Designing networks for the digital era:
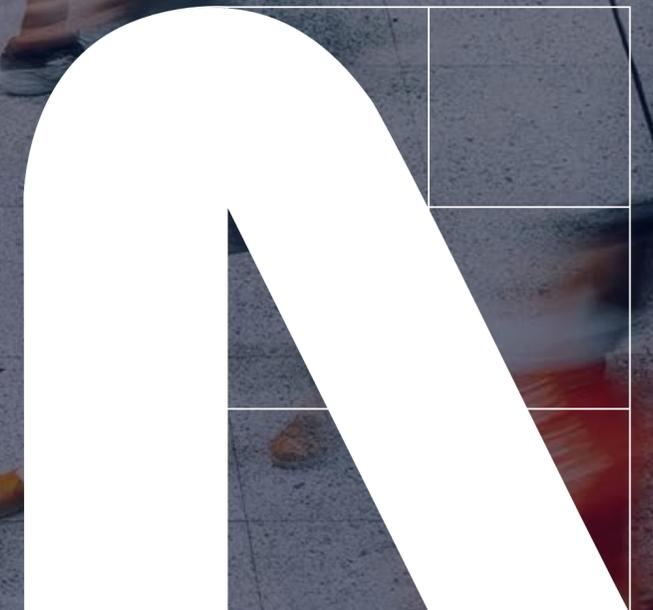
8 myths to dispel

The importance of the network

The importance of the network

The executive perspective

Research by NTT DATA and Cisco gives insight into how executives view strategic network trajectories and priorities:

98%

CxOs who believe **networks are vital** for enabling business growth[1]

72%

Executives who perceive **low levels of network maturity are negatively affecting** their business delivery and goals[1]

40%

Employees who continue to **work remotely**[2]

39%

IT professionals who see the increase in remote workers as a **major challenge**[2]

94%

Executives who agree cloud-based workloads demand **greater availability, scale and performance** from the network[1]

78%

Organizations that plan to host more than **40% of their workloads in the cloud by 2025**, up from 63% today[2]

[1] 2022-23 Global Network Report, NTT DATA, November 2022.
[2] 2023 Global Networking Trends Report, Cisco, April 2023.

The importance
of the network

Myths about networking in the digital era

Organizations must navigate the complexity and vast scope of digital transformation projects to effectively modernize their networks, plan their transformation roadmaps and thrive in the digital era. Factors that can impede their progress include economic pressures, labor shortages and resistance to change.

Lessons from our research and from working with hundreds of clients helped us identify **eight common myths** about networking in the digital era:

Myth 1:
The ratio of infrastructure hardware and software will remain the same.

Myth 2:
The network is a less important element of modern IT infrastructure.

Myth 3:
All security is moving to the cloud.

Myth 4:
AIOps will take over the operations of your infrastructure.

Myth 5:
Networks aren't important to hybrid work models.

Myth 6:
IT infrastructure is part of the sustainability problem, not the solution.

Myth 7:
Wi-Fi is dead, and 5G will be used for all connectivity use cases.

Myth 8:
Technology skills are abundantly available.

This ebook explains why these statements are misleading and how our solutions address some of the issues associated with each myth.

The importance of the network

Working through the myths

Working through the myths

Myth 1: The ratio of infrastructure hardware and software will remain the same

The myth dispelled: Software is gaining focus and importance.

Historically, hardware and software have been tightly integrated. But we are now seeing much more emphasis on software-defined networking. Hardware remains critically important, as it's the platform on which software runs. But software now enables key features in areas such as networks, security, operations, automation and artificial intelligence. It can support transformation and increase agility by enabling frequent updates and rapid provisioning, and supporting almost instantaneous rollouts, at scale, to hundreds or thousands of users.

When you separate hardware from software, new financial models such as subscription services, consumption-based pricing and microtransactions emerge. Working with these new financial models can introduce challenges, especially with licensing: understanding the models, managing entitlements or working across multiple renewal dates. **Enterprise Agreements become more important, and organizations can benefit greatly from having a partner with the tools to efficiently manage licenses.**

Research from the NTT DATA 2022–23 Global Network Report confirms the importance of software-defined technologies:

Top 5

Software-defined networks and infrastructure are among the top five investment priorities for organizations in the next two years.

#1

Network software is the fastest growing part of NTT DATA's network business.

