuclear attack would have a major impact on our activity, but the probability that it would occur remains very low," stresses Julien Lamoral, Business Continuity Plan Manager at Belnet. "Consequently that is not where we should put our priorities. On the other hand, the non-availability of our building due to a flood or an electrical breakdown is more probable... For this reason we have set up new infrastructures and prepared emergency plans in order to limit the impact of a disaster on our services."

Gaps to be filled in

The BCP project showed that all infrastructural measures were efficient. On the other hand, it brought to light a series of incomplete areas such as the telephony system, the back-up of certain applications (among them the accounts), the availability of a substitute building and the setting up of emergency teams. "Further to this study, we have split up our telephony system, for example," explains Julien Lamoral. "In the event of a breakdown of the central exchange, the calls will switch to a back-up central exchange

located in a different building in a way that is transparent for the users. For the staff, we have designated twenty employees who are capable of ensuring minimum service. We have also chosen an emergency building fitted out to accommodate them with emergency equipment."

In 2010, a series of tests on the equipment in production made it possible to verify the effectiveness of certain emergency plans.



Jan Torreele
Technical Director

Julien Lamoral
Business Continuity Plan Manager

“Many of our customers use the Internet intensively, and their situation would quickly become intolerable in the event that the network were cut. Consequently we must take all possible measures to guarantee the continuity of our services 24/24 and 7/7.”



Customers and users

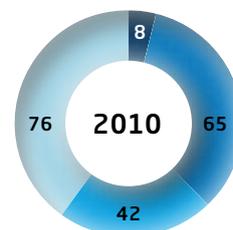
A dynamic and proactive policy

At the end of 2010, 191 organisations were connected to the Belnet network, among them all the Belgian university-level institutions and universities, several public institutions and research departments as well as international organisations. In all, more than 700,000 end users called upon the Belnet network almost every day.

Instruction and research

Since 2008, all the Belgian institutions of higher education and universities without exception have been using Belnet’s network and services. Although very large organisations such as the Universiteit Gent, the Katholieke Universiteit Leuven and the Enseignement de la Province de Liège (more than 40,000 users each) count among the customers, numerous smaller institutions (federal scientific institutions, specialised public and private research centres, etc.) also benefit from Belnet services.

Number of institutions per customer group (end 2010: 191)



- 4% Regional networks
- 34% Research
- 22% Government and administrations
- 40% Higher education (including universities)

Other customers and users

Via the BNIX (Belgian National Internet eXchange), the central platform for the exchange of Internet traffic in Belgium, Belnet delivers a service for Internet operators on the Belgian market. At the end of the year, 44 companies (the majority of them suppliers of Internet services and of content) were connected to the BNIX.

The federal administrations that are customers of Belnet benefit from the FedMAN network (Federal Metropolitan Area Network).

Number of customers on the Belnet network



*Although the number of customers decreased, the number of users increased.

“The technical advisors are the first point of technical contact with the customers.”



Aris Adamantiadis

Technical Advisor

“The principal role of the technical advisors is to assist our customers in the best possible way in the design of their connection and in the

implementation of our services. As the primary point of contact for technical questions, they precisely report the technical needs of our customers in order to develop new services or to improve the existing services. In fact, numerous customers contact us spontaneously when they have technical questions.”

Conferences, workshops, web site and graphical identity

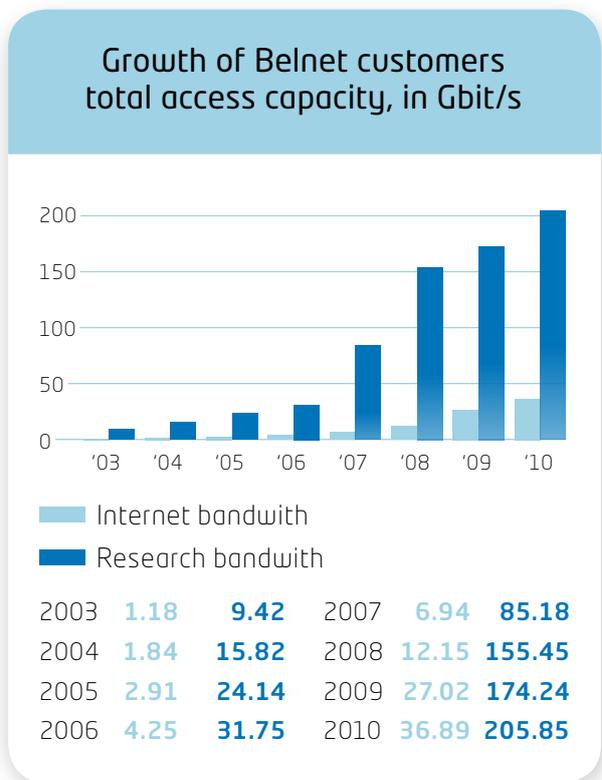
To allow its users to take full advantage of its services, Belnet offers events like Workshops and Belnet conferences (Networking and Security). In 2010, these meetings made it possible for its customers to share their ideas and experiences. They also had the opportunity to meet some Belnet employees and to find out about the latest new features.

In January 2010, Belnet put the new version of its web site on line. Better structured and more ergonomic than the preceding version, this site upgrades the topicality and the services offered by Belnet. In mid-2010, the communication department also initiated the use of a new graphic charter (new logo and baseline). Introduced at the beginning of 2011 with the latest changes of the site, this charter has contributed to giving new dynamism to the image of the organisation.

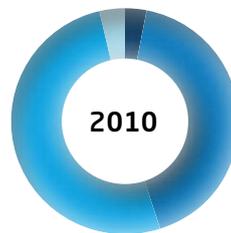
To strengthen communication with its customers, Belnet has been publishing a monthly newsletter since 2010.

Rates going down, bandwidth going up

In January 2010, new conditions for access to the Belnet network entered into force. The minimum capacity for the access circuit as well as the Internet connectivity is now 100 Mbit/s. Some customers had to increase the capacity of the access circuit and their connectivity, while for others it was sufficient to increase the Internet bandwidth. To stimulate the use of the Internet, the rates were revised downward to make the cost of very high capacity access more affordable.



Split of connections by type and access capacity (total end 2010: 285 connections)



3,16 % 10 Mbit/s

Number of active connections	5
Number of back-up connections	4
Number of Point-to-Point Ethernet	0

51,23 % 1 Gbit/s

Number of active connections	127
Number of back-up connections	19
Number of Point-to-Point Ethernet	10

42,11 % 100 Mbit/s

Number of active connections	102
Number of back-up connections	18
Number of Point-to-Point Ethernet	11

3,51 % 10 Gbit/s

Number of active connections	7
Number of back-up connections	3
Number of Point-to-Point Ethernet	4

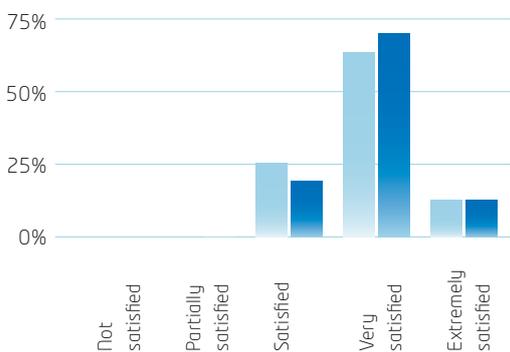
“During the workshops, the customers had the opportunity to meet some Belnet employees and to find out about the latest new features.”

Belnet Customer Survey

In 2008, Belnet initiated a survey of satisfaction with its customers. The results of this survey gave rise to a concrete action plan aimed at improving the services offered. Confirming its effectiveness, Belnet decided to repeat the experience every year. The survey performed in 2010 made it possible not only to analyse the degree of satisfaction of the customers, but also the degree of importance that they attach to each service. The combination of these parameters gave rise to the development of a matrix making it possible to identify the actions with the highest priority.

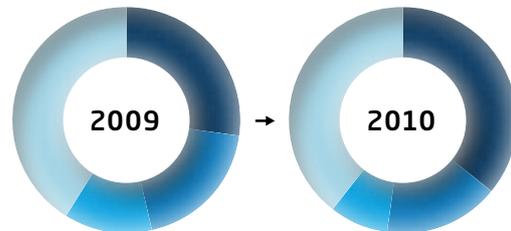
At the end of the survey, 19% of the customers were satisfied, 68.6% of the organisations were very satisfied and 12.4% were extremely satisfied. The customers very specifically appreciate the high reliability of the network, the high availability of the bandwidth, and the fact that the cost has a good quality/price ratio. They are very positive towards Belnet and say that they are ready to recommend its services. The points to be improved were analysed and incorporated into an action plan carried out in 2011.

