



**Interconnecting
people & businesses.
Anywhere!**



Annual Report 2021



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Harald A. Summa
CEO, DE-CIX Group AG

Executive Summary

Dear Readers,

This Annual Report finds us looking back on the second year of the global Covid-19 pandemic – a year during which the world began to stabilize into the “new normal”. The insatiable demand for digital applications and data-driven services has been further boosted by the transformation that has occurred in the last couple of years. But when we look back on this time from our digital future, we will be able to see that the meteoric growth in data traffic experienced during these years will actually be part of a continuum – a steady process of digitalization, of optimization of workflows, of the expansion of methods of communication and entertainment, and the increasingly fine-grained interconnection of the planet.

The Internet of the future, a metaverse enabled by artificial intelligence, as well as virtual and augmented reality, and all manner of innovations and undreamt-of digital applications, will place increasing demands on digital infrastructure. To meet these demands, digital infrastructure providers need to build out densely and globally-distributed interconnected and resilient infrastructure, while at the same time offering an increasing array of specialized and customizable interconnection services to meet the demands of business across all sectors. At DE-CIX, our mission is to bring interconnection services as close as possible to people and business, thereby

maximizing the performance and minimizing the latency of connectivity, and in parallel increasing the security, resilience, and flexibility of connectivity. To achieve this, we are working towards both increasing geographical densification, both on the global and the local level, and developing further innovative interconnection services, tailor-made to support enterprises overcome the challenges they face with digital transformation.

Turning our focus to the year 2021, we saw developments in all of these areas at DE-CIX. With more than 38 exabytes of data throughput globally, DE-CIX experienced an increase in traffic of around 20 percent compared to 2020, in line with the growth in connected networks, which ended the year at a total of 2481 worldwide. Connected capacity across the global DE-CIX interconnection fabric increased by more than 30% to 96.2 Terabits (Tbits) in 2021, reflecting the insatiable demand for data traffic exchange. Connectivity to the cloud via the DE-CIX Cloud Exchange tripled during 2021, much of this booked via DE-CIX’s self-service customer portal, which was implemented in 2021 as part of the company’s drive towards the automation of interconnection. On a geographical level, four new Internet Exchanges were taken into operation, these being DE-CIX Richmond and DE-CIX Barcelona, as well as “Ruhr-CIX powered by DE-CIX” in Germany and “Borneo-IX powered by DE-CIX” in Southeast Asia, the latter two as DE-CIX as a Service locations. Another seven locations were announced, including multiple DE-CIX presences in

MESSAGE FROM THE CEO

the Nordics. Another highlight of a successful year in 2021 was DE-CIX's recognition within the wider industry, again being honored with Capacity Media's Global Carrier Award in the category Best Internet Exchange operator. This marks the sixth time DE-CIX has been honored in this way since the inception of the award in 2015.

In terms of the finances in 2021, DE-CIX was able to continue on track, with global revenues of all company parts growing by 5.2 million to reach 48.7 million Euro. In line with strategic goals, revenues from international activities grew by 18.5 percent in comparison to 2020 and represented 18.2 percent of total revenues in 2021.

You can read more about the 2021 finances in Chapter 6 of this report. How to gain access to the DE-CIX platform – in terms of our geographical expansion, automated service provision, and our work with valued partners – is explored in Chapter 3, while details of DE-CIX's year in 2021 across the multiple regions where we are doing business can be found in Chapter 4. The future interconnection needs of enterprises and the rationale and conception of the DE-CIX premium interconnection services form the focus of Chapter 5. Finally, in our strategic outlook – in Chapter 7 – we provide a roadmap to the interconnected world of the future, enabled by emerging technologies and the digital innovations that come with them, explaining how digital infrastructure must develop in order to

achieve this goal, and why we at DE-CIX are doing what we are doing.

I wish you an enjoyable read and hope this Annual Report 2021 provides you with useful insights into the world of interconnection.

Harald A. Summa

Chief Executive Officer – DE-CIX Group AG



Organization & Corporate Governance



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Executive Management



Harald A. Summa
Chief Executive Officer &
Chair of the Board



Ivo Ivanov
Chief Operating Officer &
Vice Chair of the Board



Sebastian Seifert
Chief Financial Officer &
Member of the Board

DE-CIX Group AG Supervisory Board



Felix Höger
Chair of the Board



Klaus Landefeld
Vice Chair of the Board



Rudolph van Megen
Member of the Board

The DE-CIX Organization & Corporate Governance

Company Structure

DE-CIX Group AG, to which the three subsidiaries DE-CIX Management GmbH, DE-CIX International GmbH, and DE-CIX Asia Pte. Ltd. belong, is led by CEO Harald A. Summa, also initiator and CEO of eco – Association of the Internet Industry. All domestic and international DE-CIX activities, financial investments, and company parts are consolidated under the umbrella of the DE-CIX Group AG. eco – Association of the Internet Industry is the sole shareholder of the DE-CIX Group AG.

Executive Leadership and Supervisory Board

Chair of the Board of the DE-CIX Group AG is Harald A. Summa (CEO), and Vice Chair is Ivo Ivanov (COO). Sebastian Seifert is a further Member of the Board and the Chief Financial Officer of the DE-CIX Group AG. The DE-CIX Supervisory Board, which constitutes the point of connection between the eco Association and the DE-CIX Group AG, is chaired by Felix Höger, with Klaus Landefeld as Vice Chair, both of whom are Members of the Board of the eco Association. Rudolf van Megen completes the DE-CIX Supervisory Board.

DE-CIX Subsidiaries

The DE-CIX Group AG consists of three subsidiaries: DE-CIX Management GmbH, DE-CIX International GmbH, and DE-CIX Asia Pte. Ltd. The three wholly

owned subsidiaries of the DE-CIX Group AG, along with their scope of operations, their subsidiaries, and joint ventures are structured as follows:

- DE-CIX Management GmbH is led by Chair and CEO Harald A. Summa, and operates the DE-CIX Internet Exchanges in Frankfurt, Hamburg, Munich, and Dusseldorf. The UAE-IX in Dubai, and Ruhr-CIX in Germany are operated as Managed Services in cooperation with local data center and carrier partners in the respective regions.
- DE-CIX International GmbH, led by Vice Chair and COO Ivo Ivanov, is responsible for the majority of DE-CIX's international activities, either directly (Barcelona, Madrid, Marseille, Palermo, Lisbon, Kristiansand, Oslo, Esbjerg, Copenhagen, and Helsinki), or through subsidiaries in the USA (DE-CIX North America Inc. – operating New York, Dallas, Chicago, Richmond, and Phoenix) and in Turkey (DE-CIX Istanbul Network Connections LLC). In addition, SEECIX in Greece is operated as a DE-CIX as a Service location by DE-CIX International. DE-CIX International is also a partner in the joint venture DE-CIX Interwire Internet Services Private Limited, operating the four DE-CIX locations in India: Mumbai, Chennai, Delhi, and Kolkata.
- DE-CIX Asia was founded in 2020 to provide an umbrella for the Southeast Asian operations, and is led by both Harald A. Summa and Ivo Ivanov. In Southeast Asia, the joint venture companies