Top 3

Software-defined networking is a top priority for network investment

Working through
the myths

How NTT DATA and Cisco can help

NTT DATA Technology Solutions

We deliver intelligent infrastructure solutions, working with our clients to provide the technology that meets their current and future needs, supports their business goals and integrates advanced software with evolved hardware.

Our Technology Solutions portfolio includes:

- Technical Services: Our expertise and resources enable organizations to achieve the outcomes they are seeking from their technology investments.

- Platform-driven Support Services: We support consistent performance and availability from the core to the edge of a client's infrastructure.

For a complete solution, our advisory services cover design through to implementation, adoption and operations with the following features:

- Cloud-based, data-driven implementation

- Predictive, proactive modeling and improvement

- Global delivery with scalable, standardized rollout

- Adaptability for multicloud, hybrid work, data center networking and security

NTT DATA enables clients to shift to a modern, consumption-based technology lifecycle across their business. We support their digital transformation, continual modernization and innovation, and the development of software-defined

capabilities such as AIOps, cloud management, machine learning and IoT. We use a hybrid technology approach, leveraging existing infrastructure while moving to software-defined solutions that support the overall journey.

Go to NTT's Technology Solutions page.

NTT DATA Software Lifecycle Services

We combine people, tools and processes to enhance IT operations and implement a software-defined infrastructure that accelerates performance. We reduce complexity by creating one service portal that consolidates multiple data sources, increases visibility and gives clients more control.

Go to NTT's Software Lifecycle Services page.

Working through
the myths

Case study: WWK Versicherungen simplifies procurement with subscription-based Enterprise Agreement (EA)

" With the new licensing model, software management has become much easier. We can adapt quickly as our requirements change and optimize our financial planning ... NTT provided us with the best possible advice and support in this transition

— **Werner Kollmeder**
Head of Network and Datacenter Services, WWK Versicherungen

Supporting data

- **NTT DATA blog:** Software-Defined Infrastructure – Why NTT DATA and Cisco are better together

- **Cisco blog:** Software-Defined Infrastructure – Cisco and NTT DATA co-deliver a solution for a complex problem

- **NTT DATA demo video:** Software-defined infrastructure

- **NTT DATA infographic:** Realizing the value of software-defined infrastructure services

- **NTT DATA podcast:** Delivering ROI through visibility, flexibility and adaptability with NTT DATA

- **Cisco podcast:** All about digital transformation and software-defined infrastructure

Working through the myths

Myth 2: The network is a less important element of modern IT infrastructure

The myth dispelled: The network remains a critical component

We see the network as the most critical element of any IT infrastructure, as connectedness drives business growth. The network is the foundation on which modern businesses run, enabling collaboration, hybrid work, cloud and user access to applications from any location.

NTT DATA's 2022–23 Global Network Report[4] found almost complete agreement among executives that the network supports:

Growth	Cost management	Customer experience	Employee experience
98%	93%	93%	94%

[4] 2022-23 Global Network Report, NTT DATA, November 2022.

Without a network, there is no collaboration, no globalization, no business success.

We see the importance of network transformation in three specific areas:

Technology: Organizations continually upgrade their technology to keep pace with advancements and deliver better performance, leveraging software-defined capabilities.

Operational: IT operations teams use automation, machine learning and applied AI to improve network capabilities.

Financial: Under continued pressure to cut costs, IT organizations are looking at different ways to procure and manage their infrastructure, such as consumption-based services, moving from capex to opex or setting up subscription services.

Working through
the myths

How NTT DATA and Cisco can help

Edge-to-cloud network solutions

NTT DATA's network services, powered by platform-driven automation, AIOps and predictive analytics, drive business results. We integrate software-based and legacy technologies, working with strategic partners to develop, build and manage a client's business network. We provide high availability, improved performance and security while using real-time data to deliver network insights.

Go to NTT DATA's Managed Enterprise Networks page.

Secure access service edge (SASE) solutions

A secure network architecture requires a well-designed and complementary secure service edge (SSE) strategy. Adding SD-WAN infrastructure to complete a SASE architecture enables business-wide connectivity and fully integrated security.
You can gain secure, optimized access to SaaS cloud-based applications, a detailed view of current network performance and the agility to handle future networking needs.

Go to NTT DATA's managed end-to-end network page.

