EXECUTIVE SUMMARY

ICT PROVIDERS SURVEY

2022

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The fifth edition of the ICT Providers survey reveals important changes in Brazil's ISP market. While previous editions highlighted the growth of small providers, present in the most remote areas of the country, the current edition of the survey shows stability in the total number of enterprises in activity, with evidence of greater consolidation in the sector and an increased number of medium-sized enterprises.

Quantity, size and services offered

The ICT Providers survey estimated a smaller number of enterprises actually operating in 2022 compared to 2020: 11,630 enterprises offering Internet access, compared to 12,826 in 2020. In parallel with a decrease in the total number of enterprises in the sector, in 2022 there were significant variations in the distribution by size. In 2020, 56% of providers were microenterprises, a proportion that fell to 46% in 2022. Meanwhile, the proportion of medium-sized enterprises went from 13% in 2020 to 17% in 2022 (Chart 1). Therefore, there was a downward trend in the participation of microenterprises and an increase in the proportion of medium-sized enterprises.

In addition to mergers and acquisitions, other factors that may affect the number of enterprises operating are business mortality – especially at a time when the economy is still recovering from the effects of the pandemic – as well as the intensification of competition due to the expansion in the number of providers in recent years. In regional terms, the biggest reductions in the proportion of microenterprises were in, Northeast (61% to 48%), and Center-West regions (60% to 43%)

Access technologies, IXP and IPv6

An additional change that may be related to the new profile of the Internet access provision market is whether ISPs own their infrastructure. In 2020, 70% of providers offered access only via their own infrastructure, a proportion that was 60% in 2022. In turn, the proportion of providers that offered access via both their own and outsourced infrastructure went from 25% in 2020 to 37% in 2022. This change may be related to the decrease in the proportion of microenterprises observed above, since their performance is restricted to one municipality, with more larger companies operating in more municipalities.

In terms of access technology offered to customers, fiber optics remained the most present, reaching 95% of providers in 2022. It is important to highlight that the most traditional access technologies, such as wireless connection via licensed frequency and access via UTP cables, showed a decline, indicating the advances promoted by providers in updating their networks and offering better quality connections, in a trend observed even among small enterprises (Chart 2).

One of the actions that providers can implement to improve the customer experience

THE ICT PROVIDERS 2022 SURVEY ESTIMATED THAT THERE WERE 11,630 ENTERPRISES ACTIVELY OPERATING IN THE COUNTRY

is participating in Internet Exchange Points (IXPs), in order to provide faster access to the main content accessed by Internet users. In 2020, 30% of providers were present at a IXP or IX.br, a proportion that grew to 37% in 2022. From a regional standpoint, it is worth noting the increase in providers in the Northeast, and Center-West regions at IXP; in the Northeast, the proportion went from 24% in 2020 to 38% in 2022; in turn, in the Center-West, the proportion was 20% in 2020, going to 34% in 2022 (Chart 3).

Another action that providers can take to influence the improvement of customer experience is the provision of IPv6 to end customers. This becomes increasingly important as multiple pieces of household equipment are connected to the Internet, and the availability of more IP addresses is essential, facilitating communication among devices. The ICT Providers survey shows that in 2022, 64% of providers offered IPv6 to customers, an increase of 24 percentage points compared to 2020. However, 83% of providers still offer IPv4 and 84% deliver IPv4 NAT to customers, indicating that there may be multiple devices at the same IP address, which can negatively influence connection quality.

Privacy and personal data protection

The coming into force of the Brazilian General Data Protection Law (LGPD) has brought important changes in the operation of enterprises, establishing changes in how customer and employee information is processed and stored, in addition to fostering a culture of greater concern about how organizations handle personal data. In the case of ISPs, there is even a greater need to comply with the LGPD, since their normal operation involves a series of data that can lead to the identification of customers, such as IP numbers and connection logs, thus requiring more robust care and procedures. The presence of specific employees or areas to deal with personal data can be a strategy to avoid reputational and financial damage. According to the ICT Providers 2022 survey, 40% of ISPs had areas or persons exclusively dedicated to data protection, a proportion that was 23% in enterprises as a whole, according to the ICT Enterprises 2021 survey (Chart 4).

The very characteristics of the telecommunications sector impose differences in approach when dealing with the processing of personal data: While among ISPs the most cited action was "Provided a customer service channel for data holders, such as an e-mail address, website, or other channels," mentioned by 59% of providers, this proportion was 24% among enterprises as a whole. More than half of the providers said they carried out the actions investigated by the survey in most of the items, and the proportions are higher than those observed among enterprises as a whole. The least mentioned actions refer to appointing a data protection officer and preparing a personal data protection impact report, both only reaching 30% of ISPs (Chart 5).

