

Belnet

Belnet is the federal government organization that has, since 1993, been responsible for the belgian national research and educational network, which provides very high-speed Internet access and Internet services to universities, high schools, research centres and Belgian government departments.

Belnet has 76 staff members and is part of the Federal Science Policy.

It provides its services exclusively to 227 institutions, representing over 800,000 end users.

Belnet is also responsible for BNIX, the Belgian National Internet eXchange for service providers, content providers, hosting companies and large private enterprises.



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The Year Review

Research

In 2018, Belnet made significant progress along the road to operational excellence, which is one of the organization's main strategic objectives.



Jan TorreeleActing Director of Belnet

Belnet completed 2018 with a general accounting profit of

€190,001



Nathalie Pinsart
Belnet's Administration &
Community Director (a.i.)

Change is Continuous at Belnet

In 2018, Belnet celebrated its 25th anniversary. Having undergone many changes since 1993, the organization now finds itself in the continuous process of management-led evolution. Whilst complying with regulatory requirements, our teams demonstrate creativity in innovatively meeting new customer expectations and dealing with emerging technological issues.

Operational Excellence: a Daily Challenge

In 2018, Belnet made significant progress on the road to achieving operational excellence - one of our organization's main strategic objectives. The process was implemented through four enormous cross-organizational projects: the integral redesign of the network, following the examination of eight different scenarios; the renewal and improvement of our collaboration with an external partner, within the context of the Service Desk & NOC function (available 24/7), in order to respond promptly to requests from our customers; the implementation of a new internal platform for monitoring the availability of our services in order to regain control of our performance monitoring, enabling more detailed analyses which will ensure we anticipate any problems facing our customers; a complete audit of our data centres and a thorough review of our procedures. Some of these projects have been completed, or were underway, at the end of 2018.

Furthermore, we have appointed several business continuity managers within the ITSM department. Their task is to ensure, by various means, the availability of our services, including the organization and coordination of regular crisis exercises. We also now use an SMS alert system.

In the event of a major crisis, our customers receive a text message containing a link to a page supplying real-time information on the progress of the situation.

Aiming for 100% availability is no longer an abstract objective; it is a daily reality.



Dirk HaexBelnet's Technical Director (a.i.)

Stable and Positive Financial Situation

Belnet ended 2018 with a general accounting profit of €190,001. Our organization can rely on two sources of financing: federal funding, which remains constant, and additionally through its own resources. The latter currently represents 50% of our financial resources.

Some Major Events

The year 2018 was marked by several major events, particularly during the month of July. On 11 and 12 July, we perfectly satisfied the expectations the Chancellery of the Prime Minister during the NATO summit in Brussels.

Unfortunately, the next day we had to cope with a double fibre optic failure at one of our data centres. Belnet was able to learn important lessons from this incident, resulting in a complete audit of our data centres and the instigation of a new business continuity project.

On 18 October, the Belnet Networking Conference brought together over 150 participants for one special edition marked by our 25th anniversary.

On 1 December, we finalized the migration of our ticketing system: the OTRS system has now been replaced by the ServiceNow platform. In the near future, this platform will enable Belnet to digitize and streamline services provided to customers, as well as the internal functioning of the organization.

Finally, in 2018 we signed a new collaboration agreement for management of the WAN at FPS Economy. Belnet already managed the WAN of FPS Finance.



25 Years On

At the time when Belnet was founded in 1993, we had round 10 employees and perceived ourselves simply as a provider of network infrastructures. In the beginning, Belnet created a network of 64 Kbit/s connections. In 1993, we had 13 Points of Presences (PoPs). Today Belnet operates - and continuously updates - a hybrid network of over 2,000 kilometres of fibre optics, forming a total of 27 nodes or PoPs, with capacities of up to 100 Gbit/s and multiples thereof, to service our customers.

Over 25 years our organization has grown - not only in terms of employees, but also in

terms of its missions. The role of Belnet has evolved towards Internet service provider of customized and high value-added services for the 227 institutions connected to our network, representing over 800,000 end users.

The transition took place in several phases, each guided by a pragmatic approach: governance, IT and non-IT procedures have thus constantly adapted to the new challenges of our market.