Working through
the myths

Case study: Mondi securely connects their global organization with fully managed WAN

" As a global company, our network is crucial to our success. With secure and reliable connectivity, we can focus on driving business innovation. The partnership with NTT DATA and Cisco has made our network a driver for sustainability and innovation

— Rainer Steffl
CIO, Mondi

Supporting data

- NTT DATA named a Leader in the Gartner® 2023 Magic Quadrant™ for Network Services

- Cisco named a Leader in the Gartner 2022 Magic Quadrant for SD-WAN

Working through
the myths

Working through the myths

Myth 3:
All security is moving to the cloud

The myth dispelled: Security is needed on-premises, in the cloud and in-between.

We hear so much about cloud-based operations, so it's easy to understand the origins of this myth. But it's also important to understand that critical business data and intellectual property (IP) need to be protected wherever they're hosted, and much of that information is not in the cloud.

As hybrid and remote work become more commonplace, organizations must protect the IP on devices being used at off-site locations. Increased business agility also increases the number of potential attack surface and raises security complexity. So, establishing strong security requires deep integration across many layers: on-premises, remote, endpoint devices and cloud. IT security teams must consider all points of entry into the network and access to the organization's data.

We talk about a zero trust approach, which builds an end-to-end security methodology by reducing the attack surface and limiting access to only those who need it.

[5] 2023 Global Networking Trends Report, Cisco, April 2023.

The Cisco 2023 Global Networking Trends Report[5] explored how organizations are evolving their networks to support secure connectivity for distributed applications, people, places and things. The top two challenges reported by enterprise IT professionals were:

41%

Provide secure access to applications distributed across multiple clouds

37%

Gain end-to-end visibility of network performance and security

Working through
the myths

How NTT DATA and Cisco can help

Secure access service edge (SASE)

SASE addresses the need for security convergence by integrating the network and security to connect users wherever they work, while protecting applications and data.

Go Cisco's SASE page.

NTT DATA 360 Observability, powered by Cisco Full-Stack Observability

Effective security requires real-time visibility of what is occurring on the network. NTT DATA provides a managed service that enables deep visibility of the entire IT environment, including cloud-native applications and hybrid and multicloud infrastructures, and includes:

- Observability Maturity Assessment to understand and enhance the organization's application and network performance and operational maturity.

- Multicloud Application Monitoring to gain full visibility of and insight into the performance and availability of business-critical applications.

- Observability and Monitoring Tools Assessment to gain insights into the current state of the organization's observability strategy and develop a roadmap for observability maturity.

- AppDynamics® on SAP to get rapid application insights into configuring and managing ThousandEyes® and AppDynamics across the SAP landscape.

Go to NTT DATA's 360 Observability page.

Working through
the myths

Case study: Royal Caribbean Group increases network visibility to deliver improved customer experiences

"
Cisco Full-Stack Observability has helped improve our developers' productivity almost one hundred per cent ... I now have visibility across the network experience ... We went from being a reactive type of organization to a proactive, preventive organization ... Achieving 'top notch' experiences means there's no room for any type of system failure or bottleneck.

— Alice McElroy
Director of Operational Excellence, Royal Caribbean Group

Supporting data

- **Press release:** Launch of NTT DATA 360 Observability

- **Cisco blog:** Taking an In-Depth Look at Your Application and Network Performance

- **Datasheet:** Multicloud Application Monitoring

- **Datasheet:** Observability Maturity Assessment

- Get started with an Observability Maturity Assessment

Working through the myths

# Myth 4: AIOps will take over the operations of your infrastructure

The myth dispelled: AIOps plays a role in supporting IT teams, not replacing them

Generative AI and large language modules have triggered extensive change and marketplace "buzz" in the last several months. The potential for improvements across infrastructure monitoring and management is exciting, and we see substantial benefits in using AIOps with the automation of certain types of routine tasks. AI is already being used effectively for anomaly detection, event correlation, root cause analysis and event enrichment. As shown in Figure 1, AI usage will continue to grow dramatically, and we expect ongoing changes as vendors build more AI functionality into their platforms.

However, there is an element of caution to consider. AI does not have the ability to self-drive infrastructure and should not have complete control over the network and security environments. We do not see AI running end-to-end infrastructure. There remains a need for involvement by humans who know the relevant processes and can apply their skills and logic to different situations.