40% OF PROVIDERS SAID THEY HAD AN AREA OR EMPLOYEES RESPONSIBLE FOR PERSONAL DATA PROTECTION

Survey methodology and data access

The ICT Providers survey, conducted since 2011, provides information on the performance of the ISP sector in Brazil. In its fifth edition, the initial survey frame of the sample was built from databases of the National Telecommunications Agency (Anatel), considering the number of

CHART 1

ISPS BY PERCENTAGE RANGE OF EMPLOYED PERSONS (2020 - 2022)

Total number of ISPs (%)

	1 to 9	10 to 19	20 to 49	50 to 99	100 to 249	250 to 499	500 or more	Does not know	Did not answer
2022	46	23	17	5	3	1	1	1	3
2020	56	24	13	4	1		1		1

■ 1 to 9   ■ 10 to 19   ■ 20 to 49
■ 50 to 99   ■ 100 to 249   ■ 250 to 499
■ 500 or more   ■ Does not know   ■ Did not answer
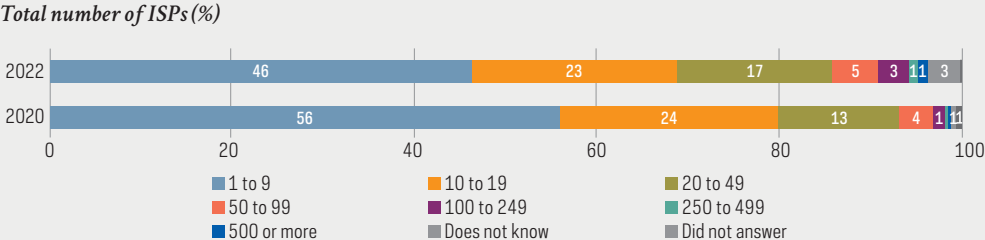
CHART 2

ISPS BY TYPE OF SERVICE OFFERED (2020 - 2022)

Total number of ISPs (%)

Type of service	2020	2022
IP traffic	39	43
Transport	39	38
Infrastructure such as hosting or co-location	20	26
Security	19	24
IP-based telephone service	16	23
Other	5	22
IP-based TV broadcasting		20
E-mail	15	14
Domain registration	9	12
Hosting	10	11
Homepage provider	9	10
Applications (ASP)	9	9
Cloud computing	9	8
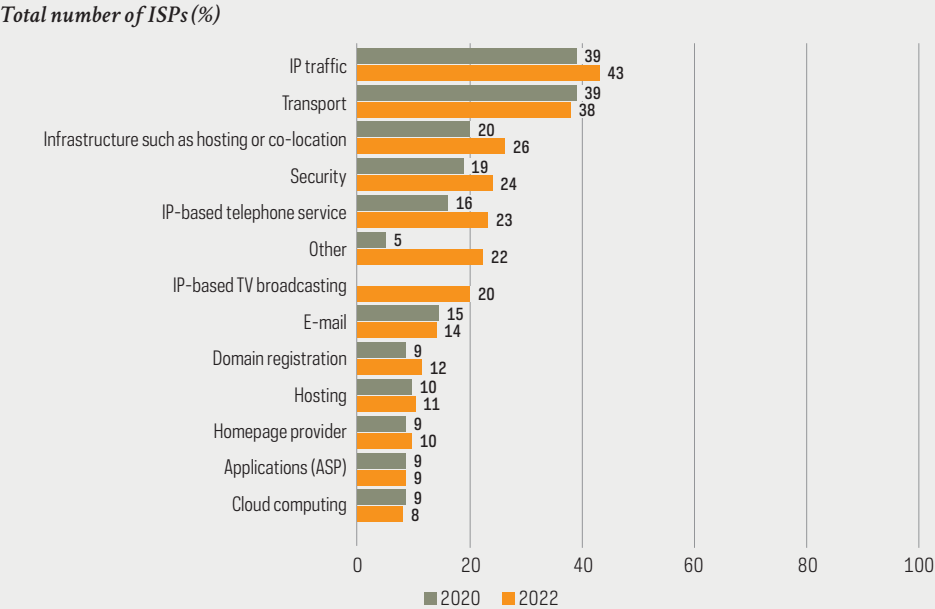
■ 2020   ■ 2022

CHART 3

ISPS THAT PARTICIPATED IN INTERNET EXCHANGE POINTS (IX.BR OR IXP) AND REGION (2020 - 2022)

Total number of ISPs (%)