Customer satisfaction with the Belnet network (%)



Not satisfied	-	-
Partially satisfied	-	-
Satisfied	25%	19%
Very satisfied	62.5%	68.6%
Extremely satisfied	12.5%	12.4%

Customers that have recommended Belnet in the course of the six months preceding the satisfaction survey



- 0% → 0%**
Have not yet done so and will certainly not do so
- 27.4% → 35.9%**
Have not yet done so, but will certainly do so if asked about it
- 19.1% → 16.3%**
Have not yet done so, but will certainly do so in the future
- 12.5% → 8.5%**
Did so once
- 41.0% → 39.2%**
Did so more than once

“The survey performed in 2010 made it possible not only to analyse the degree of satisfaction of the customers, but also the degree of importance that they attach to each service.”



“We benefit from excellent collaboration with the Belnet team and the exchange of expertise go in both directions.”

Skhelzen Rugovac

Attached to the infrastructure Grid of the Interuniversity Institute for High Energies (IIHE) within the Elementary Particle Physics Department of the Faculty of Sciences at the Université Libre de Bruxelles (ULB).

“Our infrastructure is part of an international network tasked with storing and analysing all the data coming from the collisions produced (millions each second) in the Large Hadron Collider at CERN (Geneva). It is the sum of all the analyses made at worldwide level that is moving the research on the physics of elementary particles forward.

We use the Grid service of the Belnet-network to process the data and perform all the necessary simulations. This aspect of the research requires great computing power combined with enormous storage capacities.

Our Grid infrastructure thus has a 1Gbit/s connection at its disposal, which will go to 10Gbit/s in the end. Belnet also supplies us with especially efficient central Grid services

Petra Van Mulders

Post-doc at the Vrije Universiteit Brussel (VUB) collaborating in the experiment of the Large Hadron Collider (LHC) at CERN. Active user of the infrastructure Grid of the IIHE.

(database of available Grid resources, the service that dispatches the Grid jobs to the sites that have the resources necessary for their execution). The Belnet network proves to be especially solid and highly performant thanks to the redundancy of the network and the quality of the equipment.

In addition we have very good interaction with the customer service. When problems occur on the network, they are resolved efficiently. Particularly since monitoring is then initiated to ensure that the problem is definitively resolved. More specifically as far as the Grid support is concerned, we benefit from excellent collaboration with the Belnet team and the exchanges of expertise go in both directions.”



Security

Fighting against cybercrime

Since the arrival of the Internet, various initiatives, both national and international, have been taken in order to protect the public institutions, companies and citizens. In Belgium, the law on telecommunications obligates the State to protect its telecommunications infrastructures. CERT.be originated from this necessity.

In August 2009, Fedict entrusted Belnet with the mission of running the operation of CERT.be. Tasked with the priority of protecting sensitive economic sectors such as those of transport, energy and telecommunications, the first Belgian computer security team was originally composed of four employees, all computer scientists endowed with extensive knowledge in the areas of networks and computer security. In 2010, Belnet strengthened the service and the teams dedicated to setting up CERT.be. The Belgian CERT is able to handle between 50 and 100 serious incidents each month.

“More than six years ago our teams developed a CERT intended to watch over our own network and keep our users informed.”

Blocking cybercrime

Although the primary objective is to prevent security problems, CERT.be also intervenes in emergency cases. Via its website, CERT.be is also addressed to the general public. This site offers general advice on the issue of computer security, as well as links to other informational sites.

Since the threats weighing on the networks can also come from abroad, CERT.be is cooperating with other specialists in computer security within a worldwide network. The CERT partners share their information in this way, especially if Belgium is concerned.

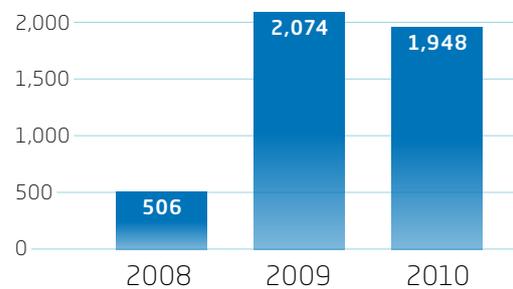
Belnet Security Conference

For Belnet, security goes well beyond CERT.be and also occurs through raising the awareness of all the customers. In this spirit, in 2010 Belnet organised again a Belnet Security Conference. By means of this annual conference, Belnet intends to make its customers and users more aware of the problems of security on the Internet.

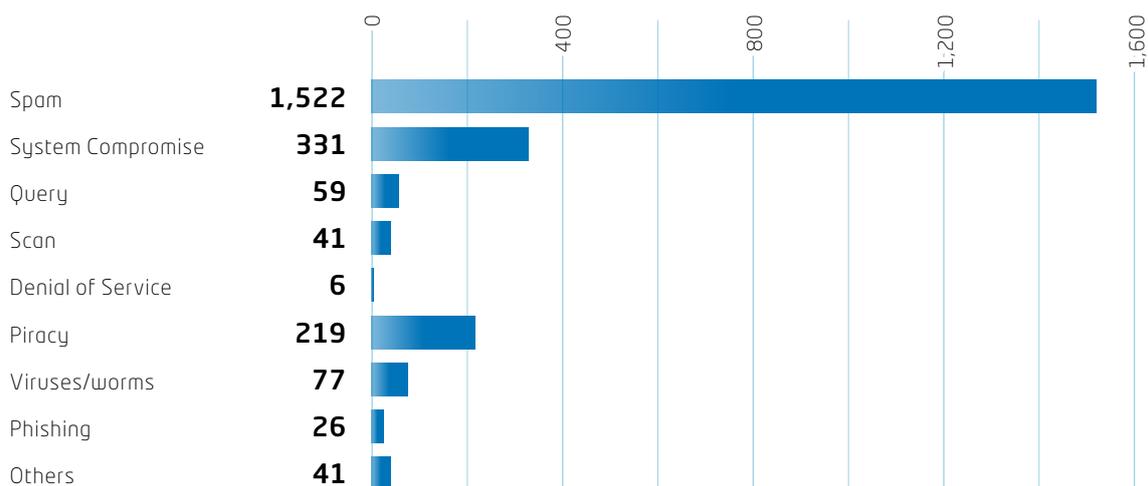
Services for more security

Belnet's customers also have two dedicated services (Vulnerability Scanner and Digital Certificate Service) at their disposal to make their networks and computer secure.

CERT - Number of alerts



CERT - Incidents per type (in 2010)





Services

Imagining and producing the tools for tomorrow

Although all of Belnet’s customers and users now have very high bandwidth at their disposal, they still need new services facilitating and optimising their work. The year 2010 thus resulted in the setting up of numerous actions aiming at an improved and even more extensive range of services.

Belnet R&E Federation

In 2009, Belnet laid the foundations for an R&E Federation. In 2010, the concept has been launched. The principle: the users attached to an institution belonging to this federation would be able, after having been identified (with their name and the usual password of the institution), to access in real time the services and applications supplied by their institution or by other suppliers belonging to the Belnet R&E Federation, with complete security. The advantage of the formula: these users no longer have to register or to identify themselves by using different authentication data. The institutions will also be able to benefit from significant economies of scale due to the pooling of purchases.



For this service, the role of Belnet is limited to being a central point of contact within the federation. All the user data is thus kept in the institutions, especially in order to facilitate updating the data and to guarantee better respect for privacy.

Digital Certificates Service

An authorised digital certificate allows Belnet's customers to protect their network and to offer their users secure communication with their servers, especially via the HTTPS protocol. As a registering authority, Belnet is authorised to issue certificates for the servers of its customers and their DNS names (nearly 2,000 certificates have already been issued in 2010).

“Our customers can optimise the registration and the management of their domain names.”



Fernand De Decker

Coordinator of Services

“To respond to the growing demand of its customers, in 2010 Belnet extended its service for registering Internet domain names. This extension of services has two aspects. The first consists of including additional root names. Therefore Belnet's customers can register, besides '.be' and '.eu', names ending in '.org', '.com', '.info' and '.net'.

The second aspect concerns the access to the servers. Previously, Belnet offered the

possibility of using its servers as recursive and secondary servers for the management of the DNS zones corresponding to these domain names. Naturally this possibility still exists, but it has been reinforced by the possibility of using the servers of Belnet as primary servers. In concrete terms, this means that it will be possible for a customer to manage its DNS zones completely on the Belnet servers, which will relieve it of the obligation of having its own DNS servers.