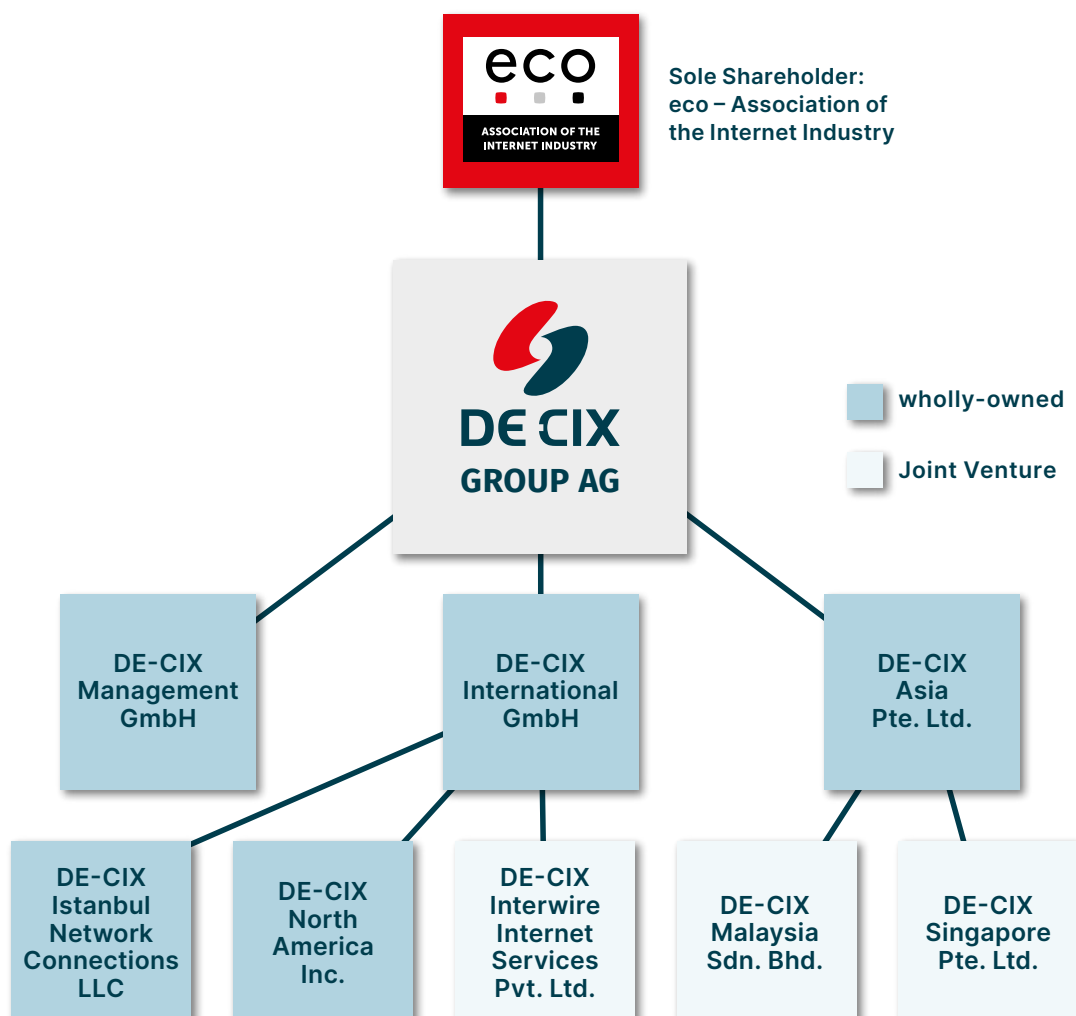
DE-CIX Malaysia Sdn. Bhd. and DE-CIX Singapore Pte. Ltd., established as mergers with the Malaysian operator Starwing Technologies Sdn. Bhd., operate the three DE-CIX Internet Exchanges in Kuala Lumpur, Johor Bahru, and Singapore respectively. A further Internet Exchange located in Brunei is operated as a Managed Service on behalf of a local telecommunications company.

In partnership with our customers – the DE-CIX Customer Advisory Boards

The Customer Advisory Boards reflect the customer base, as their members can be seen as representatives of the variety of networks connected to DE-CIX:

national and international, small and large ISPs, as well as regional and global content providers. While the Customer Advisory Boards do not have decision-making authority, their members communicate with the DE-CIX management team and help guide the overall direction of DE-CIX. As of today, there are three Customer Advisory Boards supporting DE-CIX in different markets: Germany, North America, and Turkey; more are to be established soon in further regions. The Board of the DE-CIX Management GmbH has five members in order to represent the global customer reach of DE-CIX. One of the Board Members is appointed directly by eco – Association of the Internet Industry. The other four members are elected directly by DE-CIX customers.

DE-CIX Company Structure



DE-CIX Management GmbH Senior Management



Lucia Falkenberg
Chief People Officer



Dr Thomas King
Chief Technology Officer



Daniel Melzer
Chief Network Architect



Arnold Nipper
Chief Technology Evangelist
and Co-Founder of DE-CIX



Gregor Reinhold
Chief Financial Officer



Stephan Rohloff
Chief Marketing Officer



Andreas Sturm
Chief Business Development
Officer

Germany: DE-CIX Management GmbH Customer Advisory Board



Falk von Bornstaedt
Executive Board,
RIPE NCC



Malte von dem Hagen
Director Global
Backbone, GoDaddy



Zaid Kahn
GM, Cloud AI and
Advanced Systems at
Microsoft



Bernhard Krönung
Managing Director and
Founder regio [.NET]



Klaus Landefeld
Board Member
eco – Association of
the Internet Industry

USA: DE-CIX North America Customer Advisory Board



Scott Brown
President,
Pixel Factory, Inc.



Phil Koblenz
COO
New York Internet – NYI



Steven Schecter
Senior Manager of Network
Architecture
Akamai Technologies Inc.



Carl Williams
IPv6 Hall of Fame
Adjunct Professor at Temple
University

Turkey: DE-CIX Istanbul Network Connections LLC Customer Advisory Board



Cem Çelebiler
CEO,
TurkNet



Çağlar Dabanoğlu
Senior Network Architect,
Akamai



Serkan Sevim
CEO,
Medianova



DE-CIX

Technical Set-Up and Global Access

A stylized globe is centered in the lower half of the image. It is composed of a grid of white lines forming a network. Red arcs connect various points on the globe, representing global connections. The background is a dark blue gradient with a subtle pattern of white dots and lines.

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Mareike Jacobshagen
Head of Global Business
Partner Program



Dr Thomas King
Chief Technology Officer

How to access the DE-CIX interconnection ecosystem

As one of the strategic pillars of DE-CIX's ambition to support and enable the digital transformation of business and society everywhere through more localized access to high-performance, low latency and secure interconnection services, the geographical expansion and densification of access to the DE-CIX platforms around the world is a key business activity. The paths toward implementation of this goal are many and various: DE-CIX works towards this by establishing our own presences in key locations and thus creating new hubs, by enabling new data centers within existing hubs to bring services closer to local people and businesses, and by working with transport partners to bring customers to our platforms from outlying areas. Also, DE-CIX collaborates with partner Internet Exchanges to re-sell interconnection services on a bilateral basis, and enables data center operators, ISPs/city carriers, and government bodies to establish their own hubs, operated by DE-CIX according to the DE-CIX as a Service (DaaS) model.

However, such expansion activities represent only part of what the DE-CIX technical and partner program teams are aiming for. Constant growth in customers and demand for more bandwidth, along with advances in connectivity technologies, means that there is also the need for regular upgrades of the infrastructure in now more than 30 locations around the globe. And it

is not only about hardware: On the software side, the automation of interconnection services is also central to opening up DE-CIX services to the enterprise market, thus not only expanding our territorial coverage, but also enabling greater flexibility in serving the specialized interconnection needs of business. At the same time, growth through partnerships plays a significant role in the DE-CIX strategy, not only in the traditional wholesale sector, but increasingly also in areas like the enablement of enterprise connectivity through various types of trusted partners for enterprise IT.

Expansion in 2021 – broadening and densifying the DE-CIX presence around the world

In 2021, DE-CIX expanded to new regions and densified its presence in some of its core markets, resulting in an unprecedented range of locations from where customers can get access to the world's largest carrier and data center neutral interconnection ecosystem. Four new IXs took up operations: DE-CIX Richmond and DE-CIX Barcelona, along with the "DE-CIX as a Service" locations Ruhr-CIX powered by DE-CIX and Borneo IX powered by DE-CIX, which are operated by DE-CIX but owned by a local partner. Additionally, Stuttgart IX became part of the DE-CIX ecosystem through a re-selling partnership model for DE-CIX cloud services. DE-CIX's team also migrated the DE-CIX exchanges in Southeast Asia to the award-winning Apollon interconnection platform, enabling customers access to the wide array of modern interconnection services that DE-CIX offers.

All these expansion and migration projects were especially challenging due to the global Covid-19 pandemic. As the DE-CIX teams could not travel to these locations to install new hardware due to international travel restrictions and internal health and safety precautions, implementation needed to be handled remotely. Therefore, the company worked closely with remote hands partners and local data center operators to build our infrastructure on the ground. This also meant that DE-CIX further automated processes, as well as pre-configuring and standardizing the hardware deployments, making it easier for remote hands partners to execute.

Making interconnection easy and secure through automation and innovative technology

DE-CIX not only automated part of the hardware deployment process for new IX locations, but also worked on ways to leverage automation in order to make it even easier for customers to connect to the platform, and to order and scale their DE-CIX services. In 2021, DE-CIX took the new self-service portal live, through which customers can easily place orders or make changes to existing services. Connected customers, in particular enterprise customers, were eager to start using the portal – with over a thousand log-ins per day – and quickly began ordering services this way. More than 60% of orders made via the portal were for cloud services, mostly aimed at enterprise customers. Thanks to the extended virtualization

and automation of the DE-CIX platform, these orders and changes are processed entirely automatically. In addition, customers can make use of the DE-CIX API, which e.g. allows for automated bandwidth adjustments once the customer's internal systems register a certain peak in traffic. In this case the customer's automation toolchain talks to the DE-CIX automation toolchain via the API to configure their interconnection services. Furthermore, support for the IX-API was added to Peering Manager, an open-source BGP session management solution that enables the tracking, maintenance, and configuration of BGP sessions from a centralized management point.

