Cloud Native

Covering the technologies and processes enabling the transition to a cloud-native and DevOps-centric approach to software development.

The 451 Research Cloud Native Channel provides a clear perspective on the trends driving enterprise adoption of cloud-native technologies and practices. Cloud-native approaches to software and service design enable enterprises to act faster, more efficiently and at greater scale. Re-platforming to cloud native is an imperative for digital transformation for enterprise leaders globally.

The Cloud Native Computing Foundation (CNCF) has crafted a technology and vendor landscape to help bring order and awareness to all its moving parts. However, it changes rapidly and currently it describes 31 discrete technology market segments. Our research of cloud-native technologies is patterned after the cloud-native ecosystem landscape promoted by CNCF. Our focus for 2021 will concentrate on 10 specific segments: DevOps and CI/CD; data, AI, & analytics; container management and orchestration; service mesh; storage; networking; IoT & edge computing; security; serverless/function as a service; and observability. In addition, we are charting impact of cloud native on the market dynamics for hybrid, multi-cloud infrastructure and managed services, certifications and training. More than 20 analysts are actively contributing to our cloud native coverage.
Introduction

COVID-19 has underlined the imperative of being able to react to unpredictable events. Hence, businesses are prioritizing digital responses and increasing use of agile DevOps processes in support of them, with an organizing principle of a consumption-based, service-driven operating model. At a strategic level, the key questions for the industry are how to best adapt applications to take advantage of cloud native and at what speed, over what period of time and into what venues these will be deployed.

451 Research predicts cloud-native adoption will continue to grow and expand, fueled in part by its role as an accelerant to adjacent technologies and trends, including data and analytics, AI and machine learning, security, and IoT/edge computing – all of which play a role in facilitating digital transformation. The state of cloud-native computing is not necessarily ‘settled science’ at this time. Much innovation is currently underway in a variety of technology market segments and subsegments.

Upcoming Research on Cloud Native

DEMAND-SIDE RESEARCH: VOICE OF THE CUSTOMER
The Voice of the Customer product suite provides survey-based insights from our global panels of IT purchasing decision-makers across enterprises, service providers and technology consumers.

MACROECONOMIC OUTLOOK
Through quarterly survey-based data and insight from our Leading Indicator panel of technology users, Macroeconomic Outlook examines global macroeconomic conditions and factors such as employment trends, price pressures and credit availability to monitor the state of corporate fitness.

VOICE OF THE ENTERPRISE (VOTE)
Combining 451 Research’s industry-leading analysis with data from The 451 Alliance, a global community of IT professionals, Voice of the Enterprise tracks adoption across thousands of organizations and exposes the major opportunities for enterprises, IT vendors, suppliers and investors. The following VotE products are part of the Cloud Native research practice.

<table>
<thead>
<tr>
<th>AI &amp; Machine Learning</th>
<th>Semiannual survey insight on artificial intelligence and machine learning from our proprietary global panel of enterprise IT and line-of-business decision-makers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloud, Hosting &amp; Managed Services</td>
<td>Quarterly survey-based data and insight on the cloud, hosting and managed services market from our global panel of enterprise IT decision-makers</td>
</tr>
<tr>
<td>DevOps</td>
<td>Semiannual survey providing insight on DevOps adoption and execution from a panel of enterprise IT decision-makers, including leadership and practitioners</td>
</tr>
</tbody>
</table>
Hyperconverged Infrastructure

Semiannual survey-based data and insight on the compute infrastructure market from our global panel of enterprise IT decision-makers

Storage

Semiannual survey-based data and insight on the storage market from our global panel of enterprise IT decision-makers

Digital Pulse

Survey-based data and insight collected six times per year from our global panel of enterprise IT decision-makers, providing a unified, top-level view of enterprise IT strategies and initiatives and the underlying business and technology drivers

VOICE OF THE SERVICE PROVIDER (VSP)

Through semiannual surveys and in-depth interviews with a curated global service provider panel, 451 Research’s Voice of the Service Provider helps to qualify and quantify buying behaviors, business drivers and strategic priorities for the expanding universe of public cloud providers, hosters, MSPs, telcos, systems integrators, SaaS companies and colocation providers. Each survey has a focused theme.

SUPPLY-SIDE RESEARCH

MARKET MONITOR & FORECAST

Understanding the pace of growth and identifying the segments and industries driving value in the market is the focus of 451 Research’s market tracking and forecasting methodologies. Through regular updates, 451 Research delivers its tracking and forecasting of the supply of key business application market indicators by region and country.