The temporarily unavailable of our services at the end of the 1990s, could have been tolerated - if it had occurred - provided its consequences remained limited. This is no longer true today. Alming for 100% availability is no longer an abstract objective; it is a daily reality. Today, our customers face problems that extend well beyond connectivity. Belnet staff have to be able to understand and anticipate these questions and offer creative solutions. Working together with our customers, encouraging co-creation and developing our portfolio of services are at the heart of our profession.

An Integrated Approach to Purchasing

The growth Belnet has experienced over more than 20 years has led us to more carefully document our procedures and to more clearly define everyone's responsibilities, especially concerning cross-organizational collaboration. The area of purchasing is a prime example of this: in 2018, a department consisting of six staff members, dedicated entirely to purchasing and to negotiating with our suppliers, was created. Belnet is thus increasing its knowledge of the market and will, in future, be able to develop a joint strategy with other federal organizations to pool volumes of purchases. The professionalization of our purchasing department is set against the overall need to manage our operating costs and will enable us to achieve substantial economies of scale in the years ahead.

Security First and Foremost

Security covers two major aspects of Belnet's operations: firstly, the security services offered to our customers and secondly the security of our internal activities. With regard to the former, we already offer a full spectrum of spam blocking, anti-DDoS services and digital certificates. We continue to develop our range, based on the principle of co-creation: dialogue with our



customers convinces us of the path we should follow. In terms of our internal operations, in 2018 we made significant advances in raising our level of maturity in terms of cross-organizational security policy. Moreover, at the end of 2019, the Management Team has decided to launch a project designed to implement a complete ISMS (Information Security Management System). In order to do this, we will mobilize known best-practices and standards, specifically in the field of risk management.

E-Government: New Availability Challenges

Over the past 25 years, public sector organizations have become at least as demanding as the research and education sector when it comes to availability. The reason for this is simple: public services regularly develop new online applications and these are increasingly popular with the public. This is the case, for example, with Tax-on-Web or the eHealth portal. If these platforms are, even temporarily, unavailable, this immediately becomes a critical problem. Belnet has since reviewed all its procedures with the aim of reducing the probability of incidents to an absolute minimum. However, if an incident should occur, we must be ready to re-establish service as quickly as possible. The continuity of our services affects not only our customers, but also the millions of citizens who use their online platforms.

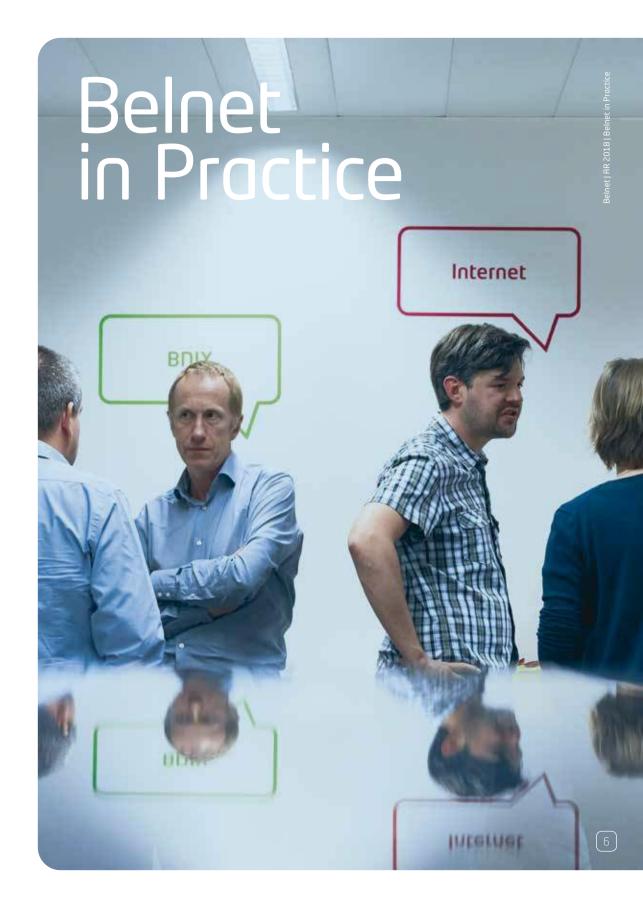
The Cloud Takes Centre Stage

Cloud technologies affect increasing numbers of Belnet customers and these customers now demand high-performance solutions in this field. However, for us, hosting cloud computing applications requires an awareness of the unique challenges of the cloud. Both the availability of the network and its capacity are therefore becoming critical issues when it comes to guaranteeing optimum accessibility for administrative and research departments.