We see a continued role for AI in network operations support, delivering benefits such as improved visibility and faster time to resolution. AI and machine learning modeling can result in significant improvements in service quality when applied to large data lakes, as NTT DATA has demonstrated for clients.

Artificial intelligence: forecast market size worldwide, 2021 to 2030
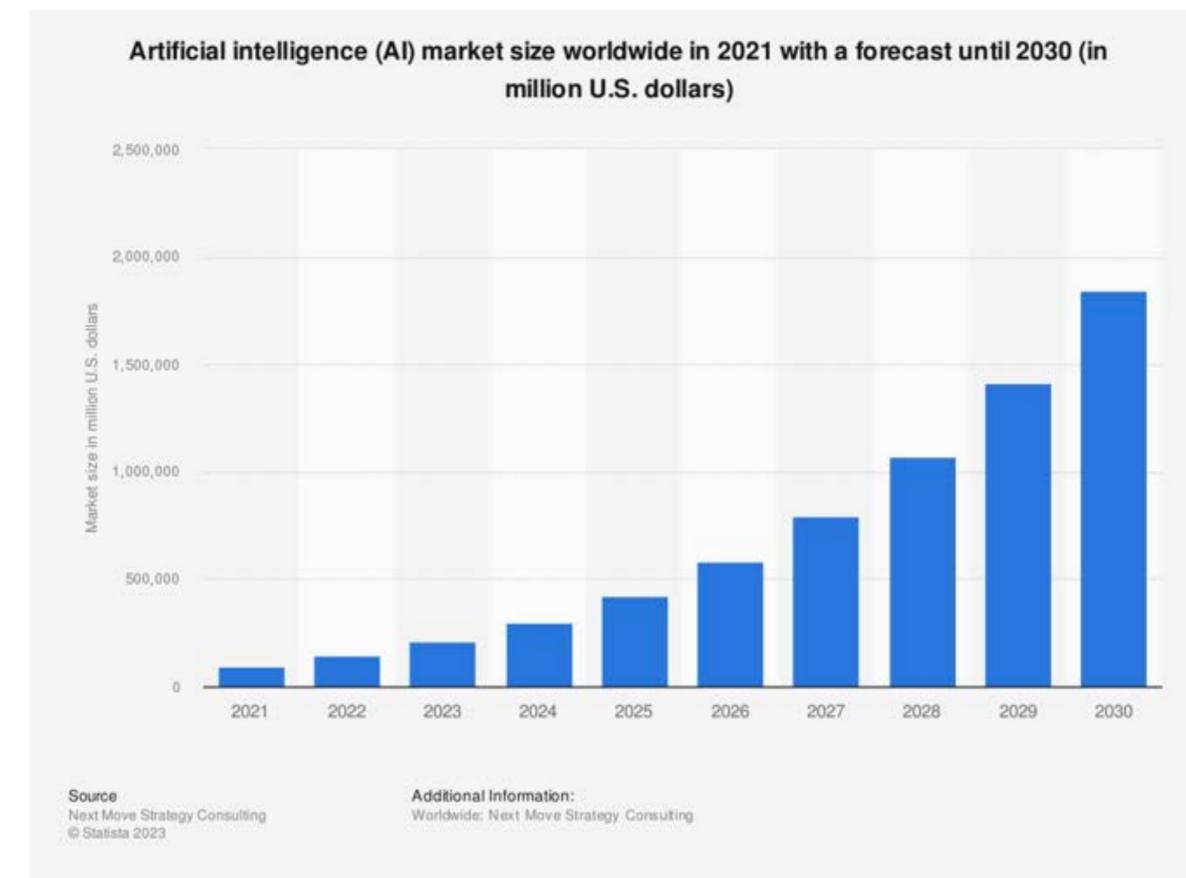
[6] Artificial intelligence (AI) market size worldwide in 2021 with a forecast until 2030, Statista, August 2023.

How NTT DATA and Cisco can help

NTT DATA Managed Networks with Cisco Catalyst Center

NTT DATA uses its SPEKTRA transformation platform, strong network management capabilities and Cisco Catalyst Center to provide AI-enabled network management. This service helps clients realize the full potential of integrated platforms with streamlined configurations, troubleshooting and operational functions. Benefits include operational efficiencies, enhanced network performance and reduced downtime.