These improvements are accompanied by very special care given to the ergonomics of the interface that gives access to the service.”

This attribution took place according to the rules determined by contract with TERENA, the association of European research networks that was the origin of the initiative of the Digital Certificates Service. Digital certificates are available for authorised organisations of the research centre, university and university-level institution type that are connected to the network. In the course of this year, Belnet issued around 1,750 digital certificates to its customers. During 2010 Belnet also offered staff certificates to certify the validity of an e-mail.

Vulnerability Scanner

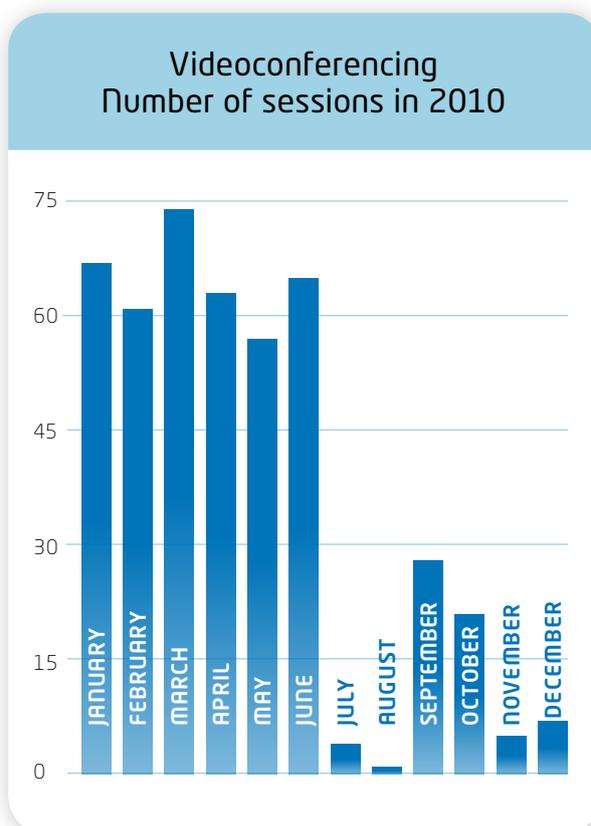
The Vulnerability Scanner of Belnet is a tool designed to detect the vulnerabilities of a network and to signal the potential threats. Although it does not prevent attacks, Vulnerability Scanner allows the users to evaluate the level of security of their network with precision. In 2010, Belnet offered a more complete version of the Vulnerability Scanner, in particular including on-site assistance.

Antispam

In 2010 Belnet launched a pilot version of the Antispam service, a basic solution consisting of a black list. The preparations were also made to launch an expanded version of this service under the name of Antispam Pro in 2011.

Videoconference

In response to the growing internationalisation of education and research, the number of Videoconferences has been increasing continuously. In 2010, Belnet's Videoconference service was thus used on 453 occasions. In the course of this year, Belnet also continued to improve its MCU Videoconference system (Multipoint Control Unit). This system will now allow users to organise high definition Videoconferences that can be recorded between several geographically remote participants. Thus all the images are exchanged via the Belnet network.





“The quality of the solutions offered by Belnet allows us to work with complete confidence!”

Serge Bogaerts

Head of IT & QA support group,
Cenaero - Centre of Excellence in
Aeronautical Research

An authorised Research Centre in Wallonia, Cenaero supplies methodologies and high-performance digital simulation services to companies involved in a process and progress and technological innovation.

“Active primarily in aeronautics, we hope to increase the transfer and the application of our technologies to land transport, energy, health and sustainable development. Within this context, we are undertaking to activate the necessary resources for the validation of our technologies and to maintain an exceptional computing infrastructure that is among the 500 most powerful in the world.

The Belnet network gives us the possibility of connecting to the Belgian and worldwide research networks. It also offers us the opportunity to

be connected to the Internet via a significant bandwidth and at competitive financial conditions. Since our digital simulation activities are associated with very high volumes of data, and these activities involve more and more academic and industrial partners, the quality and the capacity of this connection are critical for supporting the transfer of the data in question.

Beyond the connection service itself, the services that interest us the most are those that are directly linked to this connection, such as the name resolution or time synchronisation services, for example. The services associated with security are also of crucial importance and probably under-utilised in our case. The new services like Antispam moreover, attract our full attention.

Belnet’s strong point? The quality of the solutions offered and the seriousness with which these solutions are supported. We believe that if a solution is offered by Belnet, we can adopt it with complete confidence.”

E-collaboration platform

In 2009, Belnet tested the feasibility of a new E-collaboration platform, a space for virtual meetings for employees, students and professors. This pilot phase was extended until June 2011 in order to estimate the interest and the frequency of use over the long term.

Belnet Leased Line

A customised service

In order to access the network, the majority of Belnet's customers need a Leased Line. Before 2009, in order to obtain this line, they absolutely had to turn to a third party. Since 2009, Belnet has been simultaneously offering its customers the connection and the Leased Line. The customers do not have to turn to an external supplier. By contracting directly with the operators Belnet has much better visibility over the whole line. Moreover in the event of a technical problem, the interventions have proven to be more effective. In 2010, Belnet supplied Leased Line to 22 customers.

Other advantages of this formula:

- A single contact point
For their Internet connection and their bandwidth, customers benefit from a customised service provided by the assignment of a single account and a single point of contact at Belnet. In the event of a problem on a Leased Line, Belnet is thus able to intervene within the shortest possible amount of time.
In this spirit, Belnet offers an "end to end control" service by also taking care of all the steps (invoicing, support and maintenance) to control and ensure the correct operation of the connectivity supplied to organisations.
- A guarantee of quality
Thanks to the high quality services it supplies, to its simple installation and its high availability, a Belnet Leased Line constitutes the ideal solution for existing and future services.

“From now on, an authorised digital certificate will allow Belnet’s customers to protect their network and to offer their users secure communication with their servers, especially via the HTTPS protocol.”

Standard package and Plus services

At the beginning of 2010, Belnet restructured its range of services into a standard package and a series of optional services, called Plus services.

The standard package includes the connection and a number of extra services that the customer receives from the beginning. It comprises:

- Connectivity (Belnet & Internet)
- IP addressing (both IPv4 and IPv6)
- DNS Services
- Time synchronisation
- Software archives
- Bandwidth statistics
- CERT
- Helpdesk 24/7
- Support and advice
- Workshops and conferences

The Plus services of Belnet offer the customers an array of additional functionalities, comfort, security and reliability for their connection.

Here are the primary Plus services:

- Connectivity backup
- IPv6 connectivity
- Ethernet point to point
- Multipoint (Ethernet/IP)
- Multicast
- Belnet Leased Line
- Domain Name Registration
- Digital certificates service
- Vulnerability Scanner
- Antispam
- Videoconference
- E-collaboration platform
- Instant messaging
- BEgrid
- eduroam
- Belnet R&E Federation