For our part, our range of services must also develop and take this new reality into account. Our staff is fine-tuning its knowledge of the market and is therefore able to guide our customers to the best cloud solutions for their needs.

Other technologies, such as the internet of things and the blockchain, will soon be part of everyday life for our customers. What we can do to ensure our customers extract maximum potential from these new innovations is to recruit specialists ready to make proactive and very high value-added recommendations.





Our Values

Trust

Belnet is a reliable, stable, non-commercial and neutral partner for its customers.

Professionalism

Belnet operates professionally with the required expertise and know-how.

Dedicated

Belnet is dedicated to its customers and develops an infrastructure and services adapted to their needs.

Effectiveness

Belnet is an effective, dynamic and high-quality organization.

Our Mission

Belnet is the Belgian National Research & Education Network (NREN). Belnet stimulates the deployment of the knowledge and the information society by providing and maintaining high-quality, innovative network infrastructures, together with associated services, in order to meet the specific needs of higher education, research and public sector administration in Belgium: this is achieved due to its expertise, unique market position and its economies of scale.

Our Vision

«Dedicated connectivity»

Belnet provides specific connectivity in the field of services, federation and network for several clearly identified target groups within education, research and public sector administration, as well as providing access to (services on) the global internet and to (inter)national research networks in every continent on earth.

Our Strategic Objectives

Operational excellence

Belnet aims to provide **quality services** that are worthy of our customers' trust.

Security

Information security is at the heart of our operation, our services and our activities.

Dedicated services

Belnet provides services that meet the **specific needs** of its customer group.

Performing organisation

Belnet is a **professional** and dynamic organization, perfectly adapted to fulfilling its mission.

The services offered by Belnet in 2018

Network Services

- → Connectivity (Belnet & Internet)
- → Belnet IPv6 Connectivity
- → Belnet Access Port
- → IP Addressing
- → Belnet Leased Line
- Managed Service for Private Lines
- → Multipoint
- → Media Transport Service
- International Connectivity
- > Fibre Channel Service
- → RRN Connectivity

Support Services

- → Bandwidth Statistics
- → Belnet Portal
- → Belnet Service Desk
- → Support & Advice

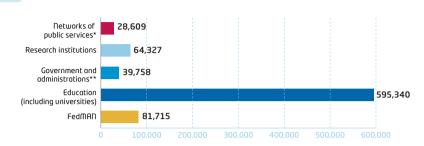
Application Services

- Antispam Pro
- eduroam
- → govroam
- → Belnet DDoS Mitigation
- → Belnet R&E Federation
- → FileSender
- → viaBel.net
- > Domain Name Registration
- DNS services (recursive, primary, secondary)
- Digital Certificates Service
- → Belnet Storage
- → Belnet Cloud Computing
- → NTP (Network Time Protocol)
- → FTP (File Transfer Protocol)
- → Instant Messaging



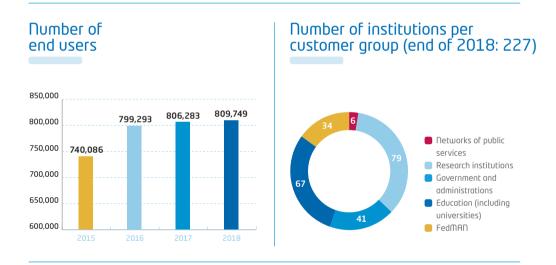
BELDET DETWORK

Number of end users per customer group (end of 2018: 809,749)

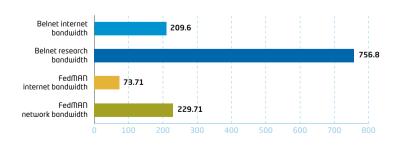


^{*} Networks providing internet access and associated services on behalf of other public services, (e.g., CIRB, Fluvius, Cipal, etc.)

^{**} Public services unspecified in the "Networks of Public Services" and "FedMAN" categories.

