WHITE PAPER

IBM Cloud Internet Services: Enhancing the reliability and performance of your Internet facing applications

Dramatically improve website performance through our web optimization features.

Organizations rely on mission-critical Internet applications to do business every day. Achieving the right security posture, without sacrificing performance, is a challenge. Winning applications require best-in-class performance to give users an unparalleled experience that’s fast, secure, mobile, and always-on.

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Give your customers what they want

Customers are demanding greater interactivity, such as a more “app-like” look and feel, and more personalized content. They want “richer experiences” through more, better, and bigger photos, images and videos. Even as customers increase their engagement with sites and applications over mobile phones, they still expect “desktop-like” speeds.

With the increased number of mobile users and higher engagement, mobile performance is critical to businesses. The number of users, level of engagement, and the transaction amounts climb as organizations spend more marketing dollars on mobile.

Businesses require a scalable global network with a modern, unified architecture across all datacenters. They also need rapid on-boarding, easy configurations, and robust APIs to be successful.

Did you know a 2s delay in response time = 4.3% loss in revenue per visitor?

Why performance matters

Let’s look at the primary ways performance is affected.

Performance impacts the number of round trips needed to establish a connection. A connection is a TCP connection for transmitting packets—or it could be a TLS connection that encrypts the data. Both connection types require round trips to be established through “handshakes.” When more round trips are needed, more time is required to deliver the application.

Performance impacts the number of requests. For example, a web page with hundreds of requests with images, JavaScript, and API calls to the server takes longer than a single HTML file of equal size. Reducing the number of requests needed speeds up page delivery.

Performance also impacts the latency source and network throughput. Networks with higher and more reliable data rates deliver packets faster than networks that are slow or result in lots of retries due to unreliability.

When users demand richer experiences, applications and website pages are heavier with complex CSS, oversized images, and intensive JavaScript snippets, whether for business metrics or user interactivity. Mobile clients introduce performance and content delivery constraints that negatively affect the user experience. Mobile devices have limited compute, memory, and power, slowing the ability to process content-like images or client-side code.

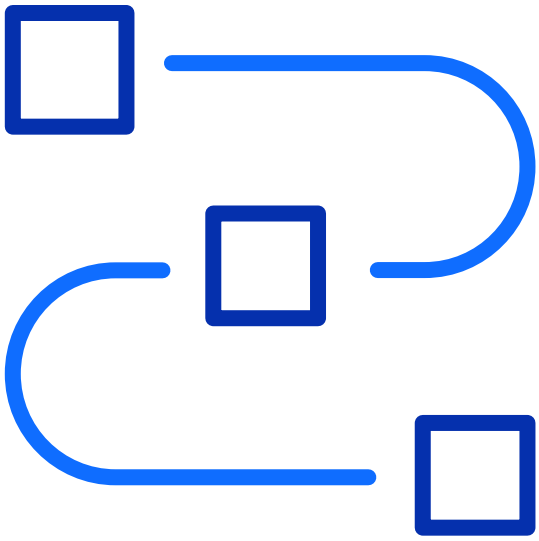
Common causes of app unavailability

Applications can also become unavailable to users altogether when performance degrades due to network congestion or an overloaded infrastructure. The common causes of unavailability include:

Applications or individual origin servers experiencing unexpected downtime and hard-to-troubleshoot outages

Traffic exceeding capacity of a specific origin server or data center

Manual, error-prone disaster recovery and in-house load-balancing, increasing risks of application failure while adding maintenance and operational costs



Performance and reliability have both strategic and near-term profitability impacts. There are two primary buckets of potential business outcomes due to performance failures:

1. A long-term, strategic impact, such as a degraded brand and reduced lifetime customer value

2. A near-term financial impact, such as lower revenue and higher operational costs

Once a customer stops returning to a site due to load time lag, the brand has degraded via word-of-mouth and lost transactions reduce the lifetime value from that customer.

Website, app, and API performance and reliability are more important than ever.

Simplify without sacrifice - IBM Cloud Internet Services

IBM and Cloudflare are launching IBM Cloud Internet Services (CIS), a set of edge network services easily accessed through IBM Cloud and designed to protect and secure websites while enhancing application performance and reliability.

Cloudflare works at a global scale with an anycast network of over 140 global data centers. These data centers serve 10 percent of all HTTP internet traffic and 38 percent of all DNS queries to over 2.5 billion visitors on behalf of 7 million customers.

Key performance and reliability products include:

DNS: Fast DNS shaves crucial milliseconds off requests for a DNS lookup. Latency from DNS servers slow down sites if DNS query time occurs for every page visit across multiple requests.

Nearby caching: Caching content close to visitors reduces the distance requests must travel. Websites load faster while reducing bandwidth and infrastructure costs.

Load balancing with geo-steering: Ensures that customers are routed to the geographically nearest origin server, reducing the distance content must travel. Load balancing uses global health checks to identify offline origin servers to route traffic to another online server or data center, ensuring application availability.

Even though CIS leverages Cloudflare's robust stack of services, each one is easily configured and administered, either programmatically through APIs or via different members of your team through multi-user, role-based access control.

These combined features reduce latency for web sites, applications, or APIs by mitigating the effects of heavier pages and payloads. They also reduce the distances that requests must travel to reach visitors.

Who benefits from CIS

Title	Role	Benefits
Chief Information Security Officer (CISO)	• Set security strategy & priorities.	• Single-pane-of-glass visibility • Transparent, predictable pricing
GM	• Business unit leader/GM cares about customer experience and associated revenue.	• Fast DNS and CDN service globally ensures low abandonment rates and high conversion rates
Operations Manager	• Identify, communicate and manage risks. • Ensure compliance, security by setting policies. • Manage application infrastructure applications, ensuring availability of business applications.	• Single security layer across resources • Auditing and reporting across resources • Consolidated billing and predictable expenses
DevOps Engineer	• Build scalable efficient cloud services. • Deploys and maintains policies. • Develops and maintains business applications.	• API-first design • Ease of use and integration • Logging across all domains/ subdomains • Free and easy stand-up and testing
Infrastructure Admin	• Control (compute, storage, network) resources in data center.	• API-first design • Single security layer across resources • Ease of use and integration • Free and easy stand-up and testing

Conclusion

Now any IBM customer using public, private, or hybrid cloud can easily enhance security and performance at the network edge. IBM CIS is designed for security and speed. It elevates performance for applications running on IBM Cloud by improving mobile experiences, ensuring application availability, and accelerating application performance.

Compromise is yesterday's news. A better Internet experience awaits.

Ready to get started? A faster, more secure internet is just clicks away with our portal and API.

In an era where the **customer is king**, businesses must **rethink their strategies** and **harness the best available technology** to win loyalty. Where the cloud succeeded in **bringing businesses closer to their customers**, it has proven to be a **worthwhile investment**.

Performance solutions for your workloads are available from IBM Cloud today

To learn more, visit
ibm.com/cloud/Cloud-Internet-Services