451 Research's

2022 Research Agenda

Key topics, coverage and planned deliverables

451 Research

S&P Global
Market Intelligence

Your radar into market disruption, innovation and digital transformation in the IT space.

451 Research, a technology research group within S&P Global Market Intelligence, provides a holistic view of innovation across the entire enterprise IT landscape through a combination of expert analyst insight, backed by differentiated data. Our analysts interact with key industry decision-makers every day to deliver the essential intelligence necessary to understand the pivotal role that digital transformation is playing in reshaping our world.

Our research spans nine channels that align with the prevailing issues driving IT innovation, helping clients implement, invent and invest in digital transformation. The research agenda for each channel outlines key topics, analyst coverage and planned deliverables to support our clients' critical business decisions. The pace and extent of this transformation means that many trends span multiple channels; our research approach encourages analyst collaboration both within and between channels, allowing us to surface emerging trends before anyone else. Additionally, for a higher-level perspective on the key trends that will drive digital transformation in 2022 at a strategic level, please refer to our latest **Big Picture report**.

Applied Infrastructure & DevOps

Cloud & Managed Services Transformation

Cloud Native

Customer Experience & Commerce

Data, AI & Analytics

Datacenter Services & Infrastructure

Information Security

Internet of Things

Workforce Productivity & Collaboration

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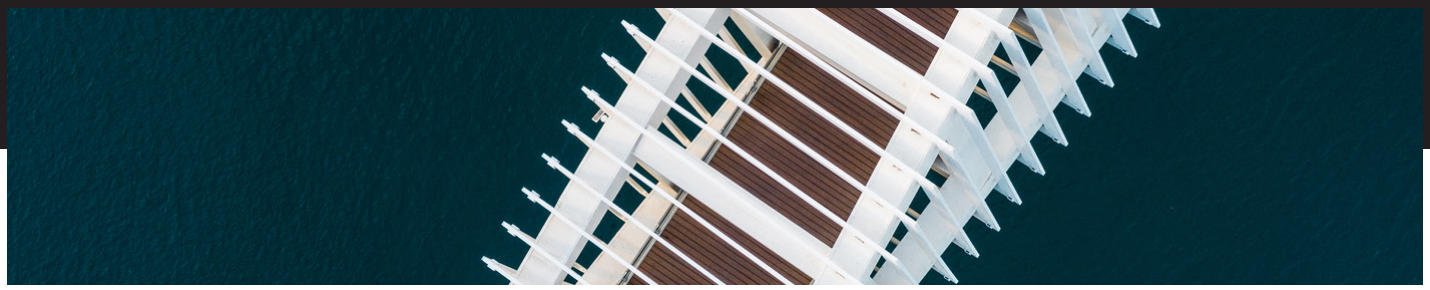
Applied Infrastructure & DevOps

The Applied Infrastructure and DevOps sector plays a critical role in enabling digital transformation. The hybrid IT journey underway continues to push IT operating models toward cloud-native technologies, and DevOps and continuous integration/continuous deployment (CI/CD) design philosophy is having a dramatic impact on the design and engineering of on-premises infrastructure.

DevOps and CI/CD, digital automation platforms, hybrid integration platforms, unified infrastructure management platforms, discrete and converged infrastructure platforms (storage, networking and servers) and chip-level hardware accelerators all have a part to play in making hybrid IT a reality and enabling the development of agile real-time applications and data-driven decision-making.



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Key Research Topics and Themes for 2022

5G telco network cloudification

Network 'cloudification' describes the ongoing transition from vertically integrated, monolithic systems to virtualized, disaggregated and increasingly open cloud-native platforms, which can run virtualized network functions on standard off-the-shelf servers located in telecom datacenters; edge locations, such as service access points and customer premises; or the public cloud.

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5G monetization: strategy, progress, challenges

Now that we've entered the second phase of 5G market development, the focus shifts from consumers to enterprises. The ROI of 5G depends on enterprises using the platform to support digital transformation. With billions spent on 5G spectrum and infrastructure, the next five years will be critical for 5G stakeholders to develop new value chain positions and business models that take advantage of cloud-native 5G.