Go to NTT DATA's Managed Campus Networks and Cisco Catalyst Center page.

Supporting information

- **Download brochure:** NTT DATA Managed Campus Networks
- **NTT DATA announcement:** Introducing NTT DATA's Managed Cisco Catalyst Center
- **White paper:** Managed Cisco Catalyst Center-Monitoring
- **White paper:** Managed Cisco Catalyst Center-Automated Operations

Working through
the myths

Working through the myths

Myth 5: Networks aren't important to hybrid work models

The myth dispelled: Networks are the key to providing consistent, high-quality experiences across locations.

Network performance is fundamental to delivering the highest experience for employees and customers. In addition to providing in-office and remote connectivity, advanced network features can help create an environment that attracts employees to return to the workplace. Organizations worldwide are struggling to bring workers back to the office, as evidenced by current average occupancy rates:[7]

70%	50-60%	50%	47%	30-40%
Brisbane	Sydney	Boston	UK	Melbourne, New York, Chicago

Features that can enhance the office environment include wayfinding, location services, robust high-definition video and sophisticated collaboration tools, environmental monitoring and capacity management. By tightly integrating the network with collaboration and building management systems, organizations can create an intelligent, interactive workplace that attracts talent and enhances productivity and collaboration.

Remote and hybrid work will continue, which means that same high-quality experience needs to be replicated for users outside the workplace. The network can provide accelerated connections to applications and the ability to collaborate effortlessly with others, while also being the strategic control point for security.

This level of seamless collaboration across locations can only be achieved with a superbly architected network.

[7] Office Buildings Are Still Less Than 50% Occupied. Who Should Worry? Forbes, November 29, 2022.

Working through
the myths

How NTT DATA and Cisco can help

Cisco Webex Cloud Calling and Collaboration Platform

Cisco and NTT DATA help organizations migrate to a flexible, secure and managed cloud platform that handles calls, meetings and other communications. The Cisco Webex cloud platform delivers reliable performance with 99.99% uptime.

Cisco Collaboration Solutions

NTT DATA uses market-leading Cisco unified communications applications to provide a highly secure collaboration suite that can be managed from a single, secure platform. Using these advanced tools provides a reliable platform for communications and AI-supported collaboration rooms that improve the employee experience and reduce costs.

Go to NTT DATA's Cisco Collaboration Solutions page.

> " We have created a modern and flexible space which you want to work from and where you can collaborate comfortably and creatively.
>
> — **Ewa Szalewska**
> Head of People Function, HEINEKEN

Working through the myths

Case study: HEINEKEN Kraków revolutionizes the employee experience with a hybrid work model

" We trusted NTT DATA because of their extensive capabilities and numerous partners. We appreciate the dedication and personal commitment of the NTT team, who coordinated many implementations in a very short time.

— Pawel Miodek
D&T Service Delivery Manager, HEINEKEN

Supporting data

- **Cisco ebook:** Future-Proof Your Workplace with Cloud Calling

- **NTT DATA blog:** Supporting Hybrid Work Through Cloud Calling

- **Cisco blog:** Answering the Need for Cloud Calling and Collaboration with Cisco Webex and NTT DATA

Working through
the myths

Working through the myths

Myth 6: IT infrastructure is part of the sustainability problem, not the solution

The myth dispelled: Infrastructure plays a huge role in supporting sustainability initiatives.

Sustainability has become a priority focus for business organizations, investors and the public. Our research identified sustainability as a top-four business objective for IT executives.[8]

The benefits of social sustainability initiatives grow as organizations advance in their social sustainability journey:[9]

11.4%
Increased productivity from leading companies in social sustainability

9.6%
Increased revenue from companies with highest social sustainability investment

USD 675 billion
GDP unlocked from social sustainability initiatives

[8] 2022–23 Global Network Report, NTT DATA, November 2022.
[9] The Business Case for Social Sustainability, NTT DATA, February 2023.

Sustainability can also be supported when organizations that develop infrastructure components use fewer materials, reduce carbon in construction, create more power-efficient products and ship in recyclable and biodegradable packaging.

Networks are being used in new ways to support conservation and environmental sustainability. In smart buildings, for example, LED lights and other low-voltage components are powered by the network, resulting in reduced cabling and more efficient power usage. Cameras and sensors can monitor temperature and occupancy, adjusting conditions to save resources. Intelligent devices can detect water levels under roads, spot wildfires when they start and register tsunami threats.