Networks and grids

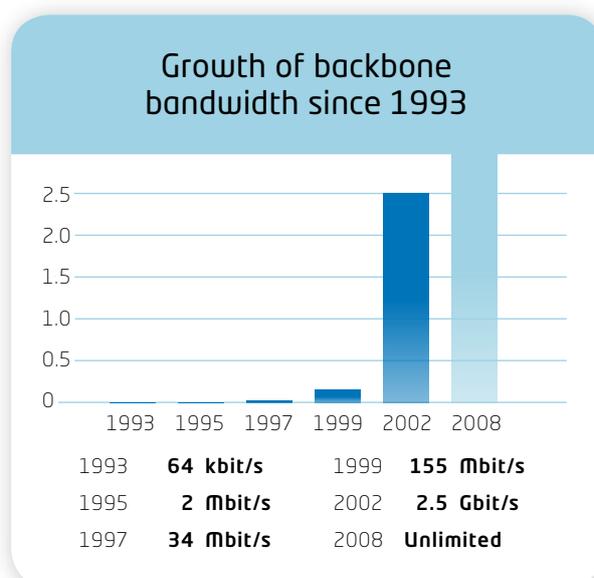
Faster and more high-performance

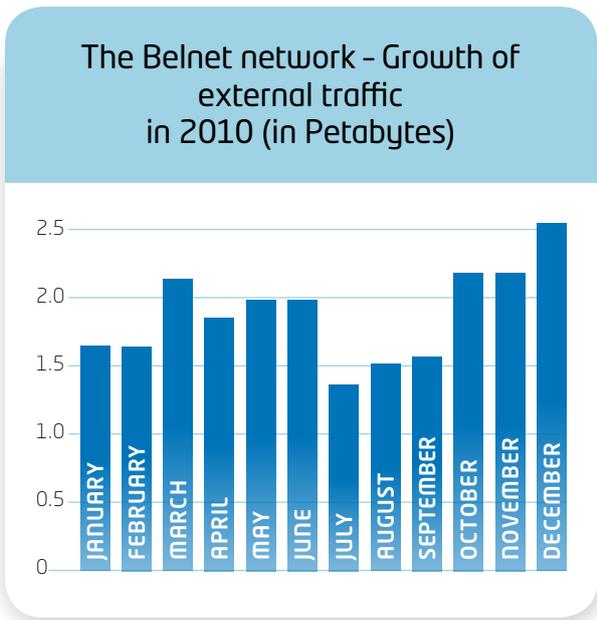
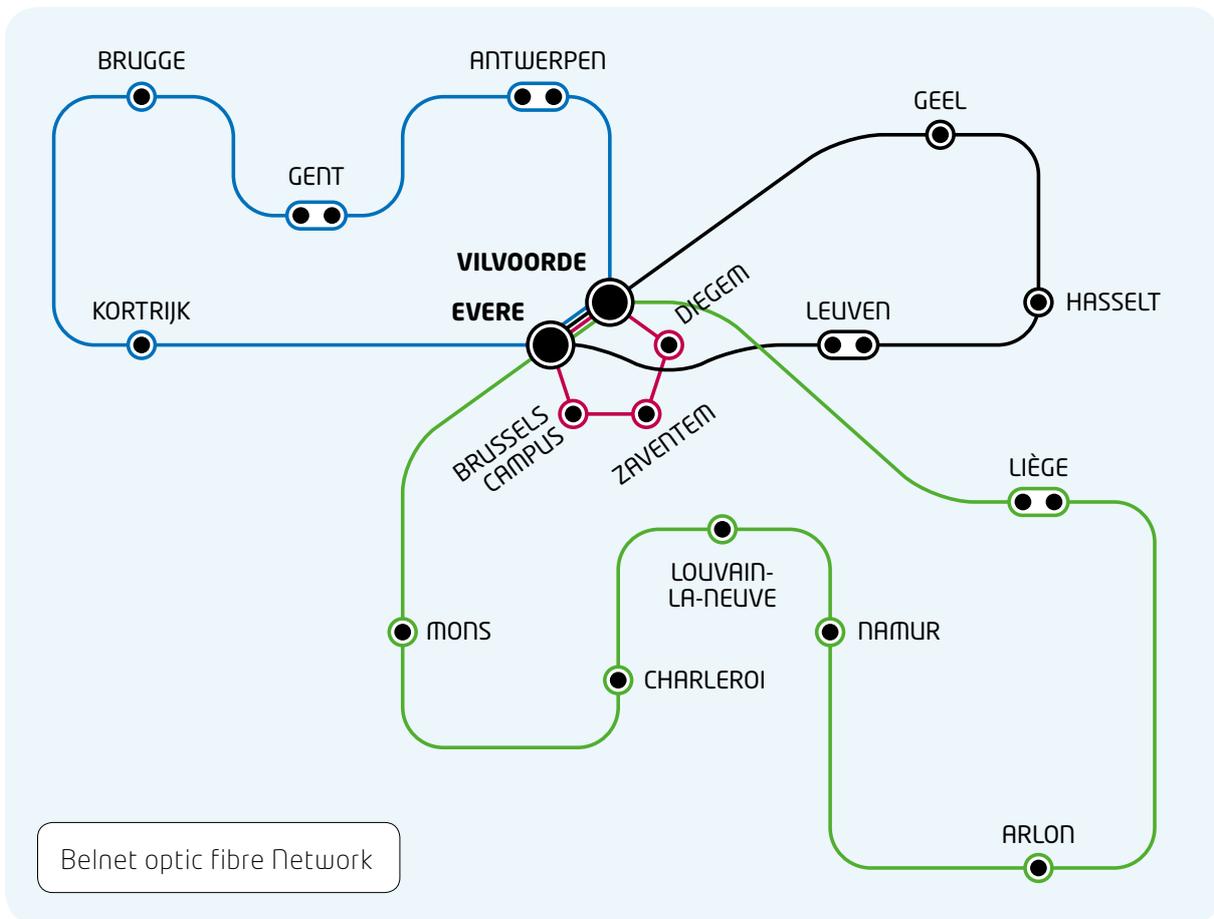
Belnet manages three physical separate networks: Belnet, BNIX and FedMAN. Implemented in 2008, the optical infrastructure of the Belnet network continues as a tried and tested network by offering unlimited access to the Internet. The commissioning of the new BNIX in 2010 kept all its promises in terms of quality and performance. The updating of the FedMAN2 network, which has become FedMAN3, was also examined during this financial year.

Belnet

Commissioned in 2008, the Belnet network brings together all the Belgian universities and university-level institutions within a single technological environment. Constructed in collaboration with the Walloon and Flemish governments and various commercial partners, Belnet combines a traditional IP network with an optical layer built up on a base of fibre optic cables.

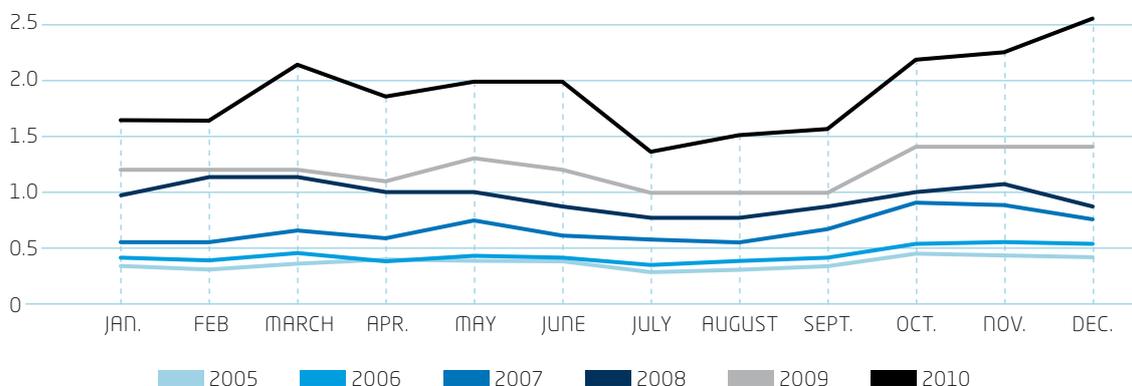
This network enables the communication of data via "light paths", that is, direct connections between two points without the intervention of routers.



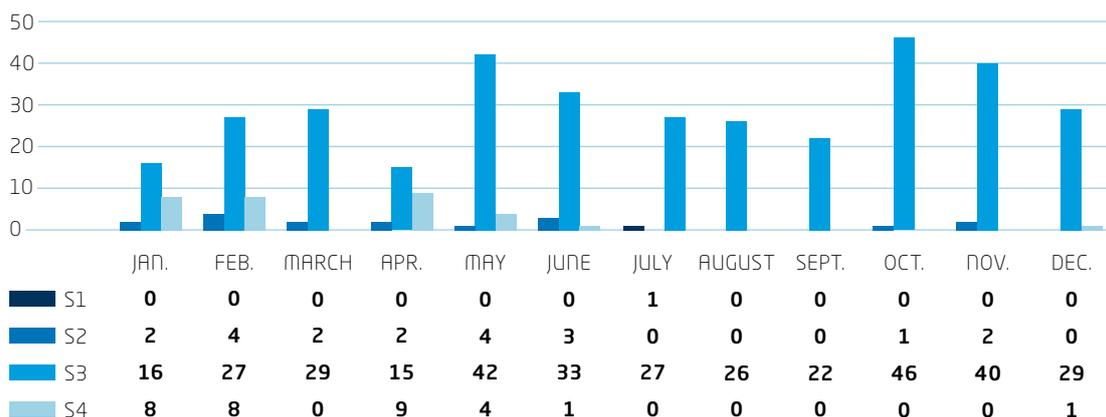


Fitting into a process of continuous improvement, it makes it possible to transport ever larger flows of data, which opens up new possibilities for science and education. Strengthened in 2009 and 2010, the network benefits from now on from functionalities (two new Points of Presence (PoPs) in Brussels) which give priority to the most high-performance and most secure path for the traffic in data to and from our customers. They can have at their disposal 10 Gbit/s (or multiples of 10 Gbit/s) of Internet bandwidth. Their access to the Internet therefore proves to be at least ten times faster than previously.