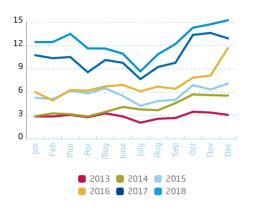


The total access capacity of Belnet customers (in Gbit/s)

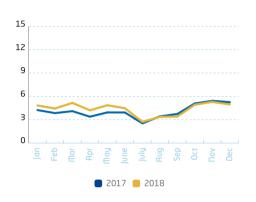


BELNET NETWORK

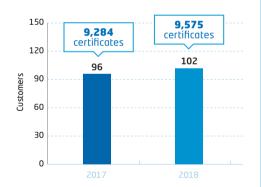
Rise of External Traffic (in petabyte)



Rise of External Traffic for Universities (in petabute)

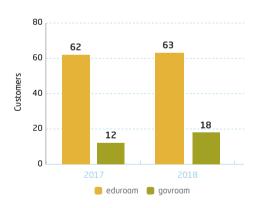


Digital Certificates Service



Belnet's **Digital Certificates Service** offers a wide range of digital certificates that can be simply and securely managed by research or higher education institutions and Belgian public authorities.

Increased Use of eduroam and govroam services



eduroam is a service that provides users at research and higher education institutions with straightforward and secure access to the wireless network of their own organization, as well as to the networks of other participating organizations all over the world.

govroam is a service that allows civil servants to surf securely and wirelessly to all affiliated public sector organizations in Belgium.

BELGIAN NATIONAL INTERNET EXCHANGE (BNIX)

Traffic evolution



DOUBLED IN 5 YEARS

Due to the strong rise of mobile internet, e-commerce, cloud services and the Internet of Things.



TRAFFIC EVOLUTION 2017 VS 2018

A 14% traffic increase in 1 year.

473,040,000 GB

DATA VOLUME 2018

The Belgian Internet Exchange processed 473,040,000 GB of data.



MAJOR UPGRADES

The increase of the total volume was mainly due to the major upgrades performed by internet service providers, hosting providers and content providers in the last few years.

The BNIX platform

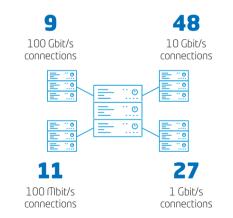


62 PARTICIPANTS



3 DATA CENTERS

ACTIVE CONNECTIONS: NUMBER AND TYPES



INFRASTRUCTURE

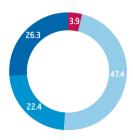
13.2 Tbps

The capacity of the switches.

These are 4x more powerful than the previous switches.

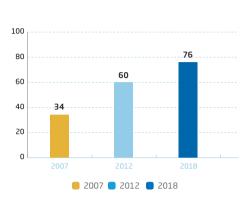
EMPLOYEES

Belnet Employees Profile (in %)



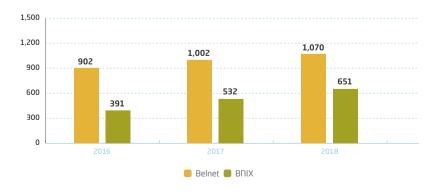
- Management
- Technical Management (Networks, ICT-Logistics, Services & Security, Project Management Office, Information Technology Service Management)
- Community Relations Management (Business Management, Customer Relations, Marketing & Communication)
- Administration and Finance Management (Management Support, Legal, Purchasing, Finance, Human Resources, Reception)

Number of Employees



SOCIAL NETWORKS

Number of followers on Twitter

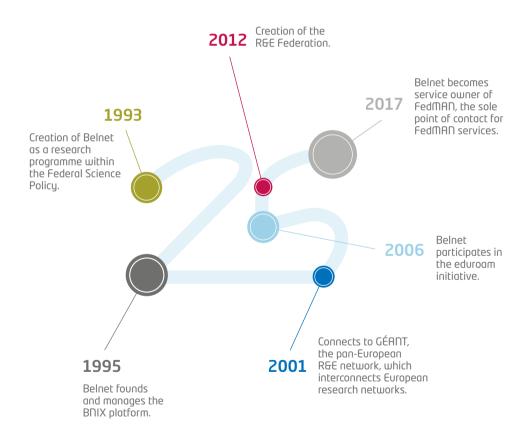


BELNET: 25 YEARS ON!