Applied Infrastructure & DevOps: Application Containers

Proprietary forecast based on a bottom-up analysis of 214 vendors’ current revenue and growth expectations through 2024; includes market taxonomy, market-sector revenue estimates, growth forecasts and a view of the competitive landscape for seven market segments

Applied Infrastructure & DevOps: Serverless

Proprietary forecast based on a bottom-up analysis of 29 vendors’ current revenue and growth expectations through 2024; includes market taxonomy, market-sector revenue estimates, growth forecasts and a view of the competitive landscape for three market segments
## TECHNOLOGY & BUSINESS INSIGHT REPORTS

### HYBRID CLOUD STORAGE MATURITY MODEL

**Analysts:** Henry Baltazar, Liam Rogers  
**Publication Date:** Q1 2021

Organizations are looking to deploy hybrid multi-cloud infrastructures that take advantage of cloud storage services in a manner that complements their existing storage. This report will provide a guide to help organizations assess their level of maturity in regards to their usage of cloud storage services, and their integration with on-premises storage resources.

### COMPOSABLE INFRASTRUCTURE MARKET UPDATE

**Analysts:** Christian Perry, Mike Fratto  
**Publication Date:** Q1 2020

As enterprises scramble to simplify their infrastructure resource provisioning and management, composable infrastructure represents an increasingly available and highly transformative platform. This report will examine the current technologies and platforms shaping the market, as well as the vendors participating.

### EDGE COMPUTING MARKET MAP 2021

**Analyst:** Brian Partridge  
**Publication Date:** Q2 2021

This report provides an update and overview or the market trends of the segments that make up the edge computing market for infrastructure and services. It includes edge infrastructure suppliers (servers, chipsets, storage, networks) and edge service providers (MTDCs, CDNs and telecom operators).

### KUBERNETES BUYING GUIDE

**Analyst:** Jay Lyman  
**Publication Date:** Q2 2021

Enterprises deploying Kubernetes are finally ready to stop failing. This report offers guidance to help them succeed.

### CLOUD STORAGE SERVICES MARKET OVERVIEW

**Analyst:** Henry Baltazar  
**Publication Date:** Q3 2021

This report will look at the current state of cloud storage services (block, object, file and container storage) and the key players delivering these services. We will also look at how these services can facilitate hybrid and multicloud environments.

### HYPERCONVERGED INFRASTRUCTURE PROGRESS REPORT

**Analysts:** Christian Perry, Liam Rogers  
**Publication Date:** Q3 2021

Hyperconverged infrastructure continues to reshape on-premises IT, evolving to capture a larger piece of the workload ecosystem, includes analytics. This report explores the current state of the HCI market, including the role of HCI in current and future infrastructure deployment strategies and its contributions to hybrid cloud efforts.
INTELLIGENT PROCESS AUTOMATION: THE PATH TO ENTERPRISE PERFORMANCE INTELLIGENCE

**Analyst:** Carl Lehmann

**Publication Date:** Q3 2021

The discovery and automation technologies now used to intelligently redesign business and IT processes and enable them to make recommendations, predictions and decisions are evolving. They will enable real-time monitoring and proactive management of nearly every measurable business function within enterprises. A new generation of enterprise performance intelligence technology is on the horizon.

APPLICATION PERFORMANCE MARKET MAP 2021

**Analysts:** Liam Rogers, William Fellows

**Publication Date:** Q3 2021

This report profiles competitors in specific major segments with a graphical display of the market and key segments in the form of a 451 Research Market Map™. The analysis includes key attributes for each segment and a view of each vendor’s solution.

PREVIEW: 2022 TRENDS IN CLOUD NATIVE

**Analysts:** William Fellows, Brian Partridge

**Publication Date:** Q4 2021

This report provides a view of key trends that will affect the market in 2022. It details the top trends, likely impact and recommendations for each.

SPOTLIGHT REPORTS

**Q1 2021**

- Hybrid integration platforms: frameworks for event-driven architecture (Carl Lehmann)
- 5G standalone: what, when and implications for cloud-native ecosystem (Brian Partridge, Raymond Huo)
- Serverless and service mesh: disrupting legacy architectures and controls (William Fellows, Jean Atelsek)

**Q2 2021**

- DevOps turn to HCI for efficient operations (Christian Perry, Liam Rogers)
- Edge computing and cloud native: high-impact use cases emerging (Brian Partridge, Raymond Huo)
- Cloud identity for a cloud-native world (Fernando Montenegro)
About 451 Research

451 Research is a leading information technology research and advisory company focusing on technology innovation and market disruption. More than 100 analysts and consultants provide essential insight to more than 1,000 client organizations globally through a combination of syndicated research and data, advisory and go-to-market services, and live events. Founded in 2000, 451 Research is a part of S&P Global Market Intelligence.

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