With the ever-growing demand for higher bandwidths of up to 400 Gigabit/s (Gbps) per port in the flagship IX in Frankfurt, DE-CIX put a lot of effort into future-proofing the interconnection platform. In 2021, two modernizations were initiated in parallel: The upgrade of the DE-CIX backbone network with 400G capacity using the Smartoptics open line system, and the upgrade of the edge routers to the new Nokia 7750 SR-14 model.

To increase network capacity quickly and efficiently, while staying ahead of customer expectations, upgrading to 400G with the Smartoptics open line system helps DE-CIX to upscale the network and prepare for the future. For customers, this means an entirely new experience, with simpler and faster service provisioning.

DE-CIX is also in the process of upgrading the edge routers of its Frankfurt location from the XRS40 to the new Nokia 7750 SR-14 model. Alongside other optimizations, this will equip the IX for the future era of 800-Gigabit Ethernet (GE). In total, across the entire decentralized DE-CIX structure, three new high-performance routers will be installed, an investment of several million Euro. Nokia recently introduced new features to its 7750 SR lineup, including 800GE support and a significant reduction in power consumption for highly sustainable IP networking. Both implementations started in 2021 and will continue in parallel in 2022.

SLA-backed interconnection services for enterprises – easily accessed through trusted partners

In 2021, DE-CIX saw a growing demand for cloud connectivity from enterprise customers for both the DirectCLOUD service – which allows direct interconnection to a growing ecosystem of different cloud services – and the Microsoft Azure Peering Service (MAPS) – which allows users to connect to the Microsoft 365 cloud directly and reliably. The enterprise-grade, SLA-backed MAPS was rolled out to additional locations in 2021 and is now available in Frankfurt, Madrid, Marseille, and New York.

These modern cloud-focused interconnection services are predominantly tailored for enterprises of various sizes. To make it as easy as possible for these customers to connect to DE-CIX, the DE-CIX

partner ecosystem further evolved in 2021 through the onboarding of additional partners, such as system integrators, managed service providers, and IT consulting companies, as trusted partners of enterprise customers. A total of 17 new partnerships focusing exclusively on enterprise customers as their main target group were established in 2021, resulting in nearly a quarter of all DE-CIX partners being focused on the enterprise market. In Germany, around 85% of the relevant enterprise market can now be reached through the DE-CIX partner network.

In addition to providing access to its enterprise product portfolio, DE-CIX supports partners with onboarding, technical implementation, and DE-CIX Academy training opportunities, among other services. The focus market for this new partner category, the “DE-CIX Channel Alliance Partner” program, is the German-speaking DACH region, where 11 new partners were signed in 2021 – including well-known names like Cancom, Medialine and Acontech. As a next step, DE-CIX started the expansion towards another core market, Southern Europe, where the first new “Channel Alliance Partner” was signed in 2021: Kaizen Networks.

Cloud applications and services are key drivers of the partner program in Turkey. Re-selling of cloud connectivity solutions opened access to the local enterprise sectors for both DE-CIX and the partners PlusClouds, Premier DC, Turkcell, Turknet, Türk Telekom International, and Vodafone Turkey. Together,



Top 3 DE-CIX Resellers 2021

DE-CIX and the Turkish partners have established a healthy ecosystem for cloud connectivity, which has achieved broad acceptance among customers and offers access to more than 50 major cloud players, as well as specialized cloud services, via DE-CIX DirectCLOUD. In India, the partner ecosystem also expanded further, with the signing of several new partners. Especially important was the agreement with Tata Tele-Services Ltd. to resell DE-CIX DirectCLOUD.

DE-CIX as a Service – supporting partners to establish interconnection hubs

The DE-CIX as a Service (DaaS) program has been a cornerstone in the company's global expansion now for almost a decade, with the UAE-IX in Dubai, in operation since 2012, being the first DaaS IX. In 2021, DE-CIX also collaborated closely with partners such as data center operators and local ISPs to bring connectivity and interconnection services closer to businesses and people. A prime example of this type of cooperation is the partnership in North America with DartPoints, owner and operator of carrier-neutral edge data centers. In May 2021, the companies announced bringing DE-CIX multi-service interconnection platforms to DartPoints data centers in Tier II and Tier III markets in order to improve network performance, enhance interconnection capabilities, and enable the exchange of local content and applications with global reach. Initial deployments were undertaken in DartPoints' Columbia (South Carolina), Dublin (Ohio), and North Liberty (Iowa) facilities. Within the DaaS

program, DE-CIX will manage these local deployments, including operations of switches, order processing, and ongoing network management for local market connectivity. The new locations will be connected to the DE-CIX interconnection ecosystem, covering the core North American markets New York, Chicago, Dallas, Richmond, and Phoenix, as well as major European hubs including DE-CIX Frankfurt. Other IXs implemented under the DaaS model in 2021 were Ruhr-CIX powered by DE-CIX in Germany and Borneo-IX powered by DE-CIX in Brunei.

The DE-CIX interconnection ecosystem – never far away, and getting closer every year

In 2021, DE-CIX worked intensively to make access for both wholesale and enterprise customers – such as the global infrastructure group HOCHTIEF, the IT subsidiary of Germany's biggest drugstore chain, dmTech, a leading Turkish industrial conglomerate, Borusan, and the American-based FinTech payment service provider AURORA – as easy as possible. Through establishing new locations and enabling new sites, offering new automation and self-service options, rolling out services around the globe, and expanding the partner program, access to the modern interconnection services and the entire width and depth of the DE-CIX interconnection ecosystem has never been so close.



Global and Regional Growth in 2021

An abstract graphic featuring a network of glowing blue lines and nodes, resembling a molecular or digital structure. Overlaid on this are several red arrows of varying sizes, all pointing upwards and to the right, symbolizing growth and progress.

Annual Report 2021



GLOBAL GROWTH

DE-CIX Global – the year 2021 in figures

Despite the challenging conditions caused by the global Covid-19 pandemic, DE-CIX was able to maintain its leading position in 2021 as the largest carrier and data center neutral interconnection ecosystem in the world, with its 30+ locations in Europe, North America, the Middle East, and Asia. DE-CIX interconnects network operators (carriers), Internet service providers (ISPs), content providers, and enterprise networks, offering peering, as well as cloud and cloud-based application interconnection services, and is available from more than 500 data centers in over 100 countries.

As anticipated after the massive pandemic-induced growth in 2020, growth in 2021 was more moderate, as the world began to stabilize into the “new normal”. Therefore, growth in connected capacity – as networks responded to increased demand – outpaced growth in connected networks. The connected capacity increased by more than 30% to 96.2 terabits in 2021, while connected networks increased by close to 20%, ending the year at a total of 2481 worldwide. Data traffic over the DE-CIX platforms worldwide continued to grow steadily, with more than 38 exabytes of data throughput globally, an increase of around 20 percent compared to 2020. Another highlight of a successful year in 2021 was DE-CIX’s recognition within the wider industry, again being honored with Capacity Media’s

Global Carrier Award in the category Best Internet Exchange operator, receiving the award for the sixth time since its inception in 2015. Additionally, in the same ceremony, DE-CIX received the Best Marketing Campaign Award for its 25th anniversary “Without You” initiative.

In line with its strategic goal of geographical densification, DE-CIX was able to extend its reach with operations in multiple new regions in 2021. During the year, four new IXs were taken into operation, and another seven were announced. Barcelona is DE-CIX’s fifth owned and operated Internet Exchange in Southern Europe, creating another connectivity hub for the Iberian Peninsula and the Mediterranean basin. The fourth North American IX, DE-CIX Richmond, also went into operation in late 2021. The DE-CIX as a Service (DaaS) program saw further implementations, with Ruhr-CIX in Germany and Borneo-IX in Southeast Asia becoming operational. The company announced its expansion to the Nordic region, with new IX platforms to be established in Norway, Denmark, and Finland to serve the regional connectivity needs, boosted by new transatlantic and intercontinental submarine cables bridging the Nordics with North America and Asia. In addition, Phoenix, Arizona (AZ), was announced as the fifth DE-CIX IX in the US, following DE-CIX New York, DE-CIX Dallas, DE-CIX Chicago, and DE-CIX Richmond (VA), and is set to become DE-CIX’s western-most location, fortifying connectivity across the United States while enhancing gateway access between North America, South America, and Europe. DE-CIX also announced plans for the establishment

Global
connected capacity

+30%
96+ Tbits



Global
connected networks

+20%
2480+



Global
data throughput

+20%
38 Exabytes



New
Internet Exchanges
announced

+7



of three further DaaS exchanges for the US-based data center operator DartPoints, in Columbia (South Carolina), Dublin (Ohio), and North Liberty (Iowa), demonstrating the value of the service model for catering to the needs of tier 2 and 3 markets.