In these and many other cases, the network plays a critical role in connecting the IoT devices and sensors that monitor the environment, and feeding telemetry data back to the software and systems that can take appropriate action to minimize the negative impact of naturally occurring events and reduce power consumption.

Working through the myths

How NTT DATA and Cisco can help

IoT

Our joint solution uses the NTT DATA's Edge-as-a-Service portfolio and Cisco's IoT capabilities to help organizations improve efficiency and meet sustainability goals. IoT provides real-time data insights to support improved decision-making, enhanced security and reduced operational costs through predictive maintenance, asset tracking and supply-chain management capabilities.

Go to NTT DATA's IoT for Edge as a Service page.

Case study:
Transforming water management at CILE

"

At CILE ... efficiency, security, and reliability are key. With NTT DATA and Cisco's support, we have real-time insights into our facilities and distribution networks, including faster detection of leaks, allowing us to respond to issues instantaneously and expand the network to other sustainability use cases.

— William de Angelis
   CIO and DCO at CILE

Working through
the myths

Case study:
Newport Live brings advanced technology into its velodrome to improve athletes' performance

"

A truly digital velodrome inspires future generations while supporting world-class cyclists and residents' health and wellbeing. The digital velodrome brings the next level of innovation to indoor cycling, allowing athletes to optimize their training on the basis of real-time data.

— **Steve Ward**
Chief Executive, Newport Live

Working through
the myths

Case study:
ASHRAE uses their new headquarters to create a blueprint for the intelligent building

" Our new headquarters serves as a model for how to create a truly intelligent, sustainable workplace.

— **Jeff Littleton**
Executive Vice President, ASHRAE

Supporting data

- **Cisco Blog:** Sustainability Progress Requires Specialized Partners

- **Announcement:** NTT DATA And Cisco Launch IoT As-A-Service For Enterprise Customers

- Cisco environmental sustainability commitment

- NTT sustainability ambition

Working through
the myths

Working through the myths

Myth 7: Wi-Fi is dead, and 5G will be used for all connectivity use cases

The myth dispelled: Wi-Fi and 5G each play an important role in connectivity.

5G holds importance as an emerging cellular connectivity option but should not be viewed as a Wi-Fi replacement. Wi-Fi has been in use for decades, continues to improve and will remain an important part of network connectivity.

When looking at wireless connectivity options, network designers should consider how Wi-Fi and 5G can work alongside each other. Wi-Fi remains an excellent option in campus networks, for example, while 5G would work well for connectivity over large-scale open areas such as airports, shipping ports and open-cast mines. Private 5G offers a strong alternative in some manufacturing environments, where machinery affects Wi-Fi signals, and for conducting perimeter security checks using autonomous vehicles.

Combining Wi-Fi with 5G allows for seamless service within the network. Each organization should examine the use cases and connectivity requirements to determine the best options. Adding a 5G component requires additional network management. As complexity increases, organizations may need assistance in managing multiple networks to help with performance and delivering business use cases.

Working through
the myths

How NTT DATA and Cisco can help

Extensive Wi-Fi expertise and portfolio

NTT DATA have significant expertise in designing, deploying, supporting and managing wireless solutions from Cisco, using Catalyst and Meraki portfolios. NTT DATA's solution specialists ensure the appropriate positioning of Wi-Fi and private 5G for specific client use cases and requirements.

Managed private 5G

Through NTT DATA's first-to-market Managed Private 5G solution, NTT DATA and Cisco help enterprise clients integrate private 5G into their existing LAN, WAN or cloud infrastructure. This service can accelerate edge connectivity and add Industry 4.0 capabilities such as push-to-talk communications, automated guided vehicles, always-connected PCs for frontline workers, and smart sensors. We also plan to coordinate the use of 5G and Wi-Fi across IT and OT operations.

Read the announcement about NTT DATA and Cisco's private 5G capabilities.

Working through the myths

Case study:

Private 5G increases network flexibility and performance for Rheinisch-Westfalische Technische Hochschule (RWTH) Aachen University (Germany)

" Thanks to the private radio range, we guarantee interference-free connectivity and can optimally implement our scientific applications. Our project partners have optimally implemented our high standards and created a network that we can even use flexibly by moving individual antennas.