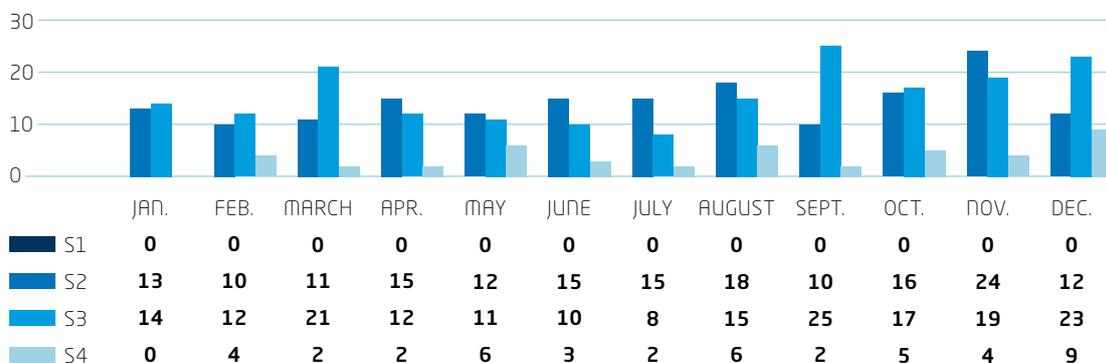
The Belnet network - Growth of external traffic (in Petabytes)



The Belnet network - Incidents reported by customers (in 2010)



The Belnet network - Internal surveillance and fault management



S1 Complete backbone failures or Point of presence out of service
S2 Reduces working (with an effect on service delivery)

S3 Problem with the redundancy, without effect on service delivery
S4 Information request

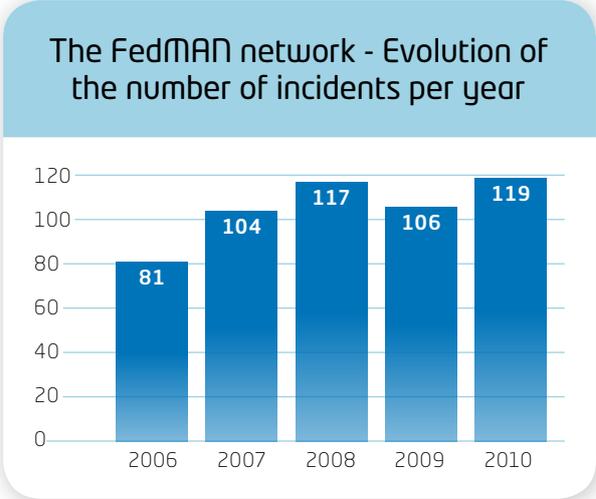
FedMAN

Belnet has been tasked (since 2001) with the development and the management of the FedMAN network (Federal Metropolitan Area Network). Set up on behalf of Fedict (the Federal Public Department of Information and Communication Technology), this network connects the federal administrations to each other as well as to the Internet.

In 2010, Belnet was meant to initiate the study of the new FedMAN3 network, which was supposed to replace the current (FedMAN2) network starting in March 2011. Taking into account the Belgian political context (a government of current affairs), Fedict took the decision to extend the FedMAN2 programme for a duration of 12 months. At the end of this extension, the new FedMAN3 network will go into operation.

The improvements made to the FedMAN network in 2010

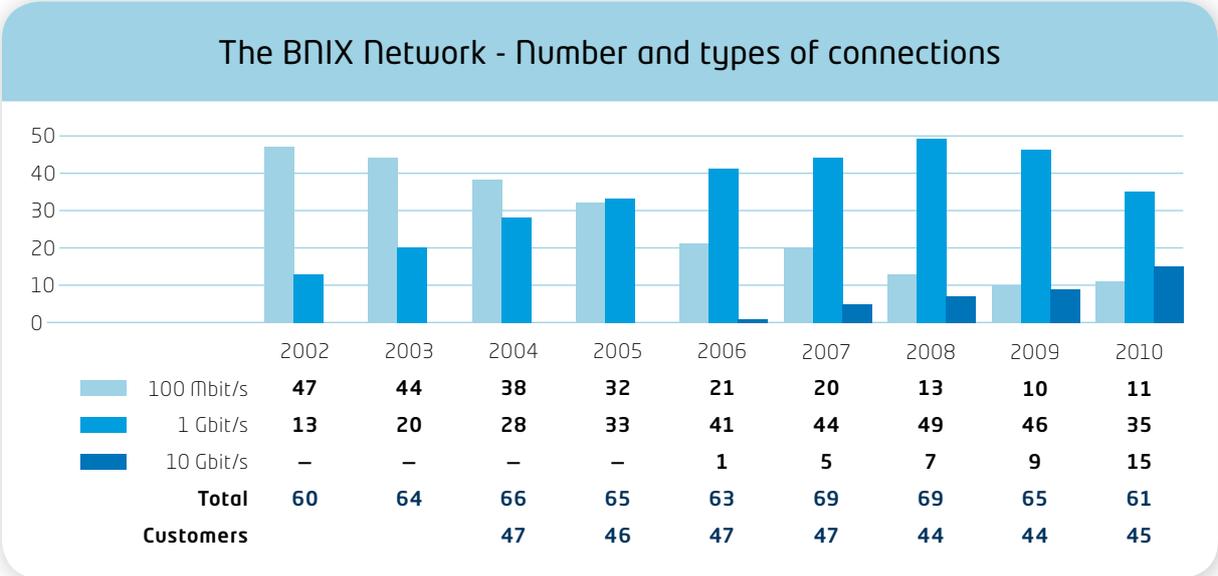
- Several public institutions were able to benefit from a bandwidth capacity of 100 Mbit/s.
- The Federal Computer Crime Unit (FCCU) was connected to the FedMAN network.
- The connections of the FPD of the Economy were strengthened.