A further highlight of 2021 was the announcement of the DE-CIX partnership with EllaLink, a submarine cable linking Europe and South America, with the goal to promote and enhance a new low latency path across the southern Atlantic, directly connecting Brazil and Southern Europe, and to establish a unique ecosystem uniting these two markets, providing benefits to users on both continents.

Throughout 2021, there was constant growth in enterprises connecting to the new enterprise-grade interconnection services on the DE-CIX platform. These innovative interconnection services – with more to come – have been conceptualized especially for the needs of enterprises; to support and simplify their digital transformation. In line with the growth in networks and bandwidth during 2021, uptake of the increasingly diverse portfolio of DE-CIX services, including such services as DirectCLOUD, Microsoft Azure Peering Service (MAPS), and Closed User Groups (CUG), also grew.

In particular, demand for cloud connectivity boomed, as a result of the increasing cloud penetration in enterprises. This resulted in almost 200% growth in bandwidth (including new on-ramps) to leading global and smaller regional cloud service providers.

Already, approximately 350 gigabits per second of cloud connectivity has been provisioned through the DE-CIX Cloud Exchange, with further strong growth anticipated. The call for secure and virtual private interconnection environments for enterprise ecosystems and digital value chains is also being heeded by DE-CIX, with the development of the customizable Closed User Group (CUG) service for enterprises. The first CUG prototypes were set up, with their initial set of participants connected and productive, during 2021.

Easy access to interconnection services for enterprise customers is also being supported by DE-CIX through continuous further investment and innovation in automation. The DE-CIX Self-Service Portal was rolled out across all locations in 2021, allowing customers to flexibly book, cancel, and scale their interconnection services almost instantaneously, at the press of a button. The portal has been well-received also by enterprise customers, who are making use of it to scale services like DirectCLOUD according to their up-to-the-minute needs, benefitting from end-to-end fully automated API provisioning.

DE-CIX is also constantly engaged in disseminating interconnection knowledge through white papers and webinars. In 2021, the next step was taken by setting up the DE-CIX Global Interconnection Academy, in partnership with the Universitat Pompeu Fabra (UPF) in Barcelona. The online training program will commence in Q4 2022 and is aimed at both professionals and students. The creation of the DE-CIX Interconnection Academy seeks to provide a global standard certificate of excellence for interconnection experts.



Where we are doing business – DE-CIX in the regions 2021

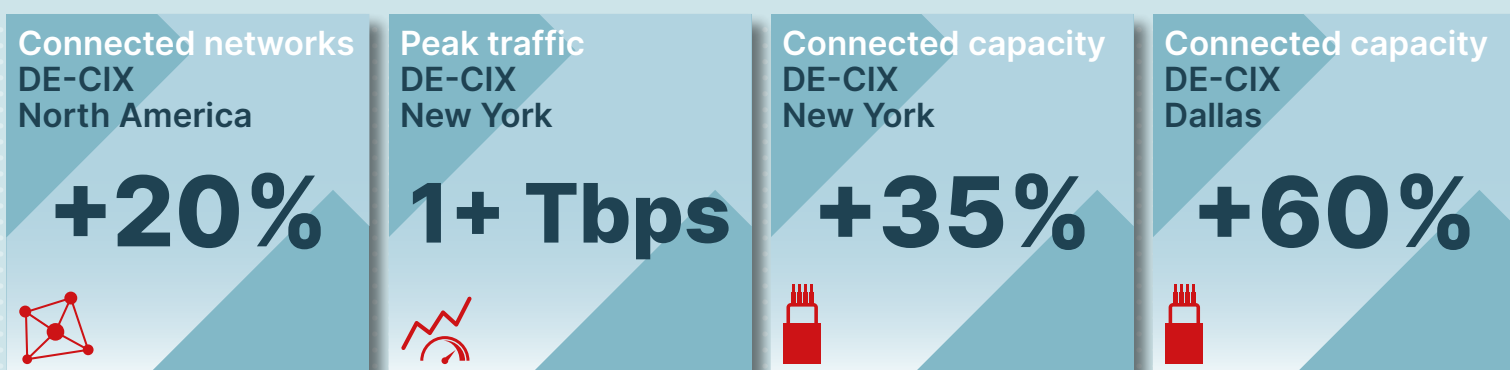


Ed d'Agostino
Vice President
DE-CIX North America

DE-CIX North America – the largest neutral interconnection ecosystem on the continent.

2021 was again a year of milestones for DE-CIX North America, the largest carrier and data center neutral interconnection ecosystem on the North American continent. Growth in networks, bandwidth, and services, on the one hand, was matched by growth in locations on the other. DE-CIX New York continues to be the leading neutral IX provider in the New York/New Jersey market, and the 5th largest IX in the US, while DE-CIX Dallas celebrated its fifth birthday by being ranked among the top 15 IXs in the US. DE-CIX Chicago celebrated one year in operation in late 2021, while DE-CIX Richmond went into operation in December 2021, offering immediate access to over twenty locally connected networks. GlobePEER Remote was activated for all US exchanges, giving the entire DE-CIX North American ecosystem access to the DE-CIX global interconnection ecosystem.

Switches were launched in four QTS data centers in 2021, the first data center partner to offer DE-CIX interconnection services in all four existing markets. Furthermore, the announcement was also made of a partnership with DartPoints to establish DE-CIX as a Service (DaaS) locations in three tier 2 & 3 cities,



NORTH AMERICA

these being Columbia (South Carolina), Dublin (Ohio), and North Liberty (Iowa). By enabling local market interconnection, IX projects like these will level the playing field for underserved and hard-to-reach markets in the US.

For the accumulated North American ecosystem of DE-CIX IXs, connected networks grew by nearly 20%, while customer bandwidth across all sites increased by close to 60%, reaching a volume of 15 terabits by the end of the year.

DE-CIX New York, with over 260 networks connected, exceeded 1 terabit per second in peak traffic for the first time in December 2021, reaching 1.28 Tbps and becoming only the second DE-CIX exchange to cross the 1 Tbit mark. The IX experienced more than 50% growth in 100GE ports in 2021 in response to increasing demand for connectivity. This contributed to an increase of over 35% in connected customer capacity, which climbed over 9 terabits by the year's end. The Microsoft Azure Peering Service was added to the service portfolio for DE-CIX NY in 2021, providing highly reliable and optimized Internet connectivity to Microsoft's SaaS services, including Microsoft 365 and Dynamics 365.

DE-CIX Dallas was able to nearly double the number of 100GE ports connected (up 84%), increasing customer bandwidth by 60%. Peak traffic also jumped by over 50% to exceed the 300 Gbps mark. Connected networks exceeded the hundred-mark in Q4, enjoying annual growth of close to 25% and rising to 118 by the end of the year. Chicago showed promising growth during the year, and the migration of the RVA-IX customers to the new DE-CIX Richmond switches was carried out successfully, altogether bringing close to 50 further ASNs online in the North American ecosystem.





DE-CIX in Southern Europe – the largest neutral interconnection ecosystem in the region



Theresa Bobis
Regional Director
Southern Europe

The year 2021 was packed with highlights for the DE-CIX Southern European region. Established in 2016, DE-CIX Madrid celebrated its 5th anniversary, having developed from the fastest growing IX worldwide to the heart of the largest neutral interconnection ecosystem in Southern Europe. In addition, DE-CIX expanded to the Catalanian capital: DE-CIX Barcelona became ready for service in early October 2021, with three premium-enabled sites and 30+ networks already connected on day 1.

Counting Lisbon, Madrid, Barcelona, Marseille, and Palermo, DE-CIX now runs five IXs in the region. And interconnecting other continents with existing DE-CIX ecosystems is just the next logical step in DE-CIX's global expansion. A first step in this direction was taken for Southern Europe in 2021 by DE-CIX and Ellalink, a subsea cable operator, committing on a strategic partnership to pave a new data traffic highway across the Atlantic Ocean to South America.

