How will industry trends and technological development transform cloud computing over the next two years?

Cloud Predictions 2018
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Oracle customers rely on IT to transform their businesses and disrupt the marketplace. For them, cloud is a game-changer.

Cloud has become the catalyst for a host of disruptive new business technologies, from chatbots and artificial intelligence (AI) to applied machine learning and blockchain. From an IT operations point of view, it’s never been easier to use services—and cut costs. Looking into the near future, we see the managed computing model continuing to mature, delivering more of what enterprises need to complete their cloud transformation—for development, innovation, and operations.

As a complete cloud provider with customers who are industry leaders in their own right, Oracle has a deep insight into the technology opportunities of the future—and the likelihood of their adoption. We’re inspired by our industry-leading customers, and the trends that affect them.

It’s these early adopters we’ve turned to for our 2018 cloud predictions. What could you achieve if you take action now?
By 2020: 50-plus percent of all enterprise data will be managed autonomously.

In theory, technologies grow easier to use, more reliable, and more effective as they mature. For cloud services, that should translate to greater efficiency, risk mitigation, and agility. But many cloud providers take the easy option instead, and offer independent services—expecting subscribers to piece together the solutions they need themselves.

It may come as no surprise, but data management in all its forms (relational, NoSQL, Hadoop, and streaming data) is the number one PaaS service planned for or in use today. Cloud providers should take note—it’s here that innovation is required. Next-generation data management requires collaboration between database and infrastructure engineers, and data scientists—enabling autonomous anomaly detection, performance, reliability, security, and remediation. In addition, administrators should expect complete automation of more mundane activities—such as provisioning, scaling, backup, upgrades, and patching.

Autonomous operations supported by high service-level agreement (SLA) guarantees will provide further incentive to migrate database operations to the cloud. With this in mind, we predict that more than half of all enterprise data will be managed autonomously in the cloud by 2020.

Oracle provides an entire data ecosystem, allowing data management and the broadest set of related IaaS/PaaS services to work together automatically—and in many cases, autonomously.

Coming soon: Oracle Autonomous Database 18c.

- Eliminates human administration. Automatically provisions, upgrades, patches, and tunes itself while running.
- A high-performance system based on Oracle’s leading Exadata architecture.
- Features elastic hardware scalability with zero downtime.
- Integrated with the Oracle Cloud service portfolio.
By 2020: 80-plus percent of application and infrastructure operations will be resolved autonomously.

We predict that a higher degree of intelligent automation will permeate the cloud platform, with machine learning and AI helping users anticipate downtime, spot performance anomalies, identify security risks in real time, and entirely automate remedial action.

As operational complexity challenges prompt human understanding, businesses must improve efficiency by orders of magnitude to ensure optimal performance, availability, security, and compliance. To be effective, enterprisewide management must analyze millions of patterns across operating tiers, cloud providers, and on-premises data centers to discover anomalies and take preventive or corrective action.

Our conservative estimate is that operations currently experiencing 20,000 human-managed interventions per year will soon fall to just 20.

Today, Oracle Management Cloud has visibility across all operating platforms, and learns the normal behavior of every application. When anomalies occur or are predicted, root causes can be understood—and preventive or corrective action taken automatically.

The extreme reliability and security provided by automation will lead to higher-performing SLAs, boosting customer confidence and removing another barrier to cloud migration.

RESOURCES

Article: Catch the Drift with Machine Learning
Video: Prevent Outages with Oracle Management Cloud

An estimated 20,000 human-managed interventions per year will soon fall to just 20.
By 2020: Security will move from job 10 to job 1.

Cybercrime is becoming increasingly sophisticated, and organizations are finding it difficult to effectively detect, prevent, and respond to modern cyberattacks. While executives are currently preoccupied with managing revenues and reducing costs, in just two years’ time, security and compliance will be of equal—or even greater—importance.

But while IT infrastructure is growing increasingly secure, organizations are actually getting worse at cybersecurity. Security best practice will remain an issue, with a lack of regular patching and insufficient encryption putting data at needless risk. However, cloud providers with comprehensive security management offer the ability to autonomously detect and fix vulnerabilities, encrypt your data, and conduct regular patches throughout the stack. For these reasons and more, we predict that by 2020, it will be on-premises environments that present the greatest risk to your data.