— Frank Meeβen
Coordinator of 5G activities at RWTH Aachen University

Supporting data

- 2023 Edge Advantage Report: Secure, grow and excel with edge as a service (NTT DATA, Omdia and Intel)

Working through the myths

Myth 8: Technology skills are abundantly available

The myth dispelled: Technology skill gaps continue to grow and affect organizations.

IT and technology skills shortages are real and projected to remain an important issue for organizations. IDC predicts[10] that IT skills shortages will affect 90% of organizations by 2025, resulting in USD 6.5 trillion in lost business.

IT teams also need to understand there are different levels of technology skills, and we see an additional gap in technology fundamentals. To be most effective, developers need an understanding of how IT works. This becomes even more important when working with AI, machine learning, automation engines and programmable infrastructures.

A related issue is the perception of IT being complex and difficult, leading to significant dropout rates at universities. Computer science currently holds the highest dropout rate, at 9.8%[11]. The technology industry needs to focus on developing talent, from developing the skills of internal staff to assisting with training programs for students and working with schools to generate excitement about technology careers.

For organizations struggling to properly staff their internal IT teams, managed services provide an excellent option for them to gain highly skilled technology resources from their providers. They can outsource their day-to-day IT operations to a third-party provider and retain focus on core business activities.

[10] Skills Forward: A 2023 IT Skills Shortage Survival Guide, IDC, March 2023.
[11] These are the 10 Degrees with the Highest Dropout Rates, The College Post, May 29, 2023.

Working through
the myths

How NTT DATA and Cisco can help

Network as a Service

NTT DATA can provide an intelligent and secure network that gives organizations more flexibility, scalability, automation and control. Working with industry-leading technology from Cisco, NTT DATA creates and manages the network for a secure, high-performance work environment.

Go to NTT DATA's Network as a Service page.

Managed Infrastructure Services

NTT DATA's Managed Infrastructure Services give clients comprehensive management and monitoring of on-premises, cloud and IT infrastructure to enhance operational agility, reduce risk and optimize cloud and technology infrastructure investments.

Support Services

NTT DATA's Support Services deliver technical expertise for higher availability across all technology architectures and vendors, and are enhanced with license management and hardware-asset insights. Clients benefit from our expertise in software asset management, converged hardware infrastructure and subscription software across all technology infrastructures.

Go to NTT DATA's Support Services page.