Connected capacity
DE-CIX
Southern Europe

+40%



Connected capacity
DE-CIX
Madrid

+23%



Connected capacity
DE-CIX
Marseille

+70%



SOUTHERN EUROPE

From a year-on-year growth perspective, the Southern European DE-CIX hubs were able to record a substantial increase in customer bandwidth (through networks extending their business with DE-CIX) as well as new networks joining the DE-CIX ecosystem. For the entire region, the accumulated connected capacity rose by close to 40% (to 6.5 Tbit), and the number of connected networks by 17% to 450.

Looking into the highlights of the individual IXs, DE-CIX Lisbon increased its connected capacity by 10% in 2021, while DE-CIX Madrid grew by 23%, with the number of networks peering in the Spanish capital rising by 10% (to 225). DE-CIX Marseille, on the shores of the Mediterranean Sea, enjoyed significant growth of close to 70% in connected capacity and 9% in connected networks (to 115).





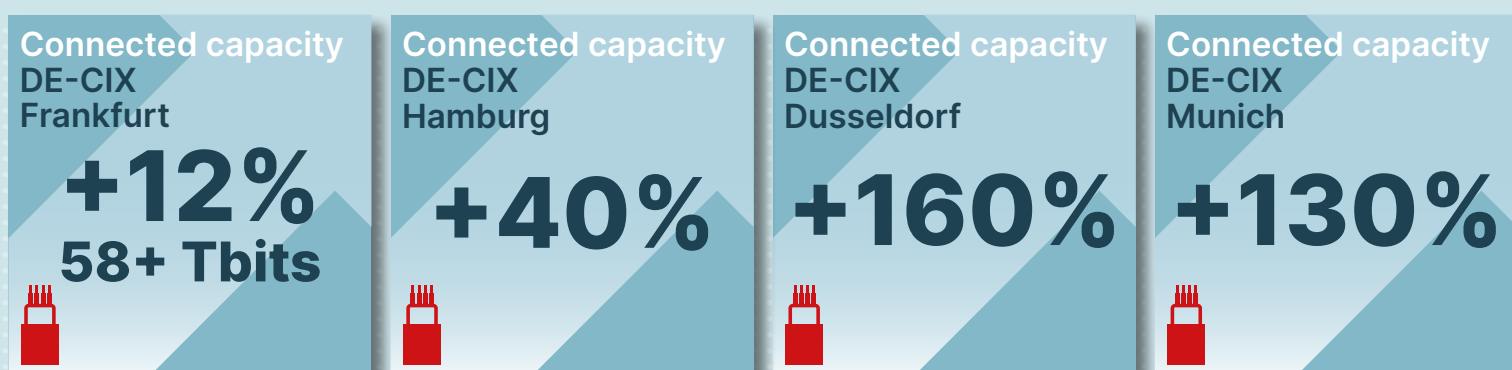
GERMANY

DE-CIX in Germany – steady growth in bandwidth



Andreas Sturm
Chief Business
Development Officer

The first year of the global pandemic, 2020, saw people and businesses move to relying more and more heavily on digital infrastructure and applications, resulting in several records for data throughput at the DE-CIX flagship IX in Frankfurt. In 2021, peak traffic at DE-CIX Frankfurt even surpassed the previous year's records. Connected networks at the exchange amounted to 1078 at the end of the year. As digital services are becoming more and more integral to everyday life, demand for bandwidth is increasing steadily, with the result that connected capacity in Frankfurt rose by 12% in 2021, exceeding 58 Terabits by the end of the year. This was partly driven by the growing demand for 100GE ports (also up 12%) and the first connected and operating 400GE ports. To accommodate the demand for higher bandwidth, DE-CIX undertook a significant upgrade of its edge routers in Frankfurt, leveraging the latest Nokia technologies and future-proofing the platform for the 800GE era.



Move to the edge – accelerated growth at regional exchanges

The digitalization of businesses and society is driving a growing demand for data to be exchanged and processed closer to the end user – and thus for interconnection to occur closer to the edge.

The regional exchanges in Hamburg, Dusseldorf, and Munich benefitted from this trend and continued their success story in 2021. While there were more than 1,000 networks connected to DE-CIX Frankfurt in 2021, making it one of the most important Internet Exchanges in the world, there were also more than 700 networks connected to the regional exchanges in Germany alone. Dusseldorf, in particular, saw strong growth in connected networks, rising by 16%.

The northern-most German IX, DE-CIX Hamburg, increased its customer bandwidth by 40% and enjoyed a rise in peak traffic of 70%. DE-CIX Dusseldorf experienced significant growth in connected customer bandwidth of 162% and a 65% rise in peak traffic. The southernmost German IX, DE-CIX Munich, increased its peak traffic by 41%, with customer bandwidth growing by almost 130%. The strong growth in connected customer bandwidth in Dusseldorf and Munich in 2021 is the result of the high demand for 100GE ports in both locations.

Apart from the growth in existing locations, DE-CIX also expanded domestically in Germany. In February 2021, Ruhr-CIX powered by DE-CIX, in the densely populated Ruhr region, became ready for service. The new exchange is part of the DE-CIX as a Service (DaaS) program and is operated by DE-CIX on behalf of DOKOM21 (Dortmund), TMR (Bochum) and GELSEN-NET (Gelsenkirchen). Also in February, DE-CIX and Stuttgart-IX announced a partnership enabling local Internet service providers and regionally based enterprise customers from the Stuttgart metropolitan region to access the DE-CIX Cloud Exchange.





NORDICS

DE-CIX expands to the Nordics

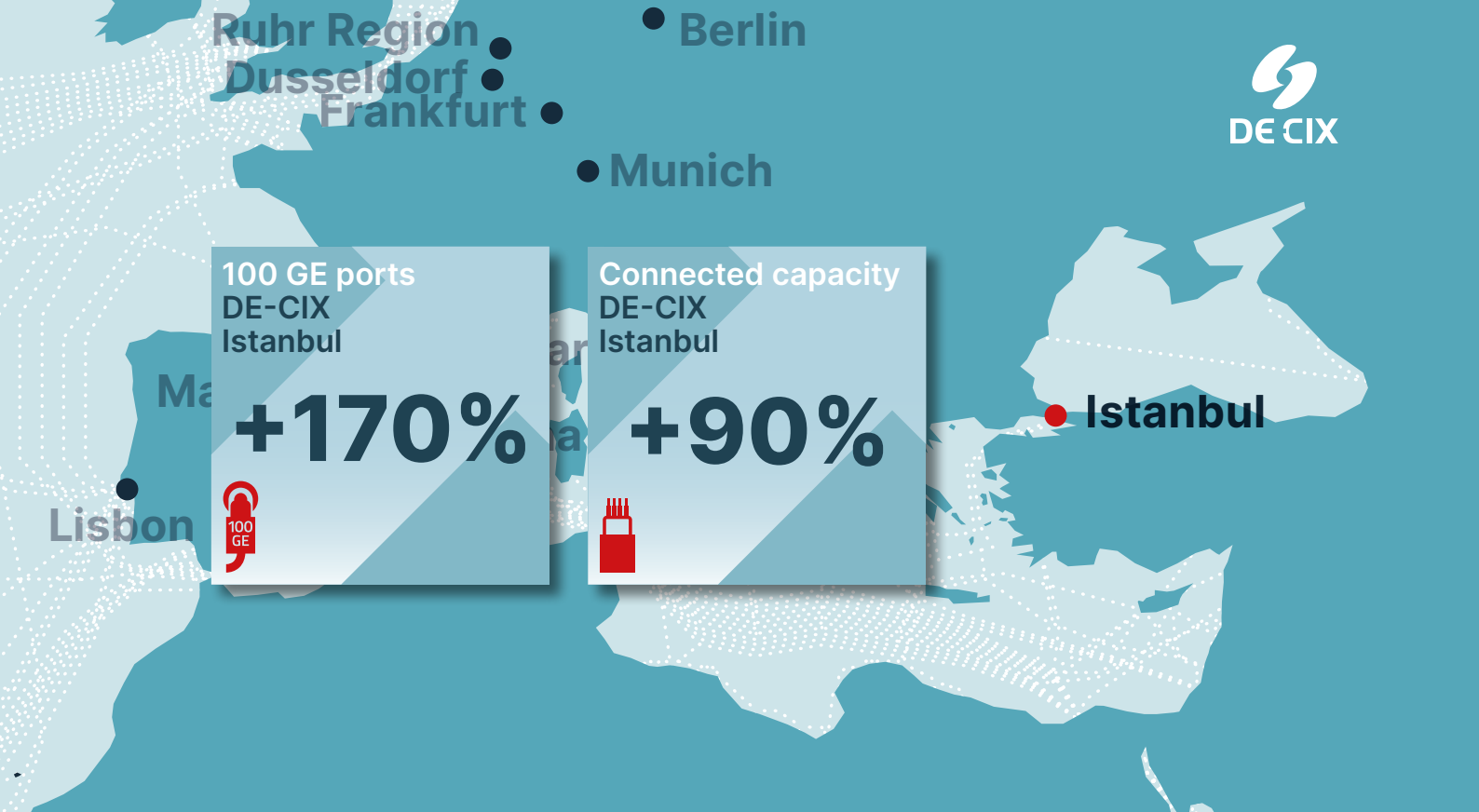


Maxim Pozdnyakov
Regional Director
Northern & Eastern
Europe

In November 2021, DE-CIX announced its expansion to the Nordics, with new DE-CIX IX platforms to be established in Norway, Denmark, and Finland. The region has seen significant growth in data center investments for the concentration of hosting, storage and cloud deployments, as well as a high concentration of enterprises and manufacturing presence that requires competitive interconnection infrastructure.