In 2018, Belnet celebrated its 25th anniversary. Since 1993, our organization has grown from three to 76 employees. The initial network offered 64 Kbit/s connections, linking 27 Belgian university sites. Today, the Belnet network can reach speeds of 100 Gbit/s. The role of Belnet has also evolved into internet service

provider of customized, high value-added services to the 227 institutions connected to the network, representing over 800,000 end users.





Reserve Fund and Investment Fund

The amount of the investment fund has been €16,295,000 since 2016.

This investment fund was established to finance future investments based on the long-term plan.

Expenses

The costs associated with human resources have increased over the previous financial year as a result of new hires in 2018 (+6.4 FTE).

Other costs also rose slightly compared to 2017, including costs for the WANFIN project, which were invoiced to the customer.

Income Statement, in euros

	Financial year	Financial year	Financial year
	2016	2017	2018
Expenditure			
Other users of consumables and third-party services	6,237,695	7,816,615	9,799,193
Property tax and other expenditure	3,635	3,215	5,932
Personnel direct and indirect pay	5,024,248	5,415,083	5,798,202
Financial depreciation on set-up costs, and tangible and intangible assets	3,415,674	3,483,774	2,060,802
Income (expenditure) transfer other than social contributions	75,066	87,937	110,110
Losses in capital on existing assets and liabilities	23	2 767	0
Allowance for reserve fund	0	0	0
Allowance for fund allocated for investments	2,100,000	0	0
Allowance for fund allocated for income	0	0	0
Allowance for provisions for risk and expenditure	0	0	0
Overall net accounting result	-1,833,962	236,480	190,001
Overall TOTAL expenditure	15,022,378	17,045,870	17,964,240
Income			
Services billed provided	6,906,942	8,348,439	9,019,209
Interest and other financial income	0	0	0
Exceptional income	69,844	14,431	4,668
Income transfers other than taxes and social contributions	7,093,000	8,683,000	8,904,362
Allowances for provisions for future risks and expenditure	0	0	0
Allowances for reserve funds	952,592	0	0
Overall TOTAL income	15,022,378	17,045,870	17,964,240



Investments

Investments over the 2018 financial year (€1,804,417) relate chiefly to network equipment required for the further development of the Belnet research network. During this financial year, depreciations amounting to €2,060,802 were recorded; a decline compared to 2017. These depreciations took place in line with the recommendations of the Committee for the Inventory of the Capital of the State (25% for IT equipment, 20% for rolling stock and 10% for other investment equipment).

Liabilities and Assets

Accounts with third parties that are not subject to the General Accounting Plan (GAP) fell again, following the sharp rise in 2017 (high invoices received at the end of 2017 were settled in 2018). The increase in accounts with third parties that are not subject to the GAP can be attributed to an outstanding account with the VAT authorities at the end of 2018.

Accounts with third parties subject to the GAP remain at the same level.

Balance Sheet, in euros

	Financial year 2016	Financial year 2017	Financial year 2018
Assets			
Tangible assets	4,986,854	2,672,983	2,416,599
Debts more than a year old payable by third parties not subject to the GAP	283,332	163,112	38,492
Debts a year old at most payable to third parties not subject to the GAP	1,686,501	1,272,422	2,044,393
Debts a year old at most with third parties subject to the GAP	1,817,460	2,997,992	2,807,047
Certificates and treasury bills	17,693,000	18,193,000	18,193,000
Demand bank accounts and postal orders cash deposits and stamps	1,126,907	5,088,660	4,066,936
Asset and pending balancing accounts	1,148,800	919,669	874,914
TOTAL assets	28,742,854	31,307,837	30,441,380
Liabilities			
Net assets or net corporate assets or liabilities	10,069,102	10,305,582	10,495,583
Reserve funds	821,888	821,888	821,888
Funds allocated for investment	16,295,000	16,295,000	16,295,000
Funds allocated for income	0	0	0
Provisions for risks and expenditure	0	0	0
Debts a year old at most payable to third parties not subject to the GAP	1,349,136	3,179,152	2,176,366
Debts a year old at most payable to third parties subject to the GAP	166,680	622,135	641,771
Liabilities, balancing and pending accounts	41,049	84,081	10,772
TOTAL liabilities	28,742,854	31,307,837	30,441,380



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Responsible publisher: Belnet | Jan Torreele Boulevard Simon Bolivar 30 | 1000 Brussels

Design & Production: thecrewcommunication.com

