Edge: The next **paradigm shift in IT**

Edge computing complements cloud-based centralization to help mitigate inefficiencies and risks

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EDGE COMPUTING IS the next and natural paradigm shift in IT, ringing in a new wave of decentralization that complements, rather than undermines, the cloud-based centralization concepts that have gained momentum in recent years.

In the past decade, we have seen two juxtaposed trends in IT. On one side, infrastructure has been centralized and consolidated in cloud-based data centers, while on the end-user side, the level of diversity and local distribution of client devices has exploded, driven by high-capability mobile devices and the wide availability of fast wireless networks.

The concentration of data, applications and logic in a few locations creates some problems. For example, the distances between a small number of centralized data centers and a very large number of end users distributed around the world might be too vast to support optimal performance of latency-critical applications or responsive, intuitive and personalized end-user experiences that allow for better productivity and higher satisfaction among employees.

Fortunately, this is an area where edge computing offers significant potential. Processing data locally at edge nodes can eliminate latency bottlenecks and open up opportunities to capitalize on user- and location-specific data that is available at the edge. That decentralized approach can also help minimize the need to transfer potentially sensitive data.

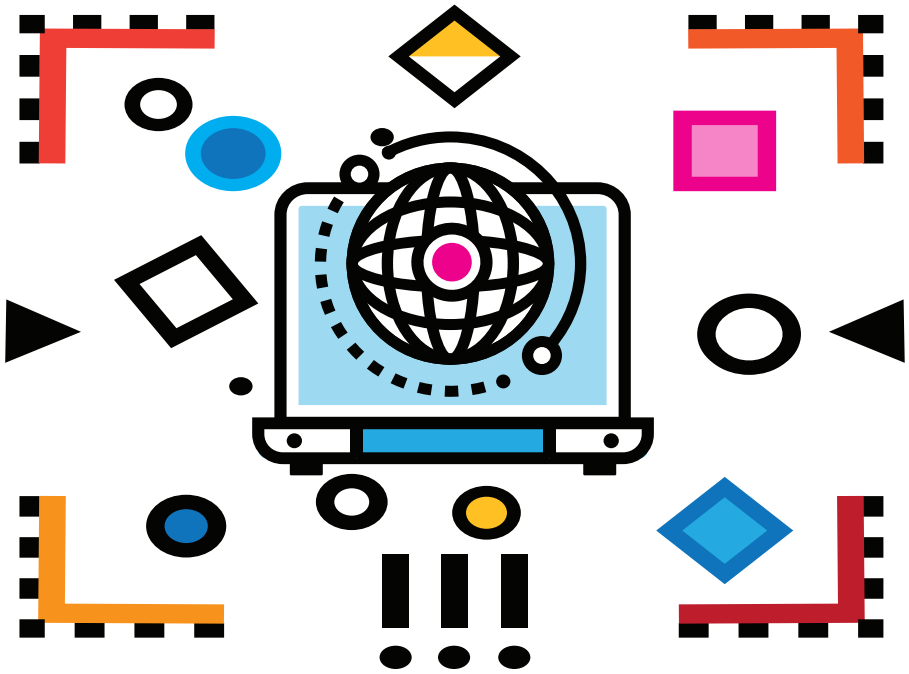
Edge-based protection against threats

Agencies can protect their data and applications across any cloud strategy (including on-premises, private, hybrid, multi-cloud or edge computing) with a cloud-agnostic, edge-based Web Application and API Protection (WAAP) solution. A globally distributed WAAP will protect websites, applications and APIs from downtime and data theft due to web attacks and distributed denial-of-service (DDoS) attacks.

All network-layer DDoS attacks, including those by large IoT botnets, are instantly dropped at the edge because a WAAP functions as a reverse proxy and only accepts traffic via ports 80 and 443. Any application-layer DDoS or web attack will be automatically inspected and stopped at the edge without disrupting access for legitimate users.

Additionally, modern application architectures are shifting toward greater use of microservices and away from monolithic pieces of software. Small, independent microservices are assembled into more complex applications so they can leverage fully functional and distributed processes from third-party APIs.

A properly integrated WAAP will automatically inspect traffic to discover both protected and unprotected APIs, parse and inspect APIs for malicious payloads, allow predefined API specifications, and enable custom inspection rules to meet a wide range



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of requirements. The best approach for any cloud strategy is to integrate edge computing with a comprehensive edge-based WAAP that includes robust API protections.

The potential for significant savings

Agencies should not think of edge computing as a technology that requires intrusive changes — a view that led many to hesitate to adopt cloud computing — but as an additional tool that is fairly easy to use and does not replace but instead complements existing systems and concepts. Agencies can identify and implement use cases one by one and prioritize them according to the benefits they provide, many of which have significant potential for cost savings.

Placing functions and logic directly at the edge — such as conducting API authentication, parsing JSON objects or deriving insights from local data points — will not only minimize latency, but also limit the need for data to travel back to the data centers or clouds and thereby reduce the costs associated with traffic, centralized storage and compute cycles. ■

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