For the market entry in the Nordics, DE-CIX will make its interconnection platforms available in the BULK Infrastructure data centers in Oslo (OS-IX) and Kristiansand (Campus N01) in Norway, as well as Esbjerg (Campus DK01) in Denmark. BULK Infrastructure is Norway's leader in building and operating sustainable digital infrastructure, data center, colocation, fiber network, and industrial real estate. These initial DE-CIX locations are expected to be ready for service over the course of the year 2022.

DE-CIX's expansion to the Nordics will serve the regional connectivity needs, boosted by new transatlantic and intercontinental submarine cables bridging the Nordics with North America and Asia. DE-CIX will fully integrate the Nordic exchanges into the company's existing one-of-a-kind carrier and data center neutral interconnection ecosystem. The new DE-CIX Internet Exchanges in the Nordics will have presences in all relevant data center facilities in the respective markets.



TURKEY

**DE-CIX Istanbul –
the only IX bridging
two continents**



Bülent Şen
Regional Director
Turkey

In its sixth year of operations, DE-CIX Istanbul has grown to be an important interconnection gateway between the Middle East and Europe. DE-CIX Istanbul is a neutral interconnection and cloud exchange for Internet service providers from Turkey, Iran, the Caucasus region, and the Middle East. The IX provides access to a variety of networks via various data centers across Turkey, including Istanbul, Ankara, Bursa, and İzmir.

In 2021 the demand for greater capacity was documented in the increase of close to 170% in 100GE ports. This also resulted in a growth of more than 90% in connected customer bandwidth at DE-CIX Istanbul, increasing to over 2 terabits.



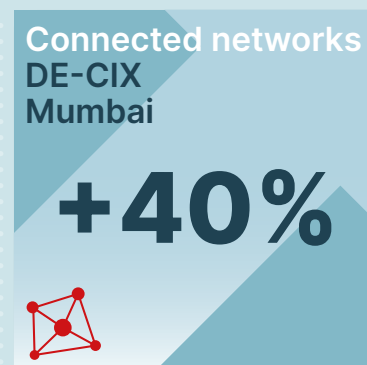
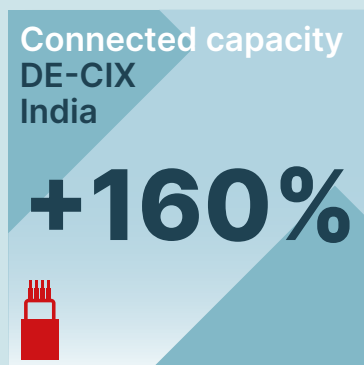
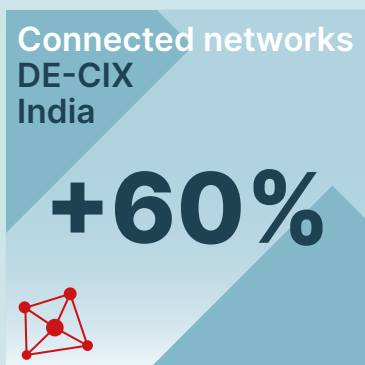


DE-CIX India grows strongly – DE-CIX Mumbai becomes largest Internet Exchange in APAC



Sudhir Kunder
Sr. VP,
National Head Sales
DE-CIX Interwire, India

DE-CIX India's carrier and data center neutral IXs in the cities of Mumbai, Delhi, Kolkata, and Chennai continued their great success story in 2021. This is exemplified by the milestone of DE-CIX Mumbai becoming the largest Internet Exchange in the entire APAC region, according to PeeringDB, in mid-2021. DE-CIX India was named the Fastest Growing Interconnection Platform by The Global Achievers Award 2021, and one of Capacity Media's Top 10 Players Contributing to the Digital India Vision. DE-CIX India is now available through 15 points of presence (PoPs), interconnecting cloud service providers, Internet service providers, and end-user networks. In 2021, accumulated connected networks grew by over 60% to 479 in total, with growth in 100GE ports nearly tripling across locations. In addition, growth in 10GE ports increased by almost 60%, exceeding 300 on the DE-CIX India combined interconnection fabric. The overall connected customer capacity increased by nearly 160% to almost 7 terabits.



Mumbai, the financial capital of India, is a strategic hub interconnecting many networks and regions in Asia. DE-CIX Mumbai's peak traffic ended 2021 on the verge of reaching the 1 Tbps mark. With almost 40% growth in connected networks, the IX reached 389 in total by the end of the year. 100GE ports almost tripled as networks increased capacity and new networks joined the platform to manage the growing demand for data exchange. DE-CIX Mumbai continued to expand its DirectCLOUD service to enable customers to connect to large global cloud players like Microsoft Azure, Google Cloud, Oracle Cloud, and Amazon Web Services via the DE-CIX Cloud Exchange and its award-winning Apollon platform.

DE-CIX Delhi picked up strong traction in the market in 2021, with connected networks growing to 57. The first 100GE ports were sold at DE-CIX Delhi in 2021, reaching a total of 7 by the end of the year and having a massive impact on growth in connected customer capacity, which increased by more than a terabit. DE-CIX Chennai also saw strong growth, with connected networks rising to 25 and increasing interest in 100GE ports. Overall, connected customer capacity more than tripled, exceeding 700 Gbit.



Connected capacity
UAE-IX

+40%



Dubai

Delhi

Kolkata

Mumbai

Chennai

DUBAI

UAE-IX
powered by DE-CIX –
on the digital crossroads
from east to west



Marco Brandstaetter

Regional Director
Middle East & India

Founded ten years ago, in 2012, the UAE-IX powered by DE-CIX in Dubai (UAE) is the leading carrier and data center neutral Internet Exchange in the GCC. The UAE-IX is built on a fully redundant switching platform and is the first IX that interconnects global networks and, above all, network operators and content providers in the region.

In 2021, the UAE-IX brought the successful event “Peering Workshop and Cruise” back to life after a pandemic-induced break in the previous year. In its 9th edition, more than 120 regional and global industry experts met in late November to exchange updates and information about digital projects, the future of the region, and beyond.

In 2021, the UAE-IX experienced significant growth resulting from more networks demanding more bandwidth at the exchange. Overall, the number of 10GE ports increased by 30%, and the number of 100GE ports by 50%. This resulted in accumulated connected customer capacity of close to 2 terabits, an increase of almost 40% compared to 2020.



ASIA

DE-CIX – Southeast Asia development



Frank Orlowski
SVP Corporate Development

After the formation of DE-CIX Malaysia and DE-CIX Singapore in 2020, the infrastructure for all of the DE-CIX locations in Southeast Asia was successfully migrated to the award-winning DE-CIX Apollon interconnection platform in 2021, allowing the provisioning of a variety of interconnection services, such as peering and cloud exchange.

Additionally, in February 2021, Unified National Networks (UNN), the national network infrastructure operator of Brunei, and DE-CIX announced a strategic

partnership to establish an Internet Exchange on Borneo Island. Borneo-IX powered by DE-CIX, based at the Tungku cable landing station in Bandar Seri Begawan, serves customers across the island, including Brunei, Malaysia, and Indonesia.