	TOTAL		NORTH		NORTHEAST		SOUTHEAST		SOUTH		CENTER-WEST	
	2020	2022	2020	2022	2020	2022	2020	2022	2020	2022	2020	2022
	30	37	21	37	24	38	40	37	33	39	20	34
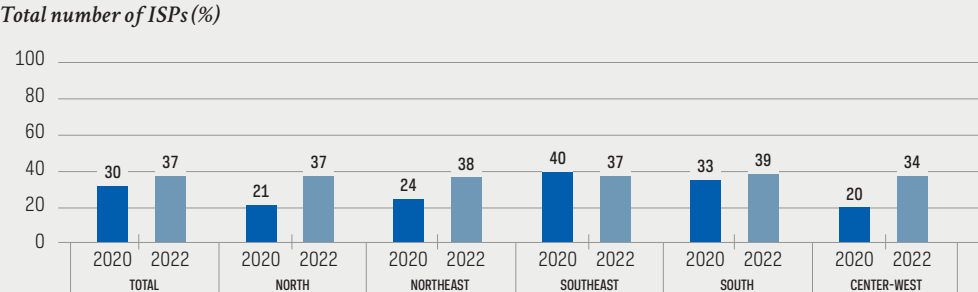
Digital security

Digital attacks can lead to personal data leaks that can cause reputational and financial damage, as well as slow down the network, generating customer dissatisfaction and financial loss. Denial of service attacks are those that directly harm customer experience, generating complaints due to connection delays and failure to properly deliver the desired content. In 2022, 23% of providers said they had suffered denial of service attacks, which is stable compared to the last version of the survey in 2020. It is important to note that as ISPs increase their customer base, they become more exposed to denial of service attacks, with fewer differences in terms of enterprise size: In 2022, 34% of enterprises with more than 6,000 customers suffered denial of service attacks, a proportion that was 24% in large enterprises.

accesses declared between August 2021 and July 2022, with a first stage of data collection for cleaning the registry between September and October 2022. The second stage of data collection took place between March 2023 and June 2023, with 2,008 enterprises interviewed throughout the country. The information was gathered via computer-assisted telephone interviewing, using structured questionnaires. The results, including tables for proportions, totals, and margins of error, are available on Cetic.br's website (http://www.cetic.br) and data visualization portal (http://data.cetic.br/cetic). The "Methodological Report" and the "Data Collection Report" are available both in book format and on the website.

CHART 4

ENTERPRISES AND ISPS BY WHETHER THERE WERE AREAS OR PERSONS RESPONSIBLE FOR PERSONAL DATA PROTECTION AND SIZE

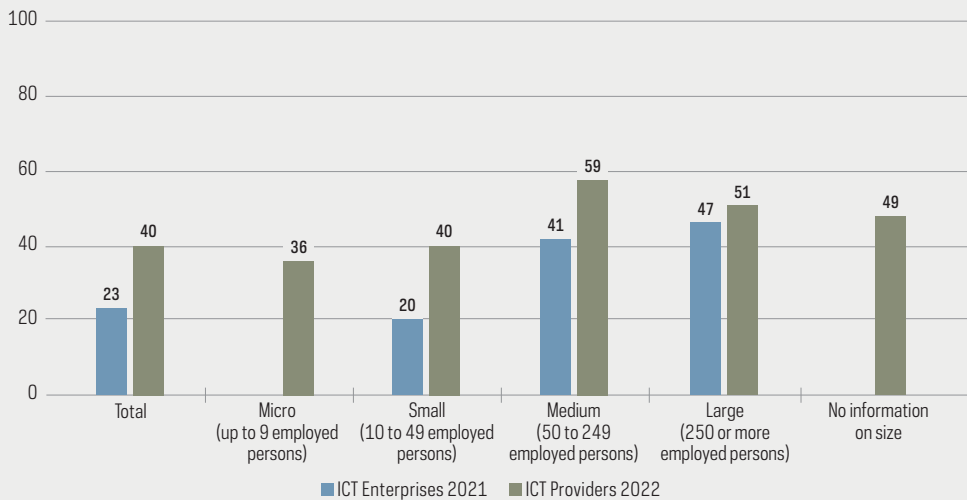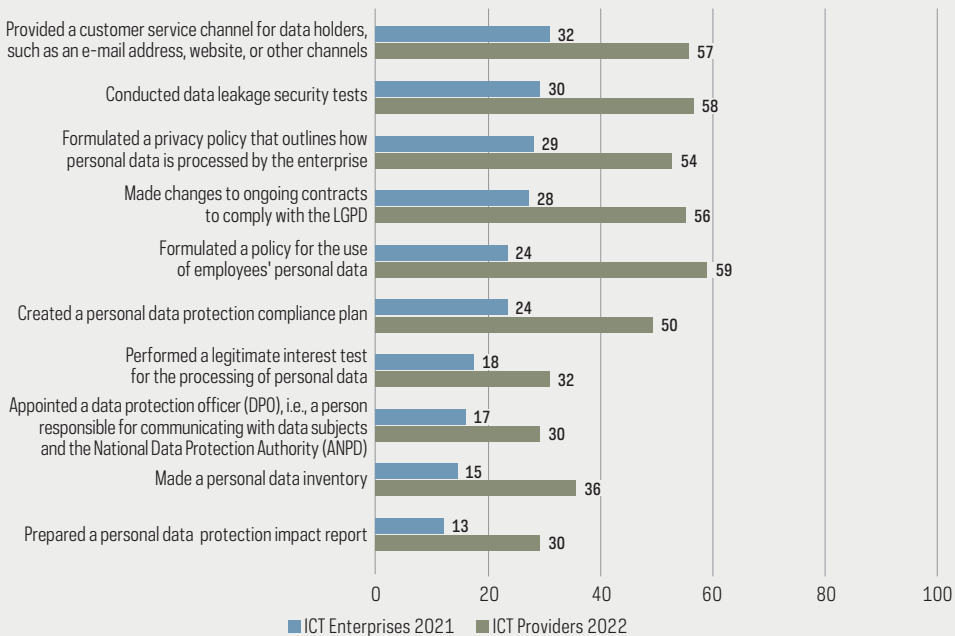*Total number of enterprises and total number of ISPs (%)*