Managing organizational risk is paramount, and some of the best risk managers are cybersecurity professionals. In fact, we expect to see more CEOs come from the cybersecurity space purely because of their risk management experience.

To ensure you’re working in the most secure environment, Oracle Cloud features automated installation of critical security patches—helping you stay secure by default—while our identity-based Security Operations Center (SOC) framework provides comprehensive monitoring, threat detection, analytics, and remediation tools across hybrid environments.

Reducing vulnerabilities with a zero-trust model.

Security vulnerabilities are difficult to eliminate—particularly in shared or multitenant environments. But with a zero-trust model, resources are segmented into groups and protected with separate, unique passwords. With distributed layers of responsibility and control, no one group can access everything, meaning resources are protected—even from customers themselves.
By 2020: Cloud providers will add on-premises controls—or miss out on mission-critical workloads.

The economic and management benefits of the public cloud are well proven. However, the jury’s out on whether enterprises should relinquish complete operational control of their mission-critical workloads. Cloud providers all offer multitenant, virtualized environments, but this shared resource architecture won’t cut it for workloads that demand predictable, consistent performance.

While new, cloud-native architectures are an alternative, businesses aren’t willing to invest in application rebuilds—or are there any guarantees that these goals will be achieved. Cloud providers must ease the transition by delivering both the benefits of cloud and the control of on-premises environments to help organizations adopt a consistent IT operating model.

Oracle Cloud Infrastructure (OCI) is designed to easily migrate complex, large-scale, mission-critical workloads. Whether the workload is small or large, cloud-native, or traditional, OCI delivers an innovative operating model that gives enterprises direct control over their resources—ensuring the consistent performance normally found in on-premises data centers.

Mission-critical workloads require more attention than most cloud providers will give. Until these demands are met, mission-critical workloads will never migrate to the cloud. Cloud providers that deliver both transparency and control will be the winners in the IaaS space for years to come.

RESOURCES
TCO Calculator:
Oracle Cloud Infrastructure IaaS
Total Cost of Ownership Calculator

Video: Oracle Cloud Infrastructure
Learn more
By 2020: Regulated industries will migrate to the cloud en masse.

Public cloud adoption is growing rapidly. By the end of 2017, 85 percent of enterprises had a multicloud strategy—and we expect that number to grow year by year.

However, roadblocks to public cloud adoption remain. For example, many public and private sector organizations can’t move to public cloud environments due to regulatory requirements, such as EU GDPR.

But such impediments are being overcome. What if you could outsource your hardware and software asset ownership, management, and maintenance, and still retain assets securely in your data center?

Thanks to solutions such as Oracle Cloud at Customer—which deliver the scalability and extensibility of the public cloud behind your firewall—we predict that even regulated industries will shift 50 percent of their production workloads to the cloud by 2020.

By 2020,
50% of production workloads in regulated industries will move to the cloud.

RESOURCES

Paper: The Next Evolution of Enterprise Public Cloud
Article: Can’t Move to the Cloud? The Cloud Can Come to You
By 2020: The lion’s share of new applications will be built with microservices architectures.

Microservices architectures simplify the entire application development lifecycle, resulting in faster testing, higher quality, and more releases.

Open source has paved the way for microservices architecture, with many components supporting continuous integration and delivery pipelines, microservices platforms, containers, container management and orchestration, container registry service, and serverless capability.

Adoption of cross-cloud containers—such as Docker and Kubernetes—is on the rise, and developers demand an open cloud stack to avoid vendor lock-in.

Oracle’s cloud infrastructure allows for open source tooling and integration with cross-cloud containers, giving users the responsive scalability they need.

By 2020, enterprise applications will widely adopt cloud-native architectures.
By 2020: AI will cement its place in the enterprise.

The central tenet of AI—to replicate and exceed the way humans perceive and react to the world around us—is set to become the cornerstone of innovation. AI and machine learning allow us to improve our visual and verbal interaction with computers, more comprehensively understand the abundance of data that surrounds us, and provide the opportunity to entirely automate mundane tasks. Consequently, technology providers are enriching their applications with AI-powered adaptive learning and healing capabilities.

In the enterprise, AI is still something of a novelty. In service functions, conversational AI can engage customers directly, providing more responsive service. In processes and analytics, machine learning adds related and part-related data to business outcomes, providing invaluable contextual insights and augmenting or automating next-step actions.