DE-CIX has created the first distributed Internet Exchange in Southeast Asia and intends to deploy IXs in all key markets in the region. The DE-CIX footprint currently includes the Singapore, Johor Bahru, Kuala Lumpur metropolitan markets, as well as Brunei. In 2021, a total of 958 Gbits of customer bandwidth and 54 networks from across the region were connected to the DE-CIX Asia platform.

DE-CIX is planning to extend its footprint throughout Southeast Asia. Through its strategy of partnering with local players, DE-CIX seeks to prevent fragmentation in the interconnection landscape in the region and bring its best-in-class services to existing ecosystems where possible. This strategy is in line with the major transformation of content delivery and interconnection in the region. Both data center players and content providers have started to grow outside of Singapore, the region's major hub, in order to reduce latency and to increase throughput to end-users.



DE-CIX

Interconnection Services



Annual Report 2021



Dr Christoph Dietzel
Global Head of Products & Research

What we can do for you – the diversification of DE-CIX interconnection services

The connectivity landscape of the modern enterprise

One of the major enablers of new digital products and business models for the current and future transformation of enterprises is agility. Enterprises need the flexibility to redesign the connectivity for each of their locations and operations in line with their transformation process. Therefore, enterprises in future will need even greater flexibility in all aspects of their connectivity – including the capability to adjust bandwidths, optimize latency, improve security, and reinforce the resilience of their connectivity in line with the business demands and applications' requirements. Not to mention time-independent booking and adjustment of services and intelligent automation.

So how is the enterprise connectivity landscape transforming? A digitally transformed factory, for example, has more data requiring storage than a legacy factory. This data will most likely be stored in the cloud to enable access from geographically dispersed company locations to monitor KPIs and QA in a centralized way, and to provide management with aggregated data for making decisions. As a result, modern enterprises have an increased demand for aggregating and transporting data. But beyond this, a factory is no longer the preserve of the manufacturing company alone. With concepts like robotics as a service, a factory provides a home for intelligent machines that are owned and operated by external partners. Consequently, it is necessary to optimize the connectivity not only to headquarters, branches, and production plants, but also to specific external parties. Intelligent production processes – be that the use of robots, smart quality assurance, or additive manufacturing – places much greater demands on the resilience of the connectivity. This requires guarantees in the form of high-level SLAs and dedicated bandwidth.



Globe PEER



Globe PEER
remote

Added to this, companies also want to consume more services from a centralized cloud, maybe from multiple cloud providers simultaneously. In this case, end-to-end flexibility is required to provide the bandwidth that is actually needed for the given service. Companies today no longer think in terms of the historic A-to-B locational conception of connectivity. What they require is more fine-grained connectivity between applications, workloads, and so on. The conception of connectivity is no longer about connecting sites in, for example, two particular cities; instead, the focus is rather on goals like, for example, setting up connectivity between the company's AI cluster in a central European hyperscaler and the locally hosted on-prem SQL database.

Therefore, not only does the company network need to be more robust, faster, and provide higher bandwidth, but even more, so too does the connectivity from this network to the cloud, to other digital infrastructure service providers, and to any service providers that are involved in the company's digital value chains. But first and foremost, enterprises need flexibility in their connectivity: flexibility of bandwidth, resilience, latency, and security. This kind of flexibility is enabled through the automation of interconnection, and DE-CIX is a forerunner in this field.

One access, multiple services – get what you need, with flexibility and automation

DE-CIX is leading the way to modern interconnection, following the needs of modern business. We are approaching this in two ways: firstly, by creating a robust, secure, resilient, and high-performance physical infrastructure, and then by adding flexibility and simplicity through virtualization and automation, thus enabling a range of customizable services through a single connection.

No matter whether it's for direct access to hyperscale and specialized clouds through DirectCLOUD, or for using the Microsoft Azure Peering Service (MAPS) – which offers dedicated connectivity to the Microsoft 365 software as a service cloud – or for securely connecting and exchanging data with business partners through a Closed User Group, a direct connection to DE-CIX offers an enterprise a dedicated infrastructure to consume the services they are using. On the DE-CIX platform, connected customers have a virtual point-to-point private line, meaning that, even though the underlying infrastructure is shared, the enterprise connectivity is logically separated and has guaranteed reserve bandwidth on the infrastructure.



DirectCLOUD

The demand for private cloud connectivity on the DE-CIX platform is constantly growing. Considered a niche service years ago, enterprise customers meanwhile understand the pitfalls of connecting to the cloud via the public Internet. As a result, they are looking for secure and resilient alternative means to access their chosen cloud services. The trend is reflected in the year-on-year growth rates for private cloud connectivity at DE-CIX. This saw a tripling of bandwidth in hyperscale cloud connectivity during 2021. With an average of 780 Mbps bandwidth for a cloud connect, there is currently 350 Gbps cloud connectivity provisioned on the DE-CIX platform. Furthermore, through the DE-CIX access model (one access, multiple services), the self-service portal, and the DE-CXI API, the ease of booking, scaling, and adjusting services makes a multi-cloud strategy feasible and manageable, as well as simplifying general interconnection, such as peering. Looking forward, the further evolution of cloud connectivity will involve greater interoperability and cloud-to-cloud communication.



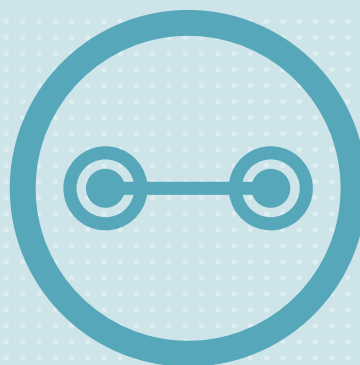
Blackholing

Security and resilience keeping data traffic safe and flowing

DE-CIX continues to drive innovation in every aspect of connectivity services and infrastructure. In 2021, the company was again recognized for leveraging trailblazing technology. Based on DE-CIX's virtualized network functionality, the "Blackholing Advanced" service was developed by DE-CIX in close collaboration with its customers. The mechanism gives customers the ability to filter unwanted DDoS traffic at the transport protocol and port level with fine granularity, and, in so doing, to significantly limit harmful data throughput. Based on this filtering, unwanted traffic on the award-winning DE-CIX Apollon platform is either discarded or appropriately limited to protect critical infrastructures on the Internet from DDoS attacks. The fact that DDoS traffic can not only be blocked but also limited in terms of data throughput means that it is possible to investigate the DDoS attack further in order to initiate appropriate countermeasures. While still in a beta phase, the service was also rolled-out beyond Frankfurt and was available in ten additional locations in Europe and North America by June 2021.



MAPS



VirtualPNI

Not only is security a high priority for DE-CIX, but also resilience. We provide very high SLA levels and guarantee a very stable platform. This high level of resiliency is achieved through a long list of measures, from the hardware – how it is built, how it is operated, the level of redundancy, the special design, and fallback mechanisms – to the physical security of the data centers that DE-CIX equipment is housed in, and on to redundancy in terms of fiber connections into each data center. It is a combination of many, many measures on different layers that makes the DE-CIX platform both so secure and so resilient.

Also key to the resilience of the platform is its distributed nature. To the outside world, DE-CIX appears as one single platform. However, internally it is composed of many servers, services, software, and other components, distributed across many locations. Technically, the platform is conceived around core switches and edge switches. But the core itself is then replicated and distributed, and every edge is connected to every core. This means that even if one core were to encounter difficulties in any way, then the edges nearest this core are still able connect to another core. Therefore, the overriding platform is actually made up of network equipment that is redundantly connected and can transfer the traffic back and forth, and on to the end customer.

The best way for enterprises to ensure the greatest resilience of their connectivity is to capitalize on the redundancy built into the distributed nature of the DE-CIX infrastructure. They can do this by making sure that they also have redundant connections: by connecting to DE-CIX from different, geographically separated data centers.



Closed User Group



FlexPOP

How is DE-CIX working to meet the future needs of enterprises?

The changing technology landscape we all inhabit means that adjustments and adaptations of existing products to new technologies and technology trends are necessary in order to deliver the perfect peering or cloud connectivity – enabled by the latest technology standards. Whenever new high-performance, secure, and optimized technologies and processes emerge, DE-CIX is always among the first to adopt. Therefore, as well as constantly broadening the portfolio of new services, DE-CIX also works to optimize our existing product range.

DE-CIX is the technology-neutral integrator enabling the service edge for the interconnection needs of the enterprises of the future. Integration, interoperability, and automation are key to the further development of DE-CIX's interconnection services. This will be an ongoing evolution as new systems and services are developed. The DE-CIX ecosystems play home to all the digital service providers that the business world needs to access. Our responsibility as an innovative interconnection specialist is to provide flexible integrated solutions, in terms of on-demand, flexible network as a service, also to customers that are beyond the scope of traditional interconnection services.