	Total	Micro (up to 9 employed persons)	Small (10 to 49 employed persons)	Medium (50 to 249 employed persons)	Large (250 or more employed persons)	No information on size
ICT Enterprises 2021	23		20	41	47	
ICT Providers 2022	40	36	40	59	51	49

■ ICT Enterprises 2021　■ ICT Providers 2022

CHART 5

ENTERPRISES AND ISPS BY TYPES OF ACTIONS TO COMPLY WITH THE LGPD

Total number of enterprises and total number of ISPs (%)

	ICT Enterprises 2021	ICT Providers 2022
Provided a customer service channel for data holders, such as an e-mail address, website, or other channels	32	57
Conducted data leakage security tests	30	58
Formulated a privacy policy that outlines how personal data is processed by the enterprise	29	54
Made changes to ongoing contracts to comply with the LGPD	28	56
Formulated a policy for the use of employees' personal data	24	59
Created a personal data protection compliance plan	24	50
Performed a legitimate interest test for the processing of personal data	18	32
Appointed a data protection officer (DPO), i.e., a person responsible for communicating with data subjects and the National Data Protection Authority (ANPD)	17	30
Made a personal data inventory	15	36
Prepared a personal data protection impact report	13	30

■ ICT Enterprises 2021　■ ICT Providers 2022

ABOUT CETIC.br

cetic.br

The Regional Center for Studies on the Development of the Information Society, a department of NIC.br, is responsible for producing indicators and statistics on the access and use of the Internet in Brazil, disseminating analyzes and periodic information on the Internet development in the country. Cetic.br is a Regional Study Center, under the auspices of UNESCO. More information at http://www.cetic.br/.

ABOUT NIC.br

nic.br

The Brazilian Network Information Center – NIC.br (http://www.nic.br/) is a non-profit civil entity, which in addition to implementing the decisions and projects of the Brazilian Internet Steering Committee, has among its attributions: coordinate the registration of domain names – Registro.br (http://www.registro.br/), study, address and handle security incidents in Brazil – CERT.br (http://www.cert.br/), study and research network technologies and operations – CEPTRO.br (http://www.ceptro.br/), produce indicators on information and communication technologies – Cetic.br (http://www.cetic.br/), implement and operate Internet Exchange Points – IX.br (http://ix.br/), enable the participation of the Brazilian community in the global development of the Web and support the formulation of public policies – Ceweb.br (http://www.ceweb.br), and host the Brazilian W3C office (http://www.w3c.br/).

ABOUT CGI.br

cgi.br

The Brazilian Internet Steering Committee, responsible for establishing strategic guidelines related to the use and development of the Internet in Brazil, coordinates and integrates all Internet service initiatives in the country, promoting technical quality, innovation and dissemination of the services offered. Based on the principles of multistakeholderism and transparency, CGI.br represents a democratic Internet governance model, internationally praised, in which all sectors of society participate equitable in the decision-making. One of its formulations is the 10 Principles for the Governance and Use of the Internet in Brazil (http://www.cgi.br/principios). More information at http://www.cgi.br/.

Access complete data from the survey

The full publication and survey results are available on the **Cetic.br** website, including the tables of proportions, totals and margins of error.

ACCESS
WWW.CETIC.BR