The path to effective AI integration requires both domain expertise and data availability—as well as data science expertise. By 2020, we expect that 25 percent of all enterprise applications will include a custom AI-based capability.

We also expect that 75 percent of technology providers will embed AI into their existing products—expanding and differentiating their capabilities.

Oracle offers a range of enterprise AI solutions to align with your level of AI expertise. We offer prebuilt, AI-enabled SaaS and Internet of Things (IoT) applications, and IT infrastructure management to eliminate development effort, and help users and app developers design and integrate chatbots. Data scientists have the power to build and train AI algorithms.
By 2020: The majority of customer support interactions will be conducted by chatbots.

With the help of natural language processing, the simple messaging offered by early chatbots has matured into a conversational interface for accessing information and conducting business transactions. Chatbots are growing ever smarter—not just recognizing language, but also deriving intent and sentiment, and preserving a natural conversational state.

They’ve already proven a fantastic tool for enhancing customer service and increasing productivity, and we anticipate that chatbots will become increasingly specialized, developing the ability to interact with—and learn from—one another. In our chatbot-enabled future, CEOs and CFOs will have the power to quickly and easily inquire about company data. Doctors, lawyers, and teachers will be able to retrieve complex technical information with a natural language query, and people will be free to interact with service organizations without lengthy waiting periods. As such, we predict that 2020 will see the majority of customer support interactions handled by intelligent chatbots.

In the near future, chatbots will not only become a useful point of interaction to improve the user experience, but also prove essential in reducing businesses’ administrative workloads. With our natural language processing, sentiment, and image recognition technologies, Oracle is helping to empower the next generation of chatbots.

Currently, more than 2 billion messages are sent between individuals and businesses each month—through Facebook messenger alone.

RESOURCES

Webcast: Conversational Bots Driven by AI
Paper: Oracle Intelligent Bots Learn more
By 2020: IoT will evolve from individual components to an integrated platform.

There are more than 50 billion connected devices in circulation today, generating in excess of 8 zetabytes of data between them. And that number is only likely to increase. However, only 1 percent of IoT data is currently analyzed and utilized. Currently, IoT priorities are on devices and connectivity—not business outcomes and action.

But all of this is changing. Soon, IoT projects will operate as holistic mobile and cloud platforms, allowing users and processes to act on information collected in real time. Embedded predictive analytics will work alongside cognitive AI services for faster, simpler contextual decisions. And IoT-enabled equipment and machinery will be managed more productively, with digital twins for simulation planning and analysis.

Oracle offers a suite of unique IoT business applications that works alongside any SaaS or on-premises application. We look at IoT from the business applications out—not the edge devices in. That means we can help you extend the reach of your business applications to devices, gather insights from those devices, and drive future actions.

RESOURCES

Ebook: Monitor Fleet Activity in the Supply Chain
Video: An IoT Asset Monitoring Experience

By 2020
60%
of failed IoT projects will rejustify themselves with a business outcome approach.
By 2020: Blockchain will be the disruptive standard in modern commerce.

Some new technologies are so disruptive that they force an instant response. Blockchain is one of these. Blockchain is already transforming the global financial industry, and its impact is being felt elsewhere—from supply chain efficiency and transparency to transactional trust and security. Already, more than 2,500 new blockchain-related patents have been filed, while the financial impact is predicted to top US$176 billion by 2025.

In just two years, we expect 30 percent of blockchain proof-of-concepts to get the green light, and become the disruptive standard in multiparty and complex agreement commerce. Financial services and supply chains will lead the way, followed by healthcare, retail, and the public sector. Financial efficiency will have a domino effect, accelerating rapidly as channel masters drive change.

Oracle’s Blockchain Cloud Service is based on the open-source Hyperledger Fabric software. It’s an open API-style solution integrated with other high-performance Oracle cloud services for custom integration with any system, and preintegrated with Oracle SaaS and Oracle won-premises applications.

RESOURCES

Paper: Oracle Launches Its Blockchain Cloud Service at OpenWorld 2017

Article: IDC: The Emergence of Blockchain

Learn more

By 2020 30% of blockchain proof-of-concepts will get the green light.
Cloud transformation is happening now—and it’s getting easier all the time. Cloud adoption is no longer a case of why—but when and how. Take the next step on your journey to the cloud with Oracle.

Visit cloud.oracle.com and start your free trial today.