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The evolution of application networking

Application networking has always been at the forefront of enterprise networking. Whether it was applying quality of service to network traffic or deploying a web of application load balancers to manage and secure incoming traffic, the application has always come first. In today's cloud-native, distributed, microservices world, the emphasis on application networking has shifted to interconnecting application components securely, reliably and quickly.

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Network automation imperatives

DevOps strategies and multicloud application deployments are driving IT's requirement to automate the entire network lifecycle, make self-service networking available to stakeholders on-premises and in the cloud, and maintain governance controls.

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Securely and reliably interconnecting the edge

Edge computing requires reliable connectivity to tie together devices, applications, services and users. The edge network will have to be secure, reliable, predictable and fast enough to support edge demands.

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Outcome-oriented approaches to observability

IT practitioners enjoy a wealth of options for monitoring infrastructure and applications, though tight integration between tools and within software development lifecycles is vital to delivering actionable value, rather than the simple projection of metrics, traces and logs on a pane of glass.

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Total automation: the future of intelligent enterprise execution

Total automation is an emerging enterprise managerial discipline focused on continuous improvement of execution efficiency and greater levels of autonomous business and IT operations. It is enabled by a combination of process and task discovery technologies, business and robotic process automation (RPA) platforms, and hybrid integration services – all orchestrated as a uniform intelligent automation platform to improve enterprise performance intelligence and enable successful business outcomes.

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Storage as a service (STaaS) revolutionizes array lifecycle management

STaaS has emerged as a flexible opex consumption model disrupting the status quo for storage infrastructure spending that has traditionally centered on capex purchases of on-premises equipment and software. In a STaaS delivery model, the infrastructure vendor has ownership of the assets and is responsible for day-to-day maintenance of the systems, which are typically deployed in a customer's datacenter or in a colocation facility.

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Hybrid cloud and the evolution of workload deployment strategies

Hybrid cloud technologies increasingly merge the best of on-premises and public clouds, in turn evolving workload and infrastructure deployment strategies. We explore the factors influencing today's workload deployments and decisions to deploy hybrid architectures to support modern business requirements.

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Enterprise edge infrastructure: innovation and opportunity

Edge is now a critical piece of modern enterprise IT strategies, driven by opportunities generated from the capture, processing and analysis of data in remote environments. This momentum continues to impact the infrastructure landscape, which is rapidly expanding to accommodate a growing range of edge use cases. Success in this market will ride heavily on the ability to match infrastructure and services with those use cases on multiple levels.

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Assessing workload venues for AI: the rise of the edge

Machine learning model generation involves three basic stages – data gathering/prep, model training and model inference. These can happen in the cloud, in corporate datacenters, on on-premises machines and edge devices. The distribution of these jobs is changing, and we will explore its evolution in 2022.

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Semiconductor innovations and disruptions

The silicon industry faces unprecedented disruptions and opportunities. A shift in focus from general-purpose computing toward specialists' silicon optimized for specific workloads has attracted massive capital and laid the foundation for intelligent edge infrastructures. In vertical markets such as consumer transportation, cars are now datacenters on wheels and moving to a new ECU architecture. Global supply chain challenges require significant evolution to meet high demand.

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The shift to data and business-driven DevOps

DevOps, which has been in the enterprise for more than a decade, has historically been focused on faster software releases and efficient IT management, but with the addition of data analytics, AI and ML (aka AIOps), enterprises are focusing on not only improving internal processes, but also business objectives such as user experience and customer satisfaction.

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The implications of rapid Kubernetes expansion

Kubernetes has emerged as the de facto standard for managing application containers at scale. It is also aligned with enterprise use of hybrid and multicloud infrastructure since it is a distributed application platform. There is a reason the open source project has had such an impact on the industry with benefits around speed, efficiency and portability, but Kubernetes also comes with significant challenges including complexity, security and lack of skills.

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Enterprise utility and readiness for a quantum computing future

Quantum computers are anticipated to provide an exponential speedup to certain classes of workloads. Identifying business problems suitable for quantum computers and devising algorithms to convey those problems as quantum hardware develops is essential to extract value from this emerging technology, as is scoping out potential security implications of a quantum future.

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Technology & Business Insight >

Designed to complement our Market Insight service, Technology & Business Insight are longer-form reports that offer a comprehensive view of the dynamics impacting specific technology markets and sectors, showcasing a broader view where technologies are disrupting and impacting multiple market segments or within a key ecosystem.

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