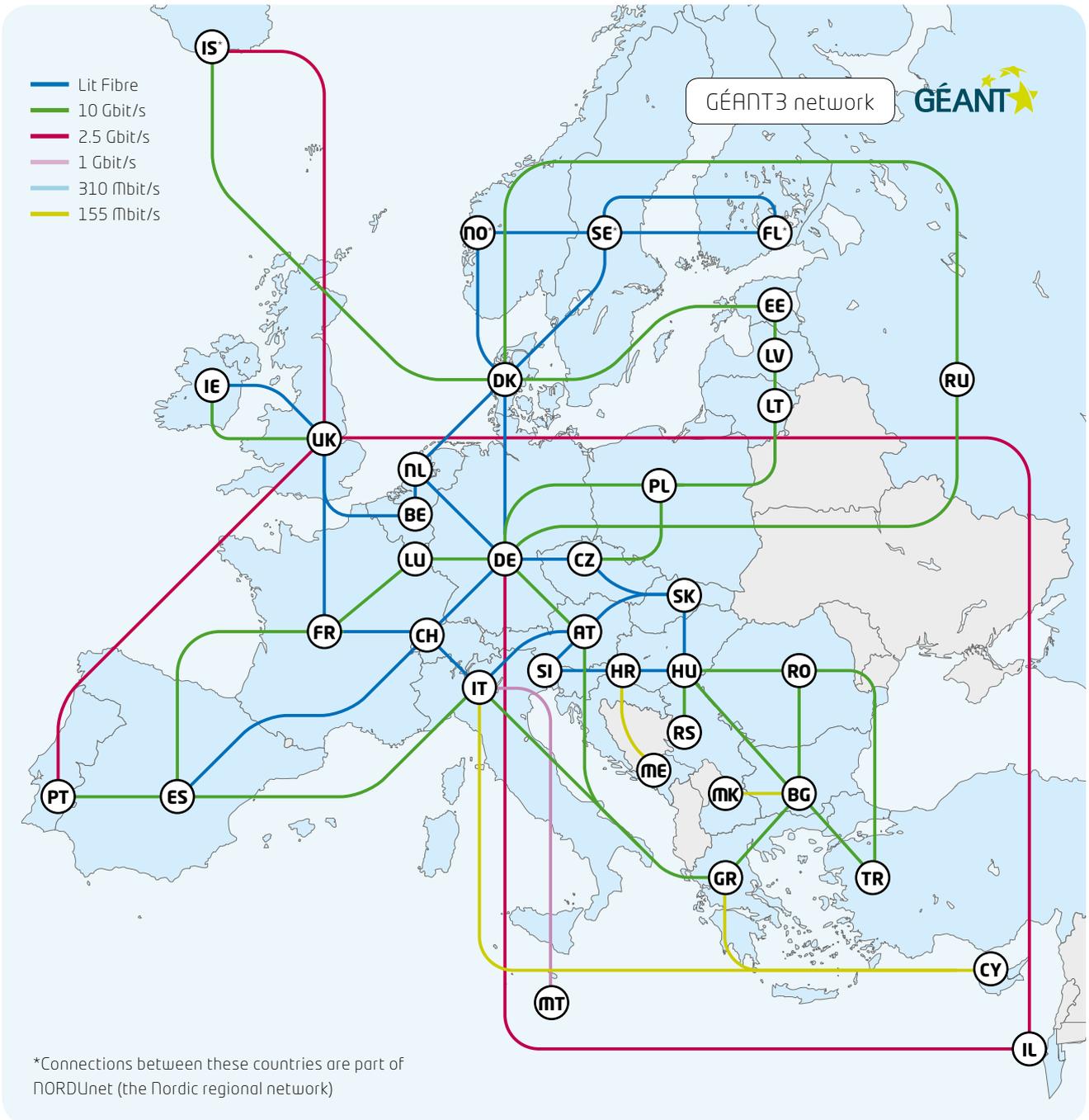


BNIX

BNIX (Belgian National Internet eXchange) is a physical platform linking the IP networks of Internet providers, content providers and other Belgian companies.

By participating in the BNIX, organisations thus gain in efficiency and in reliability. By connecting to the BNIX platform, companies can connect to one another more advantageous.





In 2009, Belnet initiated the construction of a new BNIX in order to optimise its performances (and increase its power by a factor of 5). The switching of the customers from the old to the new BNIX took place successfully in March 2010. The users of the BNIX network can also be connected via an additional access point, in Diegem.

International networks and international collaboration

Connected to the international research networks, the Belnet network promotes international cooperation between educational and research institutions. Thus it is also part of the European research network GÉANT3 and offers access to other research networks, in particular the American network Internet2. Moreover, Belnet is also a member of TEREPA, the European association of research and educational networks.

Several cross-border collaboration projects marked the 2010 financial year to that purpose:

Within the framework of the European IOTA project, the installation of a connection between Arlon (Belgium) and Esch-sur-Alzette (Grand Duchy of Luxembourg) makes it possible to connect the Belnet network directly to the Luxembourg network, RESTENA and the French network, RENATER.

Within the scope of the MoU (Memorandum of Understanding), an optical fibre connects Amsterdam to CERN in Geneva, via Brussels and Paris. In 2010, an agreement made between

Belnet and SURFnet made it possible to increase – at a lower cost – the connectivity their networks.

The advantages associated with these cross-border connections are twofold. In the first place they make it possible to guarantee the continuity between these different networks, even in the event of a failure of the European GÉANT3 network. Secondly, they are optimising the interactions between the academic institutions of Belgium, Luxembourg, France and The Netherlands.

“Ever faster and more efficient, the BNIX has benefited from a real fountain of youth!”



Jeroen Valcke

Network engineer

“The BNIX (Belgian National Internet eXchange) celebrated its fifteenth anniversary in 2010! Managed by our teams, this Belgian Internet node brings together more than forty participants (providers of Internet access, content and hosting) for whom it makes it possible to exchange traffic in the form of peering agreements. The IP networks connected in this way benefit from a direct exchange of data.

From a technical point of view, the BNIX consists of two enormous switches connected to each other by two geographically separated fibre optic lines, in order to guarantee redundancy. One switch is located in the Level(3) data centre in Evere and another is in the Interxion centre in Zaventem. The companies whose computer infrastructure is hosted in the LCL data centre in Diegem can now be connected to the switches in Evere or in Zaventem. Installed in 2010, these two new switches make it possible to multiply the capacity of the BNIX by five!”

To connect Belnet to the French network RENATER via the GÉANT3 infrastructure, it was necessary first to transit through Amsterdam and London. Today the network offers more direct and more reliable connections with the bordering countries.

Vlaams Supercomputer Centrum (VSC)

The reliability of the Belnet network has made possible the creation of the Flemish super computer, a set of geographically separate computers that are now interconnected via the network. The Vlaams Supercomputer Centrum uses 10 Gbit/s dedicated lines via light paths on the Belnet network. Financed by the department of the Economy, Science & Innovation of the Flemish government, it brings together five academic associations: Associatie K.U.Leuven, Associatie Universiteit Gent, Universitaire Associatie Brussel, Associatie Universiteit & Hogescholen Antwerpen and Associatie Universiteit-Hogescholen Limburg.

BEgrid

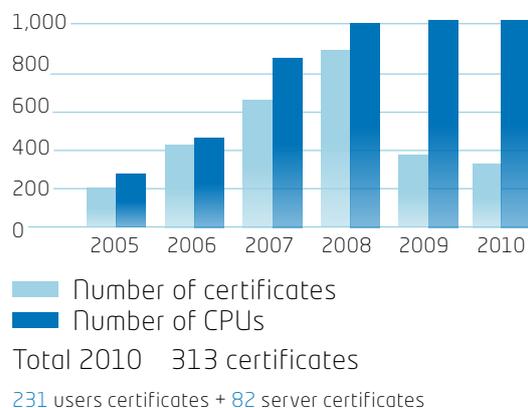
BEgrid is a set of computer processing units (CPU) connected to each other via the Belnet network. This combination thus offers an enormous computing capacity.

In 2010, BEgrid was composed of 1,016 CPU. When it calls upon the Dutch grid infrastructure for certain experiments, the number of CPUs is then increased to 4,952. Belnet issues the necessary certificates to the customers that want to make use of the computing capacity of BEgrid. In 2010, Belnet issued 313 of these certificates.

European Grid Initiative

Since 2010, Belnet represents Belgium within the European Grid Initiative (EGI). The EGI is a consortium that brings together the European countries equipped with a grid infrastructure with the objective of promoting international collaboration. Only one representative per country is admitted.

BEgrid - Gridcomputing



Partnerships

Belnet collaborates with various Belgian and foreign actors of the knowledge and information community.

The national partners are:

- All the universities, university-level institutions and research centres in Belgium
- The Flemish Community and the Walloon Region
- Fedict, the Federal Public Department of Information and Communication Technology
- ISPA, the Internet Service Providers Association of Belgium
- DNS Belgium

The international partners are:

- DANTE, which manages GÉANT3, the European research network
- Euro-IX, the European association of Internet exchange nodes
- TERENA, the Trans-European Research and Education Networking Association



“Customer service at Belnet? We’ve never needed it!”

Kurt Lust

Coordinator of the Vlaams Supercomputer Centrum (VSC)

“The objective of the Vlaams Supercomputer Centrum (VSC) is to group together the infrastructure of the super computers of the Flemish universities in order to develop an integrated system that is able to operate at international level. We have developed a major central computing cluster in order to perform very large calculations. And in order to do this, we needed a fast and reliable network.

Very naturally we chose to work with the light paths of Belnet, a service launched in 2008, just at the time that the VSC came into existence.

Now we have at our disposal our own “virtual” optical network on the Belnet network. It is as secure as a private network, but operates at very high speed, up to 10 Gbit/s. We can thus integrate systems with complete security and in a very high-performance way, with a bandwidth that is wider than that of a conventional network.

As for Belnet’s customer service, we haven’t yet needed it (laughs). When a temporary interruption of the service is planned, Belnet lets us know a long time in advance. Since everything has been operating very well, we have not really had the opportunity to test the effectiveness of the teams dedicated to emergency interventions ... This suits us very well!”



Responsibilities and Organisation



Administration,
Finance & HR
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Management
Committee
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Organisational
chart
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Administration, Finance & HR

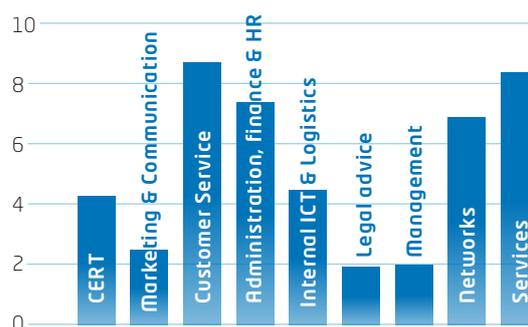
Effective and responsible management

The financial management, compliance with the regulations for government contracts, human resources, reception, secretariat and the other support functions fall under the Administration, Finance & HR Department. This department contributes to the professionalisation of Belnet, thanks to individualised and flexible support.

