Key technology predictions for 2024

As IT teams start planning, our experts in networking, edge, private 5G, data centers and security share their views on what will gain traction in 2024 as organizations get to grips with 2023's biggest change: **generative AI.**

"Dark NOC" will enter the lexicon of the networking world

In 2024, networking companies will continue embedding AIOps into their broader operations to improve network quality, support network engineers and modernize infrastructure.

Because of the pace at which AIOps is evolving, the concept of a fully automated, lights-out network operations center (NOC) is fast becoming a reality.

But even though automation lies at the heart of a dark NOC, human talent will be key to its success. Network providers will have to focus on upskilling their staff and preparing for a dark NOC from a technological standpoint – from standardizing application programming interfaces to optimizing data processes.

Networking specialists must also understand where automation will help and where human talent will remain an essential part of networking.

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AI will drive investment in energy supplies for data center infrastructure

Typically, data center racks consume 6kW to 8kW of electricity. However, the spike in AI is accelerating energy consumption, with some racks now consuming 50kW to 100kW or more – and consumption is expected to double or even triple in the coming years.

These racks also generate more heat and need more cooling, which is wreaking havoc with organizations' net-zero targets.

In 2024, we expect to see more organizations working closely with their energy providers to explore more sustainable options. Tightening data center regulations will accelerate this trend as governments and data center clients demand higher levels of energy efficiency and the introduction of alternative energy sources so they can meet their own sustainability goals.

NTT DATA's Global Data Centers team is already using techniques such as liquid immersion cooling, launching district heating projects and researching solar panels in space to power our data centers.

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Sustainability will be integral to all new technology solutions

Sustainability has been identified as a top-three driver of innovation and a primary consideration in IT procurement.

This year, it will have an even greater impact on the technologies trialed, procured and implemented by IT teams – particularly as regulations evolve and tighten. For example, from 1 January 2024, 50% of the electricity used in German data centers must be supplied by renewable sources. From 2027, the requirement will be 100%.

On their path to net-zero and nature-positive operations, organizations will increasingly look to deploy technologies such as private 5G networks. These are already used by organizations such as LyondellBasell and Schneider Electric to drive smart-factory applications that support their environmental, social and governance initiatives, from carbon mitigation to the circular economy of infrastructure hardware.

We will also see greater pressure placed on IT suppliers to help industries achieve their sustainability goals.

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Optical networking will get closer to the mainstream

Our research shows that, across industries, more than 90% of senior executives are looking to modernize their networks to solve existing challenges and prepare for those yet to come.

An increased focus on network efficiency, reliability, sustainability and being future-ready will bring optical networking to the fore in 2024. Recent trials have proved the potential of this technology by achieving 1.2 Tbps transmission rates.

There is also a wider and more concerted effort to overcome the limitations of existing infrastructure with optical technologies. More than 100 organizations are now partnering to drive the Innovative Optical and Wireless Network (IOWN) initiative forward, readying the world for new technologies and bringing optical networking closer to the mainstream.

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IoT ecosystems will boost private 5G and edge adoption

A combination of IoT, private 5G and edge computing is giving organizations real-time insights that support better decision-making. But as organizations accelerate their digitalization efforts, they need more connectivity and even more devices.

The edge will grow significantly in importance, as organizations need data to feed analytics platforms powered by AI and machine learning. Computer vision, digital twins and increased automation amid labor shortages in these areas will be key use cases driving the need for robust edge capabilities.

To go further, organizations will need outside help, with 8 in 10 expecting their dependency on third-party edge services to grow over the next two years.

NTT DATA and our partners are combining our expertise to meet the need for 5G-enabled devices such as push-to-talk devices, augmented reality headsets, computer-vision cameras and sensors at the edge across the manufacturing, automotive, logistics and other industries – specifically in combination with private networks and private 5G.

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Human skills will be essential for the uptake of AI

NTT DATA's 2023 Global Customer Experience Report found that most CX interactions still require human support, which executives agree will remain a critical part of customer journeys. Despite 4 in 5 organizations planning to incorporate AI into CX delivery within the next 12 months, the human element will be central to its success.

As organizations turn their attention to how automation can complement and enhance human capabilities, they will place greater emphasis on addressing the mounting skills shortages that will challenge AI aspirations. The fundamentals of AI and big data analytics will become baseline skills for most jobs across industries, but new hires won't be the only pathway.

According to our Innovation Index, business leaders that have invested in reskilling and upskilling initiatives are more likely to have recorded profitability of more than 10% over the past two years than those that have not. This will continue into 2024, with more curated teaching experiences to help close skills gaps and meet the needs of organizations.

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Invisible clouds will start to go vertical

When they work well, cloud environments become invisible and leave applications front and center. This has largely been achieved with office applications, project management tools, customer relationship management solutions and the like, but not quite yet with tools for specific industries. That will change this year.

In 2024, we'll see vertical-specific clouds bring together software, platform-as-a-service and infrastructure-as-a-service layers to deliver industry-centric use cases focused on business outcomes rather than the technology itself. Analysts have been expecting this for some time, and there is now a great deal of interest in these projects.

An example: Cubic, a market-leading provider of integrated technology solutions that streamline operations, has already transitioned to a managed cloud infrastructure to optimize spending and reduce costs.

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