Financial Results



Annual Report 2021



Sebastian Seifert

Chief Financial Officer, DE-CIX Group AG

Financial Results

The DE-CIX Group performed very well in the 2021 financial year and was able to achieve an increase in revenues of 12 percent through the expansion of their global IX presence and the addition of new interconnection services to the product portfolio.

In the consolidated annual financial statement for 2021, the global revenues of all company parts grew by 5.2 million to 48.7 million Euro, in comparison to the previous year's 43.5 million Euro. Revenues from international activities jumped by 18.5 percent in comparison to 2020 and represented 18.2 percent of

total revenues in 2021. The EBIT for 2021 amounted to 4.3 million Euro and the EBITDA to 6.15 million Euro. In the 2021 financial year, no use was made of debt capital.

The Profit and Loss statement below provides further details on the consolidated global results of the DE-CIX companies in 2021.

DE-CIX Global Consolidated Profit and Loss Account 2021

In thousands of EUR	2021	2020
Revenue	48,707	43,532
Inventory Change	-32	-19
Operating Result	48,676	43,513
External Services / Cost of Goods	-365	-447
Gross Income	48,311	43,067
Other Operating Income	1,842	1,701
Personnel Costs	-14,970	-12,282
Depreciation	-1,850	-2,811
Other Operating Costs	-29,026	-26,791
Operating Result/EBIT	4,307	2,883
Financial result	-340	-196
EBT	3,967	2,687
Tax	-1,456	749
Annual Profit/Loss	2,511	1,939
EBITDA	6,156	5,694



Strategic Outlook

Annual Report 2021



Ivo Ivanov
Chief Operating Officer, DE-CIX Group AG

DE-CIX's Strategic Outlook

The next frontier – the new digital age

Today, more than ever before, all areas of business and private life rely heavily on digital applications. Even before the Covid-19 pandemic, the new era of interconnection and digital innovation – in which digital applications and services are needed everywhere, for everyone – had long since begun and was in the process of accelerating. There is no doubt that, in future, the demands being made of digital infrastructure will intensify. We hear visionaries today speaking of the Internet of the future: a metaverse enabled by AI, VR, AR, and all manner of innovations in the realm of sensory perception, remote control, and real-time virtual experience, the digital world of the future promises a wealth of opportunities to do business, be entertained, be cared for and educated, and be connected with one another in an unimaginably vibrant and tactile form of cyberspace. But to get there, digital infrastructure providers need to build out densely and globally distributed interconnected infrastructure, while at the same time offering an increasing array of specialized and customized interconnection services to meet the demands of business across all sectors. At DE-CIX, we are already working on our contribution towards this vision of a global digital future.

Latency is the new currency. Agility is the future.

As economic activity moves from the analog to the digital sphere, there is one thing that all digital applications – ranging from e-health to very sophisticated logistics and mobility applications, and on to the finance sector – have in common, and this is related to the purely physical characteristics of the speed of light. In the digital infrastructure industry, we call this “latency”. At DE-CIX, our mission is to bring interconnection services as close as possible to people and business, thereby reducing the distance that data needs to travel and thus minimizing the latency, while simultaneously increasing the security, resilience, and flexibility of connectivity through innovative and agile enterprise-grade interconnection services. We are working constantly to expand our offerings to not only our traditional carrier, ISP, and data center partners, but also to the enterprise segment in collaboration with our many partners. A two-pronged approach is needed to achieve this: firstly, through geographical densification – bringing services out of the major metropolitan hubs and into the regions, extending our footprint not only globally, but also locally – and, secondly, through the development of innovative interconnection services, tailor-made to support enterprises overcome the challenges they face with digital transformation.

Over 60% of enterprises with more than 2,500 employees think a holistic approach to interconnection is strategically important.

A huge demand for secure, resilient, and high-performance connectivity in the future

According to market research undertaken by DE-CIX in 2021, over 60% of enterprises with a workforce of more than 2,500 employees consider a holistic approach to interconnection to be strategically important. Among enterprises, there are concerns about the security and confidentiality of their critical data (50%), and there is demand for private connections to the cloud and other resources that bypass the public Internet (40%). For the new business models under development, enterprises need to find a secure, high-performance, and agile way to exchange data with an increasing number of trusted partners (e.g., suppliers, retailers, digital content and cloud application providers) across multiple sectors and geographical regions. Therefore, interconnection is becoming paramount to their digitalization strategy.

Beyond this, enterprises are demanding specialized interconnection services to support their transformation process. They are seeking direct, dedicated, and multi-homed access to their resources and applications sourced from a variety of clouds. They are also demanding customized private interconnection services with enhanced security and compliance features that support their zero-trust network strategy. They want access to DDoS protection and network security services. What's more, they also need simplicity in the booking and adjustment of their interconnection services and cloud connectivity, as well as the enablement of an interconnection fabric API that they can embed in their own systems, giving them

greater automation of their connectivity according to their up-to-the-minute needs.

The top infrastructure challenges we see for enterprise customers dealing with their digital transformation are a) increasing the performance and strengthening the security and resilience of their connectivity, b) ensuring their flexibility and avoiding vendor lock-in, c) reducing the complexity of their connections to partners, and d) increasing their control of compliance within their ecosystem of partners. To overcome these challenges, being able to control infrastructures and data flows is essential. Therefore, it is time for modern companies to reassess how they connect to partners: they need to implement a new connectivity model that brings them closer to their customers and partners through direct and controllable interconnection.

A level playing-field: Making interconnection easy. Anywhere!

DE-CIX is the go-to partner to support the needs of enterprise customers to overcome these challenges. Through software solutions, APIs and automation, we make it as easy as possible for any business, regardless of model or size, to use services that were once the exclusive privilege of the wholesale industry. We have built – and continue to grow – the largest open, neutral, and distributed ecosystem on the planet. This neutrality and the diversity of networks connected to DE-CIX platforms not only massively increases the resilience of connectivity, but also offers companies much greater flexibility



63.8%

to choose and change their connectivity providers and data center partners according to their strategic requirements. Our increasingly dense geographical footprint enables companies to exchange data locally, increasing performance and reducing latency. Our innovative services and our investment in API-enabled automation make interconnection easy, more agile, and more responsive to the time-critical requirements of modern business. Finally, DE-CIX's enterprise-grade interconnection services enable companies to control their infrastructure and data flows – to control the data journey that is so central to success in digital business.

Through the growing number of our own locations as well as the locations available through our extensive partner program, DE-CIX is in a position to provide services where and when enterprise customers need them. DE-CIX and our valued partners around the globe are ready to accompany the enterprise journey toward becoming fully digital. This offers a greater density and diversity of networks which can be accessed locally, greater geographical coverage of interconnection infrastructure through a neutral and distributed ecosystem, and a variety of scalable and customizable interconnection services to support enterprise digital transformation. All this can only be achieved through the power of digital ecosystems, like those that develop around DE-CIX Internet Exchanges. To effectively meet the demands of enterprise customers for seamless and efficient interconnection – across cities, countries, continents, and oceans, and regardless of location – a healthy and vibrant neutral interconnection ecosystem is indispensable.

In order to succeed in global and local markets of today and tomorrow, enterprises need to work with an interconnection partner that can deliver customized, low-latency, and secure interconnection services, integrated as part of a large ecosystem of thousands of networks – well distributed, as local as possible, and as global as required. This is where DE-CIX comes into play.



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25+ Years
Excellence in
Interconnection

Milestones in DE-CIX's history

Peak Traffic DE-CIX Frankfurt

10.8
Tbit/s

2021

38 exabytes of data traffic globally,
DE-CIX goes Nordics

10
Tbit/s

2020

DE-CIX 25 years jubilee,
DE-CIX Frankfurt reaches 10 Tbit/s

8.1
Tbit/s

2019

DE-CIX enters ASEAN market

6.7
Tbit/s

2018

DE-CIX goes India, 1st patch robot
worldwide in operations @ DE-CIX Frankfurt

5.6
Tbit/s

2016

Foundation of DE-CIX Madrid –
the fastest growing IX globally

5.1
Tbit/s

2015

DE-CIX New York goes live

2
Tbit/s

2012

1st operations outside Germany
with UAE-IX (Dubai)

16
Gbit/s

2003

Expansion in Germany kicks off

1999

Rapid growth in Frankfurt and
expansion to further data center

40
Mbit/s

1995

Foundation of DE-CIX in Frankfurt



Annual Report 2021



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