Direction and Management Committee

Since 1993, the management of Belnet has been directed by Pierre Bruyère. A Management Committee supports him in this task and sees to the correct execution of the strategic objectives. In this regard, the Director and the Committee are tasked with carrying out the framework programme, the budget, the investment programme, the accounts, the rates, the government contracts and recruiting.

The average number of employees in full-time equivalents, per department



CERT	4.26	9%
Marketing & Communication	2.50	5%
Customer Service	8.69	19%
Administration, Finance & HR	7.38	16%
Internal ICT & Logistics	4.47	10%
Legal advice	1.92	4%
Management	2.00	4%
Networks	6.88	15%
Services	8.37	18%
Total	46.47	100%

Employees

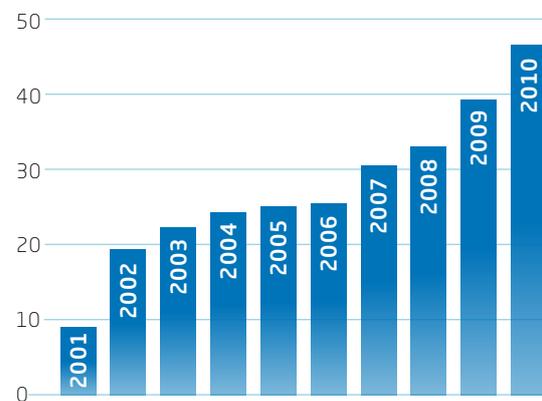
The number of employees increased, from 39 to 46 full-time equivalents, essentially due to the extension of the offer of services, the contingencies connected with the principle of continuity (back-up for the strategic posts) and the development of CERT.be.

Fifty percent of the staff members are attached to the technical team. Belnet sees to a linguistic balance in order to respond in the best way possible to the demands of its customers.

The majority of the employees are less than 40 years old (72%) and hold a level A post (80%). Nearly one-third of the employees are women. The great majority of the staff members (88%) take public transport for their travel from home to work.

Of the employees, 47% make use of "telework" and regularly work from home (one day a week).

The evolution of staff, in full-time equivalents



2001	9.08	2005	25.00	2009	39.24
2002	19.33	2006	25.42	2010	46.47
2003	22.33	2007	30.43		
2004	24.33	2008	33.04		

Management Committee

Members of the Management Committee

Chairman

- **Dominique Fonteyn¹**
Director General of Research & Applications, FPS Science Policy

Vice-Chairman

- **Pierre Bruyère²**
Director, Belnet

Members with a vote in deliberations

- **Robert Van de Walle³**
General Advisor, FPS Science Policy
- **Paul Lagasse⁴**
Professor at the University of Ghent

- **Yves Delvaux⁵**
Operations & Technology director, A.S.T.R.I.D.
- **Johan Van Helleputte**
Vice-president, IMEC
- **Henri Malcorps⁶**
Director of the Royal Meteorological Institute
- **Marc Acheroy⁷**
Professor at the Royal Military School

Members with a consulting voice

- **Marianne Jacques**
Accountant, Belnet
- **Paul Annicaert⁸**
General inspector, Interfederal corps of the Inspection of Finance

Secretary

- **Nathalie Pinsart⁹**
Coordinator of Administration, Finance & HR, Belnet



“The operation of the Management Commission visibly gives complete satisfaction, for the internal management of Belnet, but also for efficient service for the customers.”



Dominique Fonteyn

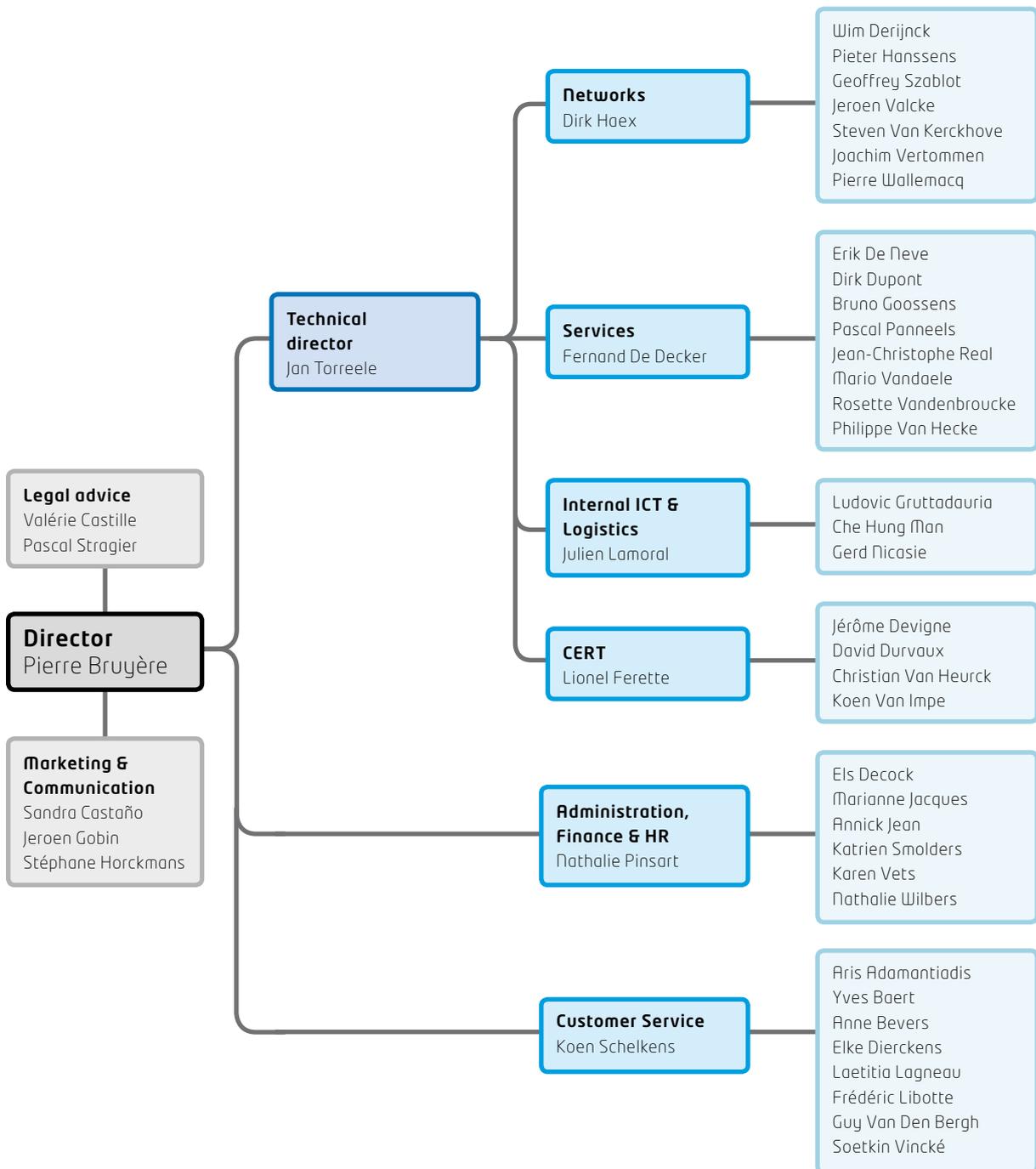
Chairman of the Management Committee,
Director General, Research and
Applications, FPS Science Policy

“The Management Committee of Belnet consists of the Director of Belnet (automatically Vice-Chair); two officials from the Federal Public Department of Scientific Policy – at least one of them a general official (automatically Chairman); one of the directors general of the federal scientific establishments location on the Plateau of Uccle (the IRM, the ORB or the IASB) and four members who are not part of the Science Policy Office (two of them French-speaking and two Dutch-speaking) appointed by the supervising minister. The inspector of public finances accredited with the supervisory Minister, Belnet’s accountant and the secretary of the Management Committee are added in an advisory capacity.

The role of the Committee consists – among other things – of deciding on the framework programme for Belnet’s activities; drawing up the budget; approving the annual report of activities and the annual investment plan; closing the books of the past year; setting the fees for the provision of services supplied by Belnet; organising the general administrative, logistics and technical departments; managing the resources and the property of the departments; approving the government contracts and the plan for recruiting staff members.

The Committee meets at least four times per year in the premises of Belnet. Decisions are taken by deliberation; moreover, the Committee needs a majority of its members with a right to vote in order to deliberate validly.”