Working through
the myths
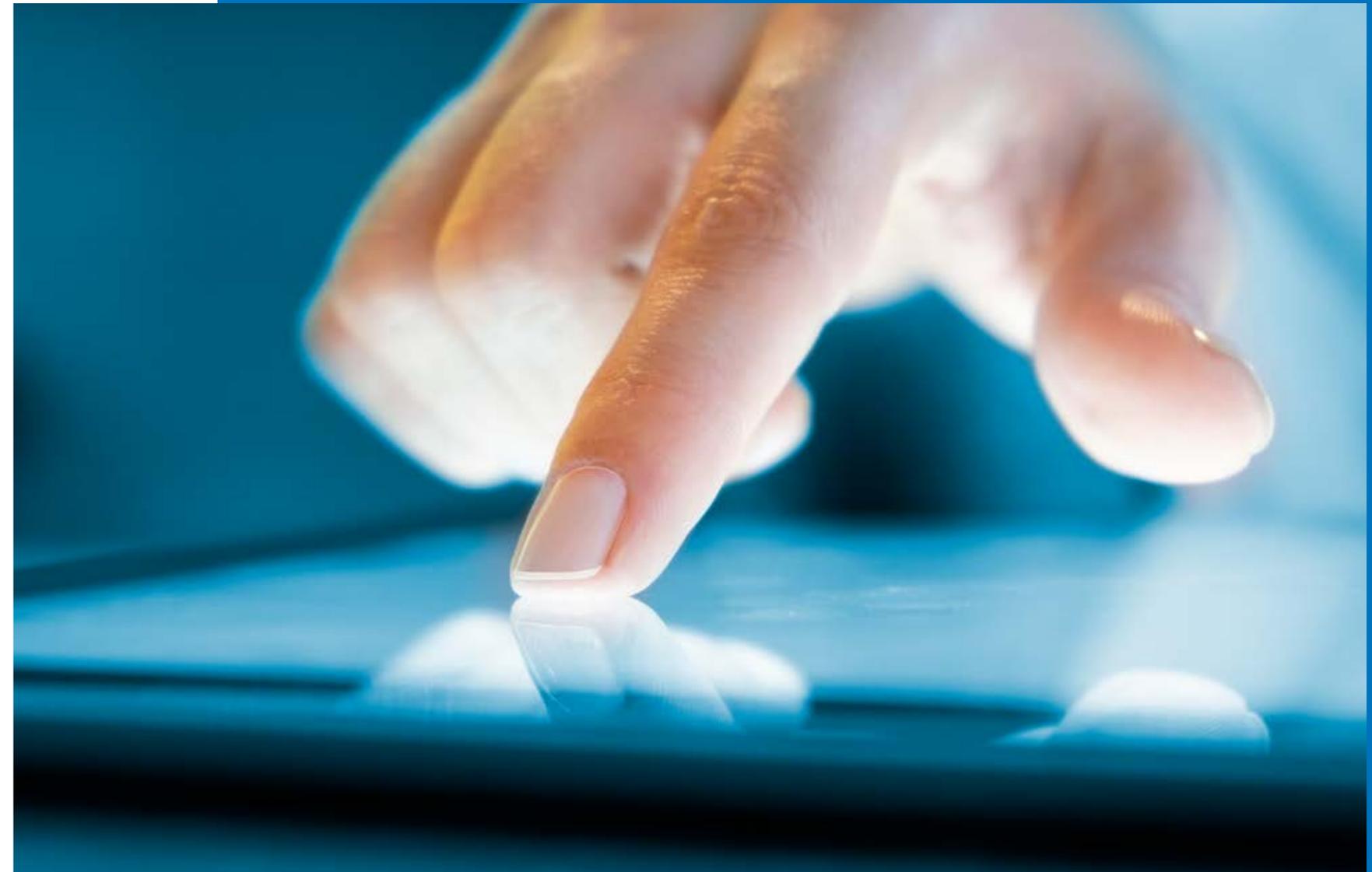
Case study:
Hirschmann Automotive expands their intelligent workplace with augmented-reality tools

"

Using augmented reality will allow us to reduce downtime, tap into our pool of global experts faster and reduce our environmental impact, all vitally important at this time.

— **Bernhard Bösch**
   Head of IT Operations, Hirschmann Automotive

Supporting data

- **Press release:** NTT DATA Named Global Managed Services Partner of the Year at Cisco Partner Summit

- **Press release:** NTT DATA wins 30 awards at Cisco Partner Summit 2023

Working through
the myths

Resources

Research and reports

- NTT DATA 2022–23 Global Network Report
- NTT DATA 2023 Global Customer Experience Report
- NTT DATA 2023 Global Employee Experience Trends Report
- NTT DATA: The Business Case for Social Sustainability
- Cisco 2023 Global Networking Trends Report
- NTT DATA recognized as a leader by Gartner: Gartner 2023 Magic Quadrant for Network Services
- Gartner 2022 Magic Quadrant for SD-WAN
- Statista report: Artificial intelligence (AI) market size worldwide in 2021 with a forecast until 2030
- Forbes: Office buildings are still less than 50% occupied. Who should worry?
- IDC conference proceeding: Skills forward: A 2023 IT skills shortage survival guide
- The College Post: These are the ten degrees with the highest dropout rates

Our solutions

- 360 Observability, powered by Cisco Full-Stack Observability
- Cisco Collaboration Solutions
- Cloud Connect for Webex Calling
- IoT for Edge as a Service
- Managed end-to-end network platform (SD-WAN)
- Managed Enterprise Networks
- NTT DATA's Managed Networks with Cisco Catalyst Center
- Software Lifecycle Services
- Technology Solutions
- Secure Access Service Edge (SASE)

Resources

List of abbreviations

AI   artificial intelligence

ASHRAE   American Society of Heating, Refrigerating and Air-Conditioning Engineers

CILE   La Compagnie Intercommunale Liégeoise des Eaux

IDC   International Data Corporation

IoT   Internet of Things

IP   intellectual property

IT   information technology

OT   operational technology

ROI   return on investment

RWTH   Rheinisch-Westfalische Technische Hochschule

SASE   secure access service edge

SSE   secure service edge

SaaS   software as a service

SPEKTRA   Sentient Platform for Network Transformation

Resources