Cybersecurity, Cloud and AI & Robotics – The New Digital Utilities

Overview

The push to a permanent hybrid workforce by enterprises and the increasingly online posture of consumers in the wake of the pandemic has fundamentally transformed the state of the modern economy. The global economy must confront: a more vulnerable cyberspace as greater online presences raise the potential for costly attacks; the need to offer flexible working environments for staff while also ensuring business productivity meets heightened demand; and a growing workforce gap as this heightened demand and absence of labor strain resources. Consequently, three factors have become and will remain vital components for operating in the modern economy: security, scalability and simulation.

Security

With a greater digital surface area for most enterprises and consumers alike, the cyberspace vulnerability landscape has expanded significantly in the last few years alongside an evolution in the type, scope and velocity of threats. Per an astounding study from Cyber Edge, 85% of organizations were impacted by a successful cyberattack in the last year. According to this same study, 71% of organizations were impacted by a successful ransomware attack in the last year, an increase of 55% from four year prior. Impacted companies paid out ransoms at 300% higher costs in 2021 than in the previous year. Consequently, enterprises must ensure that they robustly invest in cybersecurity resources to shore up their own information as well as consumer data. As such, Gartner estimates that enterprises are likely to spend $172B on cybersecurity in 2022 alone, with 81% of organizations increasing their cybersecurity budgets in the year ahead. With increasing government regulatory and consumer concerns around privacy, cybersecurity technology has become and will remain an indispensable part of enterprise operations.

Scalability

During the pandemic, cloud computing demonstrated its agility and reliability for greater remote and hybrid models in what may have been the ultimate stress test for the technology. Cloud computing will serve as both the backbone of the next wave of innovation and the nexus that allows these technologies to work in harmony to power the digital enterprises and lifestyles of the future. 80% of companies intend to maintain or increase their Infrastructure-as-a-Service (IaaS) budget according to IDC, setting up about $495 billion in worldwide public cloud spending in 2022 per Gartner. The increased allocation of budget to cloud will allow both flexibility for remote work, but provide the ability to scale up business productivity via the ability to onboard optimal software solutions that increase individual worker efficiency and address workforce gaps. Even at the small business and creator economy level, cloud innovation allows leaner teams to leverage Platform-as-a-Service (PaaS) and Software-as-a-Service (SaaS) software like CRM databases, inventory management solutions and e-commerce automation platforms to meet increasing customer demand despite smaller human capital capacity. As such, cloud IaaS, PaaS and SaaS innovations will allow companies to effectively meet business productivity needs and compete regardless of company size.

Simulation

Artificial intelligence (AI) and robotics operate as a horizontal technology, increasing the performance and efficiency of a variety of other technologies and fields including cybersecurity and cloud computing. As the digital economy finds itself producing around 2.5 quintillion bytes of data every day, there is a need for AI and robotics to process the growing volume, velocity and variety of big

data. From automation of business processes like baseline accounting processes, to chatbots for customer interactions to the operation of autonomous machinery and vehicles, AI and robotics have become the technological underpinning to the consumer and enterprise economies. Per IDC, worldwide spending is likely to reach $406.1 billion in 2022 driven by 83% of enterprise survey respondents indicating that they will increase their AI/ML budgets according to Algorithmia. Concurrently, robots are increasingly making their presences known in the workforce: 228 industrial robots were installed for every 10,000 employees in the U.S. by the end of 2021 per Pitchbook. The technology looks to make up for workforce shortages that have only been exacerbated in the last few years. Consequently, companies must be able to use AI and robotics to effectively and accurately simulate human capital productivity to navigate the modern macroeconomic challenges in the economy, such as increased consumer demand, supply chain disruptions and labor market tightness. Moving forward, enterprises must allocate budget to drive or incorporate deeper innovation into AI and robotics technologies to ensure wider applications of these technologies to address these challenges.

Conclusion

Cybersecurity, cloud computing and artificial intelligence & robotics must and likely will work closely with one another to address the macroeconomic challenges of the digital economy. In fact, CTA is actively monitoring how these trends will evolve as a part of our research supporting the Nasdaq CTA Cybersecurity Index™ (NQCYBR™), ISE CTA Cloud Computing Index™ (CPQ™) and Nasdaq CTA Artificial Intelligence & Robotics Index™ (NQROBO™). Ultimately, these three areas of innovation have metamorphosed from optional upgrades to digital utilities – technological necessities to successfully operate a secure, scalable and efficient business.