Organisational chart





Karen Vets

HR Collaborator

Nathalie Pinsart

Coordinator of Administration,
Finance & HR

Katrien Smolders

HR Collaborator

“Belnet’s success is connected in part to the pleasant atmosphere that our employees benefit from.”

Nathalie Pinsart

Coordinator of Administration,
Finance & HR

“For Belnet, the ambition to be a leading employer is expressed in particular through concern for the well-being of our employees and our attentive management of their professional careers. We are aware that being able to depend upon solid skills constitutes an essential asset for securing our development prospects.

Belnet’s success is connected in part to the pleasant atmosphere that our employees benefit from. Our Human Resources Management Department is truly at their service, especially to orientate them concerning their professional career, concerning parental leave, etc. The furnishing of our new premises also got very special attention: the work surfaces are designed to optimise the communication between the employees, the cafeteria was fitted by a specialised architect, and the numerous conference rooms promote the organisation of training courses.

Our employees benefit both from the advantages of the public function and from the dynamism of an SME operating in an innovative sector. With us, these young people are autonomous from the outset and manage interesting projects. In addition they can benefit from individualised training plans.

In 2010, like the rest of the departments, we set up “development circles” in order to identify the needs in respect of training. At the end of two evaluations in the middle and at the end of the year, the heads of teams and their employees estimated the needs of each person. An enormous training plan was then initiated at the beginning of 2011. In this spirit, we also encourage them to participate in conferences abroad.

Finally, the year 2010 was very rich in terms of recruiting. Our staff went from 39 employees in 2009 to 46 in 2010. The reorganisations that prevailed in the IT sector in particular allowed us to benefit from especially interesting profiles.”



Accounts and Profits/Losses

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Balance
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Synthesis of the
budgetary accounts
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Profits/ Losses

Budgetary results

The budgetary result was established with profits of 2,961,044 euro (13,029,214 euro (income) - 10,068,170 euro (expenditures)).

Increasing in comparison with the preceding financial year, the personnel costs were impacted by the significant increase in the average number of staff members in 2010. This increase is due primarily to the hiring of staff since 2009 within the ICT internal and logistics units, CERT and Services.

Further to the deflation, the funds for operations and equipment (8,363,000 euro) were slightly lower for the 2010 financial year.

Within the framework of CERT.be, entrusted to Belnet by Fedict through a cooperation agreement till 2010 and extendable to the end of 2014, Belnet invoiced a total amount of 620,000 euro for the 2010 financial year for the establishment and operation of CERT.be, compared with 202,000 euro for the 2009 financial year (invoices as from 1 August 2009).

The increase in services provided is essentially due to the growth in the demand of bandwidth and a series of new services offered by Belnet since 2009 (Belnet Leased Lines, "point-to-point" connections, etc.). This increase was moderated in part by a significant drop in the costs of bandwidth, a drop taken into account in Belnet's rates.

Profits and losses accounts

The financial results were drawn up at a profit of 345,402 euro.

The expenditures connected with the use of consumer goods and services of third parties were increased primarily further to non-recurrent costs incurred for the organisation of the removal of the Belnet departments at the beginning of December 2010. This increase of expenditures also results from various information technology costs connected with the supplying of new services offered by Belnet to its customers.

At the closing of the 2010 financial year, Belnet decided to allocate provisions for risks and charges up to 200,000 euro. This provision will make it possible to cover the rental costs as well as the costs and compensation for refurbishing the former premises.

Profit and loss accounts, in euros

	Financial year 2007	Financial year 2008	Financial year 2009	Financial year 2010
Expenditure				
Other use of consumer goods and external services	5,963,924	6,983,534	5,576,346	6,039,234
Increased property and diverse taxes	10,301	13,188	13,713	27,412
Direct and indirect personnel salaries	1,151,214	1,444,738	1,907,639	2,614,912
Economic depreciation on accommodation expenses, intangible and tangible fixed assets	3,485,653	3,235,387	3,911,216	3,747,587
Transfer of income (expenditure) other than social security payments	68,915	64,315	88,226	108,429
Capital losses on existing assets and liabilities	0	9,375	3,075	7,200
Additions to reserve fund	0	0	200,000	0
Supplements to provisions for future risks and charges	0	0	0	200,000
General accounting result	1,026,740	-132,359	329,606	345,402
Total expenditure	11,706,747	11,618,178	12,029,821	13,090,176
Income				
Services invoiced	3,230,433	2,938,198	3,498,811	4,683,806
Interest and other financial income	507,534	243,980	49,905	36,385
Extraordinary income	-4,220	30,000	7,105	6,985
Transfer of income other than taxes and social security allowances	7,973,000	8,406,000	8,474,000	8,363,000
Deductions from provisions for future risks and charges	0	0	0	0
Total income	11,706,747	11,618,178	12,029,821	13,090,176

“The increase in services provided is explained by the growth in the demand of bandwidth and a series of new services.”



Balance sheet

The investments made in the course of the 2010 financial year (1,483,000 euro) primarily concern:

- The network and software equipment (796,000 euro) necessary for continuing the development of the Belnet network;
- The fittings and works connected with the installation in the new premises (494,000 euro);
- The purchase of furniture (193,000 euro).

The short-term accounts receivable include a claim of 220,000 euro on the VAT Administration. This claim results in large part from the amounts of VAT to be recovered on the invoices received during the last quarter.

The increase in the short-term accounts payable to third parties is primarily due to large invoices received at the end of the 2010 financial year for the investments and the maintenance of the Belnet network.

Balance sheet, in euros

	Financial year 2009	Financial year 2010
Assets		
Tangible fixed assets	4,502,452	2,238,245
External receivables due in no more than one year, not subject to accounting system	314,472	299,902
External receivables due in no more than one year, subject to accounting system	299,425	160,232
Share certificates and treasury certificates	12,693,000	12,193,000
Bank and giro accounts - cash in hand and stamps	360,256	4,146,257
Transitory assets and unallocated amounts	1,009,658	841,396
Total assets	19,179,263	19,879,032
Liabilities		
Net assets or Own assets or Net Liabilities	17,148,604	17,494,006
Provisions for liabilities and charges	0	200,000
External debts due in no more than one year, not subject to accounting system	1,564,719	1,702,666
External debts due in no more than one year, subject to accounting system	91,420	135,126
Transitory liabilities and unallocated amounts	374,520	347,234
Total liabilities	19,179,263	19,879,032



Synthesis of the budgetary accounts

Budget 2010

In 2010 Belnet had available a budget of 13,029,214 euro to cover all its activities. This amount was made up of five types of revenue:

- The contribution allocated by the Federal Scientific Policy
- The revenue from the services invoiced
- The amount paid by Fedict for the FedMAN network
- The amount paid by Fedict for CERT.be
- The interest yielded by the financial reserves

Excerpts from the budgetary account, in thousands of euros

	2006	2007	2008	2009	2010	
Expenditure						
National lines	1,301	1,135	684	156	213	
European lines	1,081	1,283	684	636	544	■
Commercial Internet	451	457	614	663	500	■
Maintenance of network equipment and services	1,141	1,866	3,432	2,428	2,539	■
Overheads	790	1,070	1,492	1,328	1,414	■
Salaries	864	978	1,285	1,681	2,153	■
Other investments	303	9,603	2,035	1,523	1,483	■
Transfer of revenue to Sofico and the Flemish region*	2,000	0	0	0	0	
FedMAN2 project (including investments)	2,444	1,117	977	826	842	■
Operation of CERT.be	-	-	-	128	381	■
Grant to the reserve fund	0	0	0	200	0	
TOTAL	10,376	17,509	11,203	9,568	10,068	
Income						
Grants	7,855	7,973	8,406	8,474	8,363	■
FedMAN2 project	2,000	0	457	812	860	■
Operation of CERT.be	0	0	0	202	620	■
Services invoiced	1,574	1,782	1,654	2,186	3,150	■
Interest	350	508	244	50	36	
Deductions towards provisions and transfer of receipts	511	1,117	695	0	0	
TOTAL	12,290	11,380	11,456	11,724	13,029	

* As part of the collaboration agreement for the connection of the university colleges in Flanders and Wallonia.

Thanks

© Belnet 2011

Belnet wishes to thank the following people for their willing help in the creation of this annual report:

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- Petra Van Mulders (Vrije Universiteit Brussel)
- Serge Bogaerts (Centre of Excellence in Aeronautical Research)
- Kurt Lust (Vlaams Supercomputer Centrum)
- Belnet's Management Committee
- Dominique Fonteyn (FPS Science Policy)
- Belnet's collaborators

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